THE NAVY & MARINE CORPS AVIATION SAFETY MAGAZINE

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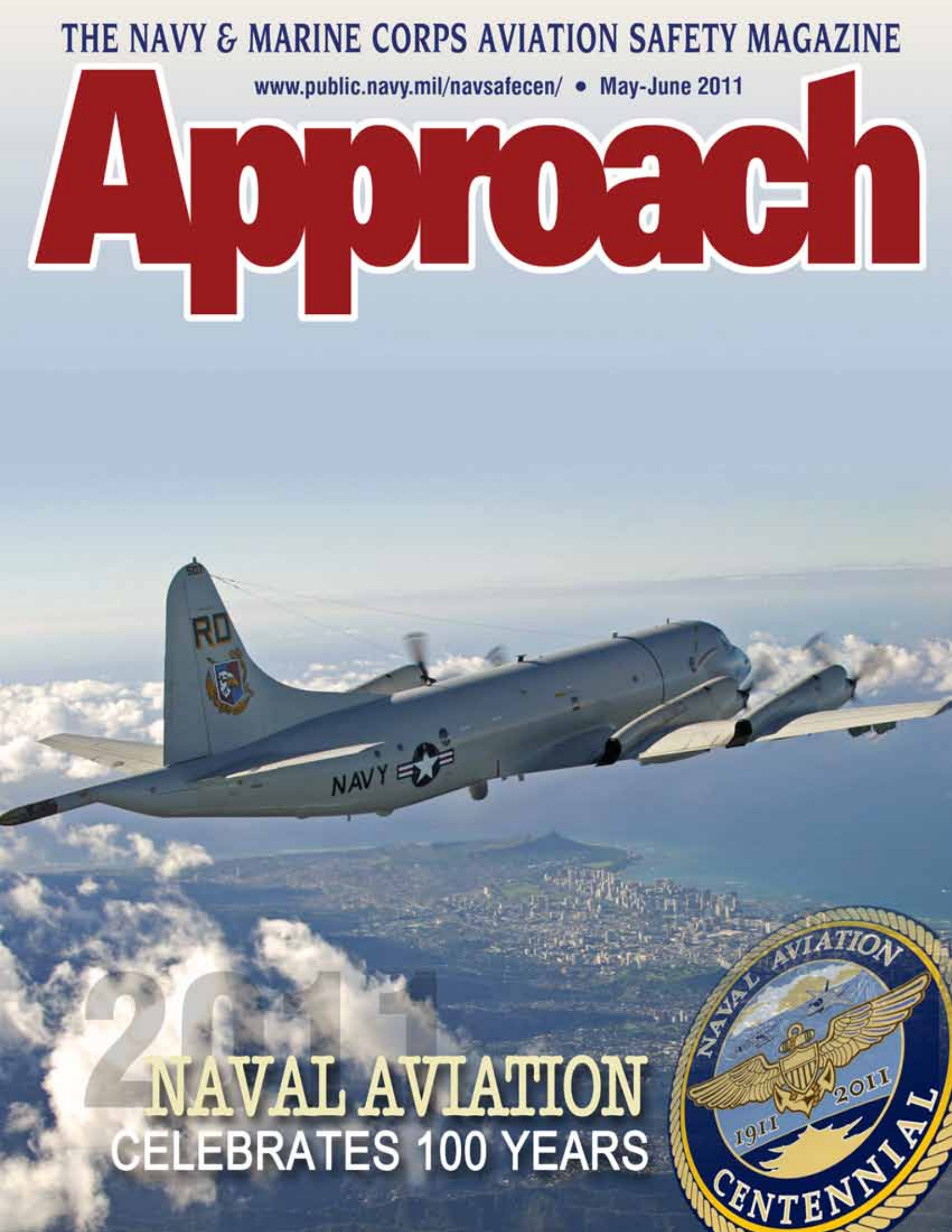
Approach



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

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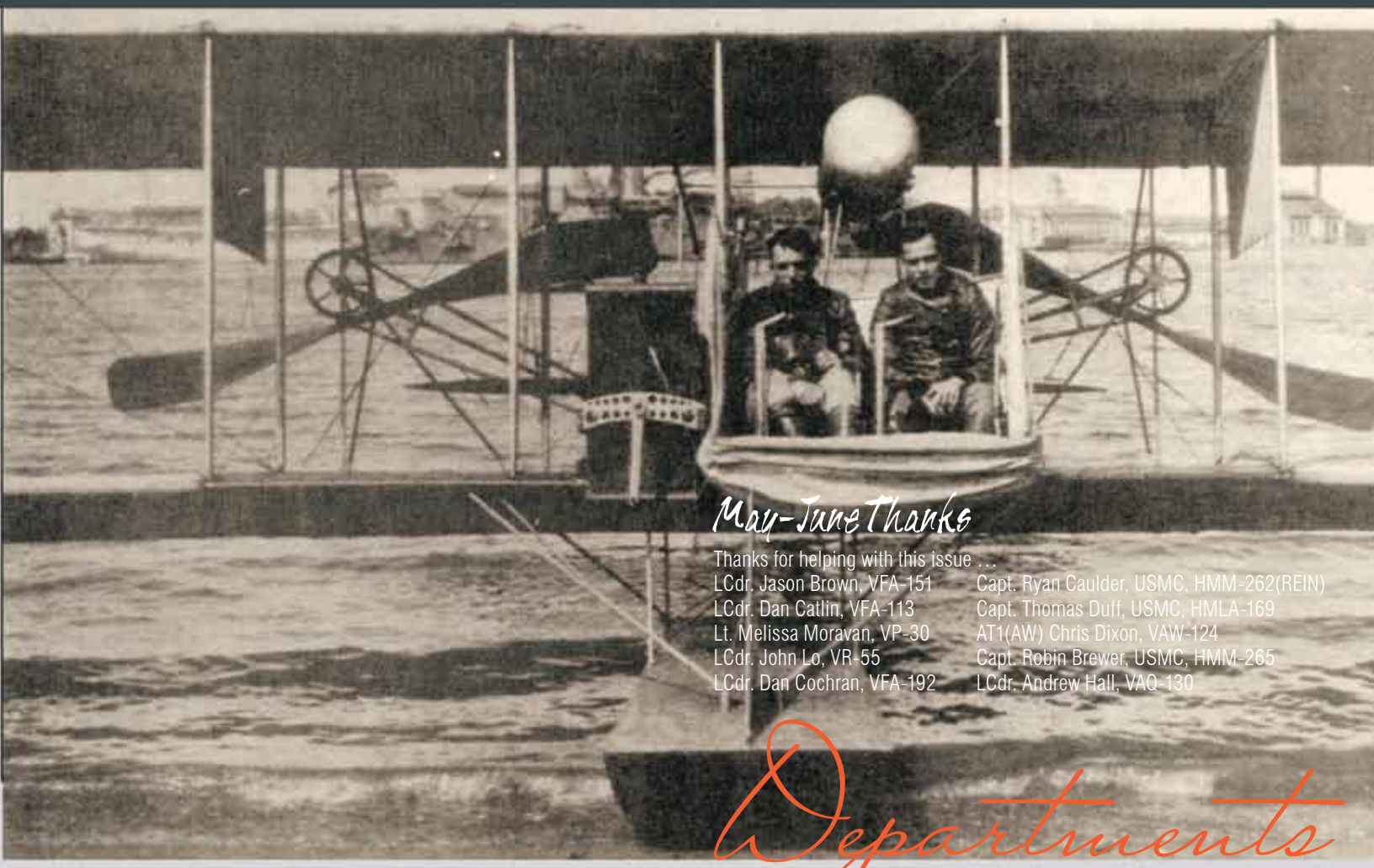
C O N

Features

Naval Aviation—100 Years

The Centennial of Naval Aviation is celebrated in 2011, and *Approach* magazine is presenting articles to commemorate our legacy. This issue's feature by Peter Mersky brings safety and mishaps to the forefront. The development of protective gear, such as seat belts, comes as the result of tragic loss of life. For today's aviators, the reference to NATOPS being "written in blood" continues.

NTENTS



The B-2, shown here on the banks of the Severn with the Naval Academy in the background, was built by Ens. Vic Herbster from spare Wright B-1 parts. Ens. Herbster is on the right, and Ens. William Billingsley is on the left. Not too long after this photo was taken, both men would be involved in the first U.S. Navy aviation mishap to involve a fatality. Photo courtesy of Naval Aviation Museum Foundation.

Front cover: P-3C from VP-47 flying over Honolulu, Hawaii, Photo provided by Ltjg. Ron Belany, VP-47 PAO.

Back cover: Marines assigned to the 13th MEU drop from a CH-46 Sea Knight helicopter assigned to HMM-163 aboard the amphibious assault ship USS *Boxer* (LHD 4) during a fast rope exercise. (Navy photo by MC3 Trevor Welsh)

May-June Thanks

Thanks for helping with this issue …

LCdr. Jason Brown, VFA-151
LCdr. Dan Catlin, VFA-113
Lt. Melissa Moravan, VP-30
LCdr. John Lo, VR-55
LCdr. Dan Cochran, VFA-192
Capt. Ryan Caulder, USMC, HMM-262(REIN)
Capt. Thomas Duff, USMC, HMLA-169
AT1(AW) Chris Dixon, VAW-124
Capt. Robin Brewer, USMC, HMM-265
LCdr. Andrew Hall, VAQ-130

Departments

Can the most powerful Navy and Marine Corps in the world not only reduce the number of preventable mishaps, but eliminate them altogether? That is the goal we have set for ourselves here at the Naval Safety Center. Since I assumed command almost four years ago, I have been focused on that goal. In this time, I've gained much insight into the many challenges we face. Budget constraints, manpower challenges, and increased tasking are an ever-present part of our job. So how can we overcome these issues and make our Department of the Navy safer? Can we do more with less without compromising safety?

I continually ask myself, what I can do to prevent mishaps, but I really mean, "What can we do?" Since team effort produces team results for the Naval Enterprise, every day is an opportunity to let your family and shipmates know that doing things right the first time makes us a better organization.

How are we doing? In a word, terrific. Current statistics show we're improving in many categories, and as you probably know, FY10 was the best year ever for Naval Aviation. Nevertheless, we have to keep moving forward to evolve into a world-class organization. If we can say with confidence that our efforts are changing the Navy and Marine Corps' institutional culture—where risk management is fully integrated in all of our activities, on and off duty, then we're indeed making progress. Our safety posture will continue to improve.

I've seen our leaders take the mishap-prevention challenge head-on. Innovative ideas and best practices that give our people the tools and resources needed for success are aggressively pursued and implemented. Your daily efforts to embrace risk management are fueling significant steady improvements.

Our safety challenge is further heightened by the fact that every few years each command has a complete turnover of personnel. With each turnover a wealth of knowledge and experience depart the organization. This cycle is continuous, so our efforts must address the challenge of integrating new and inexperienced personnel into our units and grooming them into "full-up rounds." You have done well to teach, mentor and guide our new Sailors and Marines, ensuring they understand that risk management is an important part of our culture and key to mission success.

