THE NAVY & MARINE CORPS AVIATION SAFETY MAGAZINE

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# Approach


*When You Look in the Mirror, Are You*

## The Blue THREAT?

**The Navy & Marine Corps Aviation Safety Magazine**
**September-October 2006, Volume 51 No. 5**



Mishaps waste our 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, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk. 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 enough; the time to learn to do a job right is before combat starts.

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# CONTE

## Features



After many years of supporting the Communications and Marketing Department at the Naval Safety Center, Ginger Rives has decided to retire. Ginger has handled the distribution and postal requirements for all our magazines, along with filling all your orders for posters, special items, and printing. We have been fortunate to have her on our team, and we wish her well.

Thank you, Ginger, from the Navy and Marine Corps safety team.

# ENTS

The pressure to return to the ship, combined with the pressure we placed on ourselves to complete the mission, ultimately led us to head over the dark ocean.

# The Wild Ride of 106

Pg 4. The Wild Ride of 106

## Coming Soon

**24/7 Holiday Planner**
**email: safe-pao@navy.mil**




## Departments



## September-October Thanks

Thanks for helping with this issue…

LCdr. Matt Paradise, VFA-192
Lt. Matt Sniffin, VT-31
Ltjg. Aaron Schaub, HSC-25
LCdr. Dave Bartell, VAQ-132
LCdr. Chris Marrs, VFA-102
AD1 Robert Johnson, VX-20
LCdr. Mike Fludovich, HSL-42
LCdr. Chris Martin, VAW-124
LCdr. Sean McKamey, HSL-43

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# Admiral's Corner

From Commander, Naval Safety Center

# The Blue Threat—Our Deadliest Enemy

Our nation is at war. Those of us in uniform know that better than anyone. It is a complex war being fought on many fronts. It is a different kind of war, unlike any other we have waged. Yet, one reality in this war remains constant, a theme played out in every other conflict in modern American history: The vast majority of our aviation losses are not because of engagements with enemy forces. Our losses overwhelmingly are due to mishaps.

How do we deal with this terribly consistent trend? When we prepare for combat, we train to win against a defined threat. We expect to face an opposing force: an enemy force, a red force. We study the threats the anticipated force might present. We devise tactics to defeat the Red Threat. We train to and modify our tactics depending on the part of the world, the time of year, and the time of day we expect to fight. Our tactical ingenuity is focused on fighting potential enemy forces, potential Red Threats. The result? The most potent fighting force in history.

Our aviation team is very good at what we do, and the fighting forces that comprise naval aviation have no equal. The only forces that appear to diminish our ability to successfully carry out our assigned mission are the United States Navy and Marine Corps. We continue to take ourselves out with deadly precision, through errors, lapses and poor decisions. The Class-A mishaps are the result of our actions against ourselves. In FY06, as of Sept. 7, naval aviation has had 25 Class-A mishaps, with the loss of 21 aircrew, and 17 aircraft, at a cost of almost $508 million. Contrast this to direct-enemy action (DEA) combat losses from the Red Threat, as we fight the Global War on Terrorism, which consist of one AH-1W and two aircrew lost.

Our losses to the Blue Threat we face each day have not significantly diminished in more than a decade. Our aviation mishap rate is relatively flat. How can we change this? What can we do to achieve the next drop in the mishap rate?

We must view the hazards we face every day, in training or in our everyday lives, in the same way we view our enemies: as real threats. What if we were to always treat low visibility or wet runways as a threat (with the ability to take out an FA-18) equal to that of a surface-to-air missile? What if we viewed fatigue-impaired decisions as a threat as dangerous as an anti-aircraft-artillery piece? What if we approached the threat of following too closely in automobile traffic or the reckless drivers who cut you off on the highway in the same way we deliver weapons inside a Red-Threat envelope? We need to treat the threats we can control, the Blue Threats, with the same energy we approach fighting the Red Threats. Because today, Blue Threats—our errors and poor decisions—are our deadliest enemies.

In this issue of *Approach*, we officially recognize Blue Threat. Each article tells a story of what went wrong and how the aircrew survived. If you analyze each story, the themes are very familiar: communication (internal and external to aircraft) confusion, preflight planning and briefing weaknesses, complacency, and a lack of assertiveness, to name a few. I invite you to be a "Monday morning quarterback" and analyze the stories and identify the hazards, or Blue Threat, that contributed to the situation. What you've learned about ORM and CRM will be evident as you read. We want you to think as much about defeating our deadliest of enemies as we do at the Safety Center.

The men and women of naval aviation are war fighters in the truest sense of the word. We can win the war against the Blue Threat. It will take dedication, determination and courage, but we have plenty of that.

# The Initial Approach Fix

As we fight the Global War on Terrorism and face tough challenges around the world, Admiral Mayer's words on the previous page are clear when we analyze our mishaps, "We have met the enemy; it is us."

For more than 50 years, aviators have shared their experiences in *Approach*. As you read the articles and discuss them with your squadronmates, you build your experience and knowledge levels. While we draw attention to the Blue Threat in this issue, we ask that you read each story with an added perspective. Try and link the story to the Blue-Threat concept, identify the hazards or threats, but also think of ways you can attack or defend against the threat, and thus improve our capabilities. As our authors write and submit their articles, they include lessons learned as they see it. And that's the value of sharing experiences through these stories: What can we learn and take away from the story so we don't duplicate the event? The articles in this issue were selected because we feel each lends itself to analysis from a Blue-Threat perspective.

Our analysts have reviewed these articles and have provided comments to help analyze the situation, but more importantly, to identify what actions or controls could have or should have been followed.

Below are selected comments from our analysts from several stories. To view our analyst's full comments at the conclusion of each story, visit *Approach* online at: **www.safetycenter.navy.mil/approach/issues/sepoct06** and select the html version of this issue.

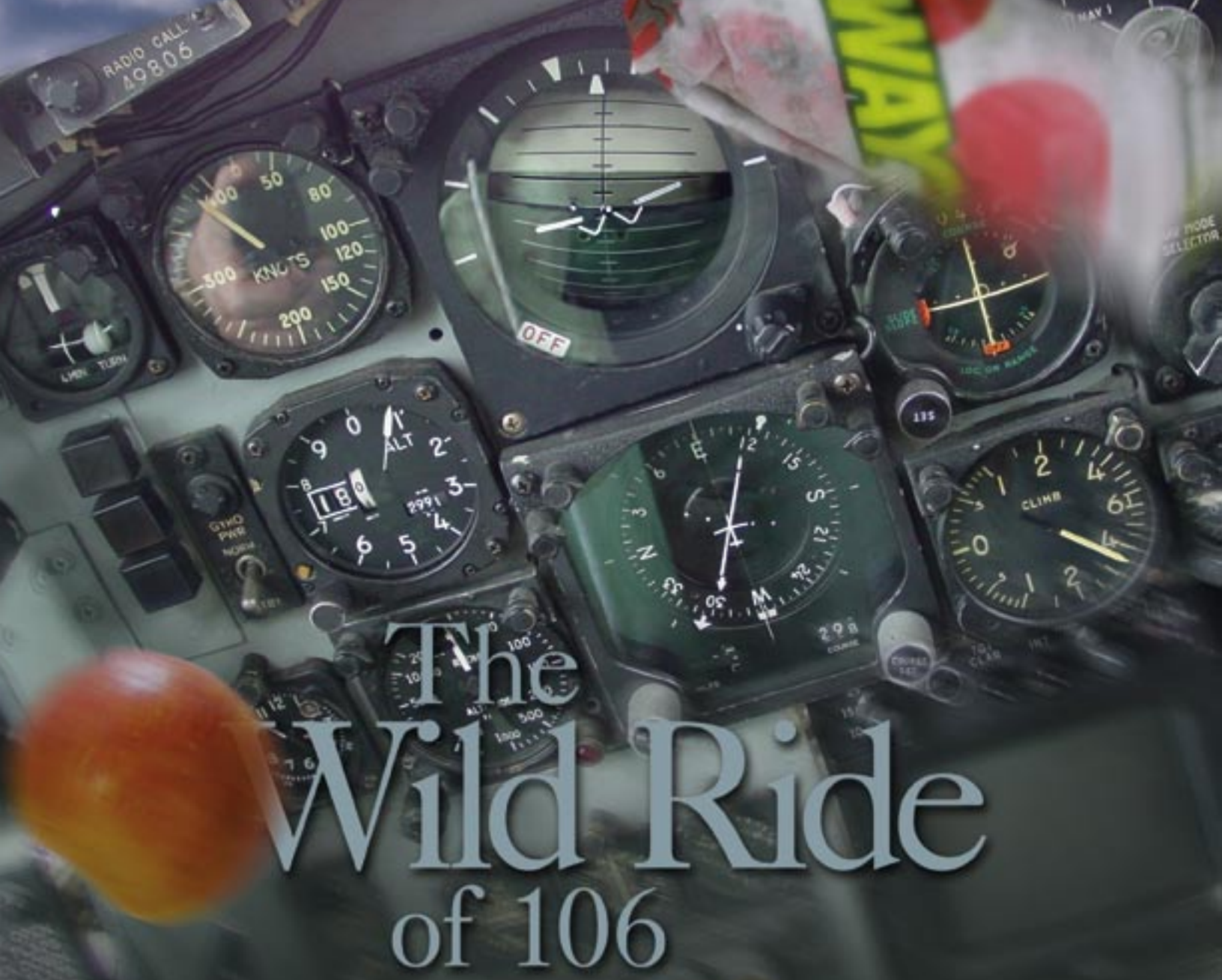
**"Internal Loss of Communication," by LCdr. Rex Kenyon, p.7.** This article takes a good look at one of our major Blue Threats: CRM problems, specifically poor communication. The seeds for the crew's problem may have been sown through months of flying together and thinking their CRM procedures were well-honed. But the crew was flying a very different mission than they were used to, with an approach that they hadn't seen in months. Confusion ensued on the approach, the brief was lacking, and thoughts went unspoken. The situation could have been avoided with better preparation, reliance on training, and proactive communication.

**"Outta Control," by Ltjg. John Petrasanta, p. 12.** Our analyst points out that this story has Blue Threat written all over it when you factor in a junior crew, crew-rest issues, change in prelaunch pattern, poor weather, and a long duty day. The crew gets launched on a real-life SAR, and all these factors come into play. Monday-morning quarterbacking is always easy after the fact, but could many of their problems have been avoided with better risk analysis and crew-rest guidance?

**"Two-Way Street," by LCdr. Dick Vitali, p. 23.** Flight crew and tactical crew-task saturation dominate this story. When the saturation levels are high for the front-end and the back-end crews, and then a fire of unknown origin is added to the fray, the Blue Threat is on board. CRM again dominates this story. Setting priorities in communication and crew coordination are key for this crew. Sharing techniques in dealing with emergencies among crews is a point well-taken.

Reading these stories, not just in this issue but every issue of *Approach*, with a critical eye may give you that extra insight, that extra tool in your toolbox.

Have your had a similar experience? Fought the same threat? We invite you to scour this issue to find the threats, the Blue Threats—our deadliest enemies. We have identified many threats in the articles by highlighting them in blue ink; we urge you to find others.




# The Wild Ride of 106

A snow storm of helmet bags, approach plates, pens, papers, fruit, coffee, dirt, dislodged knobs, were joined by a rather curious visitation from a Subway sandwich that floated across my field of view like a banner towed by a miniature biplane.

*By Dan Sanders*

It was a routine logistical flight, or at least it was supposed to be routine. Our six crew members included an active-duty Marine test pilot, four contractor aircrew from Air Test and Evaluation Squadron Two Zero (VX-20), and a government service flight-test engineer. Our passengers included four contract-maintenance personnel and an active-duty Navy maintainer. We also carried baggage and a few small maintenance pack-up items.

Our mission was to reposition NY106, a Fourth Marine Air Wing KC-130T, to the expeditionary airfield (EAF) at Twenty-Nine Palms, Calif., and complete testing on an electronic-propeller-control system. We had flown the aircraft through every imaginable test configuration at NAS Patuxent River, Md., and all that remained was to evaluate system performance in the EAF and low-level environment. We would fly routine missions for several days in the desert before returning the aircraft to its parent unit.

About an hour and a half into the flight, we settled into our routine at 24,000 feet, IMC, and on autopilot. I was in the right seat and just had gotten into a comfortable position, when the aircraft suddenly pitched nose up and rolled to the left. The aircraft commander (AC) and I simultaneously lurched forward and pressed our respective autopilot-disconnect switches; we assumed the autopilot had caused an uncommanded pitch-up.

