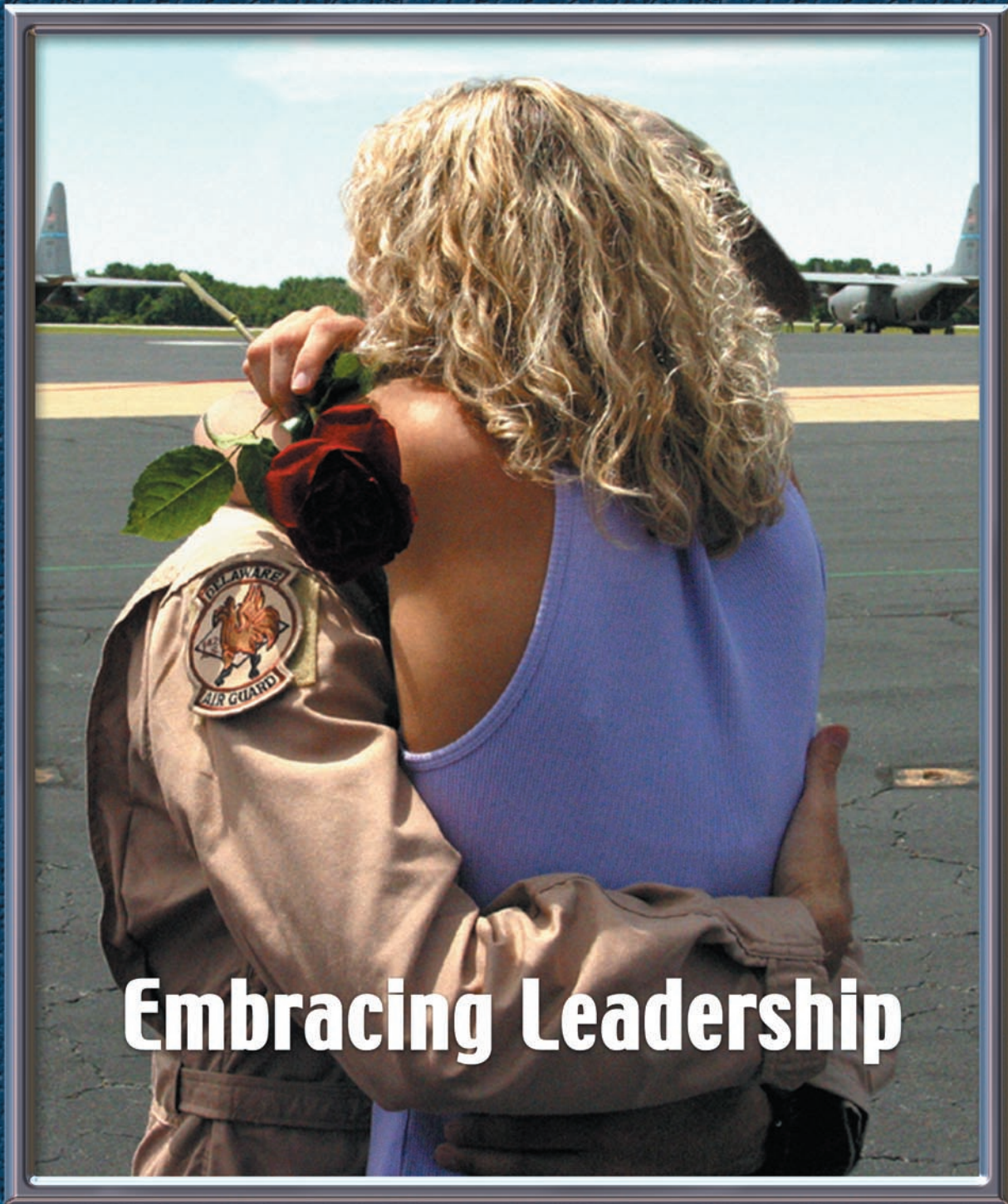


UNITED STATES AIR FORCE
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FLYING SAFETY MAGAZINE



Embracing Leadership





4 The Delaware Way *The safety attitude of the Delaware Air National Guard*

8 Leadership Drives Safety
Safety = mission success

10 Is Your Luck Bag Empty?
Luck is spelled R-I-S-K

12 "I'm Lost Wingman, I'm Bingo, And I'm Going Home!"
It's good to have a near death experience

14 What Happens When You Put The Group Away
Leadership, safety and BRAC

16 Safety Salute *166th AW, HQ, Delaware ANG*

18 Keep Things In Perspective
We really got it good

21 Group Think
What on Earth were they thinking?

22 Safety Indoctrination
An example of proactive leadership

24 We're Not Going To Make It!
Today I die

26 The Two-Challenge Rule *A guaranteed lifesaver*

28 Don't Be Set Up For Fatigue Failure
The number one risk factor for strategic airlift crews

30 Class A Flight Mishap Summary

31 The Aviation Well Done Award
Maj David C. Meier

Cover:
Photo Courtesy of 166th AW,
HQ, Delaware ANG
Rear Cover:
Photo Illustration by Dan Harman





Where Do You Spend Your Time?

For 20-plus years in our Air Force, I've been privileged to work with some of the finest leaders in the world. Nearly all have preached safety, and I believe they all meant it. But commanders, leaders and supervisors today have so many priorities that it can be difficult to determine what is REALLY important to them. I mean ... If EVERYTHING'S important then what is REALLY important?

Here's a hint: Your people will not only listen to what you say, they will watch what you do. They will follow your lead and you send a message with every action. Do you spend all of your time wordsmithing reports, or do you get out of the office? Are your boot prints all over your turf? It's not what you'd *like* to do, but what you *actually* do that shows what's important to you.

Here's an example. During my last deployment, the 380 AEW/CC, Col Burke, made it a point to brief every new arrival he could. It didn't matter what time of day or night. You know what he talked about? Safety! It took a big chunk of his time, but it was clear where his priorities were. The fact that he *spent the time* demonstrated his commitment more than the words. The entire staff took their queue from his actions and the result was a decrease in mishaps across the board.

You'll read about other leaders, both good and bad, with regard to safety in this issue. Learn something from each of them. ➡

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THE DELAWARE WAY



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A Return Flight

On June 4, 1961 a Lockheed T-33 jet trainer departed Scott Air Force Base, Illinois to return to home station in New Castle, Delaware. A linkage in the fuel controller failed, causing the engine to quit. The jet crashed off the end of the runway with a resulting fire.

Aircraft commander Lt Col David McCallister, Commander of the Delaware Air National Guard's 142nd Tactical Fighter Squadron, did not survive. Rear seat passenger Brig Gen William W. Spruance, the Assistant Adjutant General for Air, Delaware National Guard (DNG) and a Delaware ANG founding father in 1946, suffered third-degree burns over 30 percent of his body and underwent 36 major surgical procedures.

The Air Force granted Gen Spruance a waiver of a 200 percent disability to remain in ANG status. He has since given more than 2,000 presentations on flying safety and crash survival. Stops include home station in Delaware, Europe, Asia, Embry-Riddle Aeronautical University, McGhee-Tyson ANG Academy of Military Science, the Air Force School of Aerospace Medicine and FAA-sponsored tours. Over 200,000 people attended his presentations; many credit him with saving their lives. Briefings in Vietnam led to

his becoming the first non-active officer awarded the Air Force Distinguished Service Medal. At 90, and 32 years after his retirement from the Delaware ANG, he remains active attending conventions and board meetings and giving safety talks.

The tragic accident 'reset' the safety attitude in the Delaware ANG, and spawned what base members started calling *The Delaware Way*.

General Spruance passed this safety attitude on to subsequent leaders and the entire force. Members know this attitude improves their ability to successfully perform their flying mission.

Fast forward to 2007; the results of an increase in safety consciousness since the hard lesson of 1961 are evident. In March the 166th Airlift Wing reached 159,000 flying hours (C-97, C-130A and C-130H transport aircraft) without a class A, B or C mishap, and is on track to complete 44 years and 160,000 accident-free flying hours by this summer--the unit's 60th anniversary year.

Continuing Leadership

"The unit started good and got better," said retired Col Jim Scott, former director of operations who served from 1952 to 1992. He added, "The unit

Units representing the 485th Air Expeditionary Wing:

166th AW, Delaware 130th AW, West Virginia 139th AW, Missouri 123rd AW, Kentucky 914th AW, New York 137th AW, Oklahoma 118th AW, Tennessee
142nd AS, Delaware 130th AS, West Virginia 180th AS, Missouri 165th AS, Kentucky 328th AS, New York 185th AS, Oklahoma



Photos Courtesy of Author/Photo Illustration by Dan Harman

had signs to be a cut above from the very beginning. We felt we were not the 142nd or the 166th, but the 'Delaware Guard.'"

"It was practice, practice, practice," he said. "We flew lots of locals, including simulated three-engine approaches and no flap landings. You know the saying, 'The more we practice the luckier we get.' Well, it is true." Pride drove the unit to keep in top form. "We also began to see cultural changes in the unit with a supervision emphasis on safety," said Col Scott, who noted that the unit learned improving safety was less about aircrew error or a mechanical problem and more about improving training and human interaction.

Retired Col James Dugar was Commander of the Delaware ANG 166th Tactical Airlift Group from 1988 to 1995 (enlarged to wing in 1995), then Assistant Adjutant General for Air, DNG until 2000. During Desert Storm he was Vice Commander and then Commander of the 1670th Provisional Airlift Group in Saudi Arabia.

Brig Gen William W. Spruance

"I firmly believe that our impeccable safety record over the years originates with the many wing commanders' philosophies and leadership practices, said Col. Dugar. "My few years at the DuPont Co. where safety was constantly emphasized helped me to be 'paranoid' about every aspect of safety. As commander I put safety above *everything*. My goal was to groom my senior leaders to practice and teach safety as a way of everyday life. Ground safety was as important as flying safety. That practice has continued to today and has resulted in a safety record envied by everyone."

Brigadier General Ernest Talbert, current vice commander of the Delaware ANG, flew combat hours in Desert Storm, became vice wing commander then served as wing commander from 2002-2005. He sums up his attitude about safety by saying, "Safety is not an accident. Complacency is our enemy." He believes that while the unit should compare itself to other units, it cannot assume individual shops and practices on base are as good as the unit might tell itself.

He notes a difference between an accident board—to find out why something happened and who to punish, and a safety board—to find why things happened and prevent their recurrence. He believes the Delaware ANG embraces the safety board philosophy. "We learn from each incident, take preventative actions and improve unit practices so all are better trained and prepared. It is not forgiveness, but a conscious thought in embracing candor in our missteps," that the whole unit embraces, he said. "Having an environment where you can't admit mistakes prevents learning." Noting human imperfection, he said, "I think that makes us a better organization—we are conscious of our limitations."

