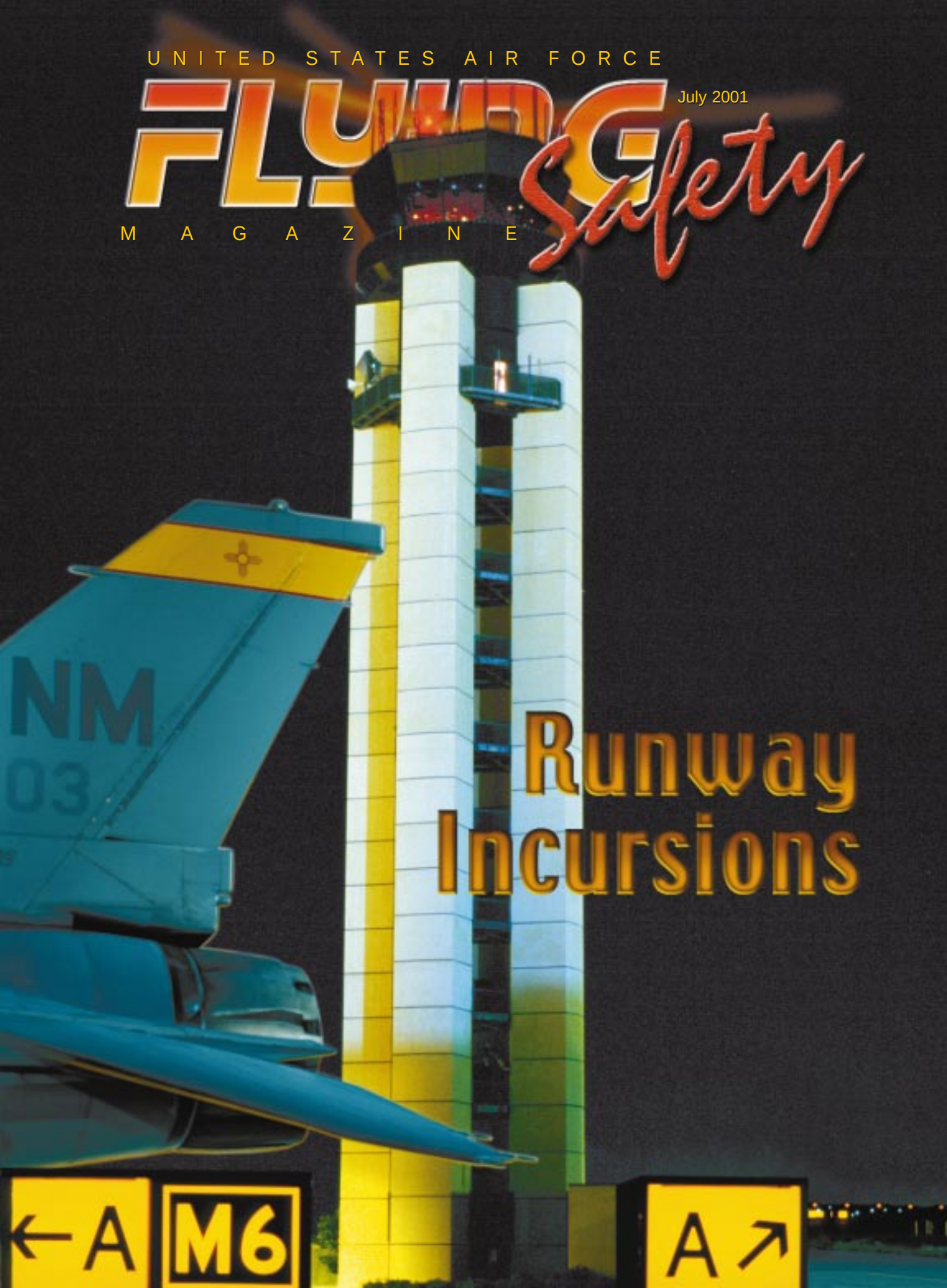
UNITED STATES AIR FORCE

FLYING Safety

MAGAZINE

July 2001



Runway Incursions

AIR FORCE RECURRING PUBLICATION 91-1 July 2001, VOL 57, NO 7

This Issue:

4

16

20

UNITED STATES AIR FORCE
FLYING Safety
MAGAZINE

4 **Runway Incursions—The Ground View**
Success story: Winning the fight against runway incursions

10 **Runway Incursions: A Simple Lack Of SA?**
To ask for clarification or not to ask… (Yes, definitely, ask for it!)

12 **Advanced Avionics To The Rescue**
Hercules, the hero, once again

14 **There Are No New Accidents**
Human Factors components in USAF Class A mishaps

16 **FSO Corner**
Promoting flight safety in your unit

18 **Another Flight Safety Lesson**
Which flight safety comfort zone should dictate the action?

20 **What Happens Next?**
Betcha your mom taught you risk management, too!

22 **"Howz That Outside Scan Coming, Buddy?!"**
"Even your most competent, best buddy can get you killed."

24 **RTFP: Read The Fine Print**
A maintainer's own "There I Was…" moment in the spotlight

25 **And Now, A Few More Words On Runway Incursions**
Courtesy of the AF Safety Center's resident Air Traffic Controller

26 **Ops Topics**
"Landing Gear? I Don't Need No Stinking Landing Gear!" …And more

28 **Maintenance Matters**
Read Any Good Books (Or Forms) Lately?…And other good stuff

30 **Class A Mishap Summary**

31 **The Well Done Award**
Flight Lieutenant Paul J. Simmons (RAAF)

BC **Communicator Award For FSM**

Cover: HQ AFSC Photo by TSgt Michael Featherston
Photo Illustration by Dan Harman

GENERAL MICHAEL E. RYAN
Chief of Staff, USAF

MAJ GEN TIMOTHY A. PEPPE
Chief of Safety, USAF

COL MARK K. ROLAND
Chief, Safety Education and Media Division
Editor-in-Chief
DSN 246-2968

JERRY ROOD
Managing Editor
DSN 246-0950

CMSGT MIKE BAKER
Maintenance/Technical Editor
DSN 246-0972

PATRICIA RIDEOUT
Editorial Assistant
DSN 246-1983

DAN HARMAN
Electronic Design Director
DSN 246-0932

TSGT MICHAEL FEATHERSTON
Photo Editor
DSN 246-0986

Air Force Safety Center web page:
http://safety.kirtland.af.mil/
Flying Safety Magazine on line:
http://safety.kirtland.af.mil/magazine/htdocs/fsmfirst.htm

Commercial Prefix (505) 846-XXXX
E-Mail — roodj@kafb.saia.af.mil
Address Changes —
patricia.rideout@kafb.saia.af.mil

24 hour fax: DSN 246-0931
Commercial: (505) 846-0931

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

PURPOSE — *Flying Safety* is published monthly to promote aircraft mishap prevention. Facts, testimony, and conclusions of aircraft mishaps printed herein may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. The contents of this magazine are not directive and should not be construed as instructions, technical orders, or directives unless so stated. SUBSCRIPTIONS — For sale by the Superintendent of Documents, PO Box 371954, Pittsburgh PA 15250-7954. REPRINTS — Air Force organizations may reprint articles from *Flying Safety* without further authorization. Non-Air Force organizations must advise the Managing Editor of the intended use of the material prior to reprinting. Such action will ensure complete accuracy of material amended in light of most recent developments.
DISTRIBUTION — One copy for each three aircrew members and one copy for each six maintainers and aircrew support personnel.
POSTAL INFORMATION — *Flying Safety* (ISSN 00279-9308) is published monthly by HQ AFSC/SEMM, 9700 G Avenue, SE, Kirtland AFB NM 87117-5670. Periodicals postage paid at Albuquerque NM and additional mailing offices. POSTMASTER: Send address changes to *Flying Safety*, 9700 G Avenue, SE, Kirtland AFB NM 87117-5670.

CONTRIBUTIONS — Contributions are welcome as are comments and criticism. The editor reserves the right to make any editorial changes in manuscripts which he believes will improve the material without altering the intended meaning.

FSM notams

AIRCRAFT AND RAMP SECURITY ISSUES

Courtesy ASRS *Callback* #245, Nov 99
NASA's Aviation Safety Reporting System

Aircrew will want to heed the experiences with aircraft and ramp security offered by several ASRS reporters. Here, an air carrier Captain, describes what happened at a foreign location when the passenger and bag didn't match.

After completion of the preflight checklist and cabin door closure, the relief crew Captain, who had been at the door greeting passengers, returned to the flight deck. He informed me that a clerical error had been made in the passenger-to-bag match and that he had chosen to close the main cabin boarding door. I expected that we would get a call on the radio or via ACARS if there was an actual mismatch between passengers and their bags. As we waited at the end of the runway for our takeoff clearance (about 45 minutes), one of the relief crewmembers commented that the bag match must be OK since we hadn't been advised of any problems via radio. I concurred, thinking that the arrangement had been for Ground Operations to call if there was true mismatch. It appears that I was mistaken, as the Station Manager states that a positive bag match was not accomplished.

I believe the problem was caused by a modification of the normal chain of events. While the bag match is an extremely important check, it is not on our preflight checklist, because the boarding agent does not close the last cabin door until the bag match is complete. Since we check doors closed on our Before Start checklist, we have assurance that bags and passengers match before we start engines. What I failed to realize, however, is that if anyone other than the boarding agent closes the door, our normal checkpoint for the bag match is lost ...

I suspect that cultural behavior differences may also have contributed to this problem ...

It now seems highly unrealistic to expect a respectful [foreign] employee to radio a Captain to argue about his bag match decision... and to direct a return to the gate...I am convinced that I must become directly involved in all unusual events and discussions pertaining to aircraft ground operations and to solicit input from all involved personnel.

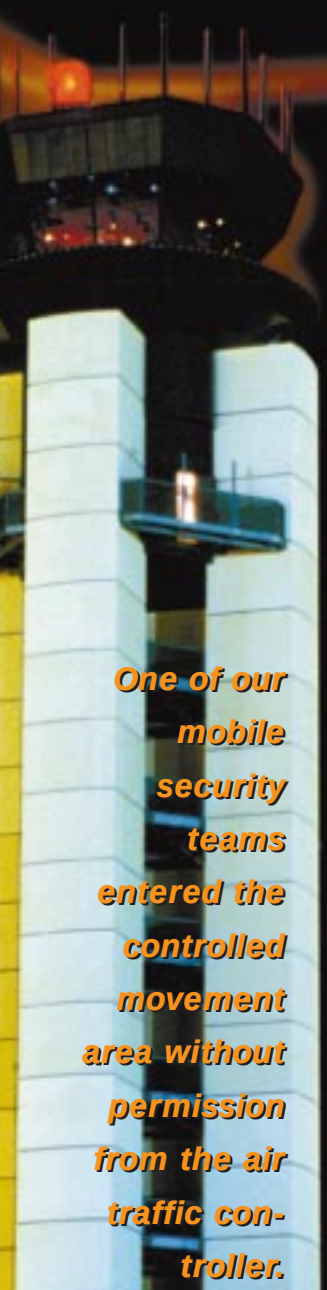
Erratum:

The May 2001 edition of *Flying Safety* included an article titled "Java Jolt," on page 18. The story contains one major technical flaw on page 19, in the left column, third paragraph, third sentence. The offending sentence concludes with the words "...the reading between all the pins in the plug and metal case must show *infinite resistance (zero ohms).*" "Infinite resistance" and "zero ohms" are obviously contradictory terms. The sentence *should* have concluded with the words "...must show *infinite resistance."*

Thanks to Chief Jim Monaco, Chief Boomer for the 141 ARS, 108th Refueling Wing (ANG), McGuire AFB, NJ, for alerting us to the boo-boo. We regret the error.

Runway Incursions The Ground View

HQ AFSC Photo by TSgt Michael Featherston
Photo Illustration by Dan Harman



One of our mobile security teams entered the controlled movement area without permission from the air traffic controller.

