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Changing The Safety Culture

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contents

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Safety Culture

We as Airman can make the difference in safety by learning to incorporate safety in all aspects of our lives. Last year was a record year for safety, lowest Class A mishaps, fewest aviation related fatalities, and fewest destroyed aircraft in Air Force history. This year however, we are experiencing a disturbing trend within the aviation community. We cannot afford to become complacent and let our guard down!

Your experiences shared in this forum allow all of us to learn from others, to prevent future mishaps. Safety should not be hard work. Utilize the tools available to us such as Crew Resource Management and Operational Risk Management and safety becomes part our operating culture. As leaders, and as Airmen, take a close look at the culture in your unit and find ways to make it better.

The Safety Sage

DEPARTMENT OF THE AIR FORCE — THE CHIEF OF SAFETY, USAF

PURPOSE — ***Flying Safety*** is published monthly to promote aircraft mishap prevention. Facts, testimony, and conclusions of aircraft mishaps printed herein may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. The contents of this magazine are not directive and should not be construed as instructions, technical orders, or directives unless so stated. SUBSCRIPTIONS — For sale by the Superintendent of Documents, PO Box 371954, Pittsburgh PA 15250-7954. REPRINTS — Air Force organizations may reprint articles from *Flying Safety* without further authorization. Non-Air Force organizations must advise the Managing Editor of the intended use of the material prior to reprinting. Such action will ensure complete accuracy of material amended in light of most recent developments.

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A Rapid Descent

CAPT NATHAN "SPADE" RAIBLEY

We've all been told in pilot training that if we fly airplanes long enough, we'll have to deal with emergency situations. From relatively minor situations such as a generator falling offline in a multi-engine plane to serious emergencies such as in-flight fires, handling EPs is something we must be able to do as pilots. To that end, we train constantly for how to deal with the situation when things go wrong. **"Aviate, Navigate, Communicate."** Boldface procedures, checklist usage, EP Sims; we constantly practice for whatever we can conceive of that might go wrong in the airplane. And when something goes wrong that's unanticipated, that we don't have a checklist for? That's when we have to remember the most basic advice of all that our IPs gave us. "Never give up." (With the addition for those of us in ejection seats: "Know when to get out.")

As anyone who has flown in a formation with me can attest, I certainly get my share of EPs. There is one incident in particular though that I'll vividly remember for the rest of my days. While flying as number two on a low altitude Surface Attack Tactical (SAT) sortie, my flight lead called "Knock it off" immediately following a strafe pass, and began climbing. He soon called that he had experienced a binding of the flight controls while beginning to recover from the delivery. I went to chase and we returned to Pope uneventfully, as the binding did not reoccur during the remainder of the flight. Maintenance examined the flight controls on the plane but all they could find was some water pooled in the "white area" of the jet. For those not familiar with the A-10, this is the area underneath the seat where the flight control cables pass protected by the titanium bathtub, before spreading throughout the rest of the aircraft. The theory maintenance had been that this water had frozen in flight, causing the binding of the controls. My lead and I were skeptical however, as we had been at low altitude on a very warm day for approximately thirty minutes before the binding occurred during flight. Nevertheless, nothing else was found to be out of the ordinary and the jet was scheduled to return to service following a Functional Check Flight (FCF) check of the controls.

As it happened, I had been signed off as an FCF pilot just a few weeks before this incident, and was chosen to fly the FCF for this jet. It was to be a partial profile flight, only running the portions of the FCF checklist having to do with flight con-

USAF photo by MSgt Robert Wieland

trols. This included all the checks of the normal flight control system at 10 and 15 thousand, as well as a check of the manual reversion system at 18 thousand. The weather was broken at roughly 4000 AGL with scattered clouds above and light winds.

Takeoff was uneventful, as were the initial checks of the normal flight control system. The flight control problem did not reoccur, and I was soon at 18,000 MSL beginning test of the manual reversion system. I zeroed the G-meter, stowed the loose items in the cockpit and locked my shoulder harness. Upon selecting the manual reversion system, the hydraulics bled to 0 psi as they usually do, and the jet pitched up with 2 G's of force, while rolling to the right. The pitch up was within the transition limit for the jet, but there was no specified limit for roll rate in transition. Once I was satisfied that the jet wouldn't exceed the 2 G's, I brought it back to level flight, but noticed that it took considerable effort to keep the jet from rolling to the right. At this point the FCF checklist called for me to put the jet through a series of gentile maneuvers to determine that it was controllable in manual reversion from 140 knots up to 300 knots. The only specific guidance the checklist had for roll limits was that the jet must not require more than 50 lbs of stick force to maintain level flight at 15,000 feet and 300 knots. As I accelerated to 300 knots it began to take considerable left stick pressure to keep the jet level. I decided it was beyond limits, and I would have to take the jet back Code 3, non-released. I knew however that maintenance would want specifics on just what the roll rate was when they adjusted the flight controls.

Since I couldn't measure the exact stick force in pounds, I used a different technique to measure the jet's roll rate. For some items such as speed brake opening and the takeoff trim check, the FCF checklist allows a maximum of 3 degrees per second roll rate. This rate is measured by relaxing stick pressure and letting the jet roll for ten seconds. If it has rolled 30 degrees or less, then the roll rate is within the 3 degrees/second limit. So at 15,000 ft and 300 kts I relaxed pressure on the stick while hacking the clock. A split second later I realized I'd just made a terrible mistake.

The nose of the jet dropped violently while a rapid roll to the right began, much faster than I had anticipated. The downward acceleration was such that I was thrown upwards in my straps, pinned to the top of the canopy and just barely able to reach the control stick with my fingertips. I attempted to pull the jet back to a level attitude, but I didn't have sufficient leverage on the controls to recover the jet in manual reversion. At about this time I remember realizing that I was in serious trouble. (Although I don't remember saying it, the HUD tape records a loud "Oh s---" at this point.)

The boldface in an A-10 for Out of Control Recovery is **THROTTLES-IDLE, CONTROLS-NEUTRAL**. I realized that this procedure was not working in the situation I was in, as I could barely reach the controls and the plane was continuing to accelerate its spin anyway.

So, ***"There I was,"*** in a negative G spin watching the clouds rapidly getting closer and unable to even look down at my instruments with the angle at which my head was pinned to the canopy. My first coherent thought was that since I couldn't recover the jet in manual reversion, I had to get the flight controls back to the normal hydraulically powered mode. For several seconds I fumbled my way down the left control console, trying to find the switch by feel since I couldn't look down. Fortunately for me, the manual reversion switch in the A-10 has a distinctive square shaped switch, unlike the other controls on the left console. As I did this, the clouds were filling my view and continuing to spin even faster. I considered ejecting, but I remember thinking that as far off the seat as I was I'd probably be seriously injured in the ejection process. Thus I delayed, and just as I passed through the last layer of clouds and was staring at Terra Firma my hand found the manual reversion switch. Fortunately for me, the jet recovered from the spin almost instantaneously when hydraulic power returned to the flight controls. I immediately executed a normal dive recovery, bottoming out at what I thought was 4000 feet but later tape review would show to be about 2000 feet above the ground. After climbing back up to the MOA, I called Ops to let them know I would be recovering code 3 for

continued on next page

flight controls and a negative over-G.

When I'd had time to think clearly about what happened on that flight, there were two lessons that stuck in my mind most clearly. The first was the proper use of the lap belt. Like many Hog pilots, I'd always flown with my lap belt somewhat loose so that I could turn around to visually scan all around the aircraft with relative ease, especially during BFM. I had no idea how much extra room that "somewhat loose" gave me until I encountered that -3.0 G's. Although I'd locked my shoulder harness, I didn't realize that would only keep me from falling forward in the seat, not rising up in it. The lap belt and seat kit straps are what keep you from leaving your seat in negative G conditions, and ever since then I have tightened them down as far as I can without cutting off circulation.

The second lesson I took away from that flight though was the more important one. The ejection decision; As I was falling towards earth in that spin, I considered ejecting but kept putting it off for just another second. I lucked out, and found the manual reversion switch in time to recover. But several things could have gone wrong. I could have not found the switch in time, restoring hydraulic power might not have recovered the jet as quickly as it did. When I think back on it, I'm actually surprised that the engines didn't flame out, since I was under negative g's for almost 20 seconds. As it was, I fully recovered from the dive at just about 2000 AGL. The recommended ejection altitude for an out of control A-10 is 4000 AGL. As it was, if I hadn't recovered, it was becoming increasingly doubtful that I would have been able to successfully eject. We hear so often that the number 1 reason for unsuccessful ejections is the delayed decision to eject. That's a mistake that is easy to make when you think that in just another second you can make it. I got lucky, many others haven't. The bottom line is you need to make your ejection decision on the ground and then stick to it when that emergency happens.

USAF photo by SSgt Nathan Bevier

Feeling The Pinch...

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Looking back I learned most of my lesson's in the first year of flying C-130s. During initial qualification training the instructors teach you to trust your gut feelings, and when you feel the pinch, something has gone terribly wrong. Guess what they were right! One of my first flights I learned the meaning of the pinch.

The day started off with a 2200 show time to drop the Army 82nd Airborne at a local drop in North Carolina, a mission that C-130 crews based in the CONUS are familiar with. This mission was not complicated, simply take-off and fly forty-five minute route to a static-line drop, land and pick up the jumpers at a local drop zone (DZ) and bring them back to the green ramp. A perfect mission for someone newly qualified; little did I know what valuable lessons I would learn that morning.