Retired Brig. Gen. Tom Lauppe, former director of operations and Assistant Adjutant General for Air, addresses unit safety causal factors. He said, "The true success of Delaware is due to a multitude of valuable building blocks over time." He believes several factors influence the Delaware Air Guard's envious safety record: Gen. Spruance's safety presentations; a respected flying and ground safety office staff; leadership from commanders down to individuals; an ever-changing organization 'culture' that never abandons focus on safety; base-wide teamwork about how to maintain and fly safe aircraft; individuals' belief that safety should be part of everything; realizing and accepting the importance of safety and mission accomplishment. In short, he

sums it up as "People, commitment, teamwork, focus, respect, culture, and an ability to speak up when someone questions people or practices."

Examples That Express The Unit Safety Culture

There is a green diamond of safety painted around each C-130 parking spot. This is not required, but aircrew will not taxi into a spot if anything is in the green diamond.

Maintainers do a pre-inspection run on all aircraft before doing an ISO (isochronal) dock inspection, and the run sheet is customized to improve the test. They test again post-ISO inspection. "Let's put it on the treadmill before and after we operate on it. That way, we can find latent problems," said Chief Master Sgt Patrick Schulte, maintenance supervisor.

After an aircraft ISO inspection a locally-imposed Functional Check Flight (FCF) is completed. Some ANG bases do this. It was an Air Force requirement 20-30 years ago. "We kept it. We think this was a really smart thing," said Col Scott. "We got more write-ups from one [an FCF], but it is part of quality." During DESERT STORM, another unit OCONUS completed an ISO inspection on a Delaware C-130, but the Delaware aircraft commander insisted on an FCF that was not a requirement. The decision was backed up by the 1670th Airlift Group's Vice Commander who was also the Commander of Delaware's 166th TAG. The FCF revealed significant write-ups which had to be fixed. The incident helped entrench the unit view of the importance of FCFs and safety.

In 1995 Allison Engine Co. (since acquired by Rolls-Royce) recognized Delaware as the first unit to achieve nearly 6,000 hours of flying time on the four original Allison T-56-15 turboprop engines on a C-130H aircraft without an engine change. "We had 60 to 65 percent of our engines reach 6,000 hours without replacement," said Chief Master Sgt Lorin "Pete" Peterson, aircraft maintenance superintendent. "Typically, engines will not last that long." He said it was unusual that so many of the original 32 engines from the eight aircraft reached their maximum operating time before being changed.

In addition to excellent maintenance, another factor that helped the unit attain the 6,000 hour engine life was the way the aircrew flew and respected the aircraft. Col Scott required aircrew to cruise at 970 (degrees) TIT (Turbine Inlet Temperature) to maintain 290 (knots) TAS (True Air Speed). As TAS increases during cruise, TIT

is proportionately decreased until reaching 930 TIT. This helps extend engine life, because higher engine temperatures means more power and wear, and 10-15 degrees makes a huge difference.

Ground safety is adhered to. A 1999 Air Force Operational Readiness Inspection report noted 100 percent seatbelt compliance, and an ORI grade of 'Excellent' resulted. In fiscal year 2006 the 166th Aerial Port Flight handled 582 aircraft without a safety incident, the best results that Chief Master Sgt. Michael Forsyth, Air Transportation Superintendent, can recall in his 27 years in the unit.

Safety Focus In And Out Of Combat

The unit completed two periods of mishap-free combat flying. During OPERATION DESERT STORM and again during OPERATIONS IRAQI FREEDOM and ENDURING FREEDOM monthly flying nearly doubled. Unit aircraft flew 10,074 combat hours in OIF/OEF from March 2003 to Sept. 2006.

Since 9/11, the unit experienced stresses felt across the National Guard; individual and family situations caused or exacerbated by deployments or uncertainty, and civilian employer conflict. Wing leaders have been flexible and compassionate when dealing with issues for families separated by an ocean. They established a Family Day and a Junior Enlisted Council to foster member and family interaction. A home-grown unit family support effort during DESERT STORM was the nucleus for similar formal programs mandated during OEF/OIF.

Some stress events were unique to the Delaware ANG. Less than a year after a tornado hit the base Sept. 28, 2004 (requiring repairs to three aircraft and the replacement of one), the DoD recommended the realignment of the unit. On Aug. 26, 2005, with Hurricane Katrina in the Gulf of Mexico, the base learned it would not be realigned. Four days later the unit drew up plans to send a contingent of Delaware Guard Airmen and soldiers to the Gulf Coast aboard C-130 aircraft. Relief missions left the next day. Over 50 sorties and 20 aircraft missions launched without a flying mishap, deploying over 350 troops to assist citizens and evacuate patients.

Safety Attitude Reinforced By Work Force

An experienced work force provides stability in maintenance, operations and base-wide functions.

The maintenance force is comprised of 33 assigned

members of the 166th Aircraft Maintenance Squadron (flight line) and 114 assigned members of the 166th Maintenance Squadron (back office specialists). The full-time maintenance force of about 70 members average 19.6 years of experience, and a core group of about 25 Airmen average over 25 years of experience. The nearly 60 part-time members average 10.1 years experience.

There are 108 crewmembers in the 142nd Airlift Squadron, with 82 part-time crewmembers and 26 full-time members. They average 13 years of crew experience, 2,798 overall flying hours, and 2,510 hours in a C-130.


There are 52 crewmembers in the 142nd Aeromedical Evacuation Squadron, with 51 part-time crewmembers and one full-time crewmember. They average 8 years of crew experience, 583 overall flying hours, and 448 hours in a C-130.

Safety First, Mission Always

There is no single action, great revelation or magic formula that fostered this safety culture.

"*The Delaware Way* is not set in stone, or a certain procedure. It is a way of life, an attitude, a culture. We bring that attitude to making weather decisions, in preflight planning, to all kinds of things. It is evolving," said Maj. Craig Conrad, 166th Airlift Wing Chief of Safety. "We've done these things for years that the Air Force has now institutionalized. We are more restrictive than the book. That has no impact on effective mission accomplishment. We efficiently and safely execute the mission."

At a recent unit training assembly, Wing Air Commander Col Jonathan Groff spoke candidly to all about *The Delaware Way*. "We need your input so *The Delaware Way* is not archaic. If you have a better idea, by all means bring it up."

The 166th Airlift Wing Commander Col Bruce Thompson put the unit's safety attitude in perspective. "As you arrive on this installation, the first sign you see reads, '*Safety first, Mission always.*' That says it all." 





Leadership Drives Safety

MR. GREG ALSTON
Deputy Chief of Safety, Headquarters U.S. Air Force

HQ AFSC Photo
Photo Illustration by Dan Harman

If there's one thing I've learned in my 32 years of Air Force service, it's this: **Leadership drives safety.**

We all know...to err is human. It is also human to learn from our mistakes and be vigilant to not repeat them. It is the leader's role to ensure this happens and to find the *right amount of risk* for your mission. Webster defines a "leader" as one who *shows the way*. As leaders, you set the tone, and the *example*, people will follow. Leaders have a dual responsibility regarding safety:

A *fiscal* responsibility to preserve combat power assets through sound safety practices and a solid risk management process.

A *moral* responsibility to organizational members, their families, stakeholders, and society in general to protect life, guard assets, and preserve the environment.

There are certain tools and concepts leaders should arm themselves with while confronting the risk game. Among them are the truths of safety.

7 Truths of Safety

1. All mishaps are preventable
2. Zero is possible
3. All activity bears risk
4. Safety is integral to operational success
5. Leaders have ultimate responsibility for safety
6. Without accountability, no one is responsible for safety
7. An organization is only as safe as the *leader* allows it to be

The 7th truth of safety is the center of gravity in finding the right amount of risk in any organization. Leaders decide how resources are spent (time and money), and control the futures/careers of organizational members. Seeking out and reducing hazards can challenge existing resources. It is the *leader* who controls those resources and decides if safety is a mainstream topic in the organization.

Some people will argue that truths 1 and 2 are not possible. In one way, they have a point, humans are involved in every step of operations, and humans are fallible. However, as I look at each individual mishap, I see a link in the chain of events where the mishap could have been prevented if humans had proper awareness, tools, training, and supervision. If each individual mishap can be prevented, then by default zero is possible. I acknowledge that zero is very difficult to achieve in high-risk operations, and considering our human fallibilities. But leaders must believe in truths 1 and 2 in order to put the correct emphasis on prevention. Numbers 4, 5, and 6 are also important concepts for leaders to consider. Safety = mission success.

All activity bears risk. We must co-exist with risk because we are an *active* force; leaders must find the "right" amount of risk to accomplish the mission. Reduce risk where we can, and effectively manage the residual risk to get the mission done safely. Why should leaders work on a safety program that costs so much time and money? I like to say, "The driving force behind a safety program is the cost of not having one." Also important, *safety functions as an operational enhancer and a force multiplier.*

A great safety program must come from the top, with commitment at every leadership level down to the individual Airman. Let me give you an example:

From 1999-2001, the U.S. Air Force's Air Combat Command enjoyed two great commanders, General Ralph Eberhart and General John Jumper. They both provided insights and an unwavering commitment to safety. They led an unparalleled success for two years, achieving the lowest mishap rates in the command's history up to that time. Most importantly, lives were saved and valuable assets preserved that now help prosecute the war on terror. Leadership's active role made that success possible--*They understood the dual responsibilities*. It also required a team effort, and the result was a total, top-to-bottom safety approach, one that garnered "buy-in" from organizational members.

Achieving Buy-in

The Air Force attracts high risk takers, who we need for mission accomplishment. But we need smart risk takers who have bought into the value of risk management. Achieving safety *buy-in* among high risk takers is a challenge for any leader. There are five important elements needed to help *leaders* achieve safety buy-in:

1. Accountability
2. Rewards for positive behavior
3. Mentor safety
4. Create a participative safety environment
5. Champion safety

Accountability

Commanders need to hold people accountable for breaches of safety, but must make a careful distinction about who is causal. They must ascertain whether the person failed, or if the organization failed to provide proper training, equipment, and supervision. Once that distinction is made, hold people accountable for:

- Willful violations of safety guidelines
- Willful disregard for policies
- Negligence
- Complacency

Punishments can include: termination, reduced pay, fines, lost privileges, denied bonuses, and notation on performance appraisals. Commanders should keep in mind, however, when accountability has to be enforced, it also suggests there was an organizational failure to prevent the safety violation.

Rewards

Thorndike's *Law of Effect* suggests, "Behaviors with positive consequences will like recur." Positive reinforcement enhances desirable performance.

The safety awards program is an excellent leadership tool to enhance safety performance. Other rewards are in the form of time-off, bonuses, public acknowledgement, and the like.

