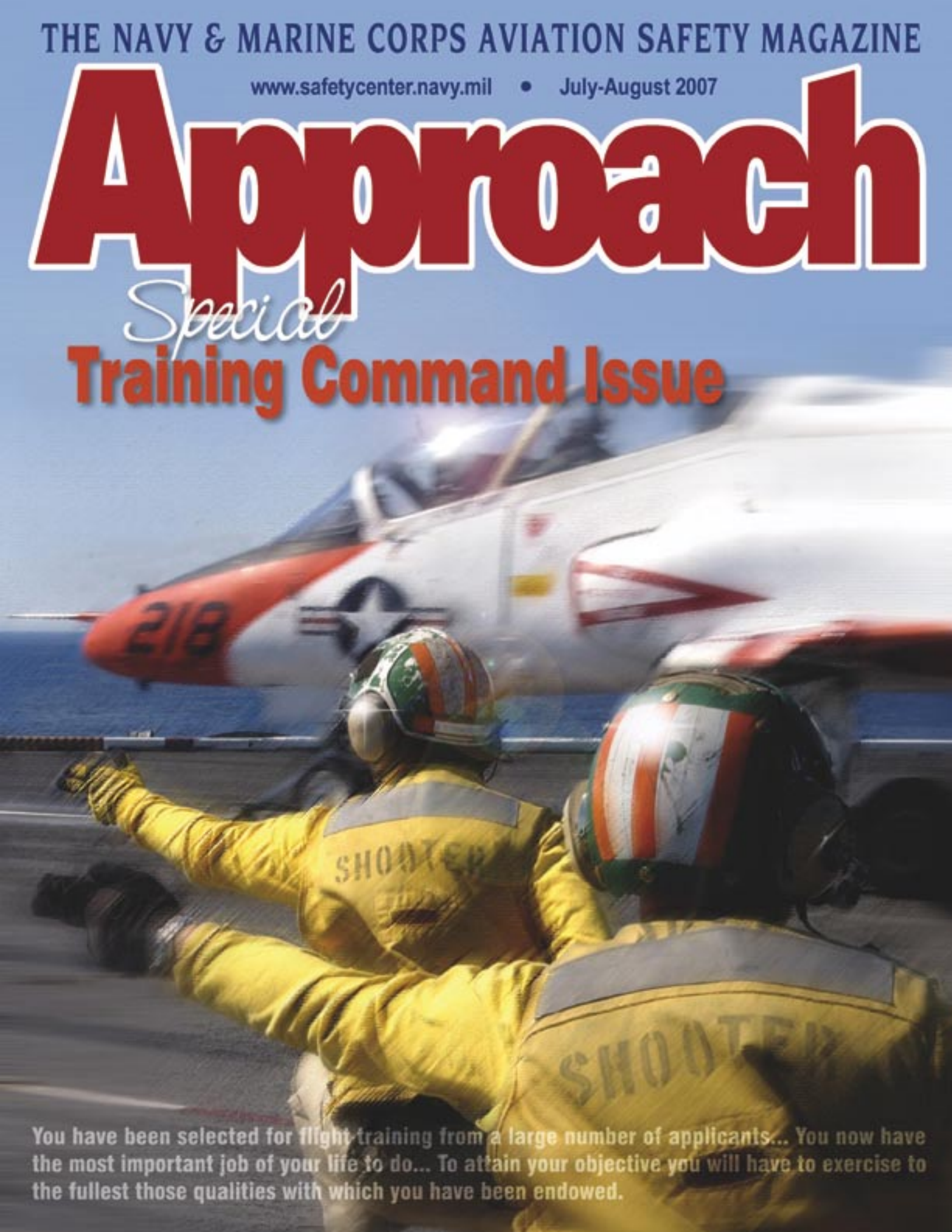
THE NAVY & MARINE CORPS AVIATION SAFETY MAGAZINE

www.safetycenter.navy.mil • July-August 2007

Approach

Special Training Command Issue



You have been selected for flight training from a large number of applicants... You now have the most important job of your life to do... To attain your objective you will have to exercise to the fullest those qualities with which you have been endowed.

The Navy & Marine Corps Aviation Safety Magazine
July-August 2007, Volume 52 No. 4

RADM George Mayer Commander, Naval Safety Center
Col. Mark W. Vanous, USMC Deputy Commander
John Mahoney Head, Communications and Marketing
Naval Safety Center (757) 444-3520 (DSN 564) Dial the following extensions any time during the greeting
Publications Fax (757) 444-6791

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 71B,
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.

C O N

This issue is devoted to aviation training.

Features

Front cover: Shooters signal the launch of a T-45 Goshawk trainer jet from the flight deck of USS *Theodore Roosevelt* (CVN 71). Photo by MC1 Michael Worner. Exerpt from the flight training article on inside back cover.
Back cover: Carrier qualifications. Photo by PH3 Eric S. Garst.

NTENTS

July-August Thanks

Thanks for helping with this issue…

LCdr. Stu Keiner, VT-4
LCdr. Troy Sallee, CTW-5
Cdr. Andrew Neal, VT-7
Lt. Dean Samaniego, HT-8
LCdr. Steve Jones, VT-10
Lt. Cameron Crooker, VT-35
Cdr. John Minners, CNATRA

Departments

Admiral's Corner

From Commander, Naval Safety Center

A Passion for Naval Aviation Safety

What is the secret to having a mishap-free Navy and Marine Corps?

I don't think it's programs. We have plenty of those that provide the tools for our Sailors and Marines to manage risk, improve communication, and help us do business more effectively. Each program is important and helps build a solid safety base. Whether it's operational risk management, safety surveys, culture workshops, or online training aids, the building blocks of safety are available.

I don't think it's data. While we track progress in mishap reduction and prevention in many categories with the use of statistics, those numbers don't always tell the whole story. We investigate and analyze events to find the root causes of mishaps so we don't repeat mistakes. We create a work environment where safety isn't just a word, or a program, or another set of acronyms for yet another program, but the standard we expect and demand.

I don't think it's hardware or mission. Naval Aviation is in a period of transition. As the familiar S-3, F-14, P-3, H-3, and H-46 give way, the FA-18G, V-22, P-8, and a variety of H-60 aircraft arrive. As our mishap rates continue to indicate positive trends, these new aircraft and the people who fly and maintain them will be challenged to further reduce and prevent the loss of life and aircraft.

I don't think it's safety professionals, either. The Naval Safety Center and your command's safety team can use the tools and resources available to build and promote safety programs, but they can't do it alone. When our *Mech* and *Approach* editors give their safety standdown presentation, they talk about passion for safety. A passion to really bring safety to another level—when zero mishaps is the only standard acceptable—for you. When everyone has that passion within them, to never accept unnecessary risk and always think and do ORM, then we will take that next step toward zero mishaps. Take aboard my challenge to have that passion for safety. Make it part of our aviation culture.

If you look at the many Navy and Marine Corps commands that had zero mishaps last year, that's zero operational and off-duty mishaps, success was due to the professionalism and dedication of all hands in those commands.

For two years now, I've had the privilege to work with the finest professionals anywhere. And I don't limit this to the staff here at the Safety Center, but I mean all of you in Naval Aviation. I believe I've answered my opening question: the answer is **you.** On and off-duty, have that passion for mission success, for safety, for your families, and, for your shipmates.

Capt. Ed "Clyde" Langford, Director Aviation Safety Programs

I have been on the job at the Safety Center for four months, and I have had the opportunity to review many of the well written mishap and hazard reports. My initial assessment is we continue to lose aircraft and people to relatively simple emergencies that are either misdiagnosed or a failure to execute proper procedures. Systems knowledge and knowing emergency procedures are the foundation for handling the blue threat.

This *Approach* issue focuses on the training command, who deal entirely in the blue-threat envelope. To put this into perspective, I did some research and found: Navy and Marine Corps aviation from January 1991 to May 18, 2007, we have lost 18 aircraft from the red threat and 523 aircraft to the blue threat. I am proud to be your Director, and look forward to working for you. Fly Safe! Clyde

Capt. Langford comes to the Safety Center from Operations Officer, USS *Dwight D. Eisenhower* (CVN 69).

The Aviation Training Command

This issue leads off with comments by RDML Don Quinn, CNATRA, and Cdr. John Minners, CNATRA safety officer, followed by "there I was" articles from students and instructors. You've all been there, and we trust each article will not only bring back a few memories, but reinforce the importance of laying a solid foundation for all naval aviation. Remember the basics.

The Naval Safety Center is proud to announce the winners of the CY 2006 CNO Aviation Safety Awards.

COMNAVAIRLANT

VFA-87	VFA-103	VAW-123
HS-3	HSL-48	HSC-2
VP-45	VS-22	VX-1

COMNAVAIRPAC

VFA-192	VFA-27	VAQ-139
VAQ-137	VAW-115	HS-14
HSL-45	HSC-21	VPU-2
VAQ-142	VQ-2	VQ-4

COMMARFORCOM

VMR-1	HMLA-167	VMA-223
VMFA(AW)-224	VMGR-252	HMM-261
VMFA-312	VMAQ-2	HMH-461
VMFA-251		

COMMARFORPAC

HMM-268	HMM-262	VMGR-352
HMLA-369	VMFA-212	VMGR-152
VMA-311	HMLA-267	VMFA-323
HMM-161	HMH-466	HMM-166
MCAS YUMA		

COMNAVAIRESFOR

VP-62	VR-1	VR-53
VR-58	VR-61	HSC-85
VFA-204	VFC-111	

CG FOURTH MAW

HMLA-775	HMM-774
VMFA-142	VMGR-452
VMR Det. Andrews	

NATRACOM

VT-2	VT-4	VT-7
VT-22	VT-28	VT-31

COMNAVAIRSYSCOM

HX-21
Fleet Readiness Center, Southeast

The Admiral Flatley Memorial Award is awarded 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 and runners-up for CY 2006 Admiral Flatley Memorial Award are:

Units	Winner	Runner-up
CV/CVN	USS *Kitty Hawk* (CV 63)	USS *Dwight D. Eisenhower* (CVN 69)
CVW	CVW-5	CVW-7
LHA/LHD	USS *Peleliu* (LHA 5)	USS *Iwo Jima* (LHD 7)
MAGTF	11TH MEU	24TH MEU

Update on Safety Award Nominations

The grading criteria for the CNO Aviation Safety Awards was modified to give added emphasis to the reporting of hazards (hazreps). The reports are a key ingredient to improving the way we do business. Check OPNAVINST 1650.28A for detailed criteria for submitting award nominations—give your command its best shot at being recognized.