CAPT GLEN E. CHRISTENSEN
89 SFS
Andrews AFB MD

First off: I'm a grunt (a ground pounder, a support weenie, whatever you like) writing an article for a flying magazine. That may be bad enough, but this grunt has a few words on the importance of avoiding runway incursions. So, all you "zipper-suited sun gods" (pilots) and "scope dopes" (air traffic controllers), pay attention.

Do I have your attention now? Outstanding! Did I offend you? I apologize; please don't take it to heart. I have developed a profound respect for the awesome responsibility aircrews and air traffic controllers live with each and every day. More importantly, in the course of researching and writing this article, I've also come to realize two things: (1) Runway incursions threaten the safety of airfield operations; and (2) Runway incursions are everyone's problem, and it's everyone's responsibility to prevent them.

Here's how my interest in runway incursions developed. During the first six of my almost eight-year Air Force career, I lived comfortably with the fact that the United States Air Force was created to support the USAF security forces. It seemed obvious to me that the reason we had 1000-plus missiles on alert was so the northern frontier of our great country could be dominated by the finest trained peacekeepers in the world. Air Force bases were not established to provide for military air power; rather, they were built so the security forces gate guard would have somewhere to stand, and the law enforcement patrolman would have somewhere to patrol.

"…Sounded Kind of Serious"

One day, while sitting in my operations officer's office, I overheard a conversation between my boss and the Operations Group Deputy Commander. It seems we (the SFs) had caused a runway incursion. At the time I had no idea exactly what that was, but it sounded pretty bad. One of our mobile security teams entered the controlled movement area without permission from the air traffic controller. I admit it sounded kind of serious, but I truly thought the operations group was over-reacting. Not only did they want to pull the flight line driver's license from the suspected violator, they also expected some form of administrative punishment.

Once I heard the facts, I was sure those silly aviation types had once again lost their minds. Further investigation revealed the troop in question was following one of the VC-25 aircraft (more commonly known as Air Force One when the president is aboard). The troop contacted Central Security Control (CSC) and asked them to use the direct line to the tower and inform them that he would be following the aircraft into the movement area. The tower controller informed the CSC controller that unless the security patrol contacted the tower directly, he would not receive permission to enter the movement area. Unfortunately, the security patrol did not have the tower's frequency, so direct contact with the tower was impossible. Faced with the dilemma of either causing this "thing" known as a runway incursion or compromising the security of Air Force One, the security troop did exactly what he had been trained to do. He continued and caused the dreaded incursion. I thought to myself, "What's the big deal?" I further surmised that (obviously) the tower controller was a

power-hungry thug. Why else would he be so insistent on talking directly with one of our guys? We never had to do that before.

When all was said and done, the troop did not lose his license, nor did he receive administrative punishment. What we did find out, though, was that six days before the incident the wing leadership had put out a base instruction that stated every ground support vehicle wishing to enter the controlled movement area must be in direct contact with the tower. Not a problem. We didn't have the frequency, but we could sure get it. It took a little effort, but the communications folks hooked us up, and we were in compliance with the new guidance. I was sure this was the end of the problem. Unfortunately, I was very, very mistaken.

First of Five

The aforementioned incursion was the first in what would become a string of five runway incursions. Over time, incursions were becoming so frequent that our wing commander was forced to become personally involved. When the second runway incursion occurred, the wing king directed the operations group commander to brief every troop in the wing on what, exactly, the movement area was and what procedures must be adhered to when operating within it. Additionally, each of the other group commanders was directed to follow this initial briefing with briefings of their own. Finally, the Operations Support Squadron (OSS) was given the lead in forming a working group with representatives from every work center that operated in and around the airfield. By this point, I had moved up from flight commander to operations officer, which made me the security forces representative to the working group. This tasking would prove to be the beginning of the end of my beautifully delusional world. Like all security forces that preceded me, I would soon realize there was a world bigger than the SF shield out there. I was about to view what I have come to know as the "big picture."

At first, I was hesitant. This was what we in the support world refer to as a CAS (cosmic airplane stuff) issue. At the initial meeting, I stood firm and defended the inalienable Security Forces right to provide protection without giving much thought to what impact we would have on other people trying to accomplish their piece of the overall mission. Needless to say, the initial meeting was a disaster, and did nothing to prevent another incursion. To say "The general was upset at this point" would be one of the greatest understatements of all time. The general's attention, together with the worldly influence of a string of great squadron commanders, began to open my eyes. Consequently, I now understand that the difference between a young SF officer and a more seasoned one is the ability to understand that the world doesn't revolve around us.

Our working group met again, this time dedicated to do whatever it took to make the wing's mission a success (novel concept, isn't it?). What we discovered is that we basically had five problems to overcome. One: A history of non-standard procedures. Two: Poorly coordinated procedural changes. Three: Failure to comply with updated procedures. Four: A lack of training. Five: Multiple government agencies operating in the airfield environment.

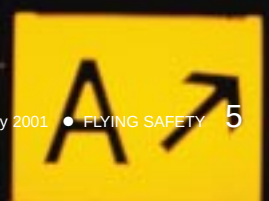
Non-Standard Procedures

Three basic problems encompassed the non-standard procedures issue. First, the 89th Airlift Wing hadn't properly identified the controlled movement area. Most installations, like my previous assignment, Osan Air Base, only include the active runways and the taxiways between them in the controlled movement area, and not usually the parallel taxiways. However, FAAO 7110.65, "Pilot/Controller Glossary," clearly states that any taxiway that has a clearly defined helicopter landing pad must be considered part of the controlled movement area. Andrews has two such areas on the west taxiway.

The second and third problems both centered around radio use. Ground support personnel were operating with VHF land mobile radios (LMR) which suffered from dead spots at various points on the airfield. Additionally, direct communications with the tower were not always reliable, as the tower controllers, were primarily focused on communications with aircrews via UHF radio and didn't always hear the

continued on next page

The initial meeting was a disaster, and did nothing to prevent another incursion.



HQ AFSC Photo by TSgt Michael Featherston

Ground support personnel were operating with VHF land mobile radios (LMR) which suffered from dead spots at various points on the airfield.

infrequent transmissions from ground support personnel on their LMRs.

Radio phraseology was the other radio problem. When operating in base defense mode, security forces members are trained time and time again never to use the phrase "repeat" over the radio. When used, the term "repeat" directs the receiver of the radio transmission to execute again or "repeat" a fire mission. In other words, if an SF member receives the order to "repeat," he or she will open fire in the same fashion that they were directed to do in the last fire order. A mortar team, for instance, will fire the exact same number of rockets to the exact same location. Imagine the problem this can cause if friendly forces have moved into the most recent impact area. Similarly, I've learned you aviation types don't say "clear" when you have departed the controlled movement area. Apparently, you use "clear" only to indicate permission to take off or land. It is *not* used to indicate departure from the controlled movement area (i.e., "clear" of the area, as we support types mean by that term).

Poor Coordination

The second problem was the fact that recent changes to the movement area and procedures had been poorly coordinated. In the situation in which the security team followed the VC-25 into the movement area, procedures had been changed the week before. This gave the agencies that operate in the airfield environment only seven days to implement the changes, one of which was the requirement to be in direct contact with the air traffic control tower via a certain frequency. Like most other ground support agencies, we security forces did not have the proper frequency. To get the frequency, we had to re-code every radio in the unit, and seven days just wasn't enough time to re-code over 150 radios. In short, compliance was impractical at best and impossible at worst.

Failure to Comply

The next problem identified was a failure to comply with the newly established procedures. On one hand, ground support personnel were still entering the movement area using old and out-dated

practices. It was not uncommon for a Security Forces flight commander or flight chief to enter the movement area during an in-flight emergency without talking to the tower because "that's the way it had always been done." On the other hand, it was not uncommon for traffic controllers to grant blanket clearance during periods of low operations tempo. In other words, controllers would inform ground support personnel that they may enter and exit certain parts of the movement area without directly contacting the tower until such time that the airfield became active again, which was usually around sunrise.

Lack of Training

A lack of training also contributed to the incursion problems here at Andrews. Andrews AFB Instruction 13-201, *Vehicle Operations on the Airfield*, directs that all personnel operating ground support vehicles/equipment on the airfield must not only receive initial training, they must also receive recurring training. While the initial training was being conducted, close scrutiny revealed that there were some in my squadron who hadn't received recurring training in over five years.

Multiple Agencies

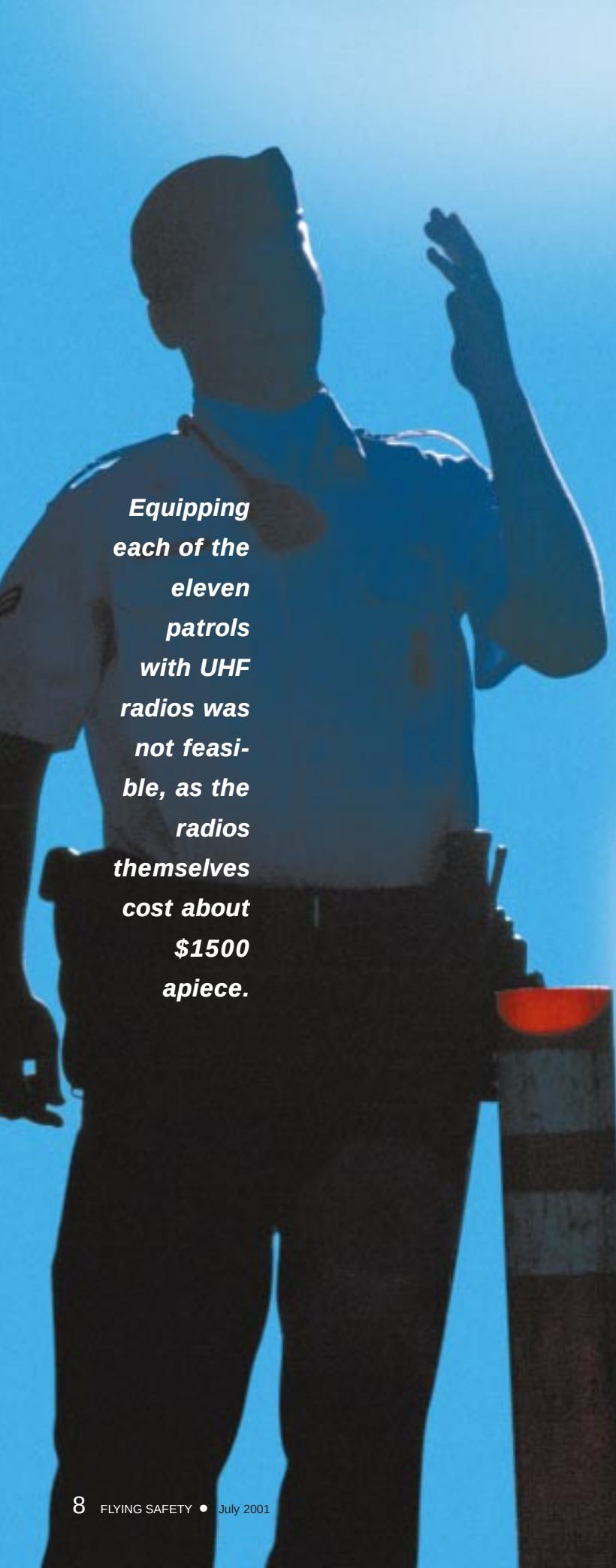
The final problem was the result of the multiple government agencies that operate on the Andrews Airfield. The Department of Defense (represented by not only the 89th Airlift Wing, but also an Air National Guard fighter wing, an Air Force Reserve airlift wing and the Naval Air Facility, Washington) makes up the largest component. Additionally, due to our close proximity to Reagan National Airport, Dulles International Airport and Baltimore/Washington International Airport, the air traffic control tower at Andrews is controlled by the Federal Aviation Administration. The Department of the Treasury also has a role anytime the president, vice president, first lady or any foreign head of state travels through Andrews. Not only does each agency bring its own methodology, each brings a strong sense of dedication to the mission it is tasked to execute. While none of the missions directly contradict each other, the methods of execution can, at times, create an atmosphere of conflict.

