THE NAVY & MARINE CORPS AVIATION SAFETY MAGAZINE

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Approach

The Navy & Marine Corps Aviation Safety Magazine

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Mishaps waste our time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This magazine's goal is to help make sure that personnel can devote their time and energy to the mission, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous enough; the time to learn to do a job right is before combat starts.

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Ens. Marcus Trombetta, VFA-27
Lt. Matt Jones, VR-62
Lt. Bogomir Glavan, VR-61
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Complacency

Vultching

The vulture soars high above the valley, just cruising, biding his time, waiting for that moment when an opportunity appears. The opportunity, in the case of naval aviation, is an aviator who has gotten way too comfy. Then, without warning, and when the target least expects it, the vulture swoops in and chows down.

This scenario may be a stretch to use as a comparison, but, isn't that essentially how complacency works in aviation? You don't plan to be the prey, you don't want to be, and you may not recognize the perilous situation—until complacency swoops in and captures you. All it takes is a lapse of concentration or a moment when you let down your guard. Can you avoid being the unsuspecting victim?

As we review the many articles submitted to *Approach*, we easily can identify a topic for each story, such as hypoxia, gear malfunctions, and improper checklist procedures. But, often, directly mentioned or implied, the contributing factor of complacency is a part of the story. Rarely is complacency given "star" status; however, in many cases, it is a causal factor. Our Safety Center data indicates since FY03, 39 of 136 Navy/Marine Corps Class A flight mishaps involved complacency.

In this issue, we present stories where complacency swooped in. We lead with our aeromedical folks discussing several factors that make up complacency. The CNAL safety officer then shares his thoughts on the topic. As you read this issue, we hope to raise your complacency-awareness level and help you fight off the "vulture."

If you had to ask, vultching is when pilots hover around the duty officer's desk, hoping to scavenge any flight time that suddenly opens up. Likewise, the complacency vulture can appear when you want it the least.—*Capt. Ed "Clyde" Langford, head, aviation safety programs.*

Best Practices

The Gunfighters of HMLA-369 have a comprehensive plan to fight complacency at all levels in the squadron. Their plan contains specific action items broken down by departments, and is available online at:
http://www.safetycenter.navy.mil/bestpractices/aviation/complacency_avoidance.htm

Change 3 to OPNAVINST 3750.6R

Commander, Naval Safety Center (N09F) has approved change 3 to OPNAVINST 3750.6R, effective immediately. This change is available on the Naval Safety Center website at http://www.safetycenter.navy.mil/instructions/aviation/opnav3750/3750_6Rchg3.pdf and the DON issuance website at http://doni.daps.dla.mil/default.aspx.
The significant changes include:

- Increased emphasis on the importance of hazard reporting and WESS usage.
- Hazrep message format is aligned with WESS format.
- Addition of specific submission criteria hazreps for friendly fire and human factors.

Bravo Zulu Video

The BZ article on p. 7 of this issue highlights the efforts of a VT-9 crew. We also have the pilot's video debrief and HUD replay available online. The link is included in the article.

If you have video of an event, next time you submit an article, send it to us and we'll add it to our website.

What Danger?

Our brains weren't made to go much faster than a run, and we don't want to handle all the sensory information that comes from flight, plus all the other decisions.

By Lt. Grey Pickerill, MSC

Complacency often is defined as a state of perceived well-being or satisfaction without being aware of actual dangers or deficiencies. To preserve brain energy, we have shortcuts or mechanisms that take some of the brain-work out of a problem. While those mechanisms work fine for "simple" acts like hunting with spears, they do us a disservice if we don't realize the limits they impose on our work.

Fortunately, we also have areas of the brain that are made to raise our attention level for a particular task and allow us to focus on it. By being mindful of potential dangers, our brains will create new nerve connections to help ease the workload. Learning to balance the many factors that go into complacency not only is good for safety; it also is good exercise for the brain.

How many times have we been preached to about the dangers of complacency? Why do we need to be told constantly that letting down our guard for just a moment can be so deadly? The problem is that complacency is driven biologically, which means we constantly must juggle the mechanisms of being human while we perform our jobs.

We are made to be complacent and must fight that nature.

You might remember the term "homeostasis" from high school biology. It might seem like an abstract concept best left in the days of jocks and wedgies, but homeostasis (the tendency to maintain, or the maintenance of, normal internal stability in an organism) happens to be one the most important biological and emotional forces in our lives. Our bodies are programmed to create an internal and external environment that is "just right" and that reduces the energy we expend. If a situation in life becomes "too hard," we are programmed to walk away and let it be.

Parts of our nervous system constantly measure the changes, such as pH or sugar consumption, created by our working muscle and nerve cells. They send these signals to other parts of the brain, which evaluate if what we are doing is even worth the effort. We must introduce the chemistry of emotions and feelings to get over the physical want to quit.

Complacency is built from various aspects of our mind that actually are very helpful in different situations. It comes from our ability to move bits of information from short-term memory and working memory into long-term memory and declarative memory. If we don't need to consciously think about how to do something, our brains save energy and allow us to pay attention to other events. The hunter's skill of throwing a spear is greatly increased if he no longer has to think about the throwing motion and can concentrate on tracking the game.

This process can be affected by the external environment or situations in our life. Sadness and anger, while socially maladaptive, can let us know when to step back and evaluate what's going on around us. Do you find it easy to work when distracted by freezing temperatures or potential financial disaster? Either situation creates a complicated chemical milieu in our brains that drives us to work "just good enough."

Many of the brain sites that produce memories also create emotions and are involved in feelings. If you are distracted from the terrible morning traffic or overstressed by a fiery instructor, the brain's still busy, and you will not learn as well. Yes, an acceptable level of stress actually improves memory. We often attribute this to "warming up the circuits," but too much stress will hurt performance. The opposite is also true. If you do not feel something is important to know, your brain rebels and will not waste time and energy on it.

Think back to early flight training. We are first taught cockpit procedures in a static platform. Hundreds of simulation hours give us time to feel the switches and to get to know where everything is. At first, we are instructed, but then we are left on our own to drive the physical feel of the aircraft into our brains. We use parts of our brain to create a procedure and to remember that information long enough to get through a checklist. If we do the procedure enough times, we create memories that later do not require much conscious recall. You don't need to actually think where the throttle or stick is or what switches are on them—you almost can feel them in your mind.

Another situation that hinders attention is our tendency toward habituation or associative learning. If that fiery instructor is always fiery, you stop listening to him, regardless of how important what he's saying might be. Recurring OBOGS warnings get tuned out because there is seldom an adverse action. Nothing bad happened the 50 times before when you did the same thing to get rid of the stupid light and noise, but hypoxia has led to several deadly or near-fatal instances.

You might not even realize what action you just performed. It's up to you to finish the loop. You must imagine all the bad things that could happen. Your brain then can go through the entire situation, from imagining without actually experiencing the event, to assigning a bad feeling to OBOGS warnings. Wham! We now have proper associative learning without actually getting hypoxic and crashing.

Lt. Pickerill is an aeromedical analyst with the Naval Safety Center.

Complacency or a false sense of security should not be allowed to develop as a result of long periods without an accident or serious incident. An organization with a good safety record is not necessarily a safe organization.

— International Civil Aviation Organization, 'Accident Prevention Manual, 1984.

Our Biggest Threat

By Capt. Will Moore

How does complacency fit in with naval aviation? Not very well, but it's with us on every sortie or maintenance evolution, whether you want to acknowledge it or not.

Although complacency is not as clearly understood as, say, hypoxia or GLOC, it is a causal factor, which, singularly or in concert with deviation and overconfidence, can lead to a mishap. I used the safety triangle as my cornerstone in my "Command Safety Philosophy" policy during my CO tour in the training command.

Complacency is:

1. Satisfaction or contentment: gratification.
2. Smug self-satisfaction.

Here are two examples that highlight how complacency is associated with naval aviation. In the first scenario, a close friend of mine was on a T-34C flight with the "superstar SNA," and everyone was fat, dumb and happy. They were doing a high-altitude, power-loss maneuver. The SNA was high at high key and initiated a slip (wing down top rudder) to dissipate excess altitude. As they approached the 90-degree position, the SNA noted he still was high, so he kept in the slip. Suddenly, a bird filled the SNA's windscreen. What did the superstar SNA do next? He pulled back on the stick. What happens to your stall speed when out of balanced flight? It increases.

His aircraft departed controlled flight at 800 feet over the mud flats. As the IP was hanging upside down—getting the "Update Your Page Two" caution light—he knew out-of-control-flight procedures do not work below 5,000 feet, but he did recall the need to add maximum power. He firewalled the engine. At 200 feet, he rolled the aircraft upright and regained

control. He returned to base with more gray hairs, a seat-cushion extraction, and some serious lessons learned about the dangers of being complacent. This IP let down his guard by not having his hands in a proper defensive posture (hand behind the stick as an IP stop) during a critical phase of flight. This lapse of behavior almost cost him and the SNA their lives. Hope is not a strategy for success in naval aviation.

My second scenario involved an H-46 helicopter-aircraft commander (HAC), during a day of vertreps. The HAC noted the auxiliary-power unit (APU) was on well into the flight. He decided to turn it off without telling any other crew member; however, everyone heard the engine winding down.

