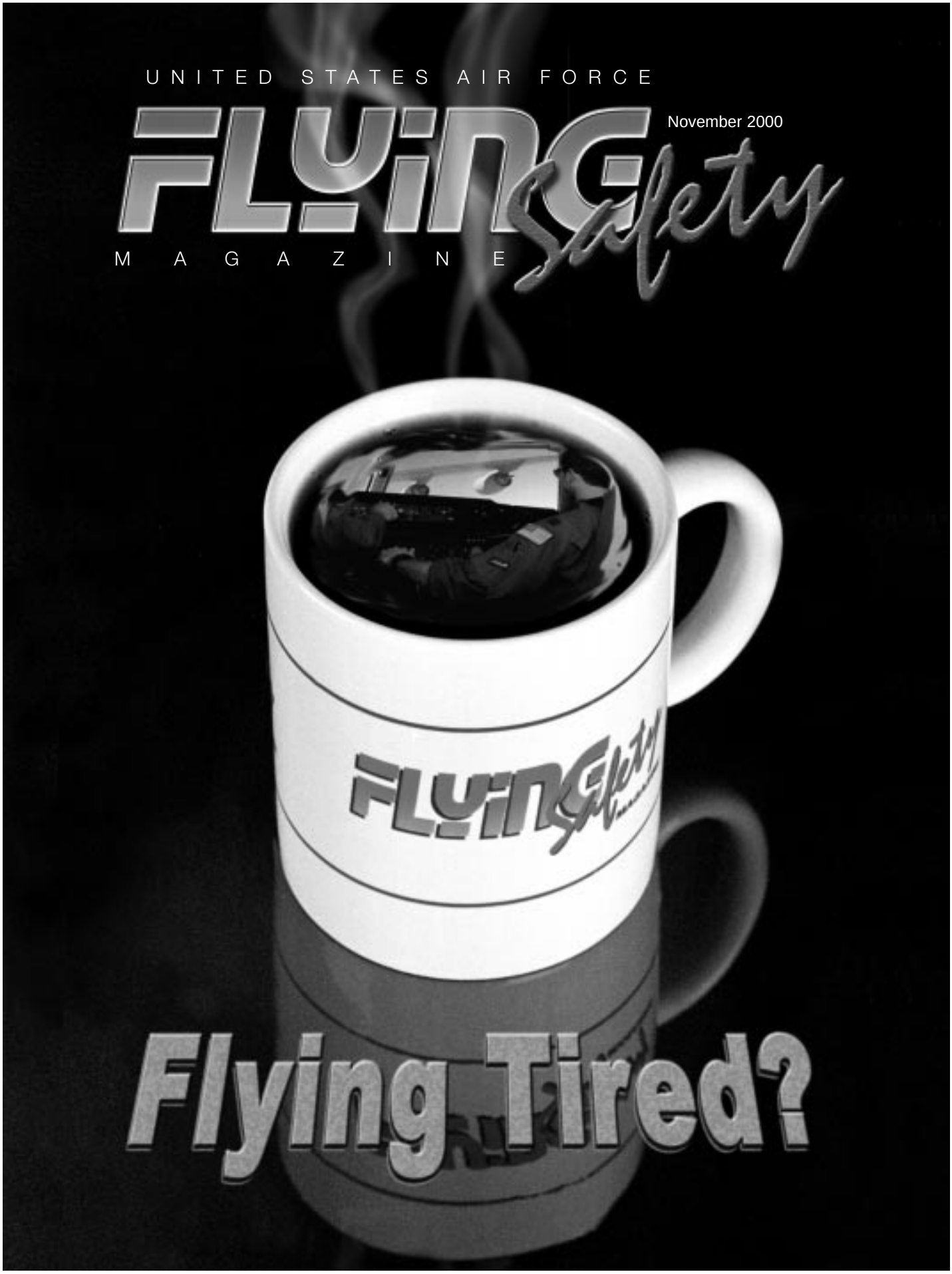
UNITED STATES AIR FORCE

FLYING Safety MAGAZINE

November 2000



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UNITED STATES AIR FORCE
FLYING Safety
MAGAZINE

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FSM Notams

"THIS IS THE SORT OF ENGLISH UP WITH WHICH I WILL NOT PUT"
--Attributed to Sir Winston Churchill
Courtesy ASRS *Callback* #243, Sep 99

Recently, ASRS received a refreshing international flight operations report in which an ATC instruction was rendered in plain English, understood by the U.S. crew, and complied with promptly. No apparent problem, one would think—but read on.

We were approaching (airport in England) on a relatively clear morning. We held for about ten minutes and then made an approach under Approach Control radar vectors and Tower control. An aircraft in position was cleared for takeoff and we were cleared to "land after" the departing aircraft. I decided not to make a go-around. We were stable and landed after he broke ground. We made a normal rollout and taxied in. Tower commented "Good job." Later, we found out a newspaper called it a near-miss.
Therefore, even though the "land after" clearance works well over there, in the same situation, I would go around next time.

In this judgment dance between the pilot and controller, we still don't know who was leading. What's certain is that "land after" is not recognized by the International Civil Aviation Organization (ICAO) as accepted ATC terminology.

SAY 'BYE BEFORE HI
Courtesy ASRS *Callback* #244, Oct 99

A First Officer describes the last leg of a long day:

It was a trip to the northeast, weather to near minimums on three of the five legs, snow falling heavily on frequent occasions and each leg a maximum of 200 miles with no autopilot. The tension was high all day.

As we taxi out, I ask for appropriate checklists. At this point...we are exhausted, flying...in weather that is miserable, with snow and minimum visibility, and the high pace of Center working us, on a day that has had no end. We call our position on the field, announce runway taxiing to, position runway, departing to SW, altitude...the usual callouts. Out of 6000 ft we call Center...Center says, "Hi, and Tower would like to say Goodbye"—in person. Captain is two inches tall and I am writing NASA. They were very understanding only because nobody in their right mind was in the air that day and there were no close calls. In the flurry of cockpit duties, I was so far ahead that I switched out Tower frequencies with (previous airport's) frequencies...

Exhaustion is no excuse, only a reason to slow down and regroup. The alternative is not pleasant and far too quiet for us all.

I believe more people than we think fly tired, and that it's a factor in more mishaps than the statistics reveal.

CAPT ERIIK W. NIKULA
Flight Safety Officer
80 FTW, Sheppard AFB TX

Here's a question for you: What's something we've all done and do more often than we care to admit? You guessed it: Flying "under the influence" of fatigue. No big deal, you might say, it's not like I'm flying drunk or something. Besides, who would fall asleep at the controls of an airplane? Think back. Have you ever found yourself droning along at altitude only half aware of what was going on around you for minutes on end? Maybe you got three hours or so of sleep the night before. You're sitting back in the seat feeling warm and comfortable, not caring too much about things. Before long you start to get tunnel vision and go cross-eyed from fighting the urge to totally succumb. Suddenly the realization of what's happening hits you like cold water in the face and then you're awake. You're good to go for another little bit until it happens again. Remember the story of how Charles Lindbergh almost flew his airplane into the "drink" during his trans-Atlantic flight?

This problem isn't confined to only single-seat cockpits; multi-place aircraft aircrews have experienced problems, too. Ever hear about the British Airways crew who fell asleep, went off course and headed out to sea? Does this sound like a possible scenario to some of you crew-dogs out there? I used to pride myself in the belief that I could never fall asleep while driving or flying. Since the occasions in which I have momentarily dozed off in both a car and a plane, I'm a changed man. To me, flying tired is up there with flying under the influence of alcohol, as far as degree of danger goes. My reasoning? Because a person can easily justify flying fatigued ("been there, done that"), and the effects can be quite insidious if that person is tired enough.

What are some of these effects? In the Cambridge Cockpit Studies in 1939, Sir Frederick Bartlett of the Cambridge University researched the causes of pilot error for the British Government. He set up a Spitfire cockpit as a simulator, and in the course of the experiments discovered that when pilots are fatigued:

1. There is disintegration of skilled performance that leads to a loss in overall management of a complex task.

2. The breakdown of a skill occurs in reverse order from the way it was learned (when learning complex tasks, individual subroutines are learned first, then integrated into an overall coherent performance).

3. Peripheral activities, such as checking fuel, were overlooked.

4. There is a tendency to pay attention to 1 or 2 instruments, neglecting the rest.

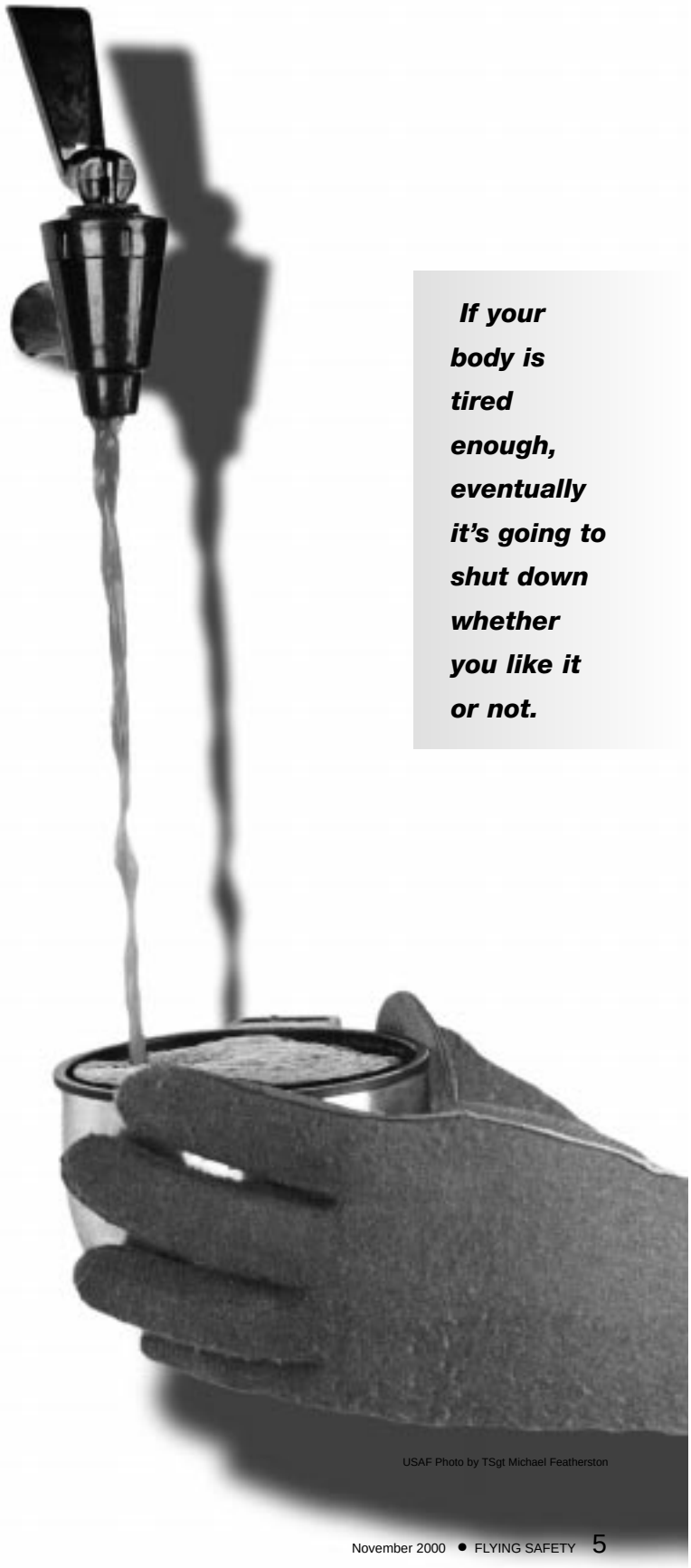
Does any of this sound familiar? Have any of these "symptoms" happened to you? I believe more people than we think fly tired, and that it's a factor in more mishaps than the statistics reveal—especially when one considers the operations tempo of today's military and the fact that we're doing far more with much less. The findings didn't directly mention "loss of judgment" as another effect of fatigue, but it doesn't take much of a stretch to see how easily that could happen.

According to Dr. Robert A. Alkov of the Southern California Safety Institute, some of the possible affects of fatigue on aircrew members are: perceptual distortion; decreased reaction and decision-making time; decreased memory for recent events; shortened attention span; increased irritability; increased error rates; confusion; and a tendency to accept lower standards of performance.

As far as fighting fatigue goes, Dr. Alkov recommends: regular exercise; a healthy diet; staying away from alcohol; better scheduling; fatigue awareness briefings by aeromedical personnel prior to deployment; and changing sleep cycles before traveling across time zones (going east always makes for an easier adjustment).

Maybe you've got a "full plate" right now. Maybe your problem is the fundamental one of prioritization. Burning the midnight oil working on that master's degree? Maybe it's time to "throttle back" for a while and refocus on what's important: your job as a flyer. Feeling pressured from leadership to accomplish that mission you're not physically up for? Only you can decide what's best. If you communicate your reservations to the higher-ups and throw in that "safety" word, your chances are probably pretty good they'll back off. I'd rather get a lecture than end up a "smoking hole" any day. The big thing here is to know your limits and to stay safely within that box. If you're falling asleep in the pre-mission brief and having a hard time following what's being said, perhaps it's time to call "knock it off." If your body is tired enough, eventually it's going to shut down whether you like it or not. Remember the old saying "The spirit is willing, but the flesh is weak."

A Greek philosopher once admonished us to "know ourselves." When it comes to flying tired and pushing our own personal limits, I'd say this is pretty good advice.



If your body is tired enough, eventually it's going to shut down whether you like it or not.

USAF Photo by TSgt Michael Featherston

Aircraft Deicing/Anti-icing Fluids and Standards: 2000 Update

CMSGT ROBERT MCDONALD
Logistics Environmental Program Manager
HQ Air Mobility Command

(This article updates one originally published in the October 1998 edition of *Flying Safety* by CMSgt Dave Young. Thanks to Chief Mc Donald for taking time to provide the latest. Ed.)

