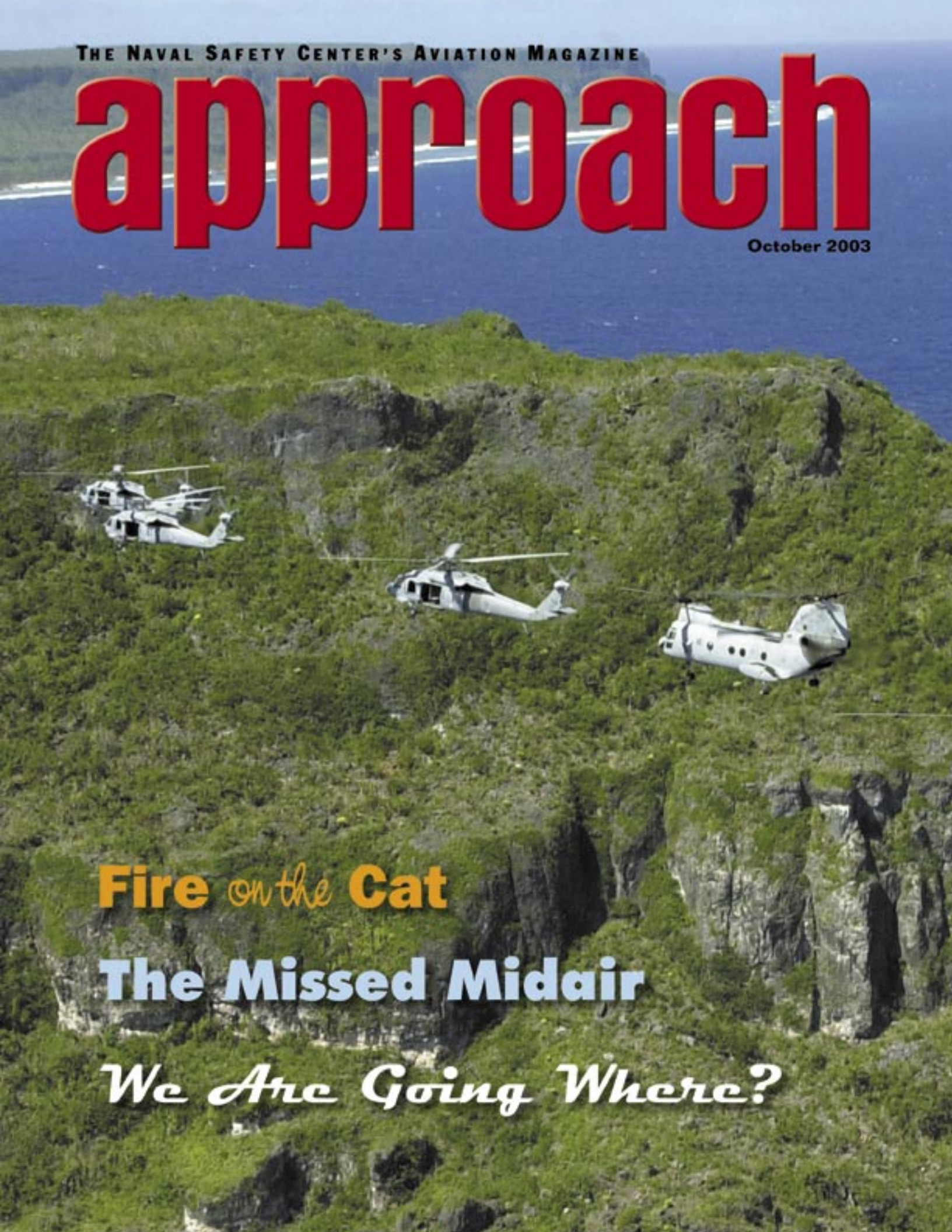
THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

October 2003



Fire on the Cat

The Missed Midair

We Are Going Where?

approach

The Naval Safety Center's Aviation Magazine

October 2003 **Volume 48 No.10**

On the Cover UH-46 Sea Knights and UH-60 Black Hawks from HC-5, stationed at Andersen AFB, fly over the northern tip of Guam. Photo by Airman 1st Class Joshua P. Strang, USAF

RAdm. Dick Brooks **Commander, Naval Safety Center**

Col. Dave Kerrick, USMC **Deputy Commander**

Derek Nelson **Head, Media Department**

Naval Safety Center (757) 444-3520 (DSN 564) Dial the following extensions any time during the greeting

Publications FAX (757) 444-6791

Approach Staff

Jack Stewart **Editor**
jack.stewart@navy.mil Ext. 7257

Patricia Eaton **Graphics, Design & Layout**
patricia.eaton@navy.mil Ext. 7254

Matthew J. Thomas **Staff Photographer**
matthew.j.thomas@navy.mil Ext. 7244

Ginger Rives **Distribution (Magazines and Posters)**
virginia.rives@navy.mil Ext. 7256

Col. Dave Kerrick, USMC **Aviation Safety Programs**
david.kerrick@navy.mil Ext. 7225

Cdr. Buzz Bauers **Aircraft Operations Division**
wayne.bauers@navy.mil Ext. 7203

Cdr. Chuck Huff **Aircraft Mishap Investigation Division**
Charles.E.Huff@navy.mil Ext. 7236

Capt. Nick Webster **Aeromedical Division**
nicholas.webster@navy.mil Ext. 7228

Mission Statement

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.

Approach is published monthly by Commander, Naval Safety Center, and is an authorized publication for members of the Department of Defense. Contents are not necessarily the official views of, or endorsed by, the U.S. Government, the Department of Defense, or the U.S. Navy. Photos and artwork are representative and do not necessarily show the people or equipment discussed. We reserve the right to edit all manuscripts. Reference to commercial products does not imply Navy endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission; please credit the magazine and author. *Approach* is available for sale by the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Subscription price: $53 domestic, $74.20 foreign per year. Telephone credit card orders can be made 8 a.m. to 4 p.m. Eastern time at (202) 512-1800.Periodicals postage paid at Norfolk, Va., and additional mailing offices.

Postmaster: Send address changes to *Approach*, Code 73A,
Naval Safety Center, 375 A Street
Norfolk, VA 23511-4399

Send articles and letters to the address above, or via e-mail to the editor, jack.stewart@navy.mil.

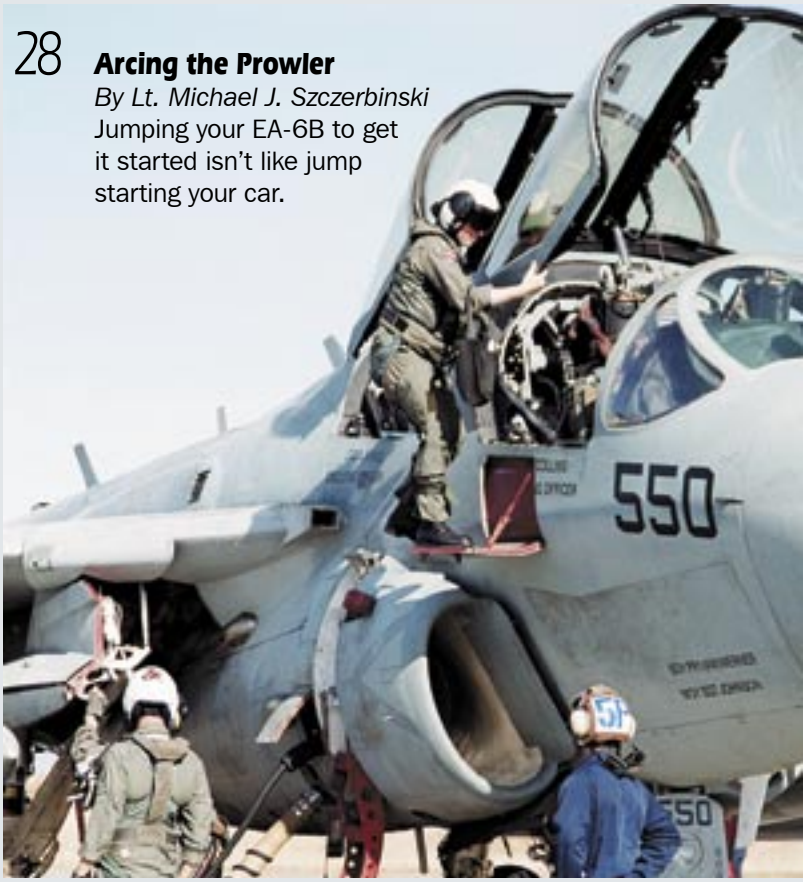
Features

Departments

October Thanks

Thanks for helping with this issue...

Lt. Chris Ognek, VAQ-136
LCdr. John Valentine, USCG, VT-2
LCdr. David Samara, VAQ-141
LCdr. Stephen Blasch, VS-21
Capt. Daren Brown, VMR-1
LCdr. Robert Polvino, VAW-124
Lt. David Person, HSL-48
LCdr. Vic Weber, VFA-25
LCdr. Will Powers, VFA-37
LCdr. Richard Schgallis, VAQ-137
Lt. Gregg Gray, VT-6



Visit us on-line at
www.safetycenter.navy.mil

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION 01 October 2003
The Unitied States Postal Service requires all publications publish a statement of ownership, management and circulation.

Date — 01 October 2003
Title of Publication — *Approach*
USPS Publication No. — 1094-0405
Frequency of Issue — Monthly

Location of Office of Publication
Commander
Naval Safety Center
375 A Street
Norfolk, VA 23511-4399

Publisher — U.S. Navy
Editor — Jack Stewart
Owner — United States Navy
Total no. copies printed — 16,103
No. copies distributed — 15,853
No. copies not distributed — 250
Total copies distributed and not distributed — 16,103
Issue Date for Circulation Data Above — October 2003

Taking a Turn on Looking Out for Each Other

Throughout my Navy career, I've seen what I like to call the goods and the bads of our day-to-day operations. I suspect we've all seen these things. On the good side, I think of all the safety programs and initiatives we've developed over the years to improve the lives of our Sailors, Marines, and civilians. These efforts produced safer working environments and lower mishap rates. They enhanced our ability to operate and to complete our mission. On the bad side, however, we've all seen the aircraft and ship mishaps and near-mishaps, as well as the traffic and recreational accidents, that cost us lives and valuable resources. In our profession, you can't do the things that we do so well every day without getting a first-hand introduction to the hazards and risks of naval life.

If you stop to think about what we learn throughout our lives, a lion's share of our knowledge comes from our parents. One of the most valuable lessons I learned from my parents was to look out for myself, as well as those around me. We could call those "growing up" lessons the beginnings of risk management, and, although it was different than today's operational risk management, the idea was there. Now that I've assumed command of the Naval Safety Center, I think of those early lessons and how they apply to this position and this command. Our job here is the same as the job of every command:

- to look out for the well-being of our Sailors, Marines and civilians,
- to ensure as safe a working environment as possible,
- to identify the hazards we all face in both our professional and personal lives,
- to educate everyone in the vital importance of risk management in everything we do, and
- to improve readiness so we can do what we do best—operate all over the world.

During the last 50 years, we've made some real progress in reducing our overall mishap rate. In the last 10 years, however, we've hit a fairly level plateau. The numbers change up and down a percentage point or two, but, overall, they're consistent. The bottom line is perhaps what has happened in the last five years: From FY98 to FY03, mishaps cost us 1,179 lives and $4.3 billion.

Today, the challenge is to reduce mishaps by 50 percent in the next two years. This goal requires the leadership and dedicated efforts of everyone. It requires some changes in the way we do things, what we expect of each other, and what we accept as operations normal. Finally, it requires every Sailor, Marine and civilian to take a turn on looking out for each other. Along those lines, our goal at the Safety Center is to provide every command with the tools, data, advice, and guidance necessary to prevent the next mishap. Our focus is the fleet.