Focus on Training:
BUILDING THE FOUNDATION

By RDML Don Quinn

The Naval Air Training Command produces the world's finest combat-quality aviators, ready on arrival for tasking in the Global War on Terror. We train them at the right time, in the right number and at the right cost. In 2006, our 723 aircraft logged more than 350,000 flight hours. To put those numbers in perspective, we flew 37 percent of the Navy's flight hours, in 32 percent of its aircraft, with just 10 percent of its flight-operations budget. The best part, cost-wise, is that the 10 percent includes all our maintenance labor costs. We enabled more than 1,500 Navy, Marine Corps, Air Force, Coast Guard and foreign aviators to earn their wings.

There's a significant amount of risk inherent in taking young men and women in their "bulletproof" years and turning them into combat aviators. Our instructors and students spend the bulk of their flight hours in high-traffic terminal environments or congested working areas, conducting practice landings, instrument training, simulated-emergency procedures, low-level navigation, aerobatics, formation flights, carrier qualifications and air-combat maneuvering. Despite the risks inherent in this environment, we consistently maintain a lower mishap rate than the Department of the Navy overall. There is, however, always room for improvement. Last year, the Navy as a whole, and CNATRA specifically, experienced a spike in the number of flight mishaps. We lost seven shipmates and four aircraft during fiscal year 2006. We simply refuse to accept these losses as part of doing business, and we fully are committed to the DoD-wide mishap-reduction initiative. The cornerstones of our efforts are Discipline, Standardization and Risk Management.

Discipline is a state of order, based on abiding by rules and authority. NATOPS, operational risk management (ORM), and crew resource management (CRM)

U.S. Navy photo by MCSN Jhi L. Scott

got us where we are today and cannot be forgotten. In addition to the standard naval aviation programs, our instructors also must follow stringent curricula, all while keeping their heads on a swivel and staying one step ahead of their students. "Defensive positioning" is a survival skill used by instructors when teaching new aviators. We have embraced transparency in our operations and look forward to programs such as Military Flight Operations Quality Assurance (MFOQA) coming on line so we further can enhance our effectiveness. Our instructors come from various services and communities and are the epitome of disciplined professionalism.

Standardization ensures every instructor teaches maneuvers to a defined standard, and every fledging aviator acquires the skills that allow him or her to meet that standard. Deviations from the norm increase risk. Not surprisingly, lack of standardization was identified as a significant factor in our previous mishaps. To counter this factor, we endeavor to prepare, brief and execute with consistency. Our safety and standardization experts proactively work to identify potential hazards in our training activities. Every TRAWING undergoes a periodic standardization inspection that looks at the entire wing and its squadrons in detail. This inspection covers standardization, safety, NATOPS, production, and maintenance. Safety observers evaluate the command climate and strength of the safety programs.

Risk management means embracing ORM and leaving no stone unturned. Our mission is training, not safety, and flight training involves risk. But, we understand we cannot accomplish our mission if we cannot consistently train safely. Risks are identified and managed at all levels. Hazards are eliminated or mitigated to an acceptable level. We used our recent mishap spike as a catalyst to embark on an all-encompassing review of high-risk maneuvers. Institutional inertia and personnel turnover often leave us with processes that exist only because "that's the way we've always done it." That belief simply is not acceptable. Every maneuver performed in an orange and white aircraft must teach a skill required by the fleet or required for survivability in the

aircraft we fly. If not, it's an unnecessary risk—period. The completed risk-assessments resulted in hundreds of changes to syllabi and standard operating procedures (SOPs). The vast majority of these changes were minor, but across the board, we now accept less risk while maintaining our high standards. In addition to reviewing high-risk maneuvers, we're working hard to make sure ORM is embraced at all levels.

One of our advantages is the ability to wait out poor weather conditions that add undue risk to completing an assigned training mission. Operational necessity does not exist in CNATRA. We give our instructors great responsibility to safely teach our students. With that responsibility comes the trust they will cancel or amend a flight, based upon existing conditions, including personal readiness. There is no flight in the NATRACOM that cannot be completed tomorrow.

No one is shooting at our aircraft (intentionally), but we deal with other risks not found in the fleet. One of the biggest is student solo flights. Taking low-time pilots and launching them into the wild blue requires special preparation and attention. This is where discipline, standardization and risk management are invaluable. Unlike the fleet, we have many single-engine aircraft. We prepare our students to handle the loss of their only engine and survive. Soloing is a tremendous confidence builder that ultimately improves the quality of our product for the fleet. I'm sure every pilot still remembers that first solo.

A big risk we share with the fleet is the presence of birds and animals. Many mishaps in the NATRACOM are the result of bird strikes. This risk is significant to the T-45, our single-engine jet trainer. We never completely will eliminate the hazard, but we work diligently with our host bases to report bird strikes and constantly improve the local bird-animal strike hazard (BASH) programs.

The greatest challenge in mishap reduction is identifying leading indicators. Traditional mishap statistics tend to be lagging indicators. This situation is akin to driving down the highway, relying solely on the rearview mirror. In addition to standardization and risk management, we encourage hazard reporting to stay ahead of risks that might trigger a mishap. Safety officers throughout NATRACOM have invested significant effort to use the web-enabled safety system (WESS), increasing both the quantity and visibility of hazard reports (hazreps). Most of our hazreps today report mechanical failures. We are working hard to create a climate where human-factor hazreps receive equal attention and visibility. We have made strides in the right direction but still have a way to go in this area.

We have come a long way in the last 10 years. In 1998, we took too long to train aviators, and we had no reliable reporting system to measure whether we were producing the right number or type of aviators at the right time. We were inefficient and not meeting demand. To address this shortcoming, CNATRA, with significant mentoring by The Thomas Group and CACI, developed the naval aviator production process (NAPP). The result is a dynamic management tool with metrics that enable commanders to make educated decisions regarding how many to train and when, as well as where, to place finite resources for the most payoff. This process reduces the time spent by our young warriors in the training command. NAPP also has the unintended benefit of showing commanders the logjams that have significant safety implications. When training is slowed, students fly less often, lose perishable skills, and become higher risks. In the end, our investment in aviator production process improvement has provided a valuable safety barometer for leadership.

I can't do justice to all the work that went into this effort, but I can tell you it worked. Today, there are no missed fleet seats, and the time to train has been reduced 15 percent from FY99 to FY06. The bottom line is we combined proven industry production-management processes and naval leadership to satisfy fleet needs: producing combat-quality aviators on time, in the right numbers, and at the right cost.

The revolution in training has redefined how we educate and train Sailors and Marines in the 21st century. Training is now focused on students, not hardware. This student-centric approach dramatically is improving the way the Navy considers the capabilities and interests of individuals as the basis for job placement and training. The Navy, through its Human Performance Center (HPC), is using the science of learning to better understand how individuals come to acquire the competencies needed to perform their jobs. We want to create a learning environment that incorporates instruction tailored to the individual's capacity to learn. Another key component of this process is precisely aligning training with job competencies. The knowledge, skills, and abilities a Sailor needs to perform a task will be identified and quantified, so that training becomes more meaningful and more effective. All assumptions about how, where and when we train our professionals are being challenged, and we are taking advantage of what we learn to improve the product, while reducing time to train. As we improve our syllabi, we make sure the science of training has been employed.

In the face of unique challenges and the extraordinary risk exposure inherent in the tremendous number of flight hours flown, the Naval Aviation Training Command has maintained an enviable safety record. We set the foundation for all fleet aviators in the areas of discipline, professionalism and risk management. Here at the headquarters and throughout the wings, we bring together the unique strengths of the Naval Air Forces and the Naval Education and Training Command to produce the world's finest aviators, ready on arrival for tasking in the Global War on Terror. As always, it's a great time to FLY NAVY!

RDML Quinn is the Commander, Naval Air Training Command.

A Matter of Trust

By Cdr. John Minners

Training student aviators involves significant risks. The backbone of the Naval Training Command's (NATRACOM's) risk-mitigation efforts is the instructor. Although syllabi, NATOPS, and standard operating procedures (SOPs) provide many built-in risk controls, we rely on flight instructors to safely train our fledgling aviators and overcome the day-to-day hurdles.

Being a flight instructor looks like the perfect job: Come in, fly a few times, and go home. The reality is that the daily grind of lengthy briefs, debriefs, detailed grade sheets, ground jobs, and the physical rigors of flying can result in significant fatigue. When you factor in trying to get quality family time after sea duty, time rapidly becomes something in short supply for our instructors. The nonstop pace, especially in the hot summer months, can leave instructors exhausted by the end of the week. Our instructors magnificently perform and do a tremendous job balancing all their requirements, but it is a constant battle to maintain the highest standards.

In general, our flight instructors do a fine job guarding against complacency and recognizing they are only a few seconds away from a mishap if they do not give their full attention at all times. However another by-product of flying with students is complacency. Our instructors become masters of flying their aircraft and anticipating student errors. This situation can lead to a mind-set of having seen it all and being able to handle anything. Half of the NATRACOM FY06 Class A flight mishaps and numerous lesser ones directly were caused by instructor complacency.

Instructors develop a "box" of how much error they will accept from a student. A new instructor's box is small, allowing only minor student errors. This practice actually can hamper student learning: Students need to make mistakes to learn. As instructors gain experience, their box grows and grows. The instructor's "seen it all and can handle anything" mind-set develops, whether they realize it or not. Usually, a student then will make a mistake that gets the attention of the instructor, who will reduce the box to an appropriate size. The key is allowing a student enough rope to make a mistake and learn but not enough to exceed the limits of the aircraft or the instructor's ability to recover. That line is difficult to define, and numerous mishaps have been caused by instructors letting students go too far.

