THE COMBAT EDGE

APRIL 1996

The Combat Edge

AIR COMBAT COMMAND
SAFETY MAGAZINE

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ABOUT THE COVER
Seventy years ago this month Bessie Coleman, the first female African American aviator, was killed in an aircraft mishap. On 30 April 1926, Coleman was surveying the site of a planned parachute jump when her airplane went into a tail spin and then flipped upside down at 500 feet. Because she wasn't wearing her lap belt, Bessie fell out and plummeted to her death. Our cover this month by Sgt Mark Bailey is a tribute to Bessie Coleman and the lessons history can teach us.

ACCent on Safety

Those who cannot remember the past are condemned to repeat it.

George Santayana

Seventy years ago this month Bessie Coleman, the first female African American aviator, was killed in an aircraft mishap. On 30 April 1926, Coleman was surveying the site of a planned parachute jump when her airplane went into a tail spin and then flipped upside down at 500 feet. Because she wasn't wearing her lap belt, Bessie fell out and plummeted to her death. Her companion pilot fought unsuccessfully to regain control of the Curtiss Jenny and was killed in the ensuing crash. What caused the crash? FOD — a wrench had slid into the control gears and jammed them. FOD — a mishap cause we're still fighting today. Our cover this month is a tribute to Bessie Coleman and the lessons history can teach us.

Twenty-one years after Bessie Coleman's death the 64th Troop Carrier Squadron, forerunner of today's 64th Airlift Squadron, was established. An otherwise unremarkable event has become truly noteworthy because the 64th Airlift Squadron has never had a Class A or B flight mishap. Forty-nine years of mishap-free flying this month! "Safety Chicago Style" (page 26) explains how the 64 AS has accomplished this amazing feat — CONGRATULATIONS! Some of history's lessons are worthy of emulation.

Have you ever thought that nothing bad could happen to you because you're so good at what you do? Perhaps you know someone else in your unit who has that attitude? The truth is, if the members of an average group of people are asked where they stand relative to the rest of the group, 75% will say they are in the top 25%. In an average Air Force flying squadron, 25% of the folks think they're in the top 1%. There's certainly nothing wrong with having a good opinion of yourself and your professional abilities, but we can't all be that good each and every day. It's important to remember that there are a myriad of factors that affect how we can perform on any given day: personal life, training proficiency, weather, aircraft condition, distractions, wingmen, and recent flying experience. The same types of everyday factors apply to everyone who makes the ACC mission happen. How well you perform today may be different from your ability last week or last month. Keep that in mind as you decide what you can handle today.

At last, winter is over and most of us are enjoying beautiful spring weather. However, the near perfect weather we are presently enjoying is about to change soon to the hot sweltering days of summer. Plan ahead and prepare yourself and your people. Watch your duty schedules, crew rest and other activities to ensure proper hydration and rest periods are provided. Our people will always be the most important key to our success in accomplishing the mission as well as preventing mishaps.

Colonel Zak Tomczak
Chief of Safety

ENTROPY, CHICKEN BON

Colonel Regner C. Rider
Commander, 5th Bomb Wing
Minot AFB ND

When approached about writing an article discussing the effects of drawdowns, inspections, and high operations tempos on safety, I decided to review my own wing's safety record for the past few years to see what the data showed. What I found pleasantly surprised me. This past year, despite undergoing several major inspections, standing up and then closing one bomb squadron, supporting deployments around the globe, and exercising locally at a record pace, our mishap rates declined significantly. Specifically, our flight mishap rate declined almost 50 percent from the previous year and our on- and off-duty ground mishap rates also declined by nearly 50 percent from the previous year. As it turns out, 1995 was one of the safest years the 5th Bomb Wing has ever experienced. Even as I write this article, the 5th Bomb Wing has gone nearly 6 months without a reportable on- or off-duty ground mishap. So, how have drawdowns, higher headquarters inspections, and a high operations tempo affected our mishap rate or safety attitude?...it hasn't. The key to our success has been to instill and support a positive safety attitude into the very fabric of our operations. To do this, I believe you need to accomplish two important tasks. First, to instill a positive safety attitude you need to control entropy. Next, to support a positive safety attitude you need to understand "chicken bones and tribal knowledge." Let me explain what I mean.

In scientific terms, entropy means that nature dislikes order and seeks randomness or disorder. If you were to observe our B-52 flight line on a frigid winter morning with maintenance vehicles, security police vehicles, snow removal vehicles, and operations people all moving around the flight line at the same time, you might think this activity was the true definition of entropy. However, in operational terms, entropy translates into complacency, and/or lack of discipline. If you use my operational definition of entropy and then watch our flight line activity, you would see

& TRIBAL KNOWLEDGE

that everyone was moving not in disorder, but in concert with one another — working together as a team. It is through this team effort that we control chaos or disorder which are common denominators in most mishaps. Mishaps are inevitable when entropy takes control of operations; therefore, because we incorporate safety into wing policies, instead of simply adding them on, we maximize mission accomplishment with a reduction in safety related incidents. We are, in fact, controlling complacency or disorder.

Unfortunately, operation entropy must be controlled one day at a time, every day. A good first step, in controlling this, is to ensure everyone understands their part of mission accomplishment, producing a team effort. Specifically, what the missions are for that day, the priorities for accomplishing those missions and knowing who, where, and how many people fit into accomplishing those missions. The key to all of this is effective communication and proactive leadership at all levels. You may be thinking to yourself, "This is nothing new, so what makes Minot so special?" The answer is simple. Nothing makes Minot special; but when wind chill factors reach temperatures where flesh freezes in minutes, safety is no longer a slogan or an afterthought, it's truly a

matter of survival. Everyone must be imbued with a strong safety consciousness because all of our dedicated troops, including those who work outside and those who drive to and from work to accomplish our missions face an environmental safety risk that can be deadly during the winter months. Here at Minot, if we fail to control operation entropy when the wind chills reach -70 degrees below zero, we are setting ourselves up for a serious mishap.

Another way to control this operational entropy is to know your people. I mean more than what they are doing, you need to understand what they are thinking and how they are approaching their duties. This is what I call in search of "chicken bones and tribal knowledge." It seems in every organization that I have ever had the privilege of serving in, there have always been techniques or operations conducted that when you question why it's done that way you get the time-honored response, "Because that's the way we have always done it." Essentially, this is what I refer to as "chicken bones and tribal knowledge." This is a unique way of describing information that is passed on from individual to individual or organization to organization, but often cannot be found in any written form. It is also another way of describing your people's way of approaching their work, or more specifically, their attitudes. Once again, it is not written anywhere, but is expressed by word of mouth from individual to individual. Safety attitudes are truly one place where "chicken bones and tribal knowledge" thrive. How many safety mishaps have occurred where afterward you have heard, "We knew that was going to happen?" This informal information is found at all levels, but correctly interpreting it is the key to understanding the grass roots thinking of your people.

Understanding the grass roots thinking of our professionals is critical to mishap prevention. Through aggressive leadership and supervision at every level, we can tap this unique source of information. Supervisors must ensure accomplishment of the mission, but they must also ensure they keep in touch with the folks who make the mission happen. Keeping in touch is also a way to pick up on counterproductive beliefs, attitudes, and behavior which could sow seeds of operational entropy. The responsibility and accountability for safety lies with each and every person on the flight line and in all work sections throughout the wing. However, when there is a safety incident, the information needs to be quickly interpreted and disseminated to all so that we heighten overall community awareness. Culpability is not as important as is mishap prevention; and as a result, safety truly becomes a team effort. This whole process is very crucial because today's little incidents, if left untreated, become tomorrow's reportable mishaps. This aggressive pursuit of mishap prevention of even the simplest of incidents sends a message to all that safety is crucial to mission accomplishment. Without a doubt, through aggressive leadership and a sincere demonstrated concern for our teammates' welfare, they are more likely to play the game better and are more likely to do it with fewer injuries.