The sortie was going to be three segments of the drops followed by a pick up at the DZ. Due to maintenance issues our timeline had slipped, next thing we know we are on our second sortie and ten hours into our tactical crew day. We made our second landing on a 3000 feet strip and roll-out to the end to perform the Engines Running On-load (ERO) of the Army jumpers. The co-pilot is running checklist and I am busy figuring the new assault take-off data. The loadmaster calls up and says he has closed up the doors and ready to taxi. About this time the crew is feeling the effects of being up all night and the long hot mission in an E-model C-130 where the air conditioning is nonexistent. The co-pilot request permission to take-off from the Combat Controller (CCT) and I felt something was not right. Something was not finished, I double checked the speeds on the Take Off and Landing Card (TOLD) and they were correct, I scanned the instrument panel to ensure all the engines were in their normal range, all systems were normal. I was feeling the pinch, only to pass it off as being tired.

We were cleared for take-off; the navigator and co-pilot cover the acceleration time check speeds and time limit. This procedure is used when your refusal speed is less than your take-off speed, the time limit ensures the aircraft is accelerating properly and if a problem surfaces during the take-off, there is enough runway to stop. 3000 feet of hard packed dirt does not leave much room for error! The pilot set the throttles to maximum power; I compared the torque to the charted power on the card and called, "power checks". Mind you I still have the pinch and strange feeling that something is wrong…once the pilot released the brakes I was thrown back against my seat, acceleration was more intense than I have remembered…but I am new and maybe the lighter gross weight allowed us to blast down the runway? The pilot turned and looked at me with astonishment, next thing I hear is the co-pilot call, "Go/Rotate" and the pilot pulled back sharply on the yoke. The propellers made an angry growl that I had never heard before, and from the bewildered look of the pilots, I know they had not either. Now I knew something was terribly wrong, and my eyes focused on the flap gauge, flaps are up! We just performed an assault take-off with the flaps up and lived to tell about it…I called it out and tracked the flaps to 50 percent. Dead silence over the crew interphone, once we got to a safe altitude and configuration the pilot announced to the crew what had just occurred and that we are flying VFR direct to home station and calling it a day. Four people just missed a critical aspect of our configuration for take-off, the effects of the long crew day just reared its ugly head. Even though we had another lift to fly, our aircraft commander (AC) made a great decision to land and call it a day. Lesson learned from this mission was very important, if you feel the pinch, TELL YOUR CREW! Flight instructors' talk about the pinch, what they left out was what to do about it….Simply put, speak out. Looking back on my 22 years of C-130 flying, when I sensed something was not right; someone else on the crew felt the same. Every crew brief starts out with the AC stating if you see or feel something is wrong, call "time out, knock it off, or this is stupid". Words that can save your life.

USAF photo by SSgt Jacob N. Bailey

The Power Of ... "Thank You"

("Do you feel like you're not appreciated?")

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Many months ago, I was feeling rather burned out. I could not pinpoint any particular reason why. Like most pilots, being a "Type A" personality, I felt like I needed to figure out this puzzle. Nothing in particular came to mind. One evening, my wife must have seen my 'deep in thought' look. She asked that key question spouses love to ask: "What are you thinking?"

I explained to her that I just felt burned out, I couldn't really think of any particular reason why, and this frustrated me. Trying to help out, she started asking questions about what it could be. "Is it something here at home?"

"No, it's definitely something at work."

"Is it the ops tempo?" (Yes, my wife does talk like this, she's a pilot too. You can imagine some of the dinner-time conversations we have.)

"No. Things are busy, but they've always been busy in this squadron."

"So, you don't think you're flying too much?"

"No, there have only been a couple times in my career that I've ever felt like I was flying too much."

"Are you frustrated with your squadron?"

"No, I enjoy the people in the squadron, and accomplishing our mission gives a very rewarding feeling." After such a cheesy answer, she must have sensed there was something more to it. So she dug a little deeper: "Are you burned out on your current job in the squadron?" "Well, it certainly can be aggravating at times, but I don't feel burned out on the job itself. In fact, I feel like I'm really good at it. There have been some situations lately that have appeared like they were going to go poorly, but I was able to turn them into some win/win situations."

"Do you feel like you're not appreciated?" Wow. She really hit it. She didn't ask if I felt like I was being recognized for my work, or if I felt like I deserved some medal to put on my uniform. She asked if I felt like anyone had noticed the effort that I made. At first I was not even sure if I wanted to admit the answer to her, let alone myself. "Yes, I think that's what it might be. I feel like I'm work-

Official USAF photos
Digital Illustration by Felicia Moreland

USAF photo by SrA Joshua Strang

ing my tail off, and I'm not sure if 'the leadership' notices or cares."

She had helped me to realize that I was just in need of a sincere "Thank you." Now, you may be thinking that this is a bunch of touchy-feely stuff, and it may be. Whether or not it's touchy-feely, doesn't change the fact that we, as humans, do have a certain need to feel appreciated for an honest effort toward a worthwhile cause.

When I played football, I was an offensive lineman. I enjoyed playing the position because of the hard work that was required on every play. I wasn't interested in the high visibility or recognition that came along with the so-called "skill positions." However, there was always a great feeling of satisfaction when someone in one of those skill positions privately showed appreciation for what I had done. It was also great motivation to continue what I was doing right and put forth the extra effort required to excel.

You also may be thinking, "It's your job, it's your duty, you're supposed to do it, and you're supposed to do it right. There's no need to thank you for just doing what you're supposed to do." It's okay if you think that you can stop reading now, but you might miss out on a valuable tool to put in your leadership toolkit.

A few days later, I was thinking just that same way and tried to see it from a different angle: "Why should anyone, especially my supervisor or squadron leadership, thank me for just doing my job, for just doing my duty?" This led to me thinking, "Why should I expect any thanks from anyone higher ranking than me, if I don't provide the same for those who are subordinate to me?"

Until that point, I believe that I had been polite and given a courtesy "Thank you" to those I worked with. (My mother had succeeded in teaching me some manners.) However, everyone can say "Thank you." In many cases, people can easily recognize whether or not it's sincere or just going through the motions.

I decided to do an experiment. If I felt like I could use a sincere "Thank you" for just doing the job I do everyday, what would be the result if I expressed a sincere "Thank you" to those around me and especially to those subordinate to me? The key is that you have to show you're sincere in your thanks. How you express sincere appreciation can be as unique as your own personality. It may be very difficult to identify what it takes, but everyone can easily spot when it's not there.

As my experiment progressed, I tried it with everyone: superiors, subordinates, aircrew members, crew chiefs, maintainers, etc. The results would seem obvious; I received a positive reaction from everyone. What I didn't expect was the remarkable reaction from the lower enlisted ranks. This is the group that I figured would have the perception, "What does this bald old Captain know about me? He doesn't know anything more about me than my teachers in high school."

I did find that in our current Air Force culture of doing more with less, everyone is scrambling just to accomplish their basic jobs, plus all of their additional duties. When someone acknowledges and shows sincere appreciation for another's effort, it increases their sense of ownership for their work. More importantly, in our busy Air Force world, it can be a great motivator to continue doing the job right, and put forth the extra effort required to excel.

What does any of this have to do with flight safety? We put an incredible amount of trust in our maintainers and crew chiefs; the aircraft we fly need to be maintained carefully and by the book. In my career, I haven't met anyone who works in aircraft maintenance who didn't want to do their job correctly. I have found that a simple expression of sincere appreciation can go a long way in motivating them to put forth the extra effort that makes a noticeable difference in the aircraft.

To everyone I have worked with in the Air Force, from superiors, instructors, aircrew members, peers, subordinates and even those I haven't seen eye-to-eye with: Thank you, I have learned something from each of you.

The power of "Thank you" is immeasurable.

"Don't Forget The Basics"

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In professional aviation, we are continuously looking for better, safer, and more efficient ways to do things. Technology, equipment, and training are continually being refined. But with everything that's going on to make aviation safer, the underlying truth is: flying is dangerous. How do we diminish the threats we face each and every day? We have sophisticated equipment to help us predict the weather. We have radar, TCAS, ATC, and other tools to keep us away from other aircraft and potential dangers. What if we didn't have this equipment? What if all we had were our eyes and ears to keep us safe? This was precisely the situation three cadet soaring instructor pilots (IPs) found themselves in at the United States Air Force Academy on a hot August afternoon. These instructor pilots learned the importance of situational awareness and being able to adapt to unusual circumstances.

It was a typical August day at the Air Force Academy in Colorado Springs, Colorado. Cool in the morning, warming up in the afternoon, with the chance of thunderstorms around 1500. The sky was clear and the winds were light…a seemingly perfect day to fly a sailplane. Three brand new cadet instructor pilots were eagerly waiting to have their first instructional sortie. Around noon, each one received the briefing from the Operations Superintendent (Ops Sup) who told them that there was plenty of lift in the area, but the thunderstorms were moving in earlier than expected. The Ops Sup told the rookie IPs to keep an eye out for clouds and listen to the radio for weather updates.

Each Cadet IP found a student to fly with, and they went to brief the training sortie. In the pre-mission brief, each IP goes over Crew Resource

Management and talks about the importance of using all the tools of CRM. One of these tools is Situational Awareness (SA). The cadet IPs go through extensive CRM training prior to completing the soaring instructor pilot upgrade program. SA is not just knowing what you're doing and where you are, but it's also knowing other factors out there and how they'll affect them. The fledgling IPs stressed the significance of CRM to their students during the pre-mission brief.

After briefing with the students, all three crews stepped to the planes anxiously waiting to fly. The weather was beautiful and they had overheard from other instructors that there was plenty of lift in the areas and if they wanted to, they could catch some thermals to extend the flight. This was good news to the IPs and the students, because most days they are limited to 20-minute flights. After helping launch other planes, the three brand new IPs were able to get planes of their own and were eagerly waiting takeoff. However, the afternoon thunderstorms started to peak over the mountains to the west of the airfield.