Mentor

General Ralph E. Eberhart often said, "Seek out opportunities to mentor." Webster defines a mentor as a wise, loyal advisor, teacher, or coach. In essence, we as leaders have developed successful survival techniques, why should we take those to our next lives? Leaders must value their current organizations by sharing insights, and teach their winning ways in safety to the future generations.

Participative Safety Environment

Enthusiastic participation is key to a successful safety culture, and foundational for consensus on safety values. With organizational consensus, new employees will see from the start that other members believe in safety policies. Some tools to create participation are:


- Rewards for positive action
- Group safety meetings
- Safety suggestion boxes / forms
- Active solicitation of safety ideas by leadership (with public thank you and praise)

With VPP (Voluntary Participation Program) coming on board, commanders will have an easier time achieving a participative environment.

Champion Safety

An organization is only as safe as the leader allows (7th truth of safety). Leaders can show the way by mentioning safety and /or risk management every day in various forums. Dedicate resources to improve conditions and processes to achieve the *right* amount of risk for the mission. Reward people who have good safety ideas, and praise them publicly. Also, a daily commander's checklist is helpful:

- Where can an accident happen today?
- What have I done to prevent it?
- Are there new hazards facing my organization?
- Is my organization under stress?
- Who shall I mentor in safety today?
- Call my Chief of Safety.
- Call my Directors and commanders; discuss possible threats, such as burnout, weather, task saturation, short-notice taskings, and experience levels.

As the leader goes, so goes the organization--leaders show the way, the rest will follow. At both the beginning and at the end of the day ... **Leadership drives safety.** 

Is Your Luck Bag Empty?



10 ESM - APRIL 2007

Anonymous

It occurs to me, and likely to you as well, how lucky we have been. We have taken chances, leaned forward, pushed the mission, flown to the edge and gone beyond the normal call of duty. We are proud of our accomplishments, awed by our ability, and humbled by our luck. Unfortunately, the more luck we experience, the more likely we are to see it as ability. "I've done this before, it turned out alright, I can do it again." Sound

Photo Illustration by Dan Harman

familiar? After some seventeen years of flying and attending many monotonous hours of academics, I have learned that LUCK is really spelled RISK. It's not some crazy Cyrillic alphabet transposition; it's just that as you become older and wiser, you learn to spell more accurately. If you're more mathematically inclined, than you can relate to the equation $LUCK = RISK$. Either way, the four letters R-I-S-K should change your life!

If you have been lucky, then you have been risky. We have all heard about how we begin our aviation careers with two bags: one bag full of luck and one empty bag of experience. As we grow and learn, we pull luck from one bag and use it to fill our experience bag. We learn from our experience, we learn from our mistakes, and we learn from our risks (luck). How many times have you thought or said, "I'll never do that again?" How many times have you seen a buddy do something and promise yourself you'll never do that? I hate to tell you this, but you are maturing - you're growing up. And yes, you're getting older. How full is your luck bag today?

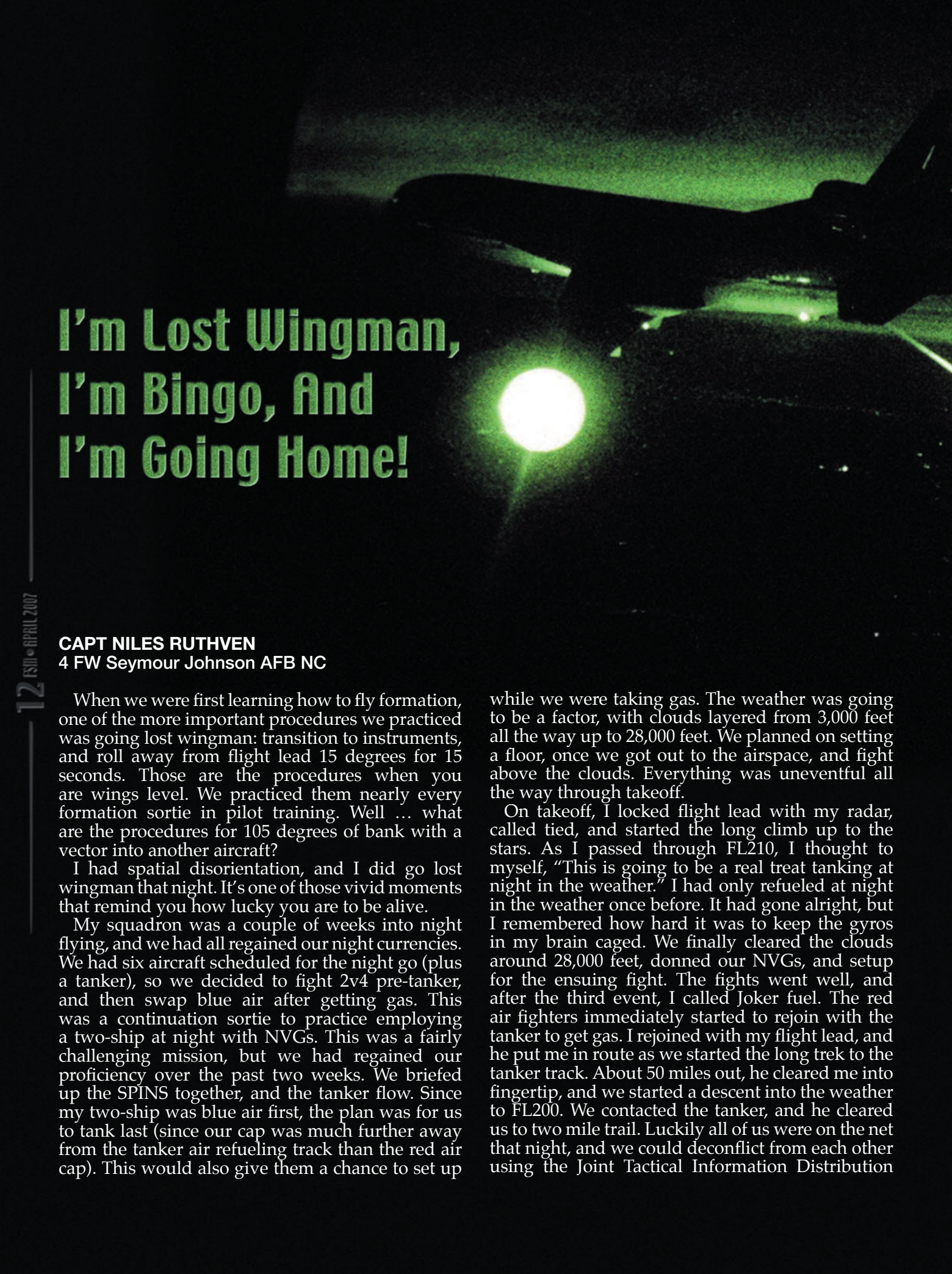
In the last few years I have been able to execute the mission as a commander and as a line crew. I have come to realize that for the first time in many years we have a legitimate (legal) opportunity to utilize (steal) other aircrews' bags of luck. AFD 91-2, *Safety Programs*, establishes that, "The Air Force will have a comprehensive safety program to identify and control hazards [risks] and to prevent mishaps." AFI 91-202, *The US Air Force Mishap Prevention Program*, further requires "...the ideas, principles, and concepts of risk management..." be added "...to all levels of Air Force personnel's responsibility." Great, now the Safety guy has created an empire with the ability to harass the crews with even more paperwork. The dreaded ORM worksheet! You know you hate it. It's ambiguous; it won't make a difference, make the numbers fit because we're flying the mission anyway. Well, here's your chance to "stick it to the man." You have the legal right to decline unacceptable risk. Safety and HQ Air Force leadership have given you the tools to speak to management in a language they are required to comprehend. I know it is not all black and white. Sometimes it can even be black and blue, but we have all been witness to aircrew calling Command Post to identify hazards or risk and the OG call back with a "good to go, launch the fleet." How about sitting in the cockpit way after the required four hours waiting for maintenance to fix the aircraft? The OG is too stubborn to call an ops cancel, and maintenance won't take the hit for a broken aircraft, so the crew launches on a sortie after three preflights and are now looking at a 24 hour duty day.

When I was young, I was lucky. I once took a risk; not to a mission, but to what I thought might be a poor career choice. This young captain sat in the cockpit waiting to start engines while freezing rain fell from the sky. I called Command Post with the impending delay and possible cancellation should we not be able to make our air refueling. The OG showed up and ordered us to launch. As I explained our prohibition of taking off during periods of freezing rain, he actually tried to convince me that it wasn't really freezing. When I pointed out that the wipers on his staff car were certainly pushing ice from his windshield, he began to rant and rave.

I calmly packed up my gear and walked back to the squadron. I waited for the summons from my squadron commander, but it never came. No one ever said a thing. Just a few months later, I was waiting number one for takeoff on an operational mission. The weather was thick fog with a varying RVR between 500 feet and 800 feet. We barely had takeoff alternate minimums and we required an RVR of 1,000 feet for takeoff. We sat there for 45 minutes waiting for the weather to improve. We only had about 10 minutes left before we would miss our refueling. The OG called us through Command Post and said he was coordinating with tower. The tower radioed us that the departure-end transmissometer was reading 1,000 feet RVR. The OG then approved our takeoff. When we pulled onto the runway, we couldn't even see the first 1,000 foot marker. I informed tower that I still didn't have the required visibility. The OG informed us he was on his way out to the runway for a "chat." Feeling a bit bolder this time, I requested he bring along another aircrew. He never showed up and ten minutes later we taxied back to parking. I waited a week for the hammer to fall and finally asked the squadron commander if he had heard anything. He said we made a good call and coincidentally assigned me to Stan/Eval that very afternoon.

The primary goal of leadership is to accomplish the mission. The primary goal of aircrew is to execute the mission. The *requirement* of leadership and aircrew is to apply the principles of risk management at all levels of the mission. In all my years, I have never seen the crew fail management; not on an ORI, not on a mission, not during combat. When it counts, the crew will always give everything they have. Having sat at the table on both sides, I can see where leadership might get caught up with mission accomplishment, but I have never failed to heed a crew's call to "knock it off." I have cited some severe examples in leadership failure but it taught me that if you find the risks unacceptable, you will survive. I wish I could say that for a young captain I knew and trained during upgrade. He grew up in that climate of "mission only" leadership. One day he took on a mission someone else had turned down and ended up crashing into a mountain. Did we let him down? Did leadership identify the risk? Did the crew know they were assuming the risk? We didn't fill out ORM worksheets back then. Good aircrews will identify the risks, and good leaders will keep their crews from taking them - even when the crew may be willing to assume them. If you're a good leader the crew will always accept the risk you ask of them, so make the most of the tools you have available. How full is your bag of luck? I suggest stealing from your buddy's bag of luck.

But don't look at me, my bag is empty. I'll be using someone else's. 🍀



I'm Lost Wingman, I'm Bingo, And I'm Going Home!