As I leave the Naval Safety Center, let me extend my heartfelt thanks to you aviation leaders for your hard work and dedication. We have moved the "safety needles" and have established new standards of excellence along our journey towards world-class safety. We're not quite there … but you are clearly making a difference. Keep moving forward … your greatness is obvious!

RADM Arthur Johnson
Commander, Naval Safety Center

Command Excellence Through Safety

The Chief of Naval Operations and the Commander Naval Safety Center are proud to announce the winners of the CNO Aviation-Related Safety Awards for CY 2010.

CNO Aviation Safety Award

These award winners are recognized for their professionalism, commitment to excellence, solid leadership and competent risk management which resulted in safe and effective operations.

COMNAVAIRLANT
VAW-126 VFA-32 HSC-2 VP-45
VFA-83 HSL-42 HS-11 VX-1

CNATRA
VT- 2 VT- 7 VT-10 HT-18
VT- 27 VT- 31 VT- 35

COMNAVAIRPAC
VFA-94 VFA-102 VAW-115 HS-14 HSL-49
HSC-23 VP-4 VQ-2 (EW) VQ- 4 (TACAMO)
VAQ-129 (FRS) VAQ-136 (PAC Deployed)
VAQ-132 (Expeditionary) VAQ-130 (LANT Deployed)

COMMARFORPAC
HMLAT-303 HMLA-367 HMLA-369 HMM-262 HMM-265
HMM-364 VMM-161 HMH-463 HMH-361 HMH-466
VMA-513 VMFAT-101 MCAS Kaneohe Bay

COMMARFORCOM
VMA-223 VMM-264 VMAQ-2 VMM-261
HMHT-302 VMMT-204 VMAQ-1 VMU-2
MCAS New River VMFA(AW)-533

COMNAVAIRFORES
VP-69 VR-55 VR-57 VFC-12
VR-48 VR-56 HSC-85 VAW-77

CG FOURTH MAW
HMLA-773 HMH-772 VMGR-452 VMR Belle Chase
VMR Det. Andrews

COMNAVAIRSYSCOM
U.S. Naval Test Pilot School FRC East

Naval Aviation Readiness Through Safety Award and the Adm. James S. Russell Naval Aviation Flight Safety Award

Presented annually to the controlling custodian that has contributed the most toward readiness and economy of operations through safety. The command selected must have an outstanding safety record, an aggressive safety program, and an improving three-year safety trend.

Winner: COMNAVAIRFORES

Admiral Flatley Memorial Award

To recognize the CV/CVN and LHA/LHD ships with embarked CVW or MAGTF, which surpass all competitors in overall contributions to safety. These teams are selected based on operational readiness and excellence, and an exceptional safety program and record.

Winners: USS *George Washington* (CVN-73) and CVW-5
USS P*eleliu* (LHA-5) and 15TH MEU

Runners-up: USS *Harry S. Truman* (CVN-75) and CVW-3
USS *Iwo Jima* (LHD-7) and HMM-774

Grampaw Pettibone Award

Presented annually to the individual and unit that contributes the most toward aviation safety awareness through publications and media resources.

Unit awards: Winner: HSC-26
Runner-up: LSO School

Individual awards: Winner: Lt. John-Paul Falardeau, VT-4
Runner-up: Lt. Micah Kolcun, VAQ-139

Media award: Winner: HT-18

Giving the First Eight **a Good Belt**

BY PETER MERSKY

Since 1911, the Navy has trained more than 170,000 aviators (this figure includes pilots not NFOs, and is through 2010), including foreign students from such countries as Mexico, Venezuela, France and Great Britain. Many of the last were during World War II, but postwar training also saw a large number of students come from friendly and allied countries. Now, as we celebrate the Centennial of U.S. Naval Aviation—other similar observances have already begun in England and France—we might look back at perhaps the first young men who started it all. These leaders came from a vast diversity of American society—farmers, mechanics, professionals, many from colleges, and an equally wide variety of economic life styles. Many saw it as a huge adventure, others as a way to answer their country's call, which eventually led to their involvement in some of this country's first aerial combat.

Strange as it may seem to us now, it was not until 1914 that a definitive designation was given to the graduates of the flight schools that were training Navy pilots. Thus, although the individuals on a list of early Naval Aviators might have been given their wings and sent off to the initial fleet organizations that eventually became squadrons or groups, there was some uncertainty as to just what they should be called.

In March 1913, the Secretary of the Navy approved a 35 percent pay increase for Navy pilots, followed by the issuance of a certificate to newly qualified "Navy Air Pilots." The new certificate made clear the more exacting requirements for a Navy pilot versus a "land pilot." However, further refinement in April 1913, then in March 1915, created the exalted title of "Naval Aviator." Somewhat confusing but an explanation of the late

Ens. W. D. Billingsley, Naval Aviator No. 9.

decision of just what to call our aviators. The confusion continued for a few more years as the debate went on about the names for student aviators, enlisted pilots and lighter-than-air drivers.

After Lt. Theodore G. Ellyson, who would become Naval Aviator No. 1, had reported to flight training at the Curtiss flying camp at North Island in San Diego in January 1911, he was followed by John Rodgers, who began training in Dayton, Ohio at the Wright camp. John H. Towers reported to the Curtiss camp at Hammondsport in upstate New York on June 27,

The B-1 in Baltimore Harbor after being fitted with floats. As the B-2 was made of spare B-1 parts, it looked like the aircraft in this photo.

1911, while Victor D. Herbster arrived in Annapolis in November 1911. And on it went, including the first Marine Aviator, Alfred A. Cunningham reporting to Annapolis on May 22, 1912, now considered the birthday of Marine Corps aviation.

But things were progressing. On September 16, 1911, Lieutenant Ellyson wrote the Navy Department describing "flight clothing" he hoped to be reimbursed for: a light helmet with detachable goggles, and a visor, as well as a leather coat with a fur or wool lining. Flying at even a few thousand feet, in an open, unheated cockpit, a pilot was soon frozen to the bone. Throughout the coming world war, pilots came up with all sorts of personal items to keep themselves warm and functioning in the two or three hours they were usually airborne.

Throughout the coming months, these avid young fliers flew the first Navy aircraft built by Curtiss and Wright, quickly establishing performance and endurance records that came and went, often with intervening major and minor mishaps. It was not until June 20, 1913, that the first Naval Aviator was killed, even before he was actually so officially designated. Ens. William D. Billingsley died in the crash of his Wright B-2. His passenger, Lt. John Towers survived.

Actually, the incident was more than that and is worth telling for us today. Before a car trip, your parents admonished you to "Put your seat belt on before we start." As a small child, you probably didn't think much about their caution, and obeyed them. Certainly, when you strap into your trusty Super Hornet or E-2, P-3, C-40, AH-1, CH-53 or whatever you fly, one of the first things you do, or perhaps the final action you take before taxiing is to connect the kochs, or buckle the seat belt or harness. It's reflex, something you don't think about; you just do it.

Well, for the first generation of neophyte aviators to which these two young naval officers belonged in 1913, the instruction to buckle up was new and almost non-existent. Lieutenant Towers and Ensign Billingsley, who had only recently been designated as an aviator, "manned" their Wright B-2 for a cross-country from Annapolis to St. Michaels, Md. The B-2 was not a true production aircraft but rather an ad hoc construction using spare B-1 parts that Ens. Vic Herbster (later Naval Aviator No. 4) had put together. Originally, Herbster was scheduled to fly with Billingsley, but he missed the ferry from Annapolis to the flight camp. A mechanic was then given the seat but was subsequently exchanged for Lieutenant Towers who, although senior to Billingsley, had very limited time in the B-2 and went as a passenger.

The outbound trip went fine but on the return, Billingsley tried to avoid a squall, which quickly enveloped the fragile aircraft and its crew. At 1,625 feet above the Chesapeake, an updraft lifted the B-2's tail, pointing the nose toward the water.

Lt. Towers at the "wheel" of a Curtiss.

After about a 100-foot fall, the Wright biplane bucked again, throwing Ens. Billingsley against the controls, pushing the nose down more and ejecting the hapless young aviator who, like Towers, was not belted in. There was nothing for Towers to do as he watched his comrade spin away toward the water below. Towers grabbed onto a strut and held on for dear life. He was sure he was going to die.

As he hung on, the doomed aircraft somersaulted through the air. The strain of holding on tore a rib from Towers' breastbone. The plane took a more slanted attitude, a change that Towers later credited with his survival as it slowed the rate of descent. Five hundred feet, four hundred … the plane was still inverted. He heard the crash, then … nothing.

When he came to, a heavy mist had enveloped him. He heard rescuers approaching in a motor boat, but they went by him. Fortunately, Towers' dog in the launch began barking furiously; perhaps he had smelled his master somewhere in the murk. After 45 minutes in the water, Towers was pulled to safety.

They looked for Ens. Billingsley for 20 minutes before heading back to the dock. Towers recuperated and eventually returned to full service where he enjoyed a long and satisfying career retiring as a full admiral.

Unfortunately, Billingsley's body did not surface until a week later. Although a board absolved him of any fault, he had gained the unenviable place in history of being the first Naval Aviator to die in a mishap. The board did point to the lack of life jackets, which both men had left behind, and the absence of restraints, seat belts, that would have probably held them in their seats as the B-2 tumbled uncontrollably in the air.

Having survived, Towers was the first man to give an account of his experience, something other men who had fallen from an aircraft to their deaths couldn't. Glenn Curtiss quickly devised a safety belt with a buckle that immediately became standard equipment for the growing fleet of Navy aircraft. If ever an advance was "written in blood," the blood of a dedicated group of pioneers, this was certainly one.