Like most other ground support agencies, we security forces did not have the proper frequency.

Solutions

So far, I've just been complaining about the problems with the system. However, as with most things in life, merely pointing out problems doesn't do much in the whole "let's fix this thing" department. With a little elbow grease and good, old-fashioned dedication, we here at Team Andrews were able to put together a plan that, to date, has produced the best possible results: No incursions! Yes, knock on wood, we've reduced our runway incursion rate to a big, fat goose egg. The solutions, which include standardizing procedures, updating equipment, a renewed commitment to training, and a renewed commitment to teamwork and command influence, were, for the most part, just as easy to implement as they were to conceive.

continued on next page



Equipping each of the eleven patrols with UHF radios was not feasible, as the radios themselves cost about $1500 apiece.

Re-defining the controlled movement area to ensure compliance with published guidance was the biggest step to ensuring procedural standardization. Combined with proper radio phraseology and direct contact between the tower and ground support units, these first solutions laid the foundation to the incursion solution.

With procedures standardized, the next challenge was to ensure each and every ground support unit was equipped with the proper radio equipment. The obvious answer presented itself in the form of the UHF radio. As all you aircrew types are well aware, a large majority of the tower's business is conducted via UHF. However, none of the ground support units had UHF capability. Subsequently, we were tasked with identifying the personnel who absolutely had to operate in the controlled movement area, which, from a security forces point of view, was a little tricky. The problem was that although we have quite a few security patrols that operate on the flight line, very few operate regularly in the movement area. Just about any one of the eleven-plus patrols could require access to the movement area, depending on the situation. Equipping each of the eleven patrols with UHF radios was not feasible, as the radios themselves cost about $1500 apiece.

The good news, as my Dad always says, is that, "Every opportunity presents a difficulty but every difficulty presents an opportunity." This case was no different. What we finally decided on was equipping the two patrols most likely to enter the movement area. The rest of the security units were given a modified procedure which still met the spirit and intent of the published guidance. If any of the other security units required access to the movement area, they simply contacted CSC. CSC called the tower via the direct line, and told tower to turn up their LMR-compatible VHF radio and specifically listen for the patrol requesting access to the movement area. Again, to date, this procedure has yielded phenomenal results.

Training Basics

To solve the training problem, we simply had to get back to the basics. Written orders and instructions were quite clear on the two keys to training success. First, we had to conduct daytime and nighttime orientation of the controlled movement areas. We hadn't been doing this. We did ensure that each and every troop operating on the

HQ AFSC Photo by TSgt Michael Featherston

flight line was given a daytime familiarization tour, but as we now know, there is a huge difference between operating on the airfield during the day and operating on the airfield at night. As a result, we began conducting the required nighttime orientation tours.

Second, we initiated a recurring training class and associated tools with which to track completion. A year ago, not one member of our 430-person unit had received recurring training. In fact, as I stated earlier, some of the troops in this unit hadn't received any training in this area since they arrived, in some cases as long as eight or nine years ago. Today, *not one* member of the unit operates on the flightline without it. Trust me—I know. Every other week or so, the training weenies send me a slide with all the personnel whose annual re-certification is past due. I get one week to fix it or the boss finds out. We've come close, but we haven't had to explain this to the boss yet.

An unfortunate side effect of the incursion problem was an atmosphere of mistrust among the various agencies involved. It got so bad that the FAA controllers actually accused us of setting up speed traps just outside the tower. On the other hand, we security forces types were convinced that they were nit-picking our every move in the hope of catching us doing something wrong. An atmosphere such as this is like a cancer—unless someone cuts it out, it continues to grow. The more it grows, the more it eats at the very heart of successful mission accomplishment. Fortunately, Team Andrews is made up of consummate professionals, and such people will always overcome. In this case, an orientation program was established to ensure the best possible understanding between ground support personnel and tower controllers. Each controller was assigned a sponsor squadron, with whom the controller was invited to ride along, while the unit performed its mission in the movement area. For their part, the FAA offered tours for ground support personnel which provided us with a firsthand look at the task-intensive environment inherent to air traffic control.

The only solution I haven't yet mentioned is command influence. Yes, I'm talking about the wing commander. I won't get into a lot of detail on this topic, but let me just say that when the boss makes comments like, "Fix it or you won't like living with me," or "I will take no prisoners next time around," you become very motivated, very quickly. As I'm sure all of you know, continually irritating the big guy is not a sound way to ensure longevity in any work setting.

Familiar Problems

Before I close, I feel compelled to point out that the runway incursion problem isn't unique to Andrews, nor even to the military. In fact, according to the FAA's Runway Safety Program Office, runway incursions more than doubled from a total of 187 in 1988 to 321 in 1999. As a result, the FAA developed, and is in the process of implementing, a program known as the Runway Incursion Reduction Program (RIRP). While time and space prevent me from getting into great detail about the efforts the FAA has undertaken, I can say that the first three points of their five point plan are an emphasis on sharing situational awareness, improving communications and improving education and training. Sound familiar?

Well, there it is! My first experience, with not only the serious safety problems that runway incursions embody, but more importantly, my own personal journey into understanding how important we all are to successful air operations. I guess I'll wrap this up by proposing a deal of sorts. For our part, we as security forces will continue to do our very best to ensure the growing terrorist threat has minimal impact on our beloved Air Force… as long as you aircrew types continue to provide us with the safest and most effective air travel system in the world! Hope to see you out on the flightline.

References:

Federal Aviation Administration. Pilot/Controller Glossary. FAAO 7110.65.

Federal Aviation Administration. Runway Safety Program Office. (2000) Increasing Safety by Improving Situational Awareness. On-line at: http://www.faa.gov/faa_office/rirp/RIRP_Article/index.htm

Federal Aviation Administration: Runway Safety Program Office. (2000) Runway Incursion Statistics. On-line at: http://www.faa.gov/runwaysafety/ricats88-99.htm

United States Air Force: Andrews Air Force Base. (1999) Air Field Operations.

When the boss makes comments like, "Fix it or you won't like living with me," you become very motivated, very quickly.

Runway Incursions: A Simple Lack Of SA?

As pilots, many of us often pride ourselves in the belief that we are pretty near to perfect.

CAPT ERIIK W. NIKULA
80 FTW/SE
Sheppard AFB TX

Have you ever called for taxi and been baffled by the clearance you received? Have you ever heard what you thought was clearance for takeoff, but you weren't completely sure? Now compound these scenarios with the possibility that you're in a hurry and you're at an unfamiliar airport with poor visibility and / or nighttime conditions. I'm sure any pilot with at least a couple of hundred hours of flight time has experienced something like this. So what did you do? Did you "press on," confident in your assumption of what the controller meant, or did you hold position and ask for clarification?

As pilots, many of us often pride ourselves in the belief that we are pretty near to perfect. So much so, we think we can make sense of any situation with complete accuracy. The danger is that we can unwittingly bet our lives (and those of others) on incomplete or erroneous information.

On 27 March 1977, the pilot of a KLM Royal Dutch Airlines 747 taking off from a runway in the Canary Islands did just that and collided with a Pan American 747. The result: 583 deaths and the worst aviation disaster in history.

The FAA defines a runway incursion as "Any occurrence at an airport involving an aircraft, vehicle or person on the ground that creates a collision hazard or results in a loss of separation with an aircraft taking off, intending to take off, landing or intending to land." Recently, runway safety has become an FAA special interest item. They're looking into new ways to address a problem that has increased steadily since the 1980s. Statistics provided by *Professional Pilot* magazine reveal that runway incursions increased 171 percent from 1988 to 1999, and those resulting from pilot actions went up 267 percent during the same

Illustration by Dan Harman

period. In addition, pilots are currently responsible for twice as many runway incursions as all other categories of causes combined. Another interesting fact provided by the Air Safety Foundation indicates that most *incidents* occur during day visual meteorological conditions, but most "close calls" and *accidents* happen at night or in instrument meteorological conditions.

The phenomenon has always existed, but the rising number of incidents is, undoubtedly, the result of increased air and ground traffic at airports and military bases. Unfortunately, runway incursions have proven extremely difficult to address because they occur in the complex, constantly changing environment of the aerodrome and their causes can be difficult to pinpoint. Often, the details of what happened are known, but the question of "why" goes unanswered. Some areas being examined are: incorrect clearance interpretation, poor radio communications, lack of pilot familiarity with the airport and misunderstanding signs or markings.

To address these areas, the FAA is currently developing an Advisory Circular with a checklist for preventing runway incursions. The proposed Part 91 checklist recommends actions that many military pilots, most likely, already do (either as technique or procedure), but *Aviation Monthly* has detailed some of the items worth looking at. They are: "review the airport diagram before engine start; read back your taxi clearance; if in doubt, verify your clearance at taxiway intersections and runway crossings; scan for surface traffic/approaching traffic before crossing a runway; expedite a runway crossing until the entire aircraft is clear of the runway; read back a clearance when entering the active runway for takeoff; scan for conflicting/approaching traffic; and expedite your takeoff when cleared."

To this I would add: closely monitor ground and tower frequencies. You can often hear a conflict developing over the radio before you find yourself in the situation. If the KLM 747 crew had just listened closer to tower frequency, they would have realized the Pan American 747 was not yet clear of the runway. Unfortunately, fog prevented them from visually acquiring the other 747 until it was too late. Remember the statistic about when most runway incursion *accidents* happen?

The high volume of aircraft operating on or in close proximity to a runway puts more lives at risk than at any other time in a flight. There is little room for error in such an environment. Add all of this up and you have a problem with potentially disastrous results that doesn't readily lend itself to easy solutions because of the human factors involved.

When it comes to runway incursions, a lack of situational awareness and a willingness to act on false assumptions seem to be common threads. Increasing our situational awareness by all means available must, therefore, be the top priority when moving on the surface or flying in the vicinity of an aerodrome. Following the FAA's recommendations and applying an extra measure of caution could make the difference.

Certainly, the statistics and the stories reveal the unmistakable fact loud and clear that we, as pilots, are definitely the "wild card" when it comes to runway incursions. Therefore, responsibility for any improvements in this area rests with us.

Most incidents occur during day VMC, but most "close calls" and accidents happen at night or in IMC.

Advanced Avionics To The Rescue

Photo Illustration by Dan Harman

"I've been over the bay for quite some time and I can't seem to find any land. I need some help."

TSGT WAYDE R. MINAMI
Maryland Air National Guard

What started as a routine flight training mission turned into a life-or-death rescue for a Maryland Air National Guard crew. Just before dusk on 17 January 2001, the crew of Witch 53, a C-130J of the 135th Airlift Group in Baltimore, monitored an urgent distress call from N6266A, a civilian aircraft near Atlantic City, NJ.

"I'm a student pilot over the Delaware Bay," came the broadcast from a single-engine Piper Tomahawk. "I've been over the bay for quite some time and I can't seem to find any land. I need some help."

A controller at the Atlantic City approach control center attempted to locate the Tomahawk on radar but came up empty. Calls to other radar stations in the area, including Dover AFB, DE, turned up nothing.

"It definitely piqued our interest," Maj. Kristi Brawley, the C-130 pilot, recalled. The Marylanders quickly offered their services.

A Bad Situation

With the lost pilot becoming more and more frantic, the air traffic controller finally located him. But the civilian Tomahawk wasn't over the Delaware Bay. He was over the Atlantic Ocean—60 miles out to sea and heading east. Worse, he was running low on fuel.

"He was in deep trouble," Maj Brawley said. "He was a student pilot with little training out over the open water and it got worse because...he wasn't responding properly to the air traffic controller's directions."

Lt Col Tom Hans, in the right seat of the C-130, said "I could tell, with the frustration in the controller's voice and the desperation in the student's voice, it was a bad situation."