It's an honor to be here, and I look forward to working with all of you.

RAdm. Dick Brooks
Commander, Naval Safety Center

No Need for a Stan Check

Photo by PHAN Michael B. W. Watkins. Composite.

By Lt. Scott McLain

The seas were angry that day–like an old man sending back soup at a deli. Our flight was one of the first night missions of Operation Iraqi Freedom (OIF). We went to the gaggle-strike brief, knowing the weather was less than desirable. After the brief, the admiral stood up and told us he knew the weather was bad and would affect our mission, but troops on the ground needed our support, and we were going, no matter what. The mission had to be done. I was a junior E-2C carrier-aircraft plane commander (CAPC), with another junior CAPC in the right seat. I was a little nervous.

After being shot off the pointy end, we entered the clouds at 2,000 feet and remained in the goo through the climb to our stationing altitude of FL270. Because our station was 450 miles over the beach, the No. 1 priority in the cockpit was fuel conservation. During the climb-out, the copilot's airspeed dropped to zero, and his altimeter dropped 2,000 feet. My instruments held steady, so we concluded his pitot-static system was icing over.

We climbed through and leveled off in the most severe thunderstorm I ever had encountered. Saint Elmo's fire was all over the windscreen, and, every couple of minutes, a finger of angry electricity would crawl from the bottom of the windscreen to the top. The admiral's statement rang deep in our minds: We had to keep going. We were the only command-and-control show in town, and, without us, no aircraft would be permitted to fly in-country.

Our track dragged us east to Iraq. The return leg would retrace our steps but into a steep headwind. As the combat-information center (CIC) crew worked their strike groups in-country, our main objective was to correctly

manage the fuel. We had to make it back to the ship for the recovery with at least barricade plus two on the ball. This requirement meant I would have three looks at the boat before bad stuff would happen.

While on-station profile, heading east, my AOA froze, so I no longer could fly a solid 20 units to maintain a max-conserve profile. I had to rely on my airspeed and fuel flow to maintain profile on-station and keep supporting the ingressing strike packages.

As if my plate wasn't full enough, the pitch-feel light came on, caused by the copilot airspeed failure. We took manual control of the system and matched up the airspeeds at 150 knots. We climbed to FL290 for clearer air but had no luck. We were IMC, with only the basics, doing everything we could to make sure strikers were getting in-country, dropping bombs on target, and helping the troops on the ground.

We continued to press east down the track, the whole time trying to judge when we needed to turn around and return to the ship. The way things were going with my instruments, my calculations seemed close but not close enough to make me feel comfortable.

We arrived at the determined turn point and headed west toward the ship. In hindsight, it probably was a little early, but we decided to err on the safe side. A tiny ray of goodness arrived, when we finally broke out on top of the clouds, but it didn't last long. As we watched lightning arc from cloud to cloud below us, our primary attitude reference, the carrier-aircraft-inertial-navigation system (CAINS), died. I switched to our backup, the heading-and-attitude-reference system (HARS) and pressed homeward.

About 20 minutes later, I saw the gearbox-oil pressure on my starboard engine begin to fluctuate. This fluctuation usually means a transmitter problem. I looked for secondary indications of an oil-system failure and told the mission commander (in the back), about our situation. Our MC was at a critical stage in the mission; he couldn't turn off the radar and help me with a visual inspection of the starboard nacelle. The oil pressure continued to drop off steadily and remained bottomed out for longer and longer periods of time—not what I've seen before with transmitter problems. As I scanned my oil temperature, it increased one unit, then two. We needed to shift the focus from the assigned mission to our quickly degrading aircraft. The NFOs still were working their magic in the back, but I knew we were running out of time.

> *Saint Elmo's fire was all over the windscreen, and, every couple of minutes, a finger of angry electricity would crawl from the bottom of the windscreen to the top.*

Fortunately, the return trip to the ship was above the bad weather. Unfortunately, there were no close diverts. The nearest divert field on our flight path was Incirlick, Turkey, about 100 miles away. For what seemed like an eternity but probably was closer to five minutes, we trudged back to the ship, as the NFOs completed their mission. Finally, the mission commander examined the starboard nacelle and said oil was pouring out of it. Taking this plane back to the ship in the goo, at night, with a pending engine shutdown, no longer was an option. I instructed my copilot to contact Incirlick approach.

A flickering oil-low light now accompanied the starboard oil-pressure fluctuations. Ninety miles outside Incirlick, approach told us they couldn't pick us up until 50 DME. The engine still was running, and oil pressure was within limits. I had no idea what the ceilings were, and I knew we couldn't maintain our current altitude with one engine. I decided to leave the engine running and maintain our current altitude, rather than begin a single-engine penetra-

tion into the goo so far out from Incirlick.

At 50 miles, approach picked us up with radar vectors for descent. The cockpit indications assured me that we'd secure the engine before landing, so my copilot contacted approach to make sure Incirlick had rigged their arresting gear for a trap. We were told the active-duty runway, runway 5, had rigged only the long-field gear, and it would take 30 minutes to rig the short-field gear. Runway 23, however, would be available immediately with the short-field gear. With the light winds reported at the field, and the deteriorating condition of the aircraft, I decided to take the trap on the off-duty runway.

On the descent, the gearbox-oil pressure no longer registered, the oil temp was high but within limits, the power-section pressure fluctuated, and I still had a flickering oil-low light. Just to be sure, I asked the mission commander how much oil was leaking out the nacelle.

He replied, "I don't know, all of it?"

I got the point; it was time to shut down the engine.

As if these problems weren't enough, I realized as we descended below the clouds to 4,000 feet that I couldn't see out my windscreen. It was frozen over. The pilot's windshield anti-ice circuit breaker had popped. The breaker was reset, and the windshield anti-ice returned. As I wiped the melting ice from my warming windscreen, we ran through the procedures to secure the starboard engine. When the engine feathered, we lost the cockpit's multi-function-control-display unit (MFCDU), our main navigation-situational display, and our main UHF radio. We tuned one of the back radios and continued our visual approach to the field. As we neared the field, the controller called, "Field at 12 o'clock, call it in sight."

We were below the weather, with good visibility, but the field wasn't there. We executed a single-engine missed approach but didn't go back up into the clouds. As we were being vectored into the box pattern for another look, I requested the PAR. Of course, the PAR wasn't available. As I set up for the TACAN approach, the light in my head finally came on, and I asked approach to confirm the lights were on for runway 23. On cue, the runway lights came on, and we flew a single-engine TACAN approach to a successful arrestment.

That ordeal should have been enough for anyone, but we were in the middle of supporting the war on Iraq, so we had to get the plane back to the ship, ASAP. The next morning, some of our finest maintainers arrived by helo and fixed a loose hose on the oil-scavenge pump.

After a few hours of sleep, we departed that evening for the ship. As I raised the gear on the climb-out, I got an unsafe-nose-gear-up indication. We just couldn't win for trying. This plane had had the same problem the morning before, and all three gear had come down and locked when lowered. I needed to get this bird back in the fight, so I requested the tower to visually inspect the gear. They said the gear was up, and the doors looked flush, so I pressed on to the ship.

The last 48 hours had me thinking the worst, so I prepared for an unsafe-down indication for my night approach and worked the gear-down bingo numbers, just in case. Also, according to the emergency procedure, I would be speed-limited en route the ship and on the approach.

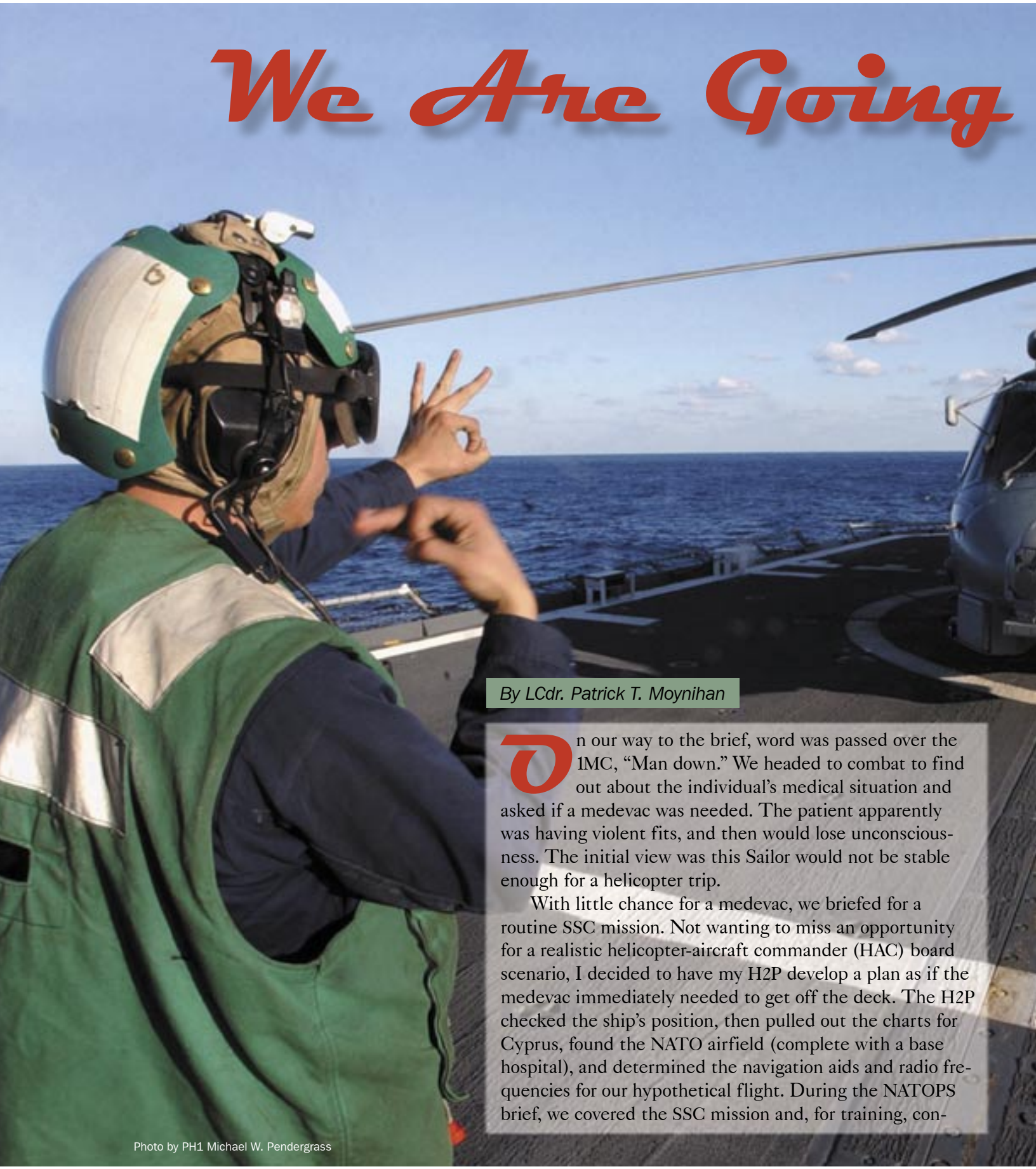
We told marshal we were airspeed-limited and would transition early to the landing configuration. At 10 miles, we lowered the gear, and, fortunately, it gave me all three down and locked. Having completed the checklists to handle a failure to just about every system in the plane, I finally trapped, just as the left generator tripped offline.

After that flight, I told the NATOPS officer I had encountered about everything that could be thrown at me in the simulator, and it far exceeded anything that could be thrown at me in the plane. I told him I wouldn't need a STAN check this year.

Lt. McLain flies with VAW-124.