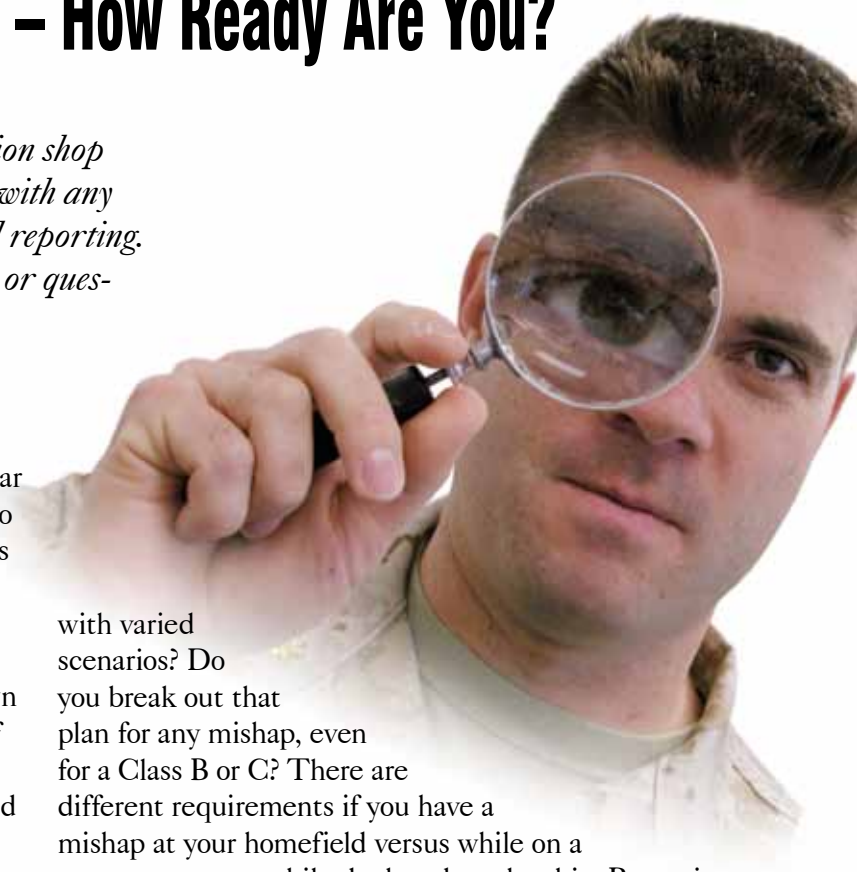
Mr. Mersky was the assistant editor than editor of Approach *from 1984 to 2000. He has written several books and articles on Navy and Marine Corps aviation, and is a retired commander in the Navy reserve.*

Acknowledgements: Thanks to Janis Jorgensen, manager of the U.S. Naval Institute's Heritage Collection, and Nicholas J. Thrasher and Col. D.J. Kiely, USMC (Ret) of the Naval Aviation Museum Foundation for help with researching photos for this story. Also, thanks to Joe Gordon of the Naval History Heritage Command for additional help in research.

From the Investigation Shop – How Ready Are You?

As the new head of the Aircraft Mishap Investigation shop at Naval Safety Center, I encourage you to call us with any questions you have about mishap investigation and reporting. We stand ready to support the fleet with any issues or questions you have.

BY CDR. FRED LENTZ



Naval Aviation is coming off of its safest year ever, a significant achievement and one to be proud of. The Navy and Marine Corps Class A mishap rate for FY10 was 0.89 mishaps per 100,000 flight hours, with 11 Class A mishaps. However, we still haven't stopped mishaps, diligence is still required to get that rate down to 0.0. Complacency could mean you are unprepared if the next mishap happens in your squadron.

In my long career and short time here, I've learned that no two mishaps are alike. Pretend that your squadron's next mishap is going to happen today. How robust is your premishap plan? Do you know the phone numbers for the local security, PAO, EOD, regional environmental representative, or anyone else you'll need to call for assistance? PAO and security might be your best friends early on at the crash site for keeping away curious onlookers, while possibly identifying witnesses. Contact PAO and security now, so you know what their capabilities are for securing your crash site. Better yet, invite them to give your squadron a training session.

Does your mishap kit include protective clothing to prevent contact with harmful substances like fuel, oil, hydraulics and carbon fibers? Do you have a digital camera with fresh batteries and media cards, or does your long neglected kit still have a film camera? Will maintenance lock out NALCOMIS for the aircraft involved in the mishap? Do operations and training lock up logbooks and training jackets? One of the most common questions that we get is about postmishap medical examinations. Is your flight surgeon ready to respond and provide you with the assistance you need? Is the CACO program current?

On the execution side, can all of your SDOs implement your premishap plan? Do you run surprise drills with varied scenarios? Do you break out that plan for any mishap, even for a Class B or C? There are different requirements if you have a mishap at your homefield versus while on a cross-country, or while deployed on the ship. Reporting requirements can be confusing when you're deployed, and different ships and staffs have a variety of rules for reporting up the chain of command.

As the safety officer of a CVN during my last tour, we conducted mishap drills while deployed that exercised the squadron, air department, AIMD, combat systems and the staff from first response through to the phone call to the Naval Safety Center. These drills were an excellent tool for integrating all the moving pieces involved in a mishap, and we learned lessons that made it easier to deal with mishaps. Conducting drills will also help you identify deficiencies.

Where can you go to figure out if your premishap plan is sufficient? The first resource is the OpNavInst 3750.6, which covers the basics common to all premishap plans. The Naval Safety Center website has a sample premishap plan and other resources for you to consider. Your best resources, though, are your sister squadrons; compare your plan with other squadron plans.

Your squadron premishap plan is your first response to a traumatic experience. Don't put off updating it—your mishap may be today.

CDR. LENTZ IS THE DIVISION HEAD, AVIATION MISHAP INVESTIGATION DIVISION, NAVAL SAFETY CENTER.

Near Mid-Air With a Taurus

BY LT. CHRIS YOST

It seemed like any other night event when we departed NAS North Island (NASNI) at 2215. We were a section of MH-60Rs, headed westbound over the Pacific to clear the air station's class-delta airspace. The scheduled mission was night-vision goggle (NVG) tactical formation (TACFORM): we had to complete a number of basic formation maneuvers while aided by NVGs.

Toward the end of our event, we headed to Brown Municipal airfield for section landings. This civilian airfield, located five miles north of the U.S.-Mexico border, is a general-aviation airport that local Navy helicopters use as an outlying field. Brown airfield has an agreement with NASNI H-60 squadrons to operate after the airfield closes, which is helpful in completing these TACFORM events.

We entered the landing pattern with 15 minutes remaining to make several landings before returning to NASNI. The first two passes went off without a hitch, and neither crew noticed anything unusual at the airfield. We heard the typical border patrol radio traffic on the advisory frequency and other military helicopters transiting nearby.

Our section had briefed a lead change following the second landing. Lead landed on the left side of the runway as our aircraft came to a 10-foot hover on the right side, aft of lead. We then air-taxied forward of them to assume the lead. My scan alternated from wing to over my left shoulder and then forward to monitor the hover. The rightside aircrewman called, "Is that car coming at us?"

I snapped my head to the right to scan cross-cockpit, just in time to see two headlights sweep over the uneven terrain and brush surrounding the runway. The vehicle lights were aimed directly at our cockpit. It took me a moment to internalize what was happening as the white sedan raced onto the runway before it disappeared underneath our chin bubble.

My copilot immediately called to wing, "There is a car coming at you."

I tracked the vehicle as it reappeared on the left side of the aircraft, continuing on a crash course toward our wingman. Stunned, we watched Dash 2 get airborne, pulling into a high hover faster than I thought possible in an MH-60R. The vehicle passed underneath the aircraft by only a few feet, then came to an

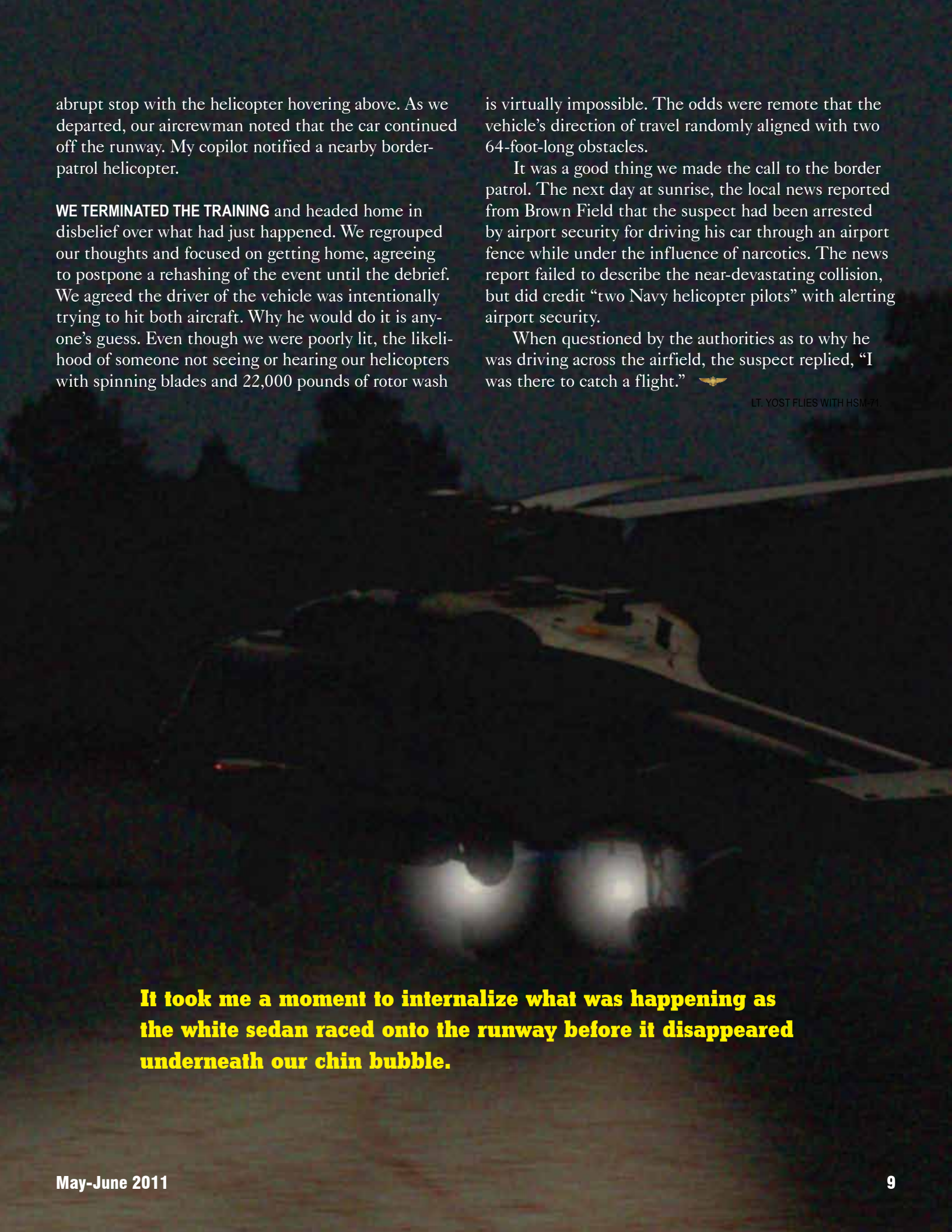
abrupt stop with the helicopter hovering above. As we departed, our aircrewman noted that the car continued off the runway. My copilot notified a nearby border-patrol helicopter.

WE TERMINATED THE TRAINING and headed home in disbelief over what had just happened. We regrouped our thoughts and focused on getting home, agreeing to postpone a rehashing of the event until the debrief. We agreed the driver of the vehicle was intentionally trying to hit both aircraft. Why he would do it is anyone's guess. Even though we were poorly lit, the likelihood of someone not seeing or hearing our helicopters with spinning blades and 22,000 pounds of rotor wash is virtually impossible. The odds were remote that the vehicle's direction of travel randomly aligned with two 64-foot-long obstacles.

It was a good thing we made the call to the border patrol. The next day at sunrise, the local news reported from Brown Field that the suspect had been arrested by airport security for driving his car through an airport fence while under the influence of narcotics. The news report failed to describe the near-devastating collision, but did credit "two Navy helicopter pilots" with alerting airport security.