With the sun setting and the wayward Tomahawk fading in and out of contact with ground radar, the Maryland crew rushed to intercept. At a range of 17 miles, the J-model's sophisticated avionics began picking up the lost aircraft's transponder and, as the distance closed, was able to paint the tiny plane using air-to-air radar as well.

"The avionics are the reason we found him," Brawley said, crediting the improved radar and Traffic Alert and Collision Avoidance System aboard the C-130J with enabling them to fly directly to the lost aircraft. Without the improved avionics, the crew would have been forced to fly a time-consuming grid search pattern—time the civilian pilot didn't have.

When the Maryland crew intercepted the wayward civilian plane, they used their aircraft as a visual reference to get the Tomahawk on a heading back towards land.

"Confirm Souls on Board"

But it wasn't over yet. As the sun dipped below the horizon, the civilian pilot discovered that his interior lighting didn't work. He had no flashlight, and it became increasingly difficult to see his instruments. When the horizon disappeared into the darkness, the C-130J became his only visual reference—and his only hope.

"That was the most discouraging moment," Brawley said, "because we weren't sure he'd be able to land without his instrument lights. The whole JFK thing kept popping into my head: 'Will he be able to maintain control of the airplane?'" (The speculation is that John F. Kennedy, Jr.'s fatal plane crash was the result of his becoming a victim of spatial disorientation. Ed.)

Meanwhile, the Coast Guard launched a rescue helicopter, and the Atlantic City controller made an ominous call: "6266A, confirm souls on board."

The C-130 crew realized what this meant—it wasn't certain the Tomahawk could make it safely to an airport. If the pilot went down in the Atlantic Ocean's frigid January waters, it was virtually certain the rescue helicopter would be looking for bodies.

At this point the Marylanders were no more optimistic than the air traffic controller about the Tomahawk's chances. "We thought he'd be swimming," Brawley said. "We just didn't know how much range he had left."

But then, without warning, the airplane's instrument lights came on, and the Herk guided it back to "feet dry." They rendezvoused with the Coast Guard helicopter, which escorted the Tomahawk to a safe landing at Atlantic City International Airport.

Fortunate Timing

The timing of the incident was fortuitous for the lost civilian. The 135th only began flying the advanced C-130J last year. Until 2000, the unit was equipped with Vietnam-era C-130Es, which lacked the sophisticated avionics that enabled the crew to quickly locate the tiny Tomahawk despite extremely poor visibility.

When the Tomahawk landed, it had three gallons of fuel in one tank. The other tank was empty. Without the quick, decisive action of the Maryland crew, and the state-of-the-art electronics aboard their aircraft, the Tomahawk would have run out of fuel over the ocean or before reaching Atlantic City.

Lt Col Hans said, "What I think is really amazing about this is we've never been trained as aircrew members to do anything like this—we didn't even have any plan when we went out to get him—but everybody came together as a team, and we brought him back safely."

For their prompt, decisive action during the incident, Lt Col Tom Hans, Maj Kristi Brawley, Maj David Deborger, MSgt Jimmy Greaves, and TSgt John Britt were awarded the Air Force Commendation Medal.

HQ AFSC Photo by
TSgt Michael Featherston

As the sun dipped below the horizon, the civilian pilot discovered that his interior lighting didn't work.

There Are No New Accidents

It is remarkable that we can predict with unfortunate accuracy the number of future mishaps.

COL RICHARD A. LEVY
Chief, Life Sciences Branch
Flying Safety, September 1996

During the last 9 years (368 Class A aircraft mishaps and 410 fatalities), I have heard myself say "... Oh no, not again!" Safety investigation boards (SIB) keep turning up the same problems year after year—fatigue, poor discipline, failure to follow appropriate procedures, lack of proficiency, poor systems knowledge, inadequate crew coordination, complacency, disorientation. These are some of the human factors responsible for 55 to 65 percent of our aircraft mishaps.

Safety investigation boards spend a minimum of 30 days meticulously analyzing each accident. Their findings and recommendations for the prevention of future mishaps are provided to commanders and crews. The lessons learned are painful and not easily forgotten, but the mishaps continue. It is remarkable that we can predict with unfortunate accuracy the number of future mishaps.

Can we do anything about this problem? You bet! We select our aircrews for their self-confidence and aggressive nature. They are expected to "hack the mission." Commanders, once "bulletproof" fliers, are similarly confident in their ability. It's not unusual to hear a flier say after hearing of a mishap, "...That was a dumb mistake. I'd never do that..."

On any day, two identically appearing aircrews can launch on a similar mission. One has a mishap, but there is no apparent difference in training or experience. The plain truth is that anyone on any day is a candidate for a mishap—no one is truly "bulletproof."

The first thing we can do is accept the fact that we are vulnerable, and the next step is to defend against that potential by careful preparation for every mission and application of lessons learned. For example, before launching on a night mission with NVGs, be sure everybody has adjusted and focused their goggles with the appropriate grid. Does everyone know where the wires are or might be? Remember, you can't see wires at night with goggles (all factors in a recent mishap, but old lessons not remembered.) Do you know precisely how your fuel system operates, which tank feeds which engine, and the effect of fuel imbalance on asymmetric loading? All basic stuff, but contributors to a recent tragic mishap.

Illustration by Dan Harman

Commanders, are you aware of the impact of fatigue on crew function? Judgment is impaired, crew coordination is compromised, information processing slows and memory suffers. "Ops Tempo" is a problem often discussed today and is associated with significant fatigue. Most fliers forget they graduated from the Academy or college in sleep debt, enter UPT chronically fatigued, and then continue to get five or six hours of sleep and never really catch up to a fully-rested state. How many of you are carrying masters degree programs on top of regular and additional duties? Most importantly, what impact does this have on performance?

The next thing we can do is recognize the risk associated with all these factors and the missions we fly. For example, when a crew walks out to their helo on a dark night to fly an NVG mission, an accurate estimate of available light (moon disc or luminance) must be made and the risk quantified. The mission commander must then "manage" that risk based on criteria previously established by the organizational leadership. Is this an operational search-and-rescue or a training exercise? Is risk more acceptable with one or the other? Is the crew familiar with the route? Is the equipment satisfactory or marginal? Risk is part of our business. Hard lessons learned have taught us that a casual or simple "can do" attitude can lead to a tragic outcome.

We can also do something about an age-old problem—discipline. I'm not talking about punishment, but about an approach to flying. I have seen too many mishaps where the crew did not properly prepare and brief, where the crew did not coordinate their actions, where a crewmember made a dangerous decision leading to an unrecoverable action, where the unit culture or "way of doing business" resulted in a thoughtless or sloppy way of doing business (e.g., dropping flares down an AC-130H 105mm gun barrel), where a copilot stepped on the rudder when told not to by the AC, where a pilot continued an ACM engagement although "blind" (and killed the other guy in the resultant midair), where an out-of-control "hot dog" pilot killed himself and his crew in a flagrant violation of basic air discipline and established ROE.

Do you personally pride yourself on your disciplined approach to flying? What do you do about fellow fliers who are casual or erratic? What is the unit culture, and how do you impact it? What is the quality of your leadership?

It's not the eye-watering or exotic human factor that kills people and destroys aircraft. Do not accept a "cost of doing business." These "same old" mishaps can and should be prevented.

(HQ AFSC's Life Sciences Branch provided the following figures on "Human Factors" involvement in the Class A mishaps since this article was published in September 1996: From FY96 to FY00, the USAF experienced 135 Class A mishaps with 115 total fatalities, of which 35 were pilot fatalities. Of the 135 Class A mishaps, Human Factors were listed as either "Causal," or a major contributor, in 83—or more than 61 percent—of them. For those who need a larger data spread, of the Class A mishaps occurring from FY91 through FY00, Human Factors were causal/major contributors in 64 percent. Ed.)

Hard lessons learned have taught us that a casual or simple "can do" attitude can lead to a tragic outcome.

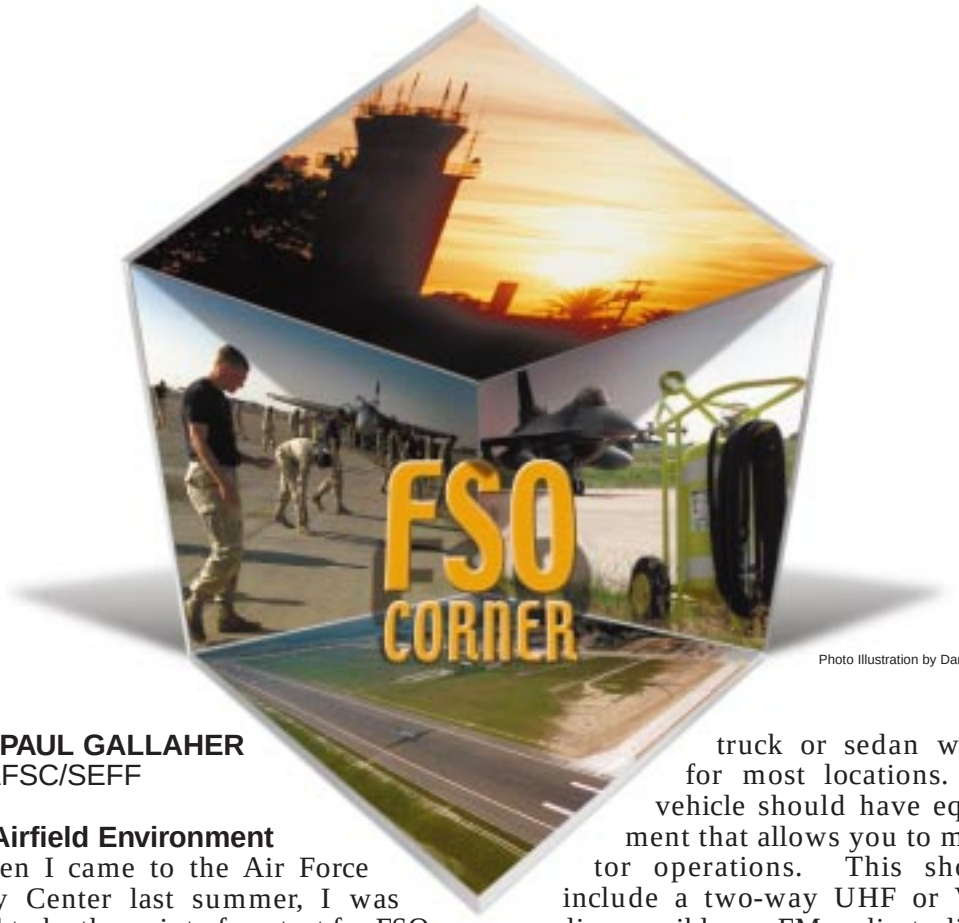


Photo Illustration by Dan Harman

MAJ PAUL GALLAHER
HQ AFSC/SEFF

As the eyes and ears of the Wing Commander, you need to spend time every week on the flightline.

The Airfield Environment

When I came to the Air Force Safety Center last summer, I was asked to be the point of contact for FSO issues. Having been a wing FSO at Offutt in the past, I naturally agreed, and hoped that I would have some useful inputs valid for all wing (and some squadron) FSOs.

For all of you FSOs, my hat is off to you. I have spent many an evening responding to the flightline for yet another IFE. Seems like they always happen between 1630 and 1700 on Fridays before a three-day weekend. That is the *re*-active part of our jobs. In this article, I intend to focus on the *pro*-active part of the job. I know you all have a myriad of staff summary sheets to write and flight safety award packages to submit (which is good), however there are things away from your desk that are an important part of your job. Here's a summary of things you can do as an FSO to promote flight safety at your unit:

As the eyes and ears of the Wing Commander, you need to spend time every week on the flightline. In order to do this effectively, you need the proper equipment. First, you need a GOV that will take you everywhere on or near the flightline to observe operations and conditions. I know you would all like a new Humvee or a Ford Expedition with CD player to do your job; however, a pickup truck or sedan works for most locations. The vehicle should have equipment that allows you to monitor operations. This should include a two-way UHF or VHF radio, possibly an FM radio to listen to the maintenance and crash/fire response (CFR) nets, and perhaps a UHF/VHF scanner. Check with your Fire Chief and LG to determine what radios you will need. A good pair of binoculars is also important, both to observe aircraft and other situations. As always, a pair of chocks is essential for flightline ops.