This sortie is a superb example of how ORM, CRM, and outstanding airmanship come together to complete the mission and preserve a vital combat asset. I recommend CRM facilitators retain this article and use it regularly as an example of everything done right. —Cdr. Darryl Barrickman, E-2 analyst, Naval Safety Center

We Are Going



By LCdr. Patrick T. Moynihan

On our way to the brief, word was passed over the 1MC, "Man down." We headed to combat to find out about the individual's medical situation and asked if a medevac was needed. The patient apparently was having violent fits, and then would lose unconsciousness. The initial view was this Sailor would not be stable enough for a helicopter trip.

With little chance for a medevac, we briefed for a routine SSC mission. Not wanting to miss an opportunity for a realistic helicopter-aircraft commander (HAC) board scenario, I decided to have my H2P develop a plan as if the medevac immediately needed to get off the deck. The H2P checked the ship's position, then pulled out the charts for Cyprus, found the NATO airfield (complete with a base hospital), and determined the navigation aids and radio frequencies for our hypothetical flight. During the NATOPS brief, we covered the SSC mission and, for training, con-

Photo by PH1 Michael W. Pendergrass

tinued to brief the medevac that "would not happen." For this contingency, we briefed one pilot would fly, while the other would handle the radios, charts and clearances, with backup as required from the rest of the crew.

The H2P did well in the scenario, and we were ready to go on our tactical mission. Just after flight quarters sounded, word was passed for me to go to combat. I was told the patient was sedated, as stabilized as he was going to be anytime soon, and needed to immediately get to a hospital for a CAT scan. I felt confident in the preflight planning we had done and said we were ready to go. LAMPS, as always, is flexible. Unfortunately, there wasn't a CAT-scan machine in Cyprus, so our destination was changed to Haifa.

We repeated the same drill and included a few new variables: It was VFR but after sunset, Haifa only has an NDB, and we were directed to land at a hospital-helo pad for which we had absolutely no information. Visions of a rooftop-landing site collapsing under the 19,000 pounds of our SH-60B, with half a bag of gas, went though my mind as I began to hum the theme music from "Jaws" and "Airplane." The HAC scenario had kicked into another level of complexity.

I made my plans clear: "If I can find the hospital, and I am certain a safe landing can be made, I'll land there. If not, I'll land at the airfield, and we'll wait for an ambulance."

Phone calls from the ship to our DESRON and to 6th Fleet indicated they were working on diplomatic clearance and an ambulance. With the general mood being tense at our destination, I did not want anyone flying an intercept on me, should I show up unannounced. We did not have the luxury to wait for official permission, but I was optimistic our emergency flight would not be a complete surprise.

We loaded the patient into the rescue litter and strapped him in the aircraft. Because we were concerned about the patient's condition, we took along an EMT corpsman. That decision was not made lightly because it meant my aircrewman did not have a seat in the helo. The corpsman carried a syringe of haloperidol (a quick-acting sedative), in case the patient went back into his seizures. We were ready to launch.

On the way into Israel, we tried to call Ben Gurion approach and Haifa tower. In the SH-60B, we can communicate by voice on our data link (HAWK) to the ship, and we can monitor two radios plus military-air distress (MAD, guard). The H2P worked both radios, and I stayed on HAWK, talking to the ship. The AW and I listened to the radios to back up the H2P.

More problems came simultaneously, as they always seem to do. The patient started to come out of his sedation and required both the AW's and corpsman's full attention. Inside the cockpit, we tried to figure out if the seizures again had started.

When we got our first contact with an Israeli-approach facility, they didn't identify their frequency. We quickly called out on tower and approach frequencies, trying to establish contact, but, after several attempts on both frequencies, we decided approach was calling on MAD. We had three radios up, plus HAWK link to the ship, and only two crewmen to keep the comm straight. I also was aware we were about to enter Israeli-territorial airspace without explicit permission. We still did not know where our landing site was or what it looked like.

Then I did the only thing I wish I had handled differently. I reverted to my original and dated training in methods of cockpit-resource management: I tried to do everything myself. I talked to approach and asked for a frequency to make the transition into Israeli airspace. Approach directed us to stay up on MAD, just as Haifa tower called us. I reached for the radio-selector switch and was about to respond to tower when I had another thought: "There is no need for me to try to keep the comms straight. Just continue to look for an unfamiliar landing spot."

I backed off the radios and reverted to what was briefed. The ATO managed the three voices on the radio without a problem. I took care of flying and kept the ship informed, while the AW kept his focus on our patient.

Haifa tower could not give us an accurate position for the hospital. We asked for a bearing and range from the airfield to the hospital or a lat-long for us to use with our GPS. Instead, they said a civilian helicopter was operating in the area, and it could lead us to the hospital. A quick look at the town revealed the hospital was not going to be easy to find, so we followed the only aircraft in the area at a distance of about a half-mile.

A short flight later, we were over the hospital's landing site. The pad was a large, well-lit concrete area. The nearest obstacle was the hospital, more than 100 yards away. As we over flew the site, we consulted the landing-site-evaluation checklist in our NATOPS. The winds were favorable, and the only obstacle on approach or departure was a 10-foot-high barbed-wire fence surrounding the site. A slow, steep, approach, using the searchlight to constantly check for unseen hazards, ended in an uneventful landing and departure back to the ship.

At the debrief, I felt good about how the mission unfolded, except for when we first established comms with the beach. My first reaction was to cut the H2P out of the loop. This error was minor, and we quickly corrected it, but I still learned a lesson. Just as a basketball player tends to go to his dominant hand under pressure, I went into the CRM mode I was most comfortable with: trying to do everything. I was wrong, and it took me a moment to admit I couldn't handle everything by myself. Impatience got the best of me.

Inside the cockpit, we tried to figure out if the seizures again had started.

Helicopters are multipiloted for a reason. Fortunately, my H2P stepped up. The only way to overcome a bad tendency is to practice correctly every time out.

LCdr. Moynihan flies with HSL 48 Det. 3.

VMR-1

Sgt. Michael Tatalovich, USMC

The MCAS Cherry Point SAR crew of “Pedro" conducted rappel operations on a recent training mission at MCALF Bogue Field. During the flight, the SAR crew chief, Sgt. Michael Tatalovich, smelled fuel in the cabin of the HH-46D. Looking out the crew door, he saw fluid on the deck below the aircraft and immediately advised the pilots and SAR crew to abort the flight.

While looking for the source of the fuel leak, he found fluid coming out the overboard drain in the engine-bay door. He slowly opened the door, which revealed a scupper full of fuel. Sgt. Tatalovich also found the fuel-supply-line fitting on the main engine was cracked at the bulkhead. He tied a rag around the crack to prevent potential atomizing of the fuel until the aircraft was on deck. Once there, the aircraft was shut down without further incident.

Sgt. Tatalovich's initiative, quick action, and knowledge of the aircraft systems prevented the potential loss of aircraft and aircrew.

BRAVO Zulu

VT-2

Capt. Jim Warner, USMC

A T-34C Turbo Mentor had a low-altitude power loss inside the initial recovery point after a day-contact flight (fam 4) from NAS Whiting Field (North), Milton, Fla. The student-naval aviator, 2ndLt. Jason Duke, USMC, was flying at 1,300 feet, at 170 knots, when the airplane suddenly lost power and rapidly lost airspeed.

Capt. Jim Warner, the instructor pilot in the rear cockpit, took the controls and climbed as he transitioned to 100 knots. He made sure his aircraft was clean and diagnosed the malfunction by referencing engine instruments. Capt. Warner noticed low torque and low-engine RPM (N1). While setting up for a forced landing, he also saw N1 rolling down through 50 percent; minimum N1 in-flight is 62 to 65 percent. Upon seeing the low N1 setting, he checked the propeller-condition lever to be full forward. He then engaged the emergency-power lever, which immediately restored power. Capt. Warner climbed toward North Whiting Field, called tower, declared an emergency, and made a precautionary emergency landing.

A compressor bleed-air line had separated, causing the engine-fuel control to roll back to minimum flow. The reference air is needed by the fuel control to properly meter fuel to the engine; without it, the engine loses useful power.

Crew Resource Management

Situational Awareness

Assertiveness

Decision Making

Communication

Leadership

Adaptability/Flexibility

Mission Analysis

CRM Contacts:

Lt. Dave Messman, OPNAV
CRM Resource Officer
(703) 604-7729, (DSN 664)
david.messman@navy.mil

ATC(AW) Douglas Thomas, NAVAIR
(301) 757-8127 (DSN 757)
CRM Program Manager
douglas.thomas@navy.mil

CRM Instructional Model Manager
NASC Pensacola, Fla.
(850) 452-2088/5567 (DSN 922)
https://wwwnt.cnet.navy.mil/crm/

Cdr. Mike Reddix, Naval Safety Center
(757) 444-3520, Ext. 7231 (DSN 564)
michael.reddix@navy.mil

Fish Food

By Ltjg. Jason M. Gelfand, USCG

Several years ago, I was part of a crew-resource-management circus that nearly killed three pilots, two crew chiefs, and destroyed one helicopter.

During work-ups for my first deployment, I was scheduled as pilot-under-instruction for low-light level (less than. 0022 lux), ship-landing practice off the Southern California coast. I often flew with ANVIS-6 night-vision goggles and felt comfortable using them. I had proceeded through the training syllabus with no problems.

Our UH-1N, along with an AH-1W from our detachment, planned to depart mother, an LHA, and fly to one of the two smaller decks in the amphibious-ready group. Our Huey would have two pilots, two crew chiefs, and an extra Cobra copilot. We would drop off the extra copilot on the small deck, where he would wait to hot seat with the first Cobra copilot. The brief and preflight were uneventful, but it was scary dark on the flight deck. Even with the NVGs, you barely could see the horizon.

Our night-ship-takeoff profile was similar to an instrument takeoff: It was more altitude than airspeed, compared to a standard day-takeoff from a runway. Pilots and crew chiefs were goggled from takeoff to landing. The pilot at the controls scanned outside to keep us clear of the ship and other aircraft on the flight deck and in the pattern.

The pilot not at the controls was concerned with the gauges and ensuring maximum power. Using the ICS, he also announced three indications of climb on the radar altimeter, vertical-speed indicator, and barometric altimeter.

The Huey NATOPS warns not to change radio switches and lighting configuration below 200 feet at night over water. We slid left, cleared the deck edge, and climbed to the pattern altitude of 300 feet for our departure from mother. While climbing, my instructor quickly directed me to switch to the small-deck radio frequency to get ahead of the game. I could picture the NATOPS text in my mind, as I mentally shrugged, ignored the gauges, and leaned over to tune the radio. Switching the radio took a while because the frequency for the small deck was not preset. The

next thing I remember hearing was our crew chief yelling, "Pull up! Pull up!"

As the IP yanked back on the cyclic, I felt the pulling-Gs feeling for the first time since T-34 training. I looked at the radar altimeter and read 25 feet—and that was after the climb started. If our crew chief hadn't yelled at us, we would have become fish food.

This near-mishap was caused by a breakdown of basic crew-resource management, and lessons easily can be digested, using the tenets of CRM.

Leadership: My IP failed to delegate tasks according to NATOPS. I only should have been tasked to back up the pilot at controls until we were established at pattern altitude.

Assertiveness: I failed to refuse an unreasonable request because of a copilot mentality. I should have said, "I'll get the radio as soon as we're over 200 feet," and continued to back up the IP on the gauges. Our crew chief, by contrast, was an experienced sergeant who had no hesitation about challenging two captains with 1,500 hours of combined experience when safety became an issue.

Situational Awareness: The IP had a breakdown in his basic-instrument scan, and I wasn't even looking.

Communication: The crew chief communicated the correct information with the right tone and volume. He spoke as if we were about to kill him, which was the case. We owed him our lives.