CAPT NILES RUTHVEN
4 FW Seymour Johnson AFB NC

When we were first learning how to fly formation, one of the more important procedures we practiced was going lost wingman: transition to instruments, and roll away from flight lead 15 degrees for 15 seconds. Those are the procedures when you are wings level. We practiced them nearly every formation sortie in pilot training. Well ... what are the procedures for 105 degrees of bank with a vector into another aircraft?

I had spatial disorientation, and I did go lost wingman that night. It's one of those vivid moments that remind you how lucky you are to be alive.

My squadron was a couple of weeks into night flying, and we had all regained our night currencies. We had six aircraft scheduled for the night go (plus a tanker), so we decided to fight 2v4 pre-tanker, and then swap blue air after getting gas. This was a continuation sortie to practice employing a two-ship at night with NVGs. This was a fairly challenging mission, but we had regained our proficiency over the past two weeks. We briefed up the SPINS together, and the tanker flow. Since my two-ship was blue air first, the plan was for us to tank last (since our cap was much further away from the tanker air refueling track than the red air cap). This would also give them a chance to set up

while we were taking gas. The weather was going to be a factor, with clouds layered from 3,000 feet all the way up to 28,000 feet. We planned on setting a floor, once we got out to the airspace, and fight above the clouds. Everything was uneventful all the way through takeoff.

On takeoff, I locked flight lead with my radar, called tied, and started the long climb up to the stars. As I passed through FL210, I thought to myself, "This is going to be a real treat tanking at night in the weather." I had only refueled at night in the weather once before. It had gone alright, but I remembered how hard it was to keep the gyros in my brain caged. We finally cleared the clouds around 28,000 feet, donned our NVGs, and setup for the ensuing fight. The fights went well, and after the third event, I called Joker fuel. The red air fighters immediately started to rejoin with the tanker to get gas. I rejoined with my flight lead, and he put me in route as we started the long trek to the tanker track. About 50 miles out, he cleared me into fingertip, and we started a descent into the weather to FL200. We contacted the tanker, and he cleared us to two mile trail. Luckily all of us were on the net that night, and we could deconflict from each other using the Joint Tactical Information Distribution



USAF Photo

System (JTIDS). But as we entered the weather, I was no longer able to glance at my scopes as my full concentration was used to fly fingertip formation.

I was doing just fine until we had to do a turn to intercept the tanker. I was on the right wing, and I knew we were doing a left-hand turn. My mind started playing tricks on me and, as we rolled out, I started to have a little trouble hanging on. It took all my concentration to keep in fingertip. Because I was struggling, I started to drift away from lead. It became difficult to see him in the weather. I asked my flight lead to turn up his lights to help my visibility. That seemed to work better, and I was able to correct back to position. We rolled out about six to nine miles in trail, pushed it up to 350 knots, and slowly started to rejoin. The tanker was refueling the last aircraft from in front of us, so they cleared us to his right wing. At this point, I had no idea which way was up. I was fighting just to stay in fingertip. Lead asked for a fuel check, and a quick glance down at the gauge showed I was 1000 pounds from Bingo. As I brought my head back up, I started to drift away from lead. I struggled just to stay visual. We were a thousand feet away from the tanker now, and lead cleared me to the boom first since I was low on gas.

300 feet away and drifting further aft, I corrected with some bank and power. At this point my mind was so far behind the power curve that I had no idea which way terra firma was. At one point I felt like everyone was completely inverted and I had no idea which control inputs to use to get to the precontact position. At that instant it felt as if I was falling out of the sky and heading straight for the tanker. I then made the smartest decision of the night - I looked inside at my ADI. I expected to see an inverted position, but when I saw 105 degrees of left bank, heading straight for the boom, I quit looking outside. I always remembered the saying from pilot training "trust your instruments," so I called out "two's lost wingman." I knew the only clear space was directly above me, so I rolled wings level and pulled for the moon. All I wanted at this point was to get out of this disorienting weather, and see the sky again. Those stars and moon were the most beautiful sight I had seen all day. As I topped out at 27,000 feet, I nearly stalled and added burner to stay VMC. The next call from lead was "two you are cleared to the boom!" Well, after having one near death experience, I'd had enough for one night. A quick glance at my fuel and I replied "two's lost wingman, two's bingo, two's going home!" I knew I wasn't safe yet because I still had to fly instruments, penetrate 20,000 feet of weather and fly an ILS back to the home field. Needless to say, I struggled flying back through that weather, but I flew the best damned ILS of my life and got myself back on the deck. I told my Ops Officer the story and he said it's good to have one of those "near death" experiences under your belt. It keeps you on your toes, and makes you more aware of the dangers of flying. All I could think about was how lucky I was to be alive.

I didn't sleep much that night, but I do believe my Ops Officer was right. I have a lot more respect for my instruments, because along with the training I received at pilot training, they did save my life. I also learned two other valuable lessons. One is you need to fess up if you are disoriented. Lead can either read back your current attitude, or give you the lead so you can concentrate on the gauges and get your mind back in the game. Secondly, as a flight lead, if I am going to penetrate weather, and there is no need to keep my wingman in fingertip, I always kick him back to two mile trail. This way he can focus on his instruments, and not have to go through the same predicament I went through that cloudy night. While flying in combat can be very stressful at times, I think the most dangerous and stressful part of a mission is tanking at night in the weather. So, don't let your guard down during the admin phases of a mission. If you ever become disoriented, **always** trust your instruments. 🦅



What Happens When You Put The Group Away

LT COL VINCENT "AZTEC" ALCAZAR
Commander, 479 OSS
Moody AFB GA

USAF Photo Courtesy of Author

BRAC--I'm living it. But, just the mention of that acronym takes me on a 15-year long memory journey of bases whose population shifted from blue-suiters and jets, to tumbleweeds and prairie dogs. The Air Force has been getting smaller for that long. We are well into the third round of modern BRAC (since DESERT STORM.) You would think that in an institutional sense, Air Force leaders would have this "BRAC thing" reduced to a science ... no, not really. This article is not an exclusive focus on BRAC, nor is it a tale of "*there I was, on fire, upside down at 500 feet AGL...*"

The subject du jour is leadership that succeeds because of safe practices. Why mention safety, leadership, and BRAC in the same sentence? The answer lies in my firsthand experience, which tells me that organizations embroiled in a BRAC scenario are compelled to exist with higher overall risk. With this reality virtually assured, a BRACd unit is confronted with unique "leadership in safety" challenges. Successfully guiding an organization

through its close down requires a career's worth of safety training, because there are numerous occasions when BRAC pressures create unusual situations that beg for innovative solutions. In these instances, uncompromised safety must be **job one**. I'd like to pass on some lessons learned, but not the typical kind from aircraft mishaps, or auto collisions, etc. Rather, these points are distilled from my observations of how commanders in other BRAC situations failed to heed the warning signs, or forgot the overall importance of safety.

Lesson 1. *Your Unit Is Going Away, Your People Are Not.* If you forget this point, your focus will invariably drift away from the care and feeding of your officers and airmen. How does this morale issue morph into a safety topic? Unless otherwise managed, there comes a point in every BRAC closure when unit members feel that the mission, which was formerly the focus of affairs, is receding into the background. Other concerns

will come to preoccupy unit members' attention. Assignment matters, performance reports, equipment disposition, family moves, etc., frequently cause folks to lose sight of the things that are touchstone safety issues: workplace safety, driving safety, responsible alcohol use, aviation safety and ORM to name a few. It's insidious, but when people perceive they have to climb a "wall of worry" at work, they may resort to shortcuts. This behavior is frequently the genesis of an error chain that culminates in a mishap. Nip this in the bud by openly confronting the other concerns so people can continue to be fully focused.

Lesson 2. *Your Unit Is Never Too Small For A Safety Officer.* Excluding my present assignment, I have been in two other BRACd Air Force squadrons. In every one of those units there were bad events: loss of life, debilitating personnel injuries, or significant damage to unit equipment. What was the common denominator? In every situation, the organization's experienced safety expert (one deep) PCSd, and left behind a *much* less experienced safety officer. However, there are PCSs all the time in Air Force units, and there has always been a steep learning curve in the handoff of any program; this was the *perceived* root cause. The *actual* root cause of these preventable events was that the new safety officer was frequently wearing multiple hats--some with self-perceived higher priority than safety. With that mindset, and omnipresent BRAC pressure of doing less with much less, the basic awareness of safety was often nowhere to be found on the squadron's agenda. It certainly wasn't anywhere on the top-ten list of things to do today or tomorrow. Unfortunately, it was only in the aftermath of a mishap which could have been prevented with a simple application of ORM or safety common sense, that folks remembered their training: safety *is* the unit mission, not an afterthought while executing unit tasks.

Lesson 3. *Keep The Safety Message Alive.* As a commander I see this as priority number one--the thing I must always ensure remains vibrant and viable within my squadron's culture. How does leadership keep the safety message alive? First and foremost, do not close your eyes and ears. Be attentive to the unique stresses and challenges; connect the dots, forecast a bad outcome before it occurs then proactively steer to a new heading. Next, if you lack a competent unit safety expert, borrow one! Call the unit, group, or wing next door. The point is, you may have to think hard, but there is always some resource within your grasp to draw upon. Don't forget to scour the latest editions of Air Force safety periodicals, and then use that content to dial into indicators and issues.

Lesson 4. *Leaders Must Provide The Safety Vision*

... and not abdicate that responsibility to less experienced NCOs or officers. Practically speaking, the ideas and concepts of a unit safety program should emanate from every unit member. In units with the right sight picture, every unit member is a safety officer. However, the commander should be able to use his/her training, experience, and intuition to see the road ahead, and to tailor the unit safety program accordingly. My mantra: as a commander, if you feel comfortable, you're either not tuned into reality or you're not giving safety matters the hard look they deserve.

Lesson 5. *Get Your Inspiration From Everywhere.* I see too few commanders networking and sharing their unit's safety tactics and strategies. How often do you, as a leader, cast the nets for an innovative approach or presentation as a means of reaching your unit personnel? How often do you plan your safety tactics by studying the safety game plan of a unit across the base? Furthermore, I believe that to be effective you must be creative. Unquestionably, the younger airmen and officers of today are indeed the video generation. The viral success of some on-line videos is instructive: the entertaining videos take on a life of their own. Extrapolating from that truth, if crafted well, unit safety video presentations can similarly inform and entertain. Here's an example of one such effort in my unit. Four weeks prior to my unit's annual safety call I approached two enterprising captains with my concept: create an educational unit safety video message laced with a little humor, but one where the message is never lost in the humor. I provided guidance on content, and then backed out of the picture. On the day of the safety call, the video aired to a room of over 200 young airmen and officers, and was met with an extraordinarily enthusiastic reception. The captains who created the project were heroes and the video was a homerun! How? The video succeeded because it was about young people relating a safety theme to a peer audience. I have that video on a DVD disk. When I need a reminder of just how relevant a unit's safety program can be, I pop that beauty into my CD/DVD drive.

