Reducing Mishaps by 50%

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

safetycenter.navy.mil • July-August 2004

Strike Out!

Rescue in the Gulf of Oman

All This for Some Shrimp

The Naval Safety Center's Aviation Magazine
July-August 2004 Volume 49 No. 4

RADM Dick Brooks — **Commander, Naval Safety Center**
Col. Dave Kerrick, USMC — **Deputy Commander**
John Mahoney — **Head, Marketing and Communications**
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
Allan Amen — **Graphics, Design & Layout**
allan.amen@navy.mil — Ext. 7248
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. Chris Spain — **Aircraft Operations Division**
christopher.spain@navy.mil — Ext. 7203
Cdr. Chuck Huff — **Aircraft Mishap Investigation Division**
Charles.E.Huff@navy.mil — Ext. 7236
Capt. Nicholas Webster — **Aeromedical Division**
nicholas.webster@navy.mil — Ext. 7228

Analysts

Cdr. Mike Scavone — **Carrier Branch Head, EA-6B, A-4, F-5, T-2. T-38**
michael.scavone@navy.mil — Ext. 7272
Cdr. "Skel" Barrickman — **E-2, C-2, UAV**
darryl.barrickman@navy.mil — Ext. 7212
Maj. "Spool" McCann, USMC — **AV-8B**
david.b.mccann@navy.mil — Ext. 7216
LCdr. "Molly" Bates — **FA-18, F-16**
lyndsi.bates@navy.mil — Ext. 7217
LCdr. "Pooh" Williams — **F-14**
robert.r.williams1@navy.mil — Ext. 7274
Cdr. Jack Thoma — **Shore-Based Branch Head**
T-34, T-39, T-6, Flying Clubs
C-130, E-6, C-9, C-40, C-20, C-35, C-26
John.Thoma@navy.mil — Ext. 7277
Cdr. "Buc" Owens — **P-3, EP-3, C-35, T-44, C-12**
donald.owens@navy.mil — Ext. 7210
Cdr. Bob Lucas — **Helo Branch Head, H-3, H-60**
robert.lucas@navy.mil — Ext. 7207
Capt. "Fancy" Shea, USMC — **AH-1 UH-1, H-57, NVG**
edward.shea@navy.mil — Ext. 7266
Lt. Scott Harvey — **H-46, H-53, V-22**
scott.harvey@navy.mil — Ext. 7208
LCdr. Frederick B. Hoo — **Air Facilities Branch Head**
frederick.hoo@navy.mil — Ext. 7281
ACCS (AW/SW) Leslee McPherson — **Air Traffic Control Analyst**
leslee.mcpherson@navy.mil — Ext. 7282
ABEC (AW) Mark Bertolino — **ALRE/Airfield Analyst**
mark.bertolino@navy.mil — Ext. 7279

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 (ISSN 1094-0405) is published bimonthly 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. 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

Visit the *Approach* Vault. There are hundreds of unpublished articles waiting for you.
www.safetycenter.navy.mil/media/approach/vault/

Cruising for the summer? Visit this website for safety tips you can use at work or at play.
www.safetycenter.navy.mil/seasonal/criticaldays.htm

Photo by PH2 James H. Watson. Modified.

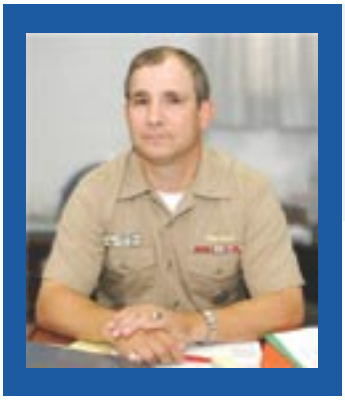
Departments

July-August Thanks

Thanks for helping with this issue…

Capt. Patrick Neill, USMC, HMH-363
Lt Mark Vagedes, VQ-4
Lt. Roger Jacobs, VAW-113
Ltjg. Clint Miller, VS-31
Capt. Grant Killmer, USMC, VMU-2
LCdr. Kirk Volland, HSL-47
LCdr. David Samara, VAQ-141
LCdr. Scott Mulvehill, VFA-105
Lt. Rob Sinram, HC-11
Ltjg. Kevin Marsh, VAW-117

On the cover: A CH-53E from HMM-266 offloads Marines from MSSG 22 on USS *Shreveport* (LPD 12) during training exercise off Florida coast. Photo by LCdr. Steve Miller.



TOWARD THE GOAL...

Reducing mishaps by 50%

Committed to Protecting Our People

What does it take to stop the loss of life, the missed opportunities, the wasted potential, and the broken families resulting from preventable mishaps?

Finding ways to reduce these mishaps was the thrust of recent discussions during the Navy and Marine Corps Safety Council's first meeting. I and my then-counterpart, Col. Buck Dewey from USMC headquarters Safety Division, co-chaired the Washington, D.C., gathering. The meeting's importance was emphasized by the presence of the Secretary of the Navy, the Honorable Gordon England; the Deputy Assistant Secretary of the Navy for Safety, Ms. Connie DeWitte; and 30 flag and general officers. Many others from throughout the Navy participated via video teleconference.

Secretary England emphasized, "Safety is very, very high on my personal agenda." Not only is attention to safety "a great visible sign of your commitment to our men and women, but safety programs produce a very large, direct benefit to the total force."

Ms. DeWitte opened the meeting by noting her agenda included using the opportunity to move safety forward. "I believe we can make the *[Secretary of Defense's]* 50-percent goal and also create some deep roots for future programs," she said. The unprecedented attendance of so many senior officers discussing safety provided the momentum to integrate safety into all operations.

Four committees, representing the aviation, afloat, ashore, and ground-tactical communities, are forging ahead with the agenda set by the council's discussions, which focused on short- and long-term initiatives and resource issues. Significant topics included operational risk management, safety culture, and traffic mishaps. The 50-percent mishap-reduction campaign also was a major topic, but, as Secretary England pointed out, "The goal isn't really fifty percent. We'll settle for fifty percent, but we don't want anyone injured or killed."

Approach magazine is dedicated to reducing aviation mishaps. With a very high percent of all aviation mishaps tied to some form of human error, we need to rededicate our efforts, change the way we do business, and target our weakest link: preventable human errors. You can see in the aviation-mishap status update below that we have quite a ways to go to reach our goal.

An overall, across-the-board reduction of mishaps requires intrusive leadership and everyone's dedicated efforts. It also requires changes in how way we do things, what we expect of each other, and what we accept as being operationally "normal." Finally, it requires every Sailor, Marine and DoN civilian to take a turn on looking out for each other—the same way you look out for your family members.

RADM Dick Brooks
Commander Naval Safety Center

HOW ARE WE DOING?

Here's information on our safety status as we work toward the goal.

Aviation (Rates = Mishaps Per 100,000 Flight Hours)

Class-A Flight Mishaps (FY04 thru 8 June)

Service	*Total/Rate*	*FY03 thru 8 June*	*FY04 Goal**	*FY05 Goal**	*FY01-03 Avg*	*Fighter/Attack*	*Helo*
USN:	9/1.27	17/2.15	14/1.24	10/0.88	20.3/1.77	7/4.43	1/.70
USMC:	10/4.44	8/2.99	10/2.75	7/1.94	10.3/2.77	4/4.36	5/4.95

** Goals based on FY02 baseline.*
FY04/05 rate above goal.

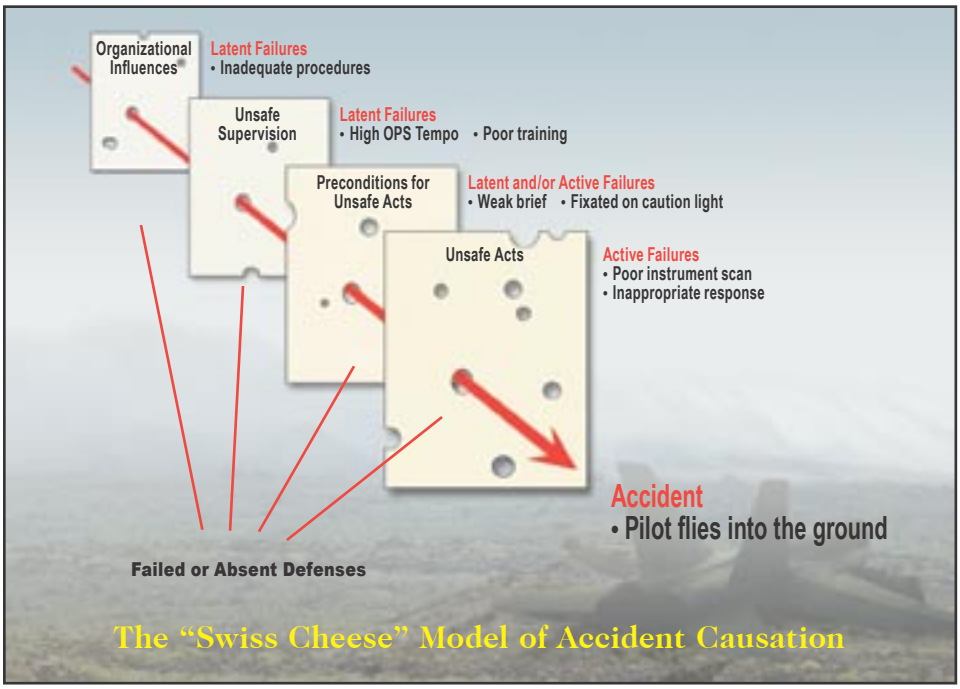
For current information on aviation statistics visit:
www.safetycenter.navy.mil/statistics/aviation/default.htm

The Human Factors Analysis and Classification System (HFACS)

By Lt. Laura Mussulman and LCdr. Deborah White

To err is human; to prevent human error makes for a strong safety program. Humans make mistakes, and the military system has developed checks-and-balances to catch human errors before they lead to major mishaps. Unfortunately, when the control measures don't catch the human error, accidents happen. Until recently, no tool was available to enable a CO or mishap board to identify the "holes" in the controls.

The Human Factors Analysis and Classification System (HFACS) was developed in response to a trend that showed some form of human error, at various levels, as a primary causal factor in 80 percent of all flight accidents in the Navy and Marine Corps.