Pressure to "get the X" is a reality for our instructors. Although some of it is perceived pressure, much of it is real. All squadrons get behind in production for various reasons, the top reason usually being poor weather. Reduction in instructor manning caused by Individual Augments (IAs) has added pressure to the equation. Instructors see the great lengths the squadrons go to in catching up, and, as professionals, support those efforts. But there is not a flight in the training command that cannot be completed tomorrow. The bottom line is every skipper would rather lose the X than have a mishap. Our instructors must make sure they know when to say when. That decision can be difficult for the results-oriented personalities that tend to become aviators.

Very few other places in naval aviation allow aviators as much freedom to complete the mission on their own terms. NATRACOM squadron schedules are just too big for the skipper or Ops O to watch over every flight. We trust our instructors to use ORM and make the right decisions at their level. Those decisions enable us to complete our mission, while maintaining our tremendous safety record.

Cdr. Minners is the CNATRA safety officer.

Come On Baby, Light My Fire

By Ltjg. Caleb H. Booher and Ltjg. David M. Sparks

The final hurdle of advanced flight training at NAS Corpus Christi is the infamous review stage. This block of five flights in the TC-12 Huron requires the student to call upon all the skills gained throughout the rigorous five-to-six-month program.

As students with the VT-35 Stingrays, Ltjg. David Sparks and I handled one simulated emergency after another. By the time we made it out of review stage, we also had experienced our fair share of actual emergencies. On one flight, we flew instrument approaches using oxygen masks, with failed heading indicators and with a simulated engine failure.

The pinnacle of the program is the solo flight after review stage. This flight is the first time two students sign for an aircraft and take it out of the local area without an instructor aboard. Going into our solo, Sparks and I had no doubt we were prepared for anything the day could conjure up. The simulated emergencies were done, and we had five hours of unmolested, relaxing flight time ahead of us.

Hang around the aviation community long enough and you will find that destinations are not picked by efficiency or utility, but by good food. Chennault International Airport in Lake Charles, La., has a reputation for fine Cajun cuisine, and as we took to runway 31L at Navy Corpus, we already could taste it.

The weather was perfect that Friday. The August skies over Corpus Christi were clear, and the only bad weather on the radar was miles south of our route. We took off and began our climb to 25,000 feet. We kept busy with routine checklists and the standard, mindless pilot babble.

At the very moment we leveled off, a red light at eye level began to flash. It was our "MASTER WARNING" light and was accompanied by the red "FIRE R ENG" light. The fire light flickered twice and then stayed on.

The very first thing that came out of my mouth was, "You've got to be kidding me!"

Sparks looked out the right window and scanned the engine nacelle for any signs of an actual fire. We watched the engine-temperature indicator for a spike… nothing happened… no fire.

However, our squadron's standard-operating procedures (SOPs) require that any fire light be honored, even if this meant sacrificing fine Cajun food. So, muttering quiet curses, we shut down the right engine and searched the chart for a suitable place to land. One look at the chart told us that suitability would have to give way to proximity. Palacios, an airfield with three marginally suitable 5,000-foot runways, was just five miles northeast of us. Sparks radioed Stingray base and notified our CDO of the emergency.

Normally, the pilot flying would hand off communications to the copilot, but Sparks had enough on his plate talking to the CDO and other instructors on base frequency. So, I called Houston Center, declared an emergency, and requested an immediate descent and radar vectors to Palacios airfield, which was below us.

By the time we began our descent to 4,000 feet, Palacios was just south of us, and we made a turn toward the field. Passing 10,000 feet, we turned south and looked at the horizon. The bad weather

that had been miles south of our route now had moved over Palacios.

"You've got to be kidding me!" I again said.

As we descended, doing 360-degree doughnuts in the sky to avoid the weather, the clouds just kept getting darker and thicker. Surprisingly, we maintained VMC by lowering the flaps and airspeed to increase our rate of descent, and we weaved through the few holes we could find. After a few bumps from turbulence and some rain on the windscreen, we broke out of the weather at 5,000 feet.

Immediately, I requested vectors for the VOR runway 13. Houston replied that VOR 13 was not depicted on their radar. Sparks and I exchanged a slow "it figures" glance. After one final "You've got to be kidding me," I requested and executed the full-procedure turn for runway 13. We had plenty of altitude to lose. Once the radios quieted down, we completed the remainder of our checklists and set up on final for the runway. For simulated single-engine full stops, the squadron requires 5,900 feet of runway, but 5,000 feet was better than Farmer John's field, and this certainly was not simulated. We came down over the numbers and did everything we had been taught and graded on for six months. Our training worked: We came to a full stop within 2,600 feet, taxied off the runway, and shut down the remaining engine.

The Palacios Volunteer Fire Department was there to meet us. Sparks called Houston Center and Stingray Base and let them know we were safe on deck. Palacios is an unmanned field, and once the fire department made sure there was no fire or other hazard, they left, and the airfield was empty. The squadron sent a rescue bird to pick us up and return us to Navy Corpus.

Our adventure was a big deal around the squadron for the next week or so; two guys had an actual emergency on their solo flight and safely landed. Obviously, Sparks and I have discussed the incident at length. We understand the excitement and the attention, but there is one point we hope does not get overlooked: There are many instructors at VT-35 who never have performed an actual single-engine landing in the TC-12B, and most never will. But, they taught us how to do it, and it worked. Moreover, Sparks and I are not the only students at VT-35 that could have handled the emergency. Every student who makes it through advanced training has the ability to do what we did that day.

Ltjgs. Booher and Sparks flew with VT-35.

Composite image

Home 'Drome

The walk of shame and ensuing embarrassment the next day were just the beginning of an humbling and prolonged process of investigation and ultimate forgiveness.

Anonymous

It was a beautiful night at NAS Pensacola, and I was scheduled for what we now call a "dual night contact" flight. For these flights, I go out and get the student navigator (SNAV) some stick time doing a turn pattern or maybe a level speed change. I then let them see the importance of frequent glances at the attitude indicator before we come back for the terminal work.

The night was very dark, as I shared the pattern with another T-34C. I had requested an Aldis-lamp demonstration on our last several passes before asking for full stop. The other T-34C had an experienced squadronmate at the controls, and he nicely was tucked in behind me in the pattern. He also had taken advantage of the helpful controller's willingness to pull down the light gun and shoot off some photons. We had a great night for training, with very experienced members in both planes—excluding the SNAVs in the front seat and tower.

It was no big deal when I announced, coming into the 180, we'd be making this one a full stop, and the instructor pilot (IP) behind us told the local controller he'd also be full stop. I let the student go through the procedures and bring us around into the groove. I then took the controls and uneventfully touched down on centerline within the first 1,500 feet of the 8,000-foot runway. What happened next was completely inexcusable and due solely to complacency.

The local controller asked us to expedite for the traffic following us. I replied, "No problem," as I turned the aircraft nose right of centerline, toward the break in the lights I thought was D taxiway *[see airport diagram on next page]*.

The next exit opportunity would have been A3, located approximately two-thirds down the runway. Usually, the T-34C could—if landed on speed, on centerline and in the first third of the runway—easily exit onto D and taxi via A back to the ramp.

The break in the runway lights actually was the runway intersection and was a shortcoming of the runway-lighting system installed on 07R. Although high-intensity runway lights (HIRLs) were installed on runways 07L and R, the lights on 07L apparently were installed to a newer standard and in such a way they were continuous (using recessed lighting) through all intersecting runways and taxiways. The lights on 07R were not. As a result of my actions and lack of SA, I aimed a couple of degrees too far right and didn't correct, and as I searched for the blue lights of taxiway D from the back seat of the Turbo-Mentor, we went off the runway just east of the intersection of 1/19 and 07R.

I was so complacent after roughly 1,500 hours and three years of operating at NAS Pensacola that I thought I knew the airfield like the back of my hand. By the time the thought, "Where are the taxiway lights I should be seeing?" finished forming as a coherent question, we rapidly were decelerating to zero as we plowed through the loose topsoil right of the runway. We stopped with the engine running. The power-control lever (PCL) was at idle by the time I answered my own question and had uttered a few choice words.

I quickly told tower we were off the runway, and tower replied, "Roger."

I responded, "No, we're off the runway. We went off the side. I'm in the dirt!"

I went through the procedures. After killing the engine with the condition lever, which cuts off fuel at the fuel-control unit, I had the student pull the emergency-firewall-shutoff handle (T-handle) in the front cockpit. That action kills fuel supply at the firewall. Just to be sure nothing was missed, we broke out the pocket checklist and double-checked we had crossed the T's and dotted the I's. We then unstrapped and got down on the left side. While doing this, I fired up my cellphone and called the duty office to activate the premishap plan. I then looked at the plane to assess the damage.

I didn't see any damage. As I walked around the rear and continued to the right side of the plane, I could see we hadn't hit anything. I had missed the HIRLs (I had aimed well for the break in the lights) and hadn't gone far enough to hit taxiway lights on B. I checked out the front—no damage.

Walking back the way I had come, I could see, in the darkness, an unlit runway-remaining marker. I paced it out; our right wing had missed it by less than seven paces.

I phoned the duty office from my cellphone to tell them all was well with the plane and then got the CO's home number to let him know.

After an initial meeting with the CO and XO, it was off to the Navy hospital for blood tests for my student and me. Afterward, the CO told me to call it a night (it was after midnight), and he'd see me in the morning. The walk of shame and ensuing embarrassment the next day were just the beginning of an humbling and prolonged process of investigation and ultimate forgiveness.

At the time of need, where was the student in the front seat, you ask? Head down, flipping pages on his bluebrains to be ready with the checklist once we got off the runway.

My complacency and lack of SA had gotten us right of centerline, and the SNAV's complacency had him heads down and unaware. By good fortune, only our egos were bruised—mine especially. I got to learn a lesson the easy way: without blood.

Engine Out

What was supposed to be a routine, night, contact sortie turned out to be a more interesting flight than I ever would care to repeat.

By Lt. Greg Baumgartner

The evening's event started with an 1800 brief for a 2000 takeoff. The sky was clear and calm. The student was eager for his first exposure to night, ground, and flight operations in the sleek T-6A Texan II. The brief emphasized techniques, procedures and concerns unique to night operations. This flight was only the student NFO's sixth in the primary syllabus.