Several years ago, the Air Force began a move toward commercial deicing and anti-icing fluids. This change was prompted in part by a 1996 Class A mishap involving an engine damaged by ice. Following completion of the safety investigation, Brigadier General Orin Godsey, then Air Force Chief of Safety, commented the *"Air Force aircraft ground deicing program is deficient"* and recommended that it *"...adopt the Federal Aviation Administration (FAA) ground deicing program guidance as the AF standard."* Following that incident, the Department of Defense issued a standardization policy requiring conversion to non-government specifications wherever possible. To examine suitability of replacing Deicing Specification MIL-A-8243 products, the Air Force Research Laboratory (AFRL), headquartered at Wright-Patterson AFB, Ohio, conducted the required testing. Finding that commercial fluids performed satisfactorily, Type I, AMS (Aerospace Material Specification) 1424 commercial deicing fluid, and Type II and Type IV, AMS 1428 anti-icing fluids, were approved for general use within the Air Force.

Aircraft deicing and anti-icing programs administered by the FAA and its international counterpart, the International Standards Organization (ISO), mirror each other, so a "global standard" was already in existence. After comparing Air Force policies and MIL SPEC products to commercial aviation business practices and deicing/anti-icing products, we learned that within certain guidelines the Air Force *could* use many of the same standards and products as those used by commercial aviation. As a result, T.O. 42C-1-2, *Anti-Icing, Deicing, and Defrosting of Parked Aircraft*, was revised in June 1997 to bring the Air Force program in line with the FAA and ISO programs.

Commercial Deicing and Anti-Icing Fluids

The re-write of T.O. 42C-1-2 covers use of commercial fluids and is a valuable source of information on the deicing/anti-icing program. *Please note that this is a general series T.O.!* It clearly states that *only* the system program director (SPD) for a particular weapon system may authorize use of AMS 1424 deicing fluid and AMS 1428 anti-icing fluids on their aircraft due to unique, aircraft-specific issues involved. For instance, while the KC-10 and KC-135 SPDs have approved use of these fluids without restriction, this isn't true for C-5, C-141, and C-17 aircraft. Testing these fluids for unrestricted use on them is ongoing. Before defining types of fluids, here are some definitions from T.O. 42C-1-2 that are worth remembering:

- Deicing is defined as *"...the process of removing accumulations of snow, frost, slush, and/or ice from the aircraft critical surface, crevices, additional openings, and hinge points..."*
- Anti-Icing is defined as *"...the process of preventing further accumulations of snow, frost, slush, and/or ice on clean aircraft critical surfaces by the application of fluids...which...prevents the formation of ice or snow crystals."*

As we moved from MIL SPEC deicing fluids to commercial deicing and anti-icing fluids, confusion arose because of similarities in terms used to identify them and what type of equipment is required for application of these substances.

Here's a brief description of each and the equipment needed.

Deicing

● MIL-A-8243 exists in Type I (propylene-based) and Type II (ethylene-based) forms. Since 1993, Air Force policy has prohibited new purchases of Type II MIL SPEC fluid because of its toxicity. However, existing, on-station stocks of Type II may be used until depleted. You may be surprised to find some Type II still on-station reserved for WRM requirements. If so, you're encouraged to rotate it from WRM, replace it with Type I, and use it up while you still can. The day will undoubtedly come when the use of Type II ethylene-based fluid is banned.

● Both MIL-A-8243 Types I and II can be applied with existing deicing vehicles or the new deicing/anti-icing vehicles. **Reminder:** Both MIL-A-8243 Type I and Type II deicing fluids are used for deicing *only*. Neither one provides "holdover time." Holdover time is the estimated amount of time a fluid will prevent ice and snow from reforming on surfaces under freezing precipitation conditions—only *anti-icing fluids* will provide this feature.

● AMS 1424, Type I, is the industry standard commercial deicing fluid. AFRL scientists determined it to be as effective as MIL-A-8243, and with respect to performance, found it superior in that it has *limited* holdover time (compared to *zero* holdover time for the MIL-A-8243). AMS 1424 Type I can also be applied with either existing deicing vehicles or the new deicing/anti-icing vehicles.

Anti-Icing

● AMS 1428, in Type II and Type IV variants, are commercial anti-icing fluids which *do* provide holdover time. This is a critical factor when utilizing commercial airfields during inclement winter weather conditions, since military aircraft may have to wait in line with commercial aircraft for extended periods before take-off. While AMS 1428 Type II provides 30 minutes of holdover time, AMS 1428 Type IV demonstrates superior performance, boosting holdover time to nearly one hour. This improvement in performance is so significant that it's unlikely AMS 1428 Type II fluid will continue to be manufactured in the future. If so, T.O. 42C-1-2 will delete all references to AMS 1428 Type II once it's no longer available.

● Since AMS 1428 Type II and Type IV anti-icing fluids are viscous substances, the dispensing vehicle must be equipped with a specialized, non-shearing pump in order to apply them. Older model deicing vehicles don't have the necessary specialized pumps. Newer model deicing vehicles, available now, have separate tanks for deicing and anti-icing fluids, and they are equipped with the non-shearing pumps. They're capable of applying AMS 1424 Type I and MIL-A-8243 *deicing* fluids, as well as AMS 1428 Type II and Type IV *anti-icing* fluids. There are over 120 of these vehicles fielded throughout the Air Force now... with more on the way.

Benefits

For maintainers involved with winter aircraft operations, the 26 June 1997 version of T.O. 42C-1-2 is a superb document and a great training reference. It provides a comprehensive look at aircraft deicing and anti-icing operations. As a complement to the tech order, a computer-based training (CBT) module for individualized training was developed in 1999. The CBT module presents a detailed look at the deicing/anti-icing process and should augment your classroom training. (To request it you may call HQ AMC/LGQRT, DSN 779-5506.) However, there is no substitute for hours in the basket practicing hands-on, aircraft-specific training.

Due to global commitments, and the fact that many of our airlift and air refueling aircraft transit commercial airports around the world on a daily basis, it makes good sense to fall in line with commercial fluids and global standards. Commercial fluids are often the only ones available at these non-military airfields. Also, some active duty Air Force units are based at joint-use runway locations—military and civilian commercial carriers sharing the same runways—where resources could be shared in a time of crisis. A significant number of Air National Guard and Air Force Reserve units, flying the same missions as the active duty forces, are also based at joint-use airfields and could realize similar benefits. Finally, many Guard and Reserve pilots are also commercial aviators, well versed in deicing requirements of the commercial world.

In Summary

Providing better deicing capabilities, adding an anti-icing capability, and aligning Air Force deicing/anti-icing operations to mirror FAA procedures provides several tangible advantages. Major benefits are increased mission capability and significantly enhanced safety during winter operations.

The program is still evolving, so what's next? We've recently tested an improved deice/anti-ice truck produced by Global. The truck uses a high-volume air blower to remove accumulations of snow from the aircraft prior to fluid application. This truck has an enclosed operator's cab similar to the refurbished Landoll TM-1800 deicers. Many operators don't like the new enclosed cabs because they aren't as comfortable using "remote control" nozzles and maneuvering enclosed cabs close to the aircraft as they were standing in an open basket with a hand-held wand. There is a definite learning curve in the use of these trucks, but face it...enclosed cabs are here to stay. Besides, they keep you out of the elements and prevent you from getting soaked with anti-icing/deicing fluids. So, get up in the cab and get some operating hours under your belt.

One other thing on the horizon should be great news for those of you who work C-5 and C-17 aircraft. We plan to test a 75-foot tall deice/anti-ice truck sometime within the next year. This will relieve you of the cumbersome task of slaving a Calavar to a deicer to reach the T-tail of those aircraft. Stay tuned!

Bird Strike Committee USA/Canada

Photos by TSgt Michael Featherston
and courtesy of Author
Photo Illustration by Dan Harman

EUGENE LEBOEUF
AFSC/SEFW

Although the conference is only ten years old, it is the largest forum in the world on the subject of wildlife hazards to aviation.

So, you're the new "BASH guy" for flight ops, or maybe your new job lists BASH (Bird Aircraft Strike Hazard) as one of your collateral duties, and you would really like to get smart on your new job. You begin by reading all the guidance provided in AFI 91-202 on the BASH program and AFI 91-204 on reporting your strikes, and you've even downloaded AFPAM 91-212 for other general information.

However, you're one of those "inquiring" minds and really want to get more involved in BASH. Realizing that information on BASH is very limited, you may ask yourself, "Is there a place I can go to learn more?" or "Is there a way to place faces with some of what I have read, or maybe even talk one-on-one with other people who know something about BASH?" The answer is "Yes." The Bird Strike Committee USA/Canada annual meeting, hosted alternately in each country, provides just those opportunities.

This year's meeting was held in Minneapolis, Minnesota, August 8-10, with assistance from the Minneapolis/St. Paul International Airport (MSP). Over 360 individuals from 14 countries attended. Attendees included military, Federal Aviation Administration, US Department of Agriculture, US Fish and Wildlife, representatives from civil airports, and other aviation-related individuals. Of all categories, the military had the greatest number, with 115 attendees—obviously, we're interested in learning about BASH!

Although the conference is only ten years old, it is the largest forum in the world on the subject of wildlife hazards to aviation. The committee began in August 1991 as a group of about 25 individuals who gathered to discuss wildlife hazards to aircraft. At this meeting, it was decided that a committee was needed to provide feedback to professionals who were writing policy on the subject and to disseminate information to field professionals. Over the years the conference has grown to include technical papers, product exhibitors, training sessions, field demonstrations and poster presentations.

The nearly 30 technical papers and nine poster sessions at this year's conference covered topics ranging from National Transportation Safety Board (NTSB) recommendations regarding wildlife hazards to aviation, to novel harassment techniques, such as the use of border collies and radio controlled aircraft. Technical sessions covered wildlife management techniques, including rodent control to reduce the occurrence of raptors around the airfield, and legally controlling resident goose populations under changing wildlife regulations. Also presented this year was a session devoted to new uses of technology including radar and laser.

In an effort to keep the conference interesting, each year the organization commit-

tee schedules a field trip in the middle of the meeting. This year, they visited MSP and St. Paul Downtown Holman Field to see firsthand how airport personnel are dealing with their wildlife hazards. Discussions focused on their problems with resident Canada Geese and drainage problems resulting from beaver damming up water. While at MSP the group had a chance to speak with exhibitors and even sample products, such as pyrotechnics. Also provided were demonstrations of new devices, for example an avian mobile radar unit not commonly available to the public. During the field trip, Whiteman AFB's TSgt Mark Loud demonstrated the use of remote aircraft (RC) to harass birds. His "dual-control" setup allowed volunteers a chance to actually try their hand at flying the RC aircraft.

The USAF used the occasion to display some of its programs and new products. Dr. Carla Dove and Marcy Heacker-Skeans of the Smithsonian Institution showcased the USAF feather identification program in a poster session. Presentations were also provided on the latest version of the Bird Avoidance Model (BAM) and Avian Hazard Advisory System (AHAS). New electronic presentation mediums allowed a demonstration of the model to the audience. This medium provided model developers an opportunity to give the audience a preview of what is now available on-line via the web.

Because the conference attracts so many individuals, it is an excellent time to provide training and information exchange. BASH team biologists and the staff biologist for the FAA provided separate training sessions. These sessions covered topics pertaining specifically to their respective audiences. Attendance at the training sessions was excellent and resulted in a lively exchange of ideas and information.

One of the greatest benefits to the Bird Strike Committee meeting is the chance to interact with so many professionals who deal with wildlife hazards around airfields on a daily basis. This invaluable contact shows the attendees they are not alone in their BASH duties. If they happen to run into a problem later, they can quickly thumb through the attendance list and place a call to someone they met who may have a similar experience and can provide assistance.

If this conference sounds like something that will assist you in your duties as the "BASH guy" at your base, and you missed this year's meeting, take heart. Our neighbors to the north have already begun the planning process for next year's meeting. Mark your calendar for August 27-30, 2001 and be ready to travel to Calgary, Alberta, for what is sure to be another great conference. For information on next year's conference, you may check on-line at: www.birdstrike.org or by accessing the Safety Center web site. ➔

For additional information on BASH, BAM, AHAS, and other related wildlife control information, log on to the BASH web page at: www-afsc.saia.af.mil/AFSC/Bash/home.html.