When questioned by the authorities as to why he was driving across the airfield, the suspect replied, "I was there to catch a flight."

LT. YOST FLIES WITH HSM-71.



It took me a moment to internalize what was happening as the white sedan raced onto the runway before it disappeared underneath our chin bubble.

BRAVO Zulu

HMLA-169

WHILE DEPLOYED to Helmand Province, Afghanistan, a UH-1Y crew with HMLA-169 was en route to support a troops-in-contact mission when a tail-rotor control-tube clevis unexpectedly severed. The crew immediately entered an autorotation, assuming they had lost their tail rotor because of enemy action. After realizing the tail rotor had not departed the aircraft and the helicopter was controllable, the crew declared an emergency and turned back to Camp Bastion.

On their first pass, the crew conducted a slide-on-landing.

From left to right: Capt. Samuel Booth, GySgt. Jason Joly, Cpl. Peter McPhail, Capt. Thomas Adame

HMM-265

CAPTAINS JOHN FAIRMAN AND KEN ZEBLEY, along with Cpl. Rolf Zelonis, were conducting a CH-46 functional check flight from Okinawa when they felt their aircraft kick. They originally attributed it to the automatic-flight-control system (AFCS).

The HMM-265 crew slowed the aircraft and continued on with the test card. About five minutes later, the aircrew experienced another, stronger kick. As the pilots double-checked the gauges, the free turbine No. 2 (Nf) was 10 percent above rotor rpm (Nr). This situation indicated a sprag clutch slippage, an emergency that "can lead to catastrophic failure of the aft transmission."

The crew diagnosed the emergency and quickly did the emergency procedures. They couldn't reengage the sprag clutch and had to land as soon as possible.

Their clear communication, outstanding airwork, and accurate situational awareness resulted in single-engine approach and landing in a confined area on government property.

Photo caption: left to right, Capt. John Fairman, Capt. Kenneth Zebley, Cpl. Rolf Zelonis.

HMM-262(REIN)

Picture from left to right: Capt. William Woodward, Capt. James Agate

DURING A TRAINING MISSION near Idesuna Jima, located about 30 miles west of Okinawa, Japan, the lead AH-1W Super Cobra in a flight of two had a single hydraulic failure while in a 20-degree, diving attack profile. The pilot, Capt. William Woodward, and copilot, Capt. James Agate, noticed the aircraft was hard to control and began the emergency procedures. They notified Dash 2 and coordinated with the tactical-air-control party (TACP) Marines on deck.

Captain Agate broke out his pocket NATOPS and read each step to Capt. Woodward. The crew decided, instead of flying 30 miles over water to Okinawa, to land on a small, pinnacle landing zone (LZ), which was overgrown with tall grass and shrubs. The hydraulic failure caused a loss of tail-rotor stabilization, making it difficult to hold a constant heading. As the aircraft came to a five-foot hover, the crew noticed the unstable growth beneath them.

Capt. Woodward and crew managed to hold the aircraft steady and found a spot beneath the tall grass to support the skids. Captain Agate then de-armed the ordnance, avoiding further damage.

HMM-262(REIN)

DURING CLOSE-AIR-SUPPORT TRAINING in the vicinity of Okinawa, Japan, Maj. Dane Howell and 1stLt. Lt Michael Schmidt, of HMM-262(REIN), noticed their IZLID 1000 (an IR laser mounted to the M-197 20mm cannon on the front of their AH-1W Cobra helicopter) had failed in the "ON" position. The crew quickly recognized the danger, and because no NATOPS emergency procedure details this situation, Maj. Howell relied on his systems knowledge to try to secure the "runaway" laser.

When all troubleshooting procedures had been exhausted, the crew realized they couldn't secure the laser. They told their departure airfield they would be inbound with the weapons emergency.

As he neared the island, Maj. Howell knew that civilians and military personnel were located between the shoreline and the airfield. Air traffic at the commercial airfield was only 10 miles to the south. Maj Howell maneuvered to avoid lasing the civilian air traffic and people on the deck, while maintaining the combat aircraft loading area (CALA) arm/de-arm headings at the recovery airfield.

After landing, ordnance ground personnel secured the laser by disconnecting the power supplying cannon plug.

Picture from left to right: 1stLt Michael Schmidt, Maj. Dane Howell.

Would My Wings Hold?

It was supposed to be an uneventful navigation flight from NAS Jacksonville to Nellis AFB. The day blade on the No. 2 engine, ripped skin on our wingtips and several dents along the aircraft's

BY LT. AARON ROBERTS

During preflight, I checked the National Weather Service online, and I noticed thunderstorms were building over our flight path around southern Louisiana and Texas. I was confident we could see and avoid them using visual cues, our radar and ATC coordination. Weather was visual meteorological conditions (VMC) at Nellis. I submitted my DD175-1 weather request to the Navy flight-weather briefer, firmly believing we could circumnavigate any storms along the route.

Our three-hour preflight was uneventful, and we took off with little delay. When tower handed us off to approach control, we noticed our transponder Mode C wasn't operating. My in-flight technician couldn't fix it after 20 minutes of troubleshooting, so I consulted with my mission commander. Severe storms were ahead of us, and we would be landing in class-bravo airspace. I was unsure if we could get weather deviations from air traffic control (ATC) with an inoperative Mode C, and I was concerned

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ended with serious damage to our aircraft including a smashed nose radome, a cracked propeller exterior. This fateful day would forever change my outlook concerning hazardous weather.

about FAA rules regarding class-bravo airspace. After some time-critical ORM, the crew decided to turn back to NAS Jacksonville and get the Mode C fixed. We landed 30 minutes later, and it took about an hour and a half to repair our equipment.

I checked with the National Weather Service and requested a new DD175-1. Thunderstorms were building more frequently on our route of flight, but once again I assessed that we could deviate to the north. I asked my flight engineer to put on an additional 3,000 pounds of fuel than we originally planned. I consulted my crew to see if they were in good enough physical condition to continue the mission. They were, and we decided to takeoff. We had no further issues with the transponder and headed west toward Nevada.

An hour later we approached heavy weather around West Florida. I asked my radar operator if he saw the storms. He did, but to my dismay they were a full 20 to 30 degrees off of what I was seeing. I quickly began to lose confidence in the radar. I remembered it had been

partially degraded during preflight, but we took off believing it was usable.

I was given several northerly deviations from ATC for the next two hours of our flight. Midway through Oklahoma, the weather improved and I thought about the visual-flight-rules (VFR) leg of our flight over the Grand Canyon. I asked my student copilot to call Altus pilot-to-metro (PMSV) and get an updated weather brief for Nellis AFB. The airfield still reported VMC. My instructor tactical coordinator (TACCO) had one of his navigator students obtain another weather brief for Nellis, to fulfill his training. His weather brief was cut short because of reception issues, but the weather conditions still appeared favorable.

While over New Mexico, I asked my copilot to obtain weather for Nellis and the Grand Canyon area from Albuquerque PMSV. We were told of 11,000-foot cloud layers, with a storm building over the south Grand Canyon area. I told my TACCO that we probably wouldn't see any of the Grand Canyon. As we approached north-central Arizona, I could see a massive storm cell. Unfortunately, this one had not been forecast on either of my DD-75-1s for the day. We asked ATC for another weather deviation to the north to avoid the storm.

About 50 miles north of Page, Ariz., ATC gave us a descent in compliance with our flight plan. We had circumnavigated the large storm located to our south,

and we were heading west toward instrument-meteorological-conditions (IMC) layers. I had my radar operator look for additional storm cells, told my crew that we would be going through clouds and to take their seats. Nothing was odd about the IMC layers we were getting ready to encounter, and I assessed we would be IMC for only a few minutes.

Within a minute of going IMC we started to get severe ice buildup. I had my student flight engineer and student pilot seated at the controls, with my instructor flight engineer standing behind me in the flight station. I had my student navigator seated in back, along with my TACCO and radar operator. We had turned on engine anti-ice. As I asked my flight engineer to turn on the wing and propeller deice, the turbulence hit. Everyone strapped into their seats as we oscillated in altitude. I took controls from my copilot and slowed to 200 knots. Shortly afterward, small hail hit our aircraft. The noise in the cockpit was deafening. We heard a thud in the front of the plane and lost our radar and communications with ATC. The turbulence worsened, which caused the aircraft to oscillate 700-to-1,000 feet in altitude.

My student navigator reminded me that we had minimum-operational-safe altitude (MOSA) below us. I tried to stop our descent. The closest we came to MOSA was about 1,500 feet, as I tried to climb. When I saw a flash of lightning nearby, I shouted at my flight station to turn off the strobe lights. I frantically tried to radio ATC for safe vectors out of the storm. After numerous attempts with no response, I turned our aircraft northwest hoping that safe skies were in that direction.

I BEGAN TO THINK OF THE WORST. We were over the middle of nowhere in the western United States. Visions of my aircraft coming apart raced through my mind. I thought of Air France Flight 447 and the possible thunderstorm that might have led to its crash about a year ago. I remember looking out at my wings and seeing them bounce back and forth, only to hope they would hold. We went through some breaks in the clouds and could see the terrain below, adding to everyone's anxiety.

After five to 10 minutes we had flown out of the hailstorm. I reported conditions to ATC once we regained radio reception. Everyone in the crew had been rattled and glad to be out of the storm. We had not seen the storm or spotted it on radar before we entered it. We continued westbound, found airspace for holding, and then conducted a slow flight check. A loud noise originated from the nose of the aircraft; it sounded like we had extended the turret of our mission camera. My pilot's airspeed indicator erratically fluctuated between 15 to 30 knots. The copilot's airspeed indicator also fluctuated, but to a smaller degree. I was unsure if our pilot's pitot heater had become disabled or if turbulence from the mountains below caused the airspeed issue.

We knew something was wrong with the plane but didn't know the extent of our damage. The airspeed fluctuations decreased as we slowed on the flight check, there were no controllability issues. We proceeded to Nellis. I held an extra five to 10 knots of airspeed on the approach as a precautionary measure. We landed with 500 pounds of fuel above our on-top fuel requirement.

Our aircraft had penetrated a small, embedded storm ahead of the main thunderstorm cell that we had avoided. If I had flown through a much larger storm I doubt I'd be telling this story. I will continue to use PMSV in the future, but because weather is unpredictable, it's important to periodically acquire updates along the route of flight. More importantly, get information regarding storm trending.

My crew elected to take the partly degraded radar on that fateful day, because it had been used on several previous flights. We can speculate on our outcome had the radar been operating better. All I know is that the storm we went through was small and had no return on ATC's radar. We only had the APS 115 radar and no weather radar onboard. The hail was dime size at best, further limiting any radar return.

I now look at weather through a different lens and hope to never fly through a hailstorm again—it's extremely dangerous, and hazardous weather cannot be taken lightly. As professionals, we need to acquire as much weather information as possible, so we can make correct and safe decisions. If I had known the storm was moving north directly toward our flight path, and that it carried embedded cells, this story could have ended differently.

LT. ROBERTS FLIES WITH VP-30.