From the left: flight-test engineer Ray Bacorn; loadmaster Sandy Hartkemeyer; flight engineer Wray Emrich, copilot Dan Sanders; and the plane's pilot and aircraft commander, Maj. Nathan Neblett, USMC.

To our dismay, the aircraft continued its pitch-up flight and entered an even more abrupt roll to the left. Both of us were on the controls, trying to return the aircraft to level flight, but it continued to roll ever faster to the left. As the wings rolled through, the nose sliced through the horizon, and we were going inverted.

The AC announced, "My controls," and I released the yoke to him.

Having flown this aircraft model for almost 18 years, I must admit that request was not an easy one to comply with. We all watched helplessly as the Hercules rolled completely over on her back and pitched almost straight down. She began what appeared to be a rapid spin to the left. I watched the attitude indicator go full brown and spin like a top. Our little world suddenly got very violent, and our flight engineer was thrown to the ceiling and pinned there. He just had unfastened his lap belt and had leaned forward to adjust the fuel panel when our excursion began; timing is everything.

As we rolled over, I thought, "This isn't supposed to be happening." Somewhere in the second roll through the inverted my thought was, "Well, this is it."

Everything not attached to the aircraft, and a few things that were, whirled around the cockpit and cargo compartment, including our passengers. Everything in the cockpit seemed headed exclusively in my direction. A snow storm of helmet bags, approach plates, pens, papers, fruit, coffee, dirt, dislodged knobs, were joined by a rather curious visitation from a Subway sandwich that floated across my field of view like a banner towed by a miniature biplane. Pandemonium reigned in the rear of the aircraft. Unaware of what was happening, our passengers were thrown around the cargo compartment from deck to overhead, along with a mix of baggage, hydraulic-fluid cans, and numerous items that had broken loose.

As we continued to tumble, I saw that the pilot's attitude indicator did not match mine—it was flipping and ratcheting strangely. The airspeed indicators were pegged at more than 350 knots, and the AC was struggling to pull up the nose. After seeing the airspeed, I looked at the throttles and saw they still were set at cruise power. I pulled the throttles back to flight idle, and the aircraft's speed began to decrease. Checking my attitude gyro, I noted the ball was pegged to the right and the turn needle to the left.

I shouted, "We're spinning," which put the AC's eyes on the turn needle and ball.

As the third roll started, the aircraft gyrations began to slow. The pilot had stopped the roll rate and began to roll wings level, but the aircraft still was pointed almost straight down. The pilot's gyro continued to flip from the upright to the inverted, and he was depending on his turn needle and ball to determine up from down with any certainty. As the AC tried to pull up the aircraft's nose to the horizon, we became aware of the incredible sound over which we were yelling. The No. 3 propeller had oversped to 106 percent, and the aircraft had developed phenomenal speed in the dive.

Somewhere around 15,000 feet, we leveled off. Our navigator announced over the ICS that the pilot's attitude reference was in inertial-navigation system (INS) mode and couldn't keep up with the violent tumbling. My INS was in gyro mode and worked normally.

We were frantic, as everyone realized what had happened. We called Indianapolis Center and declared an emergency, asking for vectors to the nearest runway and a descent into VMC. Still uncertain why the aircraft had departed controlled flight, we began to assess our material condition. Our loadmaster and five passengers had been thrown around the cargo compartment like tennis shoes in a dryer. We dispatched our flight-test engineer aft to get a handle on what had happened. He recovered our loadmaster from under a stack of five people and plugged her back into the ICS. Reports from the rear indicated several injuries, including lacerations, a head wound, and broken bones. Once we descended into VMC and got our first ground reference since the event had begun, we got a visual on the airport. Someone then came over the ICS and said we were on fire. We scanned our instruments, wings and everything we could see, searching for a fire. Unable to locate one and with little time to continue searching, we told Indy Center we might be on fire and needed an immediate landing.

It looked like a bomb had gone off inside the aircraft. Debris and passengers were strewn all over the cargo compartment. The flight deck was piled with everything imaginable, including a set of wheel chocks that had migrated forward from the cargo compartment. Turning on final approach, we had no approach plates, no checklists, and no performance data cards. They were all scattered about the cockpit—mostly piled up next to me, where everything had been thrown during our wild gyrations. Our navigator began scrambling through all the debris on the deck to find what we needed. Once we got a plate for Tri-State Huntington Airport in West Virginia and a checklist, we got everyone into the normal routine for a recovery and made a full-stop landing. Fearing a fire, we taxied clear of the runway and evacuated the plane as soon as the parking brakes were set.

After gathering our injured personnel clear of the plane, we looked back to find what had caused our life-threatening odyssey. A 20-man life raft had deployed in-flight from the left wing-storage compartment and was lodged in a 6-inch gash in the leading edge of the port horizontal stabilizer. Fortunately, we had not been on fire.

A visual inspection of the aircraft by the aircrew determined both left wing life rafts had deployed in flight, one of which had wrapped around the port horizontal stabilizer, pushing the elevator full up.

We had rolled over at least twice, lost 9,000 feet of altitude at a maximum rate of descent of 29,000 fpm, probably exceeded four positive and three negative G's (aircraft limits are +3 and –1), and reached a maximum speed of almost 460 knots.

The data pallet, installed in the cargo compartment to record our flight-test data, had recorded invaluable performance data from which we could reconstruct our flight profile. A month later, after extensive inspections and minor repairs, we returned to Huntington and flew our aircraft home.

As I later reflected on this harrowing experience, I was reminded of the good fortune to have been with this remarkable aircrew, a collection of professionals engaged in the important work of testing Navy-aircraft systems. We not only survived what could have been a catastrophic system malfunction, but we still maintained our resilient sense of humor, as attested to by my spotting a four-leaf clover in the grass, which I still keep in my flight suit. Later, another crew member found 35 cents in change on the floor in the airport terminal. We all had a good laugh when one of our group said, "This must be our lucky day."

Dan Sanders is a retired Marine Corps major, employed by DynCorp as a contract pilot with VX-20.

# INTERNAL LOSS OF COMMUNICATIONS

By LCdr. Rex Kenyon

What an awesome deal—this has to be the best job in the world! As an old East Coast LAMPS bubba, who had been transplanted to beautiful San Diego, this was the deal of the century.

I was on a six-month, counter-narcotics deployment, and, for our midcruise, ship's maintenance availability, we were going to spend a month at Naval Station Mayport. This trip would let me see some old friends and familiar places, do some heavy grooming on our mighty steed, and get some shore-based flying around my old stomping grounds.

I was a seasoned fleet aviator with more than 2,000 hours in model and enjoying the life of an officer in charge. I headed a detachment of 23 of the Navy's finest, with $38 million of taxpayer hardware in my charge. We were sweeping the seas of the scourge of drugs, and we were livin' the dream. I thought, "Man, and they pay me to do this?"

Being shore-based gave us the opportunity to get in some training we had missed during the past three months at sea. We'd do pattern work, shoot approaches, and schedule instrument flying; sounds like an out-and-in in the making.

We checked NOTAMS and weather, filed a flight plan, kicked the tires, and were off to beautiful Athens, Ga. Not a cloud was in the sky; this weather rivaled San Diego's. It was perfect. All went well on the way there, and then we had lunch and saddled up to do it in reverse. We filed a VFR-IFR composite flight plan to give my young H2P some experience in dealing with flight-service stations and picking up IFR on the go. He took care of business like it was an RI-18 check; we got clearance to Mayport and were headed home.

Everything went smoothly until we got back into my comfort zone. We checked in with Jacksonville approach control and were given, "Come right 10 degrees."

On radar vectors, right? Well, not really. Eventually, we were cleared for the approach, except the clearance we received wasn't quite clear, Clarence. "Can I get a vector, Victor?"

We were "cleared for the Copter TACAN 052 to NS Mayport, cross PAWNE at 3,000, report established on the approach." Sounds simple, but here's where it got complicated.

From here on, I will put what actually was said in quotes, and what only was thought in parentheses.

H2P: (So, I have to go to the TACAN, then outbound to the initial-approach fix, PAWNE.)

Me: (So, we are cleared direct to the IAF, PAWNE.)

H2P: "OK, I am cleared to descend once I am outbound on the 180 radial." (Outbound from the TACAN).

Me: "No, you have to wait until you cross PAWNE." (Direct to the IAF)

H2P: "We are on a feeder route." (Outbound from the TACAN)

Me: "No, we're not." (We are going to PAWNE.)

And so on until we reached PAWNE. Now, FYI, PAWNE is at five miles on the 180 radial. Heading south, you do a procedure turn to head north, inbound to the IAF, and then intercept the 4.5-mile arc. A few minutes later, we crossed PAWNE outbound, and the young H2P started a turn to the right. And the saga continued…

Me: (Hmm, he must be doing a procedure turn to get established inbound to PAWNE.)

H2P: (OK, I overshot PAWNE, I am at five miles, but I can just put a cut in to the right to pick up the 4.5-mile arc.)

Me: (Hmm, he really isn't coming back to the 180 radial inbound; I have flown this a hundred times, and I know you have to fly over the Lighthouse Grill. Yep, there's the Ritz waaaay over there. Something's wrong.)

H2P: (OK, getting back to the arc, all is well.)

Me: "Hey, where are you going? You are supposed to be over there."

H2P: "I am intercepting the arc."

Me: "You aren't on the arc, you still have to cross PAWNE." (Inbound)

H2P: "I already did cross PAWNE." (Outbound)

Me: "No, you didn't cross PAWNE (Inbound), PAWNE is over there. You have to cross PAWNE (Inbound) before you intercept the arc."

H2P: "I already did cross PAWNE (Outbound) and now I have a cut in to intercept the arc."

Me: "You aren't on the arc, the arc is 4.5 and you are at 5.3."

H2P: "You have the controls." (Jerk)

Me: "I have the controls." (Dummy)

This magic moment was followed by a very, very quiet final approach and landing for shutdown. After we were safe on deck, we discussed what had happened and discovered just how differently we each saw the same situation.

We each understood a different clearance. I expected vectors and clearance to the initial-approach fix, while he was expecting to go direct to the TACAN station, then outbound to the IAF. Once at the IAF, I expected him to do a procedure turn, and he planned to turn directly onto the arc. When he was telling me he already had crossed PAWNE, he was correct, but he just didn't realize, and I failed to make it clear that you had to cross PAWNE *inbound* to intercept the arc.

With the perfect weather and my high comfort level (read complacency) flying that approach, I never recognized that my copilot might be confused about it.

We did not thoroughly brief the approach before commencing it. If we truly had briefed the approach, our confusion would have been exposed.

The actual clearance we received was not complete or accurate, but we never stopped to ask for clarification. We each assumed what the controller wanted us to do, and assumed differently.

As the aircraft commander, I was slow to take command of my aircraft. I should have taken the controls when confusion was first evident, before we were way off course. We then should have briefed the crew when we were safe and sound.

In the end, it sure put a damper on an otherwise perfect day. After an extensive debrief, we both learned some valuable lessons and realized where our breakdowns in communication occurred. But, what if this day hadn't been CAVU? What if it hadn't been an approach I had flown 600 times before, on a slow Friday, in relatively slow airspace? If this had been a foreign country, or in a busy class-bravo airspace, or with weather near minimums, a very different story would have been written—by an AMB, instead of the AC. Clear, concise communications between all crew members is vital, even on perfect days.

Always thoroughly brief an approach before commencing, verbalizing all vectors, headings, and altitudes. Make sure there is no confusion about your understanding or intentions. As the HAC, you have to quickly recognize when you have lost effective communication among the crew and actively work to correct the problem.

And the most important lesson of all: Communication is the most critical component of good crew coordination. We have to take these lessons to heart and constantly hone our skills to keep us on top. After all, who wouldn't want to do this for a living?

LCdr. Kenyon flies with HSL-43.

# For a Can of Caviar

By Ltjg. Joey Tanner

Our detachment was involved in a joint NATO exercise, conducting ASW operations in the Baltic Sea near Denmark and Sweden. My crew was scheduled for two bags that February night. We completed the first flight with no hiccups and came back to our ship to receive fuel about 0100. We only had about six-percent illumination that night, and the crew was a little tired from the first three hours on night-vision goggles.

After working out some communications problems with the ship and being refueled, we took off at 0130 to practice more ASW against a Kilo-class submarine. The area we were working in was quite busy, with at least five ships and multiple aircraft conducting operations.