Here at Minot, perhaps the extreme climatic conditions make incorporating real safety into our wing operations easier. With temperature extremes like the kind we face daily during the winter months, it is imperative that everyone knows what is required and when. Because of this safety becomes woven into the fabric of everything we do. The synergistic effect of understanding the mission and performing it safely controls the problem of operational entropy and breaks down the "chicken bones and tribal knowledge" barriers. So, now I am back to where I started. Drawdowns, inspections, and a high operations tempo need not have an impact on safety as long as your unit possesses a positive safety attitude and stays focused on the job at hand. For although the war fighting mission of the wing is our ultimate responsibility, reducing mishaps only improves our ability to carry out that mission. Maintaining disciplined troops supported with a positive safety attitude equals mishap reduction and enhanced combat capability. Be safe, think safe, fly safe. ■

Lightning and Thunderstorm ✓ Checklist

Reprinted from USAA Magazine, August 1995, USAA, San Antonio, TX

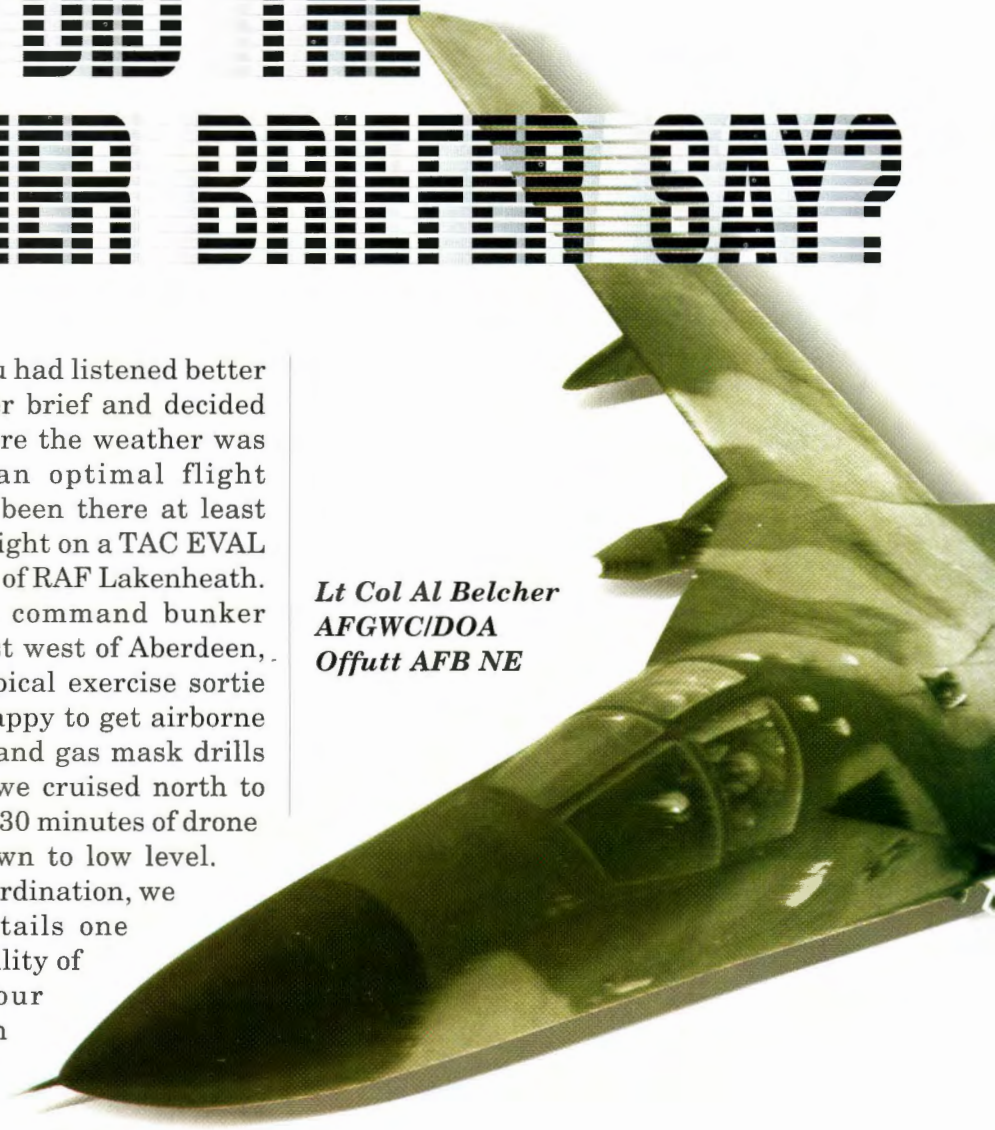
Protecting your property:

* Are there surge protectors on televisions, computers, programmable kitchen appliances and other electronic equipment that could be damaged by a lightning strike or electrical surge?
* Does your house have a lightning protection system with lightning rods mounted on the highest points of the structure and grounded by cables? Was the system installed by a certified installer in accordance with Underwriters Laboratories Inc. and federal standards?
* Is there a lightning suppressor on incoming power and telephone lines to intercept and stop electrical surges caused by lightning?
* Do you unplug electronic equipment and unhook cable TV connections before thunderstorms? Do you disconnect modems?
* Do you turn your air conditioner off during a thunderstorm since a lightning strike can damage the compressor?

Protecting yourself and your family:

* Do you avoid metal-roofed buildings, sheds, golf course shelters, tents, gazebos and the like during thunderstorms?
* Do you avoid standing on a hilltop, under a tall, isolated tree or even under the tallest tree in a grove?
* If you are in an unprotected open area, do you go to a low place such as a ravine, gull or ditch — but not one that's filling with water?
* If caught in a car during a thunderstorm, do you know that it's best to stay inside and keep your hands off any metal, including the radio?
* Do you stay away from metal equipment such as tractors, golf carts, motorcycles and bicycles?
* Do you take off metal-cleated shoes?
* Do you avoid holding golf clubs, bats, tennis rackets, fishing rods, umbrellas and other metal objects that may act as lightning rods?
* Do you avoid standing near metal fences, wires, rails, pipes, flag poles and the like?
* If your skin starts tingling and your hair stands on end, do you know what to do? (Those are signs that a lightning strike is imminent. Best defense: Squat down and place your hands on your knees.)
* Do you know CPR? (If someone is hit by lightning, you should begin CPR immediately and call for medical assistance. If you feel a pulse, give only mouth-to-mouth respiration.)
* Do you avoid using the telephone, since telephone wires can conduct current from a lightning strike into the house? (Exception: Emergency calls on cordless phones that are a good distance away from the base.)
* Do you know that swimming, wading and boating are especially dangerous during thunderstorms? The same is true for bathing, showering and even washing dishes.

WHAT DID THE WEATHER BRIEFER SAY?



Lt Col Al Belcher
AFGWC/DOA
Offutt AFB NE

Ever wished you had listened better at the weather brief and decided not to fly where the weather was forecast for less than optimal flight conditions? We've all been there at least once. I was there one night on a TAC EVAL sortie, flying F-111s out of RAF Lakenheath. We were attacking a command bunker (whiskey distillery) just west of Aberdeen, Scotland. It was a typical exercise sortie where you were just happy to get airborne so all the "alarm red" and gas mask drills were behind you. As we cruised north to Scotland, we had about 30 minutes of drone time before our let down to low level. As part of good crew coordination, we briefed the target details one more time. The possibility of weather impacting our mission wasn't even considered; it was night, we had Terrain Following Radar (TFR), we were in a TAC EVAL, and the thought of failing to hit our target wasn't even a remote possibility. We were set up for failure! As we let down to TFR altitudes, we started to get the first hint that this wasn't going to be an easy run. The INS had the winds pegged at 30 knots coming directly across the nose and perpendicular to the Scottish hills. However, this was an important mission and a few bumps wouldn't deter us from a "successful" in-flight report. As we continued, the bumps turned into almost constant jolts and vibrations. Reading the instrument panel under the night cockpit lighting became extremely difficult, and my ability to remain "in the scope" for those last critical updates became more and more challenging. After finding the target and executing a modified LOFT recovery from a PAVE TACK delivery, we noticed the winds had increased to over 50 knots — enough! We leveled off at medium altitude and headed for home.