WE HAVE PLENTY OF TIMES WHEN BEING A
WORK, BUT IN MOST OTHER PHASES OF T
ONLY SENSIBL

AGGRESSIVE IS REQUIRED IN OUR LINE OF
HE MISSION, **BEING CONSERVATIVE** IS THE
LE APPROACH.

—Lt. T. J. Hartman, VFA-192

Chasing Stars

BY LTJG. BRYCE HOLDEN

To an experienced member of the fleet, it's natural to fly at night with night-vision devices (NVDs), also called goggles. However, for me, and other junior pilots, NVD proficiency is a skill that has to be developed after arriving in the fleet.

In my case, I completed my carrier qualification in the FA-18C and checked into my first squadron. We soon participated in a composite training unit exercise (CompTUEx). During this exercise I completed the initial NVD syllabus, but because of the high op tempo, I had limited opportunities to develop proficiency.

As the new guy, I was a low-priority pilot and had spent little time flying in section at night. I had just regained night currency after completing a day touch-and-go/trap and a night, unit-level-training event as a single. While I had worn my goggles the night earlier, I did not have the chance to join on another aircraft during the flight. I primarily used radar and LINK-16 for avoidance.

One night, my executive officer and I were returning to the ship after a six-hour mission over Afghanistan. It was my fourth combat mission and my first at night. The flight had been uneventful, and I had spent almost three hours wearing goggles during our close-air-support (CAS) missions and refueling.

We had just gone feet wet and were ready to check into marshal. I was a mile abeam on my lead's starboard side and stepped down 200 feet. My lead took one last check turn into me to point us toward the carrier. He then called out his heading and airspeed. My habit pattern is to fall back slightly out of position during turns into wing and then set a few knots above my lead's airspeed to regain formation. During the turn, I looked at my radar-attack page to reference the precise heading my lead had called out.

Once established on heading, I set a 15 knot over-take on my lead. My radar was marginal, and my lead's track file had fallen out of MIDS (multifunctional information distribution system). I referenced my air-to-air (A/A), tactical air navigation (TACAN), and saw that lead was a mile and a half from me. He appeared to be about 45-degrees forward of my wing line. I set a cut into him of two degrees to remove

I looked under my goggles and noticed the light source I was trying to catch did not have position or formation lights ...

some lateral separation, while I slid forward into position. Over the next several minutes, my lead's bearing appeared to remain constant and the A/A TACAN continued to read one and a half miles. I added additional power and set an over-take of 25 knots. I maintained sight of lead using goggles. I was unsure why I couldn't catch him but chose not to radio him to see if I had misunderstood his heading, speed or position.

A few moments later my lead said over tactical frequency, "You're about 1.5 miles ahead of me, slow down and I'll join up on you."

I looked under my goggles and noticed the light source I was trying to catch did not have position or formation lights—it probably was a star. I set the airspeed my lead asked for and steadied up on the course he gave me. He then said he was at my right four. I was shocked to discover that I had crossed my leads flight path without realizing it. I regained sight and double-checked under my NVDs to make sure I saw form and position lights. I resumed flying wing, and we returned to marshal.

This incident taught me several important things. From the beginning of flight school, I have heard that the worst form of poor situational awareness (SA) is thinking you have high SA. I believed I had sight of my lead and was joining, but I eventually crossed my lead's flight path unaware. The incident also reemphasized the limitations of NVDs. On goggles, I mistook a star for an aircraft. Had I referenced my lead underneath the goggles periodically, as opposed to relying on the NVDs to maintain sight, I probably would have caught this mistake. I failed to recognize how losing lead's LINK-16 file and my radar had diminished my overall SA. Use all sensors and available inputs to bolster SA.

While I maintained a safe distance from my lead throughout the flight by referencing A/A TACAN, this incident easily could have become much worse had my lead not kept sight of me, or had we not briefed a deconfliction plan. I failed to use all the tools available in my primary role as a wingman, maintaining section integrity and ensuring flight-path deconfliction.

LTJG. HOLDEN FLIES WITH VFA-151.

Hornets Go Bump In The Night

BY LT. T.J. HARTMAN

I was taxiing at two-to-three knots coming out of marshal at NAS Fallon. It was a dark, moonless taxi.

I was new to the fleet and had jumped right into Strike Fighter Advanced Readiness Program (SFARP), the first step of our workups. We were only a few weeks into the training, and I was confident in my budding abilities as a steely-eyed, killer-to-be Hornet driver.

We had a four-ship, night self-escort strike against an unknown number of enemy air and surface threats. I was Dash 2 and pulled into the marshal area behind Dash 3, who got there first. Eventually, the four of us were as ready as we could be, and I followed Dash 1 out of marshal.

I released the parking brake, engaged nosewheel steering (NWS), turned on my taxi light, and came up on the throttles. "Hmm, I'm closer to Dash 3 than I would like," I thought, so I took a small check-turn away.

"That's better," I thought.

It looked like I had about two feet of clearance between my left and his right wingtip, still closer than I wanted to be. File this as a lesson under the "Hey dummy, who are you trying to impress" category.

I passed Dash 3. I then made a left turn to go down taxi centerline when, "Hey man, did you feel that? I think you just hit me," came over the radio.

What? I was sure it was Dash 3's voice, but I hadn't felt anything. He was sure he had felt a bump as our wingtips passed. Expletives filled my cockpit. We cancelled the flight.

The next thing I knew I was being examined by

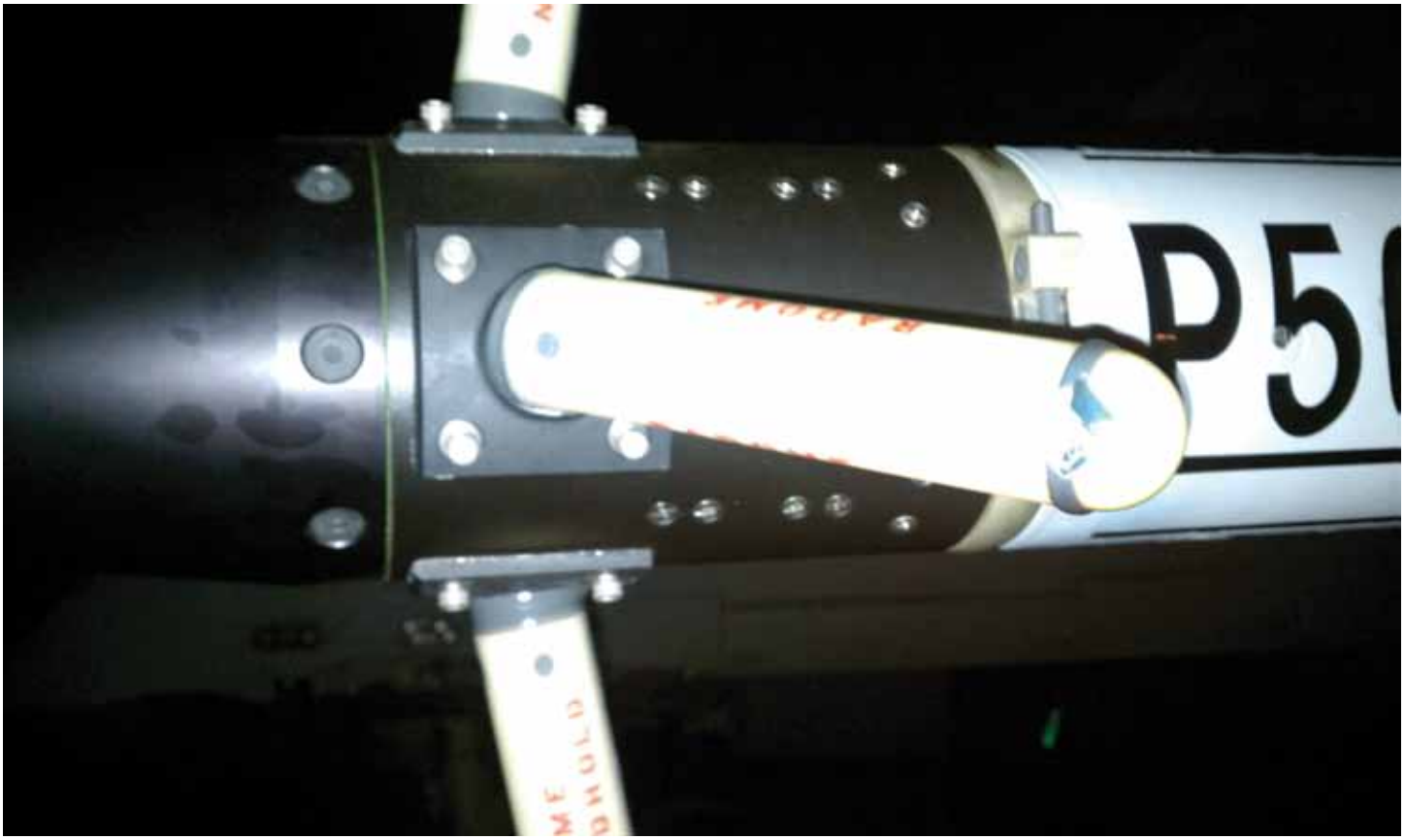
doc. Pictures were taken of my left wingtip TACTS pod, which showed that the outer antenna had clipped the back of Dash 3's right wingtip CATM-9X. The mark started one inch from the edge of the antenna and scraped backwards as it bent. The damaged antenna costs several thousand dollars.

As I look back, I was one inch from completely missing him. I was also three inches from causing serious damage to two expensive pods and composite wings. I could have severely degraded my squadron's resources to fulfill its mission, and added two or three zeroes to the total cost.

How could I have been so careless? I think the answer lies in the part of the flight that was briefed as "standard." Although little time is spent on these portions, it does not mean they aren't without risk. A lackadaisical approach to the repetitive and easy tasks in our business can be catastrophic. On a moonless night, with degraded visual acuity, at an unfamiliar field, in an unlined area, there is no reason to be carrier close. There are no wing-walkers, taxi directors, or lines in most marshal and holdshort areas. There is no reason to overlap wings in these locations.

We have plenty of times when being aggressive is required in our line of work, but in most other phases of the mission, being conservative is the only sensible approach.

LT. HARTMAN FLIES WITH VFA-192.



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No Old, Bold Pilots

BY CDR. BERT WAGNER

We've all listened to our leaders talk during safety stand-downs about being safe and conservative in our flying, while thinking, "Doesn't the old man know I can't be the best if I'm thinking about safety all the time?"

I thought the same as a junior pilot, but now I'm the "old man" and I've turned into my father.

Why did those leaders push safety? Like me, they had experiences and near misses that shaped their thinking. Someone once said, "There are old pilots and bold pilots, but no old bold pilots."

One such experience that has shaped how I fly and instruct for the past 15 years occurred when I was an A-6E nugget in VA-196. The flight was during the last air-wing detachment for the A-6 Intruder. I was paired with a seasoned senior lieutenant bombardier/navigator, who was my mentor, priest, tour guide and psychiatrist.