As a side note, I feel it's important to have a sign on your vehicle telling the world that you are the Safety Guru. "Wing Safety" in large block letters on a door magnet works well. Whether you know it or not, people notice when you are on the flightline and, hopefully they're reminded of the importance of doing their job safely.

The airfield is a dynamic environment where people are doing inherently "risky" activities. As you know, a large portion of aircraft mishaps occur during takeoff or landing phases. It is critical that you inspect these areas of the airfield occasionally. Technically, this might be the airfield manager's job, but you are the safety expert! It would be in your best interest to have a great working relationship with the airfield manager. They have to do periodic airfield inspections, so go with them and learn what writeups they have and what fixes are in

the works. They usually have a wealth of knowledge and experience; why not use their knowledge and experience to make your life easier?

Here are some items I used to check at Offutt, as well as bases I was deployed to in Southwest Asia:

• What is the condition of the airfield pavement? Is it cracking, buckling? Are there excessive rubber deposits in the landing zones of the runways?

• How is the airfield lighting? Is it as depicted in FLIP? Are bulbs burnt out? Do parking aprons have sufficient lighting to provide a safe environment at night?

• Are potential obstacles on your airfield installed on frangible (easily breakable) posts? Ask your airfield manager. Look for old buildings, antennas, etc., on your airfield that no longer serve a useful purpose. Some of these may need to be removed.

• If your airfield has grass infields, how tall is the grass? Does it discourage bird roosting? (Many flocking birds will not land in grass too tall to see their buddy through.) I used to use a standard issue Skilcraft ballpoint pen to measure grass height (the "MSgt Janca technique"; he was one of my flight safety NCOs at Offutt). If the grass is shorter than the pen, chances are, its too short.

• Is your airfield overrun with other critters? A large rabbit or prairie dog population is like a buffet invitation to owls and raptors. Raptors and vultures are notorious for spending hours soaring over the landing threshold of airfields. We know vultures and canopies (or engine cores) do not mix well. If you have a rodent problem that is attracting birds of prey, the USDA Wildlife Services can depredate (kill) the offending varmints.

• Do you have standing water on or near your airfield that attracts waterfowl? Even if your base swamp is considered a federally protected wetland, there are things you can do to discourage waterfowl from making it their home. This includes harassment techniques such as noisemakers, cannons, remote control airplanes or boats and even dogs trained to harass. For smaller birds, some airfields do use falconry.

• If your base is in close proximity to a waste collection facility (dump), keep an eye out for large flocks of seagulls. The only thing gulls like more than water is garbage. If large flocks of gulls transit your airspace from their nests to the dump for breakfast, lunch and dinner, guess what? You have a bird problem. Similarly, if geese transit your area in large flocks to feed (like at Dover AFB), there are certain times flying can be more dangerous. Make sure your BASH program takes environmental conditions into consideration.

• Also, be on the lookout for large mammals. Certain bases often have large mammals such as moose, deer, or elk on base. These animals may transit the airfield. Make it a point to visit your airfield during the twilight hours when these animals are most comfortable in the open. Little Rock AFB recently installed a deer fence to keep the critters away from the runway. (See *Flying Safety*, April 2000, for the "Bambi Be Gone" article. Ed.) There are options available to minimize the risk these large animals pose. For further information, contact the Air Force BASH team at: http://safety.kirtland.af.mil/AFSC/Bash/home.html

• Another area many FSOs don't consider is the environment off base or not near the runway, which can still impinge on flight safety. Is there construction going on that uses tall construction equipment? Are NOTAMs current? Are there bodies of water near the base that attract large flocks of waterfowl? Are there any light shows that may interfere with aircrew vision (like lasers or spotlights)?

• Finally, I encourage all of you to visit the aircraft maintenance shops. While you are most likely not an expert in these areas, it will pay dividends to visit. Get with your FSNCO or one of the maintenance USRs, and have them walk you through. Showing the "Safety Flag" can pay off big dividends in the end.

We're always looking for good information regarding airfield safety. If you have a story to tell or questions, please feel free to contact me at gallahep@kafb.saia.af.mil.

We should be careful to get out of an experience all the wisdom that is in it—not like the cat that sits on a hot stove lid. She will never sit down on a hot lid again—and that is well; but also she will never sit down on a cold one anymore.—Mark Twain

What is the condition of the airfield pavement?... How is the airfield lighting?... Do you have standing water on or near your airfield that attracts waterfowl?

Another Flight Safety Lesson

Illustration by Dan Harman

I had never seen a copilot take the airplane from a captain. I did what I had to do.

J.S.T. RAGMAN

One week, two flight safety situations, two radically different responses. What lessons could I draw from the comparison? With over 20 years flying airplanes, I had attended many a class regarding cockpit coordination concepts, crew resource management, and the latest iteration: human factors and error management. Indeed, I had spent the better part of two years instructing airline crews in the latter.

First lesson: We can learn and learn, we can teach and teach; but there will always be another flight safety lesson to be learned and taught. Second lesson: Knowledge, rank and friendship can indeed be obstacles to effective crew resource management.

Tuesday, the airline job, the Northeast Corridor, in the initial phase of our descent, in instrument conditions. I had flown the southbound leg, the Captain was flying the northbound leg. Passing through 18,000 feet, we encountered an aural and visual traffic advisory (TA) on our TCAS. Moments later, we received an aural and visual resolution advisory (RA) commanding us to "Climb, climb, climb." The Captain continued his descent. I directed him to climb. He did not. I had no doubt in my mind as to what must be done. I took action. I kicked off the autothrottles, kicked off the autopilot, advanced the power, pulled back on the yoke, and climbed as directed by the TCAS. Twelve years in the airline business. I had never seen a copilot take the airplane from a captain. I did what I had to do.

Three days later, Friday, the Air Force Reserve, a night tactical mission, chaff and flares are loaded. I was sitting in the right seat. The squadron commander, a Gulf War veteran and former Chief of Stan/Eval, was in the left seat. Indeed, I was the only crewmember who was not

Stan/Eval. The navigator, flight engineer, and both loadmasters were Stan/Eval. And we were friends. We hung together, drank together and shot the breeze together.

It was my first chaff/flare ride. I had reviewed the defensive systems prior to mission showtime. Indeed, I had compiled a squadron study guide on the defensive systems in anticipation of our upcoming Balkans deployment.

As we ran our checklists on taxi-out, I issued the challenge "safety switch, safety pins," the loadmaster responded "removed." I thought for a moment: "If I recall correctly, there is now nothing between a stray electron and inadvertent flare deployment. For the first portion of our flight, we will be overflying populated areas, as in shingle roofs." I queried the crew: "Are we sure we want those pins pulled?" The crew responded: "Yes." I queried the crew yet again: "Is there anything between a stray electron and the flare dispensers, as in inadvertent flare deployment?" The crew responded: "We're okay." I tried yet again: "How about we wait until we're over water before we pull the pins?" Again, the crew responded: "We are okay."

As it turns out, we were okay. *That* time. Following our landing, and our return to the squadron, I reviewed the dispenser systems yet again. Indeed, there was nothing standing between a stray electron, inadvertent flare deployment, a roof fire, and possible civilian injury or death. To say nothing of embarrassment, legal action or disciplinary action.

Why had I not been more sensitive during the course of my Friday night Reserve mission? Where was my airline assertiveness on that Friday night? Clearly, the airline instance directly impacted my safety, whereas the Reserve instance had not. But there was far more to my lack of assertiveness.

First: In the airline instance, I was confident of my procedural knowledge. In the Reserve instance, I was not sufficiently confident of my defensive systems knowledge. Solution: Make every effort to know my stuff, inside and out, prior to every mission; furthermore, have confidence in my knowledge.

Second: In the airline instance, our relative seat positions meant nothing in terms of proficiency, knowledge, experience, judgment or skills. He was the Captain and I was the First Officer, simply because he had been hired before me. Nothing more to that story. In the Reserve instance, the man was my Commander. He was also the former Chief of Stan/Eval, both positions based upon merit, not seniority. Command and Stan/Eval *mean* something. Solution: Rank and crew qualifications do indeed mean something, but there is no rank or qualification which will eliminate the inescapable truth that we are all human beings, and that all human beings can be wrong on occasion.

Third: In the airline business you fly with a man for a day and you may not see him again for two years. I commute back to Evergreen, Colorado; he commutes back to Burlington, Vermont. If the man does not like my assertiveness regarding a TCAS RA, that's his baggage—not mine. In the Reserve instance we are friends: We hang together, drink together, and we shoot the breeze together. Solution: Just as the expression states "Friends don't let friends drive drunk," so too, "Friends don't let friends commit unsafe acts." I should have spoken up more assertively *because we are friends.*

So much for *my* lessons. Are there other lessons to be learned? I was not flying solo. I was a member of a crew in both instances. Are there lessons for the crew as a whole? You bet.

In both instances, one crewmember was clearly uncomfortable, uncertain and uneasy about the situation. Let the most narrow flight safety "comfort zone" dictate the action. What is lost by responding to a TCAS resolution advisory? Absolutely nothing. What is potentially gained? Possible prevention of loss of life. What is lost by taxiing into the hammer-head, pulling out the Dash-1, and reviewing the countermeasures dispensing systems? Absolutely nothing. What is potentially gained? Possible prevention of loss of life. Again: Let the most narrow flight safety "comfort zone" dictate the action.

Fly Safe. ✈

("J.S.T. Ragman" is the pen name of a C-130 pilot and unit commander in the Air Force Reserve. He is also a Boeing 777 pilot for a major airline.)

Why had I not been more sensitive during the course of my Friday night Reserve mission?

What Happens

CAPT KERRY L. TIDMORE
2 ARS/SE
MCGUIRE AFB NJ

My instructor seemed to have the whole process figured out very clearly.

Risk. Just like taxes, it's virtually inescapable. Risk surrounds us everywhere we go, even in the peace and sanctity of our own backyard barbecues with our friends or in the (so-called) safety of our homes. Although we can reduce the risk that we are exposed to in most situations, the bottom line is that risk is inherent in all operations. Whether we're flying an instrument approach to a strange field in the weather and at night, or simply making the mistake of shopping at the commissary on payday, we accept some degree of risk at all times in our everyday lives.

So, how do we control this risk that we encounter, voluntarily or involuntarily? Well, most people have been doing some type of risk management since a very early age and probably didn't even realize it. I can still remember my first formal lesson in risk management from years ago. My instructor seemed to have the whole process figured out very clearly. In fact, all of you were enrolled in the same course at one time or another. Who was the instructor who was able to lecture on just about any topic? You guessed it; I'm talking about Mother. Even now, after flying airplanes for more than 15 years and attending several formal and informal schools on flying, aviation concepts, and related safety programs, I still use the risk management assessment process my mother gave me at a very early age. The process is uniquely simple yet ultimately efficient: "What Happens Next?" The USAF commonly refers to Mom's process as the "Scenario," or "What If Process," where you take proposed actions in a particular situation, project them forward to a logical conclusion, and then look at the outcome and determine if it's desirable, and if the benefit outweighs the cost. Bang! Without even knowing it, we've just applied ORM principles.

The Air Force adopted the ORM concept as a tool for its members to use in reducing risk in all aspects of life, both on and off duty. The basis of ORM is the understanding that risk is inherent in all operations but that risk can also be controlled. As a primary jet instructor for three years teaching the Air Force's newest aviators in many high-risk categories of flight (i.e., advanced aerobatics, instruments, low-level, and formation), I always tried to impress upon my students the importance of adopting their own internal risk management policy. This policy for conducting ourselves in the employment of our machines is kind of a "go/no-go" philosophy that takes into account the time-critical nature of most of the decisions we make in flight. It includes simple things like the "what if" policy: "How will the safety report read if something goes wrong?" or "Could I perform this maneuver or flight in good conscience with an examiner or my commander on board?" These are all examples of ORM in action, and stem from concepts of ORM that anyone can use anywhere, on or off duty.