The "Swiss Cheese" Model of Accident Causation

HFACS identifies the human causes of an accident and provides a tool to not only assist in the investigation process, but to target training and prevention efforts.

HFACS looks at four levels of human failure (see figure of "Swiss cheese" model). These levels include unsafe acts (operator error), preconditions for unsafe acts (such as fatigue and inadequate communication), unsafe supervision (such as pairing inexperienced aviators for a difficult mission), and organizational influences (such as lack of flight time because of budget constraints).

Using HFACS to analyze hundreds of aviation-mishap reports, the Naval Safety Center has identified the following human errors as leading contributors to Class A mishaps:

Unsafe Acts of Operators

- **Skill-based errors** are "stick-and-rudder" and other basic flight skills that are not performed correctly. These skills require little if no thought on the part of the aircrew and often are susceptible to attention failures.
  - – Breakdown in visual scan
  - – Failure to recognize extremis
  - – Improper use of flight controls

- **Decision errors** are "honest mistakes" that resulted in actions or inactions based on the pilot's lack of knowledge or poor choices.
  - – Wrong response to emergency
  - – Poor decision
  - – improper procedure executed

Continued

Preconditions for Unsafe Acts

• **Adverse mental states** are those mental conditions and attitudes that affect performance.
– Channelized attention or fixation
– Loss of situational awareness
– Inattention or distraction

• **Crew resource management errors** involve poor communication skills or coordination among all personnel involved with the flight or mission, not just the flight crew.
– Failed to communicate or coordinate
– Failed to backup
– Failed to conduct an adequate brief

Unsafe Supervision

• **Inadequate supervision errors** occur when supervision was inappropriate or absent.
– Failed to provide adequate guidance or oversight
– Failed to provide adequate training
– Failed to track quals or performance

Organizational Influences

• **Organizational process errors** result from inadequate or misinterpreted corporate decisions or rules that govern everyday squadron activities (such as SOP, NATOPS).
– Failure to provide adequate guidance
– Inadequate documentation
– Failure to provide adequate or professional procedures.

How does HFACS help decrease the mishap rate?

HFACS is the first step in the risk-management process: Identify the human-factor problems. The next step is to implement interventions at squadron and organizational levels to reduce the number of mishaps, based on the data gathered by HFACS.

For more information on HFACS visit our website: http://safetycenter.navy.mil/presentations/aviation.

Lt. Mussulman is a reserve aerospace physiologist, and LCdr. White is the human-factors analyst with the Naval Safety Center.

Saberhawk 74, Are You OK?

Required Reading For All CO's!!

RADM. R. E. Brooks
Commander, Naval Safety Center

By Cdr. Markus Hannan

We strapped on our SH-60B and launched out of NAS North Island for a day, warm-up flight to OLF Imperial Beach (IB). With 3,750 pounds of fuel, a crew of four, the Core B Hellfire missile-modification incorporated, and the left-hand extended pylon and FLIR installed, our helicopter was near max gross weight.

We took off more than an hour late because of a maintenance delay. Since I was scheduled for a "double," I wanted to knock out the first hop in 75 minutes, instead of the scheduled 2.0, and then shave a half-hour off the second 2.5-hour flight. This plan would allow me to land on time and keep the remainder of the schedule on track. IB was ops normal for a late midweek summer afternoon: busy, high density altitude (DA), hazy, wind out of the west, and sun in our face. My copilot was a new pilot-qualified-in-model (PQM), fresh out of the FRS, and with little flight time. Me? I'm the CO.

We arrived at IB about 15 minutes after takeoff. I had my copilot "bust rust"

for 30 minutes on the pads. We transitioned to the runway for autos, but, before shooting the first one while on downwind, I briefed the crew we were over the recommended 18,500 pounds gross weight (GW). The fuel totalizer read 2,980 pounds, putting the aircraft at 19,620 pounds GW.

At 1815, and because the outside-air temperature and DA had come down, I felt we safely could complete the autos. I shot the first auto; it was picture perfect. I was proud of myself because I had had all of 10 minutes of stick time during the flight. I silently patted myself on the back, as I passed the controls to my PQM.

My copilot entered the auto and did a decent job controlling heading, airspeed, rotor rpm (Nr), and ball. He began his flare at 200 feet; however, the nose of the aircraft got a little too high. As a result, our groundspeed rapidly bled off, and then the rate of descent increased—events happened faster than usual. As we descended through 60 feet AGL, I called "power" and came on the controls. Nr was drooping below 90 percent as we leveled the helicopter. I felt the strong jarring that accompanies a hard landing.

IB tower immediately called, "Saberhawk 74, are you OK?"

Fortunately, no one was hurt. The only aircraft damage was a scraped radar dome. What follows is an excerpt from my endorsement to the hazrep—what the legendary radio figure Paul Harvey calls, "the rest of the story." I hope my comments put this story in context.

The Rest of the Story

The truth be told, as CO, I could have elected to sweep this whole affair under the rug. However, the message I want to send to my wardroom does not include: Do as I say, not

I felt the strong jarring that accompanies a hard landing.

Photo by Matthew J. Thomas

as I do; honesty in reporting only applies when it does not make you look bad; or commanding officers are bulletproof. The unique feature of this hazrep is that it is based on human errors—my errors. While you may find my remarks to be somewhat untraditional, I hope you also will find them refreshingly candid.

The bottom line is I made a series of poor choices and overestimated my ability to recognize, react, and recover from a poor autorotation flown by my copilot. I took a nugget who had recently graduated from the FRS, and placed him in a situation that required him to perform at the level of a seasoned fleet aviator. **My safety box (comfort zone) as a helicopter-aircraft commander (HAC) and flight instructor had become too large.** Upon reflection, here are the salient details. (You Swiss-cheese-model fans are going to eat this up—pun intended.)

Slice one. I have more than 18 years of aviation experience, have 2,000 hours of total flight time, have successfully completed three LAMPS deployments on small decks without incident, was a HT flight instructor, and have flown with hundreds of students. While some might argue these facts are a recipe for complacency, I will tell you I am neither satisfied nor content. More appropriately, I had become overconfident in my abilities.

Slice two. My copilot had graduated from the FRS a mere five months before this incident. Since his arrival, he had flown 20 times and accumulated 55.6 flight hours. Of that total, he had only 12.2 flight hours in the last 60 days and 3.9 flight hours in the last 30 days.

Slice three. Unbeknownst to me, my copilot had had difficulty with autorotations in the FRS.

Slice four. After our launch was delayed, instead of flying our scheduled two-hour day "back in the saddle" warm-up hop, I pressed to accomplish the "X" in about 75 minutes, just over the minimum one-hour limit.

Slice five. I knowingly launched with approximately 3,750 pounds of fuel on a flight in which autos are a required maneuver. Thus, aircraft gross weight was destined to be high at the time autos were conducted.

Slice six. It was late on a typical San Diego summertime afternoon (Read: the sun was in our eyes, and the density altitude was high).

Slice seven. The aircraft gross weight was 19,620 pounds. My squadron defensive-posturing instruction, which provides aircraft commanders guidance on conducting high-risk maneuvers, states, "High-density altitude and/or high gross-weight autorotations above 18,500 pounds gross weight should be avoided." I chose to disregard my instruction.

Slice eight. As HAC, I had performed the first auto; it was picture perfect, and I was quite proud of myself. Hey, the old man still has it! I proved to the young lad an auto could be accomplished safely, despite everything mentioned above. When I passed him the controls, my confidence was overflowing.

Slice nine. As my copilot commenced the next auto, I was near the controls, instead of riding the controls with him. When we reached 60 feet, I got that sinking feeling in my stomach, indicative of a tail slide. I called for power and reached for the controls—too slow and too late. (Trust me, my pucker factor was pegged.) As Nr drooped, we leveled the aircraft and made a "power-on full autorotation."

This ignominious incident completely was avoidable. If you take nothing else away from this story, do not be foolish enough to repeat my mistakes. I am not as good as I thought I was—"pride precedeth the fall." I did not consider the relative inexperience of my copilot—I should have. I was not familiar with my copilot's strengths and weaknesses—I did not review his training record. I wanted to get the "X"—it was not critical. I launched with a heavy aircraft—it could have been defueled. I disregarded my own instruction—I could have incompleted the hop. I did not ride the controls—that was stupid. Last, but not least, ORM is not a substitute for sound judgment.

Cdr. Hannan is the commanding officer of HSL-47.

Super article! Well done to Cdr. Hannan!

—RADM Brooks

Never Stop Learning

By Lt. J. B. Eichelbaum

There is no such thing as perfection—no matter what your endeavor, you'll always have room for improvement. This story is about the dangerous thrill many young Sailors and Marines get from speed, pushing the limits, and everything else U.S. Navy sales pitches promise.

I bought my first motorcycle while I was in flight school at Pensacola. I first saw the bike in a McDonald's parking lot by the water. The owner was leaving the area and didn't want the fuss of moving it. He also had outgrown the 500-cc engine. It was just right for learning and beyond.

The process of obtaining a motorcycle learner's permit barely required any studying at all. My first rides were on a small, empty street in Perdido Key, Fla., where I once or twice scared myself at intersections or in gravel but managed not to fall or to get hit. I trained myself to the point that I could ride to the motorcycle-safety course and learn proper techniques. I stumbled through the course, got a passing score, and received my license.

I then transferred to Norfolk, where I was able to ride in the HOV lane. I got economical gas mileage and became a proficient rider. As my confidence grew, though, so did my ego. One day while returning to Norfolk from Virginia Beach, someone passed me on a speed bike. He taunted me to race him. I knew I couldn't keep up, but I wanted to open the throttle a bit.

I topped 95 mph—fast enough for me. With concrete zipping by only a few feet below, I had a huge adrenaline rush—that is, until I saw the flashing lights

behind me. I figured I was going to jail. The officer said he was glad he caught me this way, as opposed to scraping me off the highway. I was relieved when he let me go. His comments and the possible embarrassment of incarceration made a big impact on me.

When my first sea-duty orders came in for Point Mugu, Calif., I was excited about a lot of things but mostly riding. The base is located north of Los Angeles and is the ideal starting point for endless coastal highways and switchback canyon roads. My plan was to stay away from cities because I felt other drivers were more dangerous than cliffs—I could control my actions but not theirs. After a year in California, those concerns began to subside, and I decided to ride to LA to see my wife play in a softball tournament.