You can see where this scenario was headed. When the HAC turned off the APU, the crew chief thought the aircraft had lost an engine and pickled the load. Fortunately, it was not a pack of AIM-7s. The HAC had 550 flight hours during a six-month deployment and was very in tune with his flying abilities. But complacency set in, and he disregarded the simple fact that using CRM is important (team = HAC, CP, crew chief, and second crewman), even when deciding to complete a simple task like turning off the APU.

Complacency does not differentiate between an ensign, lieutenant commander, or commander; anyone can fall prey to it. The keys to combating complacency are:

1. Strict adherence to NATOPS, FTIs, NWPs, and TTPs.

2. Being alert and vigilant in the execution of pilot and crew duties; disciplined flying.

3. Increased situational awareness through detailed route study, awareness of environmental changes, and knowing where the hazards are (from enemy batteries to "friendly" hazards, such as power lines and mountains).

4. Sound use of ORM and CRM. Use the total crew concept, whether in a multi-piloted aircraft or in a fighter section or division.

5. Be alert for factors that can degrade good habit patterns and enhance complacent-like habit patterns, such as fatigue, dehydration and injuries. Every flight is unique. Avoid being lulled into the "routine flight" mentality.

A recent HMH-361 Class "B" AGM summary described a mishap where a CH-53E crew chief was dragged under the right mainmount during ground taxi. The commander said, "The bottom line is that aviation is an unforgiving business, and a moment of inattention can lead to disastrous results. Complacency probably is the biggest threat we face, even in combat, so we continually must be aware of its presence and strive to effectively combat it."

Capt. Will Moore is the CNAL force safety officer.

Bravo Zulu

Ltjg. Joel Gow and Ltjg. Rich Prescott of Strike Training Squadron Nine were on an early fam stage, training-syllabus flight. Their T-45C Goshawk ingested a large bird shortly after takeoff from runway 1R at NAS Meridian, Miss.

Passing through 1,000 feet AGL and 210 knots, with student Ltjg. Prescott at the controls in the front seat, a turkey buzzard glanced off the left forward side of the front windscreen and went directly into the left intake. They heard a loud bang, immediately followed by a significant decrease in thrust. At the same time, the EGT spiked to indicate an overtemp condition, and the EGT-rpm warning light illuminated.

Ltjg. Gow, a SERGRAD flight instructor who only had been winged six months earlier, took the controls. He started a gentle left-hand turn back to the airfield and declared an emergency with departure control. Multiple caution lights were on, and the EGT remained pegged. Noticing a continual loss of thrust as they approached the field, Ltjg. Gow contacted tower and made a split-second decision to land on runway 19L and to hold off configuring the aircraft for landing until the last possible moment.

As he wrapped up his turn to land on the same runway (in reverse) he just had departed, Ltjg. Gow had Ltjg. Prescott drop the gear, while he extended the flaps and concentrated on landing. With a quick review of the landing checklist, the new instructor pilot touched down. While fast, and with about 4,000 feet of runway remaining, he used max braking and dropped the arresting hook to take the long-field gear. Still in the gear, Ltjg. Gow directed his student to execute an emergency shutdown. They safed their ejection seats, unstrapped, secured the batteries, and quickly climbed out.

Postflight inspection showed the first stage of the compressor had shed at least one entire blade, and the engine rapidly was destroying itself. They probably were only seconds away from catastrophic failure when they shut down. From bird ingestion to arrestment was less than four minutes.

Ltjg. Gow had less than 313.9 total flight hours, only 65 of which were as a winged aviator. His quick and decisive action following the bird strike, and solid crew coordination, saved the aircraft.

View the HUD replay on our website.

A video of Ltjg. Gow giving a debrief of this incident, along with the HUD replay, is available on our website at: www.safetycenter.navy.mil/media/gallery/videos/aviation/default.htm.

VT-9

From left Ltjg. Prescott and, Ltjg Gow.

TRARON NINE

Don't Drop It

By Lt. Mike Montoya

I was a new H2P, assigned to HSC-23's first seagoing detachment aboard USNS *Bridge* (T-AOE 10). Our seven-month vertrep (vertical replenishment) and logistics cruise supported the carrier battle group. After a little more than a month at sea, I started to feel more and more comfortable with the vertrep mission.

Our morning flight was simple: bird vertrep taking supplies to and from the carrier while in the conrep (connected replenishment) position. These flights are our bread-and-butter missions on a vertrep detachment, and despite the 0400 brief time, everyone felt at ease with the day's plan. The crew included the detachment's newest helicopter aircraft commander (HAC), myself, an experienced crew chief, and a junior second crewman.

After a standard brief covering procedures and emergency procedures (EPs), we launched an hour before sunrise to give the deck crew time to finish staging the loads on our flight deck. The winds were ideal for vertrep, with a broken cloud layer at 1,200 feet, which kept the day from getting too hot.

After a month of operations, our det was at the point of smoothly working together during the CRM-intensive vertrep process. Flying with external loads is demanding. Crewmen were adjusting calls to individual pilots, and the junior pilots, like myself, began to contribute to the conduct of the flight beyond just moving the controls.

Our crew quickly found its rhythm and moved the required loads from our ship's flight deck to the carrier. The first stage of the vertrep had gone smoothly. Of course, an incredibly fine line exists between rhythm and complacency, as we soon found out.

The final stage of any vertrep mission is to bring back the "retro," which is all the equipment used to carry the loads beneath the helicopter. Also, a vertrep to the carrier always involves bringing back loads for further transfer ashore, such as hazmat, engines on their way to AIMD, and outgoing mail. Often the retro is the most aggravating portion of a vertrep, because usually we have little or no information on what we will be taking, or how it is to be staged. A few times on the cruise, the carrier's deck crew had tried to send over a load more suited for an H-53 than our -60 Sierra.

One of the first things we noticed when starting the retro was a very large wooden crate on the flight deck. The crate measured about four feet by four feet by 20 feet. Planning for the worst, the HAC called the carrier Air Boss and told him we'd be taking that crate just before we fueled, so we'd have a better chance of lifting it. After receiving his consent, we burned down our fuel load taking the other staged loads to our ship.

We soon were comfortable with trying to lift that giant box. The hookup was made without a problem, and as we pulled up into a hover, our sense of routine reached up and bit us right through the seat cushions. Holding a cautious hover, the HAC could feel through the controls the crate wasn't as heavy as we had feared. I confirmed it, calling off a torque reading that barely was above that required to hover the helicopter without any loads. We had been so fixated on the problems a heavy load could have that we didn't consider the new dangers of an oversized but light load.

This is where the holes in my crew's Swiss cheese began to line up. Having been so fixated on the load, we not only didn't stop to consider the implications of a light load, we also failed to monitor our ship's flight deck. While we conducted the power check, the fork trucks hadn't been as efficient at clearing the deck as they had been earlier. As a result, when I took the controls and transitioned forward, we couldn't tell if we had enough room to actually drop this monster of a box on the deck. The crew chief confirmed my suspicions with a quick, "Nope, there's no space."

Still thinking the load was heavy, I called for a waveoff. I wanted to spin in the pattern to give the deck crew time to make room on the flight deck. The MH-60S NATOPS provides a warning about the tendency of light or irregularly shaped loads to "fly" uncontrollably when unstable; the box attached to our helicopter was irregularly shaped and light. As soon as we increased airspeed to waveoff, the load started to swing.

Having a swinging external load on a helicopter is unsettling. A heavy load will pull the helo back and


Photo by MC3 Jonathan Snyder

forth as it swings, which never is a pleasant feeling. Although this crate wasn't heavy, I could feel, through the controls, when it reached the end of the side-to-side arcs; the weight of it coming off and on the helo. The crew chief immediately gave advisory calls, and I could tell through the tone of his voice and repetition this was an unusual situation.

Although NATOPS doesn't have a specific EP for swinging external loads, the drill hammered into new vertrep pilots is to slow down and apply power to put positive Gs on the external cargo. Combined with flying into the wind, this technique normally works well. Apparently this crate was holding some aviation-related equipment, because it certainly wanted to fly. The swing became more intense as the seconds ticked by.

When I first saw the crate out my side window, on the top of its arc, we were in an 800-to-1,000-fpm climb, at an indicated four knots of airspeed. After the flight, I sat in the helicopter and drew out exactly where I had seen the edge of the load and figured there probably only had been seven or eight feet of clearance to the edge of the rotor disk. However, at the time, I was so task-fixated on getting the load under control, I didn't consider the implications of actually seeing the crate that should have been directly underneath my helo. On the other side of the cockpit, the HAC never saw the load; she was watching the altitude and the rapidly approaching cloud layer.

Only after flying directly into the wind at a steady 10 knots did the load calm down and resume a good position. I later found out the deck crews on both ships had been watching us with one hand on the crash alarm, waiting to see what would happen. We took quite a while to come down from the 1,000-foot altitude we had climbed to. This was enough time for us to catch our breaths and request a change of underwear from tower. After dropping the load on the flight deck, we finished the vertrep and landed for what was to be an interesting debrief.