Everyday, Team Air Force leaders should use safe practices and cutting edge approaches to make a tangible difference in the lives of our personnel, especially in those organizations facing a BRAC end game. In conclusion, I am reminded of an old operations officer's exhortation before I stepped to fly a combat mission years ago: "... good tactics are inherently safe; don't do anything dumb, daring or different." That wisdom was leadership and safety at work, and formed the basis for everything I learned along the way. Safety is every leader's tool to leverage risk to ensure the unit's personnel and equipment survive to take the fight to the enemy. ✪

The Delaware Way...Safety First, Mission

The 166th Airlift Wing has reached 159,000 flying hours without a Class A, B or C mishap, and is on track to complete 44 years and 160,000 accident-free flying hours by this summer--the unit's 60th anniversary year.



F-86

We learn from each incident, take preventative actions and improve unit practices so all are better trained and prepared. It is not forgiveness, but a conscious thought in embracing candor in our missteps, that the whole unit embraces.

We are more restrictive than the book. That has no impact on effective mission accomplishment. We efficiently and safely execute the mission.



T-6



Founders

Safety is not an accident.

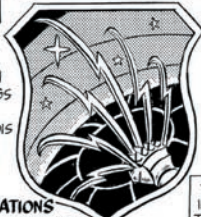
Having an environment where you can't admit mistakes prevents learning. Noting human imperfection makes us a better organization—we are conscious of our limitations.

Capt Spruance



STEVE CANYON

7
1
As STEVE CANYON PREPARES TO RETURN TO THE U.S., TWO THINGS ARE HAPPENING AT SCOTT A.F.B. IN ILLINOIS



TODAY THE AIR FORCE COMMUNICATIONS SERVICE BECOMES A SEPARATE COMMAND—WITH HEADQUARTERS AT SCOTT...

SCOTT TOWER, THIS IS DELAWARE AIR GUARD JET 142 AND THREE REQUEST PERMISSION TO MAKE A LOW PASS ALONG RUNWAY 13 AND OVER SILVER CREEK, AND TO RELEASE OBJECT OVER!

... SIR, THERE ARE ONLY THREE AIRCRAFT...

PERMISSION GRANTED TO FOUR AIRCRAFT!

THEN IN THE TRAFFIC CONTROL TOWER



... AND SO A GOOD FRIEND GOES ON TO ANOTHER ASSIGNMENT... WE CLOSE HIS LOG BOOK AND END THE TRANSMISSION ...

Lieut. Col. DAVID F. McCALLISTER Delaware Air National Guard Killed here on 4 June 1961 ALL HONOR TO HIS NAME

FOR THE GANG AT AFA—Washington... All of us lost on this deal... With best wishes—Milton Caniff N.Y. August 1961

The true success of Delaware is due to a multitude of valuable building blocks over time.

Always. Complacency is our enemy.



P-47



C-97

We've done these things for years that the Air Force has now institutionalized.

The Delaware Way is not set in stone, or a certain procedure. It is a way of life, an attitude, a culture. It is evolving.



F-86
MX

People, commitment, teamwork, focus, respect, culture, and an ability to speak up when someone questions people or practices.



C-130



The more we practice the luckier we get.



MAJ D. TEX JOHNSON
12 FTW
Randolph AFB TX

I take a lot less for granted these days after my one and only flight in an IL-76 military cargo plane from a foreign country (that shall remain anonymous). I don't think we fully appreciate the outstanding level of training we receive or the superior equipment we have to work with. No military can match it ... no matter what MDS we belong to. Starting with my initial flight training as a young 2Lt at NAS Pensacola in the Joint Specialized Undergraduate Navigator Training (JSUNT) program, to the many Air Force post-graduate courses such as CRM, ORM, NVG training, Advanced Airlift Tactics Training, etc., all have helped me to be the best that I can be. The

quality Tech Orders, checklists, in-flight guides and publications are all examples of a continued effort to produce the most competent Airmen in the world.

I always assumed the USAF and its sister services were the best in the world at what they did. It didn't really hit me just how well the USAF trains and equips its crews to succeed, until I had the opportunity to fly with a "foreign" Air Force IL-76 crew while stationed at Elmendorf Alaska. I shared this "moving" experience with "Rich", a C-130 pilot I greatly respect and worked with in Stan/Eval.

The "foreign" AF flew one of its Army units to Alaska for some joint training with soldiers from



USAF Photo by TSgt Shane A. Cuomo / Photo Illustration by Dan Harman

Fort Richardson (co-located with Elmendorf AFB in Anchorage.) They were to do airdrops at Malmute DZ, a local drop zone. Leadership rightly deemed it important to have some local "experts" fly with them to ensure that they were comfortable with the many local restrictions and hazards. Rich and I were asked to fly with the IL-76 crew, and both of us thought the assignment would be interesting and educational. It sure was.

The day started with Rich and me attending their flight brief. The brief was done with some of the standard formalities all aircrew are used to. Each crew position stood and discussed their

part of the mission. A local route was scheduled with altitudes at or above 500 feet AGL, remaining south of the Alaskan Mountain Range and beautiful Mt. McKinley. A "vanilla" flight for any local C-130 crew, with the exception of decreasing ceilings throughout the route of flight as the day progressed. As we stepped to the plane, I asked a lot of questions about the aircraft and crew operating procedures. I wanted to take advantage of this unique opportunity and the foreign crewmembers were very gracious. They answered all questions as best as they could and made me feel quite welcome.

After doing a quick walk-around in the cargo compartment with the navigator, we went to our positions. I followed the nav to the front lower-nose section which had a large windscreen and a perfect view.

The navigational equipment, including the flight computer, looked original. This aircraft was one of the earlier models which started production in 1974. Although I've flown in many C-130s older than 1974, I've never flown any with all of the original avionics/equipment ... like this plane seemed to have. They also had a first-generation GPS (retro-fit) that could provide heading and distance information. Due to rain the night before, the aircraft was leaking in many places with water dripping directly on the electronic equipment.

The crew began their checklists. The first thing to catch my attention was the fact that the nav was not using actual "checklists" as we know them. He was using his own notebook with hand-written steps - something he created in flight training. The nav didn't use any official checklists resembling Tech Orders. I remember listening to the radio operator in the upper flight-deck go through his "checklists" while quick responses were made by all crewmembers. An observation I made (that became even clearer later on) was that the crew seemed very compartmentalized. The pilots controlled the yoke and rudder, the engineer controlled the throttles and monitored all engine instruments, the radio operator called the checklists and tuned all radios and nav aids, the navigator told the pilots what headings, altitudes, and airspeeds to fly, and everyone seemed to focus only on their own particular duties. It seemed to be an ROE they lived by.

As we taxied out, Rich made some inputs to keep things going smoothly on the radios. He discussed the low ceilings with the pilot. He talked about the need to stay VMC on departure since we didn't have an IFR flight plan. We (Rich and I) felt comfortable with the cloud levels, but there wasn't very much room for error. I asked the navigator if he and the pilots felt comfortable with the departure procedures and got a positive "thumbs-up" response. Before we knew it I felt brake release.

On takeoff, as you can imagine, I was surprised when we climbed straight into the clouds. I quickly began to explain to the nav the need to stay VMC, but because of the radios and intercom chatter, I didn't know what was going on in the upper flight-deck. Anchorage Departure Control seemed very confused with the crew's requests ... as were Rich and I. ATC couldn't understand their strong accents. The pilots seemed to want vectors (after not remaining VMC and deviating from the standard VFR departure) in a very busy Anchorage Class C Airspace. Luckily, we started breaking out of the clouds, and Rich convinced the crew to let him talk to Departure. He explained our intentions to turn north and get away from the controller's airspace. At this point, I knew it was going to be a challenging flight. I felt like the things I discussed with the nav were not understood, even though I constantly got a thumbs-up reply. I don't know if this was because of social/cultural factors, but there was an obvious communication barrier present.

We transitioned to low-level mode with the nav calling out turn-points, headings, updates to altitude and airspeed as needed. It was obvious that the flight computer wasn't working (from the navigators actions) so the pilots were told not to expect any course guidance from their instruments. Between the lack of navigational guidance, equipment problems, and threatening weather, intercom chatter was constant and confused. As we approached the DZ, we were not aligned to the run-in course. From here on out the intercom was so busy I honestly have little knowledge of what was going on up above. I remember clearly looking at the nav who seemed very frustrated with the equipment and comms to the upper deck.

One important point I've failed to mention, as of yet, was that the navigator had three compasses at his station. From what I could see, one compass wasn't working at all ... and the two remaining were split by 35-40 degrees. I pointed to the compasses and asked if he noticed the large split. He said he was working to fix the problem. I decided to keep a close eye outside on the direction we were turning, and at that moment the visibility started to get worse and worse. I looked at the altimeter. The pilots had started an inadvertent climb into the clouds! I immediately felt the "pinch" most aircrew feel sooner or later in their career. It would be difficult (if not suicide) to fly IMC at this critical point—near the mountains without a functional compass!

I could feel the aircraft continuing a turn, but the actual heading was unclear because of the split compasses and zero visibility outside. Not knowing which compass the pilots were referencing (or if it was a valid heading) made me extremely nervous. To the east of our intended DZ was the Chugach Moun-

tain Range. Its bases started a couple of hundred feet above Sea Level and rapidly climbed to 5,000 feet within a few miles east of our run-in course! I knew we needed to fly west, but with no sure way to know which way that actually was; we needed to get back down below the cloud deck immediately. I screamed at Rich to direct a descent until we could see something, but didn't know if he was able to hear me. I told the nav we needed to descend using some extreme body language as you can imagine.

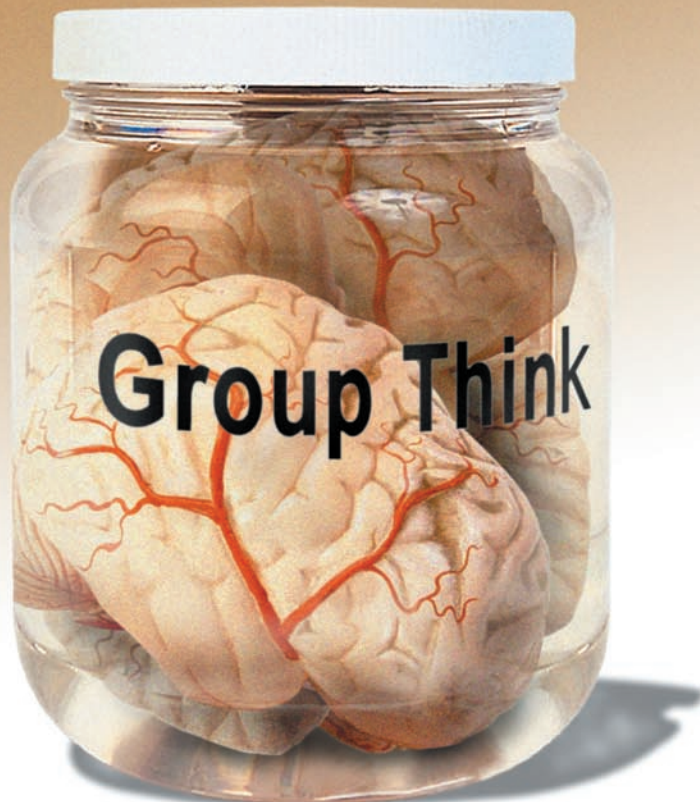
When we finally started to descend, I fixed my eyes outside praying to see something quickly. I started to make out some trees, and as I looked to our one o'clock I saw Birchwood Airport. Birchwood was east of the run-in course and our bearing was taking us southwest towards rapidly rising terra firma! Rich saw the airport roughly at the same time I did, and we quickly got the crew to turn south and follow the waterline along the Knik Arm southwest which would take us to Elmendorf. Home sweet home.