Initially, the flight was uneventful. At about 0200, I mentioned to my HAC that I saw some clouds building up below us around 400 feet. We didn't pay much attention to them and decided to press on with the mission.

We have all heard that being on goggles makes it easier to get into inadvertent IMC, and, that night, I found this premise to be true. Ten minutes after we first spotted the clouds, we found ourselves going in and out of the goo at 400 feet. Just then, our anti-submarine tactical air controller (ASTAC) on the ship came over the radio and said the ship was experiencing low visibility because of surface fog and had set the low-visibility detail. My HAC decided we should head back before things got any worse. After the ship set flight quarters, we shot our first approach on instruments and goggles. We couldn't get below 400 feet; the fog was extremely thick from the surface up to about 600 feet.

*I am not ashamed to say it is a humbling and scary thing the first time you squawk emergency for real.*

The author and AW3 John C. Mowder show off a can of caviar that their hosts gave to them as a congratulatory gift for arriving unharmed in Sweden.

We set up for another try and came down to 200 feet. At two-tenths of a mile and 200 feet, the fog was so thick the ship's masthead light barely was visible, even on goggles. When we realized we most likely were not going to make it back to the boat anytime soon, we climbed and started planning for a divert to an airfield in Denmark. We shared our plan with our NATO allies, and they helped find a clear spot in the weather. We also had our ship check better weather to aid our return on board.

We began to notice our fuel state. We were about 40 to 50 miles from the divert field in Denmark but had no information on it other than the location and frequencies. From our publications in the aircraft and from our NATO allies, we learned the field we were trying to reach was closed at night. We already were on our way there and decided to keep heading inbound to the field. As we neared land, we saw that the entire landmass surrounding the airfield was enclosed in fog. With the airfield being closed, we had no way of shooting any type of approach. Considering the weather and our ever decreasing fuel state, we now were committed to landing.

From above 1,000 feet, we didn't see an opening in the fog the ship would have reached. Our NATO allies immensely helped out by providing a frequency for the local air-traffic controller. We continued inbound for the airfield, hoping to find an open spot to visually let down. As we got closer, we saw the weather wasn't going to allow us to land at the Denmark field. We told the controller of our capabilities: We were getting low on fuel, and we would need a field with a precision approach.

After a few minutes, the controller told us a Swedish air force base with a PAR was about 70 miles from our position. We did a fuel check and decided if we shut down one engine, we could make it to that field with time for one, maybe two, approaches. We also declared emergency fuel and turned our transponder to 7700.

I am not ashamed to say it is an humbling and scary thing the first time you squawk emergency for real. I also was shocked to realize we were going to pull off one of our engines to save gas. We discussed this action as a crew and then shut down our No. 2 engine. We now were in and out of the clouds, low on fuel, with one engine, and still 70 miles away from a field where we could land. All this time, my HAC was focused on communicating with the ship and flying. I was talking to approach and the airfields, as well as updating our navigation information. Our crewman helped me with the fuel calculations and gathered information. Even though we were in a tough spot, I believe we all felt the crew was working together extremely well, and we handled the problem with the utmost efficiency.

We told the controller we were headed to the Swedish air force base, and he began to coordinate with them. They actually were closed at the time, but they called in their people to recover us. We now were about 30 minutes from the field, with roughly 45 minutes of fuel remaining. We trekked back out over the water and headed north. With the NVGs, we could see the coastline of Sweden from about 30 miles away. The fog bank looked to be stopped right at the coastline. About five minutes later, the airfield was lit up, and we had it visually from almost 20 miles. We told the ship we had the airfield in sight and were headed in. We also let the controller know we had the field in sight; he handed us off to the tower controller.

We took a visual approach and landed at 0500, with about 15 to 20 minutes of fuel remaining. The Swedes were extremely helpful with everything, even providing us a place to sleep. By 1600 the next afternoon, we were headed back to our ship, arriving around 1730—safe and sound.

Many things caught us by surprise that night. A combination of help from our ship and allies, assistance from our controller, flawless crew coordination, and maybe a little luck *[Don't get me started on relying on "a little luck" to be safe—Ed.]* helped us make it to a field before running out of fuel. My HAC made great decisions and solicited input from the rest of the crew. I was focused on the communications and navigation. Our crewman, a junior AW3 with only limited flight time, kept his cool and contributed more then expected.

While it sounds like a cliché, I never will take for granted being able to land back at the boat in case of trouble. I also now take the time to really see what our divert options are and what we will do in case of a similar situation.

Ltjg. Tanner is an H2P with HSL-42 Det. 9, deployed on USS *Simpson* (FFG-56) with Standing NATO Maritime Group 1.

# BRAVO Zulu

LCdr. Todd Nelson, the flight lead, and Lt. Johannes Jolly were on a section day low-level navigation-training sortie from NAF Atsugi to MCAS Iwakuni, Japan. The flight proceeded normally from Atsugi to the low-level entry point.

Because they were IMC, the flight received radar vectors during the descent to VMC conditions. After breaking out into clear air below a 7,000-foot overcast layer, the flight accelerated for a G-warm up. As the G-warm and fence-in checks concluded, Lt. Jolly radioed that the lead aircraft was streaming a gray mist. Moments later, an L AMAD (airframe mounted accessory drive) caution appeared on the DDI (digital-display indicator). LCdr. Nelson aborted entry onto the low level and climbed while retarding the left throttle to idle. They decided not to climb into the overcast so they could monitor the leak. At this point, with the flight about 115 miles from MCAS Iwakuni and more than 200 miles from Atsugi, they decided to press on to Iwakuni.

As LCdr. Nelson navigated and handled communications, Lt. Jolly closed for a visual inspection and described the leak as coming from the left engine near the AMAD bay. They initially thought the leak was AMAD oil because the mist was coming from that location, and the fuel levels between airplanes was within 300 pounds. With less than 20 minutes to landing, they kept the throttles at idle. Meanwhile, Lt. Jolly broke out the pocket checklist and verified the steps for AMAD caution. With the checklist complete, Lt. Jolly verified the leak had not abated with the throttle at idle. Flight lead conducted another fuel check, and, this time, he was 700 pounds below the wingman's fuel.

LCdr. Nelson shifted the flight's focus to the fuselage fuel-leak procedure, and Lt. Jolly read the steps. All indications pointed to the left engine, so he secured the left throttle and depressed the left fire light. Within a minute, Lt. Jolly reported the leak had stopped. LCdr. Nelson maneuvered to avoid mountains and populated areas along the route. The flight was split up for individual straight-in approaches at Iwakuni, and the landings were without incident.

Lt. Jolly's early identification of the leak (even before the caution light illuminated), good crew resource management, and fuel awareness were critical during this event.

Postflight inspection found the packing for the AMAD "J line" had failed, allowing the loss of nearly 1,000 pounds of fuel in less than five minutes.

*Lt. Johannes Jolly and LCdr. Todd Nelson.*

VFA-192

## Mishap-Free Milestones

| | | |
|---|---|---|
| VR-56 | 142,000 hours | 30 years |
| VR-61 | 100,000 hours | 26 years |
| VMFA(AW)-332 | 100,000 hours | 28 years |

Navy Helicopter Landing Trainer (HLT) IX-514 has completed 100,000 accident-free landings as a training vessel for HT-8 and HT-18.

# Outta Control

*By Ltjg. John Petrasanta*

I spent most of the beautiful September weekend by my pool overlooking Tumon Bay, Guam, studying for my H2P board. This also was my first weekend SAR duty since arriving on the island. My HAC stopped by on Sunday to enjoy the pool and to help me study. This weekend of SAR and studying, while not much fun, had followed a great Labor Day weekend cross-country training exercise my HAC and I took to Saipan. That trip to Saipan was a great experience and included a dive at the Grotto.

This weekend looked to be uneventful, but, at 2130, I received a page. A 14-foot boat was drifting off the western coast of the island, with no power and two persons on board in need of assistance.

I arrived at the squadron at 2150. On my way to operations, I ran into our HAC, who also was headed to ops. "Just go out and get the bird spinning," he said, sounding calmly and collected. I immediately turned around to go grab my gear and start the helo. Though getting the nav bag was my responsibility, I assumed the HAC would grab it, since he was going into ops where the bags are kept.

We briefed the SAR scenario and the weather; everything was good to go. We launched by 2218. The weather was not great: heavy rain in spots, but the ceiling was well above us, so the visibility wasn't too bad. All of our night-vision goggles were fogging because of condensation, and it was an extremely low-light night. The search area was broad, from the northern tip of the island to just past the midpoint, which is about 25 miles along the western coast. Not the best of conditions, but the task was manageable.

We searched the coastline first, and then set up half-mile spacing for a parallel search, as the Coast

Composite picture.

*All of our night-vision goggles were fogging up because of condensation, and it was an extremely low-light night.*

Guard requested. Out to the west, we found it nearly impossible to see anything. Looking toward the east, back at the island, there was enough cultural lighting to see very well. The automatic-flight-control system (AFCS) was not working well: The controls were sloppy with pitch and roll oscillations, and the ball randomly kept sliding out and had to be forced back to center.

About 20 minutes into the search, we spotted a boat that matched the description we were given, except it was under power traveling south. We told the Coast Guard, who then sent out Guam Fire and Rescue (GFR) to investigate the boat. While we continued searching, we were told that boat wasn't our target. We kept looking until we reached our bingo.

We arrived back at Andersen AFB for our hot-pit. The HAC's goggles had intermittent problems, and my lip light was weak, so we also got an extra set of goggles and two AA batteries. Our corpsman ran out into the rain and grabbed some waters.

We launched for the second time after an abnormally long delay in the hot-pits. The Coast Guard wanted us to recheck the coast, so we started the search again. It still was raining hard, and the ceilings were getting a little lower.

Coming up on our second leg, the swimmer called, "I have a boat passing under us right now!"

We swung around, and there it was, nearly impossible to see—an outstanding catch by our swimmer. We lowered the swimmer, and she called up, "They don't want to leave the boat."

The HAC told the Coast Guard, and they said they would send a boat out to tow them in. In the meantime, our swimmer, having not heard the conversation with the Coast Guard, convinced the two very large men the safest thing to do was to let us pull them out and leave behind the unseaworthy boat. Just to make things interesting, these two men could not swim, were afraid of the water, had no life vests, and refused to go in the water. With great crew coordination, we pulled them directly out of the unstable boat, which was getting pushed around by the rotor wash. Finally, with them inside, we headed to the hospital. Everything was going great.

At the naval hospital, the helo pad was not lit up as we set down and disembarked our survivors. By now, it was 0130, and there was no ambulance waiting. We received a call from the Coast Guard that GFR was trying to recover the boat. They requested we go back out and guide them to it, even though we already had given them the GPS coordinates.

With the rain coming down extremely hard now, we figured it was from a random cell passing through, unlike the steadier, hard rain off the coast that is common in Guam. We reviewed our situation, discussed our options, and checked to make sure we had plenty of fuel before the HAC decided we would launch once the cell had passed.

Some miscommunication occurred while the crew chief was out of the helo giving something to our corpsman. Suddenly, chocks were pulled as the crew chief came back in, and, instead of waiting, we were lifting. Our HM1 stayed behind with the two men and waited for the ambulance. We planned to return for him.

I had the controls, as we turned offshore. I called, "I can't see anything." We were IMC and on goggles.

"Slow down, slow down," the HAC said. I already was trying to do that.

The radalt hold was on at 500 feet, and we were 120 to 130 knots. I probably had slight vertigo; I tried really hard to get the nose back and slow down, but I had a tough time. I slowed to 80 to 90 knots. The HAC's keyset was not working, so I passed the controls to get bearing and range to the mark-on-top position of the boat—288 degrees at two miles from our present position. We could see the light of the GFR vessel and made radio contact. Visibility was so bad they couldn't see us until we flew right over them. We gave them bearing and range from their position: 283 degrees at four miles. They requested we lead them because they couldn't use the position we gave them, and they lost sight of the coast. We turned toward the position going 60 knots.

The GFR boat asked us to slow down because they couldn't keep up. So the HAC pulled back and turned to the right to swing back around to them; we were definitely IMC.

"We're getting slow," I said, "… watch your descent… the ball's out to the left… 1,000 feet per minute *[climb]*."

He made what seemed to be correct inputs; we just got slow in a turn, and it was taking a few seconds to correct,

"… 1,000 feet *[descent]*… 1,500 feet… ball… ball," I called.

I was on the controls now with him. The nose was pitching, and things were getting worse, not better. The ball was deflected fully to the left.