With the storms rolling in, the lift that had preceded the front started to dissipate, and now more sink was in the area. The three crews were made aware of this by cadets just getting down from their flight. Still, the weather was not bad enough to not fly, and the thunderstorms were still over an hour away. Finally, the brand new instructor pilots were getting their first instructional sorties.

All was well with the each of the sorties. Nothing was abnormal and towards the end of the sortie, the crews started to come back in the same order they took off. Upon coming into the pattern, the first crew noticed severe sink (approximately 1,000 fpm down). Instead of trying to continue the pattern, the IP called tower and told them about the severe sink, and that they would be flying a low pattern and landing to the east. After the first crew made the radio call, the second crew entered the same sink and told tower that they would also be landing to the east. Crew three had not entered the pattern, but had listened over the radio and advised tower that they would be entering the pattern 500 feet above normal altitude and would land on the runway. The result was a safe landing made by each crew.

What can be learned from this? First, you never know what the weather is going to do. Second, you should always be willing to adapt to whatever situation is presented to you. And finally, SA can be gained by a variety of means. These three cadet soaring instructor pilots, on their first instructional, demonstrated that you don't need a vast amount of experience to make the correct decisions. You just need to be aware of all things that can affect you.

USAF photo by David Armer
Digital Illustration by Felicia Moreland

"BRAC Attack!"

(The Greatest Squadron In The World Is Shutting Down)

MAJ WILLIAM "YOGI" MAHER
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What's wrong with this picture? There are big mountains in Idaho, but not that big. That's a Mountain Home tail (still assigned to Elmendorf) flying over Denali. When a Base Realignment And Closure (BRAC) move happens, the paint scheme changes before you are ready, and a lot of other things change too. Let me begin by saying that the 90th FS did it right in transferring the squadron's resources of people and planes to Mountain Home AFB. However, if your unit is slated for a BRAC move, there are plenty of places where the stressors of shutting down a squadron and standing up another could reach the tragic breaking point of a wrecked plane or wrecked family. Here are some things to think about if the BRAC process ever happens to you.

Who's responsible for making this move happen? The short answer, my friend, is you. Even if you're not directly tasked in flying a jet to the new location, packing up the old squadron and turning out the lights as the last one to leave, you play a part in the smooth transition of creating a more efficient USAF for the United States of America. If you crash a plane or crash your family in the move to your new location because of a poor decision, poor prioritization, or poor planning, you haven't done your part to preserve our combat capability.

What about that schedule? The lines keep piling up on the scheduling board even as each farewell (the hails ended a year ago) sees fewer and fewer people at each gathering. The tone of the once festive occasion grows more somber as the end of the world's greatest squadron looms ever closer. This is where you have a tremendous opportunity (and responsibility) to pitch in and make a difference. Your flight commander (who is also dealing with everything you face in the approaching move) needs the info, and they need it sooner rather than later. Your leadership is entrusted with a limited amount of resources, and they have poured over the numbers of bodies and aircraft for the past year attempting to maintain the combat capability of your unit for the agreed upon time frame. It is a huge leadership challenge. You have the obligation to let your flight commander know early if your plans will limit the combat capability of the unit. Keep your chain of command

USAF photo by Maj Jason VanValin

informed of family issues, leave requests, PME and master's tests, medical appointments, etc, so they can plan and adjust accordingly. It doesn't matter if you are assigned or attached, a Lt or a Lt Col; keep your flying flight commander in the loop!

Fini flights are historically some of the most dangerous and risky missions in the AF. Nearly every aviator has heard of somebody who did something stupid or unnecessarily risky on their fini flight, only to make it their final moment here on Earth. We'll assume that the majority of the USAF fliers are dedicated, responsible aviators adequately caring for the resources of the US taxpayer, namely, you, the aircraft, and the JP-8. If, however, you (from the highest leadership to the brand new wingman or co-pilot) see a fini flight plan going down the road of contradicting good sense, good training, and certainly any reg busting, you have the responsibility to speak up and clarify the intent of the planned event--and the sooner the better.

The main point I want to make on the fini flight is the scheduling issues. Fini flights take a toll on folks staying behind after you depart. Your colleagues are obligated to take time from their increasingly busy schedule (as they pick up more and more additional duties from departing personnel) to get out and hose you down. It's a great tradition, but requires solid and smart scheduling to keep unintended consequences to a minimum. This is where you can help align with the scheduler's plan. Perhaps fini-Friday is a good practice to start when shutting down a squadron. Group as many fini folks together as possible, with good supervision, and thereby reduce the amount of time required to properly send folks out the door.

What better time to renovate and remodel buildings and hangers than during a BRAC move? Except for the fact that the squadron on the way out the door is still trying to maintain a combat capability, even while the improvements to the old building require 18 months to complete. That could mean flying out of a "deployed" location, even if it is just across the base. Parking plans for aircraft, maintenance capabilities, and even mission planning facilities could easily become a threat to safe operations. The decision of where to base your squadron operations is probably not yours. Make sure, however, that you don't just live with annoying problems or accept unsafe conditions for a year, while waiting to "get out of Dodge." Think of solutions to obstacles or issues and fix them if you are able. Get help from other base agencies if required. Invite your ground safety folks over for a walk through of your temporary digs after you have fixed all the obvious hazards.

Don't forget the maintenance issues with a BRAC move. They are dealing with all the issues your flying squadron leadership is dealing with on the ops side, only on a larger scale. Hundreds of maintenance troops face an uncertain future of assignments and airframe training while doing their best to produce safe, combat ready jets for you. Morale could be challenged by the prospect of accomplishing more of their work on the flightline in the weather, while the comfortable hangers sit empty to undergo renovations for the new aircraft. This makes even the most "routine" inspection a challenge when wind and snow bite into the flesh.

With all the obstacles for good maintenance, who's responsible for making sure you have a safe aircraft? Once again, you are! Take the extra time to catch any errors on the ground, so that you don't have to be a hero recovering a crippled jet in the air. And don't forget to thank your maintainers and crew chiefs who do the good work for you by producing a combat ready aircraft right to the end of flying operations.

And then there are the Guard and Reserve issues I can only begin to imagine, particularly the long-time maintainers who have been wrenching on your aircraft for 10 or 20 years. I'm sure it's a challenge to keep those maintainers around to the bitter end while they're concerned about their next job to keep the family fed. Many aircrew face similar challenges and concerns about the future, which could challenge safe operations in the present.

The entire PCS system could be flooded with the flux of personnel moving in or out of your current duty station. Get your orders and schedule hammered out as soon as possible (don't forget to discuss with your flight commander). Leave as much flexibility as possible for the inevitable unforeseen. Don't expect the process to happen magically; you'll have to do quite a bit of pushing from your end to meet all checklist items required to depart the fix. In this virtual world, there are still folks who can get you pointed in the right direction and slice the extraneous items from your list.

Don't forget about your spouse and kids in this move. "If momma ain't happy … ain't nobody happy" could definitely be a factor and might impact your ability to fly safely. Your family might not be ready to move just yet. Give them the support and help they need to help you accomplish the mission. If they need more help than you can give, get them to the appropriate folks on base. There are plenty of people on base who get paid to help you take care of your family. Use them if you need them. Include your family in your travel options and plan the move so that you're not pushing the limits of safe travel. Plenty of USAF folks have been killed on the road while moving on to bigger and better things. You can minimize this risk by sticking to a well thought out travel plan. You're probably required to discuss your travel plans with your safety officer as part of your out-processing requirements. Preparation for moving will wear you out, so take care to get your family to your new home in one piece.

Remember as you face the challenges of a BRAC move, or any move for that matter, you have a responsibility to ensure a safe and smooth transition for the USAF. Fix issues you can fix yourself, call for help if you need it, let the appropriate people know if you can't fix it, and have a plan to safely get to your next base. If the demands of getting out the door are interfering with safe flight operations, let your leadership know. As always, fess up and don't step to fly without your full attention devoted to the mission. Take care of the details and Lord willing, you'll report in to the newest greatest squadron in the world in no time.

CAPT DAVID "ONE SHOT" CAVAZOS
552 ACW
Tinker AFB OK

"Changing The Way We Think About Safety"

"Sir, I don't know if this is legit, but I just got a phone call from a local newsman. He said an E-3 just crashed a few miles north of the airfield!" This is the statement that one of the captains in the 966th Airborne Air Control Squadron ran up and gave to the Squadron Duty Officer (SDO) at 1000 on the morning of January 30, 2007. Immediately, four other officer and enlisted members from various flights ran up to the duty desk and echoed similar words of calls received from spouses, friends, and other military members. The rumblings of a growing anxiety began to reverberate throughout the squadron. In the hallways, people stood silent and stared at the desk.

The SDO, Major Derek Sellnow, looked at the officers and calmly stated, "Tell me what each call said." As the phone call recipients go over their conversations, the SDO wrote down every detail possible, making sure to miss nothing. Finally, he had all the information up to that moment and walked over to the Squadron Commander, Lt Col Mustafa Koprucu.

The SDO stated, "Sir, it looks like we might have a situation." "What kind of a situation?," asks the squadron commander. "Four squadron members have received phone calls, mostly from outside agencies, claiming an E-3 has crashed. The people calling were looking for information on whether or not we had any sorties flying, names of people onboard, and things of that nature," stated the SDO. "This is news to me; what did our guys tell the phone callers?" "Sir, they told them they were unaware that anything had happened, and offered them the number to Wing PA, except for the spouse, in which case the squadron member who answered the phone gave her your number," replied Maj Sellnow.

"Well, we better start making sure our planes are okay. Call the SOF and see if he can contact our aircraft and get a status on them. Where's our squadron safety guys?," asked the commander. After the SDO returned to his desk, the commander spotted the Squadron Chief of Safety and his assistant in the hall. "Capt Cavazos, Capt Schiewe, have you guys heard anything about a downed E-3?" "No sir, we haven't; are you messing with us, Sir?"