I rode my motorcycle along the breathtaking, 70-mile coastal drive from base, through Malibu, to my wife's game. Along the way, I noticed the rear brake felt a bit spongy and made a mental note to have it checked. When I reached I-10 in Santa Monica, I sped up to freeway cruising speed.

I wasn't used to riding on the crowded freeways of LA, so I was careful to stay aware of my surroundings. I kept four seconds behind the cars in front of me as I had learned in my safety course, and I even was wearing the retro-reflective vest required on base. It's legal in California to ride between lanes, but I wasn't comfortable yet with that law. I didn't realize this option is provided so motorcyclists can escape dangerous situations.

My exit was a quarter-mile away, across three lanes of I-10 and I-405 interchange merging traffic. I was going 50 mph in the right lane when the car in front of me stopped quickly. Even with all the safety measures I had taken, nothing could deter my bad reactions on the front brake and spongy rear brake. The bike bucked and flipped end-over-end.

Since the car ahead of me had stopped for no reason—in typical LA fashion—it resumed speed, and I didn't hit it. I fell off the bike on my left knee and started sliding. My helmet, gloves and boots prevented major injury in the tumble, and that awful vest saved me from getting run over as I careened down the highway. My cell phone was destroyed, my jacket and jeans were torn, and I was scraped, bruised and badly shaken, but I was alive, and nothing was broken. Picking up the motorcycle, I walked it off the freeway, took a few deep breaths, and got back on to ride to the game only about a mile away.

I later learned I shouldn't have gotten back on the bike. In shock and with diminished senses, I could have caused another accident. The safety lessons I'd learned up to that accident saved my life. Unfortunately, you never can know everything. Foolishly, I had decided to learn California's unique motorcycle laws and driving rules through the school of hard knocks.

ARE THE NAVY AND MARINE CORPS' NO. 1 KILLER!

I should have read some books, checked the Internet, and reviewed the California Highway Patrol Motorcyclists manual, which would have provided me with more options when I needed them.

I learned my lesson by trying something new in a new environment. Most mistakes already have been made. Find out what they are, and proceed on your mission with caution.

Lt. Eichelbaum flies with VAW-117.

For information on motor-vehicle safety visit: http://www.safetycenter.navy.mil/ashore/motorvehicle/—Ed.

Nugget Test Pilot

By Lt. Matt Stevenson

I had been in the squadron only a few months when I was scheduled for a defensive, 1 v 1 syllabus hop on a glorious Friday afternoon. I was eager to demonstrate to one of our seasoned hinges my basic-fighter-maneuver (BFM) skills I had picked up in the FRS.

The brief was long, covering the maneuvers and tactics a defensive aircraft should execute. Training rules were covered in detail, including departures and out-of-control flight (OCF) procedures. We walked to the jets, launched into the whiskey areas off the East Coast, and began our engagements.

We pressed on through the hop and finally arrived at the last set: a 3,000-foot defensive start for me. I began the fight at 18,000 feet and 325 knots, with my instructor camped out 40 degrees off my tail one-half mile away. At the "fight's on" call, I immediately broke left to defeat the simulated initial shot. As the airspeed bled down, the offensive fighter closed in, and I began my "ditch" maneuver. In a heartbeat, my day went from good to bad.

My left full rudder and left full-stick deflection put me in AOA tone, but I figured that feedback to be standard for the maneuver. I was in a 90-degree-AOB left turn and 40 degrees nose low when the aircraft suddenly yawed to 75 degrees nose low. It then reversed and departed controlled flight in an adverse yaw to the right.

I quickly called, "Knock it off, out of control."

My lead said, "Watch the rudders."

My nose was buried 75 degrees nose low, and my airspeed indicated a paltry 74 knots. The plane then snapped back to the left again. My airspeed showed 48 knots (the lowest airspeed a Hornet HUD can indicate), while my nose actually was above the horizon.

My training kicked in, and I went through the NATOPS OCF procedures, which calls for releasing the controls. I was going along for Mr. Toad's Wild Ride.

I had been through many OCF flights in various aircraft, including spin training in the T-34 and T-2. I also had been through the recently reinstated OCF-flight syllabus in the FRS. So far, my airplane was behaving exactly like an OCF flight I had had in VFA-106. That behavior all changed in the next instant, when I went from a departed Hornet to a spinning Hornet—something that almost never happens.

Sometimes, when you are out of control in the Hornet, you get oscillating-spin arrows while the computer tries to decide whether you are in a spin. These arrows were solid, and I was in an upright spin. My AOB was plus-or-minus 30 degrees, and I was spinning to the left at 60 degrees per second. Those statistics aside, my primary concern was falling out of the sky at 28,000 feet per minute. It took me a moment to realize what I was seeing; a spin is hard to duplicate, even in the simulator. The various spin flights I had had were now paying off as I snapped to reality and went into my spin-recovery procedures.

Concern rose in my mind that I was about to become a Martin-Baker-seat owner, as I whizzed through 12,000 feet. The skipper would kill me if I splashed this jet. My lead read altitudes to me as he followed me down. This information increased my situational awareness and would help if and when the time came to pull the ejection handle.

Finally, the airplane snapped nose low and accelerated toward a recovery airspeed of 180 knots. I told lead I was recovering, and he replied, "Take it easy on the pull." He didn't want to see me depart again, trying to recover; believe me, neither did I.

I bottomed out at 8,000 feet, then, as I climbed, it hit me: I almost had become a statistic. Lead quipped we had done enough for today, and he got no argument from me. We returned to base without further incident.

Ultimately, I should have been more conscious of the steps for a "ditching" maneuver. I had failed to completely unload the G before trying the maneuver. To me, relaxing the G and unloading the jet had become synonymous—they are not. Because I knew my NATOPS immediate-action items, I was able to call the skipper and tell him I had spun a jet but hadn't jettisoned it.

As I look back on my wild ride, several lessons come to mind. Know your procedures cold, lest small, unsafe habits creep in. Remember, in an instant, you can be operating only on stem power.

Never gloss over training rules. We didn't, and they still were fresh in my mind.

Crew-resource management (CRM) was a big factor in this incident. Lead provided gentle reminders but stayed out of my cockpit while I fought the airplane. By reading off altitudes, he kept my ejection envelope SA higher, in case my instruments lagged, or I was disoriented.

If you think it can't happen to you because you can't duplicate the scenario in the simulator, think again. I can't overemphasize the value of the spin training in the training command and, even more importantly, in the FRS.

Lt. Stevenson flies with VFA-105.

Photo composite

Concern rose in my mind that I was about to become a Martin-Baker-seat owner, as I whizzed through 12,000 feet.

Strike Out!

By Capt. Mark Bosley, USMC

The flight began as a typical instrument flight for intermediate-advanced jet training. We had completed an uneventful practice ILS at Laredo International and were flying direct to WAADE, the IAF for the TACAN at NAS Kingsville. Houston Center had cleared us to climb to 17,000 feet, and we were setting up for a practice turn in holding before commencing the approach. As we leveled off, we set cruise power, discussed the finer points of entering the holding pattern, and switched to NAS Kingsville ATC.

The weather was mostly VFR, with a few medium-sized towering cumulus in the area. Rougher weather had passed through earlier in the afternoon, moving well to the north before we took off. We penetrated clouds as quickly as we exited them, but my student didn't care because he was "under the bag," flying his instruments. As we went IFR into one of the taller cumulus buildups, I saw a small flash of light to our right. It was no more intense than what you would expect from the flashbulb of a camera. I thought one of my mirrors had caught a final glint of sunlight before we penetrated the cloud, but then I heard a sound, like gravel being poured onto a tin roof. The sound made me think we had penetrated into hail, but I realized the sound was coming over my headset. I adjusted the volume on the radios and isolated the sound to extreme static on our comm 2, which is tuned to Kingsville strike ops. I still had good reception with ATC on comm 1, so I turned down the volume to hear what was coming over the ICS and with ATC.

That's when I thought, "Flash of light, and comm 2 goes dead—did we just get hit by lightning?"

When I was the aviation-safety officer at VT-21, I had read a hazrep concerning one of our T-45 instructors being hit by lightning and losing the engine on a cross-country flight. I immediately checked the engine instruments, and I saw the rpm steadily winding down through 70 percent, with exhaust-gas temperature (EGT) decreasing through 400 degrees. I hoped the student was pulling power to slow to our 200-knot holding speed, but, as my hand rested on the throttle to use the ICS button, I didn't felt it move from the cruise-power setting. I keyed the ICS and said, "I have the controls."

As we completed our verbal three-way change of controls, I added a little power to stop the decreasing rpm—but it kept dropping. I added a little more power, but it still kept dropping. I now was in total denial; I went to mil power. The rpm and EGT continued to drop, and airspeed kept decreasing through 220 knots. I keyed the ICS and said, "We just lost our engine."

As I lowered the nose to maintain airspeed, I called ATC to declare an emergency. The engine spooled down through 45 percent, and the generator went off-line, which tumbled our primary attitude and heading indicators. Still IMC, I scanned the standby attitude indicator to keep us upright.

Because of the lightning strike and engine loss, I called Kingsville ATC and declared an emergency. I asked for no-gyro steers for an emergency straight-in approach. I selected throttle off to prepare for an immediate airstart.

Since we already were headed toward Kingsville,

the steer was only a few degrees to our left. I made the turn while pressing the gas-turbine-starter (GTS) button and brought back the throttle to the idle position. All I could do was maintain enough airspeed for the relight at 230 knots, fly the steering instructions from ATC, and wait for the relight. I remember thinking how much I did not want to eject.

I planned an assisted airstart, using the GTS to power the air-turbine starter, hoping for a good relight. After a few more seconds—but what seemed like much longer—the rpm slowly rose, finally making it to flight idle around 71-percent rpm. We still were IMC, and I wasn't sure about the weather en route Kingsville—we hadn't received the ATIS information. I set power to 86-percent rpm and prepared for an emergency-oil GCA. I was locking the throttle friction to keep from accidentally moving my power setting when we broke out of the clouds and into VMC conditions. (Postflight analysis of the aircraft's air-data recorder showed from the time of the lightning strike to engine shutdown and relight had been only 27 seconds.)