We made our way back to Elmendorf and things were notably quiet. Everyone knew we had been a few critical decisions/moments away from what could have been something very, very bad. Rich and I had to actively involve ourselves multiple times during the flight.

To cap off the whole event, we got well below approach speeds and a third pilot (standing IP I believe) had to call "throttles" to get us back on approach speed.

Looking back I can see problems in many different areas; non-standardized checklists, CRM issues from top to bottom, compartmentalization of duties/tasks, communications inside and outside the aircraft, and a high level of willingness to fly with degraded or inoperable equipment. They were probably willing to accept the risk of degraded equipment because of one simple fact. If they chose to fix it, they wouldn't get to fly at all ... and this would subtract from their already low number of flight hours allotted to remain proficient/competent in their duties. I was hit with a sense of rank consciousness among the crewmembers in flight. This may have fostered an atmosphere where crewmembers hesitate to critique or make inputs, even when appropriate for crew safety.

I will never forget how relieved I was to see Birchwood Airport. Had it been some inconspicuous view of trees with nothing to give us a clear idea of where we were ... precious time would have been lost. I hate to think of what could have happened. I'll never again take for granted the excellent training programs, publications, and equipment our USAF provides us. It's the best the world has to offer. Next time you catch yourself complaining about the delayed takeoff for maintenance or the instructor that won't shut up, think of just how good you really have it. Keep things in perspective. ✈️



MAJ CHRIS KILCULLEN
142 AS Delaware ANG

Photo Illustration by Dan Harman

I wanted to use this opportunity to discuss a safety topic near and dear to every Air Force member's heart—the sometimes negative effects of, “group think.” How many times in the past have you read an accident report or heard of some other mishap in the Air Force, flying related or otherwise, and asked yourself, “What on Earth were they thinking and how could the group come to such a poor decision?” There are numerous instances, both documented and not, where perfectly trained, experienced, and otherwise sharp individuals came to a wrong conclusion as a group. All because no one was willing to go against the “herd” and voice an opinion that questions the soundness of an incorrect course of action.


This is not just a problem in the Air Force, but a phenomenon that is experienced everyday all around the world and in all walks of life. People by their very nature are a group-oriented species, and often need the approval of those around them. We form complex social groups with many spoken and latent rules that must be followed if we are to remain members of tightly controlled cliques. This behavior is reinforced, for good or for bad, by our military training. It stresses conformity and the following of “lawful” orders with little question. It's not as much of a dilemma deciding what orders, suggestions, or plans of action to follow when they are clearly in the right or clearly in the wrong. The problems always seem to arise when the correct course of action doesn't fall firmly on one side of the fence or if there is perceived pressure from above to get the job done.

Some rules in the flying community and the Air Force in general, are often overlooked when the crew has been out on the road for several weeks or months and is experiencing the all too insidious “get-home-itis.” Weather requirements suddenly look more like a suggestion than the binding rules they are. Minimum essential equipment lists abruptly become open to interpretation in ways that the author most likely never intended. And we must never forget the golden oldie impromptu air show of, “My parents have a farm down this way and nobody will mind if we make a couple of low passes for the family. And besides, I did it the other day with so-and-so and they had no problem with it.”

These types of situations become very dangerous because members of the crew may feel intense negative peer pressure to go along with an otherwise ill-advised course of action. Even if the individual suggesting the shaky idea surveys the crew to get their opinion, there is still a good chance that individuals will not speak up even if they don't like the idea or think it's unsafe. The likelihood of receiving honest and accurate feedback in these situations also quickly diminishes if the proposal is coming from an individual of higher rank or popularity amongst the group. Some may think that this is an occurrence that can only happen to a young or inexperienced crewmember, or that we are all encouraged to give our input honestly when asked, but accident statistics would indicate otherwise. This is a recurring problem that knows no age or rank barriers and costs the Air Force millions annually in lost equipment and personnel. We must work as a team to reduce, if not eliminate, its tragic results.

If you see the links in the accident chain materializing, and start to feel the preverbal hairs on the back of your neck standing up, it's time to open your mouth and discuss the situation as a crew. It does not mean that every decision needs to be debated in detail or agreed upon as a community; however, the working environment should be such that opinions are respected even if not always acted upon.

This is not strictly a flight related problem and can often manifest itself the strongest in our junior ranks. No one enjoys being the squeaky wheel, and our younger members can often see their friends and popularity wane when they go against the grain. Hundreds of lives each year could be saved if friends would act like friends and stop that person from driving when they've had too much to drink, applying the principles of ORM before that rock climbing trip, or telling your friends they have been driving too long.

It's often hard to go against the group and the strength of their ideas, but if you see the unplanned/unauthorized low-level developing, or a group of friends who have been drinking and want to drive, or hear the “let me show you what this aircraft can do” statement, own up to your individual responsibility as a crewmember and say, “Stop! Let's talk about this.” These are just a few examples of the negative group dynamics that have plagued the military and society in general, for years. The group you go against today may be around tomorrow simply because you were not afraid to be a leader and speak up! 



CAPT OLIN LAU
552 ACW
Tinker AFB OK

So what exactly is safety? Does it apply only to the flying side of Air Force operations, or does it also include the ground side? If you answered “both,” then you are absolutely right. Not only does it include safety in the office environment, and the big blue open sky, but it also includes personal safety away from work. Now that we are clear that all Air Force personnel should be safety conscious at all times, whose responsibility is it to teach this important doctrine to all the young Airmen and aviators? The answer might not be as clear cut as you may think. It is not solely the responsibility of the squadron, group or wing safety office. It is a collaborative effort from everyone involved in the daily operations of our Air Force. That’s right; it’s everyone’s responsibility to teach future generations of Air Force personnel not only to be safe at work, but at home as well. So the next question is: “How do we go about indoctrinating safety in everyone’s brain?”

As all pilots, navigators and flight engineers know, we are taught from day one that safety is one of the most important things we do. In Specialized Undergraduate Pilot Training students are required to know how to operate their aircraft in a safe manner. It’s ingrained in each student’s brain; that you must be safe, or you will not succeed to get those coveted wings. So now that we have established the instructors at these respective courses are responsible for teaching their students about safety, who is responsible for teaching the other aircrew and ground personnel? Once again, it may not be as clear-cut an answer as you might think. Everyone will be quick to put the onus on his or her respective Safety Office. Yes, this office may be the catch-all to questions about safety; however, the safety office can only do so much to get the word out. The rest of the responsibility falls on the instructors, experienced aircrew and senior members of the squadron. With that said, it is the safety office’s responsibility to lay the safety groundwork for all personnel ... people who *may not* have been exposed to safety concepts from day one.



USAF Photo by SSgt Bill Thompson / Photo Illustration by Dan Harman

The 966 AACCS is ACC's largest flying training squadron. It is responsible for training over 725 students annually. While nearly half of the crew positions on the E-3 may have prior flying experience, there is no requirement for any Air Force flying experience among the other half. In fact there are often cases when it may be the student's first flight on a plane, *ever*, let alone their first flight on an E-3. That's right; half of the students on the E-3 may have never flown on an Air Force aircraft. They have gone throughout their entire Air Force career not having anything to do with flight safety. All of the sudden they are thrown into the fire and are expected to live, learn, and breathe safety. They have little or no concept of the hazards that may occur on the flightline or in the air. So how do we get these students to start taking safety seriously?

At the 966th we have taken safety indoctrination to a whole new level. The commander has become very proactive in the safety process. Every Monday morning, he holds a safety briefing which all students are required to attend. In this brief, he reminds them that they are now part of an

inherently dangerous activity: the profession of flying. They are responsible for making sound judgments that may affect the safety of the aircraft. The safety indoctrination does not stop here.

Students are given briefs on Bird Aircraft Strike Hazard, Midair Collision Avoidance, Operation Risk Management, Foreign Object Damage and Safety Privilege. In addition, these new students are exposed to different areas of flightline safety to include: jet blast danger areas, auxiliary power unit hazards and hearing protection. Last, but not least, the students are introduced to a multitude of simulated emergency procedure drills in flight. This "fire hose" effect of safety knowledge is designed to get students familiar with various flight safety programs. In doing so, they will (hopefully) carry this information with them for the rest of their aviation careers.

However, flight safety is not the only area these students are exposed to in the training squadron. Not only are they instructed on the various ground hazards in the work environment, but they are also exposed to the potential hazards in Oklahoma. To be specific, they are taught about tornado safety. Other broad areas covered by ground safety include high risk activities and motorcycle riding. So, does this introduction to ground safety teach them everything they need to know? The answer is a resounding NO! We must remember this is just the tip of the iceberg when it comes to getting the safety mindset embedded in these Airmen. They have to be reminded to ask themselves, "Does the reward outweigh the risk?" We are trying to teach them that the safety concept is not just related to the flying environment, but also to their everyday activities. For example, if they happen to be painting their living room, make sure the ladder is not placed on towels that could slip and cause them to fall from the ladder. It's the little things they must learn to look at in a different manner. "Can I do this activity a little safer?" "Are there any precautions that I could take to prevent me from getting hurt?" If we can get them to think about safety in this manner, we have set them up for a chance at success.

Our goal in the Air Force shouldn't be to get young Airmen only to think about flight or ground safety in the work environment, but also to take these practices home. The reason we stress the safety concept is to keep our people alive. It does us no good if they can keep themselves alive at work, then go home and do something stupid. We are all valuable assets to our country. Therefore we must treat everything we do, whether at work or at home, with the utmost respect for safety. In addition, if we see somebody doing something unsafe we should speak up. Our input may save that person pain, suffering and humiliation. Inevitably, we are all safety officers! ✈️



We're Not Going To Make It!