We had allowed ourselves to be put into a dangerous situation on this flight. Besides not maintaining awareness of the status of our flight deck and not correctly diagnosing the load as unusually light, I had failed to call for a pickle when I could see the crate coming dangerously close to the rotor arc. I had assumed whatever was in that crate was important, and I didn't want to just drop it into the sea. It wasn't anything important at all: The crate was empty.

During the debrief, I mentioned how stupid I had been to delay pickling an empty crate when it was so close to our rotor arc. Another pilot in the det simply asked me what kind of load would have been worth keeping. I had no answer for him. What it comes down to is that a vertrep is a crew-intensive process, and failing to maintain awareness of what is going on in the helicopter, as well as the ships involved in the process, can lead to disaster. Falling into a routine and being overly comfortable with the mission had put our crew in a situation where $50 worth of wood was directly endangering four lives and a $15-million aircraft.

Lt. Montoya flies with HSC-23.

Exit Stage Left

My team watched as the Hornet's hook missed the wires by inches, touched the

By Lt. Deron Krietemeyer

If you've ever been around carrier aviation, then you've probably had the "privilege" of interacting with an LSO. Sure, most times we are the givers of grades and the nit-pickers of what most pilots thought was a "rails" pass, but one particular January night, we were the angels of safety. That's right, behind the cool shades and ne'er wrong attitude, our first and foremost job is the safe and expeditious recovery of aircraft. Let me paint the picture for what would be a nonstandard wave day that nearly ended in tragedy.

While supporting Operation Enduring Freedom (OEF) shortly after New Year's, the strike group received instructions to proceed to the coast of Somalia at the best possible speed. All flight operations were secured as we turned south and headed to Africa. The 1,800-mile transit gave maintainers and aircrew a chance to catch up and take a breather from the high-

deck about 10 yards beyond the 4-wire, afterburners charring the landing area.

tempo ops we'd had since joining the AOR. Planners made last-minute scrambles to determine what parts and logistical support we needed before we transited out of COD range. Early the next morning, the sole recovery of the day would be a COD. Flight operations weren't scheduled to resume until we were within range of our objective, and even then, we'd rely solely on organic tanking. "Alone and unafraid" took on all new meaning.

After a day-and-a-half of no flight ops, we were ready to fly again in the late afternoon to early evening. The first launch went as scheduled. Then we entered nonstandard operations.

While we waited for the second launch and first recovery, we realized we still were too far away from the target area. With that in mind, the second launch was cancelled and a five-plane, Case I recovery began. With two CAS (close-air support) players and a Hawkeye airborne, the

Of course, safety does not care about fuel load, diverts, whether your dog is dying, or other factors. Safety only cares about you obeying its simple rules 100 percent of the time.

next and final recovery would start at a time other than that published in the air plan. My wave-team lead told the rest of us to check for the ramp time and to be there with time to spare to recover the aircraft.

After checking for the ramp time at five-to-10-minute intervals with no joy, a 1904 time finally popped up. The time was 1855. Because I was the controlling LSO for this recovery, and to make sure I was prepped, I headed for the platform.

I want to talk about the composition of my wave team. We are a five-man team, with three junior LSOs who only had started waving three months earlier when cruise started. None of us yet had been to LSO school. Our team lead was a senior Hornet LSO, and the assistant team lead was a Prowler type. Of course, our veteran CAG paddles always was in the trenches with us. Our assistant team lead had been off the ship for much of our time at sea, supporting land-based missions.

As I approached the platform, I noted the night couldn't possibly get any darker, even though a moon illumination of 91 percent was forecast. The team lead asked if I would mind if he took controlling LSO for this recovery. Because he was the only experienced show in town for most of our wave days, his duties thus far were relegated to backup LSO. He certainly deserved a break, and I was not about to stand in his way. I now was jobless. Not wanting to be the "Well, actually" guy on the platform, I told my fellow LSO, who was assigned the duty of calling the deck, I would take it for this recovery, even though it was his turn. Oh, how fate looks down on us.

Let me digress and talk about the LSO calling the deck. Normally, this job is the most unsought one on the platform, closely winning that title from writer duty. After all, you are an LSO; you want to watch planes land and compare your keen eye with those of your peers, not have your back to them watching an empty LA. At least so I thought, until this fateful night.

This individual normally has two things come out of their mouth: "100 feet or "10 feet." Those numbers, for the unknowing, refer to a wave-off window of 100 feet with a foul deck, or 10 feet with a clear deck. Once you have informed the controlling LSO the window has moved from 100 to 10, it is your time to exit stage left and get out of the way. At this point, the left foul line of the LA is all yours. No one has a better of this critical area perspective than you.

Back to the scenario. We launched a second recovery tanker to join the first that had been airborne for some time. As any air wing that plans ahead knows, you have a tanker standing by to launch on a moment's notice. Our tanker was parked aft of cat 4 on the finger, facing inboard, while the line crew milled about, waiting to shut down and head below. It's not uncommon to have at least a few maintainers outside the port foul line for a recovery.

The 1904 recovery time came and went. After 10 minutes of waiting, Mr. Hands showed a Hawkeye at 10 miles. Great, that would be another 10 minutes of waiting. We still had no word on the Hornet's whereabouts. The Hawkeye recovery was uneventful. The two CAS Hornets popped up on the screen at 10 miles out. Having been in support of OEF and OIF for much of cruise, it is in the back of everyone's mind these players are coming back near ladder, maybe even worse. Yes, even LSOs think about this. It is especially a concern when you don't have an airborne Exxon in the form of a KC-10 nearby. You want to get these aviators aboard the first time.

Of course, safety does not care about fuel load, diverts, whether your dog is dying, or other factors. Safety only cares about you obeying its simple rules 100 percent of the time.

I called the deck to a 10-foot wave-off window as the first Hornet was at three to four miles. The controlling LSO acknowledged, and soon the deck was green. I walked forward to get out of the way, about 10 feet from the controller, and stood at my normal position; our backs faced each other. Our perpetrator emerged from the hatch at frame 230 and proceeded up the steps directly to my left.

The flight deck was eerily quiet that night. The only noises to be heard were our tanker Rhino and 28 knots of wind, but even they seemed to be hushed. Our Hawkeye already had secured engines. As I watched this young man walk onto the flight deck, the first thing that crossed my mind was, "I wonder if he knows we still are recovering aircraft?"

I have no idea why I thought that, but my answer soon was revealed. As with many young maintainers, it's easy to get too comfortable with flight-deck operations. He walked forward, paralleling the port foul line, perhaps five feet to the outboard side. I thought he could be part of the line crew with our tanker. The hairs on the back of my neck stood up. The warm fuzzy disappeared as he approached the 3-wire and took a sharp right turn, similar to a gazelle running from the pursuing lion. His pace picked up from slow to moderate, and my heart rate went from normal to mil power.

Allow me to slow down time, because, believe me, time slowed just like you see in the movies. As he made his right turn and headed for the foul line, I recall yelling at the top of my lungs at him to get his attention. What was I thinking? He was almost 200 feet from me, with an idling jet, 28 knots of wind, and he had double hearing protection. Bad situation for him, but fortunately, less than a second of time had elapsed. In super-slow motion, I turned toward the controlling LSO, running to minimize the time it takes to cover that whole 10 feet. I am not considered a quick, nimble person.

The next moments were a blur. How I managed to make it known we had an emergency on our hands, I'm still not sure. The first thing I screamed was, "10 feet," because that was also the last thing I had said to the controlling LSO. Yes, I know, it makes no sense, but when you are in a situation you weren't prepared for, you say things you weren't prepared to say.

As I turned in my super-slow-motion world, I could see the Hornet was at the in-close position, well inside the 100-foot, wave-off window. Knowing that setting the deck back to a 100-foot, wave-off window was not an option, I screamed several times, "Wave him off… wave him off."

I grabbed the controlling LSO's shoulder to make it known exactly who I was talking to, and this situation was urgent. The young man, now nearing the left ladder line of the landing area, is fortunate the controlling LSO, while rusty, reacted quickly to pickle our Hornet and get out three urgent wave-off calls. He also is fortunate the pilot was very senior and proficient, and upon hearing the urgent inflection of the LSO's voice, applied full power and immediately went to burner.

We had a young man walking on the left ladder line between the 3- and 4-wire, oblivious to what was happening around him. Meanwhile, a Hornet pilot was getting waved off far later than expected. My team watched as the Hornet's hook missed the wires by inches, touched the deck about 10 yards beyond the 4-wire, afterburners charring the landing area. Everyone hoped the young man would walk away unscathed, and he did.

He was not hurt, except for missing a large section of his behind; no assets were damaged from the near-inflight engagement. He later returned as a member of the COD detachment. When I questioned him about that eventful incident, he said he had "no idea" flight ops were going on. Not only did his actions on deck confirm this, but he also had not donned his PPE goggles required for flight-deck ops. He did not even have a flight-deck qual. Watching the replay of the plat cam still makes my heart race.

Never assume every person on the flight deck is aware flight ops are being conducted. While it may seem intuitive to most of us, it only takes one person to cause a tragedy. When your primary responsibility is safety, know exactly what you are going to say, how you are going to say it, and to whom you are going to say it should a violation occur. Had I tripped over my words one more time, the outcome of this event could have been horribly different.