After setting the engine power, I reset the systems lost during shutdown, mainly the generator and hyd 2, and I secured the now still running GTS. As the generator reset, our attitude and heading indicators came on. The wet compass had aligned to the proper heading. I told ATC I was VMC with a good relight and wanted to proceed visually for a straight-in precautionary approach. This approach calls for an 80-percent-power setting. Reluctant to change from the 86 percent I had set for the GCA, and possibly lose the engine again, I maintained the higher setting. I would use configuration changes to control my airspeed: selecting full flaps and idle earlier in the profile. I had some time to breathe and just navigate for the final for the 13s at Kingsville. I let the airspeed build to 310 knots in the descent, wanting to get back to home field as quickly as possible.

At this point, I remembered I had a crew member with me. I asked my student to break out his pocket checklists and to read the engine-restart procedures to me to see if I had missed anything. As he looked up the appropriate checklist, ATC asked if I would like an arrested landing. My first reply was "no," but I almost immediately changed that to a "yes," thinking I'd hate to encounter a problem on a high-speed landing with directional control or loss of braking during an emergency landing. ATC said to expect the arresting gear. I was thankful for all the help they had provided me. After reviewing the engine-restart procedures, I had my student turn to the short-field-arrestment procedures. We quickly went through all items, and we were ready to

begin our precautionary approach into NAS Kingsville.

With the field in sight, ATC directed us to contact tower. With a "roger, and thanks for the help," we switched to tower and began our profile for runway 13R. The hook was down, and we were on profile but a little fast because of the higher power setting. I selected full flaps and idle early to begin the flair. I advised my student to secure any loose items in preparation for the arrested landing. As we touched down, approximately 400 feet from the arresting gear, I keyed the ICS and said something along the lines of, "Get ready for the trap."

We crossed the gear—no arrestment. We had good directional control, and the brakes seemed fine, but I was a little disappointed at the anticlimax of our adventure. While we decelerated, I wondered why we hadn't grabbed the wire. I remembered other T-45 pilots had said the hook will ride a few inches above the ground on a non-carrier field landing, and you have to feed in back-stick pressure to aerodynamically "squat" the jet to get a good arrestment.

I finished my rollout and exited the runway. After a quick call to maintenance, asking if they wanted the engine shut down, I was cleared to taxi back to the line. Our postflight walk-around showed a large burn on top of the vertical stabilator. A closer inspection also showed a series of smaller strikes along the starboard side, starting near the nose and ending just beneath the front cockpit.

As with any emergency, handled successfully or not, **lessons are learned.** Lesson one in this incident focused on better crew coordination. As a former AV-8B pilot, we single-seaters tend to have that "I'll handle it" mentality, especially when it comes to emergencies. As soon as I realized what was happening after the lightning strike, I was busy doing things. I had forgotten completely, until later in the flight, about the help I could have gotten from my backseater. I should have let my student pilot know what was happening and what I was doing.

The next lesson has to do with complacency. Until you shut down and climb out, the emergency still is in progress. I relaxed too much after touchdown, expected the arrested landing, and remembered too late about the possibility of missing the gear because of the high ride of the hook. Keep thinking "what if" until you exit the aircraft.

The final point is not so much a lesson learned as a good piece of advice: Read hazreps. Your squadron safety department should have many hazreps on file—and even a few select ones available for ready-room reading. As the ASO, I had read many, including one related to the previous lightning strike and engine failure. The reports can provide good lessons learned from the experiences of others and, as it did in my case, potentially reduce reaction time and make for fast troubleshooting.

Capt. Bosley flies with VT-21.

YOUR ONE-STOP SAFETY SHOP

Naval Safety Center

The Naval Safety Center website (*www.safetycenter.navy.mil*) contains over 15,000 pages of useful safety information. Our goal is to provide you with the the tools you need to help prevent mishaps. You might be overwhelmed by the abundance of information on your first visit, so here are a few suggestions on where to start your tour.

50% Mishap Reduction Campaign - Navy and Marine Corps commands are working hard to comply with the Secretary of Defense's challenge to reduce mishaps by 50% over the next two years. This page guides you to news, policy, tools and data.
http://safetycenter.navy.mil/MishapReduction/

SafeTips - You'll find simple safety tips for all types of things from A to Z. You can print and post 'em on bulletin boards or hand out at meetings.
http://www.safetycenter.navy.mil/safetips/

Safetyline eNewsletter - This bi-weekly newsletter contains timely information to keep you current on safety news, as well as items you can use in safety briefings. Special issues will help you prepare for upcoming holidays.
http://www.safetycenter.navy.mil/safetyline/
Sign-up at: *http://www.safetycenter.navy.mil/list/subscribe-safetyline.htm*

Operational Risk Management - A simple, five-step process for identifying and controlling hazards. It's purpose is to minimize risks to an acceptable level. Learn what ORM can do for you!
http://www.safetycenter.navy.mil/orm/

Statistics - Find out current statistics like the mishap rates, predictions, summaries and more. Updated several times a week, you'll find the most up-to-date information on mishap statistics on the web.
http://www.safetycenter.navy.mil/statistics/

Mishap-Free Milestones

HS-5	10 years	30,000 hours
VFA-131	17 years	70,000 hours
VFA-83	10 years	40,300 hours
VR-54	13 years	44,400 hours
VP-47	31 years	181,200 hours
Naval Research Lab Flight Support Detachment (NRLFSD)		
	41 years	63,000 hours

ORM Corner

All This for Some Shrimp

By Lt. Joe Strassberger

We were off the coast of San Diego in late spring, on our second work-up before WestPac. I had been in the squadron for less then a year and had flown a minimal number of vertreps—very few at night. We were to deliver 15 pallets of supplies from our AOE to a cruiser in our battle group.

After several delays, the pinky-time vertrep soon changed to an all-night effort. The seas were calm, and the moonlight was minimal, which meant no horizon. The ships were in conrep position, and, because we only needed 10 picks, we evaluated our situation and decided to proceed.

We briefed, preflighted, and got the aircraft staged on deck. We discussed how dark it was, and how we were unable to see the aircraft spotted on deck from the hangar.

Finally, our launch time came, and we started the aircraft. Given the extreme darkness, the

ORM Corner

Please send your questions, comments or recommendations to:

Ted Wirgins, Code 11
Naval Safety Center
375 A St.
Norfolk, VA 23511-4399
(757) 444-3520, ext. 7271 (DSN 564)
E-mail: theodore.wirgins@navy.mil

crew talked about whether to continue with the flight. We were delayed on deck while the ships discussed whether to proceed with the evolution. We anxiously sat spinning on deck for 15 minutes while they assessed the situation. Time slowly ticked away, and the night grew darker. Eventually, the word came for us to launch.

We circled the ships and waited for everyone to get into position—while we still commented on how dark it was. Our crewman was in the hellhole and continually asked for our altitude and whether our alt hold was working. He was looking down through the hole, unable to tell if we were at five or 500 feet.

Finally, the ships were ready for us to begin. "No problem," we thought; "10 picks, 15 loads, and we'll be done in 15 or 20 minutes."

I was in the left seat, so I would be doing the picks for the evening. I made the first approach with no problem—a standard straight-in, with a 90-degree sideflare. The HAC took the controls and made an easy drop.

Suddenly, everything went downhill—fast. As we slid sideways and away from the cruiser, we transferred controls. In front of me, all I could see were the yellow unrep lights by the fueling rigs and a few of the deck-perimeter lights. I could not make out the horizon, but I took the controls and began a 180-degree pivot. As vertigo set in, I couldn't tell if I was level, nose high, or standing still. I suddenly realized we were in a left sideflare, heading toward the hangar. I quickly confessed I had vertigo and gave the controls to the HAC. He flew the aircraft out, leveled us, and gave the controls back to me.

I got reoriented and came in for the straight-in pick, and the HAC made the drop. Following the drop, the HAC again gave me the controls. This time, instead of doing a 180, I slid to the left and took it around for a teardrop. The HAC and the crewmen questioned why I was doing such a wide pattern. I confessed that, on the last approach, I was confused and had no reference. Suddenly, I realized they had no idea I had vertigo when I earlier transferred controls. They thought the flight was going well; meanwhile, I had been in the left seat, not sure which way was up.

We took a lap in the pattern and talked about the situation. We decided to continue the flight, doing the teardrop pattern. Throughout the discussion and the remainder of the flight, the crew chief in the hellhole continued to ask for altitude readings. He was so nervous he needed constant reassurance. We finished the flight without incident.

While we shut down, I remembered what was in the pallets we just had moved. I jokingly asked the crew, "So, was all the excitement worth some frozen shrimp?" We eventually delivered their surf and turf for the next day's dinner.

Looking back on this situation after the deployment, I saw many problems. First, while there was good discussion about the darkness and our altitude, there was a lack of communication when it was needed the most: when I had vertigo. No one else in the aircraft knew what I was feeling while I took back the controls and continued with the flight. It was one of my first night vertreps, and we were impatient as the ships considered whether to continue the evolution—we should have been more cautious. We wanted to quickly finish the small task and be done for the night. In the flight brief, no one discussed the importance or the urgency of the goods we were transporting. I now know the importance of proper risk management and to take things slowly on a challenging night.

Lt. Strassberger flies with HC-11.

Nothing Holding Us Back—Really

By Ltjg. Matt Wilkening

Fifteen hours had passed since my first man-up of the day, and I was tired. I waited in my Viking for the Hornet in front of me to get his cat shot and get out of the way. I still needed four night traps to complete my carrier qualification (CQ). As I glanced at my experienced rightseater, I stifled a yawn and got a look that said, "Just get us aboard quickly, nugget. I'm tired and hungry."

Our S-3B squadron was in the midst of a short at-sea period to carrier qual our pilots. We had flown that morning from NAS Jacksonville to USS *George Washington* (CVN 73), which was hanging out within spitting distance of its home base of Norfolk ("bingo on the ball" for my Hornet buddies). The brief for our two-hour flight had been at 0730, and it was now 2300, two-and-a-half hours after I was scheduled to have landed. All flight events were running late. But, as carrier aviators know, the only thing a CQ schedule is good for is to tell you what definitely will not happen.