The planned conduct of the flight would have us start with a transit through alert area 292, west of NAS Pensacola. We'd conduct emergency-procedures training at altitude in the vicinity of the airport of Bay Minette, Ala. (1R8), followed by landing-pattern work at Mobile downtown (BFM). The flight would end with a return to NAS Pensacola. The brief concluded with a thorough NATOPS brief that included ORM.

The man-up, taxi and takeoff went as briefed. The air was smooth, and the sun just had set. The light from NAS Pensacola's lighthouse made a slow sweep over the bay and dueled with the green and white, rotating, airport beacon. We turned west and continued the climb to 4,500-feet MSL for the transit toward Bay Minette. This airfield is a small, uncontrolled field just north of I-10 in southern Alabama. The single runway is oriented 08/26, with a published length just over 4,000 feet. The field is surrounded by pine trees and uneven land. Runway lighting is pilot-controlled. During the instructor-upgrade syllabus, we often went to this airfield, but we are restricted from operating there with students because of the narrow runway, which only is 80 feet wide. While we had no intention of landing there, I figured it was a good idea to conduct high work near a suitable airfield, in case of an emergency.

I was pointing out some landmarks and unlit Navy outlying fields (NOLFs) on our way to the northwest part of the area. These fields are closed at night, and with the exception of one (NOLF Barin), are too short for T-6 operations. With the student NFO at the controls, we turned north overtop Silverhill NOLF and began a climb to 7,500-feet MSL to set up for a simulated power loss.

Students are taught the basics of handling emergency procedures in the contact phase. They are taught

to maintain aircraft control, and then to assess the situation, before they dive into the pocket checklist or execute memorized procedures.

The plan was to initiate a simulated power loss five to six miles west of Bay Minette and let the student handle the simulated power loss with a waveoff, before reaching high-key at 3,000-feet AGL. A traffic-advisory call was made on CTAF; no reported traffic was in the pattern. I would initiate the simulated power loss at 7,000-feet MSL by bringing the power-control lever (PCL) to idle. The student would trade excess airspeed for altitude, ask the instructor pilot (IP) what kind of power loss was being simulated, then execute the memorized procedures. He then would turn us in the direction of the nearest field, Bay Minette. The simulation would be complete at altitude because of the landing restriction.

I initiated the simulated engine failure at 7,000-feet MSL. The student NFO went through the emergency procedures. At about 5,500 feet and 130 knots, he called for a simulated PCL off (the second step in the engine-failure procedure). I moved the PCL just forward of idle to simulate a feathered condition, and this is when our training and engine came to a halt. The engine made awful grinding noises, sparks came out both exhaust stacks, and the engine and propeller seized within a matter of seconds.

I took the controls and made it clear to the student this was an actual malfunction (Just in case he thought it was an incredibly realistic simulation). I went through the engine-failure procedures, this time for real. I turned toward our nearest suitable field, Bay Minette, about four miles off our right wing. We were descending from 5,500-feet MSL and working our way to 125 knots, the T-6A's best glide airspeed in a gear/flaps-up configuration. I calculated we would have enough altitude to at least give high-key a good effort. My plan was to initiate ejection if we came up short of the emergency-landing pattern (ELP).

I activated the pilot-controlled lights and transmitted a Mayday call on CTAF. Another VT-10 aircraft was on the CTAF, doing some pattern work at a different uncontrolled field not too far away. We went through the forced-landing checklist, then lowered the landing gear with the emergency-gear system. We entered the emergency-landing pattern overtop runway 08 via high-key.

"No need to eject just yet," I thought.

That narrow but lit field was in complete darkness, surrounded by acres of trees. The darkness was not too unlike a ship at night. The ELP worked as it should. We hit low-key and rolled onto final. There were no glideslope indications at the field. We crossed the threshold on-speed, according to NATOPS. We floated down the runway farther than I had thought we would, almost 2,000 feet. Until this point, I never had landed with a feathered or seized propeller. I applied the brakes at a higher-than-normal speed because only 2,000 feet of runway remained.

With no anti-lock brakes, the tires subsequently locked up, and then both simultaneously blew. I eventually lost rudder authority, and we came to a stop abeam the departure-end numbers, just off the right side of the runway. We executed our emergency-egress procedures.

I took the controls and made it clear to the student this was an actual malfunction.

We had discussed the possibility of ejecting as we proceeded to high-key. We would have done so if the ELP had not worked out. OPNAV 3710 says that pilots of aircraft equipped with ejection seats should not execute engine-out emergency landings if ejection is available, but I figure that rule was written before the T-6's debut. The T-6 has a better glide capability. Not giving the ELP a shot would have been wasteful. Fortunately, the ELP worked. Months later, the culprit was discovered to be a blade in the turbine section; it simply failed and took the engine with it.

The decision to conduct high work in the vicinity of a suitable divert seemed like a simple-enough choice as we planned our flight. This simple but important decision proved critical to our safety. Just knowing where your nearest divert is may not be enough to make sure of your safety. Choosing to operate within an acceptable distance of your nearest divert greatly mitigates the risk of an engine loss.

Lt. Baumgartner flies with VT-10.

THE LAST RESORT

By Lt. Stephen Simmons

As an avid hunter and outdoorsman, I have my fair share of outdoors "there I was" stories. As a naval aviator and primary instructor pilot in the JPATS T-6A Texan II, I have a similar list of stories and it is getting longer. Here's the one that tops the list.

The day started as any other day in the 8th Flying Training Squadron at Vance Air Force Base, Okla. We had an early morning show, the long and intense formal brief, then the individual crew briefs and everyone stepping to fly. My sortie would be only the fourth for a Marine Corps second lieutenant and would be the standard type profile: outlying field for bounces, military-operating area (MOA) for contact maneuvers, return home for more bounces and the debrief. Because it only was the fourth ride of the program for the student, you could say quite a bit of learning and instructing was taking place. After the big event (for the student) of correctly just getting all the equipment turned on, we worked through ground ops and got airborne. We soon had arrived at Dogface, our outlying field, for about 20 minutes of pattern work. During our first straight-in approach and touch-and-go, I experienced my most hair-raising and seat-cushion-sucking time in an aircraft.

On the takeoff leg of the touch-and-go, task saturation had taken its toll on the young, student naval aviator (SNA), and cleaning up the aircraft configuration slipped from his list of things to do. Giving him as much time and benefit of the doubt I could, I let the situation progress in hopes his light bulb would illuminate, and we could clean up as we normally do in the pattern.

Well, his light bulb never came on, and I had to reach into my instructor bag o' tricks and take the controls to avoid overspeeding the gear and flaps, something I'd done probably two dozen times before. As I brought my hand to the power-control lever (PCL) and retarded it to the idle stop—no idle stop existed!

I was about 150 feet AGL, 140 knots, dirty, and with an engine that was winding down. I inadvertently just had shut down the engine, and now it was decision time.

I had three options available to me but no time to consider the pros and cons of each. The climate-controlled air and cushioned seats in the skipper's office of my HAC board would have been nice to have, but this was game day, and my actions would determine if I would cause a Class A mishap.

My first option was to apply the boldface emergency procedure (EP) titled "Engine failure immediately after takeoff, sufficient runway remaining ahead." To accomplish this procedure, I had to determine if I had enough asphalt in front of my aircraft to lose my altitude, touch down, and get stopped before the end of the runway. I bunted the nose forward, and all I saw was the overrun of the departure end and a river—not an option.

Option two was to apply the boldface EP entitled "Immediate airstart." To accomplish this procedure, I had to reach down and hit the auto/restart switch and wait. With time compression taking its toll, the engine sounded like it was going to relight. I now was very happy my engine was coming back online, so happy that I pushed up the power to try and get away from the ground. This action wasn't the best thing to do as the engine then sputtered, indicating possibly a compressor stall. Simply put, I had demanded too much out of the engine by pushing up the PCL too fast, too far. I now was considering option three, which I will get to shortly. I momentarily brought back the PCL and heard

Getting out obviously was the last resort and one I didn't want to use.

the engine spool back up to what sounded like a normal engine start. I advanced the PCL once again and had good, useable power—what a relief!

Option three that I had available but did not use was the 0/0-capable Martin Baker ejection seats. Getting out obviously was the last resort and one I didn't want to use. But, I was merely seconds from this decision and pulling on the little yellow-and-black-striped handle. Had I resorted to this option, there definitely would have been a Class A aircraft loss and the potential for post-ejection injuries.

To end the sortie, I declared an emergency with the runway supervisory unit (RSU) to gain my pattern priority and fully stopped the aircraft. I was not sure exactly what had gone wrong with the plane, but I knew continued flight was not a good idea.

A weeklong safety and maintenance investigation followed. The cause was determined to be a complete mechanical failure. An aluminum clamp that connects to a rocker cam and acts as the idle stop had failed. So, when the PCL was reduced to idle, the cam was in the down position, which allowed the PCL to be brought all the way to the "cut off" position. The manufacturer had identified this potential failure of the part, and the Air Force was swapping out parts during their phase-maintenance cycles. Since this incident, all Vance-assigned T-6s have had stronger steel clamps retrofitted for more reliable service.

As I reflect on the lessons learned, two stand out the most. One is that you just never know when you're going to need your "A game" to handle an EP. I have taken the controls on numerous occasions to prevent overspeed situations; this action almost was second nature to me. Second, I will take a new appreciation to the quarterly, required EP simulators. One week before this incident, I had attended an EP sim, where the instructor and I had set up numerous catastrophic-engine-failure scenarios in difficult flight regimes, just to see the different options. I now take the simulator EP training more seriously and not as just a check in the box—so should you.

Lt. Simmons is a Navy flight instructor with 8th FTS.

Mishap-Free Milestones

HSL-48	17 years	110,000 hours
VFA-146	21 years	90,000 hours
VFA-192	24 years	100,000 hours

BZ to VT-2 for being Class A/B/C Mishap-Free in FY06

A comparison of mishap rates of the TA-4 in the early 1970s to the current T-45, show just how far the training command has come in reducing and preventing mishaps.

	Year	*Hours*	*Mishaps*	*Rate*
TA-4	1970	153,138	17	11.10
	1971	149,445	15	10.04
	1972	157,232	12	7.63
T-45	2005	67,601	2	2.96
	2006	70,506	1	1.42
(thru June 18)	2007	51,074	0	00.00

Manning Up. A training command TA-4J "Scooter" readies to launch on a training sortie. Artwork by Dr. Carl Eddy.