In an effort to simplify the current six-step process of Air Force ORM and foster a greater understanding and use by members, Air Combat Command adopted a three-step process to be used in addition to the established six-step process. The new "hip pocket" process is designed to increase understanding and retention of ORM principles and, therefore, help incorporate the ORM culture into our everyday tasks. The new process is known as A...C...T:

Illustration by Dan Harman

Assess environment for risk...
• Be aware of your surroundings, duties, tasks, etc., on and off duty.
• Analyze what could go wrong.
• What are the chances of something happening?
Consider options to limit risk...
• What can you do about it?
• Is it worth the risk to do it?
• Does the risk require you to elevate the decision-making process?
Take appropriate action...
• Implement risk controls (take preventive action).
• Does your action control the risk? If not, start the process again.
• Spread the word! Let others learn from your experience.

As military members and defenders of this great country, we are always at increased risk. Therefore, our adoption of these basic principles both on and off duty can only help us detect, assess and control risk while enhancing performance and maximizing our combat capabilities. Remember the bottom line: Accept no unnecessary risk.

ORM is a logic-based, common sense approach to decision-making that can be used in a split-second, or employed by a group over time. It's a necessary tool that should be utilized by everyone in some shape or form, and passed on to our newest Air Force members.

And by the way, if you had the same person I did as your first risk management principles instructor, give her a call and thank her today.

I always tried to impress upon my students the importance of adopting their own internal risk management policy.

"Howz That Outside Scan Coming, Buddy?!"

"November 47636, suggest you climb or dive—NOW!"

LCDR GIL MILLER, USN
Safety Officer, VR-54

Pay the fee, get your A-T-P. Sounded good to me!

There I was, nine years and 2400 hours into a terrific Navy flying career. Having a blast and feeling pretty salty, too. After all, I'd been fortunate to bounce from two different fleet platforms into the C-12 program. Just loved that light multi-stuff. Might as well enhance my professional education and pick up another FAA qual. What a deal!

So, I signed up for two practice flights and an ATP (Airline Transport Pilot) checkride in the Piper Seminole. Arrived bright and early at the flight instructor's office, filled out some paperwork, and drove to the airfield. I was pretty fired up. I could hardly wait to show off my flying skills, particularly when my instructor for the practice flights remarked that he was pretty experienced himself. After all, he already had over 500 flight hours, and nearly 100 of those were in that very Seminole we were preflighting! Bonus!

An hour later, there we were: 15 miles northwest of the city at 4500 AGL. The weather was absolutely CAVU (ceiling and visibility unlimited), and we had a passenger in the back who was returning to flying after an eight-year hiatus, now that the airlines were hiring. He was trying to soak up some aviation before returning to the controls himself.

We had just finished the stall series and were now embarking upon basic instrument work. I was just starting to grow accustomed to the "foggles" glasses, which removed about 70% of your visuals to enforce your instrument focus. Approach was providing VFR flight following and gave us a courtesy call:

"Seminole November 47636, Approach."

"November 47636, go ahead."

"You have traffic, one o'clock, ten miles. A Seminole, 4500, heading northwest."

I looked up briefly and asked, "You got 'em?"

Photo Illustration by Dan Harman

My instructor looked up for a second and answered, "Nope." Then he returned back to his logbook.

We finished the 30-degree turns and rolled out on an easterly heading. Approach called again.

"Seminole November 47636, your traffic is now one o'clock and seven miles. Do you have the traffic?"

I looked up again, squinting through the little opening at the bottom of the foggles as my instructor calmly replied, "Nope, don't have him."

Approach called the other aircraft: "Seminole November 88912, traffic is eleven o'clock and six miles. Report traffic in sight."

A voice from the other aircraft responded, "Approach, Seminole November 88912. Negative contact. We're looking."

With this, my instructor remarked, "Hey, that's the ATP checker."

"What's that?" I replied.

"In the other aircraft, that's Mr. Toughguy, the ATP checker."

"Oh, okay. Do you have him in sight, yet?" I looked over at my young instructor and he glanced out the window with the same intensity as though he was daydreaming. He still believed in that "big sky, little airplane" concept.

"No, sure don't."

I was getting a little concerned. "Well, let's do the first 45 turn to the left to get away from him. You still don't have him?"

"Nope."

Approach called again. There was renewed urgency in the controller's voice as he asked us to advise when the traffic was in sight. We were now four miles, but I was wrapped up in my instrument scan for the 45-degree turns and the passenger was occupying the instructor with FAR (Federal Aviation Regulations) questions. I remember hearing another negative reply from the other aircraft and noticing, once again, that my instructor was still buried in his logbook. Must have been tallying all 500 of his hours that particular morning.

The fourth time Approach called us, the controller played his trump card and said quite compellingly, "November 47636, suggest you climb or dive—NOW!" The last word was screamed over the frequency. It's probably arriving in Neptune or Pluto right about now. I looked up at our one o'clock and saw the other Seminole. It was nearly as big as ours was when I stood beside it to preflight earlier that morning. Pushing the nose over as hard as I could, I felt the shoulder straps dig into my shoulders and my feet leave the pedals. The other aircraft passed directly overhead. They never saw us.

When we leveled at 3500, I looked over at my instructor. His face was ashen and he didn't say a word for several minutes. Finally I asked, "How about those approaches?"

We landed an hour later. The Seminole is not a complex aircraft and I was beginning to feel comfortable in it, but the most important lesson that morning was clearly beyond a mere aircraft fam. I've heard it since flight school and I've said it myself as a NATOPS IP and aircraft commander: Don't trust the other guy! Even your most competent, best buddy can get you killed.

We were lucky.

The other aircraft passed directly overhead. They never saw us.

Read
The Fine Print

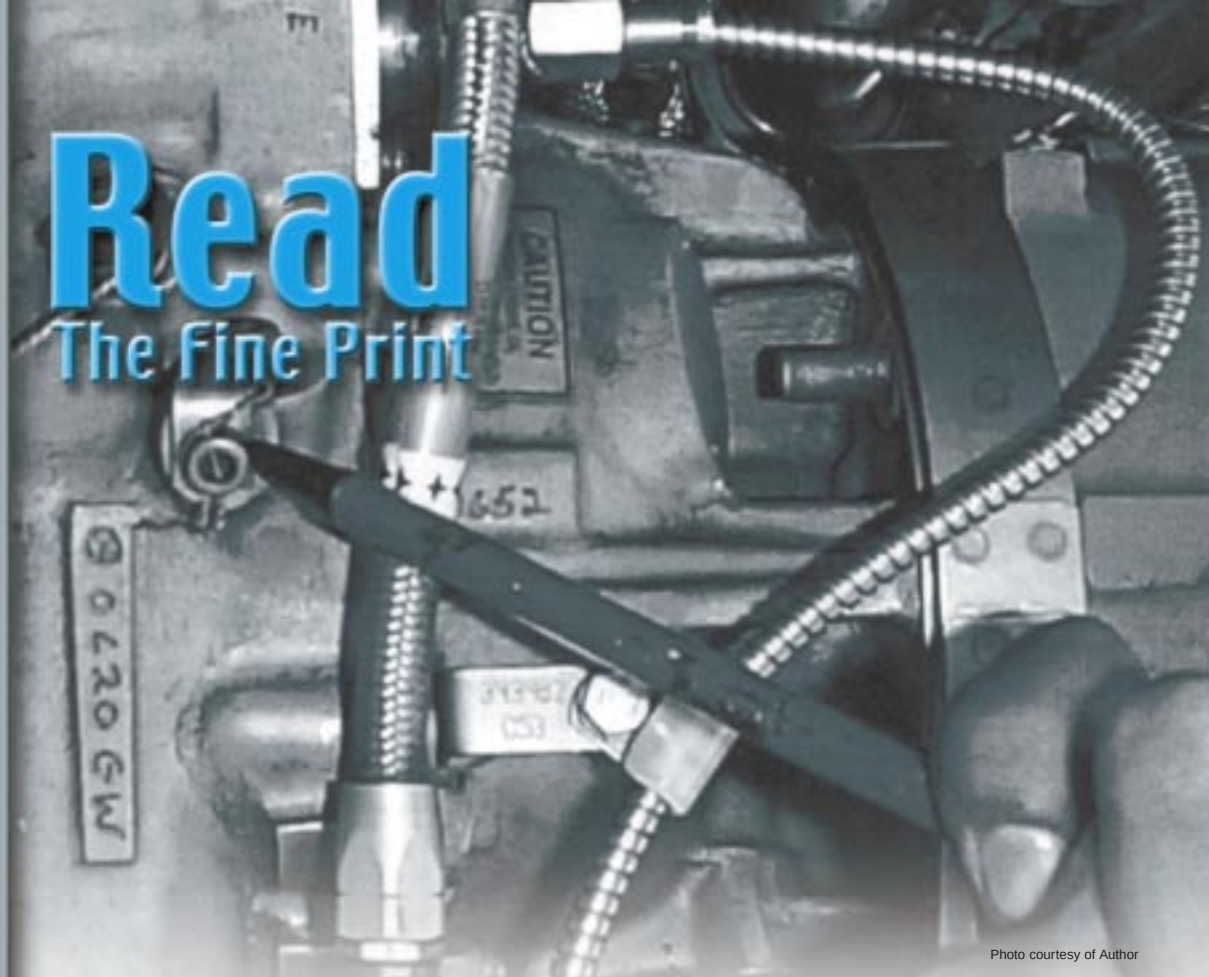


Photo courtesy of Author

The MI specifically cautioned against removing the locking screw from the fuel control body.

AD2 JAMES R. BRILLHART, III
VR-54

I was four hours into the night shift, troubleshooting a T-56 engine fuel flow vs. rpm gripe with four other mechanics—all the expertise we needed to get the job done right! I referred to the maintenance instruction (MI) for fuel control governor adjustment procedures. We'd been chasing our tails all evening and, in an effort to expedite the job, I read over the instructions very quickly. A little too quickly, as it turned out.

With thoughts of expediting the job looming large, I removed the fuel control governor's locking screw, which facilitated turning of the fuel control governor adjustment (worm) shaft. I hadn't even noticed that the MI specifically cautioned *against* removing the locking screw from the fuel control body. In addition, the MI also cautioned against leaving the fuel booster pumps operating, as this could result in the fuel governor adjustment shaft being blown out and a serious fuel leak.

My carelessness paid off. As soon as I attempted to reinstall the locking screw, the worm shaft blew out of the fuel control, followed shortly thereafter by approximately five gallons of JP-8. Luckily, the engineer at the flight station heard me yell and immediately secured fuel pressure with the engine fire handle.

After things settled down and I had time to catch my breath, I re-visited the steps in the maintenance instruction. That's when I realized it wasn't a problem with the equipment or tech data—it was my failure to read and follow the procedures completely.

Fortunately, the worst things to result from this incident were: (1) Having to clean up the fuel spill; and (2) Explaining to my supervisor why my attempt to expedite the repair on the gripe had backfired. But those things were okay with me. I'm just glad that the worm shaft and fuel ended up on the deck rather than in someone's eyes.