ANONYMOUS

In the spring of 1999, I had been flying C-130s operationally for about 13 months. I had logged roughly 300 hours in the Herc. I completed my first overseas deployment a few months before, and I figured I had seen just about all there was. I was feeling pretty comfortable, and very safe, anytime I flew. In my mind, I had become bulletproof. It's funny how life can bring you back to reality in one quick instant. Not in a "ha ha" funny way, but in a "punch you in the face" funny way. The experience I shared with 63 other souls in May 1999 wasn't funny at all...

Our crew was TDY to Pope AFB, along with three other crews from our base, to interfly with four Pope aircraft in an eight-ship C-130 formation. Each aircraft was stuffed to the gills with paratroopers, and we were going to drop them at Andrews AFB for their annual airshow. Following the airdrop, we were to land at Andrews, load up the troopers, then fly back to Pope. The entire mission we would be in formation. No big deal, I've flown in much bigger formations. It's part of the Herc mission, nothing for an experienced copilot like me to get too excited about.

Pope provided the mission commander, and handled all coordination and briefings. Looking back on it all, the formation briefing was lacking. It didn't cover necessary "what if" scenarios--what do we do if number three drops out, if the weather crumps, that kind of stuff. More importantly, it didn't cover the differences in the way our wings operated. Pope aircraft have high-powered radar that enables them to lead a formation and conduct airdrops in IMC. Our aircraft didn't have that radar, so, we never airdrop in IMC. Thus, our crews weren't proficient in IMC airdrops. This was never discussed in the briefing. To make matters worse, no crew from my

USAF Photo by MSgt Lance Cheung
Photo Illustration by Dan Harman

base questioned it. The biggest topic disregarded in the briefing was the one thing that almost killed 64 people. If I knew then, what I know now, I would have demanded a better briefing.

When C-130s takeoff in formation, the crew must ensure they have at least 15 seconds of separation from the preceding aircraft. This 15-second separation is procedure. We use techniques to ensure that we attain it.

At my base, we always conducted "Normal Method" formation takeoffs. During a Normal Method takeoff, all aircraft taxi onto the runway together and stop on the runway. Lead centers on the left half of the runway, number two of the right half, and so on until all aircraft are stacked nicely on the runway tail to nose, alternating left to right. The larger the formation, the further lead must taxi down the runway to accommodate all formation aircraft behind him. At my base, we had 12,000 feet of runway. That's more than enough to stack eight aircraft on the runway for takeoff.

When conducting this type of takeoff, it's rather easy to ensure you have the mandatory 15 seconds of separation. The pilot flying takes a time-hack when the preceding aircraft rolls, and he doesn't release brakes until 15 seconds have expired. Simple.

In May 1999, Pope only had about 7,000 feet of runway available. If all eight aircraft take the runway together, lead may not have enough runway ahead of him for takeoff. So, Pope's aircrews routinely conducted "Feed-on Method" takeoffs. During a Feed-on takeoff, all aircraft hold short of the runway. Once cleared for takeoff, lead centers himself on runway centerline and continues rolling. Number two rolls in behind lead, and has a number of techniques to

ensure he has at least 15 seconds of separation from lead. Then number three does the same behind two, etc. This is a much more dynamic method. Crews must be versed and prepared for this method to ensure they attain 15 seconds of separation.

I had never seen a "Feed-on Method" takeoff. I have doubts whether any of the crews from our base had ever seen one either. During the briefing, no crews from my base thought it was important enough to discuss. Following the briefing, I asked my aircraft commander how we were going to do the takeoff, and he said that I would learn during the takeoff. Who cares if I could back up the pilot or not? This guy was an instructor. Our navigator and flight engineer were both evaluators. Our loadmasters were instructors and evaluators. Far be it from me to step up and break the error chain by asking if anyone else was as confused about the takeoff as I was. Besides, I was bulletproof. To make matters worse, we were Tail-end Charlie in an eight-ship formation. During any C-130 formation takeoff, follower aircraft get knocked around to some extent as they climb through wake turbulence in search of smooth air. The further back in formation, the bumpier the ride.

All ground ops went as planned, *except* that number seven dropped out for maintenance problems. So ... we moved into the number seven spot. Once cleared for takeoff, things started happening much quicker than I was accustomed to. My thoughts went something like this... "The pilot seems to be rolling pretty fast. But hey, this is my first Feed-on. I'm just learning. Maybe that's the way we always do them. This pilot doesn't like it when I speak up. It's better if I keep my mouth shut, and just watch. That's what he told me to do. Besides, he won't do anything stupid. He's been doing this stuff for a long time now."

There's a joke that's sometimes passed around Herc aircrew: "What's the first thing to go through the copilot's mind during a C-130 crash?--the Navigator."

I made the "Go" call at the appropriate speed. The pilot rotated on my call and began his climb into the churning air. But this time something was very different. It's normal for C-130s to experience un-commanded rolls as they climb through wake turbulence. It doesn't always happen, but it's not a big problem when it does happen. The fix is a quick application of opposite aileron and coordinated rudder. Then, either maneuver the aircraft to the side, or climb above the turbulence. This is a common occurrence, and normally, it's easily alleviated ... *Not this time.*

The aircraft rolled right, and continued rolling right. The pilot went full left aileron. I felt the rudder pedals move under my feet, as the pilot tried for some semblance of coordinated flight. The visual picture outside was abnormal. I had never seen this sort of bank this close to the ground. A quick scan of my ADI showed us rolling through 60 degrees of bank and still rolling right. Airspeed was barely above 110 knots. "What's going on here? Why are we rolling?"

The pilot went both hands on the yoke and yelled "**Help Me Out Here!**" I slammed all four throttles up. They didn't move. The pilot had already pushed

them as far as they would go before he put both hands on the yoke. My right hand smashed the yoke full left. It didn't move either. The pilot already had it there. What else can I do?

That's when it hit me...WE'RE NOT GONNA MAKE IT—today I die...

The next thing I knew, the pilot knocked my hands off the throttles. He pulled engines one and two to flight idle. The C-130 wing gets a large amount of lift from the two props that sit just in front of it. Removing the prop wash on the left, and keeping it on the right, has a similar effect as ailerons. I imagine he had less than two seconds to react. But it worked! We snapped out of the right bank, and fell into a left bank. He slammed engines one and two to max, and we climbed slowly, wings level, about 60 degrees off-heading from the rest of the formation ...

... And that is the day that I almost gave up my wings.

Here's what I know. We exceeded 60 degrees of bank, more like 70 degrees, and possibly greater. I never saw more than 110 knots indicated airspeed. We had 64 souls on board, and we were heavy. Our performance data says we should have stalled. Maintainers were watching the takeoff from the ramp adjacent to the runway, and they estimate our right wing came within 35 feet of striking the ground. They went running to their trucks to call for crash rescue.

So what went wrong?

Problem one: The pilot got way too close to number six during takeoff. He later estimated that he got within 12 to 13 seconds of number six. I'd say it was around 10 to 11 seconds. Why did that happen? He was way too aggressive on his takeoff. Nobody on the crew knew what to look for to ensure we had 15 seconds of spacing, because there had been no prior coordination with the crew. Normally, it's a time-coordination between the pilot and navigator, with the copilot backing them up. None of that happened, and I had no idea what to look for. Thus, there was no way for me to back him up.

Problem two: We found out later that we had a right-quartering tail wind on takeoff. That kept the right wing wake turbulence in our face during takeoff. We didn't do any wind analysis prior to takeoff.

Problem three: We were number seven in the formation. Normally that's not a big concern, but (added to problems one and two) it can be a killer.

To this day, I am never relaxed during a formation takeoff. I always check the winds, and ensure that we have at least 15 seconds separation. I teach my students to never let a pilot push them into passenger syndrome. If they don't understand something, demand an explanation before flight. Don't "Halo Effect" a crew because they've been around much longer than you. You'll pay for their stupidity with your life. Had I simply demanded an explanation from my pilot about Feed-On takeoffs, I could have yelled "Reject" during the takeoff once I realized that nobody had any idea how close we were to number six. CRM issues abounded on this mission, but that's for another discussion. ✈

The Two-Challenge Rule



MAJ ROBERT A. LINDBLOM
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Like all aircrew members, I've been exposed to a wide variety of techniques and tricks during my career. Some I use regularly, but some are filed away for future reference and not part of my regular flying regimen. One such technique is the "two-challenge rule." Although not a formal part of the Tactics Techniques and Procedures (TTP) for most weapon systems, it's a basic part of CRM training for individuals on crew aircraft. It's meant to alert the crew that an individual may be incapacitated, or task-saturated and unable to perform his or her duties adequately. The basic idea is for another crewmember to assume the duties of any individual who fails to respond to two consecutive challenges (such as "reduce airspeed" or "level off"). This particular technique stayed buried in my "trick bag" until I needed it to save my life.

It was a routine training mission in a less-than-routine location—Kandahar, Afghanistan. For those of you who've flown there, you know how dark it can be even on a clear night. But the darkness, itself, wasn't the problem for my HH-60G crew that night; it was the lack of darkness. On initial takeoff from Kandahar Air Base for a routine training mission, we faced a series of broken cloud decks starting at 800-1000 feet AGL. The bright lights in and around the base reflected off the low deck, producing near 100 percent equivalent illumination.

The copilot (a talented aviator, but also brand new to the unit and on her first deployment) was flying the departure while I was heads down working radios. The Pavehawk has an extremely labor-intensive communications suite with four different radios, all located on the console between the pilots. In typical fashion, all four began to go off simultaneously as soon as we broke ground, effectively drowning the crew out entirely. Trusting the copilot to fly the relatively benign departure, I set about adjusting the radio settings for both pilots and divided up listening duties among the various crew positions before leaving the terminal area. I was also coordinating with ATC and adjusting the navigation equipment for our first event—a non-precision approach back into Kandahar.

My intent was to get as far ahead of the aircraft as possible while still in the relatively safe confines of the airfield environment. Normally, this would have been a prudent course of action—finishing the administrative as early as possible and allowing the crew to concentrate on the more demanding aspects of the flight once clear of the immediate area. But this was not a normal night, and my game plan didn't work as anticipated.

As the aircraft passed approximately 200 AGL, the number-two hydraulic reservoir low light illuminated, indicating a possible leak in the system. None of the crewmembers initially noticed the master caution light due to the washout from the high level of



The basic idea is for another crewmember to assume the duties of any individual who fails to respond to two consecutive challenges.

USAF Photos Courtesy of Author
Photo Illustration by Dan Harman


ambient lighting. The leak isolation system responded exactly as advertised by disconnecting the pilot assist module (the most likely source of a leak in the number-two system), immediately removing boost and stability augmentation to the flight controls. The copilot was unprepared for the change in feedback forces and began fighting the controls—unaware of the malfunction and assuming the erratic movements were a result of her own over-controlling of the aircraft.