Mission Analysis: The Cobra passenger in the main-cabin center seat watched the entire scenario, including the radar altimeters winding down. As he was about to die, he couldn't say anything because he was fumbling with the Huey ICS press-to-talk switch—he wasn't familiar with the switches. Although not technically a crew member, he should have been more serious about riding in the aircraft at night over water.

When I returned to the training command as a CRM and flight instructor, I told this story at the end of every CRM class to illustrate the importance of the basics, especially as a new copilot. I do not recall any students ever falling asleep during this story. It's no surprise that self-induced, near-death experiences get the most attention in the classroom or ready room. When was the last time you told a similar story more seriously?

Ltjg. Gelfand is former Marine who flew UH-1Ns with HMLA-367, and later instructed at HT-8. He now flies with USCG Air Station Port Angeles.

Photo by Clover B. Christensen

Just Another "Ordi

By Lt. Dennis Metz

We were scheduled for our first night of field-carrier-landing practice (FCLP) since Christmas leave. The squadron just had returned from the boat three weeks earlier and would head back to the boat in another week. I was confident and ready to get home and start the weekend. The weather was typical for winter in Whidbey Island: It had rained for the past two days. But, now we had overcast skies, and it was mostly dry for our flight in the mighty Prowler.

Because of the overcast, Outlaw 501 had a three-man crew, instead of the standard two. The brief, hot pit, and crew switch went well. We flew the standard six passes without incident and set up for the landing. We came in for our last approach, selected 30-degree flaps, and landed on centerline.

I aerobraked until 100 knots, let the nosewheel touch down, and tapped on the brakes. I called out "good brakes" and released, then reapplied the brakes to continue our deceleration. At this point, the plane shuddered and pulled to the right. I immediately released the brakes and tried to use nosewheel steering to bring the aircraft left. The plane continued to pull right. Realizing we had a blown tire, I notified the crew and applied full left brake and full left nosewheel steering to counter the pull. The plane was slowing as it continued to veer toward the right side of the runway.

I thought we would stop before we left the prepared surface. However, we quickly were approaching the runway-edge lighting, with no indication the plane would stop or come back to the left. ECMO 1, our Ops O, made the call to shut down the engines just as I pulled the parking brake in a last-ditch effort to stop. The nosewheel hit a runway light.

As the engines whined down, ECMO 1 called on the radio, "We need a crash crew," just before we lost all power. A second later, the right mainmount left the prepared surface. Outlaw 501 pulled abruptly to the right and came to a complete stop—with significant right wing down. The plane came to rest with the nosewheel and right mainmount in the mud and the left mainmount on the asphalt.

We yelled to each other to safe the seats and asked if everyone was OK. We were sitting in an uncomfortably leaning jet, with no lights and no way to get down. When we opened the canopies, ECMO 1 saw his side of the jet was low enough to jump down from his boarding platform. As ECMO 1 came over to open our boarding ladder, the crash crew sped by us, down the center of the runway. They couldn't see us and assumed we had taken the long-field gear or had gone into the overrun. We got out our flashlights and tried to wave them down. The runway lights came on full bright, and the fire trucks and rescue equipment finally located us.

As we inspected the aircraft, we were impressed to see what 42,000 pounds can do to water-saturated soil. The right mainmount was two feet into the ground, and the left mainmount had made a 30-foot-long trench. The wings, pods and drop tanks were clear of the ground, and, except for some mud, they were fine. The right speedbrake had dirt and a scrape mark from hitting the ground, but it had closed because hydraulic power was lost with the engines off. The plane spent a few hours in the mud before being craned out and towed to the hangar later that night. The only damage was the blown tire and one broken hydraulic line (from hitting the mud).

The airplane had landed a little left, with the right tire on the centerline. The recently painted runway centerline was smooth and wet from rain, which had created a near-frictionless surface. As the brakes were applied, the right

nary" Landing?

tire skidded and rotated more slowly than the others. When it hit the tarmac again, the tire bull's-eyed and, on its next rotation, blew.

What could I have done differently? I had not briefed what to do with a blown tire, nor had I even considered addressing the possibility. I had thought of pulling the parking brake earlier, which probably would have blown the other tire, but it might have stopped the airplane on the runway. I didn't pull the parking brake because I didn't know what would happen; I thought I had the aircraft under control. After a little study and talking to others after the fact, I know the option of pulling the brake is preferred to an aircraft departing the prepared surface.

I could have made sure I was on centerline before testing the brakes. As soon as we knew we had the blown tire, we should have told tower, instead of just calling the crash crew.

No flight is ever just an ordinary event. We were too confident nothing could go wrong. Fortunately, the damage was minimal, and no one was hurt. Complacency now is a word I use in the ORM portion of the brief. I also try to brief all the weather contingencies. I quiz myself on things that might go wrong but aren't emergencies that we regularly practice or study. Seldom does anything in our business go as planned. You always should prepare for and brief to the unexpected.

Lt. Metz flies with VAQ-141.

I had not briefed what to do with a blown tire, nor had I even considered addressing the possibility.

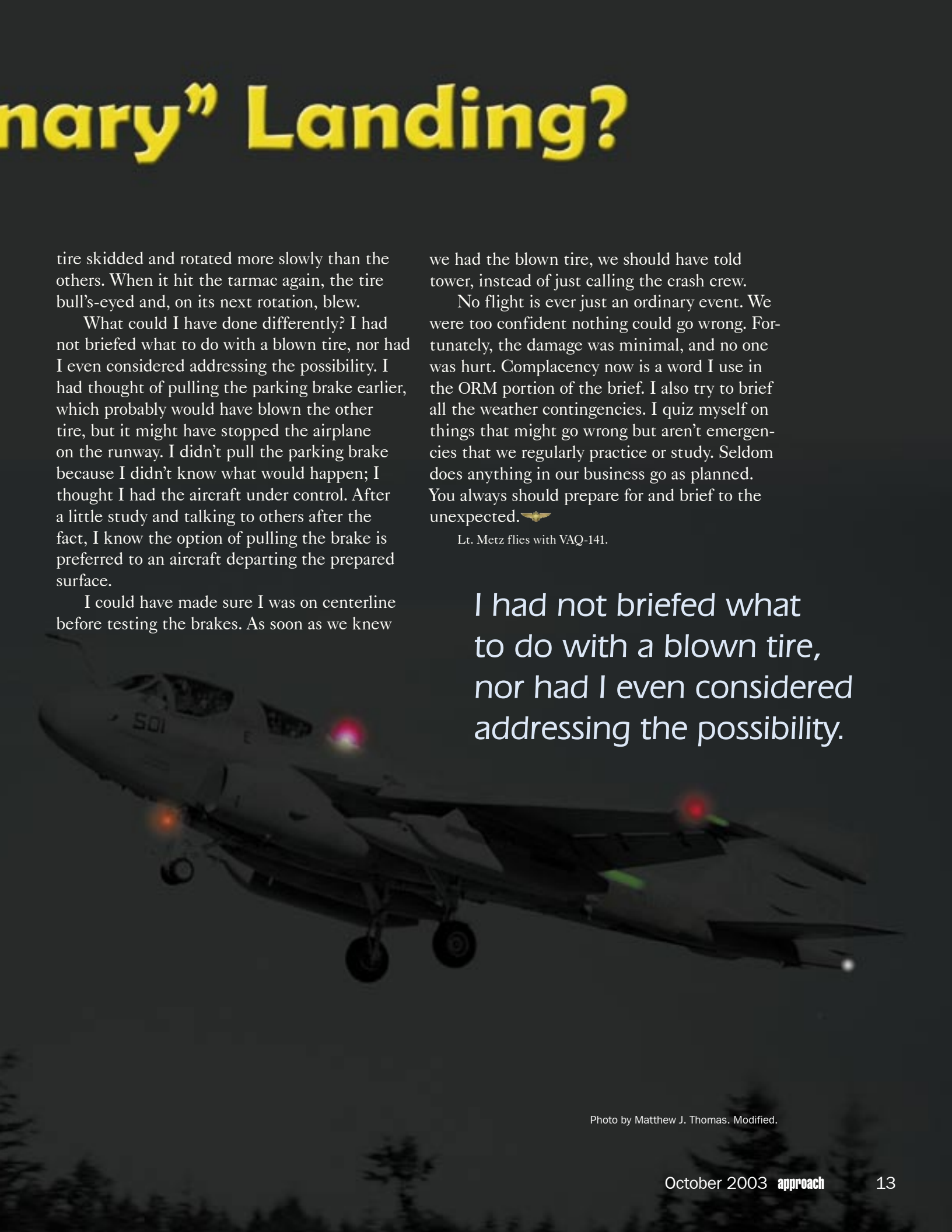


Photo by Matthew J. Thomas. Modified.

Photos by Matthew J. Thomas. Composite.

Rollback on

By Lt. Dave Ehredt

Blue sky filled the desert bowl of the China Lake, Calif. bombing range. Rising terrain led to mountains on the horizon in all directions. The lead aircraft pulled off the target as my pilot rolled our S-3B Viking, loaded with Rockeye, onto the bull's-eye for our last run.

I called "in hot" to the range controller, while I armed the weapon for release. The Rockeye exploded with the tremendous rumble associated with a functional weapon. Once we pulled clear of the rising terrain ahead of us, I called "off safe."

The bowl that once was filled with blue sky now lay covered in a vast cloud of smoke and dust. We joined with the lead aircraft and began our return leg to NAS Fallon. I thought the most exciting part of our flight was over. We certainly were "off safe," but we weren't "home safe"—at least not yet.

In the Land of the Rising Sun, a precruise Fallon detachment does not exist for Air Wing Five. Instead, Air Wing Five squadrons send a few aviators to Fallon between spring and fall cruises to gain the experience of strike planning and execution provided by Naval Strike

Air Warfare Center. My pilot and I joined a stateside-based S-3 squadron in Fallon during the "pleasantly cool" month of July. Fallon set a record high of 104 degrees that month—it felt like a slow-bake oven.

After an exciting but uneventful bombing hop to the range at China Lake, we returned to Fallon under blue skies as Dash 2 of the section. Our only remaining interest was to take advantage of Fallon's carrier-fan break. After receiving the fan-break signal from the lead aircraft, the pilot rolled our jet on its side and tracked the nose across the distant horizon. The lead aircraft touched down on the left side of the runway, as we rolled in the groove and finished the landing checklist. After we touched down on the runway's right side, I looked over my right shoulder to see if the speedbrakes had extended.

"Boards on the right," I reported.

When I returned my scan to the airspeed indicator, the flashing master-caution light grabbed my attention. I glanced at the master-caution panel.

"No. 2 fuel pressure, electric power," I said, as I punched out the master-caution light.

Rollout

"We're losing the No. 2 engine," I continued, while I cross-checked the master-caution lights with the decreasing engine-instrument indications. "Just ride it out," I added.

The pilot's scan returned inside the cockpit. "Roger, keep your eye on the ITT," he replied.

I kept watching the engine instruments; within a couple of seconds, the engine temperature increased slowly.

"ITT is rising," I said. This comment drew my pilot's attention to the gauge. With both throttles at idle, we watched the ITT slowly rise at first, then shoot to the top of the gauge, setting off the engine-limit light on the master-caution panel. I punched out the master-caution light at the same time the pilot said, "Let's shut down No. 2. No. 2 throttle—off," he began.

"Roger, I'm guarding No. 1," I responded, as the pilot pulled the No. 2 throttle past the idle-stop.

"No.2 fire-pull handle, pull," he continued.

I reached up and pulled the No. 2 fire-pull handle; the pilot secured the No. 2 ignition switch.

When I returned my scan to the airspeed indicator, the flashing master-caution light grabbed my attention.