USAF photo by A1C Jon T. Adams

Right then, the SDO interjected, "Sir, I just got a call from the group commander; the plane was ours!" The squadron commander paused for a moment as the personnel in the squadron hallway came to a standstill. No one uttered a word; they just stood in total disbelief. You could almost hear the thoughts, "Has the unthinkable happened? Which plane was it? Who was on it?" Then the commander broke the silence: "Let's get the mishap response checklist out and start running it. I better get back to my office and take this spouse's call."

This was the beginning of the Squadron Mishap Response Exercise that the 966th Airborne Air Control Squadron at Tinker AFB, OK executed on that day. No one in the squadron except for the squadron's senior and safety staff knew that the exercise was about to happen. What would our squadron do? Was it prepared? Could its people handle the pressures and respond effectively in such a demanding situation? These are the answers that the squadron senior leadership and safety staff wanted to know. So in the end, what was our main purpose to be? What was our ultimate goal for this exercise? Simply put: TO CHANGE THE WAY WE THINK ABOUT SAFETY!

We've all thought it before, "Oh great, another safety meeting. Wake me up when it's over." But really, how do you get someone to drink the company Kool-aid? How do you get them to internalize what they hear and see, and make safety a way of life and a benchmark for living, rather than just another snore-fest? This is the crux of safety's mandate.

Well, first off, you have to believe that safety is important, because if you don't believe it, you can't sell it--and safety is something that needs to be sold to people. At first glance, it can seemingly go against all thoughts of adventure and spontaneity. Who really wants to embrace that kind of a lifestyle? But in reality, safety ensures that when you go out on your skiing trip, or your night low-level mission with Night Vision goggles (NVGs), that you give yourself the best possible chance to come back home and see your family and friends. So you first have to believe that safety is worth making a big deal out of. It has to be important enough that you're willing to go the extra mile to make the sale.

Secondly, it has to be real to people. You don't think about carrying the extra blankets in your car for cold weather until your car breaks down in the middle of the blizzard. Then you wish you had five of them. In the same token, the lessons that safety presents have to make an impression on others. It has to cause them to realize, "Man, this really could happen, and if it did, I'd be in the hurt locker!" It's at this point that people think "Maybe there's something to this safety business after all. Maybe there's something I need to pay a little more attention to."

E-mail is great. It has revolutionized the flow of information and changed the way people do business around the world, but in this age of death-by-email, too often people click the delete button when they get to the safety message in their in-box. It's information overload. They just don't have the time (and don't want to bother with) something so seemingly unimportant compared to what's happening right now. "So just how does safety become real?," you ask. By getting people's attention in a dynamic way, so that they don't forget the lessons learned through the experience.

The latter was the predominant goal in our squadron exercise, and boy did it work! About 15 minutes into the exercise, our squadron commander assembled everyone for a commander's brief. It was then that he let everyone know that we were having an exercise, and man, you could feel the sigh of relief. He outlined what the squadron itself was going to do, and how each person in the squadron needed to respond to given situations. Even though the exercise was wrapped up in an hour and a half, we chose one of our airborne sorties to simulate the downed crew. When those 29 people stepped into the debriefing room four hours later when their flight landed, the Director of Operations, Lt Col Robert Haines, informed them they were all simulated dead. As the crew sat in bewilderment, each person listened to the details of the exercise as their Virtual Record of Emergency Data (VRED) was passed out to them. You guessed it--about twenty percent of the crew members had something out of date.

All in all, some very good things came out of this exercise. The squadron learned how to effectively deal with an aircraft mishap and respond in a timely manner. The senior and safety staff learned that training within the squadron had definitely paid off. Of 41 phone calls to the squadron, not one person gave away any critical information, and all personnel referred callers to either Public Affairs or the commander. And finally, people realized that difficult situations can arise at any moment, so it's best to be prepared and have all affairs in order now, rather than putting it off for later (when it may be too late.) Consequently, there was a mad rush in squadron personnel updating VRED and Squadron Individual Emergency Data Sheets.

Did safety become real that day? You bet it did! And because it became real to people, the sale was made. The change has begun, and people are beginning to look at safety differently. It's the kind of change that gets people thinking about safety as it applies to all facets of their life, before they act. One thing's for sure: it's pretty much a guarantee that everyone who experienced that day will never forget it. And if that's the case, then Safety has done its job. It made itself proactive, rather than reactive.

“Things Do Not Change;

We Change”

–Henry David Thoreau–

USAF photo by SMSgt John Rohrer

"There I Was ... A Copilot's Perspective"

CAPT SEAN RAINEY
909 ARS
Kadena AB Japan

I can actually recall the many times I have bit my cheek after having an Aircraft Commander (AC) tell me "Ok, this is how it is …," or have had the hair on the back of my neck stand up because of an action that was borderline safe. Then again, how many copilots out there have had almost a thousand hours flying commercial aircraft before flying for Uncle Sam?

So let me start off with the proverbial saying "There I was …" on a typhoon-evac to Andersen AFB, Guam. I was the pilot not flying (PNF), and we had just left our data link authority KZAK (Oakland) and had been handed over to Andersen approach control to prepare for our descent. Now, flying over the ocean is a bit nerve racking at times, but flying over the ocean, circumventing thunderstorms at night is nerve racking to say the least! So with this in mind, we had been given a pilot's discretion descent to 4,000 feet with approval to deviate left or right of course as needed. Hearing this, the relatively new AC decided we would begin the descent and called for the Descent Checklist.

On our descent, the Instrument Landing System (ILS) was the approach of choice and was briefed while dodging the isolated thunderstorms around the island. Now if you have flown into Andersen AFB before, you know to expect that Anderson arrival will clear you for the visual approach at least 20 to 25 miles out. Unfortunately, this is where things began to fall apart.

The AC told me he had the "field in sight" and told me to tell the arrival controller that we would accept the visual approach and simultaneously called for the "Approach and Landing Check." As I was talking to the controller and conducting the Approach and Landing checklist, I realized that we were in and out of the weather, and I began to think, "How does he (AC) have the field in sight, because, I don't!" I interrupt myself halfway through the radio transmission and begin to query the AC, "Are you sure you have the field in sight, and don't you think we should just request vectors for the ILS approach?" An uneasy nerve was struck, and it seemed the AC was task-saturated flying the airplane in and out of the weather, while trying to determine if he had the field in sight.

Eventually we were cleared to continue our descent to 2,500 feet. Arrival asked again if we had the field in sight and gave us directional cues to gauge our eyeballs. We were on a right base to the inside runway. However, we continued to fly

USAF photo by SSgt Suzanne Day

in and out of the clouds and rain showers. I had already tuned the localizer frequency in on both navigation radios and had the ILS up as a back-up on my Multiple Function Display (MFD). The pilot didn't have the ILS selected on his MFD. He announced he had the tower light in sight and was maneuvering to align the aircraft on final. By this time, we were underneath the deck and aligned with final for the visual approach. During the descent on final, it's policy to call out "1,000 feet" and "500 feet stable continue or go around." I recall telling the pilot he was 15 knots hot and right of center line. Eventually, the speed bled off, and we found ourselves 5 knots slow and slowly correcting to center line. The AC was correcting and verbalized this. At the 500-foot point, I announced "I've got you 10 knots hot and right of center line." Just then, I received feedback from the pilot I was not expecting! I just got the hand! The AC took his right hand off the throttles and put his hand in my face, cross cockpit. I was shocked. However, I did not shut down and dwell on the situation that just occurred. I continued to do my duties as the non-flying pilot and to back up the pilot flying. Eventually we landed approximately 10 feet right of center line and had crossed the threshold 7 knots above Vref and touched down 5 knots above touchdown speed. Landing rollout and taxi-to-park were uneventful. As we continued to taxi, I was replaying what had happened during the descent and final. Although we landed safely, I think back and find that we as a crew violated our operating instructions, as well as FAA VFR flight rules. I say "we" because I allowed the AC to continue with the visual approach, although our instructions directed as follows:

Night and Marginal Weather Operations. Fly a precision approach, if available, at night or during marginal weather. If a precision approach is not available, fly any available approved instrument approach. During night VFR conditions, if an approved instrument approach is not available, a visual approach may be flown (only if a visual glide slope indicator (VASI, PAPI, etc.) is available). On training and evaluation flights at familiar fields, pilots may fly non-precision approaches or VFR traffic patterns to accomplish required training and evaluations. The pilot not flying the approach will monitor a precision approach when practical to enhance safety. (11-2KC135 vol. 3)

Night VFR conditions were basically non-existent, and I should have been more assertive in requesting vectors for the ILS. Another thing I look back on is the hand in the face. I am glad that my private education, experience, as well as the education provided from the Air Force on the subject of Human Factors, helped me identify the need to stay focused and keep my head in the game, versus shutting down completely. So what message am I trying to convey with this article? Don't just sit back and be the head-nodding copilot, while allowing the other pilot to violate an instruction which is in place for you and your crew's safety. Also, as a copilot, if you feel that your AC may be performing an unsafe act, speak up! If you don't get a reaction, then call time out. Do whatever it takes, even if it means going to holding and discussing your concerns. As a copilot, you're still responsible for the actions of your crew and the aircraft you are flying.

USAF photos by Capt Helton

"Before You Even Strap In... The Importance Of A Good Preflight"

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I'll be the first to admit that the pilots in the C-130 community are a bit spoiled. We get to the squadron and sign in to fly, maybe do a quick briefing with the whole crew. Then the Os start "filing and mission planning" and the Es head out to preflight the aircraft. It doesn't matter if it's raining, snowing, or Africa-hot out there, the Os are inside, reading the paper, and drinking coffee while the Es are doing the hard work – or at least that's what the Es think.