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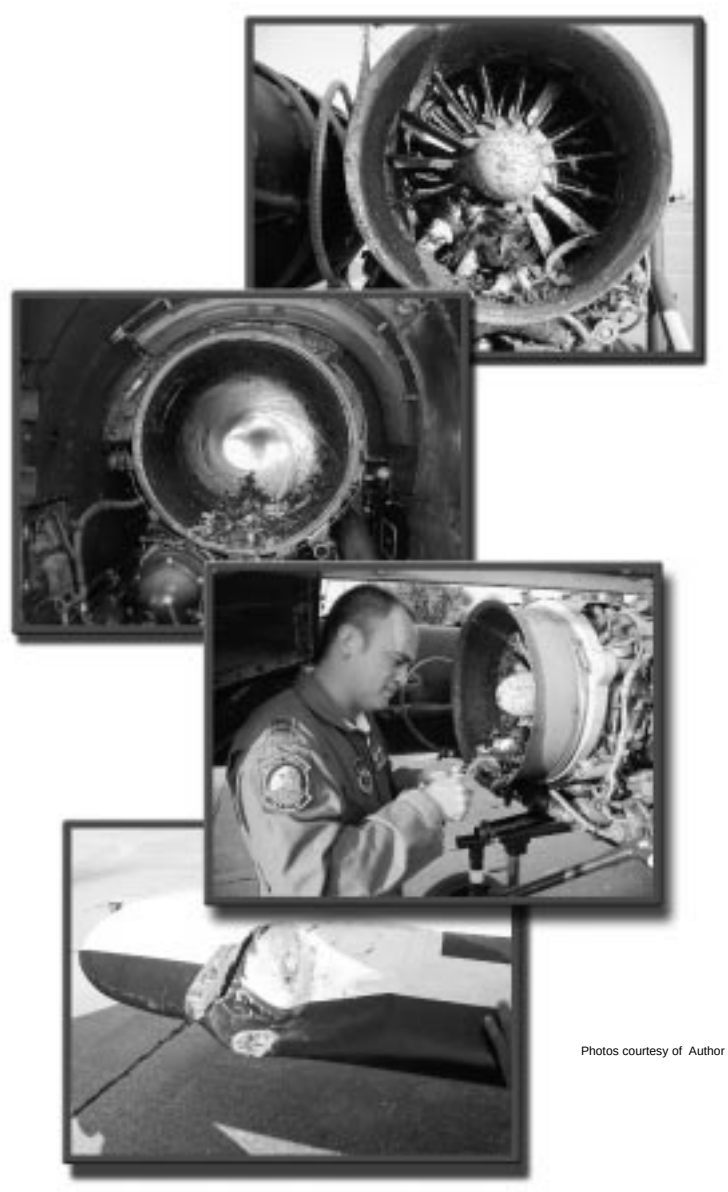
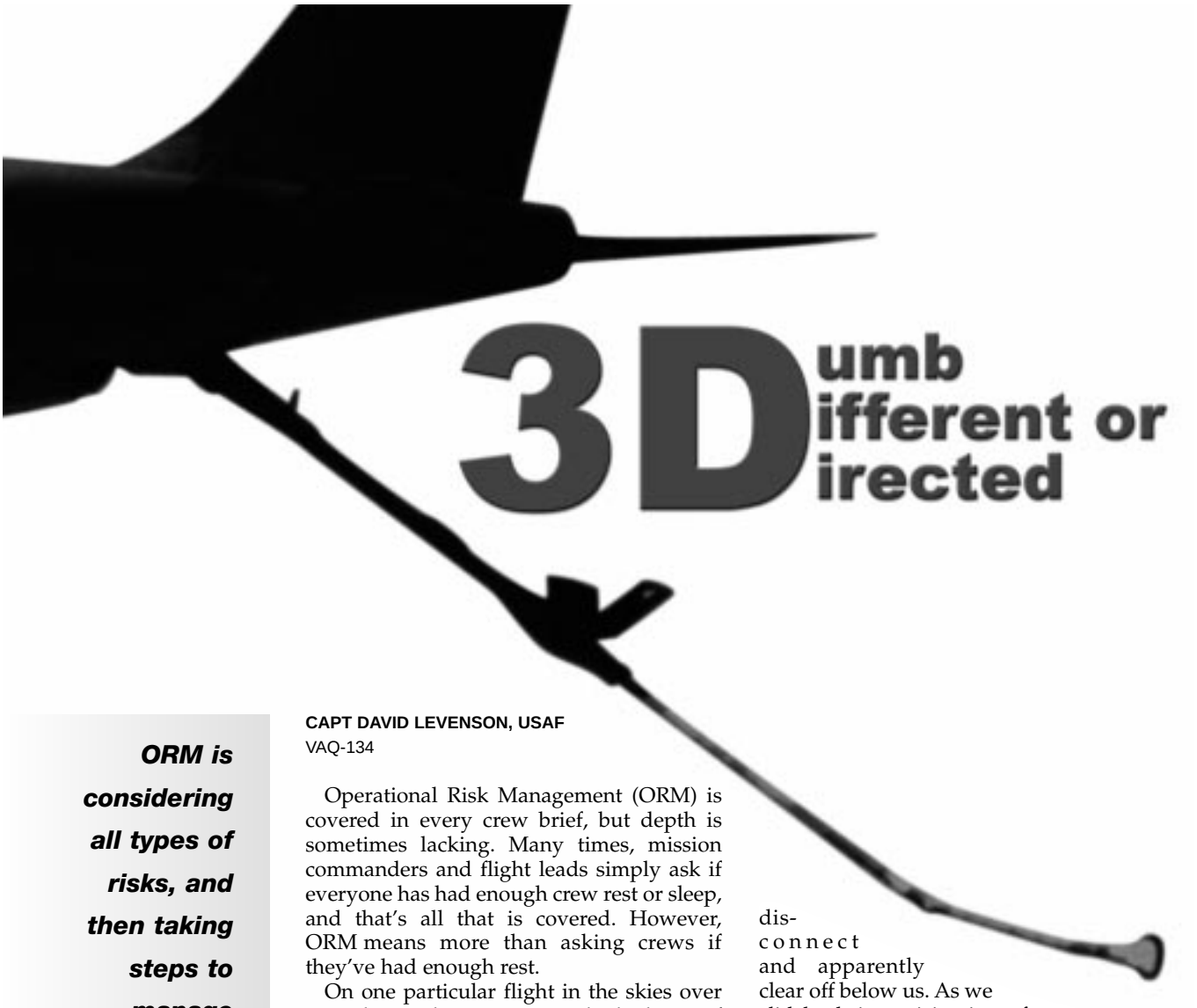


Photos courtesy of Author



3 Dumb Different or Directed

ORM is considering all types of risks, and then taking steps to manage those risks.

CAPT DAVID LEVENSON, USAF
VAQ-134

Operational Risk Management (ORM) is covered in every crew brief, but depth is sometimes lacking. Many times, mission commanders and flight leads simply ask if everyone has had enough crew rest or sleep, and that's all that is covered. However, ORM means more than asking crews if they've had enough rest.

On one particular flight in the skies over Macedonia, the entire crew had plenty of sleep, but ORM (or lack of it) still played a significant role in a close call. I was the ECMO-1 in an EA-6B Prowler during a night strike mission over Kosovo. As we headed toward our tanker after the strike was complete, the communications with AWACS was unusually weak and full of static, with a broken cloud layer just below tanker altitude. Without air-to-air radar or night vision devices, finding the tanker was becoming next to impossible. With our fuel getting close to BINGO, we finally found the tanker and commenced the joinup on the left—the standard side for the Navy, but non-standard for the Air Force. We hadn't briefed which side of the tanker we would join on; mission planning overlooked that type of detail.

Once joined, we realized there were two British Tornados already on the tanker, one taking fuel and the other on the right side. After they were complete, I saw the Dash 2 disconnect and apparently clear off below us. As we slid back in anticipation of getting in the basket, a bright flash filled our cockpit and we were severely buffeted. It was the Tornados tapping burner in front of us! Instead of exiting down and aft, they turned off their lights and went left into us. My pilot dumped the nose and successfully avoided the Tornados. We climbed back to the tanker and got our gas, then covered another strike and returned to Aviano. Once on the deck, I informed the Operations Officer what had happened, and tanking (air refueling) briefs started receiving a lot more attention. In fact, in the 45 days we were in the skies over Bosnia, this event around the tanker was one of the most hazardous flight incidents I experienced. And all because our ORM brief failed to specify which side of the tanker to approach.

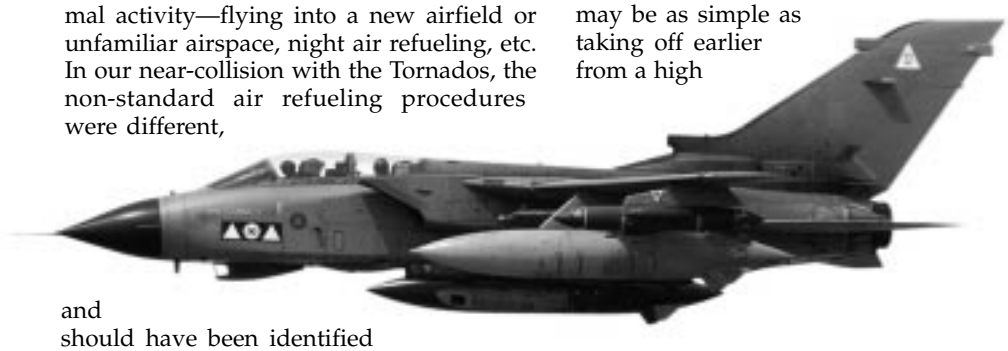
You might be saying this is just another close call story, right? In fact, most incidents have ORM issues that, if discussed earlier, would have lessened the severity of the

problem, or broken the chain of events leading to a disaster. ORM is considering all types of risks, and then taking steps to manage those risks. If the risk is too great, then avoiding the risk entirely might be the best option.

In most cases, the risks in day-to-day flying can be easily coped with. The next time you brief ORM, think of 3D, "Dumb, Different or Directed." While these won't cover all risks you may encounter, they may highlight potential problems.

Here are some ORM concerns under my category of "Dumb": Flying in extremely poor weather. Descending below the briefed hard deck. Continuing a flight beyond calculated BINGO. These obviously "Dumb" things can usually be solved quickly in the cockpit. But the not-so-obvious "Dumb" risks might be the most important. Some of these are poor mission planning, flying with individuals with unresolved personal problems, or flying with outdated FLIP or charts. Unfortunately, these may not become apparent until too late.

The "Different" ORM category covers those actions that are different from the normal activity—flying into a new airfield or unfamiliar airspace, night air refueling, etc. In our near-collision with the Tornados, the non-standard air refueling procedures were different,



and should have been identified earlier and briefed. While they may not be particularly dangerous in themselves, the items in the "Different" category can be multipliers that contribute greatly to causing a more dangerous situation.

Lastly, "Directed" includes those actions directed by higher authority which may cause the aircrew's judgment to be influenced. These actions include checkrides, Functional Check Flights (FCFs), cross-countries or combat. The crew might be directly or indirectly pressured to complete the flight or check. One activity that you might be familiar with is "get-home-itis," the pressure to complete the last leg of a cross-country flight. It's akin to"complete-itis," which breeds on the aircrew's desire to complete an assigned or directed task, regardless of the risks. Over Macedonia, our crew wanted to complete the air refueling, avoid a BINGO divert to an unfamiliar airfield, and support the last of the night strikes. The internal drive to complete a mission, whether combat or peacetime, can cloud an aircrew's judgment and lessen their perception of the risks.

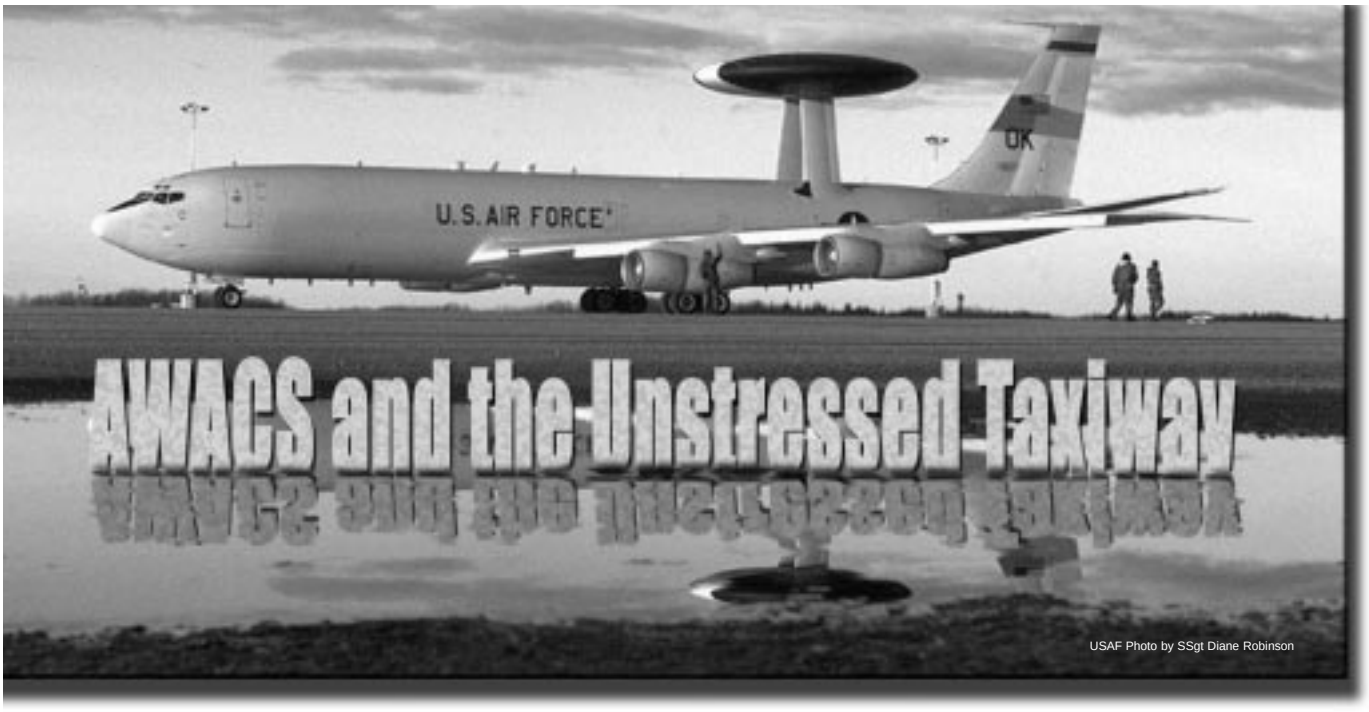
One more comment on "Directed" ORM. The age, rank or experience of another aircrew should not stop you from questioning an uncomfortable situation, whether it's during mission planning or during the flight itself. Avoid a rank-intensive cockpit if you're a senior officer, and if you're junior don't be afraid to speak up (respectfully, of course) to get the point across that a particular situation makes you uncomfortable.

Identifying the possible risks is a great first step, but it's just as important to identify the solutions to these risks and ways to lessen their effects. Again, if the risk is too great, then complete avoidance is often the best solution. Identifying the risk and sticking to the planned learning/mission objectives is usually enough, but sometimes it's necessary to make slight changes in the plan. Remember, the goal of ORM is to lessen the known risks involved. It may be as simple as taking off earlier from a high density altitude airport when the temperatures are typically cooler.

Remember, the goal of ORM is to lessen the known risks involved.

USN Photo by PH2 Jeff Viano

These three categories don't cover all ORM possibilities, but they will help identify more risks in the ORM process and make your missions more safe and risk-free. So the next time you brief ORM, consider the "3-D" approach. It works for me.



USAF Photo by SSgt Diane Robinson

CAPT DAVE CONDIT
731 AS
PETERSON AFB CO

I could see a huge flap of rubber the size of a dinner plate hanging off one of the right main tires.