I clearly remember the pilot glancing at me while I responded to the last step. At that moment, we realized we hadn't looked outside the cockpit since we had touched down. I had no idea where we were on the runway—if we even were on it—or how much runway we had left. I felt my stomach drop as I snapped my head forward. Fortunately, the section lead was safely clear, and we still were well centered on our half of the runway. I let out a heavy sigh of relief that got picked up on the ICS. The pilot verbalized my exact thoughts, "Thank goodness we're still on the #&@#& runway!"

It is impossible to know how many seconds passed without the pilot or I looking outside. It certainly was enough time to have drifted near the edge of the runway, onto the other half of the runway (where the section lead had landed), or into something that did not belong on the runway. I'd like to believe my peripheral vision would have alerted me to impending danger; however, I can't guarantee that. I was focused on securing the No.2 engine. My visual scan had broken down during a critical phase of flight: the landing rollout.

The take-away lesson is one of the most fundamental skills we learn in flight school: Maintain a visual scan inside and outside the aircraft, regardless of cockpit tasks. Don't just fly the aircraft to touchdown; fly it to your parking spot.

Lt. Ehredt flies with VS-21, NAF Atsugi, Japan.

Fire on the Cat

By LCdr. Scott Moran

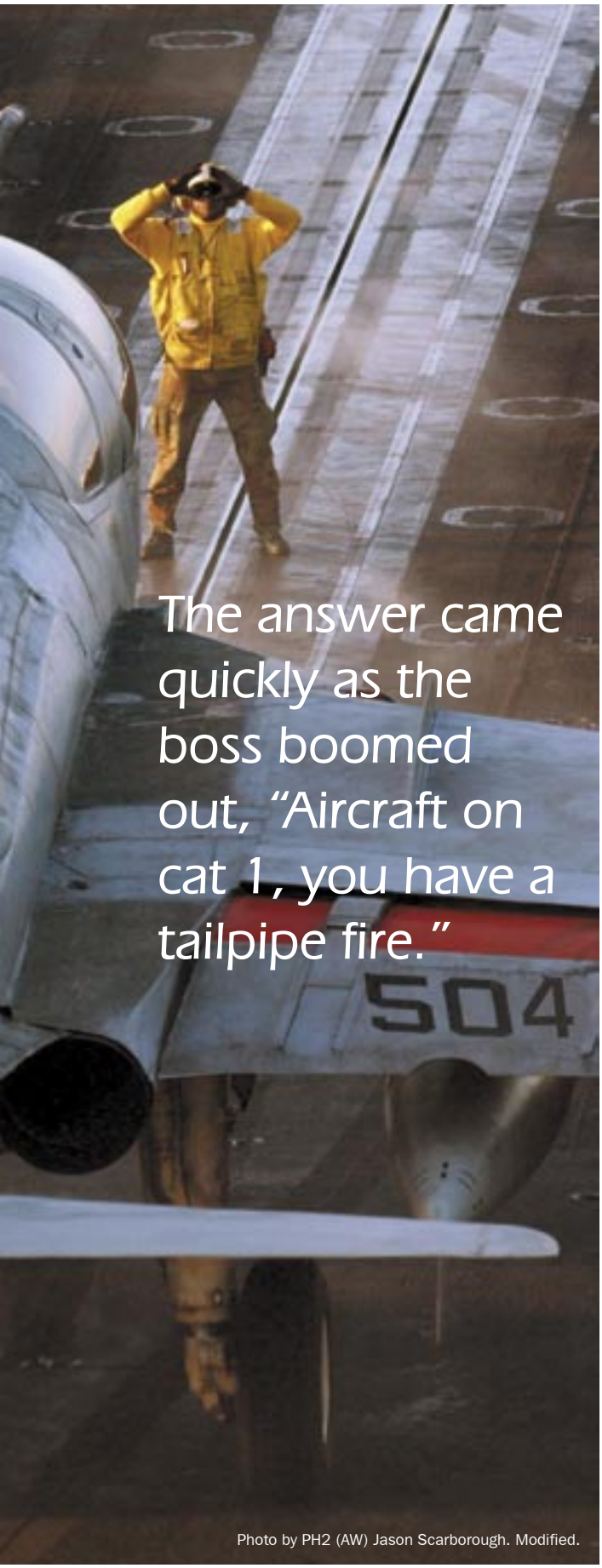
While taxiing trusty Ironclaw 504 into the cat 1 shuttle for a day cat shot, I saw, out the corner of my eye, a flashing master-caution light. I glanced at the caution panel and called to ECMO 1, "Left generator light." At the same time, I reached down and recycled the generator switch. The caution light remained on, and ECMO 1 told the air boss we needed to spin off the cat to troubleshoot.

The next call was unexpected. I heard, "501, you have a left tailpipe fire."

My wingman, 501, had been shot off cat 4 a few minutes earlier and was at least seven miles upwind. However, because of our position on the cat, I was sure the call was for us, and I immediately shut down the left engine. The pilot in 501 honored the call, as well, and immediately secured the gangbar; he fortunately stopped short of securing his left engine and firing his halon system.

Confusion reigned for a few moments as both aircraft radioed tower for clarification. The answer came quickly as the boss boomed out, "Aircraft on cat 1, you have a tailpipe fire."

A tailpipe fire in the EA-6B usually is associated with an abnormal start; I never had heard of one occurring while taxiing. Having accomplished the emergency procedures for a tailpipe



The answer came quickly as the boss boomed out, "Aircraft on cat 1, you have a tailpipe fire."

Photo by PH2 (AW) Jason Scarborough. Modified.

fire, we elected to do some of the "Engine Fire—On Deck" procedures, even though we had no other fire indications.

I secured the gangbar and then considered securing both engines as required for an engine fire on deck. Given our position on the flight deck and my desire to maintain radio communication with tower, I chose to leave the right engine turning and to fire the halon bottle for the left engine.

All was quiet for a few seconds. I looked over and saw ECMO 1 marking pages in the PCL with his fingers for three separate emergencies: generator failure, tailpipe fire, and engine fire on deck. We assumed we were out of the woods because we had heard nothing further about our fire. In a soothing voice the boss told us to expect a pushback to elevator one for a shutdown.

I reviewed the emergency procedures during the pushback. We were edgy about sitting in the cockpit of an aircraft that had had a visual indication of a fire. The more I thought about my situation, the longer the pushback seemed to take. I tried in vain to signal someone we needed to shut down and egress as soon as possible. The process probably required only two minutes, and I was relieved when the signal finally came to shut down.

I'm still unsure if our decision-making process was sound. Shutting down and egressing from the aircraft while on the catapult would have been the most conservative course of action. But, it would have shut down cat 1 for the launch and caused confusion on the flight deck and in the tower. Without fire or temp-warning lights, I felt comfortable with our course of action. However, as time elapsed during the pushback, it didn't take long to realize staying in a burning aircraft on the flight deck was unwise.

This incident provided an excellent topic for ready-room discussions of flight-deck emergencies. It was a great example of a situation where NATOPS-emergency procedures don't exactly apply; yet, a quick judgment call was required. Although we didn't get airborne, both crews discussed the incident and gained insights into decision-making during emergencies.

LCdr. Moran flies with VAQ-136.

"It Just Blew,

By Lt. Geoffrey Bowman

Our air wing had been flying missions for two weeks in support of Operation Iraqi Freedom. I was scheduled as flight lead for a section of Hornets tasked with defensive-counter air (DCA). Lately, these missions had consisted of flying circles over northern Iraq for two hours, then waiting for tasking that only would come if a new SAM site was located.

Dash 2 went down on the catapult, and the spare was launched. The spare was from our Marine-Hornet squadron and was loaded with a standard close-air-support loadout of two GBU-12 (LGBs), and one joint-direct-attack munition (JDAM). This loadout was good news because we now could check in with a ground-forward-air controller and possibly drop our bombs. We discussed our game plan during the transit over Turkey, but, first, we needed to refuel before heading into Iraq.

The weather worsened as we approached our fragged tanker track, but, fortunately, our KC-135 had found a piece of open air, and our first tanking was uneventful.

After check in with our ground-forward-air controller (GFAC), they told us they were under heavy fire from a mortar emplacement north of their position. They needed us to expend our ordnance near their position. The weather was less than ideal, so we planned on dropping my wingman's LGBs and letting the GFAC lase the target. This tactic was successful, and we then put a JDAM on an enemy bunker. The JDAM destroyed the bunker, and the GFAC reported, in his New Zealand accent, that troops were running from the location. He requested we

The smell of gunpowder filled the cockpit, and I worried the remaining rounds might cook off.

I Swear"

use our 20 mm ammunition. We welcomed the request for 20 mm, set up in a strafe pattern, and began our runs.

On my first strafe run, I expended 290 rounds, and the FAC reported good results. After roll in on my second run, I squeezed the trigger and saw a large yellow flash with smoke, heard a boom, and breathed an overwhelming smell of gunpowder. Several thoughts went through my mind all at once. "What the #@*&?" then, "I'm still in a dive, and I'm pointing right at the bad guys," and finally, "Pull up, idiot, you're still flying."

I managed to get out a pathetic, "Uh, off safe" call. I told my wingman my gun had exploded, and I planned to turn north. After my wingman finished his last run, he joined up, and we headed off target. The smell of gunpowder filled the cockpit, and I worried the remaining rounds might cook off. Soon, I figured if a cook-off were possible, it already would have happened.

As we pressed north to the tanker, I started to assess the damage. The first thing I noticed was my radar, surprisingly, had not frozen. I then realized some of the panels around the gun were blown open. It was hard to see the extent of the damage because the windscreen was dirty after firing the gun.

My wingman inspected my aircraft's nose. He said it looked "pretty bad," but added, "the refueling-probe door does not appear damaged." I had to decide if I could aerial refuel or should divert. I extended my refueling probe and watched as the door hitched a little, but the probe made it out and appeared normal. I

decided to leave the probe out, and we headed to the tanker.

I was low on gas when we arrived on the tanker's wing. As a result, I had to kick a section of Hornets out of the basket to get some tide-me-over gas. I decided my situation was OK, and I would take it back to the boat.

About halfway back, my problems worsened when my heads-up display disappeared. I checked the BIT page, and the HUD still showed "Go." I tried one BIT with no success and expected to get the night no-HUD pass. The flying qualities remained good, and the engine indications were normal. My wingman offered to bring me in on his wing and to drop me off on the ball, but I had done this maneuver once before on cruise and had developed vertigo, so I declined his offer. Upon check in with approach, I told the LSOs I had damage to my nose and was no-HUD, but I didn't expect it to affect the flying qualities.

While I lowered the gear, the jet felt slow as it reached on-speed. My airspeed showed I was 10 knots slow for my AOA cross-check. I

remembered my wingman had called out some airspeeds on the transit back, and ours had matched. I believed the airspeed and sped up to the proper speed for my aircraft gross weight. I told the LSOs I would be flying airspeed, not AOA, for the approach. Paddles gave me some love, and I recovered shipboard. Paddles said I showed a red (fast) approach light but appeared on-speed.

I inspected the damage and realized how fortunate I was. The gun diffuser had been blown apart in two places. The nose cone had a hole through the bottom and top where two rounds had passed through the blown barrel after the explosion. The composite on the nose cone had unraveled from the front and aft portions. Postflight inspection showed the composite had FODed the port engine, although engine indications remained normal. In two similar incidents, both pilots had to eject because of aircraft damage.

In retrospect, there were a few lessons learned from this incident. I should have tried fuel-probe extension closer to the tanker; extending my probe that far from the tanker cost me precious gas. I needed to make a decision about diverting.

I shouldn't have accepted the damage description of "pretty bad" from my wingman. We assumed we saw all the damage to the aircraft. Postflight inspection showed the damage was far worse than what we had seen in-flight. I never thought my engines could have been FODed, but they were.