Although not paying attention to the weather brief and understanding how adverse weather can affect your mission may not always be life threatening, it can have a major impact on your mission success. If we had paid better attention to the weather briefing or the format had been easier to remember, we could have

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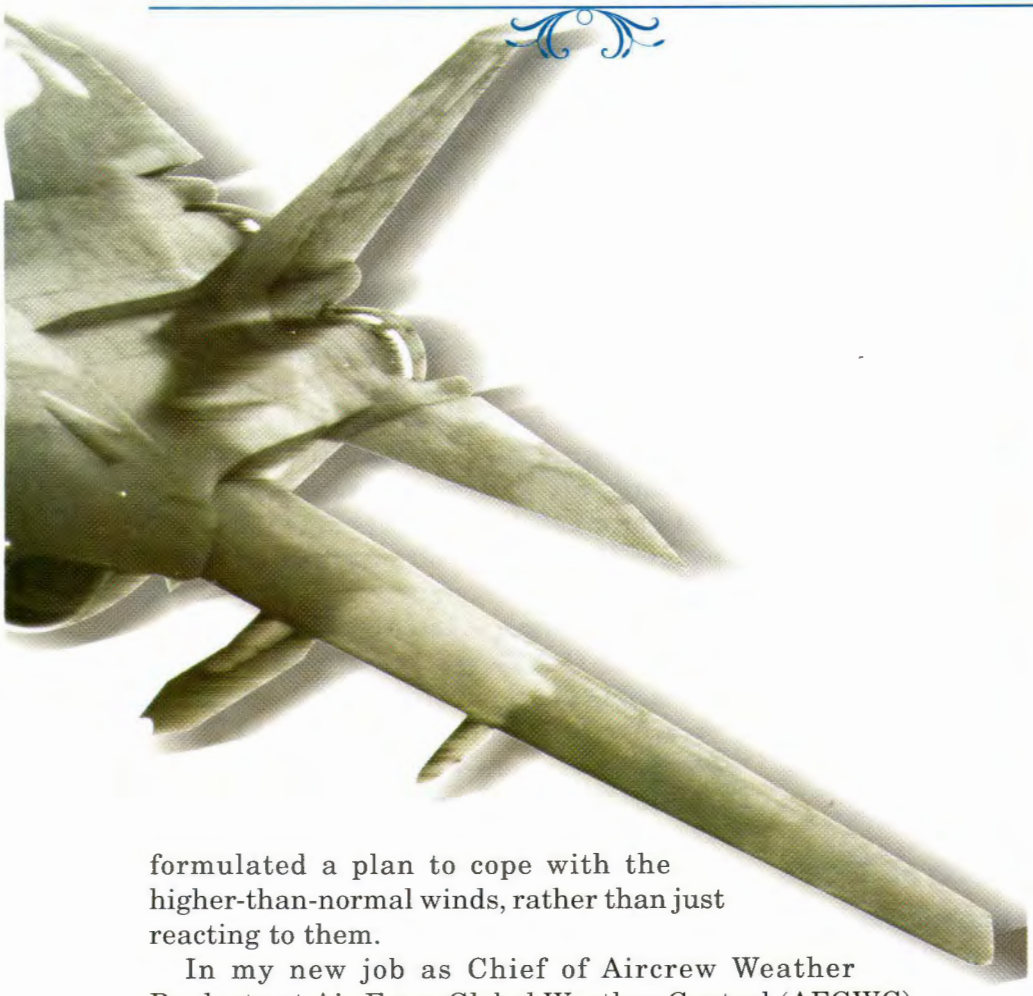

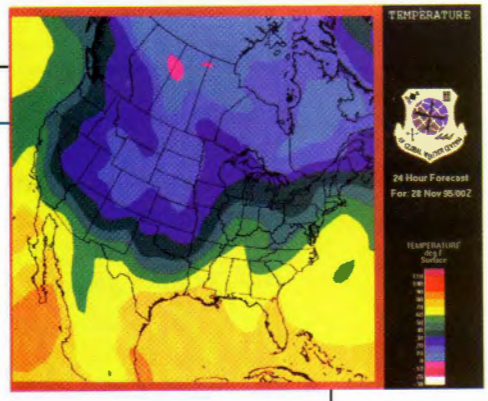

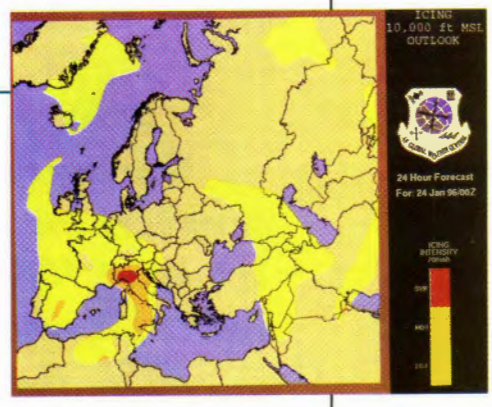

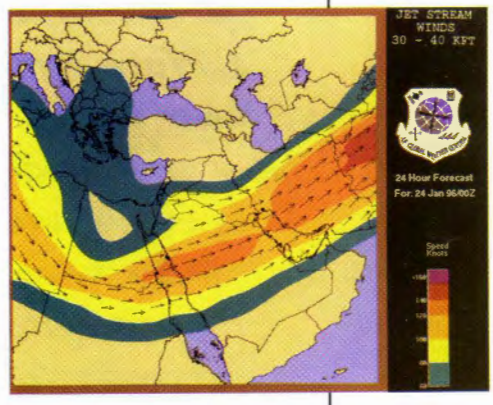

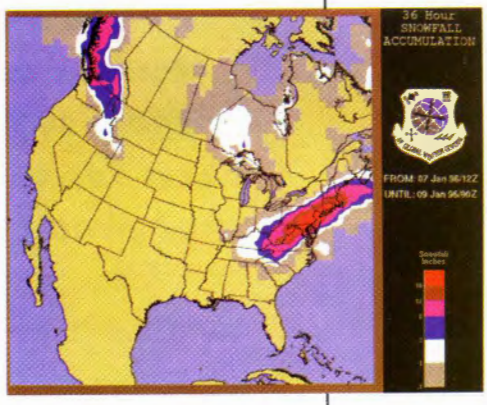

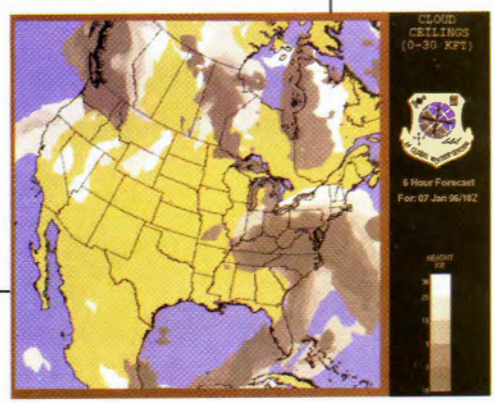

formulated a plan to cope with the higher-than-normal winds, rather than just reacting to them.

In my new job as Chief of Aircrew Weather Products at Air Force Global Weather Central (AFGWC), I'm tasked with developing easy-to-understand, self-explanatory ways of displaying mission impacting weather for the flying customer. Fortunately, AFGWC's experts have combined new technology, modern computers, and advances in the science of meteorology into a new line of color visualizations that portray weather forecasts in an easier, more digestible format.

The Product Improvement Branch (AFGWC/DOA) has been working on visualization products for almost 1 year. Using SUN workstations and a sophisticated graphical programming language, we have quickly developed and disseminated new "warfighter" visualizations to base/post weather stations. These products are

primarily based on AFGWC's Relocatable Window Model, a regional model of the atmosphere that provides a more detailed, more accurate picture of the weather than the hemispheric models of the past. Presently, we produce visualizations for the CONUS, Europe, SW Asia, and Korea. Valid times for most products are for the 24- and 36-hour time periods and are updated twice a day.

Our current suite of products include flight level winds at 10K, 24K, and 30K feet MSL, icing at 10K feet MSL, thunderstorm probabilities, jet stream, surface temperatures, 24-hour temperature change, low and middle cloud ceilings, low-level wind shear, heat index, wind chill, winter precipitation, snow accumulation, and 12-hour precipitation. In the future, we'll be adding other products such as cloud tops, cloud bases, freezing level, turbulence, D-values, and surface visibility. These products are designed to supplement the DD Form 175-1 briefings, but can be used as stand-alone products during staff weather officer briefings.

Right now, all visualizations are automated, based solely on the computer predictions. They are designed for planning purposes, are in vivid colors (making them quicker to digest), and focus on "hot spots" or problem areas. Eventually, we will introduce even more accurate products that employ a man-machine mix, capitalizing on the expertise of the weather professionals. We are also reorganizing our Meteorological Production Branch to better align our support with your specific theater/command needs.

Our current suite of products include flight level winds at 10K, 24K, and 30K feet MSL, icing at 10K feet MSL, thunderstorm probabilities, jet stream, surface temperatures, 24-hour temperature change, low and middle cloud ceilings, low-level wind shear, heat index, wind chill, winter precipitation, snow accumulation, and 12-hour precipitation. In the future, we'll be adding other products such as cloud tops, cloud bases, freezing level, turbulence, D-values, and surface visibility. These products are designed to supplement the DD Form 175-1 briefings, but can be used as stand-alone products during staff weather officer briefings.

We have just started a weather home page on the World Wide Web (WWW) accessible via the MILNET. The Air Force Weather Information Network (AFWIN), designed for non-weather customers, is available for aircrews to use at WWW address http://afwin.offutt.af.mil;443. It contains these new products I've discussed, plus offers a variety of other weather products and services. Once connected you can receive information on how to obtain an account and password.