"Do you have it? Do you have it? I have the controls… I have it… I have it," I shouted.

Once I got it stabilized, with wings level, nose on the horizon, and ball centered, we climbed at around 800 fpm through 1,000 feet, with no airspeed indicated.

The crew chief then called, "You're climbing."

"I know. I know. I'm nosing over for airspeed," I replied.

It seemed so easy to identify what was wrong and the inputs to make when I was not on the controls and didn't have vertigo; and it *was* that easy. But, now, with me on the controls and with vertigo, we had a different story.

I am not sure what happened or how, but the next thing I heard was, "The ball is out… the ball is out!"

The ball was deflected fully to the left. I tried to center the ball and continue to gain airspeed. I just remembered flashes; all the details were not exact (we pieced together this part of the flight at the debrief). After I took the controls and also got vertigo, the HAC took back the controls. Then some good inputs were made; then it got worse, and I again took the controls. Then I heard, "Oh God! I have the controls," from the HAC, as I'm yelling, "I don't have it. I don't have it. Do you have it? Do you have it?"

The controls were passed back and forth as we tried to recage ourselves, fight the vertigo, and follow the crew chief calls. Over those couple of minutes, we went through some extreme attitudes and out-of-control flight: possibly as bad as 60 to 80 degrees angle of bank. There also were changes in pitch—as much as 40 degrees nose up and 10 to 20 degrees down—with the ball fully deflected to the left and the HSI spinning like a roulette wheel. We also climbed and descended at least 2,000 feet per minute each, and, at one point, the torques and TGTs all were yellow with a low-rotor rpm. We somehow had gotten really out of control really fast.

At one point, I even thought we might turn over the helo and have no way out. Procedurally, we knew what inputs to make—between fighting the vertigo, trying not to overcorrect, and how bad it had gotten—but our situation seemed impossible. We had not reached a point where I was ready to give up trying to recover, but I had given up all hope of survival. Our situation felt like I was in the simulator, faced with an impossible situation where the gyro is spinning and you're trying to recover. You always die, then laugh about it, thinking, "Wow, I don't ever wanna see something like that in the aircraft."

There was no question in my mind: We were going in the water, we were going to hit hard, and no one would survive. I thought, "So, this is how it happens when a bird goes into the water."

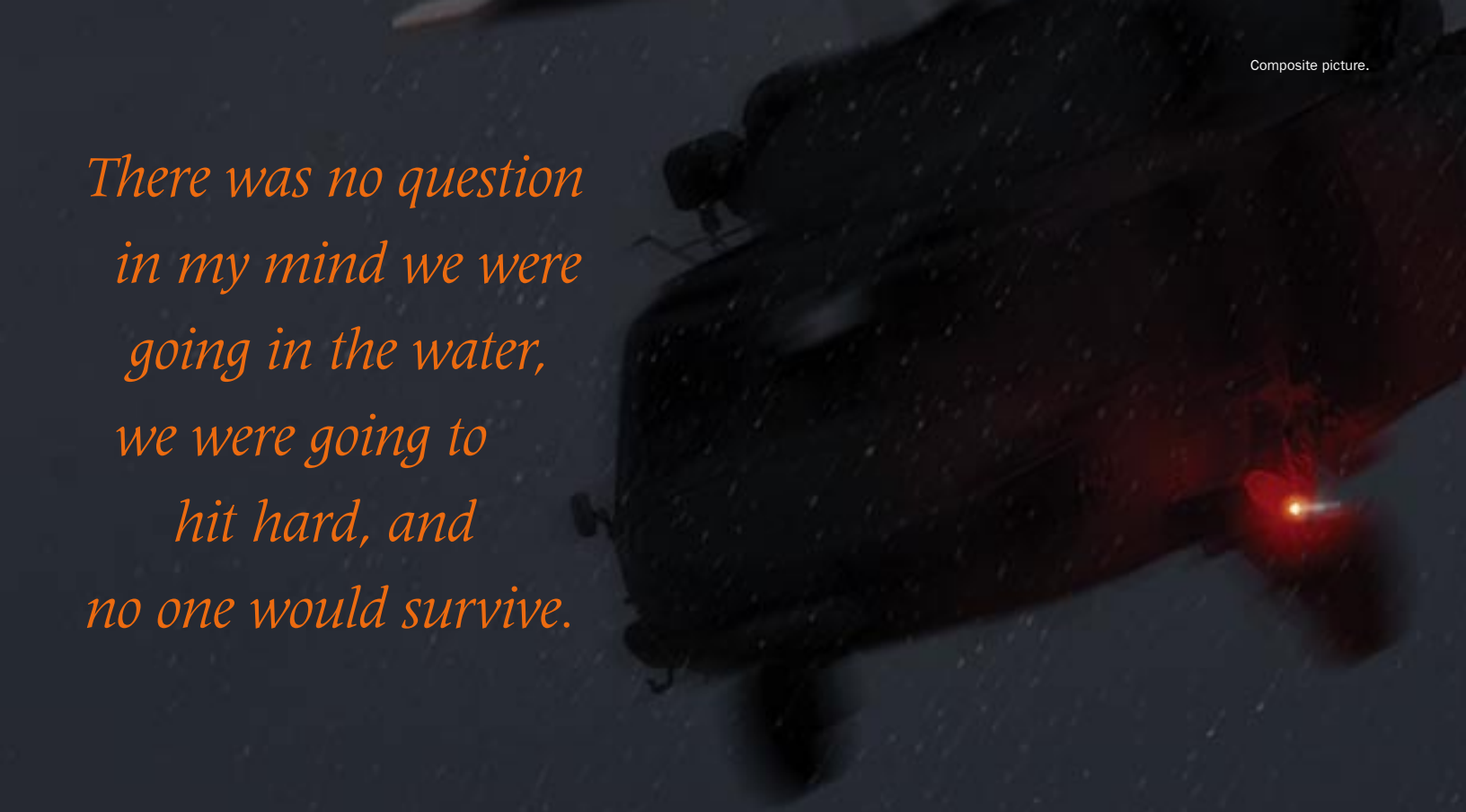
Then I reflected on the crew, how they rely on the pilots to be in control, and how they were going to die because of us up front. They were in the back, just watching and sensing what was going on, trying to talk us out of it, without any control over their destiny. I can't imagine how frightened they were, or possibly, weren't.

Finally, the HAC took the controls and was able to fight through it and get us out of a tough spot. We were under control at about 1,400 feet, in IMC, and shaken.

The HAC said, "Wow, that was… that was bad."

A somber reply of, "Yeah" came from everyone else; then there was silence.

Our crew chief recommended an instrument approach, and we all agreed. We called Agana for an instrument pickup and an ILS approach to 6L. We also told GFR we were done. I asked for the approach plates to discover we didn't have a nav bag. Fortunately, I remembered the ILS and TACAN frequencies, and the final-approach course. We verified the ILS approach with center and finally picked up a glide slope and course. Coming down through 800 feet, we started to break out over land. We decided to cancel IFR and continued in VMC to the hospital. We picked up our corpsman and arrived home near minimum planned fuel at 0230.



Composite picture.

*There was no question in my mind we were going in the water, we were going to hit hard, and no one would survive.*

Given the specifics of this scenario on any board, I don't think even one individual ever would say, "Yeah, I'd go out for the sinking, old 14-foot boat with no working motor, in those conditions." But, every minute detail led us there. Everything had been going great. We had been flying in the rain all night and previously had had no issues with the visibility; we just couldn't see out to the west. We planned on waiting on the helo pad at the hospital before launching, but chocks were out, and the rain had seemed to lighten a little from a few minutes earlier. The Coast Guard had passed GFR's request that we help find the boat since it was only a couple of miles out, "Why not just go, get it over with, and get home?" we thought. There we were: We pushed to locate an inanimate object after the rescue had been complete, and we inadvertently went IMC on goggles.

ORM broke down when we didn't implement our own controls of waiting on the pad. What were we thinking? Our decisions made sense at the time.

During the debrief, the HAC and I stated, "I *really* thought we were going to die." I'm not sure if the crew knew how close we were to not making it back.

Some aggravating factors that may have contributed to our event are:

- Copilot was very new to the squadron, with only 20 hours of flight time over the previous five months from flights at the FRS and the three months at HSC-25.
- The HAC recently was designated.
- Bad weather: heavy rain, strong winds, low light, on goggles (Oh yeah… there was no Hoffman 20/20 available at the time for focusing).
- Comfort level from the high heat and humidity. The ECS was fogging the cockpit, so we kept it off. We were all drenched in sweat; the scuppers were open for airflow, with rain coming in and soaking our legs. My helmet liner separated from the bubble pad and, along with the sweat, had my helmet moving around throughout the flight.
- An aircraft with AFCS issues.
- Operating near the nadir of the circadian rhythmic cycle.
- Initial adrenaline rush of going out and getting the rescue, followed by a lull after dropping off the victims at the hospital, while still having a desire to contribute more and recover the boat, along with get-home-itis.
- Mission creep.
- Abrupt control inputs during IMC.
- Fatigue.

Ltjg. Petrasanta flies the MH-60S for HSC-25.

# Crew Resource Management

Situational Awareness
Assertiveness
Decision Making
Communication
Leadership
Adaptability/Flexibility
Mission Analysis

# CRM Is For Single-S

*By Maj. Sean Patak, USMC*

It was Thanksgiving time for everyone at home, but in Iraq, it was just another month. The day started like any other day in OIF: I got up, went to breakfast, and headed to the squadron spaces to finish planning and brief. The XO was leading the flight; we had flown together several times before. Both of us are experienced in our airframe, the XO with almost 2,000 hours in type, and I had more than 1,200 hours. Our section of AV-8Bs would provide airborne surveillance and reconnaissance for the troops on the ground and give close-air support if required.

I had been in country almost a month, but I was a newcomer to this squadron. They had been doing these operations for almost three months when I joined them in theater. The flight briefs seemed monotonous after being tasked with flying similar mis-

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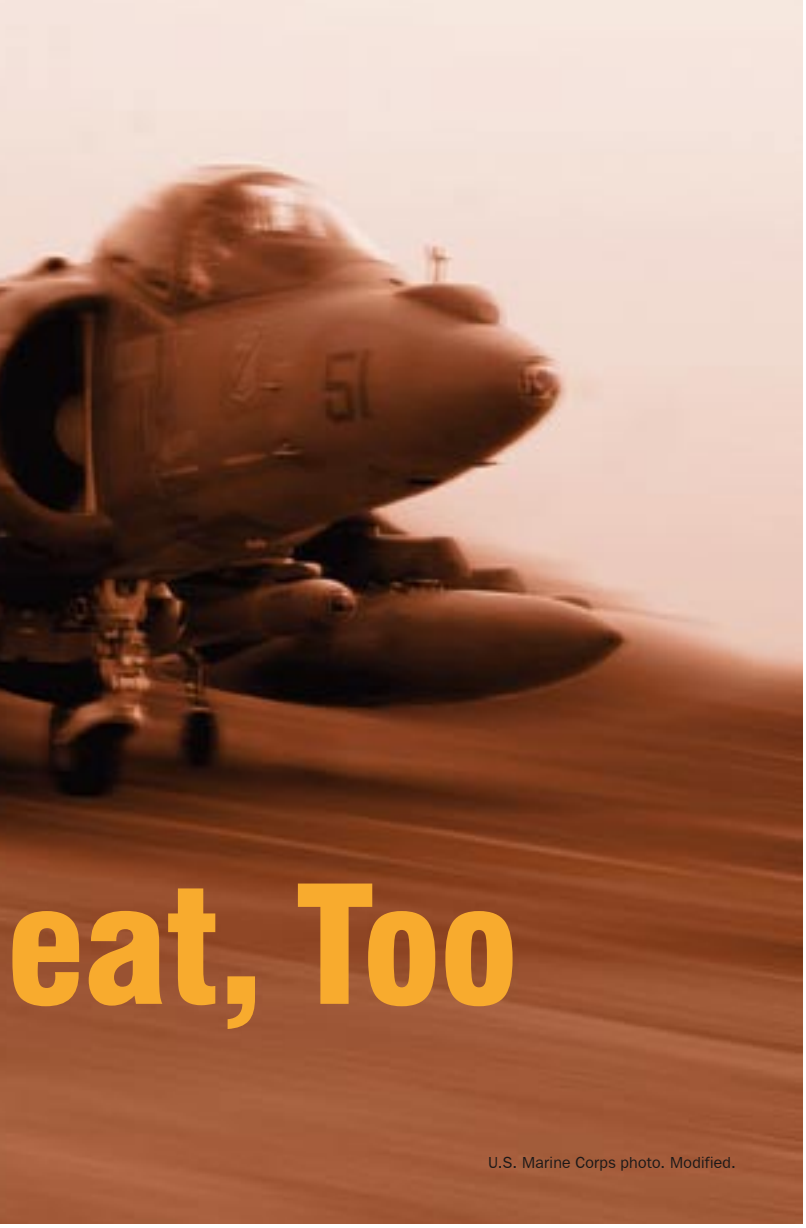

# eat, Too

U.S. Marine Corps photo. Modified.

sions day after day. On this morning, though, we spent a little more time discussing emergency procedures and how much or how little tasking we would surrender to the operations duty officer (ODO) over the radio in the event we had issues. The XO methodically briefed the admin and contingencies, but he also spent some time on tactics and map study.