Let's Go Home

By 1stLt. Jennifer Kukla, USMC

The amount of training student naval flight officers have aboard NAS Pensacola is incredible. In the classroom, in the simulators, and in the air, our instructors strive to give us the best real-world training, while maintaining high standards of safety.

In the instrument-phase of primary, students learn to navigate in IFR conditions in all basic flight phases: departure, en route and approach. One of my first instrument flights happened to be with a brand new instructor pilot, and it was my first out-and-in. However, weather did not look like it was going to cooperate. Fog was on the runway and low visibility was reported. Needing 200 and ½ for takeoff, we decided to preflight, strap in, and see if things would clear up enough for takeoff. We spotted a clearing in the fog and started to taxi.

The area usually is busy with T-6s coming and going, but we were the only T-6 attempting to fly, which should have been our initial sanity-check. When we got to the run-up area, my IP said, "It looks good to me, but if you don't feel safe, we'll just cancel due to weather and try again another time."

In hindsight, there never should be any doubt in your mind about safety of flight in a training environment. After an uneventful takeoff, we climbed to altitude and had an uneventful flight out. After a great lunch, we headed home.

I began my terminal-environment preparation when we were about 100 miles from our destination. ATIS at home field called for ceilings and visibility below the required minimums for our precision approaches. So, we changed our destination to our weather alternate, which was one of our smartest decisions of the day. From the alternate, my IP said we would continue with our vectors to final for the ILS at home field, and then we'd fly a practice approach. Because we already had changed our destination, I understood this plan to be technically legal, but just because something is legal does not make it a good idea.

We commenced our first approach, but the radar vectors didn't work out, so my instructor again requested vectors to final for an ILS. Another warning flag: How necessary are these practice approaches to training versus the safety factor? Had we requested a PAR and backed it up with the ILS, the approach would have been much safer. Where's the ORM?

On the second try for the ILS, we discovered the ATIS was correct, and the field was below mins. As we intercepted our final course, my instructor told me training had ceased, and we would work together as a team to shoot the approach. As we approached the decision height, we obviously weren't going to break out, so we executed our missed-approach instructions and headed to Mobile Downtown Airport.

We could have pushed safety more with this flight in several ways. Simply deciding not to take off with the weather the way it was would have solved the whole problem. To negate some risk once airborne, we could have changed our destination to Mobile as soon as we got ATIS, and then we could have shot multiple approaches at Mobile Downtown for the check-in-the-box.

Last, although I felt confident no other airplanes were in the sky for us to run into, I still could have spoken up and gave my input regarding safety.

1stLt. Kukla flies with VT-4.

Wheel Bar Nose Job!

By Lt. Dan Post

Ask an HT instructor how they feel about attaching the ground-handling wheels to a TH-57, and you probably will get a response along the lines of, "I only put them on if I absolutely have to."

I always have been of the same opinion, and during a cross-country flight to NAS Key West, my feelings of reluctance were validated quite dramatically.

The first step of attaching the wheels is to slide them into place on the skids and pin them into position. Next, slide a hollow, three-foot-long bar onto a small metal arm attached to the wheel. The purpose of the bar is to leverage the entire weight of the helicopter up onto the wheel. The bar must be in the proper position to slide a second pin through the wheel and skid to hold the wheel in place, all the while holding steady the bar and the weight of the helicopter on it.

The process can be done by one man, but two people often will perform the task, with one operating the bar, and the other sliding the pin in place. The most important thing to consider, however, is to respect the bar and to keep your body, especially your face and head, out of the bar's arc of travel. This consideration prevents injury if you lose your grip on the bar, and the force from the helicopter's weight swings the bar free of the wheel.

When our helicopter arrived at NAS Key West, the ground crew instructed us to reposition the helicopter from where we originally had landed to a tighter parking spot. I demonstrated to both my students the proper method to attach the wheels and how to properly position your body to avoid injury. They assisted

me in attaching and then removing the wheels after successfully repositioning the helicopter. I emphasized the importance of remaining clear of the bar and of wearing proper PPE (helmet with visor down and flight gloves on).

Sunday morning was a wet and rainy day, and again we had to attach the wheels to move the helicopter. We put on our PPE and started to attach the wheels as a crew. We made it as far as removing the first of the two wheels before tragedy struck. While my SMAs (student military aviators) were removing the last wheel, the SMA holding the bar and wheel in position to remove the locking pin lost his grip. The bar was flung outward and upward from the wheel. The SMA had adjusted his feet, trying to remain further clear of the bar but, in the process, lost his two-handed grip. As the bar flew upward, it caught his lip, his nose, and the front of his helmet. He received nine stitches, a broken nose, and a slightly dented helmet, but it could have been so much worse.

This mishap goes to show you that no matter how comfortable and proficient you are at performing a task, and even if the proper PPE is worn, the potential for injury always exists. All it took was for the SMA to get about two inches too close to the arc of that bar. Never lose respect for the risk involved with nonflying aspects of naval aviation. Two inches can be the skin off someone's nose.

Lt. Post is a flight instructor with HT-8.

HT-8 is developing a new method of ground-handling wheels installation with a longer bar to help prevent similar injuries.—Ed.

NAVAIR 01-H57BC-1 2.28.6 Ground Handling Wheels
Ground handling wheels have been provided on each of the landing gear skids. These wheels can be extended to provide a capability to move the helicopter on the ground by either pushing or towing.

CAUTION

The ground handling wheels shall be removed prior to flight.

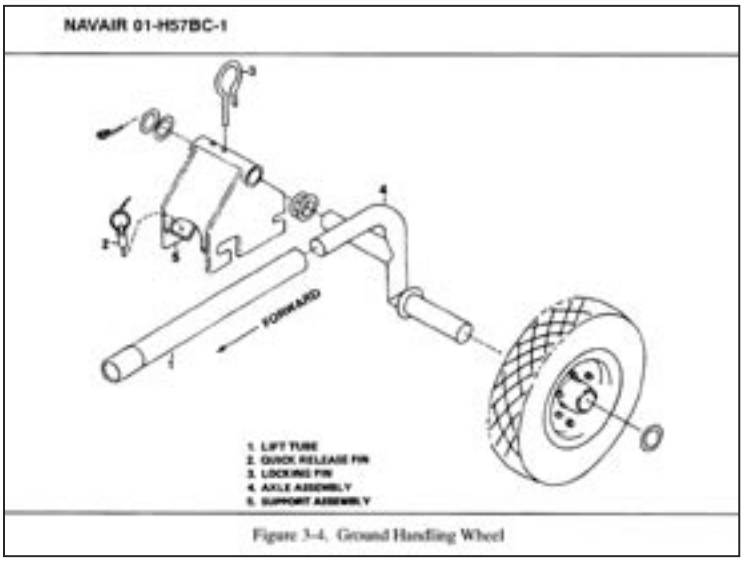


Figure 3-4. Ground Handling Wheel

HT-8 Squadron Operating Procedures

Ground Handling Wheels. While installing ground handling wheels, HT-8 personnel shall wear a helmet with the visor down. Personnel not assigned to HT-8 or the civilian contractor shall not assist in the installation or removal of ground handling wheels, except at military bases when transit line personnel have been appropriately briefed on ground handling wheel procedures.

Crew Resource Management

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

How Do You Spell HEFOE?

By Maj. Micah Curtsinger, USMC

How many fingers do you see? Do they mean what you think they mean? These were just a couple of unexpected questions facing us at the end of a busy week in the training command.

CRM Contacts:

CRM Instructional Model Manager
NASC Pensacola, Fla.
(850) 452-2088 (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

It was Friday afternoon and time for some division training. The lead instructor pilot (IP) briefed the sortie in accordance with the Master Curriculum Guide and SOP. He discussed techniques and common mistakes for each maneuver. The lead covered the standard four-plane emergency scenarios and a few extras.

Before we launched, the flight lead's jet went down for hydraulics, so we developed a new plan. I had intended to fly an annual standardization check ride for a fellow IP as Dash 4. Now that I was the only IP with a division-leader designation in the flight, we assumed the lead. It made sense for the other IP to remain in the front cockpit, while I monitored from the trunk (backseat). With a student solo as Dash 2, and a dualed-up student and instructor as Dash 3, we now were a light division. I believe it's entirely possible the previous lead's extrasensory perception was working overtime and advised him to steer clear of the impending excitement.

The flight progressed normally in the MOA (military-operating area) just west of NAS Meridian. After one cycle of maneuvers, our solo took the Dash 3 position in right echelon parade. We gave a preparatory "speed and angels, standby for breakup and rendezvous" call, but we only heard a response from Dash 2. With all three IPs now looking at Dash 3, the lead repeated the call. Again, only Dash 2 responded.

Just as I was about to ask for a radio check, Dash 3 aggressively pulled acute of the entire formation. He began to flash frantic HEFOE signals as he pulled off his mask. Dash 2 was directed to cross under to the left side to balance the formation. The solo quickly drifted aft, while throwing frantic hand and arm signals and pointing to his mask.

Seemingly unable to "snuggle up" so he could deliver his hand signals, the solo started to drive acute and developed a slight descent, flashing more fingers as he passed us. The lead instructor and I concurred we saw a HEFOE signal with five fingers. With one last signal as he pointed to the deck, the solo was gone.

He overbanked his jet into and below the formation, and appeared to be performing a "split-s" to the deck.

"#%@&!, dude, we gotta go get him," was my immediate call over the ICS.

The lead IP detached Dash 2 high and left for the RTB, squawked "emergency," and performed our own "Stuka" roll-in to follow the solo. Pulling through nearly 70 degrees nose low, and maintaining a tac-wing position, we only could surmise the solo had lost his engine and was on his way to the ground. Our solo leveled off at 8,000 feet, and we set up about a mile in trail. The lead methodically coordinated our exit from the MOA and declared an emergency with Center. He only could advise Center we had a NORDO (no radio) wingman

The solo quickly drifted aft, while throwing frantic hand and arm signals and pointing to his mask.

with an unknown emergency. As we joined on the solo, he passed us the lead. At this point, I recommended the lead IP handle ATC comms, while I worked with the solo to determine the nature of his problems.