I'm part of a squadron at a C-130 depot, and as such, we don't own our own aircraft. We fly the input aircraft only when they're ready to be tested, and there are times when we go months between functional check flights. So when we need to do a proficiency sortie to keep our flying skills sharp or to knock out the ever-popular end-of-half requirements, we "borrow" an aircraft from one of the units we support. In order to do this, we have to fly out to the unit via American Airlines, commandeer one of the unit's regularly scheduled training lines, and then fly back home again the next day on a commercial flight. Needless to say, those training flights are very dear to us, and we make the most of every minute we're in the air.

One of the best parts about being at the depot is working with incredibly experienced crew members, the kind of flight engineers and maintenance guys who have forgotten more about the C-130 than I'll ever begin to know. And when, on practically every flight, you're flying a slightly different model of C-130 or an aircraft that hasn't flown since the guys on the shop floor had put its wings back on, it reassures me to know that the crew members I'm flying with are some of the most experienced in the Air Force. A recent training flight reminded me just how important it is to have this experience base on every mission and to never take that knowledge for granted.

We had flown out to a unit to do some flying in preparation for an upcoming unit evaluation. Both of our unit's flight engineers, as well as two highly experienced maintenance troops who fly with us, preflight the aircraft while the Os took care of the all-important paperwork inside. When we arrived at the aircraft, the Es were standing in a group under the right wing, looking up at the flap well – and that's never a good sign.

There is an extensive checklist that flight engineers go through to preflight a C-130. But most flight engineers also have their own techniques, their own specific little things that some crusty old flight engineers had taught them to look for, way back when they were just pups. Our flight engineer had been taught to check that the ball nuts connecting the flap to the wing approximately lined up with each other. By the book, which our guys know verbatim, those ball nuts should have been within one-eighth of a turn of each other. While you can't see that level of detail from the ground, our flight engineer could see that they weren't lined up anywhere near that well.

Maintenance had taken a cursory look at the aircraft and asked if we wanted to write it up and give

USAF photo by SSgt Verlin Levi Collins

it back to them as possibly NMC. They pointed out that the aircraft had flown several times since any maintenance was done in that area, including a proficiency trainer the night before, that included multiple takeoffs and landings. We were under some pressure to take the aircraft and give it a try, because we had only that day to get a flight in. That day's spare aircraft had already been used, so if we didn't fly the aircraft in front of us, we'd all go home empty handed.

After weighing the pros and cons, we decided to give the aircraft back to maintenance. We watched them push the stand under the aircraft for what we hoped would be an hour or so of troubleshooting and a clean bill of health. As they started to unscrew the ball nut, the inboard edge of the flap basically came off in their hands. As it turned out, the ball nut had already failed, and most of the ball bearings inside had come out. The flap would have to be removed, the connecting parts replaced, and the flap would have to be re-rigged, which would take hours. In the end, we didn't get to fly that day. On the plus side, we also didn't have to deal with an airborne emergency, such as a split flap that tangled itself in the ailerons or a flap that departed the aircraft altogether.

The morals of this story are simple. First, beware of mission-itis. Everyone has been in the situation where you have beans to get done and you're nearing the end of the training period, where you have training to finish so your student can leave for instructor school in two days, or when a check ride is coming down to the drop-dead date. We're here to accomplish the mission, and no one likes to walk away before the job is done. But you should always keep that motivation in mind as you constantly run the ORM process in your head. Know what the reward of leaning forward is, but as problems start to mount and the risk level changes, always ask yourself – is it still worth it?

Secondly, and I can't stress this enough, just because an airplane flew yesterday or even earlier that day and there wasn't a problem, doesn't mean that something isn't already broken. There may be a major problem that just hasn't made itself known yet. A technique my civilian flying instructor taught me many years ago was to think of every preflight as a test. He said I should pretend that he had already been there and broken something on the aircraft, and it was up to me to find the thing that was broken. It's tough to keep up that level of vigilance every day when we maintain the kind of ops tempo that we have, but it's absolutely crucial to the safety of our aircraft. Never get complacent and let your guard down.

We didn't fly that day and what do you know, we still managed to get all our requirements done for the half, and our Stan Eval inspection went off without a hitch. As my Commander always says, there's nothing we do on any given day in our non-combat unit, especially when we're flying a training mission, that's worth assuming unnecessary risk to our lives. So take the time, run your ORM, mitigate the risks, and delay the mission if that's the right thing to do. The conservative answer is always the right one.

U.S. Navy photo by Phan Adam York

"The Buff And The Big Sky Theory..."

CAPT EDDIE KNOX
42 ATKS
Nellis AFB NV

Worldwide contingencies have placed our aging fleet of aircraft in roles that they were never designed to carry out. The airplanes are getting older and the pilots are getting younger. The Air Force has asked its planes and pilots to learn new missions and deploy longer than any other time in our history. Through all of this, the US Air Force has had its best year from a safety standpoint, despite a time of contingency worldwide operations. Statistics play a vital role in looking at where we stand from a safety perspective and where we're heading, or trending to be more precise. In the age of modern air combat, it's not combat losses that "buy the farm," it's the day-to-day, to-and-fro missions that we struggle with.

My story is a little bit of combat and a little bit of minutia. I was in the right seat at that time of a mighty B-52H Stratofortress. This was my first combat deployment. As you can imagine, I was excited about the prospect of putting my years of training and millions of tax payers' dollars to use. I was more than halfway through my first tour. I wouldn't say I was complacent, but I had other distracters on the mind. We had been extended during our vul due to some ongoing operations below us. The whole crew was excited to help the effort on the ground. For the pilots up front, we were also faced with a no-nonsense reminder about our fuel and the rate at which we were burning it. We were assured through the Combined Aerospace Operations Center (CAOC) that a tanker would meet us with some extra gas on the way home to a small tropical paradise island. We were well below Bingo when we were finally cleared off. The decision was made early to climb and "make some fuel." The return home was for the most part uneventful. As nightfall set, "Feet Wet" passed,

USAF photo by SMSgt Elizabeth Gilbert

and it was time to think about finding a tanker. The tanker crew had their "stuff in a sock" and arrived as fragged, minus a few thousand pounds of precious JP-8. Poor weather at home caused some delays. Fuel exchange was smooth, and I had the opportunity of getting a couple of extra contacts for practice. Now fat on gas from our climb home, we all breathed a little easier.

The tanker scooted on ahead of us and left us in trail. Now 16 hours into a sortie that was all but complete, the crew was feeling the effects of an extended duty day. "White Triangles" in hand, I was ready to face the rest of the night and the weather that was rolling in. A thin cloud deck started to roll in and made the night sky appear to blend with the cold ocean below. I began to dim cockpit lighting, partly for visibility outside the jet and partly for an easy-on-the-eyes flight home. The 17th hour had passed, and the mighty air warrior now felt the need for a mighty night's sleep.

Over waypoint Uniform I heard our tanker ask, "Buff, are you guys expecting one of your boys? Our TCAS just picked up a phantom." I looked at the ATO, and as expected, one our boys was heading down range. "Affirm, say range." "About 15 miles." "Roger." In my groggy state of mind, I was trying to do the arithmetic to figure out where they should be, in regard to our loose formation. At a minimum, we were planned to be altitude deconflicted. Giving up on public math, I leaned a little closer to the wind screen and used the old Mark-1 eyeball. Looking out of the jet, all I could see was a very faint view of the stars above, and what looked like a couple of ships in the water below. I had no discernable horizon to work with. Just then, through the fog, I spotted some movement. I fixed my gaze and through my visor, I spotted one red light and one green light. About that time, I found myself looking into the cockpit of another heavy aircraft! I made an immediate full deflection bid to the right, force disconnected the autopilot, and rolled belly up to my new sky buddy. You just wouldn't believe how close this aircraft looked! In my mind, everything seemed to move in slow motion. I could tell the heavy was making a drastic move as well. The certain collision never happened, but I did manage to shake up some crew members with an abrupt "heading change" and nose low recovery, to put it eloquently. The next morning, I walked to the tanker squadron and personally thanked that tanker crew. After the handshake, my next stop was to our deployed safety office. I told them of the incident, and the info was disseminated. The conclusion was that the other aircraft was an Asian airliner in a climb on its way to the Middle East.

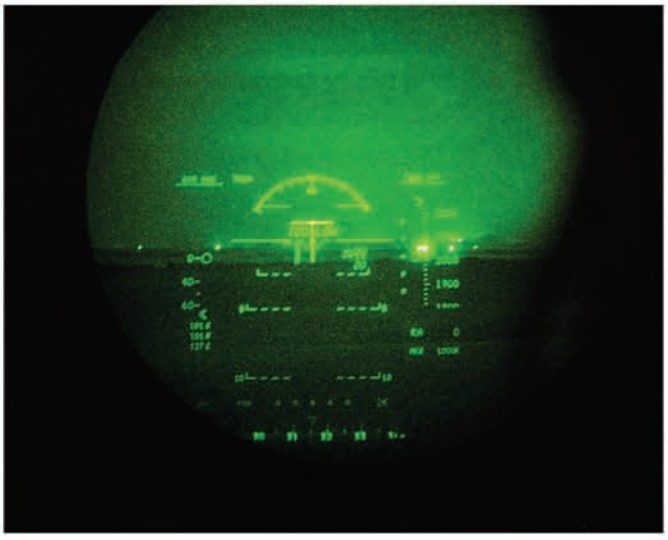
Since that flight, I had a chance to learn some things. The first: stuff happens and big sky theory doesn't always work. We need systems in place when Murphy rears his ugly cranium. Our system worked. The B-52 is reliant upon our tanker's WX RADAR and TCAS to guide us through the storm. Our tanker knew that something didn't look right, and simply asked the question. They would have been right to not have said anything, due to a schedule showing a B-52 around that time. Judgment on their behalf kept us from taking an early morning swim.