We started and taxied on time. When we checked in with the ODO on the radio, things were heating up out west toward the Syrian border, where we were fragged to support. The adrenaline really started to flow when we heard the section of FA-18s we were to relieve had employed all their ordnance.

We were based on the south side of Al Asad, in the Al Anbar province of western Iraq. It just so happens that the normal takeoff runway for fixed wing, the south runway, was closed for repair. As a result, we had months of excruciatingly long taxies for takeoff: a half hour or more. The taxiways and runways often were littered with large pieces of FOD, despite regular sweeping.

The safety officer thought that a piece of glass from a broken taxi light put a small cut in my left-wing-gear tire just before pulling onto the runway that morning. The tire began to deflate but so slowly I didn't notice the problem before takeoff roll. He found some witness marks at the holdshort and on the runway.

We normally performed individual takeoffs with 2,000 feet of separation on the runway for FOD avoidance. The XO had no opportunity to see anything wrong with my airplane; he never was closer than several thousand feet. The weather was CAVU as we hurried to get airborne—eagerly anticipating dropping our ordnance. My flight lead took off, and I rolled the instant he broke the deck. I noticed a drift left just after throttle slam but attributed it to the right-to-left crosswind and corrected with right rudder.

About the time I reached the short-field arresting gear, the deflated tire had had enough and shed all the remaining rubber, leaving metal on concrete. That metal-outrigger strut and rim acted just like an arresting hook and caught the wire, despite lying flat on the deck. The wing gear failed and was thrown aft with significant force into the wing and flap. I felt like I had hit lead's jet wash; I actually said that to myself in my oxygen mask. I again compensated with opposite aileron. The aircraft had tried to tell me something was wrong with subtle hints, but I was fixated on getting to the target area.

Fortunately, a section of FA-18s held short of the runway as I passed by on the takeoff roll. They told tower about the shower of sparks they saw in the vicinity of the arresting gear; they thought I had lost my tire on takeoff. The tower notified the departure controller, who told us about the problem.

My airplane showed full-up-and-locked indications on my landing gear. The indications later would show me all-down-and-locked, as well, which certainly was not true, because my wing gear was in partial trail and in pieces. Had that Hornet not spotted the incident and reported it, I more than likely would have hit the runway at 120 knots on recovery and lost control of the aircraft.

We rendezvoused, and the XO told me half of my

wing gear was "&%#@ing missing." The quick solution that popped to mind was to do a vertical landing (VL), since I was flying a Harrier. That plan would have been great, except I had drop tanks full of fuel, a gun full of rounds, expendables, a laser Maverick, a Sidewinder, and a full tank of water. I also was showing negative VL performance. So, I would have to jettison my stores or do a roll-on landing. We coordinated the ordnance-jettison range and headed west of the field.

Once established in the delta pattern overhead the range, we decided to contact the ODO and explain my problem. There is a NATOPS procedure for "gear fails to retract," and "gear fails to extend," but there is not a published procedure for "the gear has partly ripped off the airplane."

We then asked the ODO to back us up on our jettison procedures and performance calculations. We had begun dumping gas, and he made a good call to terminate dumping to allow time for the LSO to make his way to the runway. He also confirmed our selective-stores-jettison procedures and limitations. After that, however, being eager to help, the ODO began to have verbal diarrhea, trying to think through every contingency out loud and, in the process, jammed everyone else trying to talk. We decided to kick the ODO out of our cockpits for a while and switched back to our TAC frequency.

The XO made a smart call to consider dumping my water. It was not hot enough to where burning it was going to increase my VL performance, and dumping it would save me 500 pounds of weight. We then completed our stores jettison, electing to get rid of my missile, suspension equipment, and the expendables. We confirmed the LSO was on station and dumped our fuel to just what remained in the fuselage. I still would have to burn some to get to hover weight, so we used that time to lower the landing gear. We had discussed landing gear-up on the drop tanks, but I decided to try and put down the gear. If I could get at least three down, I was confident I could gently set down and balance on the good gear.

We did everything slowly and methodically, using challenge and response. We discussed the contingencies before each step, in case something went wrong. I told him I was lowering the gear, and, once again, the airplane lied to me, telling me all the gear were down and locked. The XO confirmed my wing landing gear remained at a 45-degree-trail position. We headed inbound to the field and checked in with the LSO, who happened to be the CO. I told him of my intention to VL, my performance, and fuel remaining. I was only going to get one shot at this landing, as I would be on low-fuel flashers to be light enough for hover performance.

Once in a hover, he made an excellent call to raise the flaps to prevent them from being damaged if the gear collapsed after landing. The three of us also decided I manually would turn off my engine limiters on downwind, in case I began to run out of performance in the hover. I executed a low approach, as much to burn off more fuel as to let the CO get a look at my stricken bird.

I kissed off the XO and turned downwind for my landing. I did a normal decelerating transition to a hover, and the CO audibled my flaps up just as I came into the hover. The jet performed nicely, and I stabilized to blow clean the landing area. Once satisfied, I inched her down much more gently than the norm. I set the aircraft down on the runway as if she was a newborn baby, and, to my great pleasure, it stayed upright, balanced on three wheels. I shut down the motor and breathed a huge sigh of relief.

Communication was the key that morning. Had it not been for the situational awareness and building communications between the Hornets and the tower, my flight lead and I, the ODO, and finally the LSO, a Class-A mishap certainly would have resulted. As it was, the flaps, gear, aileron, and fairing easily were all repairable, and it wasn't even a reportable incident—I wish they had figured that out before taking 10 vials of blood from my arm.

People in our community often make the mistake of thinking that single-seat means you have to handle the situation all by yourself. We may not have someone visually verifying every switch or control movement, but we do have a crew in the other members of our section, in the ODO, and in some cases, in external agencies. Crew-resource management is for single-seat too.

Maj. Patak flies with VMA-223.


# The T-44A Glider

By Maj. Rich Harrington, USAF

**Warning**

Poor CRM May Be Hazardous to Your Health.

It's inconceivable a crew of three pilots, flying on a clear VMC day, in a non-time-constrained environment, would, in unison, incorrectly shut down all their engines in flight. But, that's just what happened to my crew. This is the story of our human error—of a mishap that didn't happen but had the potential.

As a prior safety officer, I am convinced pilots break more planes than planes break pilots. This event adds to the database of what we already know to be true: Human error is the No. 1 cause of mishaps and, I believe, potential mishaps. I initially didn't consider my event to represent a routine threat to aviation, but to place it under the category of poor CRM makes it a routine threat to aviation.

The crew consisted of a student pilot, early in training on his eighth or ninth contact flight; an observer student pilot, with similar experience as a student pilot; and me, a current, proficient, and qualified instructor with 2.5 years and more than 1,000 hours in the T-44A. The mission profile was a student training, contact sortie, where maneuvers, such as approach to stalls and slow flight, are covered in a high-work area. We then do extensive pattern work. The aircraft had no major write-ups, and the weather was VMC.

One of the special syllabus items was to perform two evolutions of actual engine shutdowns and restarts in the high-work area. The intent of the training was twofold: to show the student how the aircraft behaves single-engine, with and without propeller windmilling; and to reinforce the different procedures to restart the engine after a precautionary shutdown and after an inadvertent shutdown. We also discussed these maneuvers in our preflight briefing.

The student did fine during start, run-up, and taxi. His departure was fine, except for a higher-than-average incidence of student dyslexia, such as when told to fly 110, he set and tried to fly 010. This behavior was something I should have been keener to consider, because we were about to start shutting down engines while airborne.

When we got to the high area, called Three Central, at about 8,000 MSL, we did some syllabus maneuvers. We then got to the engine shutdown-restart portion.

The first shutdown and restart was a starter-assisted airstart, where we simulated engine shutdown as a precaution, then restarted via a non-memory checklist. The student correctly identified the scenario and malfunction, and we shut down the left engine. During the shutdown and restart checklist, we needed to concur on certain steps to prevent shutting down the wrong engine. He made no mistakes shutting down the engine; however, during restart, he did make an error. In a challenge response-response manner, I called for and he pointed to the left power lever and confirmed it in idle. The same sequence is used for the left propeller to feather.

I called for left condition lever to fuel cutoff; however, he pointed to the right, the remaining operating engine, while stating "left" condition lever to fuel cutoff. I stopped him. I did not concur for him to shut down the right and only operating engine. I was proud to point out his mistake. I also pointed out this situation was why we have to concur on these critical items. He then pointed to the correct, left condition lever and continued the restart checklist without error.

I later realized part of our training may condition students to possibly look for the wrong lever during restarts. Usually, we simulate shutting down engines. The power levers are directed and concurred to set to idle power (aft position), but the propellers and condition levers are simulated and remain in their normal forward positions. In other words, the student is used to seeing propeller and condition levers in a forward position, rather than feathered or fuel-cutoff position (full aft). So, during our evolution, although the left engine had been shut down, with the left condition lever in an aft position, the student may have been looking for the left condition lever in a forward position, like he was used to seeing during simulated shutdowns. As a result, he reached for the only forward position condition lever (the incorrect, right or starboard condition lever). I previously had not considered him taking this action.

The next airstart, a windmilling airstart, was to be even more exciting. This maneuver corrects an inadvertent shutdown and is conducted via a memory item, concurrence-based checklist. I advised the student we were going to perform the maneuver and that I would simulate shutting off the fuel by catching the condition lever with my boot while getting out of the seat. I stated "simulated" three times, then cut off fuel by pulling the right condition lever to fuel cutoff. For the restart, he pointed to the right power lever and requested it to go to idle, and I concurred. He pointed to the right propeller lever and requested it go full forward, and I concurred. Then he pointed to the only remaining forward condition lever, the left one, and requested "right" condition lever to fuel cutoff, and I mistakenly concurred. As soon as the plane got very quiet, I realized the student and I had

lost our situational awareness, and just had shut down our only remaining engine. We had become a glider.

Students and IPs train for a procedure called a dual windmilling airstart, which normally we use during a simulated, total engine-out, ditching exercise. This procedure is used when both engines are shut down with propellers windmilling, and you need a quick restart. I took control of the plane, used this procedure, and both engines quickly hummed back to life.

The event had caught me off guard, and I was embarrassed. I had let the situation develop, but I also was ready to continue training. However, I wasn't sure how the students felt. I discussed the situation with them and asked if they felt OK to continue training; they did, so we finished the rest of the sortie.

As I discussed with the student pilot what had happened, he profusely apologized, but the error was not his alone to bear. We both had made the same mistake: lost SA and, unfortunately, at the same time. From a CRM and former safety-officer perspective, I tried to reconcile and categorize this crew error to


see how it could have been prevented. Why did concurrence checklists work the first time, during the starter-assisted airstart, but not the second time, for the windmilling airstart? Clearly, the culprit was lost SA, but let's also consider failure of attention: cognitive error, complacency, and even defensive positioning.

SA versus cognitive error: When you look at something and misinterpret it, there is a point where your problem is a result of cognitive error or a lack of SA. This point is difficult to identify. The Navy's CRM school defines SA as the degree of accuracy by which one's perception of the current environment mirrors reality. In our situation, both crew members incorrectly perceived the situation, failed to realize only one engine was running, and were about to shut down that one engine. This situation points to a loss of SA.

The CRM school offers four techniques to help promote good SA: detect and comment on deviations, provide information in advance, identify potential problems, and demonstrate an awareness of task performance and mission status.

**Detect and comment on deviations.** As instructors, we do this all the time. I have been frustrated to this day in reconciling why I corrected the student's first deviation, his trying to shut down the wrong engine, but not the second. Did I lull myself into complacency, thinking he wouldn't make this mistake twice?