The oscillation quickly turned into a descent, and the gunner called for the copilot to “stop down.” At the time, I was still struggling to set the radios and attempting to clarify an ambiguous call from ATC. The minor oscillation and command from the gunner registered, but I failed to recognize the danger. The unplanned descent continued for a few more seconds and the gunner called “stop down” once again, this time with a little more urgency. Suddenly, my training clicked. That second call by the gunner instantly cut through all the radio chatter and other demands on my attention. The hair on the back of my neck stood up as I realized the copilot had failed to respond to two consecutive challenges. Stopping in mid-radio call, I spun in my seat to assess the situation and saw the aircraft passing through 100 feet AGL with the VVI at 500 FPM and increasing.

I quickly took controls from the unresponsive copilot and applied climb power, arresting the

descent at approximately 50 feet AGL. Only then did we finally notice the master caution light and accompanying segment light indicating a leak in our number-two hydraulic system. We declared an emergency, completed the checklist, and returned to the airfield without further incident.

So, what went wrong? Well, it’s easy to see that we were lulled into a sense of security by the high illumination, the relative safety of the airfield environment, and a practice instrument approach under VFR conditions. I let my guard down and allowed myself to become fixated on mission management duties, forgetting my primary responsibility to monitor the aircraft at all times. This is something no aircraft commander should ever do, regardless of the phase of flight.

More importantly, what went right? The old “two-challenge” rule brought a deteriorating condition to my attention before the situation became unrecoverable. It served as a “warning flag”—telling me that something bad was probably about to happen, and that I ought to reassess the situation and take action. Whether you are part of a crew, or flying a single-seat aircraft as part of a formation, it can do the same thing for you. If the “two-challenge” rule is already part of your standard TTPs, that’s great. If not, consider adding this little trick to your repertoire, and including it in your flight briefings. It might just save your life some day. 



Don't Be Set Up For Fatigue Failure

ANONYMOUS

“Whoa, man! Slow down! Just SLOW DOWN!” Have you ever had anyone say that to you? I mean, other than at the bars downtown on a Thursday night. After a typical 24-hour day out to Afghanistan and back, I felt unexpectedly alert as I intercepted the localizer into Frankfurt, Germany. Approach gave us “high speed approved” below 10,000 feet, so I kept the airspeed higher than normal. I descended to 3,000 feet at 320 KIAS, and the aircraft commander yelled out, “Whoa, man! Slow down! Just SLOW DOWN!” He was dragging, battling fatigue, and had the sensation of the world speeding past. So, I pulled the power to idle and put out the speed brakes. Maybe you haven’t experienced something like this. But certainly you’ve fought off micro-sleep and head bobs, perhaps found yourself way behind the plane and struggling to make sense of the instruments. More than SAMs and AAA, fatigue is the number one risk factor for strategic airlift crews.

Unfortunately, fatigue comes part and parcel with C-17 Stage operations for OPERATIONS IRAQI FREEDOM and ENDURING FREEDOM. Certainly, we fly long days, but that fact is only one issue that contributes to the weariness crews suffer. We fly at night, against the body clock, often after many hours of wakefulness. The Federal Aviation Administration, NASA, and the Air Force recognize these as significant hazards which raise the likelihood of

accidents. Naturally, the Air Force would, in a systematic and preventive manner, minimize the risk due to fatigue, right? Not exactly. Yes, we run an Operational Risk Management (ORM) checklist to identify mission hazards, but that tool only reacts to poor mission design and barely addresses fatigue. Instead, we manage missions and crews with a little devil known as “BRAVO Alert.”

On a typical mission, the Air Mobility Control Center (AMCC) gives the crew a “Legal for Alert” (LFA) time based on the scheduled departure time. From that LFA time, the AMCC has a six hour window in which to alert the crew. If weather, maintenance, downrange aircraft handling capability, or any of a number of other factors prevents the AMCC from alerting the crew in that window, then the AMCC must re-enter the crew into crew rest and give them a new LFA. However, the C-17 stage most often gives crews a “Legal for Bravo” (LFB) time. From that time, the stage can alert the crew any time within the next 48 hours. The large alert window makes the crewmember’s sleep planning extremely difficult. Also, due to the vagaries of the stage operations, the crew often finds themselves awake, waiting hours for the alert.

Ultimately, each crewmember (and the crew as a whole) must determine whether they are rested enough to safely complete the mission. That task is not as easy as it sounds. First, the crewmember faces internal and



**More than SAMs and AAA,
fatigue is the number one risk
factor for strategic airlift crews.**

USAF Photo

external pressures to “hack” the mission. Certainly, all of us have a sense of duty and a desire to excel. Yet, we worry what others will think of us should we make a “safety of flight” call for fatigue. Stage managers and Tanker Airlift Control Center (TACC) controllers also feel pressure to push the mission, and they pass that on to the crews. Even the crew may try to persuade one of its members to ignore his fatigue. Second, assessing one’s own fatigue proves notoriously problematic. Many studies show that fatigue degrades mental capacity and decision-making much like inebriation does. We all know how well drunken people make decisions, and how well they judge their level of impairment.

Squadron and wing leadership can mitigate many of these issues when they establish the appropriate attitude toward fatigue. But, what if the squadron or wing fosters a hazardous attitude, be it tacitly or openly, unintentionally or deliberately? I attended an annual Crew Resource Management class two Decembers ago, and a senior reservist complained that he had to justify his “safety of flight” call to every level of command and control. Coincidentally, an active duty wing commander was present at that class. Now, here is a leadership moment if I’ve ever seen one. Instead of expressing support for safe decision-making, he first questioned the professionalism of crews who don’t fly when overtired.

Then, when asked about fatigued crews involved in mishaps, he stated that he would back crews as long as they followed tech order guidance. Mishap crews that made mistakes would be “on their own.” Apparently, this wing commander gives no allowance to crewmembers for poor decisions made while impaired by fatigue. In response, that senior reservist predicted the next C-17 mishap would occur in the AOR, and it would involve fatigue. Sadly, he proved prophetic just six months later.

My C-17 reserve wing took a different approach toward this quandary. Wing Safety gave the crews two tools to quantify fatigue, and perhaps change the system that had created so many problems. First, the wing designed a “Fatigue Risk ORM Worksheet” to help crews make safe decisions regarding their fatigue. This worksheet examines hours of wakefulness, sleep in the prior 72 hours, number of long duty days in the prior seven days, acute and chronic circadian rhythm disruption, and other behaviors that indicate fatigue. Completing the worksheet benefits the crew two in ways. First, the crew knows they have the full support of their home wing in making a “safety of flight” determination. Second, the worksheet recommends the amount of crew rest they should receive in order to restore rest and regain the necessary level of in-flight performance.

Wing Safety’s second tool is the AMC Form 97, *AMC In-Flight Emergency and Unusual Occurrence Worksheet*. While this form already existed for reporting emergencies, aircrews had not previously used it to highlight fatigue issues. Aircraft commanders had used the AMC Form 54, *Aircraft Commander’s Report on Services/Facilities*, but crewmembers overwhelmingly perceived a lack of action to alleviate the factors contributing to fatigue. Unlike the AMC Form 54, the AMC Form 97 bypasses bureaucratic obstacles and elevates concerns through safety channels. In concert with the “Fatigue Risk ORM Worksheet,” the aircrew can document on the AMC Form 97 not only inadequate lodging facilities, but also the trickier, systemic culprits like poor mission design, circadian rhythm disruption, and unsafe scheduling practices like indiscriminate use of BRAVO alert--all of which add to the crew’s fatigue and thereby increase risk for any mission. Wing Safety then tracks AMC Form 97 inputs to build a body of evidence supporting consequential, procedural change.

Many active duty crews I have spoken to hesitate to call “safety of flight” because they fear retribution. This unfortunate attitude descends directly from the atmosphere their leaders create. The danger of fatigue may be a Gordian knot; not fully solvable, especially in light of mission requirements. However, that difficulty does not absolve leadership from the responsibility to reduce risk where able, and to accept risk when necessary. Above all, wing leaders need to respect the final authority for preventing mishaps: the aircrew. My reserve wing chose to listen to aircrews and take positive steps to address fatigue concerns and, in doing so, improved safety for its crews and potentially for C-17 operations as a whole. ✈️



**FY07 Aviation Mishaps
(Oct 06-Mar 07)**

**18 Class A Mishaps (14 Flight)
0 Fatalities
8 Aircraft Destroyed**

**FY06 Aviation Mishaps
(Oct 05-Mar 06)**

**14 Class A Mishaps (10 Flight)
0 Fatalities
4 Aircraft Destroyed**

- 02 Oct** ✈️ A C-21 departed runway near approach end and caught fire.
- 02 Oct** An F-15E had multiple bird strikes; damage to #2 engine and left wing.
- 26 Oct** ✈️ An F-16C caught fire on takeoff; pilot aborted.
- 27 Nov** ✈️ An F-16C CFIT (IAW CSAF guidance; currently a non-reportable loss under DoDI 6055.7)
- 04 Dec** ✈️ An F-16D experienced engine failure.
- 18 Jan** ✈️ A T-38C had multiple bird strikes; pilot ejected.
- 19 Jan** ✈️ An F-16C encountered engine failure on a training sortie.
- 22 Feb** ✈️ A T-38C departed controlled flight during BFM.

- 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 all fatalities associated with USAF Aviation category mishaps.
- "✈️" Denotes a destroyed aircraft.
- "★" Denotes a Class A mishap that is not in the "Flight" category. Other Aviation categories are "Aircraft Flight-Related," "Unmanned Aerial Vehicle," and "Aircraft Ground Operations".
- Air Force safety statistics are updated frequently and may be viewed at the following web address:
http://afsafety.af.mil/stats/f_stats.asp
- **Data includes only mishaps that have been finalized as of 19 Apr 07.** ✈️

AVIATION



The Aviation Well Done Award is 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.



Major David C. Meier
314th AW
Little Rock AFB, AR

Major David C. Meier was awarded the Aviation Safety Well Done Award in recognition of his exceptional contributions to aviation safety while assigned to the 62d Airlift Squadron, 314th Airlift Wing, Little Rock Air Force Base, Arkansas. Major Meier displayed remarkable initiative by developing a stand-alone computer modeling program. This benchmark program predicts the position of all Little Rock Air Force Base assigned C-130 aircraft, from four major commands, on ten different low-level training routes. This computer modeling program displays pertinent mission information such as call signs, route depictions, terrain features, and up-to-the-minute weather radar overlays. Using this tool, the supervisor of flying is able to assess pending conflicts, and transmit this information to all participating aircraft. Maj Meier's innovation and implementation of this program dramatically improves the effectiveness of aviation operations, and provides an invaluable mishap prevention tool for the safety of other C-130 aircrews throughout the Air Force.

Coming in May 07

Big Brother or Best Friend?



What's in your future?