We crossed the JBD, took tension, and got our cat shot—seemingly without incident. Not until I raised the gear on our climb-out did I notice something was not right. First, I did not feel the solid "thunk, thunk, thunk" that usually accompanies a change in landing-gear configu-

Photo by PH2 James H. Watson. Modified.

ration. Second, the gear indicators showed two up-and-locked for the mains and barber pole for the nose gear. Most obvious of all, though, the bright red light in the gear handle did not go out after the usual 15 seconds. I told my COTAC about the gear, and we agreed there was a nose-gear problem. We began to troubleshoot.

The first thing we tried was the standard fix: Cycle the gear handle. The gear went down normally but had the same problem on retraction. We decided to put down the gear and leave them there. With the possibility of unsafe landing gear, we weren't going to climb to marshal and shoot the CV-1 approach as briefed. We told departure control of our problem and focused on how to get our gear inspected in accordance with NATOPS procedures.

Departure said our launch bar had broken off on the cat shot. We later found out that, instead of leaving something behind, we actually had taken the holdback bar with us—still attached to 702's nose gear.

Paddles agreed to take us on a low approach for a visual inspection of our gear. Getting priority handling is unusual for an S-3, so we enjoyed the 10-mile hook in front of our pointy-nosed brothers. My "on and on" approach resulted in the expected waveoff when paddles observed two-and-a-half feet of metal hanging from our nose gear. Departure ordered us to squawk emergency and divert to NAS Oceana; they obviously did not want to recover us aboard ship with stray pieces of metal hanging from our landing gear. The uniqueness of our problem caused minor confusion because there isn't a NATOPS procedure for a holdback bar failing to detach. We followed NATOPS procedures as if our launch bar had failed to retract.

The dirty bingo to NAS Oceana took one hour and was only called a bingo because we flew the profile. We had enough gas to have made the trip three times without refueling—even with the 30-knot headwind. Our only added problem was fatigue, which again reared its ugly head after the initial damaged-aircraft adrenaline rush had worn off. Though I found myself setting up an approach into a 20-knot crosswind at an unfamiliar airfield, in an aircraft with possibly damaged landing gear, my main concern was to stay awake.

With a minimal rate of descent, I landed past the arresting gear. I used the entire runway length (the long-field gear was stripped) to minimize using the brakes. Fortunately, the holdback fitting managed to stay attached throughout our 100-plus-mile trip from *George Washington*, as well as our 8,000 feet of landing rollout. By 0030 (17 hours after my first man-up), my COTAC and I were awaiting a tow at the end of the runway—one last precaution against the possibility of damaged gear.

Bright and early the next morning, representatives from the air wing inspected and removed the holdback bar from our aircraft. They discovered the holdback bar was the wrong size and shape. Further investigation found that the *GW* had only three S-3 holdback bars in its entire inventory that correctly fit. Our bar had stayed attached to the aircraft because it had popped out of the holdback assembly, instead of shearing the bolt. Of the many possible outcomes from this situation—most involving quick ejections—ours was a remarkably tame way to discover a dangerous problem. As one crusty chief working in base ops told me, "I've been with Navy air for 20 years and never seen anything like that." Wow! It only took three years for me to witness one.

"I've been with Navy air for 20 years and never seen anything like that."

In retrospect, I would not have cycled the gear back up after seeing three-down-and-locked indications. I should have given more consideration to my fatigue and gotten some sleep after my day CQ. Carrier qualifications probably are the most difficult evolution a carrier and air wing accomplishes; expect them to be usually long and drawn out, and be prepared.

Ltjg. Wilkening flies with VS-31

STOP ALREADY

By Lt. Bryan Schwartz

Much like any other flight, we briefed, manned-up, walked, and launched on time. The feeling was exhilarating, as always, while we maintained station profile. Once the mission was over, we cleaned up the aircraft and headed home.

On the return, the crew in the back alerted us to an unsafe indication on the HF radio's trailing-wire antenna. We broke out the checklist, went through the NATOPs procedures, and the unsafe indication went out—problem fixed. To be on the safe side, we discussed minimizing the use of reverse thrust during the landing rollout.

With the wire situation dealt with, we had a warm and fuzzy feeling as I set up for an uneventful "on and on" PAR. At least, the approach was uneventful; the real fun began once we touched down.

After gently lowering the nosewheel to the deck, I tried to bring the power levers into reverse thrust. This task should be easy, but it wasn't this night. When I pulled back the power levers to flight idle, I couldn't get them up and over the detent into the ground range. I tried twice before telling the aircraft commander (in the copilot seat) of the problem.

Although the power-lever lock had been checked during the landing check and again while reviewing the landing checks complete, I thought the lock might be our problem. My copilot apparently thought the same and made sure the power-lever lock was aft. The metal power-lever lock prevents the pilot from pulling the power levers into the ground range, and it only is used for shipboard landings.

As we rolled down the runway, trying to stop a 48,000-pound aircraft with 2,200 horsepower still being

produced, my copilot remembered an emergency during which a circuit breaker had popped and prevented the pilots from pulling a power lever aft. He quickly checked the circuit breakers—they were all in. An aircraft gripe, from an earlier flight, about a distinct pull to the left during ground operations also came to mind.

Runway continued to tick by as my copilot tapped on the right brake to maintain centerline. We were below emergency braking speed, so tapping the brake should not have made a difference, but, since our night was going so well, it did. Tower told us we had sparks coming from the right side of our aircraft—a report quickly verified by our NFOs in the back. Tower then asked if we wanted to declare an emergency. With my copilot busy troubleshooting, while I tried to maintain control of the aircraft, I told tower, "Stand by."

As the airspeed slowly bled down, I started losing rudder effectiveness, and more right brake was needed to keep the aircraft on centerline. Our airspeed slowed as we approached the long-field arresting gear.

I remembered what our skipper always says, "Never pass up the long-field gear with your hook up." So, I dropped the hook and told tower, "Tower, Eagle 4 declaring an emergency."

At 50 knots, and with our brakes a blazing inferno, I took the long-field gear approximately 10 feet left of centerline. I felt the tug of the gear and was relieved—until we picked up a severe left drift. The right side of the arresting gear worked as advertised, but the left side, we later discovered, did not pay out at all. The hook slid along the wire until hitting the "cow bell," the rubber connector that connects the wire to the tape. At that point, the hook spit the wire, and our hearts thumped harder.

My copilot, feeling the same thing, stood on the brakes and yelled at me, "Stand on the brakes! Stand on the brakes!"

I quickly replied, "I already am!"

Unknown to us, our brake lines on the right side had burned through, so our brake pressure aided in the left drift. In case you may have forgotten, we still had 2,200 horsepower pushing us down the runway. Many expletives filled the cockpit as we rolled toward the runway edge. When we neared the edge, my copilot reached up to shut down both engines with the emergency T-handles, hoping to finally bring this ride to a halt.

Fortunately, I switched the brake-selector valve from NORM to AUX, which allowed us to have emergency-braking capability without the engines online. Standing on the brakes and holding full nosewheel steering to the right, we still drifted left toward the runway-edge lights. We continued to roll as both engines spooled down. My copilot pulled the parking-brake handle, and, apparently, whatever was left on the wheels, and was not on fire, brought us to a halt.

The aircraft stopped five to six feet short of the mud, with the main-landing gear straddling the runway edge lights. Somehow, we missed every light. As we began to emergency exit the aircraft, I saw fire on the left wheel. I yelled to my copilot, "We have a fire on the left, fire on the left, going out the overhead hatches!"

My copilot grabbed me and said, "We have a fire on the right, too. Which one is worse?"

The fire on the right was worse, so we exited out the main-entrance hatch. Everyone got clear of the aircraft, and no one was hurt.

My copilot, feeling the same thing, stood on the brakes and yelled at me, "Stand on the brakes! Stand on the brakes!"

This event shed some light on previously unknown limitations of the field-arresting gear. There is a published maximum speed for the E-28 bi-directional gear, but there is no published minimum speed. We discovered if you engage the gear at a speed as slow as ours, you may or may not supply the 6,500 pounds of breakaway force required to pull it out of battery. Both sides of the arresting gear were tested and found to be within limits. But our arrestment only produced enough energy to allow the right side to pay out.

Many ready-room discussions followed our event. Although we never found what prevented the power levers from getting into the ground range, we agreed the use of NATOPs and good crew-resource management resulted in minimal damage to the aircraft.

I flew the aircraft again the next day. Our CO commended us for keeping the aircraft out of the mud and on the hard surface. The next day, our reward for doing such a good job handling the emergency was another exciting day of station profile.

Lt. Schwartz flies with VAW-113.

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) 757-8084 (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/

LCdr. Deborah White, Naval Safety Center
(757) 444-3520, Ext.7231 (DSN 564)
deborah.j.white@navy.mil

Rescue in the Gulf of Oman

By Lt. Harrison Schramm

Most rotary-wing aviators dream of a chance to use their training to rescue someone. Many get the opportunity to rescue one or two people in their career. I never thought I would be part of a crew who would rescue 27 people in one day. I offer this article not only as an interesting sea story but, more importantly, to highlight what is possible with a good aircraft, a competent crew, and two brave rescue swimmers.

USNS *Concord* (T-AFS 5) received a distress signal at 1600 on June 23 from the motor vessel *Green Glory*. The initial distress call said the ship was taking on water. *Concord* headed out of the area for a vertrep the following morning, but, at 2030, 5th Fleet directed us to proceed to the distressed ship's location at best speed. The MH-60S crew assigned for the next day's vertrep, which was now cancelled, briefed and preflighted.

During the evening, RFA *Sir Tristram*, a Royal Navy auxiliary vessel, also was dispatched to the scene. During the night, *Concord* tried to communicate with *Green Glory* but had limited success. By the time flight quarters were set the following morning, *Green Glory* couldn't communicate.

We launched in KnightRider (KR) 62 at 0840 on June 24. Conditions on the *Concord* were pitch nine, roll 10, with winds 30, starboard at 28. Routine operations, such as spotting the aircraft on the flight deck, were challenging. Det 5 had to leave the tie-down chains attached to the aircraft and progressively push out the aircraft two to three feet at a time. With the helicopter alternately compressing the struts and the chains taking strain each roll, the helo move was nerve-racking for my det OinC. A mistake could send the aircraft and personnel over the side.