Don't ever view a duty, such as the LSO calling the deck, as unimportant. Sure, you don't have the pickle in hand, but you have a point of view no one else has and that, as I saw it, can come in handy.

Finally, when nonstandard events develop or complacency with routine events sets in, that is the time to go the extra mile to make sure your safety programs have no holes in them. We cannot afford one fatality or ruined jet because we were on top of it 99 percent of the time. The safety training I have received from my team leads, CAG paddles, and fellow LSOs certainly paid off that dark night.

Lt. Krietemeyer flies with VAW-125.

Flying High

By Lt. Kevin Boutwell

The flight started out like every other flight at Bagram. We were two months into deployment in support of OEF, and our crew had settled into a good routine. Our early morning brief discussed using NVDs, because the first part of the flight still would be dark. As a junior pilot, I was NVD-qualified but didn't have a lot of experience with them, especially during taxi and take off. However, I still felt safer using them, given the high mountains, and the fact many aircraft in theater fly with their navigation and collision lights off.

I remember the taxi, takeoff and climb went normally, although I didn't notice whether the cockpit pressurized as we went weight-off-wheels. As we climbed through 10,000 feet MSL, we completed the climb checklist. One step on the checklist is to check cabin-pressure altitude. The cabin-pressure gauge in the EA-6B is located low between the pilot's knees in front of the stick.

On NVD lighting, there is no backlighting for the gauge, nor do the flood lights reach. The only way to see the gauge is with a personnel light, or the map light attached to the canopy bow above the pilot's right shoulder, which is what I used to check it. The difference on the gauge between 10,000 and 8,000 feet MSL, which is the altitude we should have seen, is very small. After glancing at the gauge, I called the cabin pressure "good."

During the climb, I remembered it being more quiet than usual, and I even thought my ICS might be out. I gave an "ICS check" call, and everyone responded, adding they also thought it was quiet. We continued to climb. Once we leveled off at 25,500 feet, the sky glow over the mountains was very bright and uncomfortable on my eyes. After a few seconds, I decided to take off my goggles. I dropped my mask, and it took me about a minute to stow them.

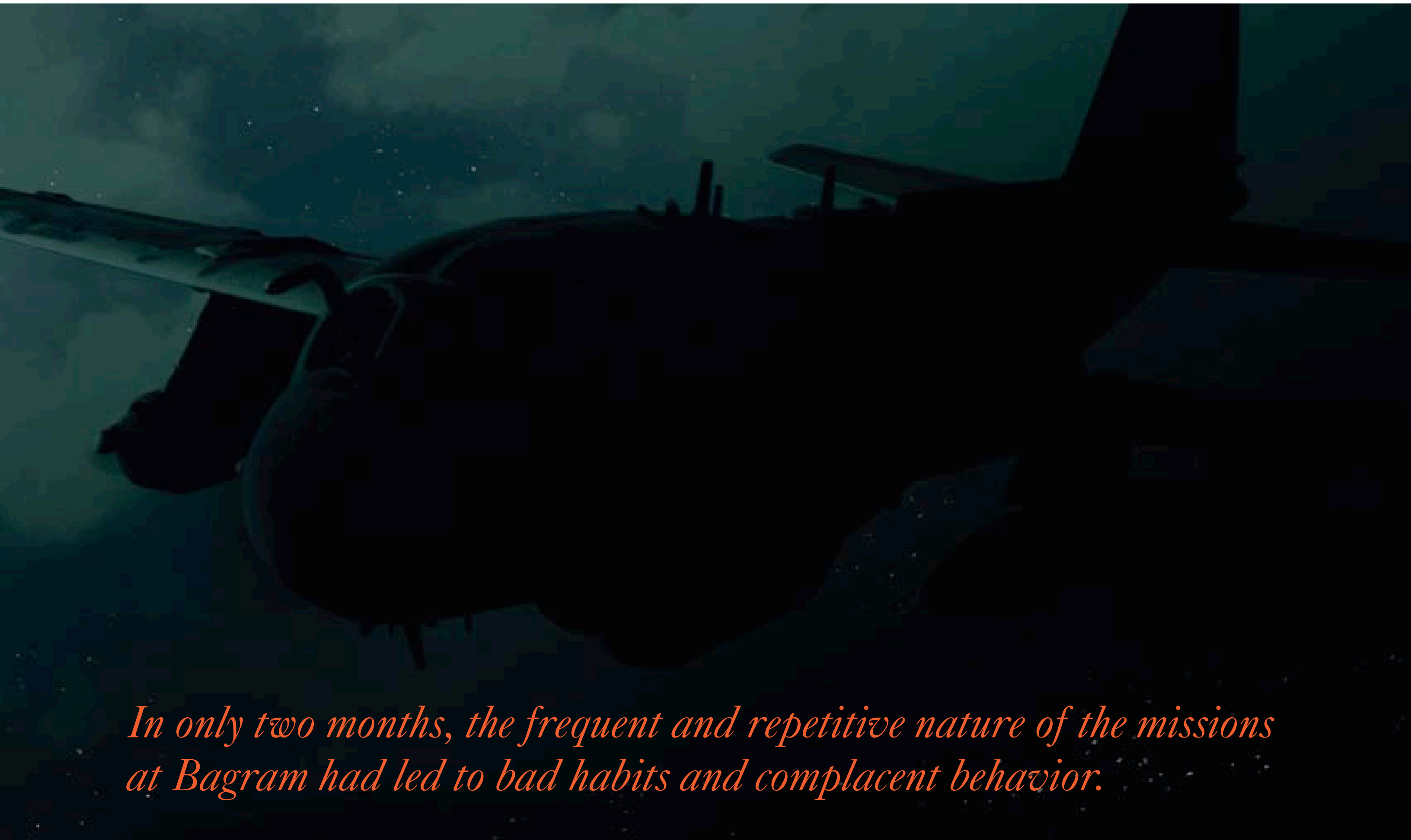
Meanwhile, we continued to head south toward our assigned location. I looked outside and felt a slight numbness in my hands and arms. For a split second, I even thought I might be coming down with a fever because I also felt lightheaded.

I said to myself, "Oh no."

I immediately put on my mask and told the rest of the crew to do the same. I looked down at the cabin-pressure gauge, and it read 25,500 feet MSL, as I unfortunately expected. The reason for the unusual lack of noise was because the cabin-dump switch was on, keeping the cabin from building up to the correct pressure. Simply turning off the cabin-dump switch corrected the situation and allowed us to continue with the mission.

The numbness I had felt was the same numbness I had had during the hypoxia-training portion of my last two flight physiology checks. If it wasn't for the training I had received, I might not have realized what was happening to me, and the outcome may not have been so forgiving. The numbness was very slight, and unlike API, you don't know it's coming. I could see how civilians who haven't had the training, and even military aviators who have, could miss the symptoms of hypoxia while they still are coherent enough to save themselves.

In only two months, the frequent and repetitive nature of the missions at Bagram had led to bad habits and complacent behavior. I look back and see a number of steps our crew should have made to prevent this situation from occurring. I never should have



called the climb checks good without reading the exact pressure, no matter how difficult or inconvenient it was to put a significant amount of light on the gauge during climb-out.

After level-off, I never should have taken off my mask without another check of the cabin pressure.

We more thoroughly should have covered the topic of complacency during the brief. Although the cabin-dump switch is normally set to off, it is an important step on our prestart checklist that should not have been overlooked. Last, the fact we all noticed the unusual lack of noise should have caused us to investigate a little, or at least give our instruments a closer look.

One thing I have learned during my few years in the Navy is there are many things out of my control that can kill me, and the last thing I want to do is increase those odds with something I can prevent.

Lt. Boutwell flies with VAQ-133.

What is the cause of most aviation accidents:
Usually it is because someone does too much too soon, followed very quickly by too little too late.

— Steve Wilson, NTSB investigator, Oshkosh, WI , August, 1996.

The principles are the same in aviation and space safety. You always have to fight complacency—you need formal programs to ensure that safety is always kept in mind.

— Jerome Lederer, interview with the New York Times, 1967

Photo by PRAN Brian Christiansen of HSC-3.


HOW
LOW
CAN
YOU
GO?
12
ROTOR SAFETY AWARENESS

No Place Like Homeguard

By Lt. Kathryn Baehr

The "detachment" philosophy has been an integral part of SH-60B Seahawk operations for more than 20 years. The detachment goes to sea to fight the war, while the rest of the squadron stays behind at homeguard to train and prepare for future detachments. Every flight at home is a training flight, flown in a familiar local area. Our homeguard maintenance department has more people and resources, within and outside the squadron. Operations at home are safer and less risky than at-sea-detachment operations. At least, that's the way it's supposed to be.

I got a chance to find out during the third month of my first deployment. I was told I'd be returning early to homeguard to begin the helicopter-aircraft-commander (HAC) syllabus. I hoped to quickly make HAC and "det up" again. Just before I left the ship to return to sunny San Diego, our squadron had a flight mishap back home. We were glad to learn everyone was safe but felt uneasy about what had happened. The mishap occurred during a day, VMC training mission at an outlying field close to homeguard. Most of us don't expect this type of scenario to have the conditions for a mishap. We think more along the lines of a dark, stormy night during an approach to the back of the ship. Never having been part of a squadron where a mishap had occurred, I was concerned about what the mood would be like on my return.