We were part of a large night strike, flying a low-level ingress to the B-17 target range in Fallon. The event was complete with adversary aircraft and simulated missile threats, all the cool stuff that new aviators fantasize about in flight school. Here I was, living the dream. We successfully completed the strike and were directed to do some recon in the target area while the rest of the strike package left for Fallon.

I was not yet qualified for night-vision goggles (NVGs), but it didn't matter. I had a full moon that lit up the target area like it was daytime. Terrain clearance was easy, so I spent most of my time looking outside. We were soon complete with our recon for the air wing, and we departed to the east over the ridge near Fairview peak.

As soon as I crossed the ridgeline, I lost all ground reference. The moon was blocked by the ridge, and my instrument lights were full bright. When I turned to the north past 45-degrees AOB, I lost the terrain-clearance display that allowed the Intruder to be so successful in the ground-attack role. I immediately was attracted to the extremely bright attitude indicator that showed I was in a level left turn.

As I rolled out of my turn, the peacefulness of the night was shattered with a bone-chilling, blood-curdling scream from my B/N.

"Pull up!" he yelled into the ICS.

All sense of my surroundings disappeared as my entire attention reverted to my military training. Instinctively, I pushed full throttle and pulled the stick back, climbing the A-6 to 20-degrees nose up.

AFTER CLIMBING SEVERAL HUNDRED FEET, I leveled off, content that I had successfully averted disaster. I was curious what happened, but was more focused on getting my heart rate back to normal. Almost immediately I was confronted with another scream over the ICS, "Pull up!"

As my adrenaline went into overdrive, I reacted instinctively, full throttle and 20-degrees nose up. Only this time I was going to climb to 30,000 feet. I didn't have many brain cells left, but I was sure no mountain reached that high. Passing about 20,000 feet, my B/N said in a very calming tone, "You can level off now." I just nodded, leveled off, and turned toward Fallon.

After an agonizingly long period of silence, I heard, "Do you know what happened?"

I just faced forward and simply shook my head.

"I saw the shadow of our drop tank right below us on the ground, and it was pitch black."

I didn't need any further explanation or chiding to reinforce how foolish I had been, and how fortunate we were, to not be a permanent part of the unforgiving terrain. I had done a lot of terrain study of the low-level route and target area, but I never had reviewed the terrain that we flew over on the return to Fallon. I had rolled over rising terrain, thinking I was flying parallel to a ridge line. Twice I had flown straight at a mountain, trusting senses that were dulled and making the aircraft's protective systems ineffective.

I learned a lot that night about my personal limits and teamwork. Arrogance can lead you to an early grave. I never once again thought the "old man" foolish when he told us of the importance of being conservative in our flying and knowing the limits of the envelope.

CDR. WAGNER FLIES WITH VR-61.

It'll Make You **Feel Like Pooh**

BY CDR. CRAIG SICOLA

Not so sharp, lethargic, and slow in speech—that describes the easygoing bear we once enjoyed as kids in cartoons and books. This laughable character, Winnie the Pooh, was made to be funny and likeable. But, feeling like Pooh at 28,000 feet in an FA-18 is no laughing matter, especially when the reason for the Pooh feeling is the insidious onset of hypoxia. As in, "Oh pooh (delicate replacement for actual expletive used) I'm in a bad spot." How did I find my way into this situation?

We had just started ComTUEx, from which we would go directly on cruise. I arrived early to the ready room, so I could enjoy my morning cup of coffee and knock out some XO stuff: Paperwork before starting a little paperwork so I can get to some important paperwork. I felt fantastic because I got in a good run before work, and everything was running smoothly in the squadron. The Ops O put me on the schedule for a good-deal, day, target-acquisition hop, which would take us over San Diego. The weather was glorious, and I welcomed the chance to see San Diego one more time before heading west. It was one of those days that remind you of how awesome your job is.

Our Case I launch was normal until I noticed significant environmental-control-system (ECS) surges as I passed 25,000 feet. Cabin pressure was OK, so I continued the climb until I leveled off at 27,500 feet. I had difficulty breathing with my oxygen mask, and soon realized I was not feeling well. I told my wingman that I was beginning a turning descent to 10,000 feet, heading back to the carrier. While in the turning descent, I executed the boldface for hypoxia, which starts with pulling the emergency oxygen green ring to get known good air into my lungs. Our NATOPS states there should be 10 to 20 minutes of emergency oxygen available, but you usually only have three to five minutes. After a minute, I secured the emergency-oxygen flow to preserve it for the approach and landing. I also dropped my mask and did not get back on the OBOGS because that could have been the source of my troubles.

What happened next is the terrifying part of my hypoxic episode. During the course of my descent, I felt disoriented, lightheaded and dizzy. I was so uncomfortable with the condition of the gyros between my ears that I shallowed out my descent. Even worse was the loss of feeling in my toes and fingers. My motor skills and cognitive abilities were significantly degraded. I made it down to 6,000 feet then engaged the autopilot. My wingman was on my wing as we orbited overhead the ship. We went through the procedures and game plan for recovery. I felt a little better, so I decided to save my emergency oxygen for the recovery.

ABOUT FIVE MINUTES BEFORE LANDING, I pulled the green ring to get the oxygen flowing. I still was not at 100 percent, but felt good enough to land on the ship. Paddles asked if I wanted to couple-up for a Mode 1 approach. One of the magnificent features of the Hornet is the ability to land itself—literally—this is the Mode 1 approach. It usually is used on those nights over the ocean when it is so dark you feel as if you were flying inside a football. This might have been another good time to call for the Mode 1, but because I felt better, I elected to pass on the offer and make the landing. I commenced the straight-in, called the ball, dropped my mask as I ran out of oxygen, then landed.

After I got down from the flight deck, medical put me on 100-percent oxygen and escorted me to the medical spaces. I still felt out of it and nauseated. After about 30 minutes of being on oxygen, I started to feel OK. The flight doctor looked me over and released me. Nothing irregular showed up during the exam. This could be due to many factors, including that I was able to rapidly recover from an oxygen deprived condition because I am an avid runner.

There is plenty to be learned from any emergency. First, always remember there is a set of laws that are about as hard and true as physics. Among those laws is that things can and will go wrong when you least expect it. This is especially true when you fly a machine that has a million moving parts. No matter how perfect your day starts out, you should always be ready for that dark cloud that suddenly comes out of nowhere and rains on your parade. A good wingman, a sound plan, and a solid understanding of your aircraft and NATOPS procedures are your tickets out of the corner you're in.

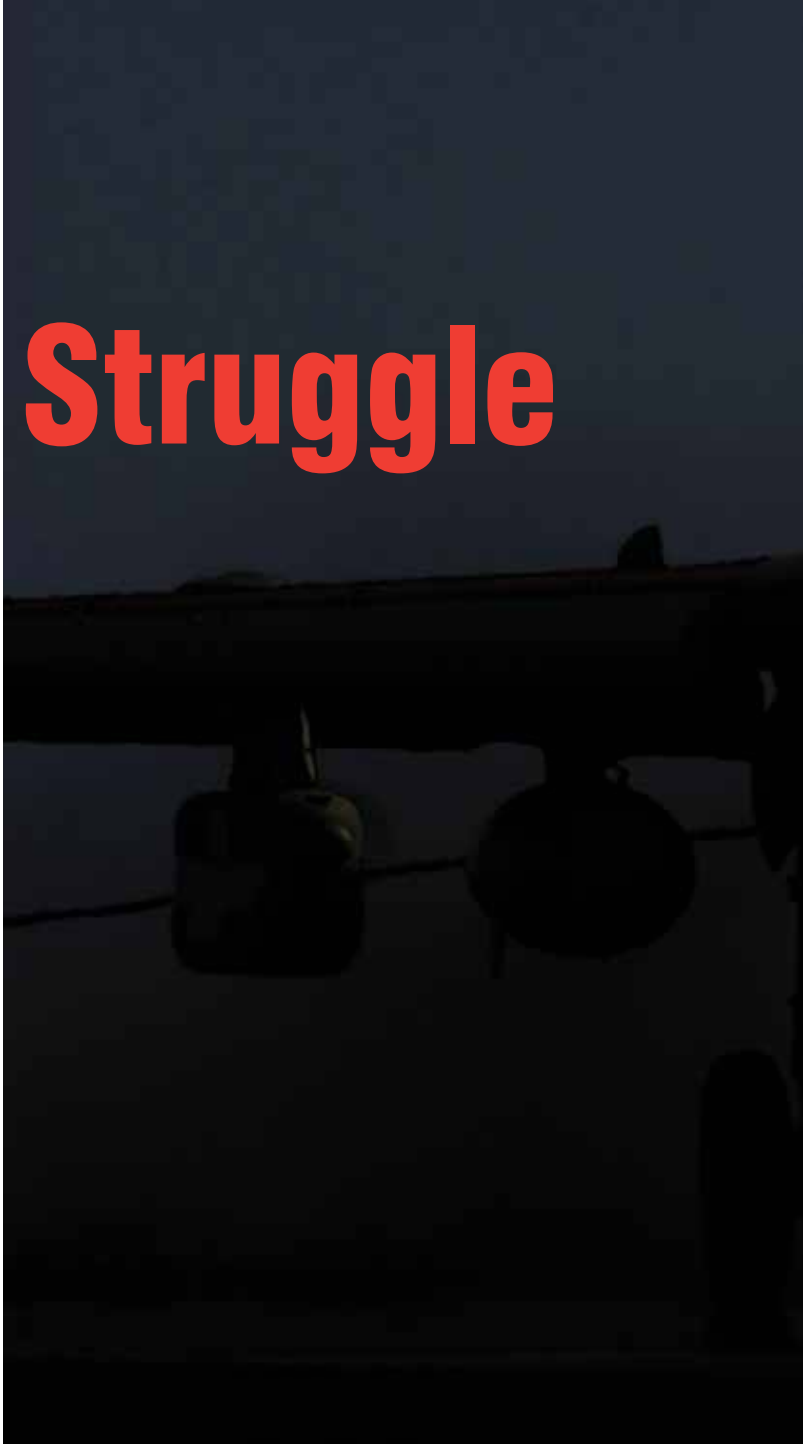
Second, it is not enough to know your procedures. You have to put them into the context of a specific situation. For example, what might I have done differently if I already was below 10,000 feet, didn't feel like I could recover, didn't have any diverts, in bad weather, was low on fuel and had to tank while disoriented? The boldface procedures are the easy part because we study them and know them cold. The hard part is having the adaptability, situational awareness, and ability to effectively communicate so you can adjust for variables not anticipated at 1 G. By the way, none of the possible variables I just listed have a procedure in NATOPS (at least not in the FA-18 NATOPS.) This is why situational emergency training is a critical component of squadron NATOPS training.

Don't just hand those boldface and closed-book tests out every now and again. Encourage ready-room discussions that go beyond the boldface and systems knowledge. Teach your nuggets to ask the right questions and think their way through problems. Don't just ask your new guy what's the boldface for an engine fire. Ask what they would do if they had the fire at FL280 on a cross-country, or what they would do if they were operating blue-water on cruise. Who would they contact? What resources would they use? What additional procedures would they have to go through? What would they expect from their wingman or SDO? What's the back-up plan? These are the hard questions you have to be ready for in an emergency.