We took off by lifting as the ship rolled near center, and we immediately slid to port. Other merchant ships in the area pro-

vided us a good latitude and longitude for the *Green Glory*. En-route visibility was about a mile underneath a 500-foot ceiling, and we spotted the distressed ship using the datum fix as a reference. Our det OinC assumed on-scene-commander duty and directed us from *Concord's* tower.

At 0910, we made a pass to assess the situation. The ship already was decks-awash and was taking rolls up to 40 degrees. We found our rescue options to be limited extremely by the severity of the sea state and the rolls the ship was taking. The ship's crew was on the upper decks, wearing Kapok life jackets, but none of their liferafts were deployed. Our initial plan was to hoist AO2 Rusty Jack and PR2 Joseph McCollum to the deck and to effect a rescue directly from the ship. However, this plan was abandoned after two unsuccessful attempts to lower the swimmers directly onto the deck. The sea state made the ship violently roll, which made hoisting directly to or from the ship impossible. The situation deteriorated throughout the day.

Our crew chief, AMC Mikel Carr recommended deploying the swimmers on the port (upwind) side of the distress vessel. This idea was the first of many good ones to come from crew members working in the back of the aircraft. I established a manual 40-foot hover while Chief Carr dropped a life raft in the water and then lowered the rescue swimmers with the hoist to a point about 50 yards off the port bow.

After deploying the swimmers, we were close to bingo fuel, and *Concord* still was about 50 miles away. We decided to return to *Concord* and refuel while the rescue swimmers took charge on-scene. The rescue swimmers now were on their own.

The landings on *Concord* were, by far, the most challenging part of the day for the pilots. The amount of pitch and roll *Concord* was taking made my stomach tight—like I was out for my first set of DLQs. My first approach ended in a waveoff, and the subsequent landing

The sea state made the ship violently roll, which made hoisting directly to or from the ship impossible.

was very firm: It fully compressed the first stage of our struts.

Subsequent takeoffs expanded the concept of crew-resource management to the entire ship. The OOD called tower when the seas in front of the ship looked relatively calm, then tower called for breakdown over the 5MC. Under the direction of AM1 Paul Borkowski, the chock and chainers were standing by the mainmounts. They broke down the chains, left the chocks in place, and cleared the rotor arc. Once the chain runners were clear of the foul line, we lifted out of the chocks and departed to port.

At the sinking ship, the rescue swimmers were working to remove the 27 survivors from the vessel and place them in life rafts. PR2 McCollum managed to get onboard the *Green Glory* by waiting until the ship was in an extreme roll; he timed the wave action to grab the deck and pulled himself onboard while AO2 Jack remained in the water. They worked together to help survivors jump from the ship into the raft. PR2 McCollum told the crew members when to jump, based on the wave and roll action. AO2 Jack grabbed the survivors as they came off the ship and pulled them into the liferaft. They moved four survivors using this method, until the mooring line on the liferaft snapped, sending the raft adrift. AO2 Jack got out of the raft and kept it close to the ship by swimming while hanging onto the line. It was a very long, physical day for Jack and McCollum, and, in retrospect, their actions that day were amazing.

Upon our return to the scene, we recovered the four survivors and AO2 Jack from the drifting raft. Although the helo's approach coupler usually is not used for daytime rescues, it was a great help in reducing the pilot workload. The coupler provided stability, while the crew chief provided verbal directions over the scene.

Fifth Fleet directed that survivors be transferred to the *Sir Tristram*, which only was six miles from the site, for medical attention and further transport. We checked the HOSTAC and decided the best place to land on the *Sir Tristram* was the amidships spot because it was certified for H-47s and H-53s. On arrival, we discovered the amidships spot was fouled with cargo containers. *Sir Tristam's* plan was to recover us on the aft spot that was cleared for SH-60Bs.

Unfortunately, the aft spot was not suitable for landing MH-60Ss because of the aft location of the tail wheel on the Sierra model and the extreme sea state. *Sir Tristram* then maneuvered for "best seas" at my request. This maneuver resulted in a "down sea, down wind" condition. With the deck at pitch 3, roll 4, and relative winds at 170 degrees and 26 knots, I initiated a right-seat, starboard-to-port, athwart-ship approach, terminating in a 10-foot hover over the flight deck. My copilot, Ltjg. Isaiah Blake, recalled later the hover attitude was "nose level, left wing 10 to 12 degrees down" because of the relative wind component. However, after our landings on Concord and hoisting out of the open ocean, hoisting to *Sir Tristam* felt like a vacation. The survivors were hoisted down on the hook from the helicopter, two at a time, with AO2 Jack assisting them on deck to remove the rescue strop. The survivors quickly were ushered forward and taken into the custody of the British crew.

After hoisting down the first survivors, we returned to *Concord* for more fuel. *Concord* bridge cleared us in when the ship was about to enter a stretch of relative calm seas. We made an uneventful landing, took fuel, and departed, using the same techniques as our previous pass.

At the sinking ship, PR2 McCollum had been onboard the wrecked ship for about two hours and had taken charge of the non-English-speaking crew. He directed them to abandon ship and to board life rafts in the 25-foot seas. With progressively deteriorating conditions, PR2 McCollum loaded 16 survivors into the ship's first 20-man life raft before the mooring line snapped.

We located that raft and began the recovery process from as stable a hover as possible. Once in a stable hover into the 30–knot winds, we used a combination of verbal calls from the back and the HVR MODE display to keep the aircraft in position. The rise and fall of the surging swells made our aircraft height above the water vary between 40 and 60 feet during the hoisting process.

Chief Carr lowered AO2 Jack to the 20-man raft with two rescue strops in hand. AO2 Jack

The amount of pitch and roll *Concord* was taking made my stomach tight—like I was out for my first set of DLQs.

alternated rescue strops so a survivor always was rigged for rescue. Chief Carr hoisted the survivors into the helicopter one at a time, leaving AO2 Jack in the life raft until the cabin reached maximum occupancy (12). Keeping the helicopter and the raft within hoisting range was a challenge because our rotor wash constantly blew the raft away from us. We deposited our load of 12 survivors on the *Sir Tristram*. We returned to the second raft, recovered the next four survivors, and headed to the *Sir Tristram* again. But, *Sir Tristram* had suffered an engineering casualty and had gone red deck, which forced us to head to the *Concord*. After another quick re-fuel, we left the four survivors on *Concord* to await a later transfer to *Sir Tristram*.

While we refueled, PR2 McCollum managed to load four survivors into the ship's second 20-man raft before its mooring line snapped and set it adrift like the two previous rafts. With three survivors and himself still on the *Green Glory*, PR2 McCollum deployed the ship's final 20-man raft, but, before anyone could get into it, the mooring line again parted.

We returned to the scene and recovered the four survivors from the second 20-man raft. We then tried to figure out a plan to get the final survivors off *Green Glory* and into the helicopter. It took expert coordination, using hand signals, to form a plan between the PR2 and the aircraft.

With time running out before the vessel sank, AO2 Jack was lowered directly into the ocean off the stern of *Green Glory*. PR2 McCollum directed the remaining survivors to jump into the sea. AO2 Jack took charge of the survivors in the water and kept them and the two swimmers located in a 20-yard area. Plucking them all from a considerable amount of fuel and oil in the water, which came from the sinking ship, and delivering them to *Sir Tristram*, capped off the rescue.

By this time, *Concord* had closed to within three miles of the site and had maneuvered for best pitch and roll, instead of best winds, for the remaining landings and survivor transfer. Our aircraft finally landed after a long and trying day at 1515, knowing 27 people owed their lives to our crew.

Lt. Schramm flies with HC-5.

By LCdr. Rick Butler

Gut Instincts

It was another typical, early November morning at Offutt AFB, Neb.: cold. As aircraft commander, my crew and I were preparing to launch as Airborne National Command Post (ABNCP) Secondary in the E-6B.

The flight-engineer-under-training (FE-T) called for "flight controls" on the after-start checklist. He expected to hear the normal response, "Checked," but he looked surprised when I replied, "Something just doesn't feel right."

I turned and looked at my crew. I then realized my flight-deck crew included two new third pilots (3Ps), and a new navigator (NAV). Other than me, the qualified flight engineer (FE) (sitting in the observer seat) was the only other crew member with any significant flight experience. I explained to the FE about the resistance in the rudder pedals. Because the rudder pedals had been checked on preflight, he presumed the resistance was because of the cold.

According to the E-6B NATOPS Flight Manual, an "increase in control forces during low-temperature ground checks can be expected because of binding, cable seals, and congealed oil in the snubbers and bearings." Considering the rudder is hydraulically actuated, the NATOPS explanation could have accounted for the resistance, but my gut instinct told me differently.

As a fairly new aircraft commander, and, with the pressure of completing a high-visibility ABNCP mission, I easily second-guessed myself. But, other circumstances supported my gut instinct. This was the aircraft's third flight of the week with the same cold-morning conditions, so, why should the flight controls feel different today?

Photo by Tech Sgt. Cary Humphries

I discussed my concern to the FEs, and they conducted another preflight inspection of the rudder. The FE-T, AD1 David Burcham, took his headset and the long ICS cord and stood under the aircraft's tail. As AM1 Shaun Garrison "kicked" the rudders from the flight deck, AD1 Burcham looked for abnormal indications. He didn't see any, but that check was only one part of his search.

When AM1 Garrison heard a call over the ICS, "You'd better come down here," he knew something was wrong. In spite of all the external conditions working against him, such as the bottom of the rudder towering 18 feet over his head, the operating auxiliary-power unit (APU), and wearing a double-ear David Clark headset, AD1 Burcham heard faint popping sounds he had not heard during his original preflight inspection.

The FEs inspected the rudder from a B-1 stand and discovered a patch on the lower, forward-leading edge of the rudder had broken off. The failed patch had caused the rudder to bind against the trailing edge of the vertical stabilizer—a great catch by the FEs.

The flight was cancelled. With support from several other crew members and the maintenance detachment, the FEs fixed the hazardous problem during the long, cold night.

How could I tell during my flight-control checks if the binding problem wasn't just the result of a cold jet? I don't know. Call it what you'd like, but the bottom line is we stopped the mission because something didn't "feel right." My actions led to the discovery of a potentially deadly problem. **Trust your gut instinct.**

LCdr. Butler flies with VQ-4.

When AM1 Garrison heard a call over the ICS, "You'd better come down here," he knew something was wrong.