If you'd like more information about this new weather product line or the AFWIN, please contact your MAJCOM weather officer, AFGWC/DOO (DSN 271-1626), AFGWC/DON (DSN 271-1690), or me at HQ AFGWC/DONR (DSN 271-2821). We need your feedback on the quality and usefulness of these products. We're also very interested in your ideas and will do our best to design future products that satisfy your needs Give us a try. ■

WHO ARE THE LEADERS OF TOMORROW'S AIR FORCE

MSgt Curtis Northrop
AFSC/SEWN
Kirtland AFB NM

All of us sometimes wonder what we'll be doing in the future. After observing some recent Nuclear Surety Inspection exercise scenarios and reading about changes in our Air Force, I have a few suggestions for those of you who will be the leaders of tomorrow.

If that sounds too far off for you to be concerned about now, just take a look around your work area, squadron, wing, and throughout the Air Force. You'll see a lot of senior individuals (Colonels, Lieutenant Colonels, Chiefs, and Senior Master Sergeants) preparing to leave the Air Force and join the civilian world. "Who cares," you say; it just improves my possibilities for advancement. True, but let me caution you. In the next few years, these people will be gone, taking with them a lifetime of knowledge and experience, some of that experience gained through combat. How prepared are you to take their place?

The exercise scenarios I observed shed some light on this question. Two particular units that participated in these exercises demonstrated two distinctly different types of work ethics. Unit "A" personnel performed their task the way they were trained — somebody would tell them what to do and they would do it like mindless puppets. However, each time they were told to do something, important details were left out. This kept opening up the potential for a safety or security violation — which eventually occurred. Military pride and professionalism were absent. Everyone acted as if it was a picnic in the park. Their only concern was with their area of responsibility. Security was security's problem, and all maintenance operations were maintenance's problems.

Unit "B" personnel, on the other hand, were trained using technical orders, Air Force Instructions, and DoD directives. They were thoroughly familiar with requirements and objectives. Their overall approach was totally opposite to that of unit "A." Everyone was involved and understood the nuclear surety requirement for a safe and secure environment from which to launch a reliable weapon system. Certain tasks that did not require critical task certification were jointly supported, with security and maintenance personnel pulling together to provide security, open/close shelter doors, move trailers, etc. There was no shortage of adrenaline, teamwork, and cooperation!

The bottom line is that if you truly want to be a good leader tomorrow, you must begin today by learning proper use of technical orders and basic directives. Look for better ways to do your job and learn to always perform in a safe and secure manner. We need to maintain that cutting edge. ■

FLIGHTLINE SAFETY AWARD OF DISTINCTION

SrA Benjamin M. Kral
77 FS, 20 FW
Shaw AFB SC

"There I was spending my Sea Lion exercise time at the congested and dangerous End-of-Runway (EOR). On this day, I was performing de-arm procedures on both A-10 and F-16 aircraft. We were set up to de-arm the first of four F-16's when I noticed an A-10 weapons person walking in front of an F-16 wing tank heading straight for the intake. I immediately sprinted towards him, reached out and grabbed him just before he stepped in front of the intake. After I caught my breath and restarted my heart, I asked the individual "What were you doing?" He said he was looking for the external comm cord connection. I then briefed the individual on the location of the comm cord connection, the inherent danger areas of the F-16, and the importance of being fully aware of your surroundings."

WEAPONS SAFETY AWARD OF DISTINCTION

SrA Robert D. Brown
366 MXS, 366 WG
Mountain Home AFB ID

On 12 Sep 95, Airman Brown reported to work at 0630. After he completed his beginning-of-shift equipment and munitions inventory, he proceeded to the flightline. With munitions delivered and trailers positioned, he waited for the aircraft to taxi and launch. One by one they cleared the runway and headed for the range. Knowing that it would be approximately 2 hours before the aircraft returned, Airman Brown assisted co-workers with munitions deliveries and trailer positioning in support of other fighter units.

At approximately 1330, a weapons loader shouted that a practice bomb was smoking. Airman Brown immediately donned his protective mask and gloves, retrieved the bomb from under the aircraft, and submerged it in a container of water located on his trailer for emergency use. The practice bomb in question was a BDU-33 loaded with a CXU-3A/B spotting charge. This particular spotting charge contains titanium tetrachloride; and when this chemical is exposed to oxygen, it produces a toxic vapor which can be fatal if inhaled. The quick thinking and decisive action of Airman Brown averted a potential incident and reflects favorably upon his training and character.

GROUND SAFETY AWARD OF DISTINCTION

MSgt Timothy F. Pack
77 FS, 20 FW
Shaw AFB SC

When Sergeant Pack assumed the duties of unit safety representative, he meticulously began to build a solid, efficient safety program; His aggressive safety award nomination program resulted in three squadron individuals receiving ACC Safety Awards and nine squadron individuals receiving 20 FW Safety Awards. The AFOSH annual and spot inspection program he developed provided comprehensive safety standards. Research of previous QAFA reports and crosstells revealed personnel exposed to electrical hazards on the flightline required CPR training. No one in the squadron was qualified, so Sergeant Pack coordinated 100 percent of the required CPR qualification training. He identified and corrected solutions for numerous safety hazards: flammable materials stored in desks, spray paints and greases not stored in metal lockers, and possession of unauthorized wooden ladders. The 1995 Wing Safety annual inspection resulted in an overall "Excellent" and noted, "MSgt Pack has done an outstanding job in maintaining continuity between the squadron's functional areas." Sergeant Pack completely revised outdated Job Safety Training Guides to address individual needs for each area of the squadron. He reviewed previously identified hazards to ensure they were work center-specific. His efforts resulted in the Wing Safety annual inspection citing "High Praise" for the guide's thoroughness and complete effectiveness. Sergeant Pack's superior ground safety awareness program has resulted in safer aircraft, equipment, and facilities. The personnel of the 77 FS are better educated, trained, and experienced because of his vigilant attitude toward a safer workplace.

UNIT SAFETY AWARD OF DISTINCTION

Armament Systems Flight
388 MXS, 388 FW
Hill AFB UT

The maintenance professionals assigned to the Armament Systems Flight, in the 388th's Maintenance Squadron, have perfected the art of melding quality maintenance practices with a "Safety First" approach to doing business. The Armament Systems Flight's long-standing track record of success and accomplishments attest to this indisputable fact.

This unit enjoys a phenomenally low mishap rate. No reportable ground/weapons mishaps have occurred involving Armament Systems Flight personnel for the entire calendar year as well as FY 95, on or off duty! This negligible mishap rate contributed to a "Zero reportable explosive/missile mishap rate for the first time ever in the history of 12 AF during a fiscal year (FY 95). This is no small feat, due to the complexity of supporting the operational flying commitment of three F-16 fighter squadrons, including completing a multitude of aircraft conversions, transfers, and TDYs. Armament Shop personnel practice safety, everyday. While performing aircraft acceptance inspections, an Armament Systems Flight Technician identified and corrected TCTO deficiencies with a Centerline Pylon Wiring Harness, before a mishap occurred. These discrepancies had the potential of causing an uncommanded aircraft fuel tank jettison with an electrical flashover, resulting in a major fuel system fire, all of these catastrophes occurring in flight! One of the challenges facing the Armament Systems Flight is the ever-changing ops tempo associated with providing support for the largest F-16 LANTIRN wing in the world. This includes ongoing rotations of flight personnel and equipment to Operation SOUTHERN WATCH and the first-ever F-16 deployment to Kuwait. Throughout the year, the Armament Systems Flight has been routinely praised by the Wing's Safety staff upon conducting their spot inspections. This culminated in the Flight enjoying a "discrepancy-free" formal evaluation during the 388 FW 1995 Annual Safety Assessment and Inspection of the 388 MXS. Additionally, the Flight has been recognized by ACC for their development and implementation of a highly effective safety training and hazardous materials management program. The Flight's Occupational Safety and Hazard Briefing Guide and exceptional management of AF Form 55, Employee Safety and Health Records, were lauded by the HQ ACC Logistics and Operations Consultant and Assistance Team (LOCAT) during their recent visit to the 388 FW. A tangible by-product of the emphasis the Flight places on training resulted in an average CDC End of Course pass rate of 87 percent, the highest average score in ACC! The LOCAT labeled these safety briefing and training programs as "best seen to date," using the 388 FW's Armament Systems Flight as a model to set the standard of excellence for all other flights, squadrons, and units in the command.