I was a second lieutenant on my first deployment. I had just gotten my navigator wings six months earlier and completed RTU in the E-3B AWACS within the last month. I was excited to be participating in a real-world mission. My second lieutenant copilot was just as new, and we hung out at every stop. Usually, our safety-minded squadron commander would not put two completely inexperienced crewmembers together, but with Desert Storm in full swing, we were all that was left.

Our aircraft commander was what we affectionately called a "crusty old major." He had something like a million hours in the E-3 and had done it all and seen it all (according to his own statements). He was a likable enough guy, but he clearly viewed us as children, to be seen and not heard. I'm sure he never really said as much, but that was what we believed. It was never really a problem until things started to go wrong.

At a small, foreign base we were being pushed to take off ASAP because of a high priority mission. Rushing through our preflight, we started to taxi to the hammerhead at a speed faster than "standard." The rules on taxi speed were fresh in my mind from training, but I said nothing. Looking at the airfield diagram, I started to get this strange feeling. The diagram showed that the parallel taxiway continued beyond the hammerhead, and I didn't think the aircraft commander noticed this. In fact, he didn't seem to be slowing down at all. I could have said something sooner, but I felt like he must know. After all, he'd been here before and had all those hours.

Finally, I couldn't stand it any longer and meekly said, "I think that's the end of the runway right here." The brakes came on so fast that I nearly smacked my face on the observer seat. We came to a stop just past where we needed to turn. Looking at the diagram, we could all see that our current taxiway narrowed up ahead with no place to turn around. There was no cart available to push us back, and even if there was, it would take a long time to move us.

Looking across the runway, we could see a line of MC-130s waiting patiently for us to take off so that they could start their part of the mission. From the mass briefing and emphasis from our detachment commander, we knew that somewhere among them was a very high ranking political official. I looked at the quiet copilot and then at the not-so-quiet aircraft commander.

The AC didn't give me any thanks for speaking up. In fact, he glared at me as if I had been the one speeding down the unfamiliar taxiway instead of him. Without any crew consultation, he stated that we were going to taxi through the overgrown—and clearly unstressed—area on the other side of the bright yellow lines and pretty blue lights. Deferring once again to his experience, the copilot and I said nothing.

My next duty, as ordered by my experienced AC, was to crawl out through the

cargo hatch with the flight engineer and move some of the larger debris that littered the unstressed area. I obeyed without comment, ran to the back of the aircraft, pulled up the floor hatch, and disappeared under the wide-eyed gaze of the uninformed mission crew. Jumping to the ground with the noise of the engines pounding in my head, I ran to the unstressed area.

By unstressed, I really mean *unstressed*. This was ancient asphalt with huge weeds and grass growing everywhere. There was as much plant life as faded black surface. By debris, I really mean *debris*. I don't know what the flight engineer moved, but I managed to toss aside two six-foot lengths of 4x4, a rusty manhole cover (no hole in sight), and a 55-gallon drum. I didn't bother with the piles of broken bottles or scraps of plywood.

As I was rolling the drum out of the way, I could hear the engines spin up. I glanced over my shoulder to see a giant twin tandem gear heading my way. The flight engineer was attempting to do a cursory marshaling job as I scampered clear. His main objective was to help the AC avoid running over the numerous blue taxi lights on small raised poles. He was partially successful.

The nose gear and right main gear each managed to run over and smash a light. While the nose tires looked fine, I could see a huge flap of rubber the size of a dinner plate hanging off one of the right main tires. Apparently, the light pole had gouged the sidewall. The tire was still inflated, so it must not have gone all the way through. I figured that we would have to change the tire, and the mission would be delayed after all.

After climbing back through the outside hatch, coming up through the floor under the stares of the still-uninformed mission crew and trotting back to the flight deck, I was immediately told to strap in and finish my before takeoff checklist. In my quiet lieutenant voice, I mentioned the tire. The quick reply from the AC was, "How's that checklist coming?" I looked at the quiet copilot, shrugged, and said nothing. Eventually, I spoke up with, "Navigator's before takeoff checklist complete."

We flashed our lights and got a green flash back from the tower in reply. As we pulled forward, the copilot looked back at me with a scared look as if to say, "What are we doing?" I gave him a shrug and again said nothing. As we rolled onto the runway and rapidly gained speed for takeoff, I couldn't stop thinking about the tire. I was sure it was going to blow out, but it didn't. I also kept thinking about how impossible it must be for four, big, vacuum cleaner-like engines to avoid picking up at least some of the broken glass and rotting wood from our little field. I had lots of time to think.

AWACS missions are long...*really* long. During the next 12 hours, the copilot and I had plenty of time to discuss the ripped tire and potential FOD. Huddled together in the back of the aircraft, we ran through all kinds of horrible scenarios. We imagined every manner of crash. We also talked about how much trouble we were going to be in for running over the lights, ripping the tire, putting deep indentations in the asphalt, and ignoring standard safety procedures. We were sure our aviation careers would come to a quick end—if we survived the landing!

Well, we and the tire managed to survive the landing. It did indeed have to be replaced by a very angry maintenance crew. All missions in the area were canceled for the next three days while we awaited a new tire. We kept waiting for that call from the squadron commander, but it never came. We figured that in wartime situations, these things were excused.

The copilot and I spent those days off discussing our inability to speak out and promising each other we would never let that happen to us again, no matter how experienced the AC may be. The simple fact was that we had allowed an obvious error chain to continue even after it was fully recognized. I just feel fortunate that this story can be told without the term "the mishap crew..."

Here's what we came up with in our discussion:

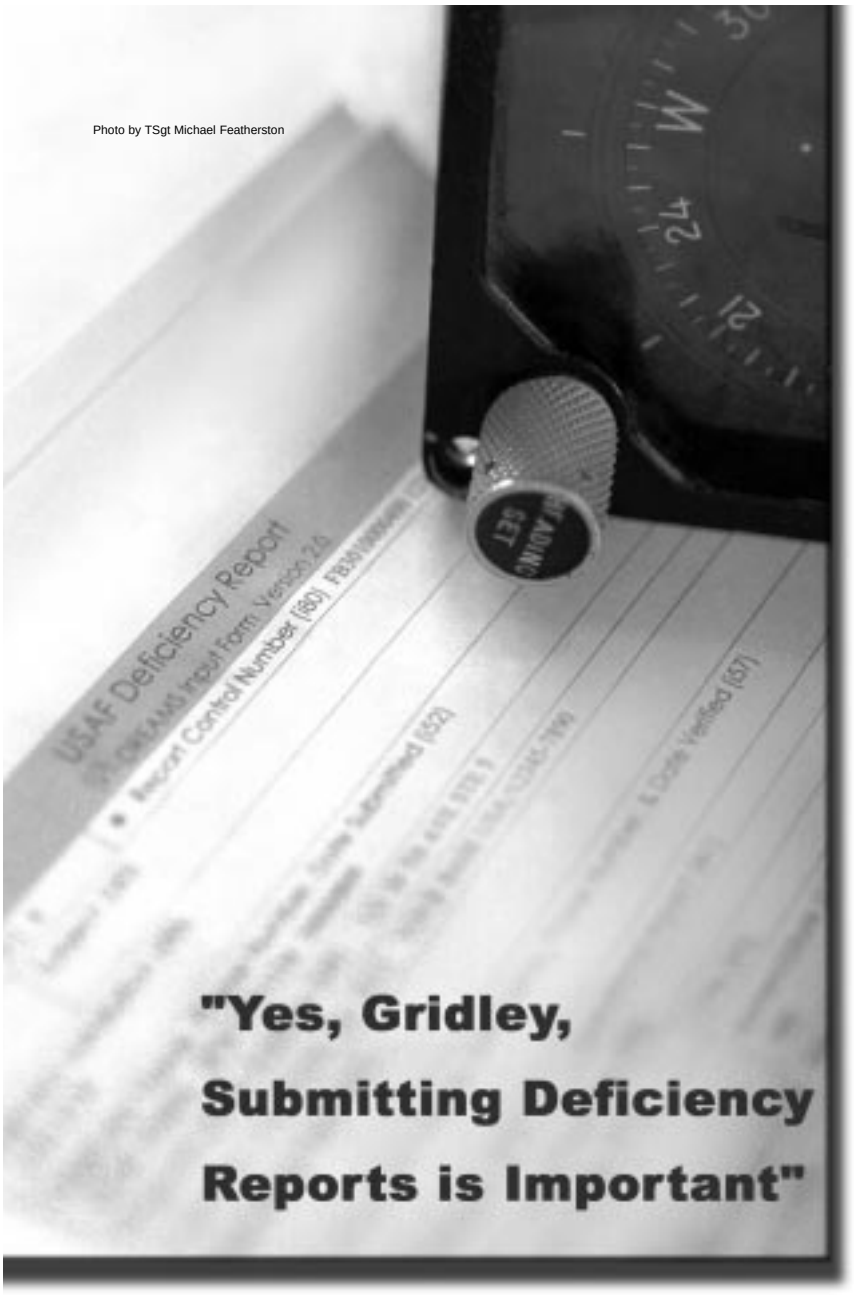
1. Wartime situations do sometimes require unusual procedures, but this should never be an excuse to break rules. We could easily have accomplished the mission without compromising safety.

2. New and inexperienced crewmembers often have a firm understanding of procedures because they just finished going through extensive training. They should err on the side of *boldness* and speak up if procedures are being broken.

3. Never assume that an experienced crewmember does not want your input. Through their experience, they often just expect it rather than ask for it.

4. No matter how experienced you are, it's still your life on the line. ✈

Huddled together in the back of the aircraft, we ran through all kinds of horrible scenarios.



At one time or another you're likely to have wondered "Why does this part fail so often?"

MSGT CHRIS D. FORNO
Flight Safety NCO
80 FTW, Sheppard AFB TX

Have you ever installed a part on an aircraft that broke before you got through the operational check? Have you ever changed the same part more than once before you got one that worked properly? How about this: Has your unit experienced more than one inflight emergency (IFE) that was caused by failure of the same part? Worst of all, have you ever testified before a safety investigation board (SIB) or an accident investigation board (AIB) where the board concluded a faulty part caused destruction of an aircraft or a fatality?

If you've been a maintainer or an operator for any length of time, then at one time or another you're likely to have wondered "Why does this part fail so often?" Or, "Why do I have to go through so many of these (fill in a part name) before I get a good one?" You need not wonder. The Air Force has a program in place for evaluating parts that are notoriously unreliable—or present hazards to safety—and fixing them: It's known as Deficiency Reporting.

The Deficiency Reporting System and Deficiency Reports

Technical Order 00-35D-54, *USAF Deficiency Reporting and Investigation System*, explains the deficiency reporting system in detail. As of this writing, an electronic version of the tech order is accessible on the internet (.mil users only) at: http://www-ext.tinker.af.mil/tild/0035d54.pdf. T.O. 00-35D-54's stated purpose is to establish a system for identifying, reporting and resolving deficiencies on military or weapons systems (hardware, software, mission-critical computer systems, vehicles, and clothing/textiles). Deficiency reporting is essentially a way for field units—the end users—to provide feedback to the responsible agencies—AFMC Air Logistics Centers (ALCs)—in the form of a deficiency report (DR) on items that present hazards or don't perform up to standards.

There are two types of DRs: Category I and Category II.

● The Category I classification is reserved for parts with serious conditions or deficiencies that, if uncorrected, would cause death, severe injury or severe occupational illness; could cause major loss or damage to equipment or a system; or could directly restrict combat or operational readiness. A "black box" that chronically gives off a burning smell or smokes when it fails would likely qualify as a Cat I DR item. While failure of the part itself might not create a flight safety problem, the fact that it puts smoke and fumes in the cockpit—and causes the aircrew to declare an IFE—*does* present a safety-of-flight situation. You say the same part has been the culprit in several IFEs during the last six months? Then it's especially important to file a Cat I DR so the part is "flagged" and given special engineering attention by the ALC (or contractor) before it causes a major mishap. Cat I DRs are required to be forwarded to the ALC within one workday and closed by the ALC within 30 days of receipt of the exhibit.

● Category II items are those that do not meet Category I criteria and cover instances where: a deficiency is attributable to errors in workmanship, nonconformance to specifications, drawings, standards, or other technical requirements; a problem is identified for potential improvement; or there is a potential enhancement opportunity. Category II DRs are required to be forwarded to the ALC within three workdays.

The DR Process

You first initiate a DR by filling in all required information for the faulty item on a Standard Form 368 (SF 368), "Product Quality Deficiency Report (PQDR)," or equivalent worksheet, such as is found in the Deficiency Reporting Entry And Mailing System (DREAMS) at Wright-Patterson's Info Central (INFOCEN) web site at https://www.asc.wpafb.af.mil/infocen/. Then, in most USAF organizations, you'll take the SF 368/equivalent worksheet and the bad part to the aircraft maintenance Deficiency Analysis section in the "Quality" function of your organization where they're processed.

Who is "Quality"? Your unit agency that periodically inspects maintenance activity processes and is primarily responsible for ensuring quality aircraft maintenance is being performed. It may go by the name Quality Assurance, Quality Control or Quality Support, but shouldn't be confused with the "Quality Air Force" entity. Deficiency Analysis (DA) is an integral part of your Quality section. DA is responsible for all aspects of the PQDR, including: ensuring proper documentation is accomplished; submitting the report to the applicable ALC; arranging for handling and shipping of the part; and tracking the part's status until the report reaches closure.

Why Submit a DR?

A DR ensures the ALC will generate a report on why the item failed and evaluate whether or not engineering assistance is required to correct an inherent defect. DR evaluations are especially important for aircraft parts. We in the safety world always want to know why that "thing-a-ma-bob" that attaches to the "thing-a-ma-jig" broke and we had to declare an IFE, shut down an engine, or worse yet, learn that a mishap resulted in a fatality. That failed part may be installed in aircraft equipment Air Force-wide and your DR could have far-reaching implications! The ALCs have engineers who love to dissect things and find out what makes them tick. They inspect DR'd items with microscopes and x-rays, poke and prod them, and tear them apart for meticulous examination to find out what went wrong. After reaching a conclusion, they'll document their portion of the DR and send it back to Deficiency Analysis via the GO21 database system. This information is then relayed to those who need it.