The mishap investigation was consuming many people's time. Also, a change of command rapidly was approaching. Squadron space refurbishment, ceremony rehearsals, and extra maintenance on the mishap aircraft were ongoing, all in addition to the normal maintenance and operations involved in conducting daily flight schedules. Everyone simply was trying to keep their heads above water to get everything done. With all the commotion, I could not help but appreciate the simplicity of life on the ship.

I came into work for an early evening flight. I entered maintenance control and learned the flight schedule already was a few hours behind the published times. The first crew had a discrepancy on preflight that required our maintainers to open up a couple cowlings on the aircraft's tail. Much to everyone's surprise and dismay, a major discrepancy was found that should have been discovered by maintenance well before preflight. There was no excuse for it to have gone undetected.

After returning from a cross-country flight a few days later, we landed to find out the remainder of the flight schedule had been cancelled because of a ground mishap. This particular mishap involved a crew of maintainers who were working on the mishap aircraft at a depot-level hangar. Fortunately, no one was hurt.

My time out to sea had lasted only a short four months. I had flown many dark, late-night approaches to the back of the ship, searched for terrorist suspects, or wore a Kevlar vest and 9 mm to mitigate the risk of flying into an airfield with the possibility of small-arms fire. My family at sea consisted of six pilots, two crewmen, 17 maintainers, and one helicopter. We worked day-in and day-out with the same familiar faces. We always knew exactly what was going on in maintenance and the air department. We expected and accepted the inherent risks in our jobs and did whatever we could to deal with them. Now, I was back home in sunny San Diego, no longer flying the seemingly more dangerous flights on deployment.

More safety-related issues occurred in my short time back at homeguard than the entire time I was on deployment. Returning home to the squadron seemed like the greater risk.

What is the underlying cause of this unfortunate sequence of events? I can't pinpoint one single thing. However, I can say our squadron is taking steps in the right direction to stop the deadly chain of events that have been occurring.

A misleading perception exists that we're all safe and protected at home. However, whether we're training at home or at sea fighting the war, the aviation profession is inherently dangerous. We must execute every aspect of our jobs, from the most dangerous evolution to the most routine and simple task. We owe it to one another and our loved ones to keep up our guard.

Lt. Baehr flies with HSL-49.

Complacency Hit List

When will complacency get you? Here's a sampling of situations where the "vulture" may strike. Do any of these sound familiar?

The mission is complete, and you're "just going back to the boat."

You're scheduled for a routine mission, so you don't plan or thoroughly preflight; several steps or items are omitted.

"Groundhog Day" arrives, and repetitive boat ops for extended time leads to lack of desire to continue. You think others will pick up the slack.

You trust maintenance will continue the same level of excellence, and after a while, you don't preflight systems as thoroughly.

Repeated "master caution" lights, with no secondaries, lead you to ignore the problem.

You preflight survival gear less frequently, because the strobe light flashed or the radio worked just fine yesterday.

You trust the AIC controller has sanitized the area, so you don't stay in the proper altitude blocks.

You bring the minimum amount of food and water. Or, you don't use the head because you're a single-cycle flight on the schedule. Then the event becomes a triple, and you have that urge.

Bad food in port climbs its way out of your gut, but you're confident you'll be fine for the yo-yo flight.

The same repeat gripe is signed off with "could not duplicate on deck" or "R/R aviator. System works 4.0." You stop griping and accept the plane "as is."

You stop briefing specific flight assignments because they rarely change, and you're under the impression that everyone will do it the same way again this time.

Two seasoned instructors flying together.

Any squadron getting ready to return from deployment.

ODO doesn't stay on top of the flight schedule to completion.

Starboard delta; one more time.

This is just an admin flight.

Just another day trap.

We have been crews together for awhile, and we don't have to brief everything.

To Teach a Dinosaur

By Cdr. Joseph K. Blanchette

Fly the airplane
Silence the bell.
Confirm the emergency.
These memory items should be familiar to everyone who flies most large aircraft.

It was Presidents' Day, and for most Navy folk in the continental U.S., this meant a well-deserved holiday. For those of us in logistics, it meant yet another day of getting people where they needed to be, when they needed to be there. I fly the DC-9/C-9B, a soon-to-be dinosaur; it's being replaced by the C-40, a newer, more efficient 737. My squadron is one of the last hanging on to the mighty Skytrain II, a bird that has served all the armed services worldwide for three decades.

On this Monday, while most people were asleep, dreaming of barbeque and a favorite beverage, my crew of five were up at 0400 and briefing at 0515. We expected as routine a day as it gets: Take 17 people and their cargo from NAS Whidbey Island to NAS North Island, then pick up 20 people and take them home to Whidbey.

The crew consisted of full- and part-time reservists. The transport safety specialist was an experienced P-3 flight engineer with a ton of hours but new to C-9s. The loadmaster had more than 20 years' experience just in VR-61. Our crew chief was the youngest salt of the bunch but still had more than 3,000 hours in the C-9. The copilot was a newly qualified second pilot (2P) but had been a P-3 patrol-plane commander. I was just a dinosaur flying a dinosaur. I've been with

VR-61 for almost 11 years and have had more than 2,400 hours in the C-9, with more than 9,000 hours total. All this experience would come in handy in a mission that would last almost two days.

The weather in San Diego was unusually bad: windy, rainy, and clouds down nearly to the ground, which required an alternate. I've always been a fan of working with Mother Nature, and this was just another day she had said, "Take me into consideration." This trip would require more than the usual fuel, which also would become a crucial factor in something most of us take for granted: time.

Shortly after departing NAS Whidbey, on the uplatch check (a routine check to make sure the gear system is working), the copilot said, "Huh, that feels funny." He tried it again. This time the lever went to the correct position with the correct result, so we considered it a good check. It turned out not to be so funny.

When we arrived in the San Diego terminal area, we were vectored for the PAR into North Island. Everything was routine until the controller said, "Your wheels should be down."

We answered, "In transit."

But, when my copilot reached to select the gear lever to down, he only could move the lever to the halfway position; the gear wouldn't go down. He tried it again with the same results. Then standard training kicked in. We requested a go-around and delay vectors over the ocean between San Diego and Mexico.

I instructed my copilot to "break out the book (NATOPS)," and added, "I'll fly the aircraft and take the radios. You guys work the problem,"

We were instructed to turn left to the south, climb and maintain 2,000 feet.

We explained our problem to air-traffic control, and they replied, "Say fuel in pounds and number of souls on board."

We had 8,600 pounds of fuel. We are required by standard operating procedure (SOP) to plan on landing with 6,000 pounds, but today, we had that extra fuel for our alternate.

My crew chief opened "the book" to the emergency "Landing Gear Lever Stuck in the Up Position," which led us to the "Free Fall Checklist." Our crew chief and copilot worked in flawless unison on the checklist, while I monitored. The landing gear still wasn't down and locked. We could hear the sound of gear doors falling into the wind, but the aircraft failed to do the normal slowdown. We didn't need the additional power that normally comes with lowered gear. It just didn't feel right, and the indicators still displayed an unsafe condition.

After the failure of the free-fall checklist, it came time to improvise. We discussed several things.

Did we have an indication problem? We pushed the pencil bypass and reset the circuit breaker for the landing-gear horn.

Was the wind stream keeping the gear from falling all the way? We slowed to 122 knots and slats 50. When the circuit breaker was reset, we showed three red (unsafe) lights and got the warning horn, meant the landing gear were not down. We pulled the breaker, and the horn went away.

I was just a dinosaur flying a dinosaur.

Was residual hydraulic pressure holding up the gear? We secured engine-driven hydraulic pumps and the electrical aux and transfer pumps. System pressure on the right side bled to zero. On the left, it went down to 1,100 psi—normal pressure is 3,000 psi. We reset the breaker but still showed three red lights and got the horn. We concluded there was no indication problem, and the mechanical-hydraulic bypass from the freefall handle probably was working fine. Fuel status was 7,400 pounds.

So, what was the emergency? Obviously, the gear was the problem, but what was causing it? A fire causes a fire light. An electrical failure causes an electrical-failure light. A procedure is designed to respond to cause. We needed to respond to a cause. Fuel status now was 6,900 pounds.

ATC updated our winds to 200 degrees at 20 knots. They had removed the arresting gear on runway 29 and asked, "Would you like the arresting gear removed from runway 18, as well?"

Photo by PH1 Edward G. Martens.

When my copilot reached to select the gear lever to down, he only could move the lever to the halfway position.

Of course we said, "Please do."

Normally, our aircraft has no problem rolling over the gear with our large tandem tires, but with the possibility of landing without our gear down and locked, we could catch a gear door on the wire with nasty results. We could have a belly, or gear-up, landing. The arresting gear could introduce one more variable we didn't need.