**Provide information in advance.** The T-44A can start both engines in flight after they are shut down. If that was not the case, procedures for shutting down one and restarting it might be different, with more controls in place to prevent the error my crew made. A mental reiteration of the situation just before concurring on shutdown would be beneficial. For instance, a reiteration of the fact the right engine was shut down and the left engine was the only one keeping us flying would have worked. I also could have said to make sure you don't shut down the left engine or manipulate its controls by mistake. A momentary pause to make sure the accuracy of the environment in advance of shutdown could have helped.

**Identify potential problems.** I had failed to do this effectively. I recognized the student was making dyslexic errors—more than average—but failed to predict and apply this type of error to our upcoming engine-shutdown situations, where the difference between left and right was critical.

**Demonstrate awareness of task performance and mission status.** Mentally restate that a student is about to shut down an engine (and students do make mistakes), and if you both make mistakes, no engines will be left to fly the plane. This assessment readdresses the importance of the situation.

Let's return to complacency, which falls under failure of attention as a performance error in OpNavInst 3750.6R appendix L, especially as it applies to defensive positioning. Complacency is a seemingly dirty word that's applied to several human-error situations. Most pilots, including me, consider themselves very conscientious, and to be labeled complacent is a bitter pill to swallow. In general, I would associate a lack a defensive positioning with complacency. Because logically, if you didn't think a student had the potential for error, you would not need to defend controls. Merriam Webster

online defines complacency as "self-satisfaction accompanied by unawareness of actual dangers or deficiencies." A lack of defensive positioning clearly falls under that definition. During simulated engine shutdowns, IPs are taught to "pinch" together the propeller and fuel controls to make sure an excited student doesn't feather or shut down an engine unintentionally or incorrectly. Ironically, with one engine already shutdown and in a restart environment, I was not taught, nor did I practice defensive positioning. I basically had been relying on verbal concurrence.

If I had applied defensive positioning, would I still have made the same mistake and shut down the last remaining engine because of a lack of SA or cognitive error? Would my hands on the last forward condition lever have prevented me from concurring with an incorrect command? Or would the opposite have happened, and would I have been spring-loaded to pull back on the condition lever nearest my hand because that is what my muscle memory is used to doing? I found the answer the next time I flew and was scheduled to practice an actual engine shutdown and restart. I used both the techniques to avoid a loss of SA. By mentally reinforcing what the situation was and using defensive positioning, the procedure worked without incident. The steps to reinforce SA and defensive positioning clearly were effective.

What good things were in place that prevented this situation from developing into a mishap? OpNavInst 3750.6R references J. Reason's work on human error and the Swiss-cheese model that incorporates active and latent acts and conditions for errors. When latent conditions and preconditions line up from negative organizational influences through preconditions for unsafe acts to unsafe acts, mishaps will occur. The unsafe act of incorrectly shutting down all engines did not lead to a mishap because of preconditions preventing it, such as procedures, SOP, and even IP techniques. Here is a brief discussion of each precondition.

**Procedures.** After the second engine inadvertently was shut down, the dual windmilling airstart was performed, and the situation was corrected. Knowledge and execution of NATOPS procedures quickly remedied the situation and prevented a mishap.

**SOP,** or standard operating procedures, are embedded in guides and publications. The NATOPS procedure worked great, but some conditions specified in the flight-training instruction (FTI) further enabled success. Our crew was at about 8,000 feet when the incident occurred. Had we been at 1,000 or 500 feet, the time to get a restart would be more critical. Our FTI specifies a minimum altitude of 4,000 feet when performing actual engine shutdowns. Our FTI also specifies VMC all the way to the ground. Can you imagine the complications of descending into IMC while trying to restart engines. Normally, aircrew complain of restrictions placed on them because of SOPs; however, adherence to FTI-stated requirements, similar to SOPs, also prevented this situation from developing into a mishap.

**Technique.** I was taught always to turn off the air conditioning before shutting down an engine for syllabus training. The reason for this technique is that the air-conditioning unit uses about 60 percent of the capacity of one of the two aircraft generators. The generators work off rotating engines. During single-engine operation, when the engine is shut down and not rotating, the useful load capability of its generator also is lost. Over half of the remaining generator, running off the remaining engine, is dedicated to running the air conditioning. Overloading the remaining generator is possible with the air conditioning and all other electrical equipment on.

In this incident, with the dual windmilling airstart, the entire electrical load was placed on the battery to start both engines (fire the igniters). With about 150 amps (60 percent of a 250 amp generator—the AC unit) removed from a 42 amp-hour battery, more electrical power was dedicated to the start, which improved the chances for lightoff. A severely drained or dead battery would not have provided ignition for start. I believe my technique of reducing the electrical load in advance of intentional shutdown resulted in a higher probability for restart because the battery was under a lighter load when it had to fire the igniters for both engines for airstart.

A crew of three pilots, in unison, unintentionally shut down all the engines of their aircraft in a non-time-compressed situation in a clear, blue sky. This action was a result of poor CRM skills (lost SA) and complacency (lack of defensive positioning). However, latent positive preconditions (NATOPS knowledge, SOP/FTI guidance, and techniques) in Reason's Swiss-cheese model, prevented items from maturing into a mishap.

I will continue to use the four techniques to keep SA high and also to employ defensive positioning during actual single-engine work as a tool to prevent undesirable flight regimes from developing.

Maj. Harrington flies with VT-31.

# Two-Way Street

By LCdr. Dick Vitali

I was the tactical coordinator (TACCO) on a routine training mission out of Kaneohe Bay, Hawaii. Our crew just had completed the simulator portion of the advanced-readiness program, and we were on our third of six scheduled flights. After takeoff, we checked on-station southeast of Waikiki and had flight following from Honolulu Approach.

ATC communications were extremely busy as we got vectors, while descending below the cloud layer to get eyes on our briefed target deck. The flight station continuously scanned in and out of the cockpit to manage the tactical mission, while they looked for civilian airliners on final approach into Honolulu International Airport. The VHF radio was intermittent, so the flight station turned off the squelch. They also switched up the UHF-1 companion frequency for flight advisories.

As we set up for our first pass on the target deck, the in-flight technician (IFT) came to my station and explained that it smelled like something was burning in the aft part of the aircraft. I then asked the flight station to execute the fire-of-unknown-origin checklist. The radios were clobbered, and the flight station did not acknowledge my request, so I again asked them to execute the fire bill.

Hearing no response, I quickly went to the sensor 2 station in the middle of the aircraft and continued with the fire bill in accordance with the checklist. As I grabbed the PA microphone, crew members began to call their stations clear of any smoke or fumes. I also did an ICS check with the cockpit. I even put on the acoustic-operator headset but was distracted by the constant chatter over the radios that preoccupied the flight station.

Fortunately, the qualified off-duty flight engineer had relocated to the flight station from the aft cabin. His appearance cued the pilots that an abnormal condition existed. In response to the pilots' puzzled gaze, the

FE replied, "Are you aware there are fumes in the tube, and they have out the fire bottles?"

I once again called to the flight station on ICS, and they responded to this communication check with, "Are we activating the fire bill?"

I told them the fumes were isolated to the acoustic station, and all the circuit breakers had been pulled. We removed the portable oxygen bottles from the area. Although the fumes were dissipating, we continued to smell them. We believed the source of the fumes to be the sensor 2 programmable-entry-panel (PEP) power supply or the PEP itself.

As people at the flight station ran the fire-of-unknown-origin checklist, they asked if they should secure Bus A. I replied "no," as we had secured power to the source of the fumes and did not want to further degrade the situation. That response triggered the pilots to declare an emergency; they set up to divert to Barbers Point airfield, visible only 10 miles away. I ran to the flight station to confirm we were diverting, and we agreed it would be better to troubleshoot on deck than in the midst of highly congested airspace. We landed at Barbers Point and executed the emergency ground egress.

We met the fire marshal and explained that what appeared to be a missile on the right wing was only a Maverick CATM used for training. We then installed the safety pins on the CATM and wing rack. I escorted the firefighters on board the aircraft and explained which components we believed were the source of fumes. The in-flight technicians removed both the sensor 2 display and PEP and determined the latter had smoke-checked itself.

This was my first fire of unknown origin in the aircraft, and I'm sure it won't be the last. Communication is vital throughout all phases of flight, especially during unbriefed emergency situations. Most importantly, communication is a two-way street.

> Without feedback, though, you might as well be talking to a brick wall.

In this case, I conveyed information to the flight station but did not wait to receive their acknowledgement. Feedback can be over ICS, via a head nod, or even a wing rock from your wingman, but it is essential to complete any exchange of information.

External communications also played a critical role during this emergency and actually imposed a barrier to the exchange of information between crew members. Both pilots were backing up each other in a busy environment, and they lost situational awareness on communications internal to the aircraft. In hindsight, I should have stopped at the flight station on my way back to the middle of the cabin to run the emergency checklist.

Once we were all on the same page, the emergency procedures went efficiently and smoothly, inside and outside of the aircraft. We just needed a few minutes to get in the groove. If an emergency exists, either in a single seat or multi-place aircraft, we must convey our situation and information to sources external and internal to the aircraft. More importantly, the communication interstate doesn't stop there—you need to make sure you get feedback from those sources.

LCdr. Dick Vitali flies with VP-4.

# The Unravel


Photo by Matthew J. Thomas

*By Lt. Rich Winstead*

I found myself in the front right seat of the lead Prowler on the first night of Exercise Global Strike, flying out of Nellis AFB. As a junior electronic-countermeasures officer (ECMO) in a Prowler squadron, I was preparing for deployment to MCAS Iwakuni.

The pilot in the left seat also was relatively junior, but we were flying with experienced personnel in the "trunk," and the entire crew thoroughly had been involved in the planning of the night's mission. We walked to the jet feeling well-prepared and eager to perform during the first night of the exercise; we were not overconfident.

The evening soon unraveled. We diligently were watching our timeline to make our taxi and takeoff time when clearance said they had no information on our two Prowlers. Normally, a mistake involving your clearance easily can be fixed with a radio call to the SDO, who calls you back when they have worked their magic. Unfortunately, we were on a detachment and had no radio communication with our SDO. We immediately thought our planning was going to be wasted because of a scheduling mix-up by the red-flag staff.

While I worked with base ops on the radio to solve the problem, the back-seaters opened the rear canopy in the hope of relaying a message to our SDO. During what seemed like an eternity waiting on our clearance, the pilot noticed the duty runway had been changed from what we briefed. He immediately pulled out the SID to familiarize himself with the new departure. I gave this change in plan very little attention and continued to beg for our clearance.

After about 30 minutes of two Prowlers turning gas into heat in our line area, clearance finally was granted, and I eagerly called for the section's taxi. At this point, I was focused solely on getting the Prowlers into the fight as soon as possible. Even though we had an extra 30 minutes on deck, I seriously was behind.

Because the duty runway had been changed, and neither I, nor the pilot, ever had flown at Nellis before, I was not confident of our taxi route. After referencing the airfield diagram and as both Prowlers approached the holdshort, I called for the section's takeoff. This

would have been the perfect opportunity to stop both jets, recage everyone's brains, and catch up. The only thing anyone in our jet, other than the pilot, had done so far was try to get a clearance to take off.

Instead of catching up, I turned to the pilot and asked, "Do you understand the departure?"

He replied, "Yep."

Like a good ECMO, I had the SID out but had done no serious study. I relied solely on the pilot to get us safely out of Nellis' airspace.

The departure is relatively simple: turn right, climb, and do not fly into Las Vegas International's airspace. During the departure, ECMO 2 and I were looking out the 5-o'clock position trying to pick up Dash 2, when the pilot very calmly stated, "That's strange."

I immediately saw our TACAN information jump all over the spectrum. My response should have been to cycle GPS to the appropriate navaid and 'fess up to our wingman for assistance. Instead, I and the entire crew committed the cardinal sin of fixation.

What finally snapped us out of our trance was a call from ATC asking us if we had started our turn yet. We had started our turn, but, because of our navaid troubles, we had strayed a little too close to Las Vegas International, and almost had violated their airspace. The pilot then asked me what our next altitude gate was, so we wouldn't fly into any terrain in the immediate area. Because we had not properly briefed the simple departure, I had no immediate answer for him. I referenced the SID, and we continued our climb. We became concerned when Dash 2 made the following radio call, "You are 2,000 feet low. Climb! Acknowledge."

The only thing anyone in our jet, other than the pilot, had done so far was try to get a clearance to take off.