His speedbrakes were out, so I gave him a signal to retract them. He shook off those instructions. I was unclear why he couldn't put his boards in, so I gave him a HEFOE signal and then the international signal for "What?"

Recall the title to this story, which also could have been, "How many different ways can you spell HEFOE?"

The solo again appeared to be showing HEFOE signals, this time with two fingers. I told the other IP the solo either had an engine or an electrical problem, but I couldn't be sure. He might have a hydraulic problem because he did not respond to the speedbrake signal, and he had first tried to get our attention by pointing at his mask.

With about 25 miles until we were overhead Navy McCain, we had some time to get a better picture of what might be wrong with his jet. We tried to use HEFOE signals during the RTB to have our solo check and report on his systems. All the visual communication and heads-down time greatly undermined his formation-flying skills, so we opted to put him into loose cruise and just set up for a NORDO straight-in. We did not need to add a midair to his list of problems.

A minute or two later, he was back with us, calling "Three's up."

HEFOE stands for:

H - hydraulic
E - electrical
F - fuel
O - oxygen
E - engine

He reported his jet was fine but that his communication cord/oxygen hose had become disconnected, and he had begun to feel hypoxic. We decided to take a full turn overhead before going out for a straight-in, to allow for a complete check of his aircraft. All systems were fine, and we flew an uneventful straight-in to a full stop.

Once on deck, we discovered the reasons for our student's anxiety and his actions. Our solo first encountered arestricted flow of oxygen while simultaneously losing radio comms. Soon, his O2 completely was unavailable, so he pulled the green ring to release 100 percent oxygen from the emergency bottle. This action failed to restore airflow. Unable to breathe through his mask, he removed it and felt dizzy, which he interpreted as hypoxia. His solution was to detach from the formation for an immediate descent. Of course, the flight was only operating at 14,000 feet MSL, which, for the T-45C, puts you just under 10,000 feet of cabin pressure. After a little straight and level flight at 8,000 feet, he soon felt better.

When asked about his first HEFOE signal, the one he gave just before breaking away from the flight, he thought he'd passed four fingers. The lead instructor and I were fairly certain we saw five fingers, but the student was flying very sucked at that point. After running him down at 8,000 feet and asking for another look at his HEFOE signal, he said he'd passed two fingers. He now was quite unsure of the correct number of fingers for oxygen. An engine

Photo by MCSN Kevin T. Murray, Jr.

problem (five fingers) could have explained the aggressive maneuvering, but an electrical problem (two fingers) was harder to correlate with the student's actions. Once communications were restored and all of us wound the eight-day clock a few times, things settled down for the full stop.

What were the lessons learned? HEFOE signals are meant to help your wingman help you. You must be in a position where they can be seen and, of course, you have to pass the correct signal. We advise students hand and arm signals are harder to see when given with a green glove on a green background of flight gear. Hand signals should be passed with the sky behind, when possible. Instructors are used to seeing one particular finger, but if you are NORDO with an aircraft-system failure, you need to make sure your wingman can see and count all fingers. Ready-room discussion revealed that some aircrew were taught to remember HEFOP, with a P for powerplants. This technique could reduce the chances of confusing electrical and engine problems, not that either applied in this instance.

Your systems knowledge is of equal importance. If you can't breathe from your primary hose, aren't getting any flow from a secondary source, and have no communications or sidetones, then you almost certainly have a bad connection. Likewise, be ready to use all that stuff we learned in flight physiology. At 14,000 feet and a cabin pressure of 9,000 to 10,000 feet, it was unlikely the student was feeling hypoxia but probably was hyperventilating. This condition results in a similar feeling, but is caused by a totally different event. I hope I won't put on a bat-turn, high G maneuver to get lower if I ever encounter a hypoxic moment. The last thing my body needs at that moment is to remove what little oxygen-rich blood I have in my brain.

Crew coordination has to occur inside a multiseat aircraft and between all members of the formation. We thought the crew resource management conducted in the lead aircraft was effective. The front cockpit instructor focused on aviating, navigating, and communicating with ATC, while I tried to identify the malfunction with the wingman. On the other hand, I should have stopped troubleshooting once the student flew his jet far enough out of position for his signals to be seen. The systems failure which faced our wingman was a disconnected hose and not a burning aircraft. At his experience level, without a major malfunction, it might have made more sense to set him up for a single-ship, straight-in recovery to reduce the chances of a midair. If you are the wingman, remember this rule: Aviate first!

Maj. Curtsinger is the standardization officer and an instructor pilot with VT-7 at NAS Meridian.

THE BIG PICTURE

By Lt. Ron Zenga

Our aircraft was the first of four Eightballers to arrive in Key West. A little more than eight hours earlier, we had begun our journey from South Whiting, completing three day VFR navigation legs and one night VFR nav leg. My two students had performed well; they had studied hard, and all the legs were uneventful.

The second and third Sea Rangers landed shortly after we did, and once they had shut down, my student naval aviator (SNA) and I began to put our aircraft to bed for the night. While SNA No. 1 installed the pitot-tube covers at the nose of the aircraft, I unloaded the baggage compartment and stowed our SV-2s. SNA No. 2 gathered the charts and flight pubs from the back of the aircraft. About then, Eightballer No. 4 arrived, and things began to go downhill.

As No. 4's helo taxied behind us, I felt a puff of rotor wash on my face. A half-second later, I looked up in time to see the left rear door (remember the SNA gathering the charts?) torn from its hinges by the full force of the rotor wash. The door came to a rest a few feet from the SNA at the nose of the aircraft.

After a few choice words, we got together at the door and made a few calls. The maintenance contractor said they had no hinges in supply—neither did their associates in Fort Lauderdale. They said my best option was to mail the door home and return with just three doors on the aircraft.

Heading back with only three doors would have been the quick and easy solution, but fortunately, our squadron SOP intervened. After speaking with the squadron CDO, we agreed the TH-57 could only be flown with the doors off during syllabus events, which required the doors to be off. You guessed it: VFR navigation requires all doors to be attached to the aircraft.

My options rapidly narrowed down to one: Wait for a contract-maintenance pilot to fly to Key West, hot seat his four-door aircraft to me in exchange for my three-door model, and then continue training. What had begun as a Friday-through-Sunday cross country quickly had grown into a Friday-through-Wednesday event.

With Key West receiving nearly three inches of rain that weekend, we all wanted to be somewhere else, least of all stuck somewhere with no control over when we would leave. Bottom line: As the aircraft commander, I was responsible for the damage that had occurred to my aircraft, regardless of how it happened. I was about to find out how much more I really was responsible for.

Our flights home were as uneventful as the flight to Key West. We returned home late Wednesday, and I promptly was in my skipper's office first thing Thursday morning. As it turns out, I was the 16th door incident of the year in the HTs, and the chain of command was none too pleased. The problem with doors being blown off had been addressed via emails and AOMs, but the doors seemed to keep blowing off. Our skipper got all of our attention when he cited my lack of oversight for not making sure the SNA had positive control over the door at all times. He even mentioned the incident in Key West, I could have been flying students and completing at least six more Xs. My students could have been moving closer to their wings by flying another three Xs. The aircraft could have flown countless more flights with other instructors. Furthermore, the nearly $10,000 spent on per diem and fuel could have funded several other cross-country flights. Call it the domino effect.

While we can't plan for maintenance failures or weather delays, we always can strive to better supervise our crews in flight and on the deck—especially when your crew consists of students. As training-command instructors, our job is to provide competent copilots to the fleet in a time of war. What may have seemed like a small amount of damage and a small delay, when looked at from the perspective of the big picture, wasn't such a small thing.

Lt. Zenga flies with HT-8.

When Family Issues Become Safety Issues

By 1stLt. Jonathon Richardson, USMC

I just had been scheduled for my first cross-country and looked forward to the experience. My wife was having chronic back issues (later we would find out it was three ruptured disks), but according to the Navy doctors, the back pain could be managed by pain medication. I was finishing my three initial intermediate-instrument flights and flight planning for this cross-country, while she was in agonizing pain and getting little sleep (which, in turn, kept me awake taking care of her).

Friday came, and the first brief and flight went well (I did inform the instructor of my wife's back issue). We landed in Virginia, and I settled into the BOQ to prepare for a weekend of chumming charts and flight preparation for the return trip home.

During the weekend, my wife called several times to tell me her back had gotten worse and the medication was not helping. We talked for several hours on possible solutions. She eventually went to the emergency room and was discharged later Saturday evening. I could not sleep well, and when it came to the brief, I convinced myself that I could "suck it up" and continue with the flight home.

I did not tell my pilot the current update on my wife, because I wanted to get home (mistake No. 1).

We took off, and the flight to our intermediate destination went well. While waiting for fuel, my instructor overheard my student partner talking about my wife. The instructor confronted me about the issue, and I updated him on her situation. He counseled me about how personal factors could cause a safety issue on a flight and its crew, and never to let another crew member go on a flight not knowing the severity of my issues.

I called my wife to hear she was doing better with her pain. My pilot and I determined we could return home to complete the rest of the training. We landed late Sunday evening after an uneventful flight. From that time on, I always make it a point to tell the crew about any issue that could impact safety of flight.

Never think your problems are worth someone's life. Fess up; it's not worth chancing.

1stLt. Richardson flies with VT-4.

Photo courtesy, Beech Aircraft Corp.

My First Solo

2ndLt Drew Hunstock, USAF

I would be lying if I said I wasn't nervous. I was taxiing out to the ground run-up area on my first solo in the mighty T-34 Turbo Mentor. I had an equal mix of nervousness and excitement as I finished all my checks and headed to runway 32 for takeoff. I just had passed my check ride the day before, and I was a little anxious. Everything was normal: My instrument readings were good, the engine was running well, and all my checklists were completed. I got my clearance to take off, powered up, and left NAS Whiting Field behind as I headed to working area 1 to the west.

The cockpit was unusually quiet, as I didn't have an instructor in the backseat telling me what to do. It actually was a little peaceful for a while, just flying the heading west at 190 knots. I cancelled radar contact at the termination point, turned to a southwesterly heading, and proceeded into the working area. However, my normal flight soon turned into a student's nightmare.