Finally, I should have accepted my wingman's offer to drop me off on the ball. This plan would have given me a better airspeed comparison, and it would have been good crew-resource management. I assumed, because the aircraft was flying normally with gear up, it would fly normally in the landing configuration.

Lt. Bowman flies with VFA-37.

VFA-37 was extremely fortunate in this incident. In the previous four years, similar incidents had forced two other aviators to eject from their FA-18 when a gun malfunction occurred. Lt. Bowman flew over 500 miles back to the USS Harry S. Truman *(CVN 75). After a five-hour mission, without his primary attitude reference and with AOA problems, he landed this aircraft shipboard.—LCdr. Will Powers, VFA-37 safety officer.*

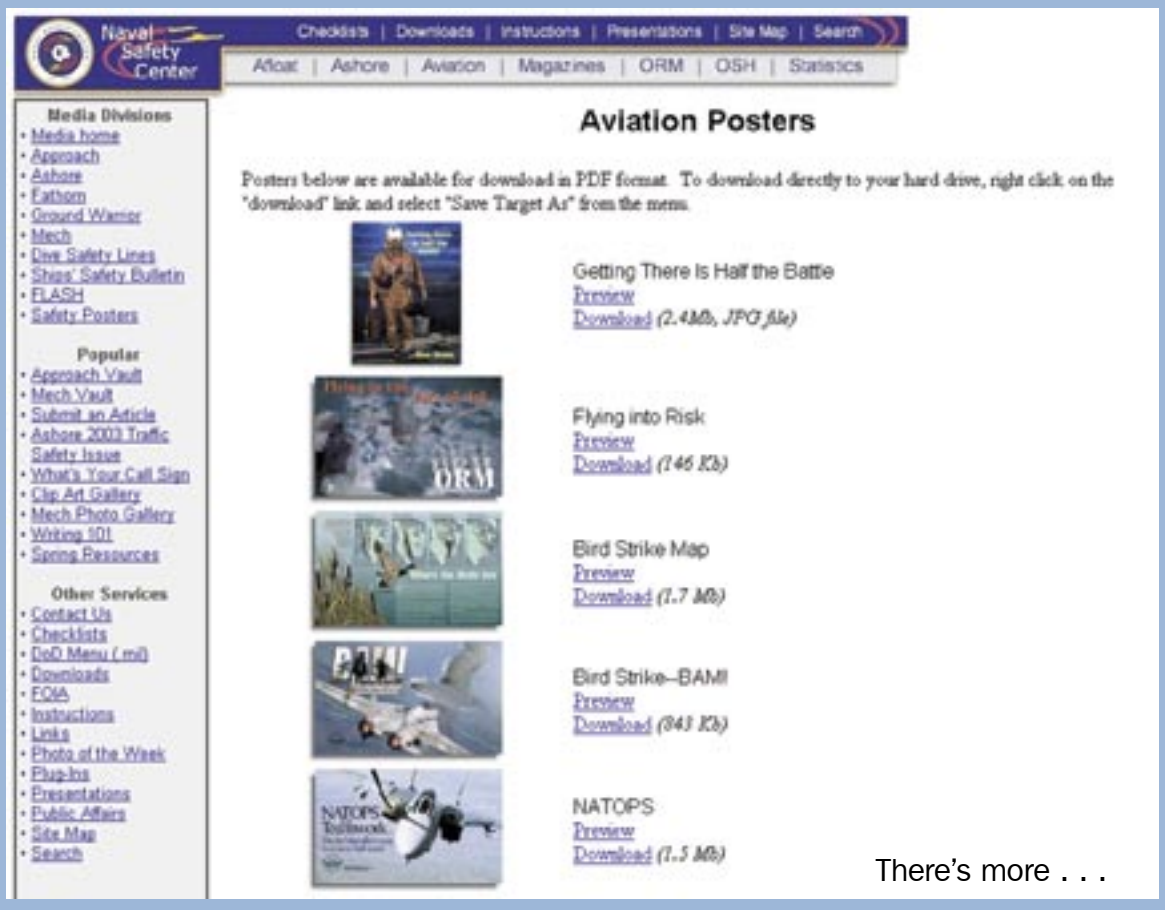
In two similar incidents, both pilots had to eject.

Mishap-Free Milestones

VS-33	8 years	(27,000 hours)
VAQ-130	22 years	(37,849 hours)
VP-16	38 years	(252,000 hours)
VAW-117	26 years	(56,600 hours)
VP-26	41 years	(296,000 hours)
VFA-27	17 years	
VAW-115	18 years	(37,800 hours)

Do You Need Posters?

Check out our website at <http://safetycenter.navy.mil/media/posters



There's more . . .

Photo by Matthew J. Thomas. Modified.

Vortex Ring State

By Lt. Matt Knowles

"This is really uncomfortable; I'm going to descend back under the clouds," was the last sentence I spoke before entering into vortex ring state. How could this be happening just one week into the cruise?

It was the fifth day of our 2002 WestPac on board USS *Camden* (AOE 2), and I was scheduled for a day DLQ flight. My copilot and I had not flown much before leaving on cruise. I only had flown a few functional-check flights (FCF) the last two weeks, as we scrambled to get our H-46 fully mission-capable. We would practice DLQs and requalify vertreps all day.

The schedule had gone well. The weather was broken overcast at 1,000 feet. We had completed two hours of DLQs and vertreps and had stopped to refuel. With the refueling completed, I decided to practice basic instrument-flight skills. I would fly above the cloud layer, where we could practice our instrument maneuvers with sufficient altitude. Getting above the layer was a poor decision for several reasons. First, the ship was operating EMCON, with the TACAN secured. My copilot and crew chief were concerned we might lose sight of the ship. Second, the ship would not provide positive radar con-

tact for us. Third, what looked like a broken layer from below was a solid-overcast layer from above, with very few "holes."

I always have considered myself a good listener. I've learned lessons through CRM and ORM—lessons that seemed to resurface as our scenario developed. I heeded the warnings and declared, "This is really uncomfortable. I am descending back under the clouds."

My copilot had turned on the bar-alt while on top of the layer, so I held the collective-magnetic-brake trigger and reduced collective to descend. We were at 1,300 feet and 90 knots at the beginning of our descent. The cloud layer enveloped us at 1,200 feet, and I announced, "I am on instruments."

My copilot "rogered" and said she saw blue water from her right seat.

She said once we had entered IMC conditions, she dropped her instrument scan to look outside, down and to the right. When she brought her scan inside, we were at zero knots indicated airspeed and had a 900-fpm rate of descent. She called for airspeed.

I recall entering IMC. Just as we entered the clouds, the aircraft shuddered, cyclic controllability was minimal, fore-and-aft-cyclic input was not effective, and I struggled to maintain a level attitude. The controls were sluggish and would not respond to input.

I held in the magnetic-brake trigger and allowed the collective to increase slightly, which aggravated the aircraft vibrations. Instinctively, I returned the collective to a lower setting. I didn't recognize we had a power-settling problem—just that a lower power setting produced less vibration. While descending at 1,000 fpm, I regained a visual contact of the ship as a reference. The crew chief and copilot called for airspeed, and the flight-control inputs responded only marginally. I had at least three-quarter movement of the cyclic travel forward—a slow response.

I had flown a functional-check flight on this aircraft the previous day, for a new collective-ASE actuator and a new AFCS No.1 computer. I had thought we had a flight-control malfunction; we still weren't recognizing the effects of vortex ring state. The ship was to my left and below, and I continued to scan its position, relative to the aircraft. I could reference our forward movement off this sight picture. The aircraft slowly responded to forward-cyclic inputs and gave one final shudder as we flew out of the vortex ring state and regained a normal flight profile. "Secure the bar-alt hold," I said, while increasing collective. The aircraft leveled at 600 feet AGL, and cyclic inputs responded normally. We had lost almost 700 feet in about 30 seconds.

We had lost almost 700 feet in about 30 seconds.

After we leveled off, my copilot and I discussed what had happened. She suggested a case of vortex ring state. I still was questioning the controllability of the aircraft, but, after a couple of confidence checks, I agreed with her assessment.

Back at the ship, we discussed our flight with the other det pilots. I concluded there wasn't enough time to properly exercise my instrument scan before going IMC. When we entered IMC, I probably had induced a rate of descent greater than 800 fpm and inadvertently had slowed the aircraft at or below 40 knots, causing the power settling.

Finally, the timing of entering IMC and the onset of the vortex ring state made the situation stressful. The aircraft shuddering and its reduced controllability severely compounded the difficulty of the instrument flight.

The indications taught throughout flight school and described in NATOPS are entirely accurate. However, I only expected to encounter this condition on a precision approach or on a confined-area landing where the aircraft is on final to the landing zone. I didn't expect the condition at high altitude and in IMC conditions.

Lt. Knowles flies with HC-11.

For information on vortex ring state, see the article, "Vortex Ring State Fallacy," by Col. R.E. Joslin in the June 2003 issue of Approach. *Col. Joslin's article is available on-line at: safetycenter.navy.mil/media/approach/issues/jun03/vortex.htm—Ed.*

Lights Out,

By Lt. Jeff Hart

Most, if not all, carrier aviators have seen or heard a plane return with their external lights off, only to be told, "Check your lights," by the LSOs. Soon thereafter, their external lights illuminate. What if both the aircrew and the LSOs make a mistake and don't realize what's happening?

I was on my second COMPTUEX, flying the F-14B. We were scheduled for a night target-acquisition hop north of Puerto Rico, with my nugget RIO and a nugget pilot on our wing. We detached our wingman as we approached marshal, using the radio and flashing our external lights. We then took a healthy cut-away and descended to our marshal altitude. The only problem was the exterior-lights master switch was left in the off position. It was a bright night, and, because I had turned my mirrors face down at night, I didn't notice the lack of exterior lights.

At push time, we heard over the radio, "99, MOVLAS recovery, MOVLAS recovery."

That night, ICLS was down, and ACLS only was single-channel. As it turned out, the aircraft in front of and behind us got ACLS needles, but we didn't. With the help of a new HUD, laser line-up, and a good self-contained CCA, we were on glide slope and lined up a little left at three-quarters mile. We called the ball, and paddles rogered our call, telling us, "You're lined up a little right."

Not realizing they simply didn't see our aircraft, I figured the LSO just had called the wrong direction, so I made a lineup correction to

Baby

the right. As we approached centerline, paddles called, “You’re approaching centerline."

We kept it coming on centerline, a little high, until we got waved off at the in-close position (inside one-quarter nautical mile). I waved off, thinking someone must have fouled the landing area. As we climbed, we got a call from our Tomcat rep, asking if we had a problem with our exterior lights. I looked back at the jet and, in awe, saw the lights were off. I checked the exterior-lights master switch and realized it was off. I turned on the lights and told the rep the switch had been off, but all external lights now were on. The next pass was an uneventful night landing.

Looking back at the night’s events, I knew there was only one main cause to the problem: switchology. I should have realized the exterior-lights master switch was off.

Making things even worse were three minor but, together, very important factors. First, the aircraft’s on-speed approach light was burned out. The approach light comes on independent of the exterior-lights master switch and would have been on if it had not burned out. This factor, combined with no position lights, meant the aircraft did not have a single light source.

Second, without an ACLS lock-on, the LSOs had no idea how far out we were until we were told by CATCC, “102, call the ball,” without a distance. If our aircraft had an ACLS lock-on, the aircraft’s distance would have been available at two different places on the platform.

Last, this recovery was one of the air wing's first night MOVLAS recoveries since our cruise. As such, the team lead and CAG paddles, the two most senior LSOs on the platform, focused their attention on MOVLAS. When we called the ball, the controlling (CAG paddles) and backup LSOs confused the Tomcat pilot calling the ball with another Tomcat at two miles. They began showing the MOVLAS-glide slope information and made lineup calls based on the other Tomcat’s position, not ours.