This call from our wingman potentially saved our lives; our lack of situational awareness prevented us from realizing we were at 6,000 feet MSL, with terrain up to 5,900 feet MSL three miles ahead on our flight path. Keep in mind, this was a night flight. We acknowledged his call and increased our rate of climb to meet the altitude gates.

We eventually made it to the area and joined the fight, though late. The return-to-base was standard, with no extra calls from ATC or our wingman. Both Prowlers thoroughly debriefed the night's events and felt very fortunate to have survived to learn from the mistakes.

The brief failed to include departures from both runways, and we blindly expected the flight to follow the brief. Night departures from Nellis normally launch to the north, toward the operating area. That route is what we were accustomed to, which was all the more reason to have properly briefed the unexpected departure to the south.

The entire aircrew became consumed with getting clearance for the section, and only the pilot had SA enough to familiarize himself with the impending departure.

I once again allowed myself to become overly focused with something other than the aviation at hand. Once we were on the roll, and even though I sensed I wasn't prepared, I pressed as hard as possible to quickly get both jets airborne, allowing basic aviation principles to take a back seat.

The most dangerous mistake we made as a crew was to fixate on the TACAN failure. Even with an old jet like the Prowler, we had plenty of tools to properly fly a departure. At the very least, we had positive radio comms with ATC, and we easily could have asked for assistance, rather than scaring our wingman and endangering ourselves. We are trained at a very early stage in our aviation careers to always maintain scan. No one in our jet scanned anything, except the TACAN failure.

Fixation has killed many aviators. We are very fortunate not to have added ourselves to that list.

My crew allowed a very simple malfunction to turn into an *Approach* article by breaking very basic rules of aviation and not adhering to the principles of ORM. Brief for contingencies, especially if you are unfamiliar with the airfield and the airspace. Don't fly if you are not ready. The holdshort is a great place to catch up and recage your gyro.

Do not fixate; use all your instruments and maintain scan.

Finally, don't be afraid to ask for help from outside the aircraft. We had ATC and a wingman standing by to assist; we only needed to ask.

Lt. Winstead flies with VAQ-132.

# Not So Fast

By Lt. Jon Vanbragt

Carrier qualifying before my first nugget cruise was supposed to be a good time: Go out to the boat (always an adventure), get more traps, and finally feel a little more like a fleet aviator and a little less like an FRS student. However, the situation I found myself in during my night CQ turned out to be a whole lot less than a pleasurable experience.

The fun began in the bolter, waveoff pattern. After one discontinued approach and a trip around the pattern, I was ready to get on deck. Bull's-eye and needles were both "on and on" at three-quarters of a mile, when my WSO made the ball call. Just like paddles had briefed me, I kept the ball on the happy side of the lens, proactively flying it to the best of my ability. My reward was a 3-wire, and I went to mil power. That's when life got a little more complicated.

*I watched in horror as the edge of the angle passed beneath the nose of my aircraft.*

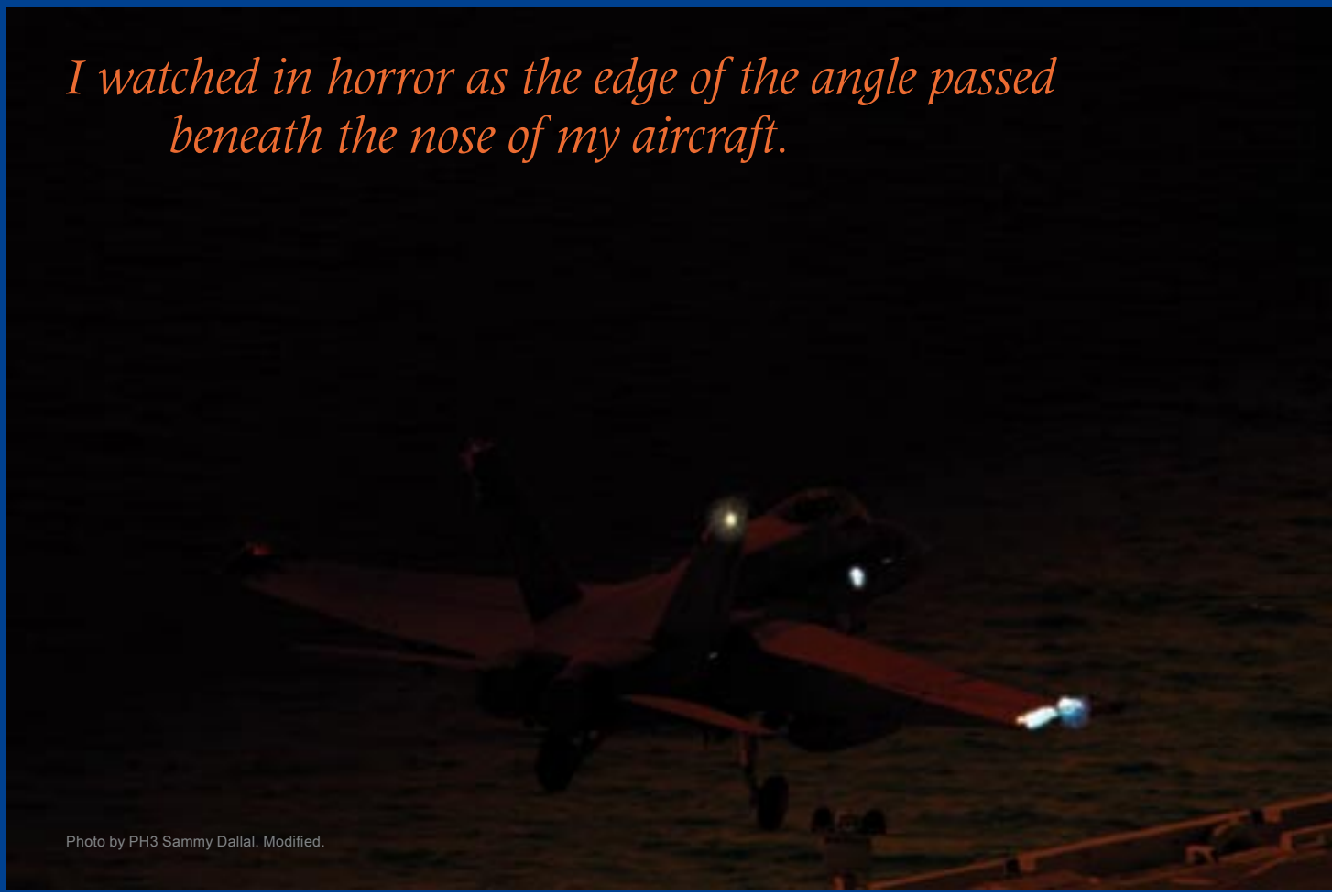

Photo by PH3 Sammy Dallal. Modified.

On the roll out, I felt the familiar tug of the hook catching the cross-deck pendant, as the arresting-gear motors dissipated my jet's energy. Approaching the edge of the angle, I felt a jerk and then another. Even with my very limited experience around the boat—this was my 10th night trap—I knew something was wrong. I watched in horror as the edge of the angle passed beneath the nose of my aircraft.

I screamed, "Eject!"

I grabbed the handle with my right hand, but, fortunately, my WSO had beaten me to the punch; then there was a fireball.

Next thing I remember was a riser hitting the side of my helmet. I was disoriented and thought I was upside down. It made no sense to me to see an inflated parachute in what I believed was the space below me. Just as I realized I was right side up, I hit the water. Because of the attitude of the jet during ejection, I had received only a single swing in the chute—almost the worst-case scenario taught at water survival.

I paddled in vain, trying to get away from the carrier as it lumbered toward me.

More chaos ensued as my horse collar auto-inflated. I found myself floating in the water, being dragged by my chute. I reached up as the SEAWARS (sea-water-activated-release system) auto ejected one of the two risers, but I then noticed what I assessed to be a bigger problem: The aircraft carrier was headed right for me.

I paddled in vain, trying to get away from the carrier as it lumbered toward me. I looked up just in time to watch the angle pass me for the second time that night. The carrier surprisingly was quiet as it pushed through the water a mere 10 feet away. I heard none of the familiar noises of the flight deck, just the splashing of waves. As I approached the aft end of the ship, I started to get sucked into the wake. I ended up almost directly behind the carrier. The stage now was set for my third surprise of the night.

My left Koch fitting, which I completely had forgotten about, still was connected to my harness. Unfortunately, my SEAWARS had not activated on that fitting, and I was about to find out firsthand just how strong the pull of a parachute could be. As mine got caught in the wake of the carrier, I was tugged underwater with a force I couldn't resist. Frantically, I pawed at the Koch

fitting, trying to overcome the force pulling me below. I was able to free myself and float to the surface after having been pulled about 10 feet underwater. When I reached the surface, I realized one of my options from the IROK (inspect/inflate, release raft, options/oxygen, and Koch fittings) procedure just had saved my life. I had not yet removed my mask, and oxygen from the emergency bottle in my seat pan still was being pumped to me while I was underwater.

As I sat in the wake of the ship, wondering what just had happened to put me in the ocean, I started to look around for the SAR assets. To my left, I viewed one of the saddest sights of my life: The tails from my FA-18F still were protruding from the ocean.

"Well," I thought, "better try to get rescued."

The first thing I did was to try to free my raft from my seat pan. After unsuccessfully fumbling with the box, I decided to remove it; I again was unsuccessful. I couldn't free the fittings wedged between my body and personal flotation.

Giving up on the raft, I began to scour my survival vest for the items I thought were important for my current situation. I reached into my left pocket and felt what seemed like my strobe light. I couldn't see a thing in the dark, and, with my gloves on, I was fumbling even more. I pulled out the object and got exactly what I didn't need just then: my water bottle. After a few curse words, I let the bottle go and went back into my left pocket.

Next, I pulled out my flashlight. Twisting the top, it flickered to life. Light, oh yeah! I flashed that light at everything I could see. I flashed it at the helos, the plane guard, the carrier, and even my helmet to get the SAR crew's attention. I finally concluded the light alone was not enough, and I decided to go for the other pocket.

Reaching into my right pocket, I felt around some more and found something I knew would come in handy: the day-night flare. During my search in the right pocket, though, I dropped my light and again was without illumination. Pulling out the nearest end of the flare, I held it away from me and popped the actuator. I was greeted with a large spark, which made me very happy—until a huge cloud of smoke emerged. I had popped the wrong end! Once again, after mumbling a few expletives, I turned the flare around and actuated the night end, waving it at the nearest SAR helicopter.

As the flare burned out, I went back into my left pocket to try to find the pencil flares. Instead, I got my arm wrapped in the cord that secured the light to my vest. I noticed the light still was on in the water below me and pulled up the cord to retrieve my light. As the helo began to circle over me, I flashed my helmet light again to help them see me.

The SAR helo dropped off a rescue swimmer, who very calmly came over to me, asked me if I was all right, and began to clear any lines that may have been wrapped around me. I was very impressed with his patience and thoroughness, as I probably was much more anxious than he to get aboard his helo. Once sure I was clear, he attached my D-ring to the helo hoist, and I was on board the SH-60 before I knew it. My WSO already had been picked up by the helo crew and had no injuries from his ejection.

I learned many things that evening. The ejection, while intense and overwhelming, was just the very beginning of the survival process. I'm thankful I wore my dry suit in the cold water. I'm fortunate I had not removed my mask immediately on water entry and that I had gotten the second Koch fitting off while in the ship's wake.

I also did many things poorly that evening. I should have concentrated on removing that second Koch fitting immediately after water entry. While the SEAWARS is designed to operate automatically, I should have been ready to free myself from my chute. When I was in the wake, I should have taken a few deep breaths, relaxed and removed my gloves. The added dexterity greatly would have helped me in locating and actuating my survival gear. If my hands had gotten cold, I could have put the gloves back on. I should have been more familiar with the location of my survival gear. Five minutes more in the PR shop to refamiliarize myself with the location of survival items in my vest could have saved me precious moments of fumbling while in the water.

It's easy to say you know where your gear is, and it won't be a problem to find a certain item, but, with the disorientation and shock of ejection, I found even the simplest of tasks was very difficult. Just because you can find the gear when you're suiting up does not mean it will be readily available while you float in the water on a dark night.

Finally, I never should have have put my wallet and my I-pod in my helmet bag. It's bad enough to eject, but losing those items added insult to injury.

Lt. Vanbragt flies with VFA-102.