Flight personnel live by a simple motto: "The Air Force cannot afford to sacrifice safety for the mission, because in so doing, the mission is ultimately sacrificed." This philosophy has successfully guided and sustained the Armament Systems Flight through numerous challenges and countless taskings.

AIRCREW SAFETY AWARD OF DISTINCTION

Maj Kevin R. Kirkpatrick,
Maj Robert L. Munson,
Capt Daniel Cahill,
1Lt Katherine Dunn,
SSgt Frank P. Morales,
SSgt Michael J. Hartman
55 OSS/45 RS, 55 WG
Offutt AFB NE

The flight was a scheduled OC-135 IP upgrade sortie consisting of air refueling on 105W/E, full stop taxi-back at Wright Patterson AFB with return to Offutt AFB for 2.5 hrs of transition. For takeoff, the IP was in the left seat, the upgrade IP (UIP) in the right, while the MC occupied the jump seat. The UIP performed a 30 flap, max mode takeoff which was normal through flap retract to 20 degrees. When flaps were retracted from 20 degrees to 0 degrees, the right hydraulic system lost all fluid leaving the inboard flaps at 15 and outboard flaps at 10 degrees. The fluid loss caused the co-pilot's instruments to "tumble," so the UIP immediately transferred aircraft control to the IP while the UIP activated the co-pilot's emergency flight instruments power switch. The IP flew the aircraft, limiting airspeed to flaps 20 placard speed (200 kts) and bank angle to 15 degrees for safety. Meanwhile the Nav canceled the air refueling and the MC referred to the flight manual and appropriate checklists. The MC obtained weather information from the Supervisor of Flying (SOF) and computed landing data to determine a safe landing site. The IP decided a 40 flap landing at Grand Forks was the safest and could be attained by using the emergency flap lowering system. The Nav requested routing direct to Grand Forks AFB while the MC filed their plan through base operations to facilitate ATC approval. While on the ILS approach for runway 35, the MC ran the emergency flap extension checklist. Outboards were extended to match the inboards at 15 and both switches were actuated to lower flaps simultaneously. The emergency flap extension was terminated when the outboards tracked to 20 and inboards failed to move. Due to this new situation, the crew requested a holding pattern on final. The Nav briefed the home station IP on the situation and a HOTEL conference was again convened. Meanwhile, the MC started computing 0 flap landing data. The crew then determined it was possible to land at 0 flaps with a 95% delayed braking factor at 160,000 lbs gross weight. It was suggested to electrically raise the outboard flaps to match the inboards; however, with outboard flaps at 20, the outboard ailerons were almost fully functional. Due to this and the effective reduction in drag, outboard flap retraction was rejected. The crew had no unusual "control feel" caused by the small flap split and felt confident since split flap approaches were regularly practiced in the simulator. Touchdown was smooth at 145 knots. At approximately 2,800 ft speed brakes/thrust reversers were initiated and brakes applied at 85 knots. Taxi speed was reached with approximately 4,000 ft remaining. The aircraft was gently turned off the runway using differential braking and stopped for towing.

The 64th Troop Carrier Squadron activated at Bowman Field, Kentucky, 12 December 1942; and, while flying the Douglas C-47, began training missions in airland, airdrop, as well as glider tow operations at Alliance Field, Nebraska, before moving first to Pope Field, North Carolina, and then to Baer Field, Indiana, in June 1943. The 64th deployed to the South Pacific in August 1943 via New Caledonia, the Vanuatu Islands, Henderson Field, Guadalcanal, Indonesia, and finally the Philippines, flying personnel, supplies and equipment to forward areas and evacuating casualties in its "Gooney Birds"; the unit was awarded the Distinguished Unit Citation. The unit deactivated in May 1946; then reactivated as the 64th Troop Carrier Squadron (Medium) at Olmstead Field, Pennsylvania, in April 1947. In June 1949 it transferred to Portland Municipal Airport, Oregon. The Squadron deployed to Ashiya, Japan, in April 1951 to fly C-46 Curtis "Commandos" during the Korean War, earning a Republic of Korea Presidential Unit Citation. In January 1953, the 64th returned to Portland, Oregon, and the Reserves flying C-119 "Flying Box Cars," before moving to Niagara Falls Municipal Airport in November of 1957. The 64th moved to O'Hare International Airport in March 1958 as part of the 928th Troop Carrier Group, later the 928th Airlift Wing. Redesignated the 64th Tactical Airlift Squadron in 1967, and then the 64th Airlift Squadron in 1992, the unit has flown VC-47s, C-119s, C-130As and the C-130H while receiving the Air Force Outstanding Unit Award with one Oak Leaf Cluster. Recent accomplishments of the 64th Airlift Squadron include providing combat airlift during Operation Desert Shield in the Middle East, humanitarian airlift to Kurdish refugees during Operation Provide Comfort and in the Balkans during Operation Provide Promise, and numerous other humanitarian efforts worldwide.

C-130H Hercules 87-9288
928th Airlift Wing 64th Airlift Squadron
O'Hare International Airport Illinois

For more information contact:

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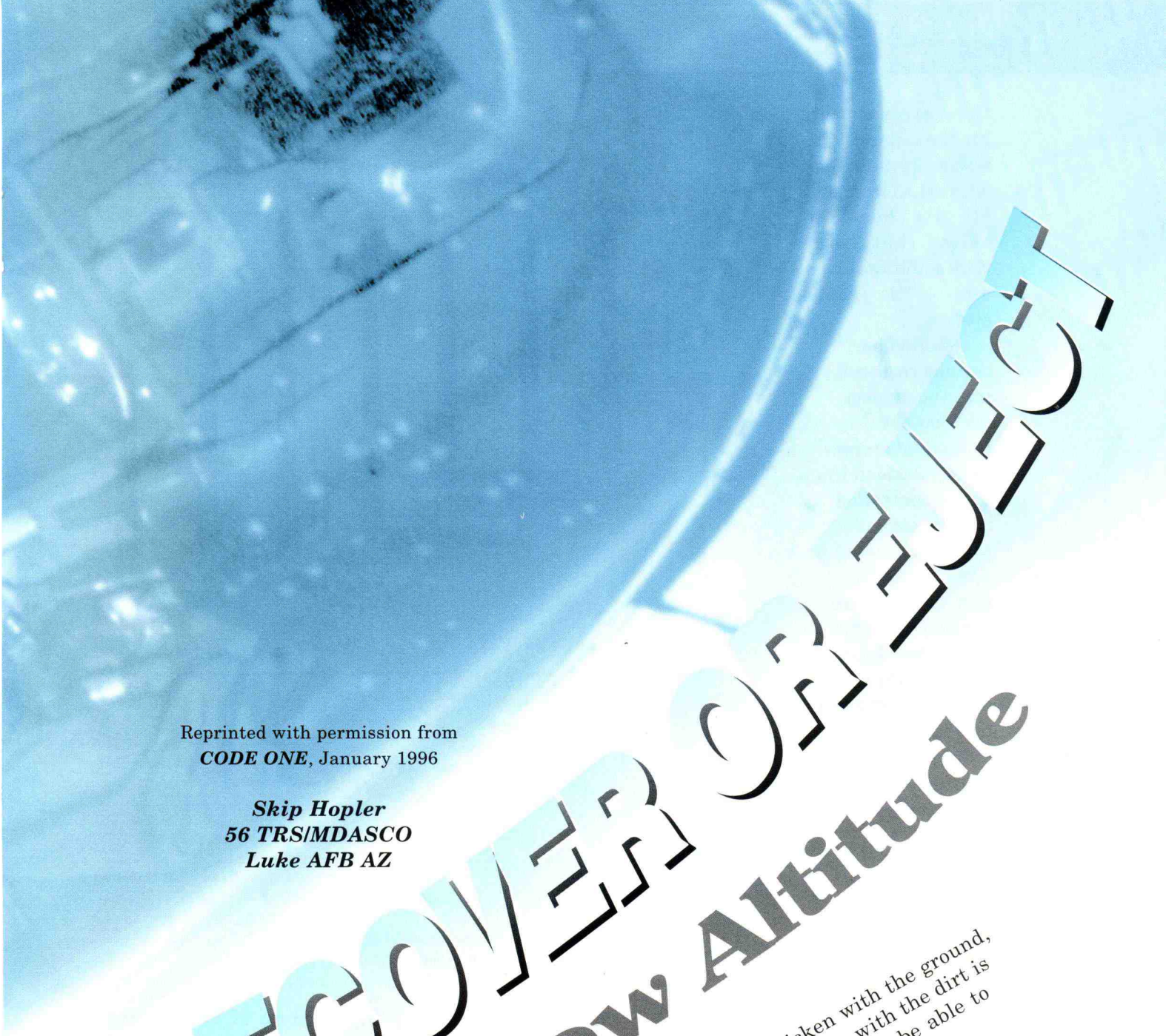

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CODE ONE, January 1996

Skip Hopler
56 TRS/MDASCO
Luke AFB AZ

RECOVER OR EJECT
at Low Altitude

An old fighter pilot adage says that when you play chicken with the ground, you lose only once. In the language of probability, the P_K with the dirt is almost always one. If you don't like those odds, you better be able to recognize circumstances in which the odds are against you.