While it's always wise to submit DRs on parts that are bad from supply, or chronically fail after only a few hours of operation, DRs are especially important to those of us in the safety world for two principal reasons. The greatest need would come from Class A and B mishap investigations. If an investigation points to a critical part as perhaps being causal in a mishap, an emergency Teardown Deficiency Report (TDR) action can be submitted to the ALC's System Program Director (SPD) function. This emergency TDR can help determine if that part truly is the "golden BB" the SIB is looking for. Second, AFI 91-204, *Safety Investigations and Reports*, requires that DRs be submitted for mishaps caused by faulty parts. The new "Class J" category of mishap reporting requires a DR to be submitted for all causal faulty parts discovered during the investigation of engine-related mishaps.

You: The Most Important Link in the Process

On first impression, the 200-plus page size of T.O. 00-35D-54 may give the impression that the Deficiency Reporting process is way too complicated and more trouble than it's worth. Not true! The tech order has been streamlined and clarified over the years and is, in fact, very easy to follow and understand. Want an overview of the DR system or definitions of terms? See Chapter 1. How do you decide whether an item is a Cat I or Cat II, and fill out the paperwork? See Chapter 3. What actions must the ALC or contractor take to address concerns raised by the exhibit your unit submitted and how long do they have to respond with their findings? Chapter 4 has the answers.

Use of the Deficiency Reporting System is important, as it is the sole means available to our Air Force for channeling information on unsafe and unreliable parts back to the ALCs. Without your continued use of this system, unsafe situations may exist for far too long. Do your part. Avert a mishap. Save a life. *Submit* that DR.

The tech order has been streamlined and clarified over the years and is, in fact, very easy to follow and understand.

CAPT CHUCK BOYD
4 ASOS
Hurlburt Field FL

We've all heard the saying that being in the right place at the right time can make a difference. By chance recently, two fellow Air Force officers and I were able to help some people in need and make a difference in the outcome of a potentially tragic situation. Reflecting back on the situation and everything that happened that day, we talked about how glad we were to be in the right place, and to be able to help. We also discussed some things we did right, and some things we could have done better. Here's what happened, along with some lessons learned that could be useful to anyone in the future.

While attending the Flight Safety Officer course at Kirtland AFB, I linked up with a couple of my buddies, Capt Pat Wolfe and 2d Lt Kevin Cummings, who were both there attending MC-130 Talon II school. One Sunday afternoon we hiked up a trail on Sandia Mountain. Three hours into the hike and about half a mile from the top, we heard shouting and screaming a short distance in front of us. We ran up and found a crying eight-year-old boy who told us his family had fallen down the mountain.

Kevin immediately ran down the trail, as fast as he safely could, to get help. I asked the boy how many people had fallen, their ages, where they were, and how badly they were hurt. We could hear moaning and crying below, but trees prevented us from seeing anyone. I repeatedly yelled for the boy's dad and he finally answered me, saying he was all right but his girlfriend and her four-year-old daughter were badly hurt. (I found out later that he had attempted to grab them as they were falling and had not fallen down as dangerous an area as they had.) He yelled that he needed help immediately. Pat was already talking to the 911 operator on the cell phone he carried in his pack. It was obvious the victims were in bad shape, so I decided to go down and help. When I worked my way to the 25-foot drop-off that the mother and daughter went over, I knew I could proceed no farther. I made a 150-yard detour by hanging onto trees and sliding on my rear—just trying not to lose control too badly and add myself to the list of injured.

Scratched up and adrenaline pumping, I reached the victims and found them in a bad situation. The little girl had come to rest in a boulder field and was trying to stand up and find her mother. The man was beside the woman, who was obviously in severe pain. I could see he was supporting her on the side of the mountain, and that she could slip and fall farther down at any moment. I went to the girl and carried her to a relatively level area near the other two. I then yelled for Pat and told him we needed him to come down. He relayed a few questions from the 911 operator concerning the medical status of the victims, and I answered as best I could. Pat then descended to join us. I asked the man if he had any med-

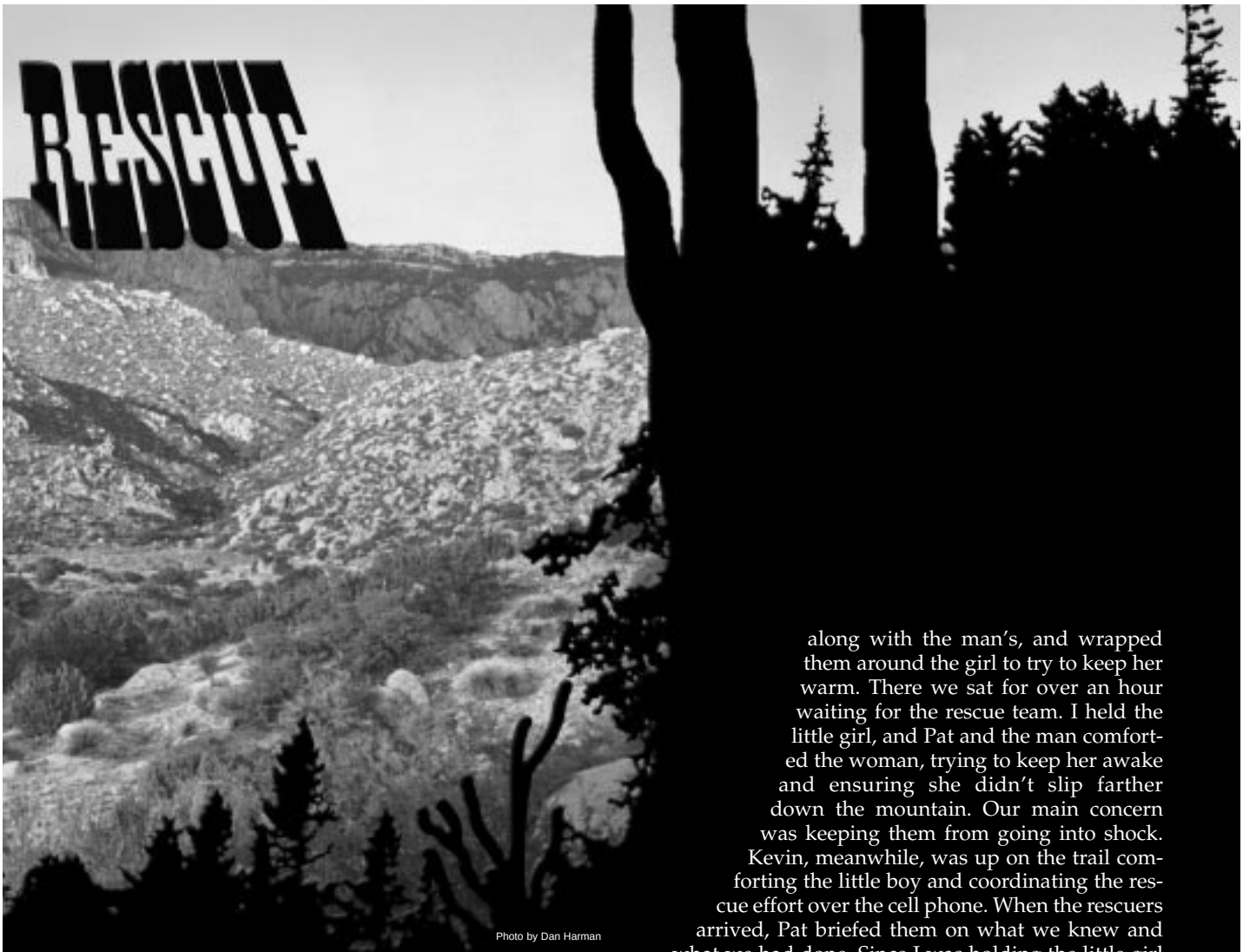


Photo by Dan Harman

ical knowledge, and he said he didn't. That left us with my yearly Self-Aid Buddy Care briefings.

The little girl told me her arm hurt—she had broken it—but she seemed in stable condition. She had some cuts to her face and head, and I used a bandana to apply pressure to the largest laceration. When I turned my attention to the woman, I saw she wouldn't be so easy. I made sure she was breathing, and checked for any severe bleeding. Her lacerations were not bleeding excessively, and I assumed internal injuries were the biggest worry. Pat arrived with water, and we did our best to give her some. We took her pulse, looked at the dilation of her eyes, comforted her, and tried to keep her from going into shock. We didn't raise her legs because of the steep grade of the mountain, and because in talking with her we suspected lower back injuries. She ended up with a broken ankle, femur, pelvis, elbow, and wrist.

About this time it started hailing and got pretty chilly. The little girl started shivering uncontrollably. Pat and I realized this was not good, so we took off our shirts, along with the man's, and wrapped them around the girl to try to keep her warm. There we sat for over an hour waiting for the rescue team. I held the little girl, and Pat and the man comforted the woman, trying to keep her awake and ensuring she didn't slip farther down the mountain. Our main concern was keeping them from going into shock. Kevin, meanwhile, was up on the trail comforting the little boy and coordinating the rescue effort over the cell phone. When the rescuers arrived, Pat briefed them on what we knew and what we had done. Since I was holding the little girl and had her bundled up, the rescuers decided to make a human shield around me and helped me up the mountain as I carried her. They later strapped the woman to a rescue cage and roped her up the mountain.

Kevin's run for help and Pat's cell phone ensured rescue arrived as soon as possible to the desolate area. But I see now how we could have been better prepared. Jackets or warmer clothes would have been nice. It was surprising how cold and nasty it can get at 10,000 feet, even in August. I have sat through Self-Aid Buddy Care many times, but I never thought I would have to use it. If I have learned anything from this experience, it is how important that training is. It truly made a difference, and the rescuers told us it possibly saved lives. I assure you, from now on I will give that training the serious attention it deserves.

Finally, I would like to ask everyone to be safe while enjoying outdoor activities. These people were laughing and having a great time one moment, and fighting for survival the next. It was amazing how fast it happened, and how badly they were hurt. Mother Nature can be very unforgiving. I learned a lot, and was thankful that we were at the right place at the right time to help them out.

R2K and the Time Hack

We went from "plenty of time" to "oh no, we're late" in a matter of minutes.

CAPT RUBEN VILLA
92 ARW
Fairchild AFB WA

On March 16th an aircrew was formed at Fairchild AFB to participate in Rodeo 2000 (R2K) at Pope AFB, North Carolina. This KC-135 crew was comprised of the old four-man setup versus the new Pacer CRAG (3-man) variety: an aircraft commander (AC), a copilot (Co), a boom operator or "Boomer," and a navigator (that's me).

We were first introduced to each other just after mid-March, and we had six weeks to ready ourselves for R2K, in hopes of returning with one of the coveted Air Mobility Command (AMC) trophies. The training would be ad-libbed, since the rules for Rodeo were fluid. Here are the rules, as *we* understood them:

(1) You must fly a safe mission and meet all your timing and bulls-eye criteria;

(2) Umpires have final say and may not know the rules, so don't ask them; and,

(3) Rules are vague on purpose, so if you need to contest any, refer to rule two.

Rule one was the important one for this story.

We practiced and practiced. Some days we were within 60 feet and on time, and other days we were 1/2-mile and 15 seconds late or early. It seemed as though we would be competitive, but to what degree we didn't know. We continued to improve our technique, and by the last sortie, we felt really good about our progress.

Then came "game day." It would be an early launch out of Fairchild to arrive at Pope AFB by 1245 EST (1745 Zulu). Our crew showtime was scheduled for 0250 PST. As most aircrew members know, getting to bed early for eight hours of sleep the night before is hit or miss, and more often we miss. We arrived on time and things seemed to be going well. Our weather forecast called for a line of thunderstorms stretching from

Indiana down through southern Texas. I attempted a proper time hack off the U.S. Naval Observatory master clock. What I didn't realize was that as I hacked my watch, my local minutes jumped to the next whole minute while my Zulu minutes zeroed out on the current minute. This would prove damning later in the flight.

We pressed forward and as usual, any time you're carrying passengers, things got backed up. We went from "plenty of time" to "oh no, we're late" in a matter of minutes, because of confusion on when the passengers (PAX) should arrive at the aircraft and the time required to brief and seat them. Finally the PAX showed, we started engines, and began to taxi. I turned on the 135's ancient radar, only to discover it wasn't working. We were already late and the radar was required for safe passage through those promised thunderstorms. Maintenance performed superbly to get the new receiver/transmitter installed in record time. Still, we were late, and nerves were peaking.

As we got airborne and things began to settle down, we asked Center if there was any possible way to proceed directly to Pope AFB. They ran their standard checks and said, "Roger, you are cleared direct Pope AFB, FL330." This direct routing and a strong tailwind put us back on time.

As we passed through the area of suspected thunderstorms only to find scattered showers, we chuckled about delaying the takeoff for the radar part. But we all knew it's always better to be safe than sorry. Things were looking good. I flipped my watch through its countdown timers and left it in Pope AFB local time because from there on I was only dealing with minutes and seconds.

We hit the initial approach fix about 15 seconds late and about 10 knots over the suggested speed on our timing charts and began to fly the 12-mile arc. Wanting to shack the timing, I asked the pilot to cheat a little inside the arc to make up our 15 seconds. He did and shortly we started our turn to final. Things were just clicking. That was when I decided to switch my watch back to Zulu. No problem; I beeped through a sequence of watch entries and landed on Zulu—only to find my Zulu was a minute late. All of a sudden I entered a dimension of condensed time, and we were just inside eleven miles to the runway. If my Zulu time was correct, we were now one minute and 20 seconds early. If my local time was correct, we were only 20 seconds early. Since my GPS didn't read in seconds and rounded up or down, it proved worthless. My fears were confirmed when I glanced at the boom's watch and it corresponded to my Zulu time.