It’s not difficult to surmise if we had been low and paddles had shown a high-ball based on the Tomcat behind us, we would have made a power-off correction and would have flown toward the water—scary when you think about it.

Our squadron LSO realized something was wrong, and, with the aircraft approaching the ship, he yelled, “Wave him off! Wave him off!”

What prevented an unsafe approach were the LSOs on the platform who were not on a pickle. Our squadron LSO realized something was wrong, and, with the aircraft approaching the ship, he yelled, “Wave him off! Wave him off!” The controlling LSO quickly hit the waveoff lights, and, a few seconds later, a big, loud, unlit Tomcat flew over the flight deck at 20 feet. These guys have my utmost respect for what they did.

What did I take away from this? I’m going to question everything and double-check every item on a checklist—in the air and on the platform. I’ll try to keep the big picture, especially when I’m focused on a single task. Our air wing, especially all of our LSOs, learned lessons that night we will not forget.

Lt. Hart flies with VF-32.

The Missed M

By Ltjg. John Egan, USCG

We were falling through the sky at 210 knots when two props suddenly were buzzing 100 feet off our nose. That close, I caught a glimpse of the student-naval aviator in the lead plane.

The sky was covered with clouds, but at least you could do high work or descend below the ceiling and do landing-pattern work. On cloudy days, we pay attention to those holes or breaks in the clouds, where we can nose over and dive through to get under them or put the PCL to the firewall to climb on through. Often, only one hole exists in the training area, and every other student and instructor pilot is thinking the same thing you are: "There's our hole; that's where we're going."

My incident occurred during a T-34 formation flight. I was the lead at 8,000 feet and was preparing to descend to join course rules home from the training area. I had trouble spotting the sandpits because of a cloud cover at 5,000 feet. My IP was guiding me to the vicinity of the sand pits when we located what appeared to be a tiny break in the clouds northeast of the sandpits. This hole was the only one I had seen the entire flight, and I knew we'd fly through it.

I passed the descend signal to my wingman, and my IP made the appropriate calls. He told other formation flights of our approximate location and our intent to descend. Because the hole was small, I had to make an arcing descent to the right at about 210 knots.

The naval-aircraft-collision-warning system (NACWS) went off at 7,000 feet. I looked for the contact, but I saw nothing. My IP spotted them: another form flight at 7 o'clock, 7,000 feet, and roughly three to five miles away. My IP kept a close watch on them, while I maneuvered the aircraft on the arcing descent. As we continued to descend through 6,500 feet, my IP pointed out a distinguishable landmark important for me to recognize. Just then, the aircraft

went into what seemed like a 30-degree, nose-down attitude; I hit the top of the canopy and looked up.

Another formation flight was headed straight toward me, not more than 100 feet off the nose. They were in a level, shallow, left turn, while I was in an arcing descent to the right. I saw them for less than one second when they passed overhead. An excess of 350 knots of closure was between us. The IP had spotted the flight at the last second, took controls, and threw down the nose and banked left. We stabilized in a couple of seconds, which seemed like minutes. The IP and I were dazed, and we tried to comprehend what just had happened. After my IP took the controls, we looked for our wingman.

What happened?

What about NACWS? It never went off for the near-miss. The air speed was probably too much for the NACWS to detect in time. However, my wingman's NACWS did go off. The IP and student saw the other flight after the NACWS hit and quickly banked to the right. My wingman's IP got out a "Traffic, traffic! Traffic!" call to my IP over the VHF radio—that is, when my IP spotted the other flight and took the controls.

It turned out the IP of the other flight never saw us. He called my IP and said he thought we were three to five miles farther west of our current position, which is where the descent for course rules normally takes place.

> Don't go through a hole in the clouds if other options are available.

The formation flight at 6,000 feet never should have been there. They were too close to course rules, and they never said anything over common frequency when my IP made the descent call. However, my IP and I were too distracted with the formation flight behind us at 7,000 feet and with picking up ground features. Considering the small hole we had descended through, we should have been maintaining better lookout procedures, especially me, because I'm in the front.

What I took away from this near-miss:

- Don't go through a hole in the clouds if other options are available.
- If you must go through a hole, realize someone beneath the cloud ceiling might fly directly under the middle of the hole and appear to come out of nowhere as you descend through it. The same concept applies to climbing through a hole.
- The hole may be the only one in the training area, and, if so, every other T-34 will be converging on that same spot.
- Don't rely on NACWS. It's a backup, not a substitute, for good scans.
- Don't rely on the IPs. Treat them like a backup, as well.

I walked away from this incident a little shaken but a wiser and smarter person. By sharing this, I hope you might be a bit wiser and smarter, too.

Ltjg. Egan flew with VT-6.

Arcing the Prowler

By Lt. Michael J. Szczerbinski

It was a beautiful, crisp, fall day at Whidbey Island, and our Ops O had available OPTAR funds. We planned a mini-cross-country flight that would return by 1600, so our maintainers could secure before it got too late. The plan was ambitious but reasonable: Take off by 0930; fly our Prowler to NAS Fallon via a military, low-level route; hot pit; fly to MCAS Yuma; quickly fuel; and airways navigate back to NAS Whidbey.

After an extensive brief covering all the legs, our four-person crew manned up. The aircrew experience level greatly varied from a pilot with over 2,000 flight hours to an NFO only a few months out of the FRS. Because of a fueling delay, we took off late and missed our first low-level. We then refiled in-flight for a high-altitude direct to NAS Fallon, so we could make our scheduled hot-pit time. Unfortunately, we landed after a typical Fallon air-wing strike, and the line to the pits was long. We realized our first planning error.

We had remembered all the cross-country kit bags but had left the fuel cards in bags in the cheek panels. To get the cards, we had to pull out of the pits after fueling, alternately shut down both engines, and cross-bleed restart. The engine shutdowns were not a big problem because we had planned to alternately shut down the engines to swap out a frontseat and backseat NFO. Unfortunately, this evolution took longer than we had planned, and we missed our second low-level time to MCAS Yuma. While I was outside the jet, the remaining crew refiled over the radio with base operations to go to Grand Junction, Colo., and from there to home base.

One problem with last-minute filing to airfields you hadn't originally planned for is a lack of NOTAMS information. Sure enough, when we arrived at Grand Junction, the field was closed because of a Thunderbirds practice for the weekend air show. We took up a max-endurance profile and decided to wait, instead of going to our nearest divert, Hill AFB. Both locations had clear and forever weather. After a 30-minute delay, we landed with 1,000 pounds above our bingo, and we were short on time to get back to Whidbey as planned.

The fueling was quick, and we had time to spare—until we repeatedly dropped ground-power on start-up. Our power problems continued, even with the second power cart. The EA-6B is notorious for problems with power carts exactly not in phase. I should have been more concerned with our electrical issues.

Because we had no other indications, we decided to jumper the electrical-safety connection—something I had done several times on cross-country flights. To jumper the connection, we took off the port shoulder panel above the wing, removed a cannon plug from the safety relay, and connected it to a jumper placed in the cross-country kit. Unfortunately, that plan didn't work. As soon as the pilot tried to start either engine, the jet dropped power. We had little time remaining on our crew day to get home. We called our maintainers, and they suggested

one last way to get the jet to accept power. By jumping the F and H leads with a wire, you isolate the connection, but this method means manually holding up the cannon plug, so the wire or plug doesn't touch the jet and ground out.

With wire in hand, I tried to isolate the two leads, but, like most older items on the Prowler, the marking on it was worn out, and I had to use a chart in the cross-country kit. I read it wrong and placed the jumper wire in the E and F leads. My next mistake was not stopping to think if this really was something I wanted to do. I knew the risk as I put my gloves on, held the plug by the electrical tape bundle under the cannon plug, and told one of the aircrew not to grab me but to kick me off the wing if anything happened.

I didn't stop and analyze the risk to the jet, to others, or to myself. Sure enough, as the pilot tried to start the first engine, there was an arc of electricity. I immediately let go as the jumper wire burned in two but not before my hand had been shocked and my arm temporarily had gone numb. I was fortunate not to have been injured severely.