Part of that recognition involves a thorough understanding of the minimum ejection altitude for out-of-control situations in the F-16. Until last year, the dash-1 set this minimum at 10,000 feet above-ground altitude. This limit, however, was widely viewed as overly conservative. Improvements in the aircraft and the ejection seat performance reinforced this view. As a result, some pilots were staying with

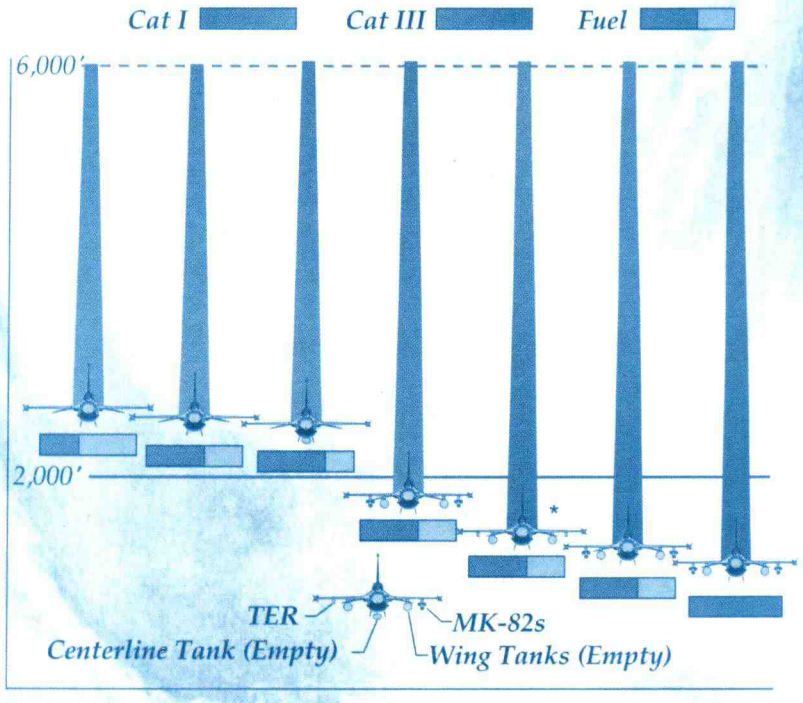
the aircraft in uncontrolled flight below 10,000 feet without a clear idea of just how far below that limit they could really go and still safely eject.

After some serious research into the subject, Air Combat Command stepped in and decided that the uncontrolled bailout altitude could be lowered to 6,000 feet. The new limit carries the warning that no further delay is possible. In other words, 6,000 feet is now the real no-kidding bailout altitude from uncontrolled flight.

The new minimum is based on aircraft and ejection seat performance. The recommended recovery from a dive airspeed for an out-of-control event is 200 knots, which happens to be the minimum initial airspeed plotted on the dive recovery charts in the dash-1. The charts show that a limiter pull-up will safely recover the aircraft with 6,000 feet of airspace, 200 knots of speed, and 90 degrees of dive. And the ejection seat performance charts in section 1 of the dash-1 show that the seat will save the pilot if ejection is initiated at 6,000 feet.

These numbers, however, don't tell the complete story.

Dive Recoveries



Cat I loads, recoveries can be made above 2,000 feet with a clean configuration or with an empty centerline tank. Wing tanks (empty) brought the altitude below 2,000 feet.
For all Cat III loads, recovery occurred below 2,000 feet.

** A Cat I load, but the switch is in Cat III to simulate just coming off target after weapon delivery.*

What, for example, should you do if your recovery from a deep stall begins right at 6,000 feet? The initial flight conditions after a recovery also warrant a closer look. Typically, the airspeed at the point when a deep stall is broken is less than 150 knots, not the 200 knots specified in the charts. Although the aircraft is back in controlled flight, it is very slow. Can you still recover the aircraft if you allow the airspeed to increase to 200 knots before initiating a limiter pull-up?

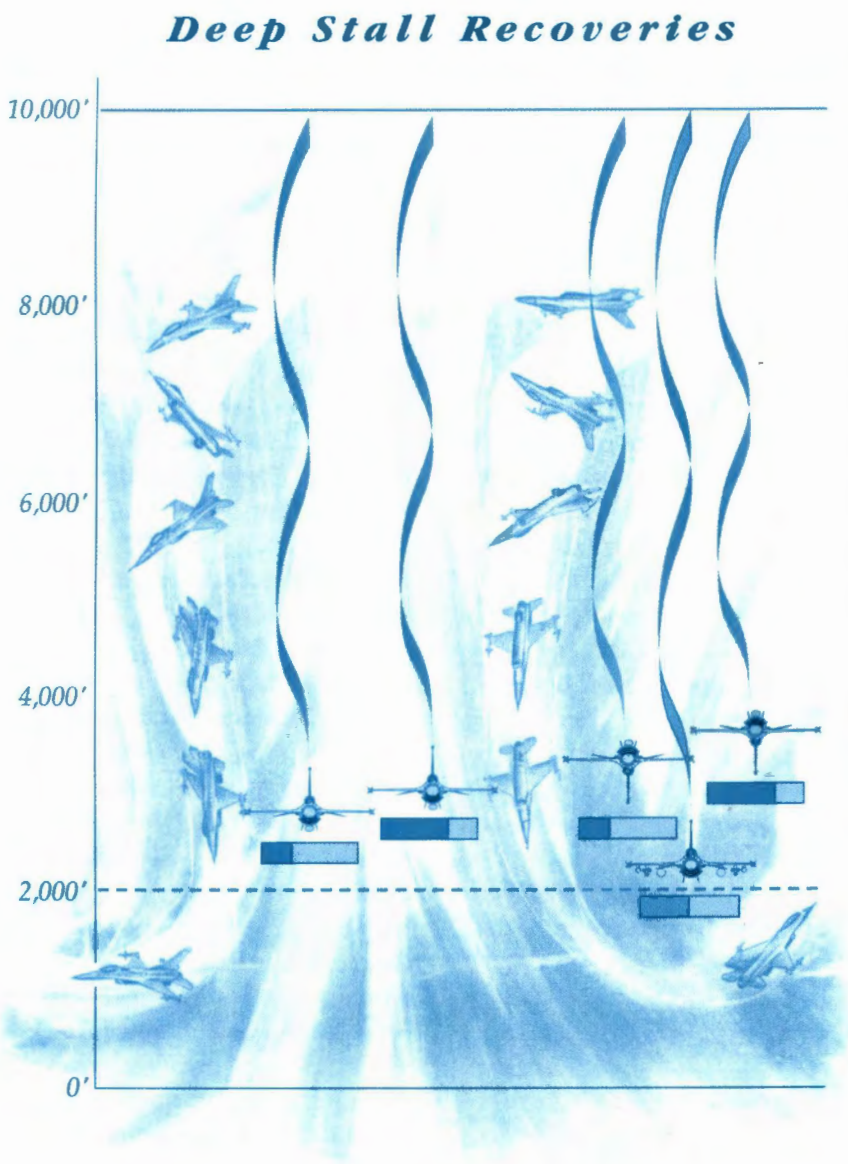
Since none of the charts contain these initial conditions, we performed some simulator runs for Air Education Training Command headquarters to gather some empirical data for an answer.

Some disclaimers are in order, though. Our simulator runs do not constitute official test data. They involve several old fighter pilots putting themselves in various out-of-control situations at low altitudes to see what the capabilities of

the aircraft and pilot are for a realistic recovery. The algorithms in the simulator are not questioned. Only someone a lot smarter than us can provide that kind of validation data. Finally, the pilots who performed the runs are former F-16 instructors who now teach in the simulator. Their reactions may not be typical.