I felt sick, as though Mike Tyson had slugged me in the gut. I quickly demanded S-turns to lose time, but since we were already at approach speed, there was nothing we could do to safely slow down. We had to lose 20 seconds, since our landing criteria was +/- one minute of scheduled land time. I began to pray for a massive headwind, yet God wasn't on my frequency. We hit the final approach fix and made, in hindsight, a great Operational Risk Management (ORM) decision to accept the loss and land safely on Pope's 7500-foot runway. We kept an even platform and landed 10 seconds outside the plus-or-minus-one-minute window. All I could think about was how much I wanted to disappear.

Just then, as if our aircraft felt my pain, the anti-skid system failed, a brake locked and we blew a tire. Tower chimed in and announced that our left main landing gear was smoking and they were rolling the crash vehicles. Our Co quickly responded with, "Tower, exactly what do you see?" as we began to list about two degrees to port. "Are we on fire?" Tower stated there was no sign of fire, just plenty of smoke.

We quickly taxied to the end and exited the active runway. Upon clearing the active, we opened the crew door, installed the ladder and proceeded to evacuate the PAX and crew in an expeditious manner. We rallied 100 feet or more off the nose and watched for responding vehicles. Everyone on the Rodeo staff then met us, due to our "grand entrance." I still felt nauseous, but no one cared about our ten-second early arrival. They just wanted to ensure we were safe.

We lost 50 points for the early arrival, but we arrived alive. We didn't yield to the temptation to compromise safety. Had we, and a worse mishap occurred, we would have been haunted by those 10 seconds for the rest of our lives. Later, we flew both our missions well, our SIOP exercise went well with no safety violations, and we only lost points for elapsed time. We captured 95 percent of our available points but fell short of winning any trophies. With the tight competition, those 50 points were hard to make up. But we knew we made the right decision to accept our mistake and move on.

I began to pray for a massive headwind, yet God wasn't on my frequency.

CAPT MARCUS LEWIS
30 AS/DOLP
YOKOTA AB JAPAN

Sarcastic voice from the back: "What the h--- is a minor bird-strike?"

The mission began on a clear summer day in May. My copilot accomplished all of the pre-flight planning the day prior. She checked the NOTAMs, the ASRR, the WX, the whole nine yards.

Our first stop was at a base in Okinawa. They were forecast to have 4000-foot ceilings and seven miles visibility, with a temporary condition of light rain. They also had a 30-minute quiet hour period in the NOTAMs (for an outdoor change of command), which would pose no problem *as long as we arrived on time.*

Now here is where the real story begins. The mission copilot and I had finished all of the pre-flight checks with all systems "go." The flight nurse gave us the "cabin secure" call and cleared us to taxi. We taxied out to the runway for takeoff and pushed up the throttles. Oh, yeah, we were moving now! Then at 115 knots, 6 knots prior to "GO," I saw a black flash and heard a thud while the Co (that's copilot) yelled "Bird!" I immediately executed an abort...IDLE, BUCKETS, BOARDS, BRAKES! We would have used the anchor, too, but it was written up in the 781.

As I taxied clear of the runway, I announced, "We will taxi back to parking to have the aircraft inspected for a minor birdstrike." (Sarcastic voice from the back: "What the h--- is a minor birdstrike?") Maintenance and safety inspected the jet and eventually released us about 1-1/2 hours later for an uneventful flight to Okinawa.

As we descended with Okinawa approach, the controller gave us the current weather of a 1000-foot ceiling and 1-1/4 miles visibility and asked us what approach we would like. Naturally, we requested the ILS to the left runway. "Roger, this will be vectors for the ILS runway 5L." We leveled off at 2000 feet in IMC with light rain being painted on the radar.

The copilot briefed the approach and subsequently maneuvered the aircraft onto the ILS final. We got the gear down in preparation for landing when Approach Control canceled our approach clearance due to quiet hours and directed us to hold. OK, no problem; we can hold for 15 minutes while the outdoor change of command continues in the rain. (Can this really be happening?)

We held anyway.

While we were holding, Approach Control advised us that the tower couldn't see the outside runway (5L). Little did I know, that meant the visibility was less than half a mile. I asked again, "What is your current observation?" "Stand by," said approach. They came back again with "1000 feet and 1-1/4 miles" and "State the approach you are requesting." Again we said, "Vectors for the ILS 5L." Again the copilot maneuvered the aircraft to the ILS final via radar vectors. We were at glideslope intercept with gear down, landing flaps, and were told to go around due to men and equipment on the runway (about 25 minutes had passed since the first approach and we were still in IMC).

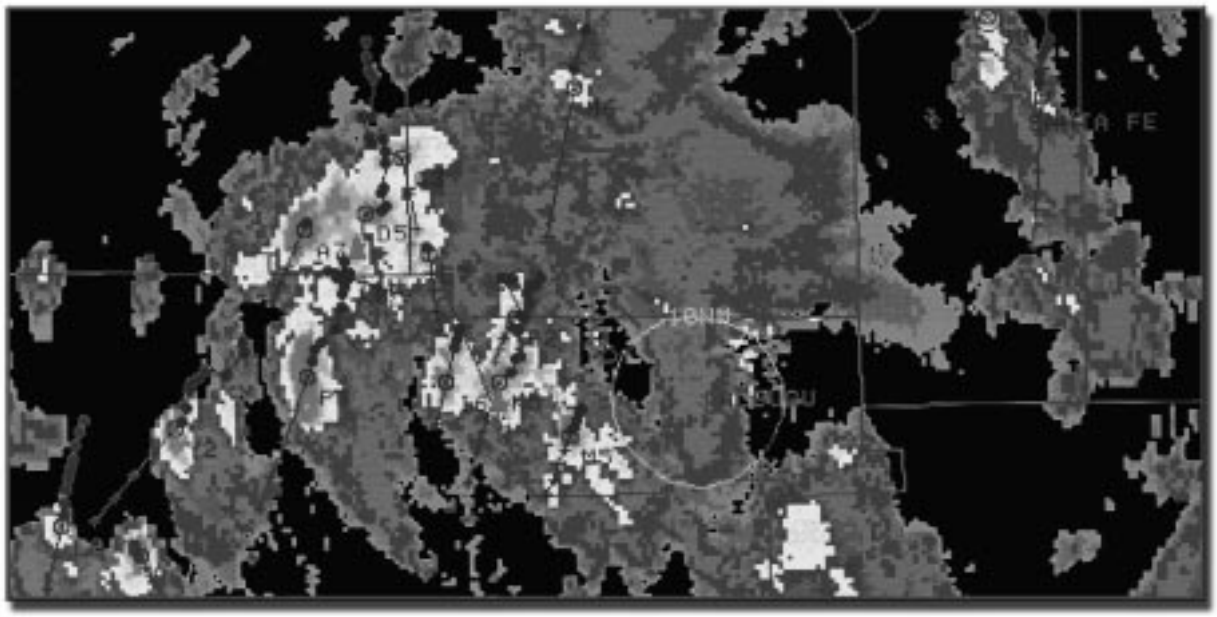
Approach told us that the tower did not know how long the men and equipment would be on the runway and the TACAN approach to the right runway was available. The co-pilot and I reviewed the TACAN approach twice to make sure we had everything square, since we had briefed and planned to fly the ILS to the left all along. We accepted the approach clearance for the right runway. Weather minimums required a 400-foot ceiling and 1-1/4 miles visibility for the TACAN. No problem; I had 600 feet more than I needed, right? Plus, I was there five days ago in VMC and knew what the field looked like and how the TACAN aligned us with the runway.

The co-pilot began the approach and descended to the MDA then—Wham-o! Nothing! Solid IMC at 480 feet MSL (371 feet AGL)! I instructed her to stay on the instruments and fly the approach while I looked for the runway. She acknowledged and asked me to call out what I saw. At approximately half a mile to the missed approach point, I saw one set of runway edge lights and only one runway. The runway lights matched the description on the approach plate and there was only one runway open, so this had to be the correct runway (5R). Why would the runway lights be on for a runway with people on it in poor weather conditions? I was unable to talk the Co's eyes to the runway quick enough for her to land, so I took control of the aircraft and maneuvered if for landing.

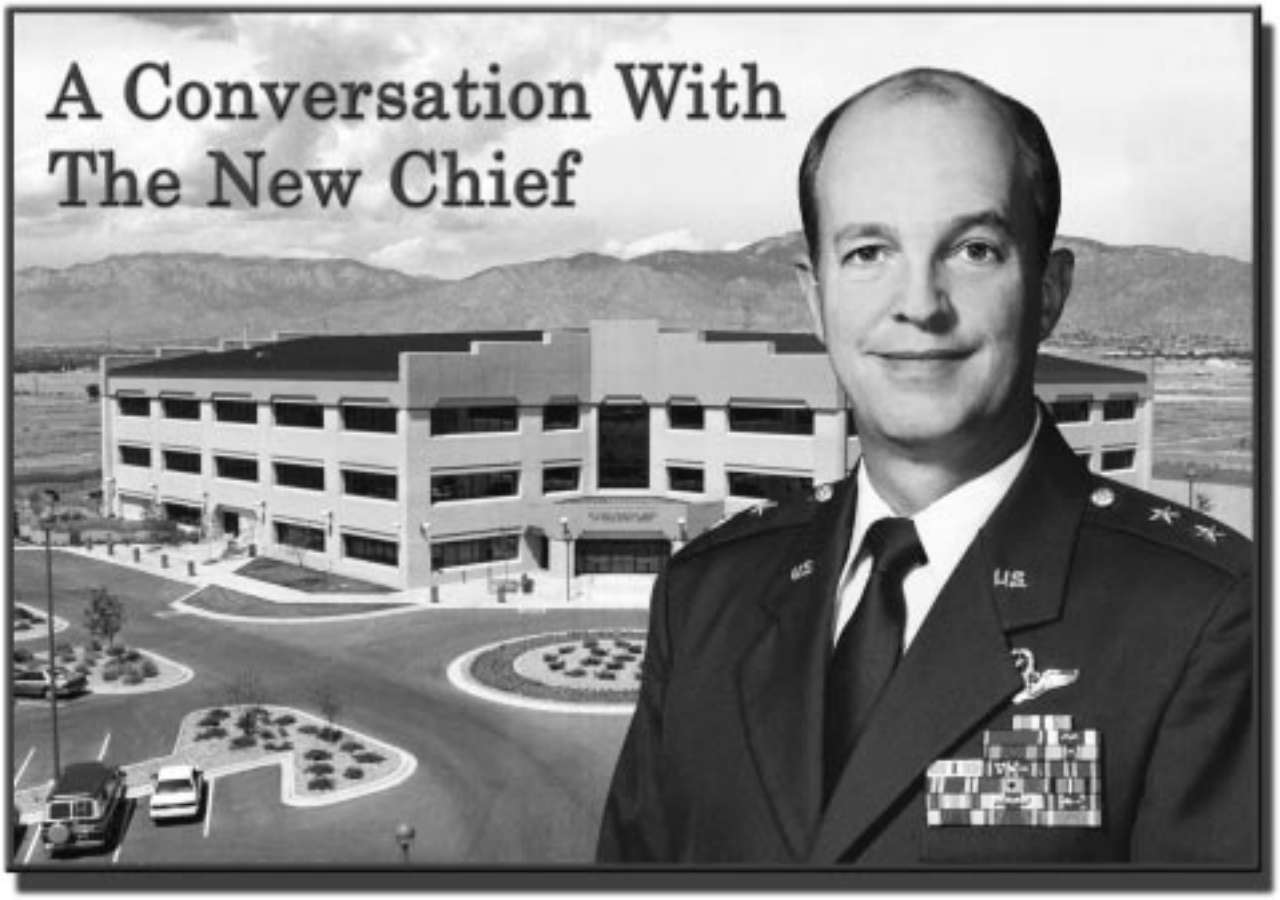
Just as the mains touched down, a voice over the radio said "Go around!" A go-around was impractical at this point so, I immediately stopped the jet. Just as the aircraft stopped I was wondering, "Aren't we closer to the terminal when we land on 5R?" Seconds later, the jump-seater asked me, "Isn't this an odd time for tower to let trucks drive across the runway?" "Yes," I replied, with this awful feeling in my gut. We had landed on runway 5L. Fortunately, no one was injured. The men and equipment were 7000 feet down in the overrun.

Needless to say, I took some lumps over this incident for a few weeks. The lesson? If you are landing with weather at minimums on a non-precision approach at an airport with parallel runways and you do not see both runways—*don't land!*

Just as the mains touched down, a voice over the radio said "Go around!"



A Conversation With The New Chief



AF Safety Center Photo by Gerald C. Stratton

The third day that I was the ops officer for my unit at Zweibrucken we lost an airplane—and it wasn't the last.

BOB VAN ELSBERG
Managing Editor, Road & Rec
HQ AFSC/SEMM

Major General Timothy A. Peppe became the new Air Force Chief of Safety and Commander of the Air Force Safety Center during a change of command ceremony held 8 June, 2000, at Kirtland AFB, NM. The son of a career Army soldier who served in World War II, Korea and Vietnam, General Peppe has spent more than 30 years in the Air Force. During that time his duties as a group and wing commander have given him a passionate concern for the safety of Air Force members on and off duty. In the following interview, General Peppe outlines some of those concerns.

SEMM: As you begin here as the new Chief of Safety, what, from your experience in the Air Force, most prepared you for this job?

General Peppe: Being a commander at various levels and having to deal with some of the responsibilities that come with that job.

SEMM: Could you elaborate on that, sir?

General Peppe: The third day that I was the ops officer for my unit at Zweibrucken we lost an airplane—and it wasn't the last. During my tour from November 1985 through July 1988, we lost three more. One was due to crew error, while two resulted from a centerline tank problem where fuel sloshed back and forth and changed the center of gravity. The fourth aircraft was shot down by the Navy during Display Determination in the fall of 1987. The guys ended up punching out and, luckily, were not hurt too badly.

SEMM: What about off-duty accidents?

General Peppe: As a two-time wing commander, I unfortunately had the opportunity to deal with several motorcycle deaths, along with swimming and POV accidents which resulted in deaths. In one of these, a child wasn't properly strapped into a safety

seat. At Laughlin AFB, Texas, we had a suicide which painfully forced me to learn about morale rebuilding.