We discussed diverting to MCAS Miramar, a longer runway that faced more into the wind. The problem was the commute time would have consumed a lot of gas better used buying us time to get down the gear while over North Island. If we really needed to land into the wind, the runway at Lindbergh Field (San Diego International) was another option. I was confident we could get into North Island with the current weather, having broken out of the clouds earlier on the first approach.

But, there was another curve. Lindbergh Field ceiling (cloud base) was down to 500 feet. This ceiling would have been fine for a precision approach, but to shoot the approach to runway 18 into North Island, you use the localizer course runway 27 into Lindberg, and then execute a left 90-degree turn from 830 feet to land on runway 18.

We discussed contacting North Island base operations to get a phone patch to our maintenance department to ask if they could come up with any more ideas. Oops, it was a holiday, and we were faced with holiday routine. No one would be in the spaces until our scheduled return time in three hours; we were on our own. Fuel status now was 6,300 pounds.

We began to prepare the cabin and passengers for an emergency landing.

Our crew chief astutely made us aware that the front instrument panel (immediately to the left of the gear handle) had had some work done to it that weekend for a fuel-flow indicator. This part had been written up in the aircraft-discrepancy book (ADB), but, to a pilot reading the gripe, it appeared just to be a gauge change. To my crew chief, however, it meant something more. He told us the procedure required the removal of the entire front instrument panel. When I asked him if the plane had flown since the maintenance action, he replied, "No, this is the first flight."

Our attention immediately shifted to the possibility of FOD behind the panel, which might prevent full motion of the handle. The copilot and crew chief took the flashlight and checked for objects by looking through the slot the gear handle glides through. Fuel status now was 5,600 pounds.

Earlier, when I had tried to lower the gear handle, I had noticed a slight bulging to the left of the handle as it was moved through the 90-degree position from the front panel. It moved freely to almost 90 degrees, and then I heard a "thud."

We were confident we were making progress.

I suggested, "Get a screwdriver. Let's pull the panel." The crew chief made a beeline to the cruise box, retrieved the tool, and turned the four screws on each corner required to pull out the center instrument panel. When he twisted the two screws on the right side, the panel popped rearward, as if pressure was present on its back side. Once the panel was released from the screws, I said, "Try dropping the gear again."

The copilot grasped the loose panel with his left hand, and the gear handle with his right. He completely placed the gear handle to the down position. Within moments, we had three glowing green lights. I immediately told ATC we had three-down-and-locked and requested short vectors for the PAR 29 for the full stop; ATC complied. We broke out of the clouds at 1,000 feet. On short final, tower reported winds from 200 at 25. We continued into runway 29 and landed. Fuel status was 4,800 pounds.

The crew chief and some maintainers on board troubleshot the problem and discovered the center instrument panel hadn't been installed properly. It was resting on top the tracks instead of inside the tracks. They proceeded with removing all 23 gauges and both FMS boxes, so they could remove the center instrument panel and reinstall it.

This two-hour process, when completed, was successfully tested: Engines started, all gauges worked, gear pins were installed, and gear handle was moved up and down repeatedly with no binding. We felt we successfully had identified the handle problem. As for the mystery of why the free fall did not work, we, with VR-61 maintenance, determined a full gear swing should be accomplished to further troubleshoot and determine we had a good fix.

We left the hangar at 2200 after a 17-hour workday, tired but thrilled it was a job well done. Our rescue aircraft, 115, would take a crew overseas the next day, and the squadron would have an up asset the next day for tasking.

Epilogue

An accident or incident happens as a result of a chain of events. The onus is on every one of us to break the chain.

In this incident, the chain started in 1975 when McDonnell Douglas discovered if the center instrument panel was not installed properly into the rack grooves, the gear handle could jam in the up position. Service Bulletin 31-37 recommended removing a portion of rack spar that would interfere with the landing-gear-handle linkage. But, only four of 27 of our wing C-9s received the modification. The aircraft in this story came from Iberian Airways in Spain, and it is uncertain if they ever got the bulletin.

Between NATOPS revisions, our wing supplies standardization notes to inform squadrons of current flight concerns on all models. A 2005 note refers to the need to reset the landing-gear-circuit breaker to get a positive indication of down and locked. This has not been corrected in the current NATOPS and could lead another crew to think all is well after the free fall checklist is complete. That would be disastrous.

In our case, the squadron is looking closely at what went wrong. Was the problem the result of a trainee doing the work or checklists not followed? Maybe some of us weren't fully engaged in our work because of personal problems or lack of administrative support. We need to also consider fatigue: working in the middle of the night without enough rest.

Cdr. Blanchette is a reservist and flies with VR-6.

How many risk factors faced this aircrew? Old aircraft, routine flight bordering on the mundane, holiday weekend, and unusually poor SoCal weather round out the contributing factors. Even add a recently completed maintenance action on the instrument panel. Each factor was manageable, but the addition of a looming fuel emergency complicated everything. This crew was spot-on with their CRM execution, as well as their attention to the maintenance details which preceded the flight. No flight is routine.—LCdr. Paul Wilson is the C-9 analyst at the Naval Safety Center.

Composite image

Left To Left

By Lt. Sean Michaels

The crisp October air and clear blue sky promised to make a great day of flying out of NAF El Centro, Calif. I was a senior ECMO instructor with the EA-6B FRS and was scheduled to fly a Saturday morning low-level with an above-average student pilot. The El Centro detachment was going well, and we were flying jets.

The great thing—and the worst thing—about operating out of El Centro is the flying nearly is all VFR. You must enhance your situational awareness with an intense visual-lookout doctrine and use of radios; this is the only way to fly in such a VFR-dense environment. My complacency with a radio call on that beautiful fall morning nearly led to disaster.

Following a standard NATOPS brief and preflight, my pilot and I manned up our Prowler; just the two of us were required for this local VFR flight. We launched and enjoyed the first 20 minutes of the low-level route, which took us through rocky gorges and over serene desert landscapes. We flew over dune-buggy drivers, who, no doubt, looked up in envy as we thundered over their dusty tracks. As we approached the Salton Sea, I made a radio call on the flight-service frequency that we'd be crossing the Sea at 500 feet. This call is important because many low-levels cross the Salton Sea, some going in opposite directions. To my surprise, a pilot flying a T-45 answered the call. He said he'd also be crossing the Salton Sea, but in the opposite direction at 1,500 feet. I said we would remain at 500 feet until feet dry, thus maintaining altitude separation.

Several minutes later, we approached the Salton Sea's western shore. The terrain rises dramatically to the west of the shoreline, and my student pilot started a gradual climb to place our flight vector above the ridgeline. The hair went up on the back of my neck as we climbed past 1,000 feet. "Surely, the T-45 had passed us by now," I thought. Slowly, we climbed to 1,200 feet… 1,400 feet… "Maybe I should stop this or call that T-45 pilot," I murmured, as we hit 1,500 feet.

"Break right, break right!" I yelled as the silhouette of the T-45 appeared in the middle of the windscreen.

The T-45 broke right as well, and we just missed each other. A few seconds later, the radio came alive.

"Hey, I thought you guys were going to stay at 500 feet" the annoyed pilot said. I sheepishly answered we had started our climb because of rising terrain, but I knew that reason was wrong.

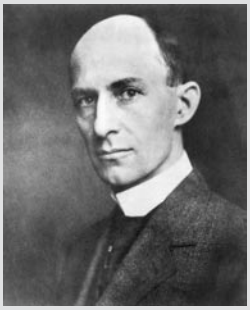
Following the low-level, we landed and extensively debriefed. The pilot and I had made mistakes, but my experience level and flight-instructor status should have led me to make better decisions to have prevented our near-fatal mid-air. Our gradual climb could have waited until I made a radio call to verify the T-45 had passed us. I could have stopped the student pilot from climbing. I should have followed my instincts. I had a serious doubt about what we were doing and did nothing to mitigate it. The next time, I will not be complacent and will take action to end a dangerous situation. Trust me, it is not fun to go left-to-left on a low-level.

Lt. Michaels was a flight instructor with VAQ-129, and currently flies with VAQ-133.

Mishap-Free Milestones

VP-46	**300,000 hours**	**44 years**
HMM-161	**60,000 hours**	**13 years**
VFA-34	**21,613 hours**	**5 years 6 months**

Wilbur Wright



In flying I have learned that carelessness and overconfidence are usually far more dangerous than deliberately accepted risks.

— Wilbur Wright in a letter to his father, September 1900

2 Engines Down— None To Go

By Lt. Ryan E. Srogi

I was flying my first sortie of our fall deployment. My lead and I were assigned to work with a Prowler and one of the carrier-strike-group (CSG) ships. Shortly after our section joined overhead mom (the carrier), we headed to our combat-air-patrol (CAP) station.

Then I heard the words every Hornet pilot loves to hear, "Engine left, engine left." I had an "L ENG" caution.

My first reaction was disappointment, because I never had participated in a counter-targeting mission, and I wanted to. Now, I probably would spend the next hour burning circles in the sky overhead the ship.

After I completed the boldface checklist items by retarding the affected engine to idle, I pulled up the engine page to examine the cause of the voice warning.