Our unofficial tests were flown in an F-16C Block 30 operational flight trainer. All altitudes are both AGL and mean sea level. Higher initial altitudes would result in more altitude required for the recovery. In other words, these conditions represent the best-case examples with respect to air density . We looked at two dive recovery profiles at 100 knots airspeed and 6,000 feet and two deep stall recoveries at 10,000 feet. All four of the episodes were run under a variety of aircraft loadings. The deep stall recovery profiles were performed to add a little more realism to the runs. We postulated that, at 10,000 feet, we could break the stall before passing through 6,000 feet and then accelerate to 200 knots, just as we would in the pure dive recovery episodes. In other words, the recovery distance from 10,000 feet covers both pitch rocking and coming out of the ensuing dive.

The accompanying chart shows that the airplane in a Category I configuration can be recovered from both dive and deep stall conditions. Cat I recoveries from the deep stall conditions tend to be at higher altitudes than from the pure dive conditions for two reasons. First, the airspeed at the beginning of the recovery phase is usually slightly higher than the 100 knots used in the initial conditions for the pure dive. Second, the dive angle upon recovery from the deep stall is generally 15 to 25 degrees shallower than the 90 degree initial conditions for the pure dive episodes. The deep stall episodes for Cat I configurations require real quick decisions to stay with



Cat I recoveries, from both upright and inverted initial conditions, tend to be higher from deep stall initial conditions because the airspeed at the start of the recovery phase was higher and the dive angle was shallower.

Cat III recovery from upright initial conditions with 5,000 pounds of fuel is possible. However, the same recovery with 6,000 pounds of fuel takes too many pitch rocks. Cat III recoveries from inverted initial conditions take too many pitch rocks as well.

the aircraft or to eject because the average altitude at which the stall is broken was between 5,700 and 6,000 feet. Important: our tests do not compensate for any altimeter lag that may be present in real-world situations.

Recovery altitudes for Cat III configurations are significantly below those for Cat I. In fact, for all the inverted Cat III deep stalls, recovery is not possible before hitting the ground. Too many pitch rocks are needed to recover the airplane. The last episode, Cat III/deep stall, is a wake-up call. A recovery is possible with 5,000 pounds of fuel, upright. However, recovery takes too many pitch rocks at 6,000 pounds of fuel, upright. Inverted initial conditions require too many pitch rocks at both weights.

You have to assess the situation very quickly anytime you find yourself going out of control below 10,000 feet. Under the previous limit, the response was easy: out of control below 10,000 — eject. If the aircraft recovered right at 10,000 feet, you had plenty of airspace to recover safely. In either case, you had a safety margin for variables, such as altimeter error, momentary disorientation delay, or hesitations. With 6,000 feet as the decision altitude, you must be ready to continue the recovery or to eject without delay. If you elect to continue the recovery, you must use a limiter pull and assess intently the altitude available during the pullout. The limiter's advantage is that, with full aft stick, every pullout is at the maximum allowable angle of attack. Since we did not try any recoveries starting at 150 knots, we cannot draw any specific data points. But, the dash-1 says you can use 150 knots as an initial recovery speed at low altitude. We accelerated to 200 knots because that is a more familiar and more commonly learned recovery speed for F-16 pilots.

From deep stall initial conditions, Cat I aircraft recover above 2,000 feet. Cat III may not. If the aircraft is Cat I and the stall breaks right at or above 6,000 feet, you can recover above 2,000 feet if the recovery is started with around 150 knots and 60 to 70 degrees of dive. However, if you find yourself steeper and slower than this at the start of the recovery, you will go below 2,000 feet. The results of our heavy upright and both of the inverted deep stall recovery attempts deserve emphasis — none recovered in the available altitude. If an out-of-control situation occurs below 10,000 feet in a Cat III aircraft and you elect to try to recover from it, you must watch the recovery progression very closely. In addition to the increased altitude loss caused by the Cat III limiter and the heavier gross weight, the increased number of pitch rocks required is a significant factor in the ability to recover the aircraft safely.

To reemphasize a point, our test conditions were optimum. Actual conditions may not be. Furthermore, the pilots in our test were always ready for the event. They had practiced the recovery before the trials, and they were primed to look at the altimeter. The fact that the simulator was bolted to the floor, instead of hurtling towards the ground, removed a significant amount of stress from the scenario as well. Without these advantages, the recovery altitude would have almost certainly been lower. Our initial altitude was always 6,000 feet MSL and AGL. At higher pressure altitudes (like over high terrain), starting at 6,000 feet AGL would result in lower pullout altitudes. The F-16 test force at Edwards AFB Flight Test Center will tell you that recoveries above 25,000 feet MSL always take about 6,000 feet.

The lessons are clear. Maneuvering closer to the ground than our normal 10,000-foot floor requires heightened situation awareness and a clear understanding of out-of-control and recovery characteristics of the F-16. Most importantly, since you can't practice recoveries at low altitude, you need to be prepared to act quickly and intelligently the first time. Check your altimeter! If you have any doubt about your ability to recover — eject. (You won't get to repeat the maneuver.) ■

Editor's note:

Skip Hopler, a former F-16 pilot, is chief civilian instructor for F-16 Block 30 aircraft at Luke AFB, Arizona

ACColades

QUESTIONS OR COMMENTS CONCERNING DATA ON THIS PAGE SHOULD BE ADDRESSED TO HQ ACC/SEF, DSN: 574-7031

	TOTAL			ACC			ANG			AFR		
	FEB	THRU FEB		FEB	THRU FEB		FEB	THRU FEB		FEB	THRU FEB	
		FY96	FY95		FY96	FY95		FY96	FY95		FY96	FY95
CLASS A MISHAPS	1	4	3	1	2	2	0	2	1	0	0	0
AIRCREW FATALITIES	0	0	0	0	0	0	0	0	0	0	0	0
* IN THE ENVELOPE EJECTIONS	0	2/0	4/0	0	1/0	3/0	0	1/0	1/0	0	0	0
* OUT OF ENVELOPE EJECTIONS	0	1/0	0	0	0	0	0	1/0	0	0	0	0

* (SUCCESSFUL/UNSUCCESSFUL)

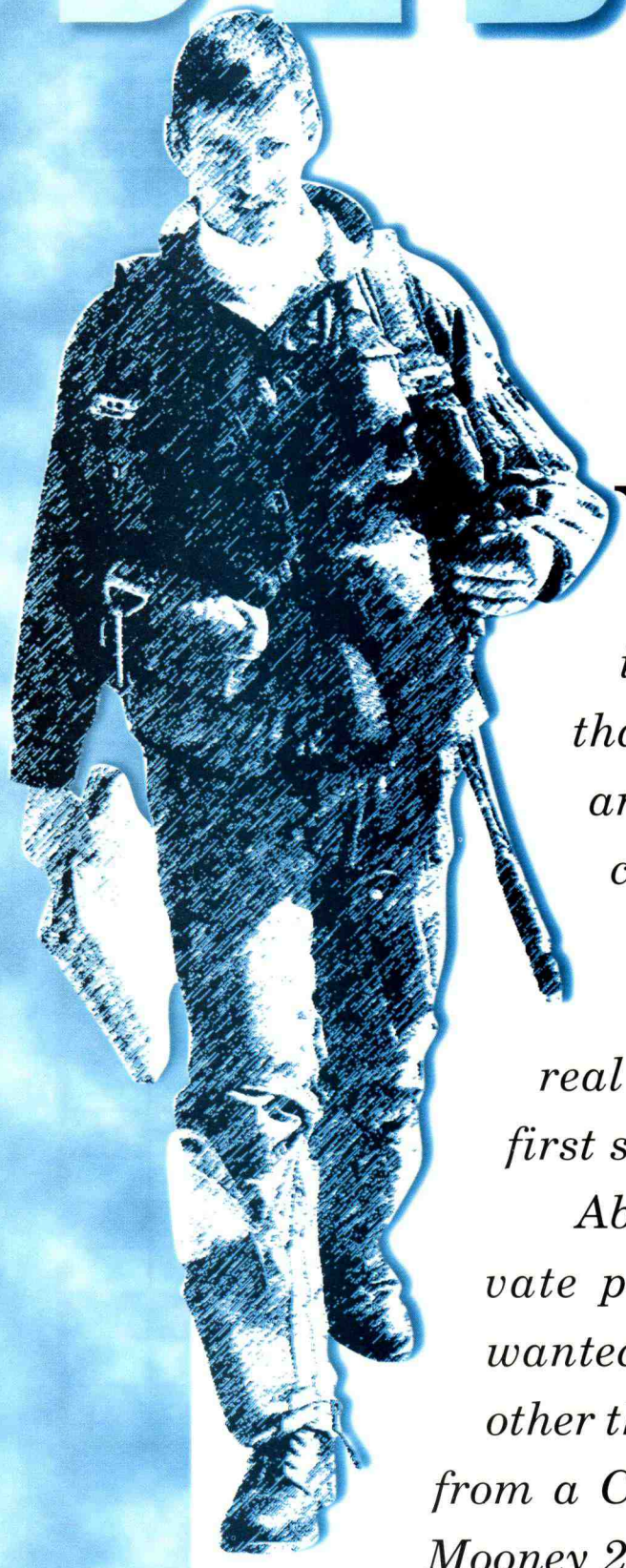
CLASS A MISHAP COMPARISON RATE

(CUMULATIVE RATE BASED ON ACCIDENTS PER 100,000 HOURS FLYING)