# Where Is My Beta At?

By Lt. Shawn Frazier

After flying eight uneventful field-carrier-landing-practice (FCLP) passes, it was time to full stop and let someone else jump in and give it a shot. We had a clear, sunny day in Virginia, and we were flying FCLPs at NALF Fentress—getting ready to hit the boat for work-ups. My squadron was the first E-2C squadron to be fitted with the new eight-bladed, NP2000 propellers. We'd only had the new props for a short time and were acting as a test bed for the new system.

The Hawkeye power-lever quadrant has flight-idle stops that prevent the power levers from inadvertently being brought into the ground range. For full-stop landings, the power levers are brought back until they hit the stops, then they must be pulled up to the top of a detent. At this point, two beta lights come on, indicating the secondary low-pitch stops (SLPS) have been disabled, which permits selection of propeller-blade angles below flight idle. With the power levers at the top of the flight-idle stops and two good beta lights, the power levers can be brought safely back into the ground (beta) range, or so we are led to believe.

The arresting gear at Fentress is squirrelly, and you easily can be knocked out of battery if your landing technique isn't perfect. On touchdown, I smoothly brought back the power levers to the top of the flight-idle stops. Both beta lights illuminated, and I called for concurrence from the copilot. I brought back the power levers to ground idle and held back pressure on the nose until our mainmounts crossed over the arresting gear. Once over the gear, I brought back the power levers into reverse to decelerate the plane. As soon as the power levers came back, the aircraft made a surging noise, and we felt a violent swerve to the left. This swerve was accompanied by the master-caution lights. I immediately fed in full right rudder and brought back the power levers toward flight idle. I reached down and engaged the nosewheel-steering handle, and used it to try to keep the aircraft from departing the runway.

I looked down to see what had caused the master-caution light, but the caution-lights panel was blank. When the new prop system was installed, the caution light for a failed electronic-propeller control (EPC) conveniently was placed on the eyebrow panel, out of sight, above the pilot's head. I looked up and saw the EPC FAIL light was lit, and the beta light on the right prop had extinguished. As I tracked the plane back toward runway centerline, I looked down and noted that horsepower on the left engine was about 400 indicated horsepower (IHP), while the right engine was up over 1,200 IHP. I realized the right propeller was stuck in the flight range, and I couldn't use either propeller to help stop the aircraft without losing directional control. Our airspeed now was below 100 knots, and I was running out of runway. I considered the option of taking the plane airborne but decided I'd have a better chance of getting it stopped on the runway. I stomped on the brakes and called for the copilot to stand by to drop the hook for the long-field gear.

With both engines running at near flight idle, the plane wasn't slowing down very well. The brakes on the E-2 aren't much better than the ones on my mountain bike, and any amount of heavy braking causes them to heat up—fast. Knowing this, I tried to pump them a little to keep them from completely failing.

I got the aircraft to a controllable speed by the end of the runway, and we taxied clear. I selected full flaps to force more airflow over the brakes, but, with the power up as high as it was, I had to engage the parking-emergency brake to keep the aircraft stopped.

Photo by Mass Communication Specialist 3rd Class Michael D. Cole.

Another special feature of the E-2 is that it drains fuel from the fuel manifold upon shutdown. This drain conveniently is located directly above the mainmounts and the brakes, which, by now, had to be glowing red. We called the Fentress crash crew for precautionary firefighting assistance and sat there turning for about 15 minutes to let the brakes cool before we shut down the engines. After shutdown, we inspected the brakes and found they completely were fused. A maintenance crew had to drive from Norfolk to change out both mainmounts.

The situation could have been a lot worse.

An instructor in one of the training commands once said something to me that I thought was funny at the time, but, as years have passed, what he said has saved me more than a couple of times. He said, "If something bad happens right after you do something in the aircraft, no matter what it was you did, undo it."

This advice may sound like common sense, but trust me, adding power when the aircraft is pointing at the dirt isn't the intuitive thing to do. With one propeller in a reverse-blade angle, the other in a flight-blade angle, and the power levers dumping gas into both of them, the differential thrust produced caused an intense and uncontrollable swerve. Bringing the power levers back up toward flight idle more closely matched the thrust produced by each prop and acted to provide more airflow over the rudders for directional control. This action ultimately allowed me to keep the aircraft from departing the runway.

The actual cause of the problem never was determined with any certainty. It's believed to be associated with the propeller J-box and the weight-on/off-wheels signal that runs through the J-box. Problems have been noted with that component since this incident. The J-box was changed, and this problem never manifested itself again.

The next time you turn on your ACLS receiver and your left low-fuel light comes on, turn it off; the light will go out.

Yes, that happened to me, too. Coincidence? Who knows?

Lt.Frazier flew with VAW-124; he currently is with VAW-120.

Composite picture.

# Know When to Say When

*By Sgt. Travis A. Tibbitt, USMC*

During the course of a career, a person often can observe things he or she considers to be learning points. Having encountered many situations, I've gained a sense of humility when it comes to doing my job as an aviation professional. The hardest thing I found is to swallow my pride, and the easiest way to teach a lesson is from experience. When that event happens to you, the learning curve accelerates—sometimes with deadly consequences.

I remember being a young man, excited about—but unsure of—my upcoming tour in Japan. The duty station I was headed to had a mix of many types of aircraft. Being an air-traffic controller, this job was a challenge that most took head-on, because, if you can perform well at facilities like these, you generally will do well wherever you go. After getting several qualifications and deploying, I looked forward to finishing my time and heading back to the states. Then came the time of knowing when to say when.

I just had finished conducting numerous back-to-back approaches to the airport as the final controller. I asked the supervisor for a break, a chance to go outside, get some fresh air, and clear my head a little.

In the meantime, I noticed another controller, our radar chief, had walked into the room. The chief was the technical and practical resident expert in that branch. I remember greeting him and asking why he was down there; he rarely was in the room. You would think an individual in that position practically would live there; not the case with the chief. He said he was there to get his mins. Every controller is responsible for maintaining currency on the positions on which they are qualified. He came this day to get his mins on approach.

A short time later, it happened. The door to the radar room flew open, and out came one of my buddies. After a few expletives and say whats, we went back into the radar room.

I felt like we had walked into an accident. The radar chief definitely was getting his mins, and he wasn't prepared for the situation. As soon as he took control of the position, two aircraft played bumper cars while refueling in midair. One pilot was smart and ejected almost immediately; the other was hell-bent on getting his severely damaged, almost un-flyable aircraft back to base. To complicate the situation, here was our controller, who should have known more than most how to handle the situation, completely lost in the ensuing complications from the emergency. The sense of wanting to help came over me, but I was not assigned to any position by the supervisor. Having been a radar supervisor at my last facility, I did what I could to help. I plugged into a vacant position, started writing down information, and helped to clarify intentions while the chaos increased.

Meanwhile, the radar chief's controlling efforts grew worse. He made wrong calls and turns, wrong altitudes, and had severe situational-awareness issues. The supervisor, who was on at the time, was new in that position. He later said he was unsure about pulling a struggling controller off position because he was the radar chief; he was afraid of the repercussions.

The aircraft eventually made it back and somehow landed. The tension in the room, though, had not eased yet. There were some major faults with the way business was conducted that day. Everyone knew the situation was bad, but no one would say the obvious. Similar problems occur almost every day in our profession, and, although the problems are troubling to deal with, they must be addressed. The simple truth was the supervisor should have acted on his gut instinct, pulled off the controller, and replaced him with a more capable one. A recent boss of mine always said, "Don't take it personal; business is business." This phrase exactly fits the situation with the radar chief. Being a supervisor carries a heavy responsibility.

I later talked with the young man who had been in the room with the chief. He still was unsure what the best course of action should have been to handle the situation, but he definitely learned something from witnessing the mishap.

The rest of the story is about ego. The radar chief was known to have one; a good, but sometimes dangerous trait in our profession. An ego usually showed to those around you that you were a good controller, and there was nothing you could not handle. But, having an ego also is a double-edged sword. A person who usually is not willing to ask for help or relief may not want to appear to be weak. Too bad that pride and ego sometimes can take a front seat to safety.

*Does it show weakness to reach out to those who are struggling?*

Why is it that we are afraid to ask for help? Does it show weakness to reach out to those who are struggling? How can everyone see something happening and yet not take the right action?

I could have said something to the supervisor that day, perhaps a suggestion to replace the controller with someone who was better able to handle the situation. If you believe something is not right and can offer sound advice, it is your responsibility to do so. This proactive effort sometimes may get you into hot water, but it may just save a life.

I would rather have to take a lecture on knowing my place in the chain of command than watch a senseless and tragic event unfold because I was too weak to stop it. Our place as aviation professionals and enthusiasts is to assure this mindset never fades. From the most seasoned professional to the newest trainee, know when to say when.

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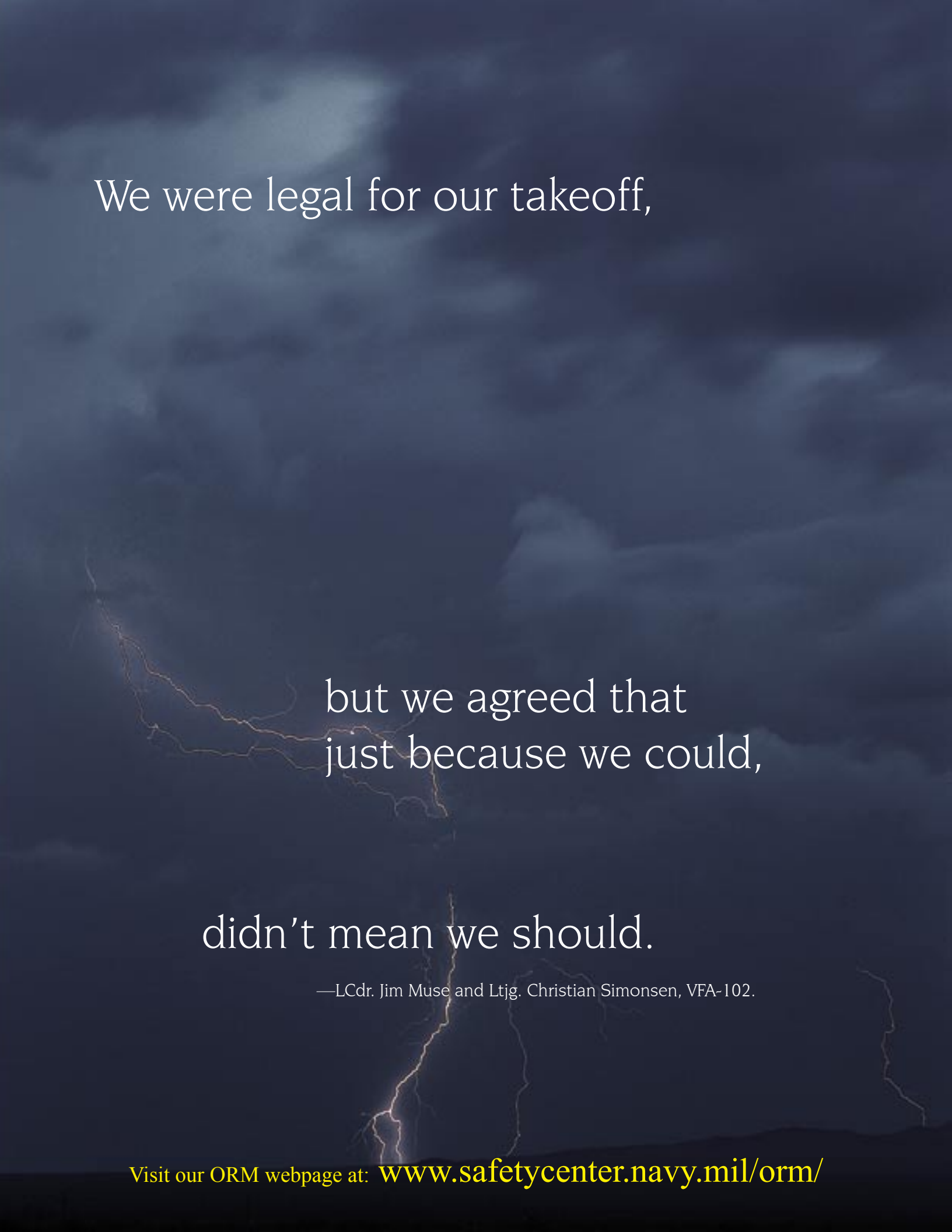
We were legal for our takeoff,
but we agreed that
just because we could,
didn't mean we should.
—LCdr. Jim Muse and Ltjg. Christian Simonsen, VFA-102.
Visit our ORM webpage at: www.safetycenter.navy.mil/orm/