The L/R ENG cautions are annunciated anytime a FADEC (the computer for the F414 GE-400 engines) decides the engine performance status has changed. In my case, the left engine status indicated "thrust." I also had a FADEC advisory, the FADEC channels A and B were lined out, and the left nozzle was stuck at 10 percent.

FA-18E/F NATOPS states a thrust condition limits the engine thrust to between 40 and 90 percent and has slower transients. The thrust-engine status is only one step above the engine being restricted to idle.

I told lead about my problem. We broke out the PCL (pocket checklist) and examined the steps to determine a course of action. The PCL states the throttles can be used as required to test throttle response in the landing configuration. It also says to make a half-flap landing as soon as practical.

With this information, we determined I should return overhead and wait for the next recovery. I contacted the rep, and he concurred with the shipboard recovery, using half flaps and both engines. I contacted marshal and was instructed to hold at 6,000 feet, which allowed me to commence and land first.

About one hour into flight, while established at 6,000 feet, my right engine also decided to act up on me.

I heard the "engine right, engine right" voice warning, along with the R ENG caution, dual FADEC channel lineouts, and a thrust-engine status with the right nozzle stuck at 17 percent.

I matched the throttles and maintained my airspeed at 235 knots for maximum endurance. I now had two degraded engines operating at somewhere between 40 and 90 percent, with slow throttle transients. All other indications on the engine page were normal, so I was confident the problem with both engines most likely was the variable-exhaust nozzles being stuck in a fixed position.

I told the CATCC rep of my new situation, and he told my skipper. I was asked to dirty-up and test throttle response in the landing configuration. Referencing my ability to add airspeed, as well as the response of the power carat on the display, I noted the engines seemed to provide about 20 to 30 percent less thrust with a significant lack of waveoff capability. Granted, this occurred at 6,000 feet and not 500 feet, but this degradation, as well as the lack of afterburner capability, was enough to buy me a divert profile to Naval Air Facility, Atsugi, Japan.

I cleaned up and headed toward Atsugi at 6,000 feet until I was well clear of the marshal stack. While heading outbound, the rep told me not to forget my

ship-to-shore checklist, to do a half-flap landing, and to let the ship know when I was safe on deck.

I climbed to 18,500 feet and proceeded VFR—a nice convenience of flying around Japan. I monitored my engine status and preserved the excess altitude in case my motors started to degrade. I also reviewed the single-engine approach and landing procedures. Darkness had set in, so I decided to shoot a PAR approach.

After an uneventful approach, I touched down on centerline and began to brake. I initially used moderate braking until the aircraft settled on the runway, but I didn't decelerate anywhere near the rate I was used to.

I looked up as I passed the 5,000-feet-remaining marker, and then noted my line speed at the 4-board was 120 knots. Rapidly approaching the 3-board, I did a roll-and-go. It was here I first considered the go-around capabilities of my aircraft—not a comfortable position to be in.

I was at half flaps, and the "significantly slower engine transients" made the bump-up to military power seem to take forever. I cleared the end of the runway with what seemed like 50 feet of air beneath me. Unlike the full-flap afterburner roll-n-go, an aircraft at half flaps and military power won't jump into the air the way it does during our quarterly roll-n-go refresher. The aircraft climbed away, and I told tower I was turning downwind.

I set up for another normal landing at half flaps. My approach speed of 140 knots was only 10 knots higher than a normal full-flap landing, so I was convinced my braking technique was the reason I couldn't properly slow the aircraft. I turned to final and placed the velocity vector about 500 feet beyond the runway-edge lights. Immediately after landing, I applied heavy pressure to the brake pedals and closely monitored the aircraft for unusual response from the anti-skid system.

The rollout was uneventful this time, and I made my line speeds starting at the 4-board. I taxied clear of the runway and parked the aircraft with glowing red brakes, which indicated the brakes had been working hard to stop my aircraft.

I reflected on what happened and recognized two valuable lessons.

The first lesson is one that we always talk about: A field arrestment is free.

This flight is a perfect example of a situation not dictated in NATOPS. I had two engines with severely degraded performance. Consider the single-engine-approach procedures in NATOPS, and when do two degraded engines equate to a single engine?

The second lesson involved what we expect when we go to a NATOPS simulator: thinking the situation through to the end.

I became complacent about the landing phase of the flight because I was returning to my home field. Just because you are diverting to a familiar field doesn't mean that you are not in a potentially dangerous situation. You must think about the field conditions and aircraft capabilities and limitations. Even after a performance check, I did not consider how my aircraft would behave in the landing phase. I assumed the landing would go normally, but actually, with a faster approach speed in the half-flap configuration, more airspeed also was required to go around. With my nozzles closed, the engines had to push through excess back pressure to spool up for the go-around. This situation added even more to the limitations side of the roll-and-go equation. Finally, with the nozzles closed, a lot of residual thrust came out of my idle engines. This extra thrust was the main reason the aircraft was more difficult to slow down during landing rollout. These were major considerations I should have thought through before making any decisions regarding my field landing.

Fortunately, my degraded engines still produced enough thrust for my go-around, and I stuck with my decision to fly the jet away. I thought about my ejection criteria just before the jet crept into the air, and I was thankful I didn't put a multi-million dollar jet into the busy road at the end of the runway.

Once again, the right engine degraded, and I was looking at the same problem for a second time.

Following maintenance troubleshooting, I flew the aircraft to the ship. For this flight, I elected to do an engine run-up on the runway before takeoff. The run-up and afterburner takeoff went well, and I climbed to 9,000 feet. About 10 minutes into flight, I performed several light to moderate throttle modulations to test engine response. Almost immediately, the same problem occurred in the left engine. I tested the right engine with the left engine at idle. Once again, the right engine degraded, and I was looking at the same problem for a second time. The only difference this time was my nozzles were stuck at 83 percent on the left engine and 25 percent on the right one.

I asked departure for holding airspace at my present position to adjust gross weight; my request was granted. I examined the PCL and decided to fly a short-field arrestment at half flaps. I declared an emergency with departure and asked them to contact tower to rig the short-field arresting gear, which usually takes about 20 minutes. I notified maintenance, so they would expect me, and began to dump fuel down to 6,500 pounds. This time, I thought about my go-around capabilities before I landed. With the left nozzle stuck open, I had a significant loss of thrust and even a bit of left yaw when I added power. I continued to test throttle response during my daytime-visual approach. Below 1,500 feet, I determined I had enough engine response to go around if I missed the short-field wire. The straight-in approach and short-field arrestment went normally. The ground crew freed me from the wire, and I taxied clear.

When you walk on a flight, be prepared for malfunctions to occur. NATOPS knowledge is mandatory, but you never know when you may be faced with an emergency that isn't in the PCL. Sound knowledge of your platform and a solid plan that concludes with the crew standing next to the airplane is a must when handling any emergency.

Lt. Srogi flies with VFA-27.

Complacency

Editor's note: this article first appeared in the July 1971 issue of Approach.

Of the many threats to a successful safety program, one of the most common and persistent is complacency. Complacency in itself is a deceiving and unwarranted satisfaction with a given level of proficiency which leads to stagnation and unknowing deterioration of proficiency. It is of primary concern to any organization and a major problem area requiring constant supervisory surveillance. When it develops among pilots or maintenance personnel it inevitably results in mishaps, both in the air and on the ground.

Recognizing the onset of complacency is not a difficult task. Signs develop as supervisory controls are relaxed and objectives become vague. There is an observable lack of dedication and enthusiasm to the job and the routine prescribed standards of performance and care are disregarded. For example: pilots in a routine environment, lulled by their level experience and proficiency, may rationalize that detailed flight planning is unnecessary. Briefings become sketchy or nonexistent as the pilots assume that crewmembers understand what is expected of them or what their responsibilities and assignments are. This attitude will be reflected throughout the entire flight, resulting in inefficient utilization of flight time which may terminate in an incident, accident or injury. Similar analogies can be made for the maintenance department personnel who would soon reflect the effect of a complacent attitude through mismanagement of men and material assets. The results are the same; a disregard for the normal standards of quality workmanship, a lack of commitment and an increase in accident potential.

The old cliché, "an ounce of prevention is worth a pound of cure," is certainly applicable in this case. Combating complacency once it has developed is extremely difficult. Preventing its development is obviously the simplest and desired approach to the problem. In either case, prevention or correction, the measures to be taken are basically the same. Supervisors must establish the required standards of performance and quality production which become well known and understood. Following this, the supervisor must assure that the established standards are maintained through the exercise of reasonable discipline and firm leadership. Supervisors must delineate the objective requirements and provide their personnel with the means by which ultimate achievement can be accomplished. Pilots, mechanics and clerks provided with challenging and attainable goals along with the knowledge and incentive required to achieve these objectives will not be complacent.

Commanding Officer
MAG-56

Complacency—Symptoms and Cure

Reprint from Approach, *July 1955, from a feature called, "The Tiptank: A round-up of useful information."*

For transport commands which may on occasion experience a rather frustrating display of over-complacency on the part of flight crews, the following observation, from the Flight Safety Foundation's Accident Prevention Bulletin No. 55-10, may provide a solution.

In its discussion of the problem of complacency, which may be present in the minds of flight or maintenance personnel, APB 55-10 reported crewmembers eating at the same time, failure to use checklists and of coffee served in climb.