As far as the learning process, it is vital to "close the door" on your emergency by sharing your experience with others. That is why I submitted this article. With that final thought, I close the door on the day I felt like pooh.

CDR. SICOLA FLIES WITH VFA-113.

My Time of Struggle



BY LT. DUSTIN SCHRAUD

Flying an EA-6B from the North Arabian Sea on USS *Harry S. Truman* (CVN 75), we were conducting missions in support of Operation Enduring Freedom. My seven-hour flight went smoothly until it came time to land aboard the ship.

For the previous six hours, I had been flying during the day at high altitude, in and out of autopilot. As I returned to the ship, I watched the sun go down. Usually, at this moment, I fight the tendency to become tired, and I was doing well.

We arrived in the marshal stack with plenty of fuel, thanks to a generous in-country tanker. We were part of a heavy recovery, 17 planes to be exact. I was accustomed to seeing a horizon for the majority of the flight, but now that the sun was down and the haze had thickened, the night had become the darkest I could recall. The Northern Arabian Sea can produce poor visibility conditions in the summer, and tonight was no exception. I still was confident in my ability to get aboard the ship.

I was unaware of other events occurring around the ship. During our transit back from Afghanistan, an FA-18 had returned to the ship with unsafe-gear indications. The pilot was instructed to take fuel to extend his time airborne and troubleshoot. Eventually, he had to emergency extend his landing gear. His recovery was quite eventful, especially to the reps in CATCC. What I didn't know was that he had taken nearly every ounce of available airborne fuel. However, had I known, I probably would have still felt comfortable, because I had plenty of fuel.

We commenced our approach with precision timing. This is how I like to begin my pass; it translates to how I fly the ball. We weren't the first to begin our

The tanker then reported that he had an error code and didn't think his system was going to give us any fuel. Our prospects of making it back to the ship were almost wiped out after this info, but we decided to at least attempt to take some gas.

approach, so I was able to listen to others. The deck was pitching, and the swells were causing "bolter" and "power" calls. I normally don't get alarmed by these events, and at that moment I didn't. Little did I know that there were events going on within the carrier environment that would put me in a hurt locker.

The first approach was normal. I flew a solid pass. I was certain as I crossed the ramp that I would catch a 3-wire. We touched down. MRT (military rated thrust), boards in. We didn't stop. I immediately climbed and raised the landing gear.

My first thought was, "Why didn't I stop?"

I queried ECMO 1. We were of the same mind: We should have stopped. "Oh well," I thought. "Let's try again." ECMO 1 naturally pulled the handle to drop the hook, doubly ensuring it was down.

The second pass wasn't that great, after a super initial approach. I made my transition to inside of three-quarters of a mile, the roll of my jet and the blur of the haze made it hard to distinguish the ball (my only means of determining if I'm on glideslope). I feared hitting the back of the ship and added too much power,

which created a very high-in-close position. The landing signal officer (LSO) had no choice but to wave me off. My confidence started to ebb.

The third pass didn't turn out better than the second. It was obvious to everyone in my cockpit that my scan and resolve was breaking down. My approach was similar to the second pass: smooth until in close, then I again got too high. However, on this pass, instead of being waved off, paddles felt my jet was in a position to catch a wire. We touched down—still no trap. CATCC wasn't too worried, considering the amount of gas we had.

I again immediately raised the landing gear on the climb-out. This time, however, the landing gear didn't retract. The nose gear displayed an unsafe-up indication with associated lights. My first reaction was to check my fuel; we still were decent on gas. I had enough to fly an approach for an inspection and then attempt to come aboard.

The unsafe-up checklist led us to finally lower the landing gear to see what we had. We lowered the gear, and to my surprise, the nose gear displayed a tow-link indication. Our squadron had experienced these emergencies, so we had discussed them thoroughly and what to do. The ship would inspect us on the next pass (our fourth), and then most likely have us come aboard on the next approach, as long as visual indications were good.

I flew a great pass for them to inspect our nose gear. The LSO waved me off in close and reported, "Tow link appears up."

He also confirmed that our nosewheel was straight. We made our turn to downwind, but this time we remained gear down as dictated by NATOPS. We kept our flaps down, as was normal for Case III procedures. I looked again at the fuel. If we made our turn to final at four miles we would have just enough fuel to get aboard without having to tank.

Unfortunately, we heard the ship say, "99, delta easy, there will be a 10-minute delay." (I found out postflight this delay was due to FOD in the landing area.)

ECMO 1 was great. He knew we needed gas, and with no subtlety he said to the ship, "If we can't land this pass, we need gas now!"

We were directed to join on a tanker. Remember, we were gear down, flaps down. We normally estimate that a Case III approach will take 800 pounds of gas. Of course, with our gear down, this wasn't normal. We were burning fuel at a much higher rate.

The problems and the questions began to compound. What airspeed should I be at for joining on the tanker? How far away is he? Is he high or low? How fast? I talked to the tanker to get answers.

We started to join from astern. It was difficult to tell closure, and there was no horizon to break out turns or level flight. With gear down in the Prowler, instead of a light on my refueling probe coming on, the taxi light came on. Have you ever driven a car in fog with your bright lights on? After having trouble joining on the tanker, our CATCC rep recommended changing our configuration by raising our flaps.

I needed to fly faster to facilitate a join-up and decrease my fuel burn rate, so I raised the flaps and accelerated to 230 knots. This is the moment that changed the night completely for me. As the flaps came up and I accelerated through 200 knots, the taxi light blurred the haze even more. I flew through the Rhino's jet wash, which caused a perceived uncontrolled-flight regime at 1,200 feet. ECMO 1 told me to add power and level the wings. I was blind outside with no reference to the horizon or the tanker. I thought that my jet was uncontrollable because I was slow with the flaps up. I tried to look inside for some sort of reference and immediately the master-caution light flashed. It was the low-fuel light. We indicated 2,300 pounds of fuel remaining. A communication flood ensued: ECMO 1 tried to talk to me, the tanker, and to the CATCC rep, and they all were talking to him at the same time.

Refueling in a basket at night with no probe light nearly is impossible. I only saw a silhouette of the basket. My first attempt to get in was a failure. I said a few more prayers and got in on the second try. I sighed with relief, thinking I would get fuel. However, the tanker (remember the Hornet with the gear problem?) had only about 400 pounds of fuel to give, and the gas used to fly during the tanker evolution only provided about 200 pounds above where we had started. The tanker pilot actually went below bingo to give us extra fuel, a true testimony to bravery and helping a fellow airman in need.

My gear still was down, but my flaps were up. The fuel was now less than 2,000 pounds, and I was desperate. Another tanker was sent. I tried to join on him, but

I was limited to 250 knots max (gear) and 200 knots minimum. The join-up seemed like eternity. I burned an unnecessary amount of fuel because of slight buffoonery on my part trying to vary the airspeed of the tanker. We were now at 1,800 pounds of fuel, and I was making another stab at the refueling basket. My mind raced: "Am I going to flame out? Will we have to fly a barricade approach? Am I going to eject into the black oblivion? I miss my wife."

IN THE MIDST OF MY THOUGHTS, I made it into the basket. We were taking fuel. Phew! I took another momentary sigh of relief. Then the tanker announced he could only give us 1,500 pounds. We ended up with enough fuel to extinguish the low-fuel light—2,400 pounds. The ship launched another tanker, which fouled the landing area and prevented an immediate landing for us. We had enough fuel for an approach, but it would have to be a barricade. The ship was not willing to go down that road; there still were other aircraft airborne.

The third tanker got airborne and made his way toward our position, and joined on my starboard wing. I couldn't afford to lose any more fuel, so we made a good-judgment call against NATOPS and raised the gear. To do this, though, I had to slow below 200 knots. But, if I slowed down, I would lose the tanker in the haze.

Again, we had to communicate our intentions through the flood of radio comms, and try to adjust the tanker airspeed to maintain sight. My fear of out-of-controlled flight returned, so I lowered the flaps for greater control. Once below 200 knots (or close enough), I immediately raised the gear. I was at the verge of losing the tanker when the low-fuel light returned.

With the gear up (still indicating unsafe up), I had the advantage of the probe light. We were now down to 1,400 pounds of fuel. The tanker then reported that he had an error code and didn't think his system was going to give us any fuel. Our prospects of making it back to the ship were almost wiped out after this info, but we decided to at least attempt to take some gas. What options did we have left? After getting into the basket, we took about 300 pounds before the tanker started to report problems. He was making every attempt to reset his system, but it wasn't working. The master-caution light came on; it was the low-fuel light—again.

We began taking fuel again, but for only a few hundred pounds at a time. After multiple attempts at a reset, having to detach from the basket each time, the tanking system decided to work as advertised. We finally took enough gas to make an approach. We were above 3,500 pounds. The nearest divert was nearly 300 miles away, not a suitable option. By now, the wires had been stripped; only 1 and 2 were available. I disconnected from the tanker and started my approach. In a moment of dark comedy, the gear came down and locked with no faulty or tow-link indications.

This was it, the approach of my life. If I missed this landing, there was no other fuel to be given, and I couldn't make it to a divert field. It was either barricade or eject. The time airborne started to take its toll. Time compression made it feel short, but the time between our first approach and this one was about 45 minutes. Things were beginning to get blurry in the cockpit.

Paddles was calm and smooth—the sweetest voice I think I've ever heard. Not to make the same mistake on this pass, I made sure not to get high in-close. Instead, I got low. As an LSO myself, I knew that being low in-close is not a good position to catch a wire, especially when there are only two available. I added power for the correction, hoping it wasn't too much to fly over both wires. We touched down, and I felt the relieving tug of the 1-wire.

We had made it. My hands were shaking. My mouth was dry and dehydrated, but I was alive and felt it.

We could have flamed out that night. The lowest fuel state I remember seeing was 1,400 pounds, and I hope to never see that again.

We should have never been able to receive the fuel from the third tanker. The tanker postflight reported that his system had an inoperable indication the whole time we were tanking. He still doesn't understand how I got his fuel.

What we learned that night was a testament to CRM. While flying the aircraft on "brain-stem power," ECMO 1, the tankers, and our reps in CATCC all had to create a communication flow in the worst environment: An emergency situation onboard an aircraft carrier at night.

NATOPS and SOP need to be second nature, when the brain gets overloaded; this information needs to "just be there." I'll never forget my crew, who communicated in a way that got us aboard, and how well they did during my time of struggle.

LT. SCHRAUD FLIES WITH VAQ-130.

Best-Laid Plans

BY LT. THOMAS MORRIS

Following an uneventful, five-plane flight from Whidbey Island to Andrews AFB, and a transatlantic leg into Lajes, Portugal, VAQ-132 was well on its way to the first EA-18G Growler operational deployment. We were headed to Al Asad, Iraq. However, when the five aircraft departed Lajes and one of the assigned tankers went sour en route to Sigonella, Italy, "uneventful" no longer applied.