At Aviano, we had people living in 171 different villages, some as much as an hour away from the main base. They used little two-lane back roads to get to and from work. The Italian roads were, in general, narrow and very slick during bad weather. Most people had at least one accident during their tour at Aviano.

I've also seen the nuclear surety side, with NSIs (nuclear surety inspections) and quantity-distance (Q-D) violations. I think all of the above and two well-publicized aircraft accidents on foreign soil—the T-43 in Croatia and the EA-6B in Italy—have given me a reasonable foundation for coming into this job.

SEMM: What is your most pressing concern regarding off-duty safety?

General Peppe: Motorcycles—with what I've seen as a commander, I just don't like them. I know they're fun and—if they were the ONLY thing out there—maybe they'd be all right. However, I've seen several people lose their lives through no fault of their own because of something somebody *else* did. A motorcyclist was being the safest person in the world when an Italian car hit him, knocked him into a guardrail, then just blew right past. Also, trucks often pull out right in front of motorcycles. It's the lack of protection that bothers me.

I've been to more funerals than I ever wanted to and I've seen too many parents and friends in those circumstances. It's not worth it. Clearly, if you want longevity, getting off a motorcycle is the best way to go.

SEMM: Are there other driving safety issues that are of particular concern to you?

General Peppe: What bothers me the most in my short tenure here is the loss of two lives in a motor vehicle accident where the driver wore his seat belt but didn't make sure his passengers wore theirs. Failure to use seat belts continues to cost Air Force personnel and families their lives.

SEMM: Why do you think people do unsafe things when, in many cases, they know better?

General Peppe: They just don't understand the pain and agony that goes on after they've gone out and tried to prove that they're invincible. They don't think about the impact their actions or deaths have on other people—be it their wives, mothers, dads, sisters, brothers, or the people who live around them.

Sooner or later we can replace some of the *things* that are lost, but you can't replace a human life. The suffering that results from a death caused by somebody's reckless actions or inattention to detail just goes on and on. We have to continue to talk risk management and to make people as aware as we can about how to do things safely.

SEMM: How do you reach people so that they will understand the consequences of being unsafe?

General Peppe: The most effective comments I've made were when I discussed a Laughlin motorcycle death and the aftermath with airmen. Going to the funeral with the honor guard—most of whom lived in the same dorm as the victim—and dealing with the agony they all felt at the church and the cemetery. Telling those airmen what it was like to have the honor guard fold the flag in front of the parents, then watch me hand to the flag to the father and mother. I just tell people that they need to think about the finality of that.

SEMM: What about our flying safety efforts? Are there any areas where you are especially concerned?

General Peppe: I continue to be concerned about the engine problems in the F-16. You've got one engine and if it goes bad, you've got to get out. I think we've got a handle on that right now by virtue of the work we've done in the last year or so and the money that's being invested in spare parts.

The other thing that you find in a couple of our accidents is the recurring theme of spatial disorientation. We need to continue to talk about that and to remind people that it can happen to them, in spite of what they might think.

SEMM: Our deployments have increased fourfold during the last decade. Does that pose its own safety problems?

General Peppe: If you look back over the past few years, being in a strange place at a strange time with strange weather has contributed to flight mishaps. So, from a risk management point of view, our folks need to constantly be aware of these dangers. When they're going into a strange airfield, they need to be *especially* alert. This is particularly true when they deploy and are landing their airplane at the end of a very long duty day. Obviously, the ground environment at the deployed location is never the same (as at home). Our guard must always be up.

SEMM: Do you have safety concerns

continued on next page

We need to continue to talk about that and to remind people that it can happen to them, in spite of what they might think.

about the support side of our flying operations?

General Peppe: Probably the other place in flight safety that concerns me right now is the experience level within our air traffic control field. We continue to lose many of our experienced airmen and we've got a lot of young, inexperienced kids coming in the pipeline. That gives us a Tower and Radar Approach Control force much junior to any my peers or I have ever seen. This is a place where we have had some problems. I would dare say there's not an Air Force base in the world that hasn't had HATRs (Hazardous Air Traffic Reports) where a minor mistake has gotten some people closer than we would like them to be.

The leadership, in forcing people to think about safety, and the maturation of Operational Risk Management, has helped tremendously

The other issue that we've got to look at is the crew force in the aircraft maintenance squadrons. At Aviano they were an extremely young, dedicated bunch of kids. However, they were inexperienced. We were 150 to 160 percent manned in 3-levels, but very sparsely manned in 5-levels and 7-levels. Our wings' maintainers are younger than ever before, so we must always put proper mission accomplishment, strong on-the-job training, and safety at the forefront.

SEMM: Despite the many challenges, the past two years have been our safest on record in both flight and ground safety. What do you believe has led to that?

General Peppe: I think the leadership of the Air Force has talked about safety at great length. In USAFE, when we had an accident, be it a ground or flight mishap, we took a day off and talked about safety. That's a lot different from when I came into the Air Force. The leadership, in forcing people to think about safety, and the maturation of Operational Risk Management, has helped tremendously.

I think we're all more aware of safety and we're pushing it down to the lowest level. Our civilians and enlisted force are doing a superb job. I think all of those have combined to give us the great stats that we have now.

SEMM: You mentioned ORM, what role do you believe it has played in reducing our mishaps?

General Peppe: I think that by virtue of our teaching ORM in the officer and NCO schools, our having a web site that gets almost 8,000 hits a day, coming up with a program like TRACS (Total Risk Assessment and Control System) which will lead you through a risk management evaluation—these have all had the effect of making people think about the way they do business. We just need to get that down to the lowest, most junior level—the young 18, 19, and 20 year-old airman.

SEMM: What role does safety play in preserving our combat readiness, and what do we need to focus on the most?

General Peppe: We know that we are a smaller, leaner force than ever before. Therefore, every person has an important job to do. If they're not there for that job, it means those at work have to pick up the pace and do 105 percent.

Therefore, I think the most obvious thing is taking care of our people—whether they are on duty or off duty—and also taking care of their families. As commanders, I think we have a 24-hour-a-day responsibility. It's not only for the preservation of the individual and his or her ability to have a reasonable lifestyle, it's also the preservation of our combat capability and readiness.

The other issue, quite frankly, is the preservation of our materiel capability in terms of airplanes and vehicles. There is no "free lunch" out there. We don't have all of the money we would like to have. Our airplanes and ground vehicles are all aging at a substantial rate. They're probably older than they've ever been in our Air Force's history.

SEMM: When you've finished your tenure here as Chief of Safety, what would you like to have accomplished?

General Peppe: I think the number one thing I would like to see is people becoming more aware of what the Air Force Safety Center is and what we try to do for the Air Force, its people and mission. I want people to know that we're here and were ready to listen to their ideas. That's why I am going out and trying to talk to each of the MAJCOMs.

Even more importantly, in my personal opinion, is going to visit the people who do the work where the rubber meets the road—the wing safety shops. I want to know—how are they manned? How are they trained? What are they doing differently that works? What do they think we should change? I want them to know that if they have a good idea we will try to transform that into a reality for the entire force.

SMSGT JAMEY M. WILLIAMS
CHIEF, USAF OPERATIONS AND PROCEDURES
HQ AFFSA/XAOP

SrA Danika S. Dry (Tower, Local Controller), 47th Operations Support Squadron, Laughlin AFB, Texas.

While working as Local Controller in Laughlin tower, Airman Dry instructed a flight of two T-38s in position for takeoff to hold on runway 31R behind a T-38 that had just landed. She then coordinated with the landing aircraft to allow two other T-38s to cross the active runway. As the second cell of T-38s began to cross the runway, the two T-38s holding for takeoff began their take-off roll without clearance. SrA Dry demonstrated exceptional situational awareness and decisiveness, and notified the departing aircraft to abort the take-off in time to avoid a collision. "The decisive actions by SrA Dry averted a catastrophic incident and saved five T-38s and nine valuable lives," stated Lt Col Curtis Quimby, 47 OSS Commander.

TSgt Laurence H. Strout (Tower, Watch Supervisor), and **SSgt Douglas D. Imel** (Tower, Local Controller), 7th Operations Support Squadron, Dyess AFB, Texas.

While working in the Dyess tower, Sergeant Strout observed fire coming from an engine on a B-1B. Under the direction of the Watch Supervisor, Sergeant Imel quickly coordinated airspace with Abilene Approach Control, enabling the aircraft commander to conduct unimpeded flight maneuvers and recover to home station immediately. Their quick reaction to a hazardous situation allowed for the safe recovery of a $250 million aircraft and four crew members.

SSgt Earl Schrader (RAPCON, Approach Controller), 39th Operations Support Squadron, Incirlik AB, Turkey.

When Sergeant Schrader realized there was a communication problem with Ankara Center, he scrolled out his radar scope to 120 nautical miles. He observed one of his aircraft at its assigned altitude of FL 250 had opposite direction traffic at co-altitude with an Ankara Center-controlled aircraft. Realizing communication problems prohibited normal coordination, he immediately directed his aircraft to descend to FL 240. The two aircraft achieved 1000 feet vertical separation with only 2 miles lateral separation remaining. His decisive actions likely saved the Air Force a $230 million aircraft and numerous lives.

Editor's Note: The following accounts are from actual mishaps. They have been screened to prevent the release of privileged information.

What A Pain In The...Sinus Cavity

It was just another local student training sortie in the Tweet, and the mission had gone along pretty much as briefed. That is, until recovery from the MOA and a rapid descent from 8000 ft to 3000 ft. That's when the instructor pilot (IP) realized the student pilot (SP) flying the aircraft was experiencing significant pain from a sinus block.

The IP immediately took control of the aircraft, climbed back to 8000 ft and declared an emergency. The SP's sinus block cleared while passing through 4500 ft and, after level flight for a few minutes at 8000 ft, the IP initiated a shallow descent and recovered without incident at the home field. The flight surgeon met the jet on the taxiway and took the SP to the hospital for an examination. Exam revealed the SP had flown with a cold.

The Tweet being an unpressurized aircraft, sinus problems can get real serious, real quick. Aside from the obvious pain of a blocked sinus, a worst-case scenario could result in blown out sinus cavities and long-term DNIF.

It's worth repeating for young and old alike: The flight surgeon *really is* one of your best friends, even if being under the weather does force him (or her) to ground you occasionally. Besides, doesn't an occasional DNIF beat the heck out of six months to a year's worth of DNIF waiting for sinus surgery to heal?

Inadvertant Breakaway

It was an F-16 four-ship, night, surface attack tactics sortie using NVGs, with aerial refueling en route. This was the mishap pilot's (MP) second sortie of the day during the ORE.

Mission planning and ground ops were mostly uneventful, except for the simulated ordnance loading, which caused the MP to take off late. During rejoin in the air refueling track at FL 270 the MP got visual with the tanker and flight members with his NVGs.

Soon afterwards, flight lead learned the MP was having trouble breathing, was experiencing dizziness and intended to leave the formation. The MP descended below 18,000 ft, headed for home and landed uneventfully.

What had caused the dizziness and breathing problems? Turns out that at some time during rejoin, the MP's O2 hose became disconnected from his CRU-94. Life Support inspected the O2 hose and found it serviceable. The aircraft's CRU-94 was also found to be serviceable.

This mishap provides a great opportunity to say some things that may (or may not) be obvious.

One: Good on the MP for recognizing something was wrong and taking appropriate action *immediately*.

Two: Mistakes often occur when stressed and fatigued. Awareness of this fact is one of the best ways to prevent mistakes.

Three: If it doesn't feel right, it probably isn't. Find out *why* it doesn't feel right.

Woe, Woe The Loadmaster's Toes

Loadmaster A and Loadmaster B were muscling cargo from their airlifter onto a K-loader without difficulty, until one pallet weighing 9000 lbs got stuck on the K-loader.

Loadmaster A and Loadmaster B tried "this" to free the pallet and it didn't work, so they tried "that" to free

the pallet, and that didn't work either. Then they tried something they shouldn't have, and the pallet went from "stuck" to "unstuck." And to the utter surprise of Loadmaster A, one of his feet went from "unstuck" to "stuck" *underneath* the pallet at just about the same time.

We've all accidentally dropped a book or hammer on a foot, or stubbed a toe at one time or another, and those events hurt. But can you imagine what it's like having four and one-half tons of dead weight drop on your tootsie and pin it there?

Luckily (?) the load suffered no permanent injuries. He did, however, have to hobble around with four broken toes and spent 37 days on convalescent leave healing from his injuries. We could all learn something from that TV cop who always ended his roll calls with the cautionary, "And, hey! Let's be careful out there."

Altitude Chamber Training Pays Off...Again!

The mission was briefed as a 4 V X DACT mission, and the brief, start, taxi and launch were routine.

The mishap pilot (MP) performed a climb check passing 6000 ft and cabin pressure appeared normal. He climbed to FL 250 to check the weather during departure from the working area, spent a few minutes there, then performed a G-awareness exercise before descent to 7000 ft for one more weather check.

Shortly after a low-altitude weather check, the MP began a climb to set up for the tactical portion of the mission when... it... became... apparent... something... was... wrong... Hypoxia! He immediately gang-loaded his O2 regulator, declared an emergency and initiated a descent to get below 10,000 ft IAW the checklist. As a point of interest, while descending through 12,000 ft, the cabin altimeter *also* read 12,000 ft.

The MP RTB'd, landed without incident and was met at the jet by the flight surgeon, who immediately took him to the hospital for examination and observation. The MP was cleared to return to flying the next day.

The MP's aircraft O2 bottle and the O2 cart used to service it were impounded, tested for impurities and given a clean bill of health. So, too, were his O2 regulator, mask, hose and CRU-94 O2 connector. An inspection of the jet's ECS found the canopy seal was damaged. Once it was changed, the aircraft was also cleared to return to flying.

Kudos to this operator for outstanding SA and his immediate, decisive actions! Kudos also to those in the altitude chamber who taught this MP—and many others—how to recognize the onset of hypoxia and deal with it. Well Done!