As I crossed Interstate 10, I received a flashing master-caution light, which alerted me to a generator-fault light. Just as I looked down at the fault light, wondering what could be wrong, I smelled smoke in the cockpit, and my NACWS (naval aircraft collision-warning system) and GPS (global positioning system) screens turned off.

My first thought was, "What the hell did I do?" I contacted my squadron flight-duty officer (FDO), shared my situation, and he helped me troubleshoot the generator problem. I followed all the instructions with negative results.

As I turned for home, I thought, "Oh this is just great. I broke my plane on my first flight by myself. Way to go, Drew!"

I reduced my power to 300 foot-pounds to descend to course-rules altitude at 3,500 feet. I got the ATIS information and aligned my wings to the proper distance. I still could smell smoke in the cockpit and was about to execute the electrical-fire EP when events turned even worse. At about 100 feet before course-rules altitude, I pushed my power lever forward to increase my airspeed to 190 knots. To my horror, the torque gauge didn't move. I just stared in amazement as it hovered at 300 foot-pounds. The engine started to make strange sounds, and the cockpit began to vibrate. So, I had a generator light, smoke in the cockpit, a

As I turned for home, I thought, "Oh this is just great. I broke my plane on my first flight by myself... Visions of being kicked out of pilot training were invading my thoughts...

vibrating engine that was making odd sounds, and I didn't have enough power to continue level flight. I was in a little trouble.

After I muttered a few expletives, I started to think about how to put this plane down. I again contacted my squadron and told them the situation. I knew I just had passed NOLF Summerdale, an unmanned airfield, and began a right turn. During the turn, I realized I might be too far away to make the runway, so I once more tried to add power and climb to a dead-engine glide altitude. I firewalled my power lever and pleaded with it to move my torquemeter up toward maximum power. Instead, the gauges laughed in my face. Not only did my torque not increase, it actually decreased to 150 foot-pounds. My VSI (vertical-situation indicator) showed a descent, and my airspeed was bleeding off fast. "Is this really happening?" I thought.

I told the FDO I was making an emergency landing at Summerdale. He responded, "Is that the nearest airfield?"

I replied, "I'm putting down at Summerdale, runway 22."

I finally started to execute the engine-failure procedures. I pitched the nose to get 100 knots, saw the aircraft was clean, and quickly checked my instruments. At about 2,000 feet, I feathered the prop, and my descent slowed a little. I was aligned for a straight-in approach to runway 22 and laughed to myself because 22 is my lucky number. "Some luck I'm having," I thought.

I still wasn't sure I would make the runway, so I held off lowering the gear until the last possible second. I made a quick Mayday call on the area common frequency, and I prepared for touchdown. I was going to be just a little short at my current aim point and airspeed, so I sacrificed airspeed for a little distance to try and make the runway. I lowered the gear about 10 seconds before I expected touchdown; I was 10 knots slower than I should have been for a normal landing. I would be OK, considering this landing had been anything but normal.

The aircraft slammed down right before the numbers, and I immediately thought I might have made a hard landing. However, I was pleased to see I had directional control, and everything seemed OK. I applied my brakes to slow down, taxied to the departure end of the runway, set the parking brake, and began the engine-shutdown checklist. I wanted to shut down as soon as possible because the plane still was vibrating, and I didn't want the engine blowing up in my face.

After the engine shutdown, I had an instructor pilot (IP) in the area contact my squadron and tell them I was safe on deck. As I climbed out of the cockpit and removed my helmet, I started to get extremely worried. "What did I do? How did I cause this situation?"

Visions of being kicked out of pilot training were invading my thoughts as I inspected the aircraft. I took some deep breaths and pondered what had happened. Everything had occurred so quickly I really didn't have time to be too scared. From the time I got the generator light to the time I was on the ground couldn't have been more than seven minutes. As I approached the engine cowling, I saw smoke still coming out of it. I opened the compartment and immediately saw the generator was fried. It was black and charred, with ashes all over. Some of it even looked melted.

The mechanics later told me a bearing possibly had come loose and somehow had overheated the generator. It got so hot that it affected my fuel-control unit, which is why I lost power. The mechanic also told me that, in 28 years of dealing with generators, he never had seen anything like that. So, 20 minutes into my first solo flight in the T-34, I had a generator failure that never may have happened before, resulting in an engine-failure situation where I had to make an emergency landing. Fortunately, I made the runway and saved the aircraft. If I had lost power any farther away from the airfield, I would have had to bail out or try to land in a farmer's field.

As I looked at my smoking engine compartment, a farmer in a little John Deere cart drove up to me. I'm sure he saw all that had happened and wanted to see how I was. As he pulled up next to the plane, he asked in a thick Alabama twang, "What are you doing here?"

I didn't really know how to answer that question, so I responded with, "I'm fortunate to be alive! That's what I'm doing here."

2ndLt. Hunstock is a student naval aviator at VT-3.

This article was submitted anonymously to the Commander of Training Air Wing Five. A student used an end-of-training critique to assert that the instructor had made a cell-phone call while airborne. This article presents the instructor's side of the story.

Train Like We Fight

Anonymous

With relentless training and expert execution, our aviators maintain the ability to put bombs on target, place critical supplies in needing hands, and achieve aerial supremacy. Yet, we still have unreasonable numbers of mishaps, and we still offer kudos to units for passing mishap-free milestones. If we only could get rid of the time-consuming and monotonous ORM- and CRM-type programs and just "train like we fight" and "fight like we train," we wouldn't need such corporateness in our mature and professional military. Right? Not a rhetorical question—stop and think about the last CRM or ORM briefing you attended. How many times did you complain or think there was someplace better to be.

How does a seemingly seasoned, professional aviator, with six years of mission-qualified experience and an equal number of aerial decorations, end up in a position authoring such an essay like this one? Perhaps I yawned one too many times during the last round of safety briefs. Maybe I got complacent or simply failed to exercise the same judgment I used when flying operationally. A scenario similar to "get-home-itis" and the confidence of being with a "good student" led me into the writer's chair. Perhaps it's time to focus on "training like we fight."

It seems we are more likely to lose lives and bend metal in training than in theater these days. So, there I was, a new but proficient primary-training instructor on an end-of-block instrument hop. My student was performing to his usual above-average ability as we neared the end of the first leg of an out-and-in flight.

Having stepped to the T-34 later than planned, I began contemplating ways to adjust our stopover and second leg to RTB on time and before the field closed. I decided a shorter stopover would be helpful and thought to give the FBO a call on VHF, to ensure minimal delay getting fuel and service. Having just requested an opposite-direction approach, I knew we were in for a series of long vectors to deconflict us with the arriving and departing traffic. I decided this was the time to give folks on the ground an extra "heads up" before our arrival. I asked the student to closely monitor UHF (approach control), while I made the call. I selected the FBO frequency in the VHF radio

and reported "15 minutes out." I spontaneously then decided to give our transportation, a friend stationed nearby, a phone call to make sure he would meet us upon landing. With speaker selected on my cellphone and with hopes he'd hear me over the aircraft noise, I relayed (yelled) our estimated time of landing. Shortly thereafter, we found ourselves on an extended base leg, received clearance to execute the approach, and circled to the landing runway.

Not until it was brought to my attention weeks later did I give the flight another thought. With a Monday-morning QB attitude, I found myself thinking about and reflecting on the series of events that had materialized. Without intent, I had violated OPNAV Instruction 3710.7T, para 7.1.1.6, which specifically prohibits cellphone operation in naval aircraft, and AFI 11-202V3, which has similar guidance. But, worse than that, I had placed a young, impressionable student aviator in a compromising position. With the student under-the-hood and not up on VHF, he did not fully realize the events that had transpired. I commended him for his integrity, and I am comforted in knowing he will be an asset to the naval-aviation community. I, however, made myself a liability to my squadron. I had failed to demonstrate adherence to regulations and sound, professional aviation judgment. So, where do we go from here?

I remember hearing a veteran pilot say, "There are those who have and those who will," with regard to aviation buffoonery; I'm skeptical over the pessimism. With proper education, whether it be safety briefs, ORM and CRM training, or word of mouth, perhaps we can prevent others from making the same or similar mistakes.

Those of us in training commands are obligated to perform in a manner and on a level our leaders and students hold us to. The student aviators expect and deserve nothing less than honest, skillful, safe instructors who instill and exhibit sound judgment. I agree with the saying, "What doesn't kill you makes you stronger," because, after lengthy reflection, I have identified my mistakes, and I increasingly will be cognizant of my behavior and examples I set for students.

I have given my unit another example not to follow and provided a reason and opportunity to recage.

ORM Corner

ORM IN ACT

LCdr. Troy Sallee

From May 2005 to June 2006, Training Air Wing Five's two advanced helicopter-training squadrons suffered a string of eight flight mishaps: three Class Cs, four Class Bs, and one Class A. The end result of the unfortunate series of mishaps was one fatality, two permanent partial-disability injuries, $80,000 in civilian-property damage, $1.5 million in aircraft damage, and two destroyed helicopters.

As everyone involved tried to cope with the grief and shock that accompanied these events, they all asked the same question, "What's going on here?"

Investigators could not find a "smoking gun." They didn't identify any single, common causal factor for all, or even most, of the mishaps. A variety of maneuvers had been conducted, such as pinnacle approach, air taxi, autorotation, and simulated emergencies. The instructor pilots represented a fairly diverse group, considering their experience level and fleet aircraft type. Everyone was motivated to take action and end the streak of crashes, but there wasn't a clear starting point. So many factors could be modified and/or improved; where should they begin?