To deliver expeditionary aircraft into the area of responsibility (AOR), the Air Force provides a delivery control officer (DCO), who manages scheduling, fuel planning, routing and diplomatic clearances. The DCO also coordinates between the squadron and the tanking squadron until the destination is reached. The squadron aircrew are responsible for briefing their flight admin en route to the tanker and for the terminal phase of the flight.

Halfway across the Mediterranean Sea, still hours away from the destination and lacking fuel to make it to Sigonella, the decision was made to turn back and divert into Rota, Spain. After an unexpected night of liberty in Spain, the five crews arrived at base operations to brief the plan to follow a single KC-135 to Sigonella.

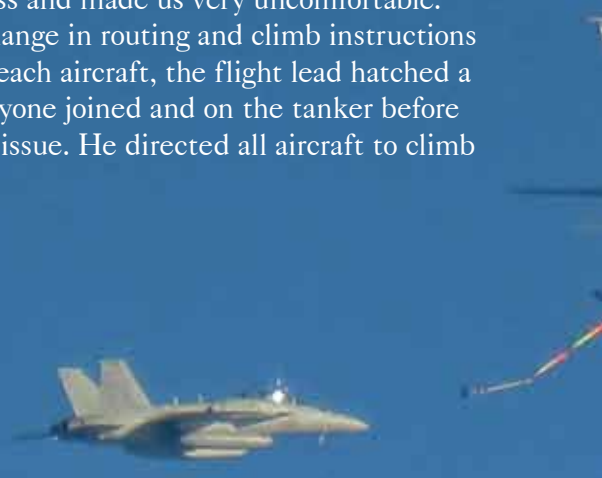
As the aircrew crowded around a speaker phone to hear the brief from the DCO, the weather deteriorated to 400-feet broken, with heavy rain and reported cloud tops at 20,000 feet. A standard join-up under the clouds was not an option. Following a coordination brief, the flight lead gave a thorough NATOPS admin brief, covering emergencies and contingencies for a five-ship, radar-trail departure to punch through the weather and rejoin the formation on top.

After climbing into dry suits, the aircrew started their jets and immediately encountered a few problems. Three of the jets had bent radars, which precluded a radar-trail departure. Time also had become a factor, as the tanker planned to take off just before the crews walked to their jets.

After a quick discussion over tactical frequency, we decided that each jet would launch as a single and then punch through the weather. The rendezvous would be above the cloud layer en route to joining on the KC-135. Everyone rogered the plan and took off in order. From there, the best-laid plans for the division rendezvous went awry.

Once all jets were airborne, the seemingly simple plan to join-up at the tanker rendezvous point at 27,000 feet became much more complicated than briefed for several reasons. First, the Spanish departure controller immediately changed the routing for each airplane, clearing them for separate altitudes. Second, the actual cloud tops were at 27,000 feet, and all aircraft were IMC while being vectored to the tanker. Third, the controller was confusing aircraft callsigns. This combination of factors immediately reduced aircrew situational awareness and made us very uncomfortable.

After the change in routing and climb instructions were passed to each aircraft, the flight lead hatched a plan to get everyone joined and on the tanker before fuel became an issue. He directed all aircraft to climb above the cloud tops, establish visual with each member of the flight and conduct the rendezvous. This plan seemed logical but required one crucial requirement: help from the Spanish air-traffic controller.



Unfortunately, we had overestimated the abil-

We tend to rely on aircraft and controller systems for the administrative portions of the flight, but they may not be available or adequate, and contingencies must be in place.

ity of the controller to understand our unorthodox requests. We sensed that his bucket was full. As six jets converged on a single point at unknown altitudes, the controller disengaged from his responsibilities for deconfliction. At this point, clear concise communications on the tactical frequency became the crucial element to our safety of flight.

ONCE THE FLIGHT LEAD ENCOUNTERED VMC, he coordinated an altitude block above the weather, so everyone could rendezvous and press to the tanker. A head's-up aircrew then made a timely call for everyone to sound off with their altitudes to reconcile the deconfliction problems. That call quickly built everyone's situational awareness, and a new altitude stack was established as the tanker reached the rendezvous point.

The lessons learned from our departure from Rota were twofold. The first one focuses on the critical skill of adaptability-flexibility. We tend to rely on aircraft and controller systems for the administrative portions of the flight, but they may not be available or adequate, and contingencies must be in place. We relied on radar to keep us separated, and we didn't brief a backup plan if one or more radars were inoperable. Aviators must consider all the contingencies before a flight leaves the ground. For this flight, weather, systems issues and foreign controllers tested everyone's ability to quickly adapt to a situation that was very different from what was expected.

The second lesson is about communication and leadership, which were indispensible in this flight. The call for everyone's altitude allowed us to take a step back and regain the situational awareness required for rendezvous. Good CRM by all fully enabled the mission and moved us one leg closer to our operational commitments in theater.

LT. MORRIS FLIES WITH VAQ-132.

SHATTERED EXPECTATIONS

BY LCDR. DAVE SAGUNSKY

I had only been in the squadron for six months. We were operating in the North Arabian Gulf (NAG), preparing for combat ops as Operation Iraqi Freedom was about to kick off. As the most junior pilot in our E-2C squadron, my learning curve was very steep. I was doing and seeing new things every day in the plane.

This day was no different. We had established our on-station profile, checked in, and turned over with the off-going E-2. As the copilot, I monitored several radios to help with the administrative load for the NFOs in back. Things seemed to be going well as sunset approached. Our Hawkeye crew was in synch and getting ahead of the mission. It was the perfect moment for a curveball.

A couple of radios simulaneously lit up, so I looked down to select the highest priority. I heard a sharp pop. I looked up and saw five long cracks in the copilot's windscreen. They started in the lower left corner and fanned out across the panel. I turned to my aircraft commander, who was at the controls, and told him the most obvious statement of the flight, "We have a cracked windscreen."

The first step in NATOPS for a cracked windscreen is to turn off the windshield heat, which I immediately did. With the setting sun, our visors already were down, so step two was covered. The next step is for the entire crew to don oxygen.

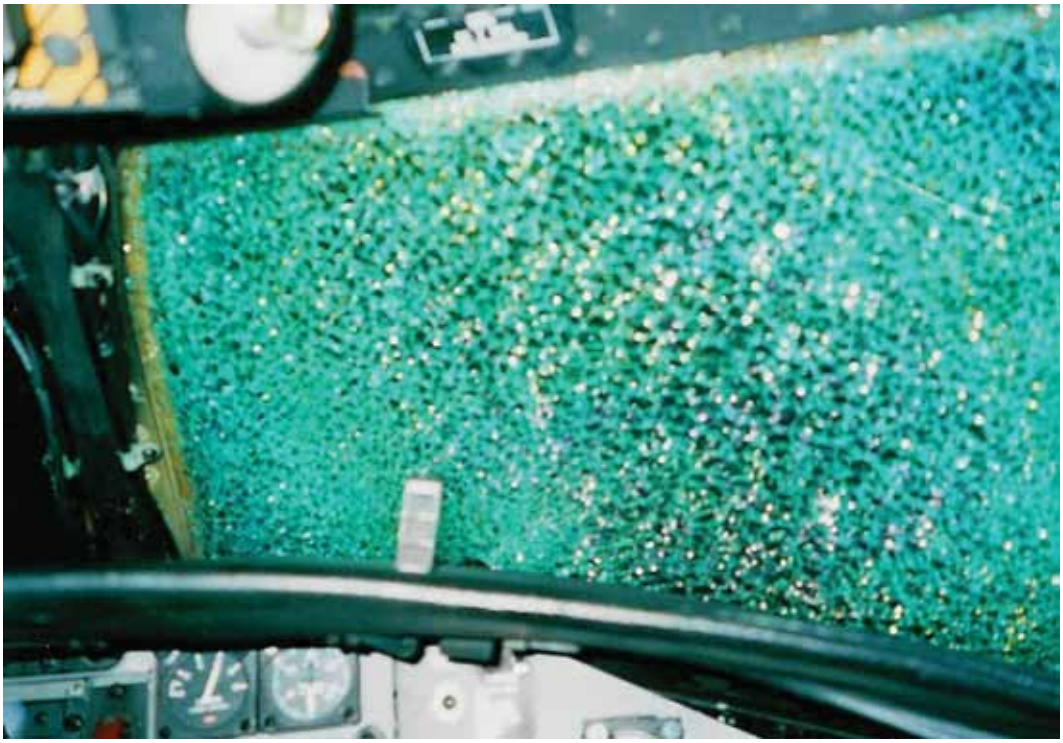
As I reached for my mask, there was another loud pop. This time, it wasn't just a few more long cracks in the windscreen, but the entire panel looked like it had been on the receiving end of repeated clubbing from a Louisville Slugger.

With my heart rate appreciably increased, I grabbed the mask and got it over my face, hoping that I wasn't about to get a face full of glass. When I swapped my ICS cord over to the mask, I discovered that the mask's mike was completely inop. Now what?

Only one thing to do: Put the boom mike in under the mask, so I could still talk to everyone. This action, however, meant I couldn't attach the left bayonet fitting, so I didn't get a good seal on the mask. I was relieved to have my face covered and to be able to talk with the crew, but since I couldn't get a good seal on the mask, I prayed the panel didn't implode and rapidly decompress the cabin.

That flight really drove home the fact that the stuff in NATOPS is there for a reason.

We quickly coordinated a handoff of the few assets we had taken control of, expeditiously checked out, and made our way toward the ship. We called ahead to let them know we were coming back early and to warn the flight-deck crew of our situation. We also said the windscreen might fly out onto the flight deck when we caught the wire. Fortunately, the pilot's windscreen had no damage, so his view of the



lens and ship was unobstructed. From my seat, however, I couldn't make out anything more than vague shapes of the carrier until we had crossed the ramp. We trapped on the first pass, the windscreen stayed in place, and we taxied to shut down.

We learned that the windshield heating element on the copilot side had failed, which caused the inner and outer panes to shatter.

I took away a lot of lessons on this flight from the aircraft and mission commander. They worked smoothly together to take control of the situation, make their plan to get the plane back to the ship, and to inform everyone what was going on.

It isn't enough on preflight to just take a breath on the mask and call it good. From that day on, I've been checking the mike in the mask as well. It's a prestart checklist item in NATOPS, but one I had been blowing off.

That flight really drove home the fact that the stuff in NATOPS is there for a reason. We need to heed the lessons that have been learned the hard way, follow the procedures we're given, and pass along our own experiences. As the saying goes, "Learn from other's mistakes, you won't live long enough to make them all yourself."

LCDR. SAGUNSKY FLIES WITH VAW-124.

Mishap-Free Milestones

VR-46	114,112 Hours	36 Years
VR-55	145,000 Hours	35 Years
VFA-86	70,000 Hours	14 Years

If we can say with confidence that our efforts are changing the Navy and Marine Corps' institutional culture—where risk management is fully integrated in all of our activities, on and off duty, then we're indeed making progress. Our safety posture will continue to improve.

—RADM Arthur "Blackjack" Johnson, Naval Safety Center