My First Day As SDO

By Ltjg. Tim Johnston

To the editor: Here's an article from the other side, from those who dutifully activate the pre-mishap plan (PMP) to report to the chain of command incidents that result in death or injury. Learning points are included for all squadron duty officers.—Ltjg. Johnston

Every JO in a squadron, regardless of his or her experience level, is required to stand squadron-duty officer (SDO). The SDO is the acting representative of the squadron commanding officer, and the job carries a large amount of responsibility. The daily tasks include making coffee, answering the phone, reading the latest issue of *Approach*, and, when leadership is present, occasionally being "cannon fodder" in support of JOPA.

Photo by PH2 Norman T. Kemper

Photo by Ltjg. Victor Dymond

I had one day of under-instruction (UI) training where I learned the basics of the duty (the precise technique for coffee-making) and got a general overview of the situations I might have to handle. I also spent an hour flipping through the squadron pre-mishap binder—just in case. I noticed we used a community-wide plan from our type wing. The plan was modified by each squadron to include appropriate phone numbers and message PLADs for our squadron's operational chain of command.

I had been with the squadron just over a month when I stood my first SDO—on a Saturday. Our squadron was ferrying aircraft from the West to the East Coast for a two-week CQ detachment. The CO, XO, lieutenant commanders, and a few senior lieutenants would fly to Chambers Field at NS Norfolk, while I manned the desk, awaiting their "safe on deck" phone call from the other side of the country. Once everyone had briefed and was airborne, I had a chance to catch up on watching college football.

The day had been uneventful for the most part. Based on the flight schedule, the aircrew would be on deck about 1800, my time. I expected to leave the squadron no later than 1900. About 1730, I had the ASDO briefed, prepped and ready to relieve me, as soon as I received word everyone was safe on deck. I had been at the squadron all day and was anxious to go home. I looked at the clock; 1800 came and went without any word. At 1900, I still hadn't been called. "What was taking them so long?" I wondered. I started to get an uneasy feeling; there had been no word of a delay.

Just after 1900, I received a phone call from the XO. It was a relief to hear from someone. I expected to hear, "We're safe on deck at Norfolk; we logged a 6.0."

However, what I got from the XO was, "I'm at Oceana; something has happened."

My initial thought was, "What the heck is he doing in Oceana?"

Then I heard, "I needed to divert because something happened to 501. I don't have any more details."

After a brief pause, he added, "You need to put your pre-mishap plan into effect." I remember my mind going completely blank.

"Tim, are you still there?" he asked.

That question yanked me back into reality. He told me to immediately contact Chambers Field base ops for more details.

Base ops did not have any specific information about the mishap aircraft. All I had to work with was from the XO. I could not think of the first thing I needed to do to put the pre-mishap plan into effect. I felt like I had 10,000 tasks that demanded my immediate attention. I was experiencing "crisis mode." After relaxing a few seconds, I pulled myself together and focused on the basics. One thing was certain: I needed help. I only had a few moments before the fecal matter hit the proverbial fan, so I recruited assistance. I didn't know what had happened to my squadronmates in the mishap, but at least I would have help dealing with the situation.

I began to recall all the officers to the ready room. It then dawned on me: This was a Saturday night before the airlifts to the boat the next day, and I might not contact some of them. I asked nicely the first time for each of them to get into their flight suits and to get to the squadron as quickly as possible. After the inevitable

response, "Are you &%*# serious?" I reemphasized my previous statement with some colorful language and a marked increase in decibel level.

During this recall process, I received a phone call from base ops at the mishap site, letting me know two things: The aircraft was destroyed, and everyone was alive and well. This info was great news. Only 30 minutes had passed since my initial notification by the XO, but it seemed like an eternity.

Executing the pre-mishap plan during an actual crisis proved to be more difficult than I had expected. While I initially flipped through numerous tabs of the

Then I heard, " I needed to divert because something happened to 501. I don't have any more details."

binder, directed multiple tasks, and informed multiple commands of our situation, I remembered thinking, "No sweat. I can do this."

The squadron safety officer had put the ready room through its paces with a Class-A-mishap drill—involving fatalities—just a month earlier. However, once I found myself running an actual Class-A-mishap-notification plan, I discovered how many unpredictable factors can pop up.

The time constraints on the OPREP messages (the five-minute phone call and 20-minute message) are difficult to achieve because information often is incomplete, and time seems to slip through your fingers as a one-man show. In addition, the 20-minute message has to be done on Turboprep messaging software, which, of course, few of our officers knew how to use. I was thankful our PN1 arrived to type and transmit the message. Our safety officer had briefed the ready room five days earlier, at a pre-mishap-plan review, that preformatted operations report (OPREP) and mishap-data-report (MDR) messages were on computer disks in the back of the pre-mishap-plan binder.

I must have fallen asleep on the JOPA couch at the back of the ready room during that death-by-PowerPoint session. So, unfortunately, many people who should have received the Navy Blue OPREP did not. My "crisis mode" also wreaked havoc with the MDR. All three of our aviation-safety-officer-school graduates were at the mishap site and involved at that end.

What I had were six JOs looking at each other, saying, "M. D. what?" Again, JOPA couch, death-by-PowerPoint. This report needed to be transmitted within four hours, but it asked for many details involving the mishap-aircraft environment. We did not have the information or the experience to get it completed within the time limit. We learned later that transmitting an incomplete MDR is better than getting the message out late. A couple of phone numbers in the operational chain of command were not readily available and caused some delay of information. Squadron members on location with cell phones assisted.

After two hours of running the mishap plan, I was spent. It already had been a long day, and the stress had worn me down. A couple of times at the end of the night, someone called, I talked to them, answered a quick question, then hung up. When I answered the phone, I knew exactly whom I was talking to, but, upon hanging up, I had forgotten who it was. Fortunately, the events were winding down when my memory went away; otherwise, I would have passed all the phone responsibilities to another officer.

The pre-mishap plan took about three-and-a-half hours to execute. With our senior leadership on the East Coast (including our safety officer and all our ASO graduates), each officer with me had to pull a lot more weight.

We had a basic familiarity with the pre-mishap binder, but, because we were junior, most of us had not run a scenario; some had not been present during the drill several weeks before. Two of the six officers had less than two months in the squadron (including myself). If the other five officers had not shown up as quickly, I doubt I could have handled the situation.

Take time to carefully review the pre-mishap binder at your command, including the MDR. Don't go it alone; get your squadronmates to help you. **Learn how to prepare a message.** Understand that in a real-life situation, it is more important to make the deadline than to delay the message, waiting for all the information. Amendments and updates can and will be sent later. Don't forget to record whom you are talking to and get their number for later reference; our PMP contains chronological-log sheets for this purpose. No one successfully can predict a mishap, but all of us can prepare for the worst.

Ltjg. Johnston flies with VAQ-141.

JOPA is the junior officers protection agency—the O-3s (lieutenants) and below in a squadron who band together for mutual protection.—Ed.

Web-Enabled Safety System

The Web-Enabled Safety System (WESS), with complete, on-line mishap reporting and data retrieval for non-aviation mishaps, went "live" July 12, 2004. It will simplify and bring into the 21st century field and fleet mishap- and hazard-reporting procedures and safety data analysis. It will be a major improvement over its predecessor, WESS 1, and all previous PC-based and naval message-reporting methods.

When fully implemented, WESS will capture reports and identify the who, what, when, where, how, and why of mishaps and hazards. It also will allow users to enter mishap and hazard notifications, route them through the proper releasing chain for validation, and electronically submit them to the Naval Safety Center. Upon receiving the data, the Naval Safety Center will give it a quality-assurance review and then store it in a consolidated database so it is available for retrieval – WESS users will be able to access a variety of data report options.

WESS will come to the fleet in three releases:

1. Non-aviation mishap and hazard reports: on-line now

2. Aviation hazard reports (HAZREPs): January 2005

3. Aviation mishap reports: December 2005

The non-aviation release will include shore, afloat, ground, work-related illnesses and injuries, home and recreational, motor vehicle, diving, helo rope suspension techniques, cargo air drop, parachuting, combat zone, and aviation/non-aviation explosive mishaps. WESS reporting will consolidate more than a dozen other previous reporting formats under one, consolidated system.

Another major improvement of WESS over all previous mishap-reporting methods is that WESS users no longer must prepare lengthy mishap messages, maintain time-consuming shipboard accident and injury logs, develop their own record-keeping for trend data, or send mishap-report summaries through to their chain of command. Instead, the answers to questions about Navy mishaps or recurring hazards will be available in real-time data, as will information enabling a user to compare past safety records for trends.

Many suggestions received from customers during the Beta Testing of WESS have been incorporated. The new program's enhancements include:

- Expanded pull-down menus and pick lists.
- Question-filtering or Turbo Tax® methodology – Customers will be prompted for only information relevant to the event as based on previous information entered. This will reduce the number of reporting screens the customer sees and reduce event entry time.
- Page level saves – Data (or information entered) is saved as a draft after each screen is completed. This allows the customer to exit at any time before completing the mishap or hazard report, and the customer can return later to continue.
- Side bar navigation – This allows the user to jump directly to the desired screen, instead of having to page through all information. Users can also easily return to a specific section of the report to complete those questions as information becomes available.
- Custom templates – This features lets the user create and store templates for information repetitively reported.
- Help system – This provides a link for page-, question- and terminology-level definitions.
- WESS Users' Guide – This set of PowerPoint modules will offer step-by-step instructions for how to best use various features in WESS.
- Injury Log and PDF Report – At any time while preparing the report, the user can print off the entire report from a PDF file or print off just their Injury Log.

WESS promises to be a powerful new tool for safety personnel as they manage their mishaps for prevention.