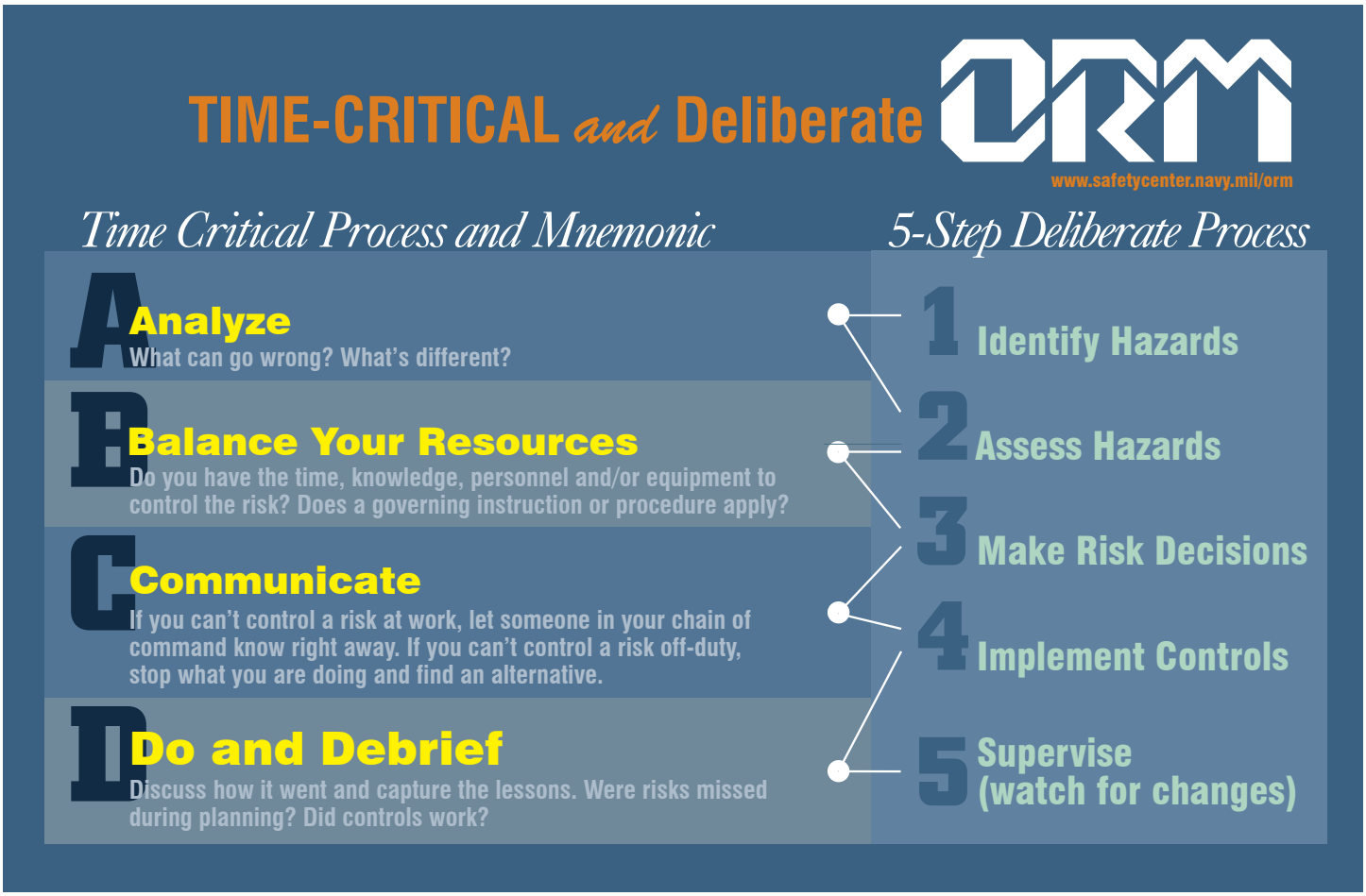
Enter operational risk management. ORM provided a perfect tool to repair this situation. The "big idea" in ORM involves taking a critical look at an event, figuring out all the ways it can go wrong, and then coming up with controls to keep the wrongs from happening. You don't have to know what "definitely will" go wrong, or even what "probably will" go wrong. All you have to know is what "could" go wrong.

The one thing that made the process cumbersome, in this case, was the scope of the problem. ORM is great for evaluating specific events like a cross-country driving trip, a swim call, or even a social event. The hazards involved in those events are relatively few in number and fairly easy to identify. But, the wing had to deal with multiple mishaps during several different types of flights, under many different circumstances. They would have to scrutinize, from start to finish, the whole contact ("familiarization" for those of you

Please send your questions, comments or recommendations to: Cdr. Allen McCoy, Code 16
Naval Safety Center
375 A St., Norfolk, VA 23411-4399
(757) 444-3520, ext. 7266 (DSN-564)
E-mail: allen.mccoy@navy.mil

who are old school) phase of helicopter training.

The HT squadrons were tasked to conduct an in-depth ORM review of the entire contact phase of flight training. The commands quickly responded and assembled a crack team to analyze every facet of the typical contact flight, from ground procedures, to facilities, to published training manuals. They decided their main focus, though, would be to dissect 16 individual "high-risk" contact-phase maneuvers. They strove to identify ways to make the maneuvers safer while still providing effective and relevant training to the student aviators.



To help **Identify Hazards,** the panel tried to single out everything that could possibly go wrong. The rash of mishaps provided several different scenarios of ways things could go bad, which afforded a good starting point. To standardize the hazard-identification process, 18 different points were covered for each high-risk maneuver. Here is the checklist they used:

- ORM study (to include mitigation and control-measure review)
- Standardization between squadrons
- Prerequisite review and update
- Parameter review
- Step-by-step procedure review
- Voice-report review
- Course training standards (CTS) review
- Maneuver item file (MIF) review
- Training guidance review
- Facilities capabilities and requirements review
- Aircraft/systems capabilities and requirements review
- Simulator capabilities and requirements review
- Environmental requirements
- Currency and proficiency requirements
- nstructor pilot (IP) training requirements
- Location and weight in student syllabus
- Applicability to fleet and fleet-replacement training
- Crew resource management (CRM)

The team used the ORM study, the first item on the checklist, to **Assess Hazards** by identifying both an initial and a residual risk-assessment code (RAC). They prepared a detailed report of proposed airfield, syllabus, and procedural modifications. They identified each hazard control as critical, noncritical, or long term. Also, they proposed action deadlines for each recommendation. Then they forwarded a report to the commodore, so he could **Make Risk Decisions**. He had to consider the feasibility of implementing each point by taking into consideration cost, ease of implementation, impact, and time-to-train constraints. Once the proposal was approved, it was time to **Implement Controls**. That process continues for the long-term recommendations, but a majority of the improvements already have been instituted. The final step is to **Supervise**. If any changes are observed, new hazards identified, or control measures are not functioning as anticipated, the entire process should begin anew.

Was the process worth all the work? Unequivocally, yes!

The team's evaluation of the typical contact-student flight resulted in a list of an amazing 156 separate improvements. Remember, these two squadrons have conducted helicopter flight training at Whiting Field for more than 30 years. To this point, however, no one had asked if the way they were conducting business was the safest way. This ORM review revealed that, even though the squadrons had a wealth of experience, knowledge, tradition, and history, they could make changes to increase safety without sacrificing mission effectiveness.

The team's evaluation of the typical contact-student flight resulted in a list of an amazing 156 separate improvements.

The improvements included 42 student-curriculum changes, four instructor-under-training-curriculum changes, 63 flight-training-instruction changes, 14 wing SOP changes, and 41 repairs, improvements, or procedural changes at homefield and helicopter outlying fields.

Other innovations resulted from the process. The wing generated a completely new instruction called the "Flight Instructor Guide." It provides guidance to instructors concerning how much latitude to give students in allowing them to make and learn from their own mistakes. It also provides a recommended sequence-of-maneuvers for each flight to improve standardization and reduce IP workload. Classroom and computer-aided instruction were modified to improve understanding of helicopter aerodynamics, specifically the factors that contributed to the mishaps, and how to prevent them.

But, the best indicator the ORM process works has been the improved safety record. To date, the two helicopter training squadrons have amassed nearly 36,000 flight hours, 19,000 student Xs, and eight months of incident-free flying.

LCdr. Sallee is with CTW-5.

A Message to Aviation Cadets Entering the U.S. Naval Flight Preparatory Schools (April, 1943)

You have been selected for flight training from a large number of applicants. The U. S. Navy welcomes you as an Aviation Cadet and future officer. You now have the most important job of your life to do. Absolutely nothing must stop you from achieving success—in this, your greatest venture. To attain your objective you will have to exercise to the fullest those qualities with which you have been endowed.

The transition from civilian life to military routine may not be easy at first and will require considerable adjustment on your part. You must "grow up" quickly and discard schoolboy ideas. You must learn to do things the Navy way, but, as you progress through the various stages of instruction, things will come easier to you. It is the purpose of this pamphlet to answer some of the questions which undoubtedly are in your mind and to give you a few hints which will aid your adjustment.

The modern airplane is an ingenious piece of machinery, extremely delicate and complicated, and to fly one well requires the greatest skill. The U. S. Navy is not interested in developing a corps of "aerial truck drivers"; instead, it needs trained men thoroughly proficient in the fine art of flying and fighting as a team. You must think straight and act quickly in order to handle successfully the powerful planes which you will fly. You must have the courage and ability to beat your opponents, even when the odds are against you.

During your course of instruction at the Flight Preparatory School and in your later training, the Navy will spend many thousands of dollars to equip you for active combat service and the serious business of prolonging your own life. It is up to you to concentrate, study, persevere, and give absolutely everything you have. You are now playing for keeps. If you learn thoroughly the subjects that will be taught to you here and in the schools to follow, you will be, when you receive your wings, one of the best trained aviators in the world.

You may as well know now that if your ground work here is careless and halfhearted, you soon will return through the same gate you entered. We are at war, and the Navy does not have the time or money to waste if you are not deadly serious! A commission and the coveted wings of a Naval Aviator await you if you strive hard for this goal with all you have — and don't give up.

During your training on the ground and in the air, there are apt to be times when something is said or done that is over your head. Do not be afraid to ask questions. The officers and civilian instructors teaching you are just as anxious to impart their knowledge with thoroughness as you are to acquire it, and they welcome intelligent questions. It is our duty to instruct you with all the knowledge that we have — it is your duty to absorb it.

You must be conscious of your position at all times, remembering that Aviation Cadets are future officers. You must be correct in behavior and appearance and must create a good impression of the Naval service with all whom you contact. Do not smoke on the streets nor do anything which may reflect upon your training. The honor system is in force here and it is up to you to live up to the trust placed in you. Violations may result in dismissal.

A man may possess good eyesight, sensitive hands, and perfect coordination, but the end product is only fashioned by steady coaching, much patience and experience."

Air Vice Marshal J.E. "Johnnie" Johnson, RAF (1915-2001)