Noting that the first reaction to this state of affairs is one of frustration, anger and disciplinary measures, the Bulletin offers that the problem may result from a deeper source than is first evident. "Why are people complacent?" asked the APB, and submits that these symptoms might result from a weak educational program, poor morale or inadequate aviation safety programs, not to overlook the basic possibility of inadequate training.

In brief, if the problem exists to any degree in your command, perhaps the factor of poor supervision is more to blame than the employee.

THE MAGICAL RUBBER STAMP

By LCdr. Magnus Leslie

Every four years, naval aviators, flight officers, and aircrewmen have the distinct pleasure of attending naval aviation survival training and physiology (aka "swim-phys"). A few things may have changed in the curriculum since the last time you attended, but you can count on two certainties.

First, you will be seated, strapped, or hung into myriad devices designed to drown you. Second, you will be herded into a large metal cylinder with a latex glove hanging from the overhead. The air then will be sucked out of the cylinder until you turn blue in the face, forget the answers to third-grade math problems, and turn giddy with laughter because the fool seated next to you keeps screwing up "patty-cake."

Our reward for begrudgingly undergoing such abuse is a magical rubber stamp in our NATOPS jacket that deems us qualified to fly for another four years. According to my records, I was good to go for another two years, but I guess my chamber qual expired early.

My C-130 crew was midway through our detachment. After two weeks in theater, we had settled into the repetitive grind of flying the daily double-shuttle to Fujairah and back. The aircraft had been holding up well, with only a couple outstanding gripes. One of these involved the pressurization system, which had difficulty regulating in the automatic mode. The flight engineer (FE) needed to manually control the pressurization to keep the cabin altitude within limits. This known discrepancy had existed for several weeks on the aircraft, despite maintenance's best efforts to troubleshoot the system. The replacement of multiple regulators, controllers and valves, as dictated in the maintenance manuals, did little to correct the problem. Fortunately, both crews on our detachment were comfortable flying the aircraft in the manual-pressurization mode.

On this morning, we enjoyed a typical, uneventful flight to Fujairah. We delivered our cargo and then uploaded four pallets for the return leg to Bahrain. As we climbed out and completed the after-takeoff checklist, the FE adjusted the pressurization controller to a comfortable 1,500-fpm rate. This setting would keep us adequately pressurized on our way up to our planned cruising level of FL220, or so we thought. Passing 10,000 feet, we verified the cabin altitude in accordance with SOP. The cabin altimeter read 3,000 feet, and the pressure controller still reflected a constant 1,500-fpm rate that matched up well with our loaded Herc's anemic rate of climb.

Several minutes later, the cockpit silence was broken by the FE calling over ICS, "Everyone, go on oxygen!"

The copilot and I reached back and grabbed our quick-don oxygen masks. We managed to shoot a quizzical glance back at the FE, and we instinctively looked for signs of smoke or fumes.

The FE pointed to the cabin altimeter and simply said, "Cabin altitude."

The altimeter read about 16,000 feet, as we climbed through FL190. The crew checked in over the ICS on oxygen, and the FE worked to regain control of the cabin pressurization. Within a matter of minutes, the cabin altitude returned to normal. We removed our masks and continued on to Bahrain without further incident.

On the way back, we felt obligated to look a little more closely at the chain of events. How did we get into this situation? On the positive side, once the malfunction was realized, effective crew-resource

Several minutes later, the cockpit silence was broken by the FE calling over ICS, "Everyone, go on oxygen!"

management prevented further deterioration. The FE communicated an instantaneous and assertive statement, which got us all on oxygen. This action bought the crew critical time and restored our cognitive ability to troubleshoot the malfunction and complete the NATOPS procedures.

Everything was normal at 10,000 feet, our standard pressurization checkpoint. So, why did the FE again look at the cabin altimeter? As it turns out, the engineer felt tingling in his fingers. Individuals may experience different symptoms when exposed to a hypoxic environment. In retrospect, I remember thinking on climb-out how tired and somewhat dehydrated I felt. I dismissed it, though, considering the early morning brief, coupled with the exhausting summer heat in the Gulf. Both are symptoms I experienced on a high-altitude chamber ride. I made an incorrect assumption and dismissed potential cues that quickly could have alerted us to the runaway-pressure controller.

We had succumbed to a degree of complacency as we flew the same repetitive and mundane mission day in and day out. The aircraft also had a known outstanding pressurization gripe we had gotten used to. We had stopped considering the potential hazards involved with that system. Why not pay more attention to the cabin altimeter throughout our climb profile with a known bad pressure controller? We checked it after takeoff and again passing 10,000 feet, but because everything appeared normal on those checks, we didn't give it another look, despite the remaining 12,000 feet of climb to reach our cruising altitude. It all seems foolish, as I look back on it now.

We discussed the events with the other crew and learned they had experienced an instance several days before of the pressure controller suddenly initiating a 1,000-fpm rate-of-climb while level at cruising altitude. Because the controller already was written up, a new MAF was not initiated. Perhaps they should have generated an amended MAF or info-only MAF. At the very least, it certainly was information that our crews should have had.

At first glance, this was a mundane emergency our crew handled promptly. I hesitate to even use the term "emergency." I also hesitated to submit an article relating our experience. I think we all can see how these minor instances can help illuminate underlying issues that might lead to bigger problems. Perhaps the lessons we gleaned from this simple logistics flight helped us avert a bigger disaster.

LCdr. Leslie flies with VR-62.

Understand the Process

By Ted Wirginis

A year ago the Naval Safety Center published a magazine called ORM, the Essentials. In it we outlined where we want ORM to be in our Navy culture. We stated, "We want everyone to understand risk management. We want them to know how to apply the principles and the process at the right level in their specific tasks and activities, on and off duty. We need every Sailor and Marine to understand every death on the highway robs us of a vital part of our team, every bit as much as a loss in combat." Since then we have not progressed very far in teaching and training to the application and integration of organizational and individual risk management.

To get where we want to be, we need to understand how ORM fits into our daily lives. This is the first article in a series to help you get a better understanding of ORM and how it applies to you, and will concentrate on the three levels of ORM.

A review of the attached figure shows the three levels of ORM are defined by time.

• If you have very limited or no time to plan and you are in the execution phase of the event or task, you are at the **time-critical level** of ORM.

• If you have plenty of time to plan, to get the *right* answer, you are in the **in-depth level** of ORM.

• The **deliberate level** lies between the two other levels, when we don't have unlimited time, yet we need to get the *best* answer.

We depict those levels in the shaded gradient because there are no definitive lines between the levels. You flow from one level to another as you approach the task or event. However, most of the time we are in the doing or execution phase which is at the time-critical level.

Why is it important to understand the three levels of ORM? Because each level plays a role in improving your chance of a successful mission. The controls developed from one level become resources for the next. It's important to know we have resources to tap into to accomplish our job or mission during its execution. These resources make it easier to do our job, and help us catch errors that have consequences detrimental to task or mission success.

The resources are broadly categorized into the following:

• **Policies, procedures, and routines** such as general orders, SOPs and guides. These resources speed up decision making and increase predictability through standardized operations.

• **Checklists and job aids** such as instructions and MIMs. These resources decrease potential for error and improve coordination.

• **Automation** such as alarms, warning lights, auto door locks, autopilots and seat-belt warning provide another opportunity to reduce risk by providing faster interpretation of information, process of information, provide warnings and distribute the workload.

• **Briefings and external resources** transfer situational awareness from a supervisor, shipmate, briefer or crewmember. These resources increases predictability and create expectations.

• **Knowledge, skills and techniques** such as training, practice and drills. These resources are brought by the individual to the task or mission. In addition to helping us do a particular task, knowledge and skills improve situational awareness.

The attached figure includes additional resources that are familiar to you.

You can draw on the resources created by you or others in the in-depth and deliberate levels as you execute the task or mission. Resources help us to be more effective and successful.

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

A leader makes sure the doers have the resources to do their jobs. Integrating ORM into your organization requires a full review of those resources and their current applicability. If we expect our skills to catch errors and complete the task or mission, we need to make sure it is current, effective and relevant.

If you think of risk management as a tactic that enhances mission accomplishment, you can see that we use it daily, normally without giving it much thought. This behavior, unfortunately, has not guaranteed our success. Why? Do we have a problem with managing risk? No. Over the years we have developed these types of resources on the job to improve mission effectiveness and reduce risk. The simple truth is, these resources work equally well when applied to daily life. This is an important realization when we consider the magnitude of injury and death that occurs off duty. Our goal in this series is to give you a better understanding of ORM, its applicability, and use in our daily lives; both on duty and off duty.

Mr. Wirginis is the ORM manager with the Naval Safety Center.

"As we approach mid-deployment, everyone has their routines down. Aircrews preflight the same aircraft over and over. Do you preflight the same aircraft as well the next day as you did the day before? Do you regripe malfunctioning equipment or update the in-process MAF? There are many small indicators of complacency that collectively have a much greater meaning.

"Combating complacency is a difficult challenge and we have found that aircrew and maintainers alike want variation."

—From a VP-1 Orion Safety Gram, February 2008