The second: complacency kills. Over 17 hours flying that night was a challenge for me. The tanker spoke up and snapped me back to reality, if only for a moment. That moment put me back out of the cockpit when I needed to be. Thank God for that tanker call. Final lesson, in the words of Rocky Balboa, "It ain't over till it's over." Some would say, "We fought a good fight and it's time to bring it home," myself included. There was still a lot to do before we were back in the chocks and the engines were shut down.

Official USAF photo

Consistent with the statistics of Class A mishaps, most accidents happen during routine flying, not during the h#**-on-earth rage fests we often imagine, or at least what I imagine. The day that a woman gives birth to a baby with wings growing out of its back is the day that flying is a natural routine event. In the meantime, stay awake, stay alert, let's keep 'em flying, and leave the losses to the enemy. To that tanker crew: thanks again.

"CRM: The 'Silent' Killer" (So Don't Be Silent)



LT COL "DR" RICHARD KEMBLE
315 AW Chief of Safety
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The aircraft is on short final. The Aircraft Commander (AC) is a well-seasoned, 3,500-hour, "steely-eyed" killer, recently requalified in the aircraft just after coming off a staff tour. The copilot is a 1 Lt, OIF/OEF veteran. The AC is flying the approach under night vision goggles (NVGs), with incompatible airfield lighting, and is unaware he is aiming long. At 50 feet the AC realizes he is long, so he elects to "plant" the landing and get on the brakes near VBO (Velocity for Brake Overheat). The aircraft exits the end of the runway at higher than normal taxi speeds. Once clear of the runway, the AC comments that he misjudged his aim point due to his NVGs being "washed out." The copilot comments, "I knew we were long, but I thought you knew what you were doing." The AC spins his head around to the copilot and says, "Why didn't you say something?"

What is it that keeps a crew member from speaking up when he/she knows something is wrong? Is it rank, individual personalities, fatigue, a lack of situational awareness (SA), or a fear of reprisal? Perhaps it's a combination of any of these. Despite some of the most comprehensive training programs and emphasis on intrapersonal cockpit dynamics, Cockpit/Crew Resource Management (CRM) continues to be identified as causal in many aviation mishaps.

The emphasis on CRM can be traced back to 1979. NASA and the airline industry came together to create a culture to improve aircrew communications. Since then, the program has "evolved" however; the premise remains the same: to reduce aviation mishaps by reducing human error. Despite FY06 being the best year ever in Air Force history for aircraft mishaps, there is still room for improvement. In FY06, the Air Force mishap rate dropped below 1.0 for the first time since the Air Force started tracking these rates. AMC mishaps, in particular, were fortunate not to have any fatalities; however, four aircraft were destroyed. The common thread running through all four was human factors and a breakdown in CRM.

It can be argued that mishaps rates will never go much lower simply because humans make mistakes. So, should we as aviators accept this premise, and continue to operate on the "when it's my time, it's my time" mentality? I recall back in Undergraduate Pilot Training (UPT), when my flight commander stood in front of our class with two bags. One bag on the right was full and it was called "luck." The other on the left was empty and it was called "experience." He said, "Every day of your career you will make a deposit into your experience bag." "Your goal as professional aviators is not to empty your luck bag by making deposits into your experience bag." One student asked, "How do we do that?" The flight commander smiled and said, "That's something each pilot must figure out for him or herself."

Here are a few tips I've picked up in my 17 years of flying. I'm not the smartest person to have ever walked on earth. Recognize you don't know everything. It's this self-awareness that will enable you to be receptive to the inputs of others. I am contin-

Official USAF photos

uously amazed--every day--how much I still don't know, and how thankful I am to be surrounded by some of the best aviators in the Air Force.

Leave your ego in the briefing room after you step. I have known pride to be a dangerous adversary. Don't let pride lead you somewhere you don't want to be. Here are some subtle hints your fellow aviators may give to help increase your situational awareness. "Are you sure?" If you hear this, wake up and pay attention. "Where is that written?" Another sure sign you're about to invent something creative. And lastly, "I've never seen that before." If you hear any of these, watch out! Someone is trying to tell you something.

Be open to suggestion. Some of the best words ever spoken in an aircraft began with, "Have you considered …?" This again is an attempt to get your attention. Take heed. It's much easier to make a good decision after evaluating several options, but be wary not to get paralyzed by indecision. Some actions are time-critical, others are not. Hope for the clarity to know the difference.

Don't make exceptions. If I say, "I wouldn't have done that in this weather, or with an evaluator on board," then I probably shouldn't have been doing it in the first place. This consistency will let others know you don't intentionally deviate. It makes it easier for someone else to recognize an unintentional deviation, which might allow them to speak up sooner.

Fight for feedback. Many times I've flown with airmen, sergeants, lieutenants, and captains who probably wanted to ask a question or make a suggestion, but because of my rank, they remained quiet. Get this out of the way early in the pre-brief. Although we cannot shed our rank when we fly, we can encourage, and even demand, input. Every crew member has a vested interest in the outcome of the flight, so it would make sense for them to have input as well. Be open and encourage this interaction. It just may be the airman who saves your bacon one day.

Be a professional aviator. This is probably the Air Force's biggest challenge in today's environment. As aircrew members, we are inundated with many "distracters" not directly related to flying. Despite all the special projects, additional duties, and unrelated computer-based training, we cannot allow this to detract from our responsibility to be prepared to fly. Each one of us must decide what's truly important and prioritize accordingly. We owe this to everyone we fly with.

Know the personal difference between being current and proficient. Every aircrew member is different and has different skill sets. Be aware of your personal limitations and don't let the Aviation Resource Management (ARM) product dictate when you fly. Being proficient enhances your SA by freeing up brain cells for other tasks.

Share your mistakes with others. This is probably the best way to make others aware of potential mishaps. "If it can happen to me, it can happen to anyone." Don't be afraid to share the "there I was …" stories. The bar is not solely reserved for political, financial, and military leadership issues.

Make technology work for you, not the other way around. In today's environment of technological advancements, are we helping our crews or hindering them? There comes a point where too much of a good thing is bad. In my aircraft, for example, I have the ability to use Combat Track II, TAWS, ABI and AERO-I; all very good enhancements. The downside is not having enough crew members to monitor all of these "enhancements." For example, I have received (on several occasions) phone calls from TACC through the AERO-I while on short final. This obviously is distracting to the aircrew during a critical phase of flight.

Lastly, keep your emotions in check. As the AC, your reaction to a particular situation can sway the actions of others. If someone thinks you're upset, whether you are or not, it may prevent them from providing you with a critical piece of information.

Since the beginning of aviation, we as aircrew members are tasked to succeed despite the shortcomings of others. We are the last link of the chain in mishap prevention. Hopefully, this article has given you a few more tricks to add to your experience bag. See you at the bar!

Official USAF photo

continued on next page

"HQ AFSC and the MOFE"

2LT CHRISTOPHER M. HOCKING
HQ AFSC/SEF

If you've ever had the opportunity to serve as a member of a Safety Investigation Board (SIB) for a Class A or B mishap, have you ever wondered what happened after you released your formal report and final message? Some may immediately respond, "Well, the final message was reviewed by Headquarters Air Force Safety Center (HQ AFSC), the findings and recommendations reviewed, and once complete, the revised final message approved by AF/SE, and released for distribution." Others may say, "Who cares?" Regardless of the response, the Memorandum Of Final Evaluation (MOFE) process is the final step in the mishap investigation chain and must be understood.

The purpose of the MOFE is to review and evaluate the formal report/final message, as well as the comments and rebuttals received from the convening MAJCOM and other interested parties. When the formal report known as the "white elephant," is briefed by the SIB and the final message is released by the convening authority, several actions occur at the MAJCOM level. First, the MAJCOM reviews the findings and recommendations. They will most likely begin taking corrective action on the recommendations they concur with, to mitigate mishap reoccurrence. If the MAJCOM disagrees with either the findings or recommendations, however, they will submit comments with justification through the Air Force Safety Automated System (AFSAS) to the MOFE tiger team.

As with all Air Force safety programs and actions, an AFI governs the MOFE process. In this situation, AFI 91-204, Chapter 7, and AFMAN 91-223, Chapter 7, outline how, why, and when the MOFE process begins, assesses, deliberates, and releases each memorandum.

The MOFE process begins with the release of the final message. According to AFI 91-204, Chapter 7.1, "All concerned agencies and organizations have a continuing responsibility for managing the preventive action process." The concerned agencies include HQ AFSC, numbered air forces, major commands, and agencies directly involved in the mitigation of further incidents. The reviewing authority for the MOFE is HQ AFSC, Aviation Safety Division, Operations Branch (SEFO), Kirtland AFB, NM. The Operations Branch MOFE tiger team verifies that the final message and formal report meet AFI standards by ensuring the findings support the mishap sequence, the causes adhere to AFI 91-204 guidance, and the recommendations actually reduce the risks discovered by the SIB. During this process, the MOFE tiger team judiciously addresses both MAJCOM comments and rebuttal letters.

AFI 91-204, Chapter 7.3.2, gives the MOFE tiger team the authority to "make changes to the findings, causes, and recommendations (including OPR/OCR assignments)," add individuals as causal to a mishap, or significantly change that person's role in the mishap. However, the MOFE tiger team doesn't review Other Findings of Significance (OFS) or Other Recommendations of Significance (ORS) or their Office of Primary Responsibility (OPR) and Office of Corollary Responsibility (OCR). Once the MOFE tiger team results are approved by HQ USAF/SE, the MOFE is released via AFSAS and can be accessed by all flight safety offices. At this point, the MOFE becomes the official position of the Air Force on the findings, causes, and recommendations of the mishap.