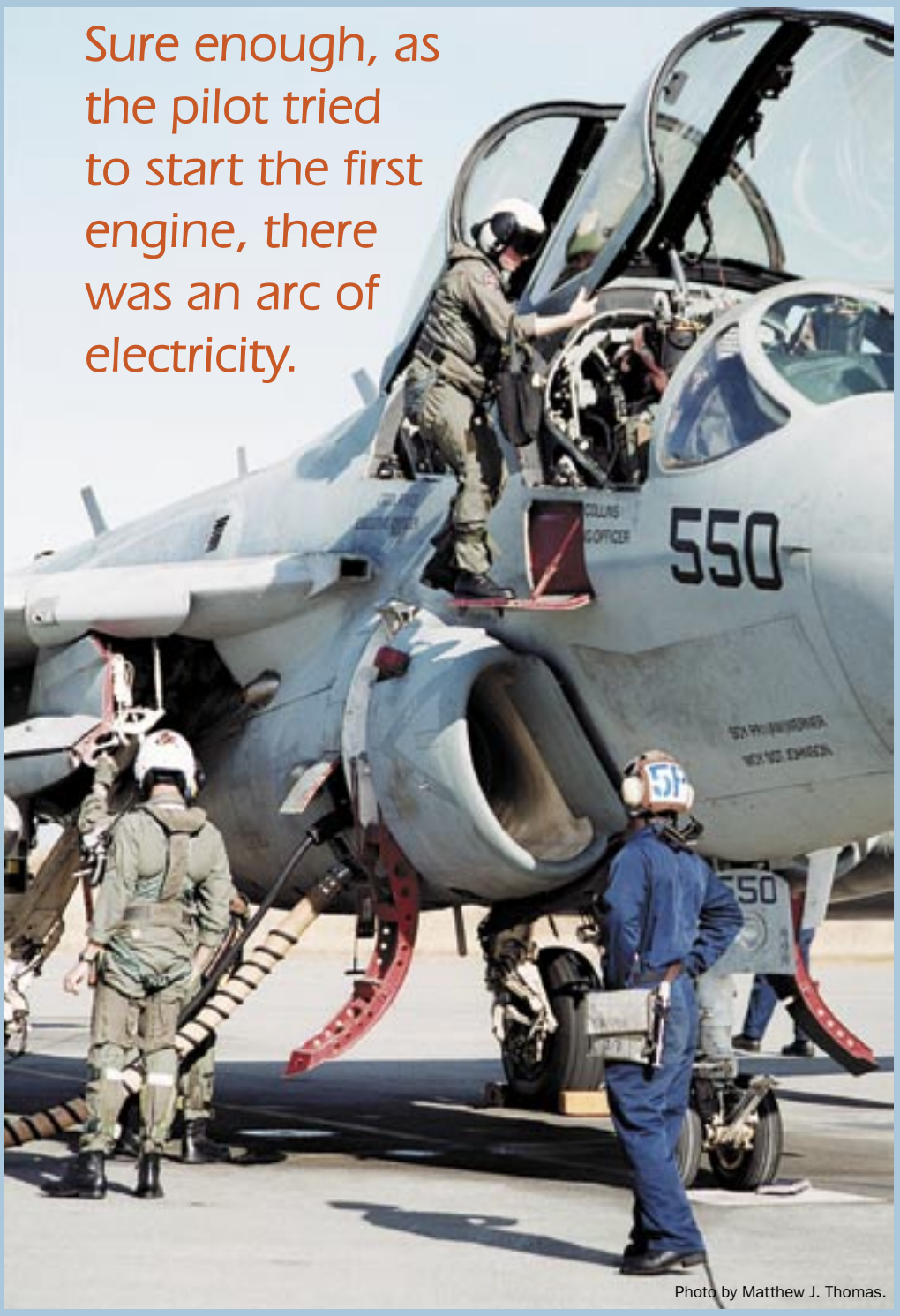


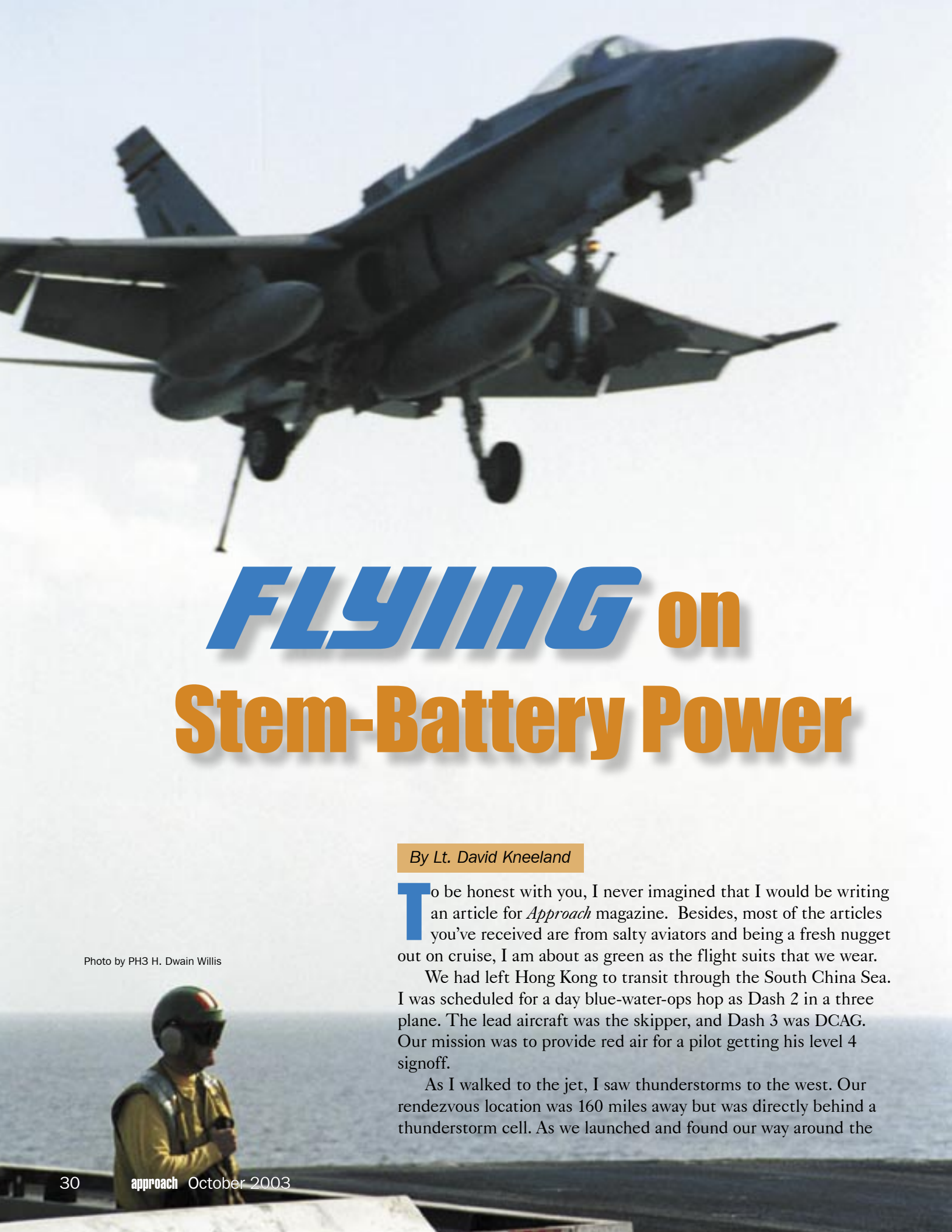
Photo by Matthew J. Thomas.

Sure enough, as the pilot tried to start the first engine, there was an arc of electricity.

I fell into the trap of letting artificial goals affect my judgment on safety and acceptable risk.

That Sunday, our electricians discovered the external-power contactor (P/N DHR-25B), installed in 1983, had broken. The jet would not have taken power on start-up, no matter what leads I had jumpered. With a two-hour fix and a new contactor, our jet started 4.0, and we went home. We were wiser on the risks involved with being too flexible in mission execution and not taking enough time to assess the risks before any activity.

Lt. Szczerbinski flies with VAQ-137.



FLYING on Stem-Battery Power

By Lt. David Kneeland

To be honest with you, I never imagined that I would be writing an article for *Approach* magazine. Besides, most of the articles you've received are from salty aviators and being a fresh nugget out on cruise, I am about as green as the flight suits that we wear.

We had left Hong Kong to transit through the South China Sea. I was scheduled for a day blue-water-ops hop as Dash 2 in a three plane. The lead aircraft was the skipper, and Dash 3 was DCAG. Our mission was to provide red air for a pilot getting his level 4 signoff.

As I walked to the jet, I saw thunderstorms to the west. Our rendezvous location was 160 miles away but was directly behind a thunderstorm cell. As we launched and found our way around the

Photo by PH3 H. Dwain Willis

cells, I got a right generator-caution light. After going through the NATOPS procedures, I told the skipper I planned to head back to the boat and to hold overhead until they returned.

En route to the ship, I had to dodge thunderstorms and clouds. I checked in with red crown and strike, then passed the codes to maintenance for a bad right generator. The caution light had been on for about 10 minutes, which is no big deal in the Hornet, since one generator easily can power the entire electrical system.

At 30 miles from the ship, I checked in with marshal and called inbound. I would be holding overhead at 18,000 feet. I proceeded inbound at 5,000 feet to get under the thunderstorms. At 20 miles, the plane got quiet, real quiet. I looked at my HUD, my two digital displays, and my multi-purpose map—all were blank. I realized the only thing operating in the cockpit was an amber-caution light, a batt-SW-caution light, and that was it. I quickly took off the oxygen mask because, in the Hornet, the OBOGS system shuts down when operating only on battery power.

As I looked down at the engine display to confirm the engines still were running, I saw the integrated-fuel-engine indicator (IFEI) still indicated engine rpm and EGT. I felt a sense of relief, knowing the engines were running and the jet was flying fine for the moment.

At that instant, I realized I had experienced an unusual double generator failure. I went through the appropriate steps, except for the emergency oxygen, because I was at 5,000 feet. I mustered to get a calm, cool voice as I called marshal to talk to a Hornet rep. Marshal had me contact my rep on button 17. No displays were in the radio, so I rotated the control knob to what I thought was button 17. As I called for my rep, with increasing enthusiasm, marshal answered, "Fist 400, you're still up marshal." I would be single frequency, with only one radio. I told marshal I needed to contact the rep on their frequency.

As I waited for the rep, I realized all my navigation aids were gone. At 20 miles, at 5,000 feet, and dodging thunderstorms, I kept my present heading, hoping to see the boat. I descended several thousand feet to stay VFR and to continue the search. Finally, at 10 miles, I saw what appeared to be a wake. At six miles, I made visual contact with mom. My rep came up on marshal, and we thoroughly discussed the emergency. He asked for my indications in the cockpit—a short list I might add—and, most importantly, what my battery power indicated.

> As I listened to the air boss, I thought, "Are you crazy, 30 minutes on battery power?"

As the rep and I came up with a plan, the air boss told me to recover at the end of the cycle, which still was 30 minutes away. As I listened to the air boss, I thought, "Are you crazy, 30 minutes on battery power?"

After taking a deep breath, I politely radioed to the air boss, "Sir, NATOPS suggests to land as soon as possible."

After further discussion of my situation among the air boss, the rep, and myself, the deck quickly started an emergency-pull forward. I watched overhead at 2,000 feet. From that moment forward, all radio calls were answered by mike clicks to conserve my depleted battery. It had been roughly 15 minutes since the double generator failure.

After several minutes, the air boss reported the deck was open, and CAG paddles was on-station waiting for me to come aboard. Paddles told me to set up for a six-mile straight-in and to report when I was inbound. I acknowledged with a mike click and laughed to myself, "Six miles. I have no idea where six miles is located. Doesn't he understand my navigation system is completely gone?"

As I started downwind, I pulled the emergency-oxygen green ring, lowered the flaps to full, and emergency extended the landing gear. In the cockpit, I had a good indication all three gear were down and locked. The problem I now faced was that I had no idea what my exact landing weight would be because the portion on the IFEI where the fuel is displayed was gone.

I had a rough idea I was hovering around 35,000 to 36,000 pounds. The maximum arrestment weight for the Hornet is 34,000 pounds. As I turned to set up at that "six-mile" straight-in point, I started to dump fuel. The Hornet dumps between 600 to 1,000 pounds a minute, so I turned the dumps on and timed for two minutes. I was close to the three-mile mark when CAG paddles called, "Paddles contact." It was time to focus on landing.

While I adjusted my fuel, I thought of several things: "What if I bolter?" "What if I go into mech before I land?" "I wonder what it's going to feel like if I have to punch out?" As these thoughts ran rampant through my mind, I told myself, "Just fall back on your training, and you'll do just fine—I hope."

At two miles, I trimmed the jet to what I thought was on-speed; I didn't have any indications in the cockpit. I trimmed the jet to 145 knots, on-speed for the Hornet, and continued to scan my standby instruments. I scanned airspeed, altitude, then lineup. Finally, at a mile and a half, CAG paddles lip-locked me, and, after several informative calls, he talked me down for the uneventful day trap. That trap was one I never will forget. Had I not trapped, I might have found out the answer to one of my questions.

In closing, from one LSO to another, "Thanks paddles, I owe you one."

Lt. Kneeland flies with VFA-25.

Letters

Re: "Wet and Wild in San Diego Bay" (April 2003)

As a rescue swimmer and SAR petty officer in my unit in San Diego, I am concerned about the search-and-rescue story "Wet and Wild in San Diego Bay," in the April 2003 *Approach*. The events in this story are more wrong than the pilot explained.

He did not seem to be concerned with the fact they were training with "*for training use only*" gear. All the gear from aviation physiology in Miramar, San Diego, is not suitable for flight. In the article, the individuals were free-floating, in an ocean environment, in training gear. What concerns me even more is that the pilot states he was hoisted "up to the cabin" via litter. OPNAVINST 3130.6C limits live hoisting for training to a height above the water of no more than 10 feet. The litter then will be lowered back to the water, and the survivor released. The poor proficiency of the rescue swimmer (rigging the litter so it flipped over) explains why we have those rules. The possibility of drowning someone is very real—that's why we have pool training.

I'm writing because I do not want other Navy SAR units to get the impression it's OK to wear training gear for actual evolutions and to do full live hoists by litter as part of a mishap drill. It is not.

AM1(AW/NAC) Mark Brush

Classic BROWNSHOES IN ACTION COMIX

"The kind real aviators like"

By Lt. Ward Carroll

"When I got to the airplane, he had already convinced the corrosion boys to stencil 'Lisa Marie' on the nose..."

Rhinestones dropped like flies during his karate demo that fortunately coincided with a FOD walkdown.

"He sounded great on the radio, though..."

He refused to wear flight gear, save a helmet and an oxygen mask...

Ready Room Gouge

“Mr. Dalton was the prime example of people who’ve flown airplanes for a long calendar time and perhaps many hours, but who failed to absorb any new knowledge (“Don’t tell me about that—I have over 10,000 hours.” No, he has 1 hour, 10,000 times.) Apparently, the long experience had let him down, because he was quite pale.”

— Excerpt from “Logging Flight Time,” by William K. Kershner

www.safetycenter.navy.mil