THE M WORD

By 1stLt. Evan Hill, USMC

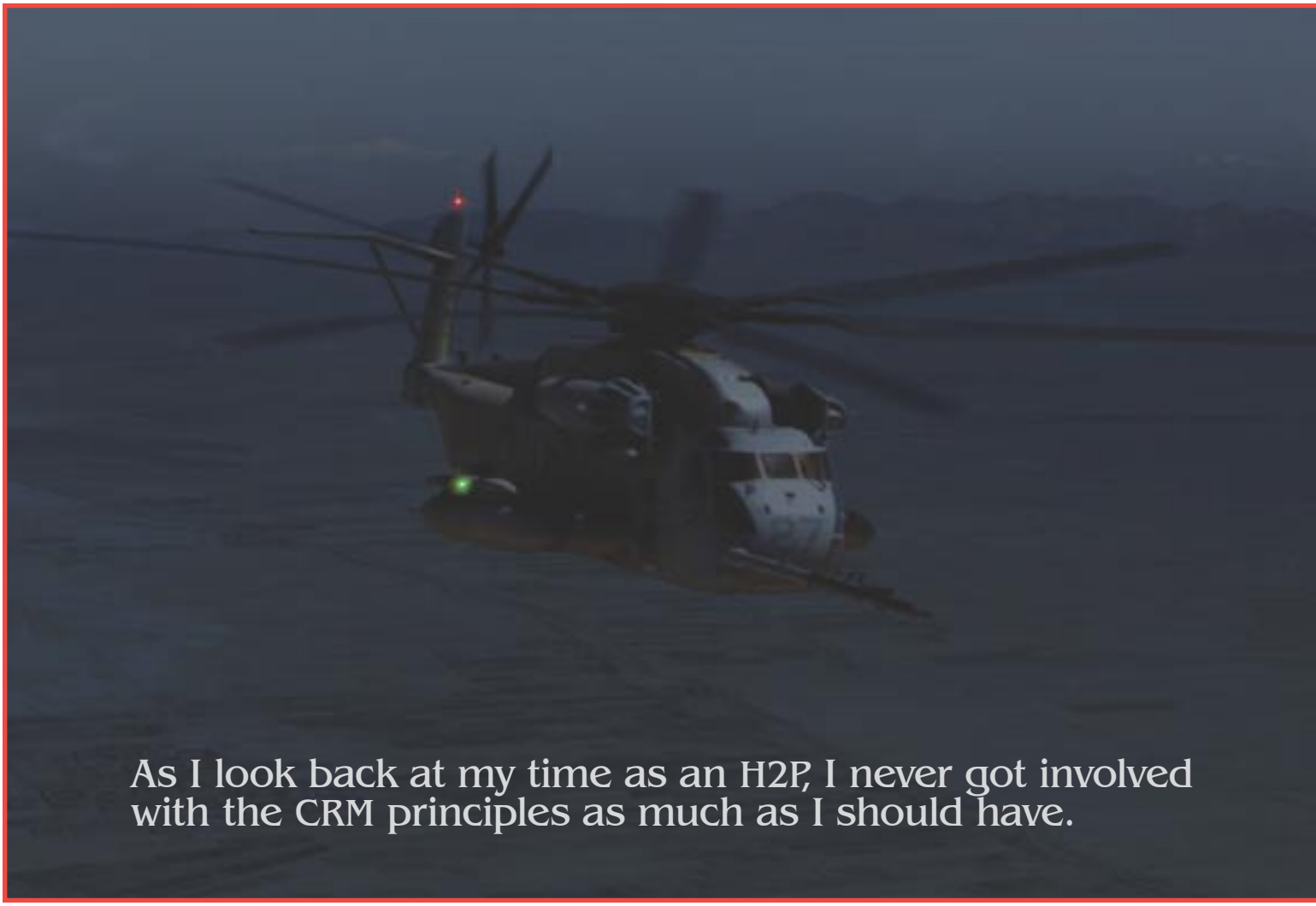
As an H2P, I tried to learn the seven principles of CRM. However, in my few flights as a new HAC in the CH-53D, I realized another principle should be stressed. And, of all places, it is right under our noses in the words "crew resource management": the principle of management. I believe management may be the most important principle because it ties together the seven main principles.

In all the CRM classes I have taken, I cannot remember anyone specifically discussing, or even identifying the management aspect of CRM. No one's discussed what to do when you have an overbearing crew member, how to handle multiple disagreements, or how to adapt and maximize the many different personalities of a crew.

As I look back at my time as an H2P, I never got involved with the CRM principles as much as I should have. I just went along, doing my duties, relying on the HAC to take care of whatever situation came up. I lived in my sheltered H2P life and took CRM for granted. Just going through the motions never gave me a true appreciation of it. Now, as a HAC, CRM has presented the most challenges.

Although cohesion among the crew is vital to mission accomplishment, a new HAC receives limited CRM training on managing a crew. When I compare the time put into pilot-skill training to CRM training, the disproportion is clear. The management aspect of CRM never was a focal point during my time as an H2P; the focus was on learning the aircraft and the outside environment, such as emergencies, SOPs, limits, and regulations.

With the stick time I now have, I feel comfortable managing an aircraft. However, with up to five different crew members each flight, each with different experience levels, personalities, techniques, and personal quirks, you can throw predictability out the window. I now am acutely aware of these variables and the influences they have on me. With such a variety in crew members, you can't sit back and expect things to be done the same way each and every flight. Learning to adjust my management



As I look back at my time as an H2P, I never got involved with the CRM principles as much as I should have.

techniques to accommodate each crew has been on the top of my "need to improve list."

I have had a few moments where I had to think through a situation and learn new lessons. As the HAC, I am responsible for the conduct of my crew and the results of their actions.

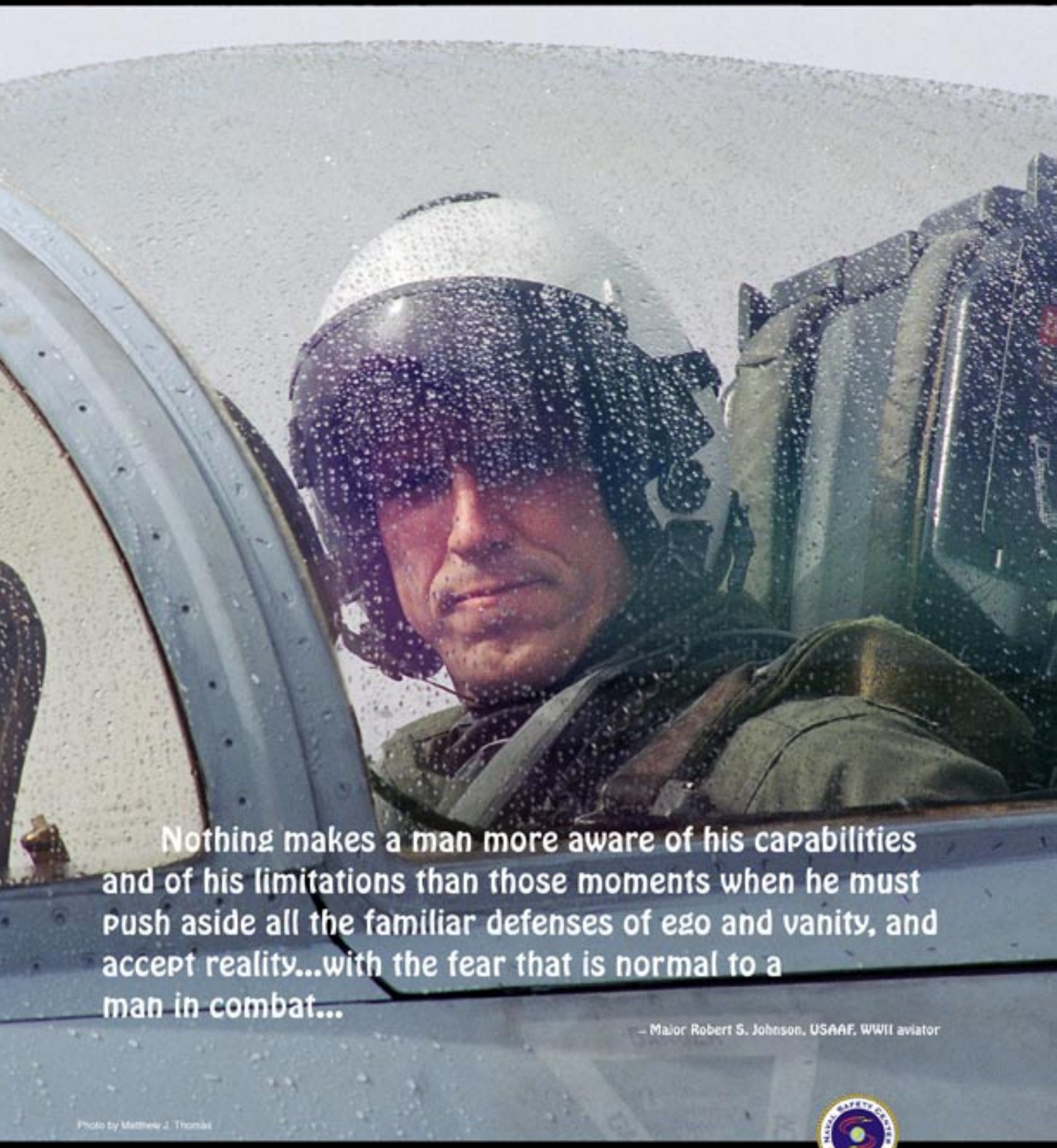
The crew is your eyes and ears. It is easy to convey your thoughts and intentions to the person sitting across from you at an arm's length. But, when more than half your crew is behind you, out of sight, independently functioning, crew management becomes vital. A lot goes on in the main cabin when doing a troop or cargo lift. Lots of moving parts are in the back, most of which you can't see while you are strapped down in the cockpit. It is scary to think of what can happen and how much is out of your physical control; yet, it's your responsibility.

As pilots, we cover many aspects of flying in depth and with great detail. Whether you're learning aircraft systems, procedures, EPs, regulations, tactics, or mission briefs, success is the result of crew resource management. CRM is the foundation to accomplishing a mission and maintaining safety, but it is relegated to one of those "topics we have to cover every year." It ends up reduced to a quick PowerPoint presentation.

Instead of going through every flight doing things "just well enough" to get the job done, I urge you to continually improve your CRM skills. Will you be an effective manager when you need your entire crew to mesh and act as one?

1stLt. Hill flies with HMH-363.

Ready Room Gouge



Nothing makes a man more aware of his capabilities and of his limitations than those moments when he must push aside all the familiar defenses of ego and vanity, and accept reality...with the fear that is normal to a man in combat...

– Major Robert S. Johnson, USAAF, WWII aviator

Photo by Matthew J. Thomas

www.safetycenter.navy.mil