Official USAF photo

When the MOFE tiger team meets to review a final message, it's composed of five to six rated members from the HQ AFSC Aviation Safety Division. Two members come from the Operations Branch (SEFO), one member from the Engineering and Technical Services Branch (SEFE), one member from the Flight Safety Branch (SEFF), one member from the Life Science Branch (SEFL), and, if the mishap involved a wildlife strike, a member from the Bird/Wildlife Strike Hazard Branch (SEFW). The composition of

the MOFE tiger team is similar to a SIB, where the MOFE's ranking member of the Operations Branch convenes the tiger team, and each member has a vote on the issue at hand. Unless the formal report is waived, each Class A or B mishap white elephant is officially reviewed by the tiger team.

Each member of the team carefully reviews the final message, while the recorder loads the mishap from AFSAS and prepares a brief summary of the mishap from the sequence of events in the final message. After all members have finished reviewing the final message, they begin a collective team deliberation of the findings and associated causes to see if they match and sustain the mishap sequence, and amend them as needed. Once the findings and causes have been reviewed, the team addresses the recommendations and makes sure the causal factors identified in the findings, as a minimum, are rectified. Throughout this stage of the MOFE, the tiger team also addresses any MAJCOM comments and rebuttals. The tiger team also confirms that the OPR and OCR are valid and properly assigned. During the deliberation, if the MOFE tiger team cannot resolve an issue, then a dissenting opinion will be annotated for review by the SEF and the AF Deputy Chief of Safety (CD).

With the findings and recommendations reviewed, the tiger team creates the MOFE message and prepares a staff summery sheet for routing through SEF for approval. Once approved by SEF, the message is sent to the CD for final approval.

Finally, after making any corrections based on SEF and CD comments, SEFO releases the message. Once the MOFE message has been released, the recommendations are formally tracked by AFSC through completion. If a MAJCOM refuses to take action on an SIB recommendation, they are required to submit a detailed explanation of their rationale.

In the end, the MOFE board is responsible to see that the SIB findings and recommendations are accurate and to assure that each OPR or responsible agency actually adheres to the recommendations and takes the necessary action.

If you should find yourself on an SIB, remember the MOFE's function. When you write the white elephant, make sure your findings reflect the mishap sequence accurately, verifying that the causes meet AFI 91-2004 guidance and that the recommendations address the necessary corrective actions. Remember to include only one OPR per recommendation. If all service members adhere to the guidance and understand what AFI 91-204, Chapter 7, and 91-223, Chapter 7, state and write to those expectations, it will alleviate any surprises when your white elephant is MOFEed at HQ AFSC.

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"Breaking The Chain"

(Was Our Young AC Strong Enough?)

CAPT MATTHEW JAEGER
9 AS
Dover AFB, DE

Every aircraft accident is precipitated by a sequence of events. The key to avoiding the accident is as simple as recognizing any one of the events in the sequence—and doing something to stop it. The events can vary widely from maintenance and weather to conflicts within the crew. Any single event isn't usually enough to cause an accident, but the result of multiple events can be catastrophic.

Thankfully, well-trained ground crews, mechanics, and flight crews resolve most issues that could lead to accidents before problems occur—often without recognition or special notice. But every so often, a story needs to be told so future crews can recognize the signs of an impending accident, and hopefully make the right decisions to keep their own flights safe.

The mission for the day was to fly a C-5B "Galaxy" with a crew of 11 from Dover AFB, DE, to Peterson AFB, CO. It was a repositioning leg with no cargo and only five space-available passengers. The crew alert was scheduled for 0600L, but a maintenance problem with the aircraft delayed the alert until 1000L. The crew reported to the squadron for the mission brief at 1100L, one hour after the postponed alert. During the mission brief, the basics of the mission were outlined to the crew. The Aircraft Commander (AC) made his first assessment of the Operational Risk Management (ORM) score, an assessment required by Air Mobility Command (AMC) for each day of a mission or local training flight. The ORM assessment helps the AC analyze the risks involved with the mission, as well as plan ways to mitigate those risks.

On that particular day, the ORM score included four minor issues—fairly low for a C-5 mission. The AC's relative inexperience was reflected in the score. Other issues were the late alert, possible weather problems, and the aircraft's maintenance status.

After the mission briefing, the crew waited for a crew bus to the aircraft. The bus arrived about 25 minutes late, putting the engineers slightly behind schedule for their preflight, and forcing the pilots to rush their normal mission planning at base operations. After loading the aircraft with the crew luggage, the pilots returned to base operations to begin the mission planning. The pilots learned that a mild snowstorm was expected to reach station in approximately one to two hours, including two to four inches of snow with gusty winds and low ceilings. The forecasted weather enroute and at the destination was clear.

The pilots, now feeling the rush because of the late crew bus, began planning for a departure in snowy conditions by reviewing cold weather procedures. Mission planning went smoothly, but the engineers ran into a problem with the aircraft. The maintenance issue that delayed the original alert—an issue with the fire detection equipment in the left wing—was still causing problems and would require another hour to resolve. While maintenance was working on the wing, the

Official USAF photos

engineers were forced to stop their preflight, further delaying the departure time. The additional delay gave the pilots more time to review mission documents in preparation for the flight. The pilots completed their mission planning and arrived at the aircraft about 50 minutes prior to scheduled takeoff, 40 minutes behind schedule. At this point, the maintenance issues with the airplane were nearly resolved and the engineers were starting their preflight. The snow had just arrived on station.

As the engineers worked on their preflight, the snow became heavier and began to cover the surfaces of the aircraft. The crew coordinated for de-icing and a truck was quickly dispatched. The AC was now growing concerned about the weather. Despite being well-trained on how to operate the C-5 in these conditions, he had never actually been in this situation. He was not comfortable with the exact procedures associated with de-icing and was also concerned about taxiing a lightweight aircraft on slippery, snow-covered taxiways.

The engineers finished their preflight, and the crew prepared for engine start. About the time clearance was received to start the engines, airfield management reported an airfield ORM score of "High." As an airfield management function, no one in the crew was familiar with conditions governing the airfield ORM score. But the crew discussed the change and quickly decided that if airfield management considered the airfield risk assessment to be a concern, the decision to take off should be reconsidered. The AC called the squadron for another opinion and clarification on the airfield ORM score. It was decided that the airfield ORM score only applied to ground crews and that the mission was not to be delayed. This was further confirmed with the operations group commander, who specifically approved the departure despite the airfield conditions. The crew decided to press on with the engine start before the weather got any worse.

After starting the second engine, the engineer reported trouble with the number-two generator. Maintenance was again called out, and the crew was forced to shut down the engines. The generator fix would require about an hour. During this time, the snow continued to fall and the winds continued to increase. Airfield management raised the airfield ORM score to "critical." The AC again sought the advice from more senior pilots at the squadron and was again assured that a takeoff would be safe. He also called the operations group commander directly to make sure there were no restrictions about departing with an airfield ORM score of "critical." Again, the AC was told there were no restrictions and that the mission was cleared to depart.

At this point, the crew began to notice the events in the chain beginning to pile up. Even though the crew's leadership was advising that it was safe to depart, the final decision rested on the AC's shoulders. The AC ultimately decided to move departure to the next day, effectively breaking the chain. The mission departed 24 hours later in good weather with no maintenance issues. Despite the cargo being delayed to its final destination, the mission was a complete success.

We will never know what may have happened if the AC had elected to continue the mission as planned. This is the case every time the chain of events is broken. But without breaking the chain, safety reports tell us that missions are doomed to fail. This could mean aircraft damage or loss—or even the loss of life. It is always in our best interest to mitigate risks through ORM to the maximum extent possible. By doing this, we can recognize the chain of events and take necessary steps to break the chain.

Official USAF photos

"T-1 Jayhawk Approach"

ANONYMOUS

A few years ago I was a T-1 instructor pilot (IP) at Laughlin AFB, TX. The T-1 is used as a phase III trainer for future tanker and airlift pilots. The T-1 is the Air Force version of the civilian Beech jet 400.

I was giving a T5003 ride which was the student's third ride in the T-1. There were low ceilings around the entire state of Texas. The ride was primarily a VFR pattern sortie with area work, but the only place to get any VFR work requiring a ceiling of 1500' and 3 miles visibility was in Midland, Texas. On the way to Midland, ATIS said that the ceilings were only at 1100' with 3 miles visibility. Since the ceilings were too low, we pulled up the ATIS for Abilene, Texas, and the ATIS was calling 1600' and 3 miles. We requested a change in flight plan to Abilene.

We quickly realized that the only approach to the south runway was a localizer back course. Now to AMC pilots that sounds rare, but in the T-1, it was a regular occurrence. It was not an out-of-the-ordinary approach. Keep in mind that this was the student's third ever flight in the T-1. This would be his first localizer back course in the T-1, his first IFR approach in the T-1, and to top it off, it would be in the weather. While on the approach approximately 10 miles from the runway and in the weather still, approach called us and said that the weather was reported by the last aircraft to be 700' ceilings. Obviously this was not going to work for our patterns, but was 200' above the required 500' ceiling for the approach. I decided to continue the approach and then get an IFR clearance back to Laughlin.

We configured to 30 flaps and gear down, which is the full configuration for landing. The student was having trouble with maintaining course during the approach, but with instruction was able to correct. After we started decent from the final approach fix, our course control was poor, and I took control of the aircraft. After centering us on course and leveling off at MDA, I noticed that in order to maintain level flight, the yoke required almost full control deflection to the left. I looked at my N1 indication and the left engine was at 76% N1 and the right engine at 35% N1, with both throttles positioned together. A normal power setting to maintain level flight with full flaps and gear down would be 76% N1. I increased the throttles and the left one read 95% N1 with the right one remaining at 35% N1.