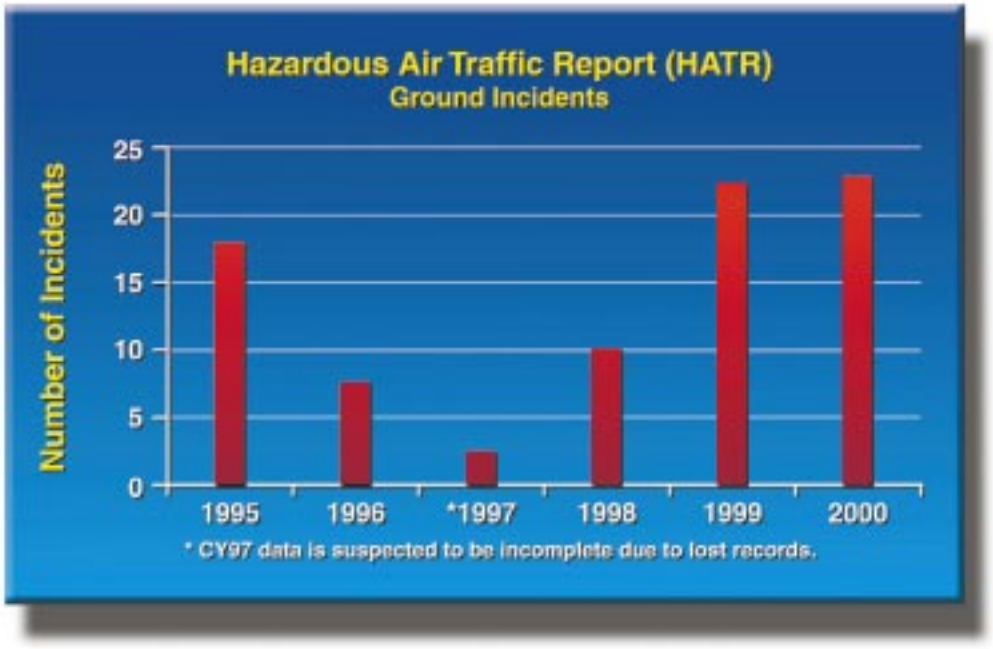
Always remember: *Read The Fine Print!* ✈

(At the time this article was written, Aviation Machinist Mate Second Class Brillhart was assigned to VR-54 at NAS JRB, New Orleans, working the C-130T. He has since been reassigned to NAVAIRE-SACT Selfridge ANGB, MI. Ed.)

And Now, A Few More Words On Runway Incursions

MSGT KEVIN ELLIOTT
HQ AFSC/SEFF

For mishap prevention purposes, the HQ Air Force Safety Center tracks, categorizes and assigns causal factors for all HATRs (Hazardous Air Traffic Reports). HATR reporting also covers ground incidents like runway incursions and movement area violations. Per AFI 91-202, *The US Air Force Mishap Prevention Program*, Attachment 3, "Hazardous Air Traffic Report (HATR) Program," a "Ground Incident" is defined as *"Any occurrence, including vehicle operations, on the movement area that endangered an airborne aircraft or an aircraft on the ground."* The chart depicts Ground Incident HATRs from CY95 through CY00.



Since 1998, the number of reported USAF Ground Incident HATRs has been steadily increasing. All of these hazards to flight safety were caused by human error. Vehicles driving onto runways without tower approval caused the majority of these HATRs. Other reasons cited as causal in the increasing frequency of runway incursions included:

- Not hearing controller instructions correctly;
- Not knowing approval to cross a runway was needed;
- Getting lost and wandering onto a runway; and
- Believing approval to cross a runway was given when it wasn't.

The runway environment is a dangerous place where attention to detail—and ATC instructions—is of crucial importance. One mistake could be *deadly*. US Federal Aviation Administration statistics for the last eight years reflect a similar alarming rise in runway incursion rates. This is especially important info for the military aviator, since many of you transit more civilian airfields than ever before. Regardless of airfield type, a collision on the ground with a vehicle can be just as deadly as a midair collision

The bottom line? Whether you're an aviator or someone whose job requires work in the runway environment, *listen up!* If you don't understand or aren't 100 percent sure you clearly heard ATC controller instructions, two little words can keep you—and others—out of harm's way. Those two simple words? "Say Again." ATC would be happy to repeat that last transmission to keep you off the runway and out of danger. Fly Safe! And *Drive Safe, too*! ✚

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

"Landing Gear? I Don't Need No Stinking Landing Gear!"

It was a formation solo syllabus support sortie for two aircraft, with the mishap instructor pilot (MIP) flying solo in the first aircraft (A1) and acting as formation lead for the second aircraft (A2), which was being flown by another IP (IP2) and a student pilot. Brief, step and takeoff were uneventful and, as briefed, after area work, the formation switched lead, with A2 to lead the remainder of the sortie. Shortly after the lead change, the home field SOF directed a weather recall and the two aircraft RTB'd.

The formation arrived at home field only to learn from the RSU controller that winds were above limits for landing. Lead, in A2, followed closely by A1, diverted to an airfield a short distance away where conditions were more favorable and landed. However, due to insufficient runway spacing Tower directed the MIP in A1 to go around. Following some radio chatter, a few frequency changes, direction to follow other traffic in on final approach and flying an extended pattern with a three mile final, the MIP called "Gear down," acknowledged clearance to land and…subsequently landed with all three gear retracted. (Isn't that a case o' beer to the Crew Chief?) The MIP ground egressed his aircraft—no doubt sheepishly—but uninjured. The aircraft sustained repairable damage to assorted parts, including its underside, speed brake, flaps and antennas.

Just as a routine, "Been there, done that a hundred times before" mission can lead to complacency and mistakes, so, too, can task saturation. Which was the case here? You decide. How can you prevent something like this from happening to you? Don't stop flying the aircraft until all the parts stop moving.

"'SKE'ing' Should Be Exciting, But *This* Is Ridiculous!"

From HQ AMC message number 081651Z May 01, "SKE Equipment," comes HQ AMC / DOV FCIF # 01-05-08, directed to all AMC and AFRC C-17 units.

Quote: "AMC / DOV would like to clarify each aircraft must have the ability to display all other aircraft in the formation on the SKE presentation while operating in IMC. Each aircraft must identify all preceding aircraft prior to rejoining a formation or closing during the formation assembly. If the presentation appears incorrect or is not updating, inform the formation lead aircraft and use an alternate means (air-to-air TACAN, radar beacon, TCAS or the weather radar) to keep track of other aircraft in the formation until the problem can be resolved or the problem aircraft can depart the formation. Whenever a SKE problem is suspected, the lead aircraft should be informed and Lead will direct the proper course of action for an individual aircraft or the formation." End quote.

Reason for the message? A formation of C-17s was flying a routine SKE (station-keeping equipment) mission in IMC when the lead airlifter lost all SKE presentation information. Meanwhile, SKE on the formation's No. 2 aircraft displayed spacing from Lead at a constant 32,000 feet. When the formation broke out of the clouds, No. 2 discovered he was 2000 feet right, and 2000 feet aft, of Lead… SKE gear from both aircraft was pulled and sent for testing and analysis, but the incident highlighted how important it is for crews to ensure proper identification of other aircraft in the formation and monitoring displayed SKE information for consistency with the present situation.

Also, per the message… Crews are to ensure the SKE system passes preflight BIT and check the avionics fault list *prior to takeoff* to confirm *absence* of a "SKE" avionics

fault. Boeing and the equipment contractor believe the "SKE" avionics fault may indicate system degradation but won't necessarily generate a "SKE Caution." Per the C-17 Dash-1, the SKE system shouldn't be used in IMC if: 1) A "SKE Caution" is displayed; or 2) The SKE presentation appears incorrect. Fly Safe!

Beatin' Up On The Loadmaster!

No sooner do we write about a tanker Boomer getting thrown around in flight during "light turbulence" and sustaining a fractured elbow (see "Ops Topics," Jun 01) than we see *another* mishap message relating to turbulence and one more aircrew member injury.

The aircraft departed base for a planned low-level route training mission. Forecasted weather was VMC with light-to-moderate clear air turbulence. The crew encountered only light turbulence until entering the low-level route, when, at 1000 AGL, a strong thermal resulted in the Loadmaster being lifted well off the aircraft's cargo compartment floor. Return to normal gravity resulted in the Loadmaster hitting the floor hard enough to suffer a compound fracture of the tibia and fibula in one leg. The injuries could easily have been much more serious, but thanks to quick, great medical attention, the Load's expected to make a full recovery.

Moral of the story? Crews of non-fighter aircraft are frequently required to perform in-flight duties without restraint. It's vital that those who are unrestrained stay on their toes (no pun intended) and all crewmembers look out for each other, keeping a particularly wary eye out for potential turbulence that could cripple their bud.

Two Sets Of Eyes *Are* Better Than One (Or, "Yep, I Do Still Have An Equal Number Of Takeoffs And Landings!")

The mishap aircraft (MA) was No. 3 in the F-16 four-ship mission. The flight was to take off single-ship, in afterburner, with 15 second takeoff interval spacing. No. 3's jet was observed to have flames coming from the exhaust nozzle on takeoff roll, but the mishap pilot (MP) didn't learn of the problem until just after rotation. No. 2 joined on the MP and observed that the fire was out, but a sizable portion of the MA's exhaust nozzle had been burned away. The MP jettisoned all three external tanks in an unpopulated area, safely returned to base, shut down in the de-arm area and performed a normal egress.

No matter how well aircraft are designed and maintained, equipment failure is bound to occur from time to time. Luck is good, sure, but it's teamwork, training and preparedness that most often mean the difference between a safe return and a smoking hole.

To this jet's pilot, and to this pilot's wingies, we salute you: SALUTE!

"…And Let's Be Careful Out There"

...It was nighttime when the mishap pilot (MP) landed at a transient base. Gathering several pounds worth of gear—parachute, helmet, pubs, etc.—from the cockpit, the MP stepped down from the aircraft and then stepped *on* the (nearly invisible) refueling hose that had been laid out to service his aircraft. Outcome? Nasty lower extremity fractures that resulted in more than a month hospitalization and quarters.

...There was a partial crew show for the big aircraft. It was warm inside, so one of the crewmembers moved to open an upper fuselage hatch to admit some cooler outside air. Sadly, the hatch hit the head of a crewmember standing nearby, resulting in a gash that required medical treatment and three days DNIF.

...The mishap pilot (MP) boarded the aircraft, stepped on the seat—whose seat catches weren't completely engaged—and the seat promptly dropped (harmlessly) to the floorboard. The MP sat down, strapped in and adjusted seat height to fit. It *appeared* as though the seat catches were fully latched. Engine start, taxi, takeoff and the flight were all uneventful, until entering the MOA and commencing a G-awareness exercise, when the seat slid to the floorboard again, only this time, not so harmlessly. One of the MP's feet was in the path of the descending seat that, as examination would reveal later, suffered a broken bone.

And Now, A Warning

The mishap pilot (MP) briefed as No. 2 of a flight supporting FAC training. All events were uneventful until in the working area. On the third pass, at low altitude, high RPM and high G-loading, a fire warning light in the mishap aircraft (MA) illuminated for a few seconds. The MP reduced RPMs, relaxed the G-load, initiated a climb and the fire warning light extinguished. The MP continued the mission. Then there was a "clunk" from the engine and that pesky fire warning light illuminated again. But this time, it didn't extinguish…

The MP executed emergency procedures for the fire warning indication, but the light remained lit. The MP declared an emergency, initiated a return to base and contacted the appropriate agencies. Approaching base, the MP extended the gear and got a down-and-locked indication, only to have it indicate in-transit a few seconds later. Then, whitish-gray smoke, followed by darker smoke and flames started coming from the belly of the MA. The MA experienced a total electrical failure and the nose started pitching down, uncontrollably. The MP ejected safely at an estimated 200-300 feet with the MA's nose moving down through 30 degrees. Natch, the aircraft was destroyed.

How seriously do you treat a fire warning indication?

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

Tow Team Tribulations

No doubt dozens of aircraft tows take place every day throughout our Air Force. Kudos to all of you who make a difficult task seem easy and do so without injuring people or bending wingtips. Only a small percentage of aircraft tows result in aircraft damage, but as the following briefs illustrate, when there's a tow and an aircraft gets damaged, it's almost inevitably due to human error. Take a read…

• An aircraft had been hangared for routine maintenance and it was to be towed out to make room for another, higher priority aircraft. No sooner did the tow super give the command to start the move than the aircraft's tail impacted a closed door. Mishap cost: $42K.