Corrective Lenses? For A Warthog?

The sortie was to be a two-ship CAS exercise in a Red Flag-type environment at Nellis for the A-10 drivers. "Red Flag-type environment" means a strange airfield, lots of excitement and lots of traffic.

Brief, step and engine start were uneventful, as was taxi. Until, that is, Warthog Lead (WL) and Warthog Wingman (WW) neared the arm/dearm area.

WL saw two Warthogs that had just landed were occupying the first two arm/dearm spots. The first Warthog had offset a few feet from his nosewheel taxi line, which forced the wingman to also offset to allow for adequate wingtip clearance. So WL taxiied *his* jet offset to the next available arm/dearm spot to provide for adequate wingtip clearance between his aircraft and his neighbor's aircraft.

Once WL turned into his spot, WW followed the *taxi line* into the arm/dearm spot next to WL. WW taxiied his left wingtip *under* WL's right wingtip with nearly two feet of overlap. How do *you* spell C-R-U-N-C-H?

Cost to fix these two bent-wing Warthogs was more than $19,000 (plus maybe even a case of brew to the folks who had to fix the damage). Betcha WW won't soon forget his lesson in SA! ✈

USAF Photo by MSgt James D. Mossman
Photo Illustration by Dan Harman

Editor's Note: The following accounts are from actual mishaps. They have been screened to prevent the release of privileged information.

This Eagle Has Impaired Vision

Two contract field team (CFT) maintainers working a Strike Eagle needed to remove the canopy to FOM. They conducted a prior-to-use inspection of the sling and straps that attached to the Model PC-1032 Rugar Crane they'd be using and found them serviceable. They didn't detect the cable wasn't spooled up properly on the crane.

They attached the rig to the canopy, attached a tag line to stabilize it, then disconnected the canopy and started lowering it. As they maneuvered the canopy over to the cradle where it would be stored, the canopy and crane mast started free-falling as one unit. The man on the tag line reacted quickly enough to apply tension and prevent the mast and canopy from striking the Eagle however, the mast did land on top of the canopy and gouge it deeply enough that it had to be scrapped and replaced. Cost of an F-15E canopy? Nearly $32,000.

Don't misunderstand—we're not saying these two maintainers did anything wrong. What we are saying is this: If your job requires you to operate a crane, whether it's for hoisting canopys, engines, propellers or other equipment, protect yourself and your coworkers by knowing the procedures and rules found in AFOSHSTD 91-46, *Materials Handling and Storage Equipment* (as of this writing, the latest edition is dated 1 Feb 97). Don't have a reference copy nearby? It's available for viewing (and downloading) on the web at the Air Force Publications website.

Complying with AFOSHSTD 91-46 guidelines not only ensures that your hoisting operation is safe; it also sets the stage for a safe hoisting operation for the team that'll be using the crane after *you're* done with it.

The (Not So) Strange Case of the Exploding Altimeter

Lessons learned from the following mishap aren't any different from the lessons learned following most mishaps. Apologies to those who have heard these mantras before. They bear repeating:

- Always *use* tech data. Even if you've done the task a hundred times before, you're fooling yourself if you think you can commit everything to memory. Besides, tech data changes.
- Always *comply* with tech data requirements. Especially when it comes to "Warnings," "Cautions" and "Notes."
- Fact: If you *don't* follow tech data, someone's going to be hurt and/or something's gonna break.

First, a little background... Whether you've purged pitot-static system lines dozens of times throughout your career, only done the task once or twice in order to be signed off in your training records and get that 5-level, or only heard—but never understood the implications—of having moisture in pitot-static lines, this tale is for you and your troops.

Those of you who regularly do on-equipment work with indicators of the airspeed and baro altimeter varieties are acquainted with pitot-static systems and understand the implications of water in pitot-static plumbing. Odds are that you've used gaseous nitrogen to purge system lines from time to time.

For those not familiar with pitot-static systems, keeping moisture out is vital. Water in system lines can be bad—very bad. If that trapped water freezes at altitude or in cold weather, then it becomes a safety-of-flight issue. Why? Because the blockage created by that frozen water will cause erroneous airspeed, vertical velocity and altitude indications to be fed not just to the indicators and crew, but to critical aircraft systems as well. Put another way, faulty airspeed info can cause an aircraft to fall out of the sky. Just a few years ago, a civilian airliner with nearly 200 souls on board was lost off the coast of South America due in large part to blocked system lines.

Whew! Having said all that, this tale *isn't* about how water in pitot-static lines nearly brought down one of our jets. It's about using tech data. So...

There once was a Pro Super monitoring six maintainers working a "heavy" that was being readied for an early morning launch. One of the tasks in work was a gaseous nitrogen cleaning/purging of the heavy's pitot-static lines. One minute the Pro Super was sitting at the nav's table minding his own business and everything was fine. Then, the next minute, he was picking glass fragments out of his eyes, face and neck. The nav's baro altimeter indicator had exploded in his face from point-blank range.

Purging pitot-static system lines with low-pressure nitrogen is a straightforward procedure. For this particular type of aircraft, tech order procedures clearly state that, when purging, the static pressure hose is to be disconnected from the nav's altimeter and both holes are to be properly capped. The tech order also states that 100 psi is the max allowable pressure for purging.

The Pro Super in this mishap suffered cuts to his face, neck and eyes from the shower of glass and spent six days in the hospital. Fortunately for him, none of the injuries caused permanant damage (except, perhaps, to his psyche).

Remember what we said at the beginning? *Always* use and comply with tech data requirements. Failure to do so means you're putting people and equipment at risk. 'Nuff said.


USAF Photo by TSgt James E. Lotz

Short Bursts: Personal Injuries

He Came, He Saw, He...Fell. If you've not worked the HH-60 before, the engine cowling is designed for use as a maintenance platform. Also, it's nearly eight feet from the top of an HH-60 to the ground. Which can seem a lot farther if you're falling...

A maintainer was assisting with the installation of an engine on a Pave Hawk. While stepping from the the No. 1 engine cowling to the left external stores support system cowling, he found himself falling. Fortunately, he cleared the engine stand below. But he landed squarely on one of his heels, breaking it. Ouch!

He Came, He Saw, and He Fell, Too. A maintainer was to perform duties as a refuel supervisor on a C-130. During preparation for the refueling operation, he was standing on the crew door steps reaching for the forward comm cord when he slipped and fell. He broke his fall with his right hand. He also broke his right wrist. It was o'dark thirty and snow had been removed from the crew door steps only five minutes earlier. Don't know if it was snow residue, poor visibility, fatigue, or a combination of any or all of those things, but you can bet it could happen to you, too. Especially now that summer's gone.

He Came, He Saw, He Lost A Body Part. A maintainer doing some on-equipment work had reinstalled a part and was in the process of checking for proper alignment. Unluckily for him, the part he was checking for alignment was connected to the part he had installed, and when the part he installed slipped, well, he had a finger in the wrong place at the wrong time. And he lost part of a finger.

Please: Look out for yourself. Look out for your pals. And let's be careful out there.

USAF Class A Mishaps

FY00 Flight Mishaps (Oct 99 - Sep 00)

20 Class A Mishaps
7 Fatalities
14 Aircraft Destroyed

FY99 Flight Mishaps (Oct 98 - Sep 99)

30 Class A Mishaps
9 Fatalities
25 Aircraft Destroyed

03 Oct	♣	While conducting a SAR mission, a UH-1N went down.
17 Nov	♣	Two F-16Cs flying an NVG upgrade sortie collided during a VID intercept. One F-16 was destroyed; the other F-16 recovered safely.
22 Nov		An OA-10A departed the departure end of the runway.
06 Dec	✶	An RQ-4A Global Hawk UAV was extensively damaged while taxiing after landing.
10 Dec		A C-130E touched down short of the active runway, then diverted to another airfield and belly-landed. Three personnel were fatally injured.
15 Dec		An HH-60G rolled over at an LZ following a hard landing.
20 Jan	♣	An A-10 crashed on RTB. The pilot was fatally injured.
16 Feb	♣	An F-16CG on a routine training mission experienced an engine malfunction.
16 Feb	♣	An F-16DG crashed while flying an NVG upgrade sortie.
28 Feb	✶	A maintainer sustained fatal injuries after falling from the lower crew entry ladder on a C-5.
19 Mar	♣	An F-16C crashed while performing at an airshow. The pilot was fatally injured.
31 May	✶	An F-15E was damaged after a high-speed abort.
16 Jun	♣	An F-16C on a routine training mission had an engine malfunction.
21 Jun	♣	During egress off target during a ground attack sortie, the pilot ejected successfully from an F-16CG.
02 Aug		An MH-53M's tail rotor contacted the ground during a tactical NVG approach.
03 Aug	♣	An F-15C crashed during a Green Flag sortie.
03 Aug	♣✶	An unmanned QF-4G crashed 10 minutes after takeoff.
08 Aug	♣	Two F-16s experienced a mid-air collision. An F-16CG was destroyed; the F-16CJ recovered safely.
11 Aug	✶	An F-15E was damaged during a ground maintenance run.
28 Aug	♣	An F-16C crashed during RTB. The pilot was fatally injured.
29 Aug		An E-8C suffered damage from an overheated radar waveguide.
31 Aug	♣	An F-16C on a training flight crashed and was destroyed.
31 Aug	♣	A T-6A crashed and was destroyed while flying an instrument approach.
06 Sep	♣	A T-37B crashed one mile from the runway. The pilot was fatally injured.
12 Sep		An F-15E departed the runway on touchdown.
14 Sep	♣✶	An RQ-1L UAV crashed 45 minutes after takeoff.

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- A Class A 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.
- "♣" denotes a destroyed aircraft.
- "✶" denotes a Class A mishap that is of the "non-rate producer" variety. Per AFI 91-204 criteria, only those mishaps categorized as "Flight Mishaps" are used in determining overall Flight Mishap Rates. Non-rate producers include the Class A "Flight-Related," "Flight-Unmanned Vehicle," and "Ground" mishaps that are shown here for information purposes.
- Flight, ground, and weapons safety statistics are updated daily and may be viewed at the following web address by ".gov" and ".mil" users: http://www-afsc.saia.af.mil/AFSC/RDBMS/Flight/stats/index.html
- **Current as of 27 Sep 00.**

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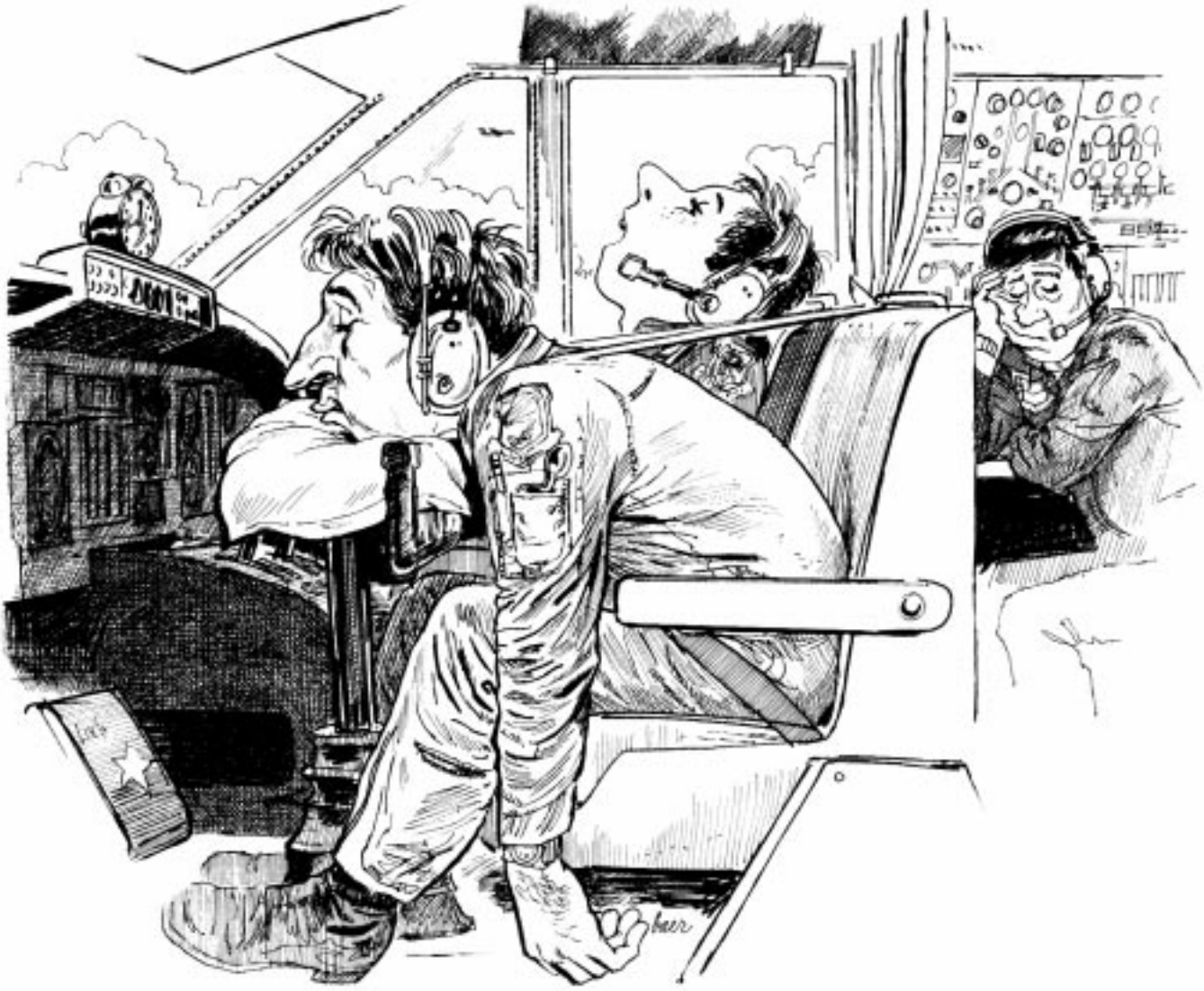

"Flying Tired" by Dave Baer