The flight manual says that a single engine approach will be flown at 10 flaps, and 30 flaps should not be selected until landing is assured. This is due to the increased drag of full flaps. At this point, we were at 500' and 3 miles from the runway. I immediately looked at the airspeed gauge and the magenta arc. The magenta arc displays what your airspeed will be in 15 seconds, giving the current power setting, configuration, attitude, etc…. We were 5 knots above approach speed with the magenta arc showing us to be 20 knots below approach speed in 15 seconds.

I immediately directed the copilot/student to raise the flaps to 10 and verbally briefed our approach speed increase of 10 knots. I firmly believe that if we did not reconfigure our plane to a lower flap setting, we would have stalled the aircraft due to the drag from the full flap configuration. The flight manual is correct, the T-1 will NOT fly single engine with 30 flaps. On about a ¾-mile final, our "Right Generator Fail" light came on. The student asked me if I would like to declare an emergency, and I told him no, because I didn't want to answer questions on a half-mile final with a hand full of jet. The other issue we had is that we had a 7,000' runway and a "heavy" aircraft. The master warning and caution lights came on in the flare due to the right engine shutting down on its own with the throttle in the idle position. Our hot break speed was 105, and we were barely able to slow below 105 knots before needing to apply breaks to stop the aircraft. The T-1 has finger lift guards which stop the throttle from being placed in the cutoff position in flight unless the guards are lifted.

After landing, I asked myself the question, "What happened?" I ran through all of the possibilities. We did not hit a bird, the student didn't move any switches he wasn't supposed to, and the finger lift guards were down. So what happened?

As it turns out, the T-1 has a throttle linkage cable that connects the throttle with the fuel control to the engines. There is a spring which will pull the throttle back from the "full throttle" position to keep from over boosting the engines. The right throttle linkage cable broke when the throttle was in the idle position, and the spring was strong enough to pull the throttle linkage into cutoff while in the flare.

The quantity of throttle movements in each T-1 sortie had taken its toll on the cables. Many of the cables inspected later on other aircraft were found to have rubbing and were replaced.

The point of this story is that an uncovered emergency procedure in the flight manual is not necessarily going to happen at cruise with VFR conditions and hours to figure out. Mine was with a new student, in the weather, on a localizer back course, fully configured, and on a short runway.

If you are an IP in a pilot training squadron, use this example to remind your students of the quick actions that are sometimes necessary. My timing from the final approach fix to the runway was 1 minute and 15 seconds. So from the time we found the problem to the time we landed was less than 60 seconds. I did not have the standard 30 minutes for a student "standup emergency procedure". Emergencies can occur at the worst times, this is where you earn your money as an instructor, and pass this valuable lesson on to the student.

USAF photo by Terry Wasson

USAF CLASS A AVIATION MISHAPS

(Flight Rate Producing)

FY07 Aircraft Flight Mishaps
(Oct 06 - 27 Aug 07)

21 Class "A" Aircraft Flt Mishaps
2 Fatalities
13 Aircraft Destroyed

FY06 Aircraft Flight Mishaps
(Oct 06 - 27 Aug 06)

15 Class "A" Aircraft Flt Mishaps
1 Fatality
7 Aircraft Destroyed

02 Oct	✈	C-21A	Hard landing, a/c departed runway, burned
02 Oct		F-15E	Multiple bird strikes, damage #2 engine/left wing root
26 Oct	✈	F-16C	A/B takeoff, engine fire, successful takeoff abort
30 Nov		KC-10	#3 Oil Pressure, IFSD, RTB OK, 30 Apr upgrade to A
04 Dec	✈	F-16D	Engine IFE during range ride
26 Dec		C-5B	Bird Strikes on local training flight, engine/airframe damage
18 Jan		T-38C	Engine failure during low level, bird strike
19 Jan	✈	F-16C	Engine failure on training mission
31 Jan		C-17A	#3 engine thrust loss, engine damaged
22 Feb	✈	T-38C	Aircraft crashed on training mission
12 Mar	✈	F-16D	Aircraft crashed into water on training mission
12 Mar	✈	F-16C	Aircraft crashed short of runway
21 Mar		F-15E	Bird strike to #1 engine
16 May		U-2S	Hatch separated and struck aircraft
30 May	✈	F-15D	Aircraft crashed on training flight
11 Jun	✈	F-15C	Midair collision, F-15 crashed / F-16 landed
15 Jun	✈	F-16C	Aircraft crashed shortly after T/O, pilot killed
20 Jun		KC-135	Bird strikes on final approach, eng #1 damaged
26 Jun	✈	F-15A	Aircraft crashed into water on training mission, pilot killed
15 Jul	✈	F-16CJ	Aircraft departed RWY on T/O
			(UAS)
17 Jan	✈	MQ-1B>	Loss of eng power, non-permissible area, CFIT
23 Feb	✈	MQ-1B>	Propulsion system failure, high terrain impact
26 Mar		MQ-1B	Crashed on landing

- A Class "A" aircraft mishap is defined as one where there is loss of life, injury resulting in permanent total disability, destruction of an AF aircraft, and/or property damage/loss exceeding $1 Million.
- These Class A mishap descriptions have been sanitized to protect privilege.
- Unless otherwise stated, all crewmembers successfully ejected/egressed from their aircraft.
- Reflects all fatalities associated with USAF Aviation category mishaps.
- "✈" Denotes a destroyed aircraft.
- Air Force safety statistics may be viewed at the following web address:http://afsafety.af.mil/stats/f_stats.asp
- **If a mishap is not a destroyed aircraft or fatality, it is only listed after the investigation has been finalized. (as of 27 Aug 07).**

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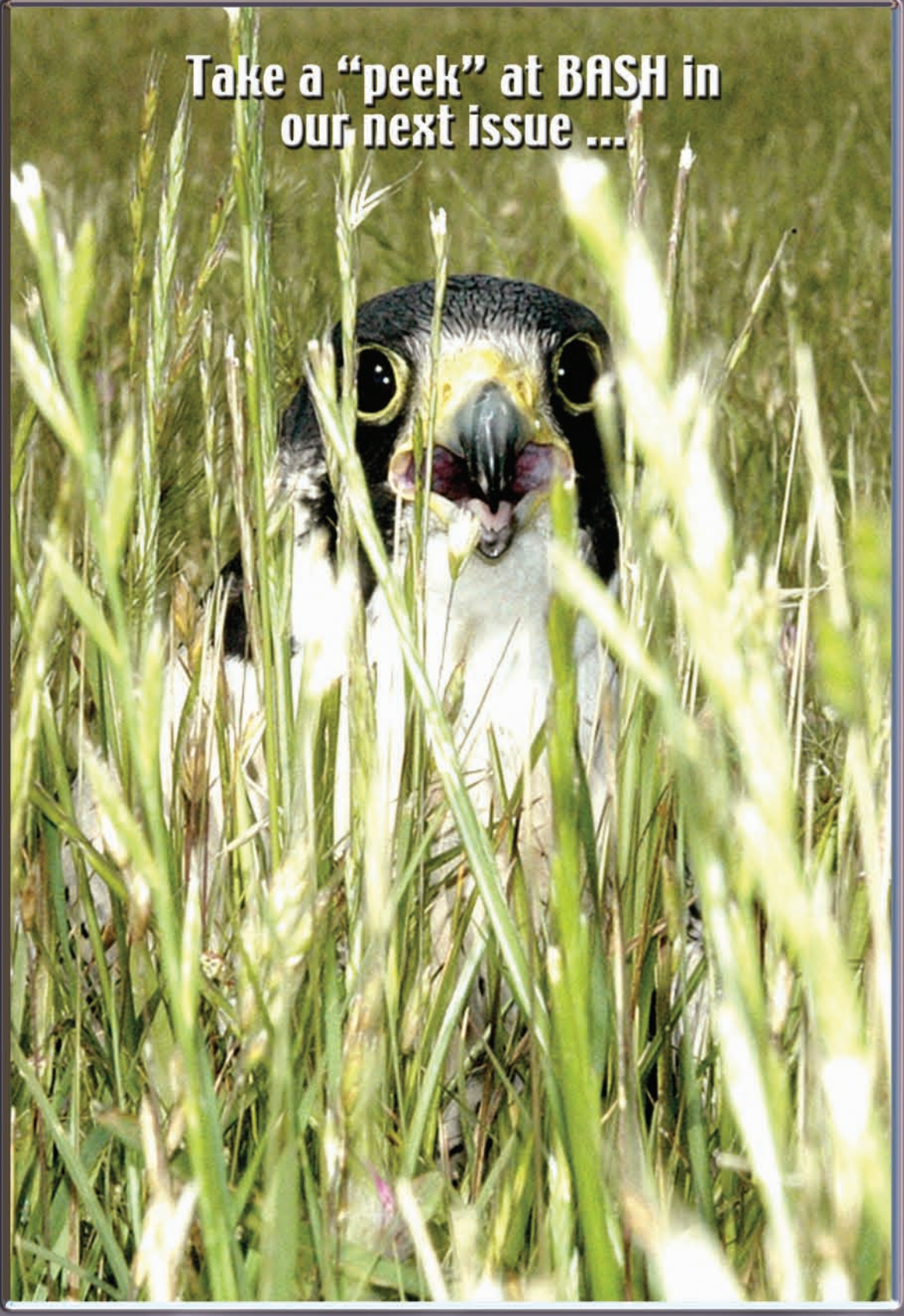
Take a "peek" at BASH in
our next issue ...