• Another aircraft needed tow inside a hangar. As the tow was nearing completion, one of the aircraft's elevators was banged into a fixed structure. Mishap cost: $16K.

• This aircraft required a nose tire change and then relocation to another spot. A nose steering pin was installed as part of the tire change procedures. The pin was supposed to be removed on completion. A tow team commenced the aircraft move, heard a "Bang!" and halted it. The "Bang!"? An NLG strut cracking. Mishap cost: $34K.

• An aircraft being hangared struck a piece of aircraft equipment with its horizontal stab. Mishap cost: $33K.

• An aircraft was to be towed into a hangar. One of its wingtips struck—and penetrated—the radome of an adjacent aircraft during the move. Mishap cost: $29K.

• An aircraft had to be repositioned on the ramp from Spot A to Spot B. One of its wingtips struck a fixed object while under tow. Mishap cost: $82K.

• And we saved the best—or worst—for last. An aircraft was being towed for placement in a hangar. The move nearly completed, the tow was stopped so the tow vehicle could be disconnected and repositioned. Once the tow vehicle was disconnected, the aircraft rolled away and didn't stop rolling until it struck a fixed maintenance stand. Mishap cost: Greater than a half-million dollars.

In every one of these instances, somebody (or multiple somebodys) made a boo-boo. A tow was something they'd all done lots of times before. No equipment failure; nobody firing live rounds at the tow team; just the perceived pressure to accomplish the tow and move on to something of higher priority. Now, next time you participate in a tow, make a pact with yourself to do the following: "I will follow the checklist step-by-step. I will question anything that doesn't look right before it's too late. And I'll not let the routine nature of the tow allow me to think 'Nothing's gonna go wrong.'" *'Nuff said?*

Hazards Of Hydrazine

The F-16 Fighting Falcon is equipped with an emergency power unit (EPU) designed to help maintain electrical and hydraulic power if the engine or engine-driven electrical or hydraulic equipment fails. The EPU may be powered by engine bleed air or, if the engine loses power, by hydrazine.

Hydrazine, or H-70, is fine for powering EPUs, but it's toxic, volatile, highly corrosive and harmful to humans and other living things. Hydrazine exposure—whether through ingestion, inhalation or skin contact—can have serious, long-term health effects. Maintainers in the following hydrazine mishaps were extremely fortunate to have suffered no permanent damage. Their exposures underscore the consequences of ignoring directives and/or not wearing required PPE (personal protective equipment).

In the first event, an F-16 pilot experienced in-flight electrical system problems. He activated his jet's EPU to restore electrical power, declared an IFE, RTB'd and made a safe landing, and egressed. Once the Fire Department confirmed the EPU system was safe—that is, not leaking hydrazine—the emergency was terminated and the aircraft towed to the EPU maintenance/service area. Here, the seven-level mishap supervisor (MS) and three-level mishap worker (MW) were to depressurize and purge the EPU system and replace the hydrazine tank. The MW had been recently qualified on hydrazine response team/spill cleanup procedures, and purging and refurbishing hydrazine systems, but had never done the work on a pressurized system. Alas, he ended up with a face full of hydrazine, a trip to the hospital and 48 hours quarters.

In the second event, another supervisor was working with another trainee. The task here was to fuel an F-16's empty hydrazine tank in the unit's hydrazine maintenance facility. The supervisor and trainee proceeded with the tank refueling operation until it became evident that hydrazine was leaking during the fuel transfer. The supervisor apparently suffered no ill effects, but this trainee also got a free ride to the hospital for medical examination. Unlike the first event, which occurred outdoors, this mishap occurred indoors and, as a result, medical tests found the trainee had definite exposure to hydrazine. He too was placed on 48 quarters and scheduled for further medical evaluation.

We never seem to have enough personnel, so we can ill afford to lose any of the ones we have through avoidable workplace accidents. Next time you think it's too much of a hassle to don required protective gear, please consider the following:

•That gear's designed to prevent injury to you. Your health, your hearing, your vision, maybe even your life could be on the line when you gamble that you can do that task without PPE "just this once."

• If you don't use required PPE every time, then it's a sure bet either your trainer set a bad example for you when you were a new troop or you've lost a measure of self-discipline. Why should you expect your trainees to use PPE if you don't use PPE? If one of your trainees suffers a permanent injury—or worse—because he (or she) followed your (bad) example, how will you explain that to the person in the mirror?

• Finally, if the first two items don't appeal to your innate sense of doing the right thing, then how about this? When tech data, local operating instructions, AFOSH standards or other regulatory documents tell you to use PPE, wear isn't a suggestion—*it's an order* to be disobeyed at your peril. Protect yourself and follow that guidance.

Read Any Good Books (or Forms) Lately?

Mishap worker 1 (MW1), MW2 and MW3 were tasked to download a couple of AMRAAMs (advanced medium-range air-to-air missile) from an aircraft using the reliable, stalwart MJ-1 bomblift ("jammer"). MW1, who was operating the jammer, and MW2, downloaded the first AMRAAM without incident. MW1 transported the missile to the munitions trailer while MW2 proceeded to the other station to prepare the remaining missile for download. MW1 placed the first AMRAAM on the missile tree and MW3 started securing it to the munitions trailer.

Bound for the far wing to download the second AMRAAM, MW1 was maneuvering his jammer under the jet's nose, when the bomblift table impacted the aircraft's radome with sufficient force to break the bomblift table into several pieces. Three items worthy of note here:

• Total mishap cost exceeded $66K;

• One of the pieces of the bomblift table embedded itself in the radome; and

• The jammer struck the nose of the fully fueled aircraft with sufficient force to move it *more than two feet*.

Turns out the jammer MW1 was operating had a Red X in the forms for unserviceable brakes. A word to the wise: *Before* operating equipment—whether aircraft, powered/nonpowered AGE, vehicles, test equipment, or anything else that has inspection/condition forms—do the right thing. Review the forms. Otherwise, it could be you who's involved in an embarrassing—maybe deadly—mishap.

FY01 Flight Mishaps (Oct 00 - May 01)

14 Class A Mishaps
3 Fatalities
11 Aircraft Destroyed

FY00 Flight Mishaps (Oct 99 - May 00)

9 Class A Mishaps
5 Fatalities
6 Aircraft Destroyed

04 Oct	♣✶	An RQ-1 Predator UAV crashed while on a routine test mission.
12 Oct	♣	An F-16C crashed during a routine training mission.
23 Oct	♣✶	An RQ-1 Predator UAV went into an uncommanded descent.
27 Oct		A KC-10A sustained Class A Mishap-reportable engine damage. (Revised repair costs resulted in this KC-10A Class A mishap being downgraded to a Class B mishap.)
03 Nov		An F-15C experienced engine problems on takeoff. The pilot successfully RTB'd. Both engines sustained damage from FOD.
13 Nov	♣♣	Two F-16CJs were involved in a midair collision. Only one pilot was recovered safely.
16 Nov	♣	An F-16CG on a routine training mission was involved in a midair collision.
06 Dec	♣	A T-38A impacted the ground while on a training mission.
14 Dec	♣	An F-16C crashed shortly after departure.
12 Jan	♣	An A-10A crashed short of the runway.
09 Mar	✶	During a ground maintenance run a KC-135E's No. 2 engine suffered catastrophic damage.
21 Mar		An F-16B experienced a bird strike but recovered safely. A fire developed after landing. The aircraft suffered structural and engine damage.
21 Mar	♣	An F-16C experienced engine problems soon after takeoff and crashed.
23 Mar	✶	An RQ-1 Predator UAV experienced loss of control during landing and its landing gear collapsed. (Revised repair costs have resulted in this Predator mishap being downgraded to a Class B Mishap.)
23 Mar		A C-17A sustained Class A Mishap-reportable engine damage.
26 Mar	♣♣	Two F-15Cs crashed during a routine training mission. The pilots did not survive.
03 Apr	♣	An F-16CJ crashed while on a routine training mission.
04 Apr		An F-15E on a routine training mission recovered safely after sustaining a bird strike.
06 Apr		An F-15C experienced a hard landing and sustained Class A Mishap-reportable damage. (This F-15C mishap was downgraded to Class B mishap category based on revised repair costs.)
07 Apr		An F-15E sustained Class A Mishap-reportable bird strike damage. It recovered safely.

- 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.
- Reflects only military fatalities.
- "♣" 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 frequently and may be viewed at the following web address: http://safety.kirtland.af.mil/AFSC/statspage.html
- **Current as of 29 May 01.**

☆ U.S. GOVERNMENT PRINTING OFFICE 2001-673-404/53009

THE Well Done AWARD

Presented for outstanding airmanship and professional performance during a hazardous situation and for a significant contribution to the United States Air Force Mishap Prevention Program.

Flight Lieutenant Paul J. Simmons (RAAF)
333 FS
Seymour Johnson AFB, NC

On 23 March 2000, Flt Lt Simmons was conducting 2v2 intercepts off the coast of North Carolina as part of his formal course training in the F-15E Strike Eagle. He had terminated a successful engagement and was attempting to rejoin lead when his aircraft started to vibrate severely. His weapons systems officer (WSO) immediately directed a turn toward land and a reduction in power to slow the aircraft. They quickly assessed that the bottom half of the right rudder had departed the aircraft. Additionally, the right vertical stabilizer was wildly fluctuating, causing severe vibrations and questionable aircraft control. As the aircraft slowed through 350 knots indicated airspeed (KIAS), the vibration became so severe that Flt Lt Simmons increased power to maintain control.

Concerned with a possible ejection over the ocean in windy conditions and high waves, Flt Lt Simmons declared an emergency with Air Traffic Control while the WSO coordinated actions with the Seymour Johnson Supervisor of Flying (SOF). He advised the SOF that they would need clear airspace over land and a conference HOTEL procedure with the Boeing engineers in St. Louis. The FSO quickly cleared the ECHO military operating area and connected with the Boeing engineers. Flt Lt Simmons held in an unpopulated portion of the airspace and prepared for possible ejection.

With the FSO relaying instructions from the Boeing engineers in St. Louis, the aircrew ran the appropriate checklist procedures and found them to have no effect on the controllability of the aircraft. Slowing the aircraft enough to make a safe approach and landing became the primary concern. With all options exhausted, and prepared for ejection, they followed the engineers instructions and reduced airspeed. Slowing through 300 KIAS, the vertical stab flutter increased dramatically, severely damaging the entire aft end of the aircraft. At 260 KIAS, the flutter became manageable enough that the aircrew felt they could safely attempt an approach to land. Flt Lt Simmons flew a straight-in approach to a flawless landing. Post-flight inspection revealed severe damage to the right vertical and right horizontal stabilators due to excessive vibration. The right rudder was totally destroyed.

Flt Lt Simmons' superior airmanship and cool reaction in an extremely dangerous flight situation prevented potential civilian death and destruction of property and averted the loss of an F-15E Strike Eagle valued at $54 million.

HQ AFSC Photos by TSgt Michael Featherston
Photo Illustration by Dan Harman
and TSgt Michael Featherston

Recently, *Flying Safety* magazine was honored with the Communicator Awards "Crystal Award of Excellence." Here, Maj Gen Peppe, USAF Chief of Safety, formally presents the award to Col Mark Roland and the *Flying Safety* staff.

The Communicator Awards, a competition founded by communication professionals, recognizes excellence in media, in terms of "quality, creativity and resourcefulness." The Crystal Award of Excellence is the highest award, given to those whose ability to communicate puts them among the best in the field. Among the winners in this category for 2001 were the American Broadcasting Corporation, Mac Design Magazine, Lockheed Martin, and the Chisholm-Mingo Group for Seagram / Crown Royal, General Motors and Anheuser-Busch.

All this said, we want to say we feel this is your award as much as ours. Our ability to communicate the Air Force safety message is a tribute to the quality of the information that you, the readers and safety professionals, provide to us. It was, in part, your invaluable experience and your willingness to share it with others that enabled us to win this award. Our sincere thanks to all of you. Please keep up the good work, and we'll do the same!