ACC	FY 95	2.1	1.1	0.7	0.6	0.9	1.6	1.6	1.7	1.6	1.6	2.3	2.0
	FY 96	0	1.0	0.7	0.6	0.9							
8 AF	FY 95	0	0	0	0	1.8	1.5	1.3	1.1	1.0	0.9	1.6	1.5
	FY 96	0	0	0	0	0							
9 AF	FY 95	0	0	0	0	0	1.2	1.0	0.9	0.8	0.7	1.9	1.8
	FY 96	0	0	0	0	0							
12 AF	FY 95	6.5	3.3	2.3	1.7	1.4	1.2	2.0	2.6	2.4	2.1	2.6	2.4
	FY 96	0	2.9	2.0	1.5	2.9							
DRU	FY 95	0	0	0	0	0	5.3	3.7	3.5	3.3	5.6	5.6	4.9
	FY 96	0	0	0	0	0							
ANG	FY 95	0	0	0	0	0.8	0.7	0.6	1.0	1.4	1.6	1.5	1.4
	FY 96	0	1.9	1.3	2.0	1.8							
AFR	FY 95	0	0	0	0	0	0	0	1.3	1.2	1.1	1.0	0.9
	FY 96	0	0	0	0	0							
TOTAL	FY 95	1.3	0.7	0.4	0.3	0.8	1.1	1.1	1.5	1.4	1.5	1.9	1.8
	FY 96	0	1.2	0.8	0.9	1.1							
MONTH		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP

(BASED ON PROGRAMED HOURS FLOWN)

DEBRIEF



THE FLY-BY

Anonymous

Youthful naiveté can be hazardous on its own, but couple it with any of the many other things that can plague newly licensed pilots and the potential for a mishap increases exponentially. It's easy to be lulled into a false sense of security and happy ignorance that no real emergency will occur when you first start flying.

About a week after earning my private pilot's certificate, I immediately wanted to get checked out in anything other than a fixed gear aircraft. I jumped from a Cessna 182, to a Cessna 210, to a Mooney 201.

The Mooney became my favorite. This 20 series aircraft was hot, tough to slow down, and could be tricky to land. It was challenging and I loved it. Shortly after my initial checkout in the Mooney, I planned my first cross-country in the aircraft.

The morning of the trip I filed a flight plan, and the Mooney and I were ready to go. The cross-country comprised a relatively short trip over familiar territory with beautiful weather for the entire flight. Glendale Municipal Airport, my home base, was about 20 miles northwest of Phoenix, Arizona. My destination was McCarren Field in Las Vegas, Nevada. I took off with everything I needed; charts, navigation log, logbook, flight computer, full tanks, and a happy, smiling face.

As I entered the TCA at McCarren Field everything was as it should be — busy but normal. I set up my radios and was talking to approach control. Approach cleared me for the approach and turned me over to the control tower. I was feeling rather proud of the radio work just accomplished and busied myself with setting up the airplane for landing. As I turned onto final approach and slowed the airspeed, I lowered the retractable landing gear, but noticed there wasn't a gear down light indication for my left main landing gear.

At this point my mind took on a strange state of clarity. What would I do if the gear really wasn't down? Try manually cranking the gear down? Pull the power off and belly the airplane in? Land anyway and try to stave off the crash as long as possible? I cleared the lump out of my throat and asked the tower to take a look at my landing gear. I explained that I wasn't getting a gear down light and didn't know if it was a burned out bulb or the gear really wasn't down. Tower came back with a reply to do a fly-by so they could take a look at it. A FLY-BY? WHAT WAS A FLY-BY? Was I supposed to know how to do this?

I applied power and leveled off about 300 feet above the runway. The tower is located mid-field and I wondered how they could see my gear, so I gently banked the aircraft and headed for the tower. Afterall, I wanted to make sure they could see the gear! It was a scene right out of the movie "Airplane." I flew so close to the tower I could see two men standing in front of the window. Both had binoculars, but one had dropped his and was running for the stairwell. The second controller suddenly dropped the binoculars from his face to his side as his eyes and mouth gaped wide open. I believe he ducked down as I turned away from the tower and got back into the flight pattern. I waited a long time for an answer. Finally, one of them spoke. "Your gear is down and appears locked." "Thanks," I said and was cleared to land. Before the tower controller switched me to ground control his parting words were, "have a nice day and please don't come back."

Then, I didn't understand how dangerous or what a precarious position I had put myself and the tower controllers in. The incident could have easily been reported and may have resulted in a suspension for a stunt like this. God forgives green pilots, and so do tower controllers (however, reluctantly and with a few expletives and horizontal shakes of the head).

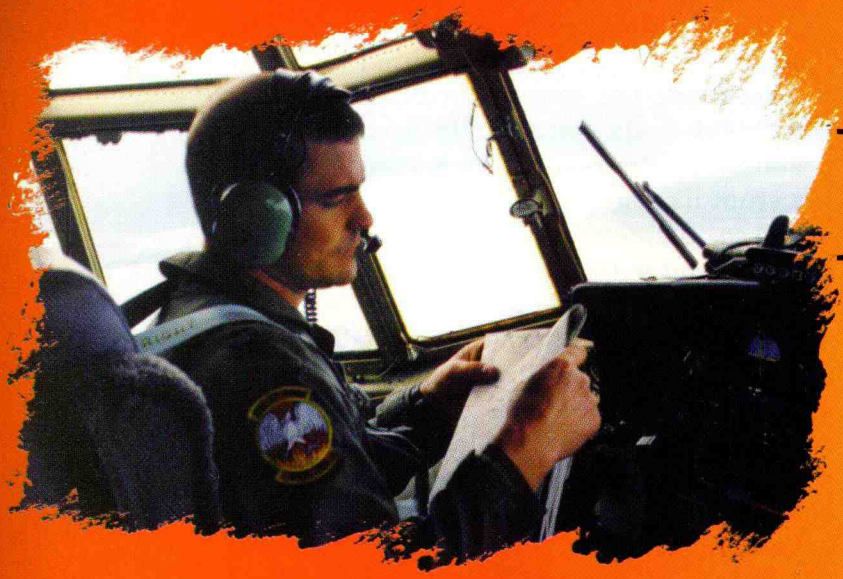
Through most of my early pilot days I felt invulnerable, but blissful ignorance is no excuse and it goes back to attitude. In my eagerness to fly a complex airplane, I neglected to become familiar with the aircraft and emergency procedures in that model. Looking back on this incident there are many things I should have done that would have made this landing less eventful.

The hard lesson learned is to be familiar with all aspects of the airplane you're flying and go through the manual. Know before you're in the seat the correct procedures to follow. And, as for you CFI's, don't assume your students know what a fly-by is. It can be quite traumatic to find out the way I did.

It is from the mistakes of others that we can learn what to avoid. Instead of merely knowing what to do, knowing what not to do can be of equal importance. It's certainly valuable to learn from your own mistakes, but it's less time consuming and costly if you learn from someone else's. ■

SAFE Chicago

Capt Tony DeAngelo
928 AW/SE
O'Hare IAP IL



Former President Ronald Reagan once said, "History is a river that may take us as it will. But, we have the power to navigate, to choose direction and make our passage together." The 64th Airlift Squadron, based at O'Hare International Airport Air Reserve Station and the oldest component of the 928th Airlift Wing, has navigated successfully through a 49-year history with no flight mishaps.

So, where does our success story all begin?

The 64th served in World War II and following deactivation in May of 1946 reactivated as the 64th Troop Carrier Squadron, equipped with C-46's at Olmstead Field, Pennsylvania, on April 5, 1947. Our unit was later moved to Portland (Oregon) Municipal Airport and on April 1, 1951, was called to active duty during the Korean Conflict and re-equipped with C-119's. Following Korea, the squadron relocated to O'Hare. The 64th was once again recalled to active duty October 28, 1962, for 32 days at home station during the

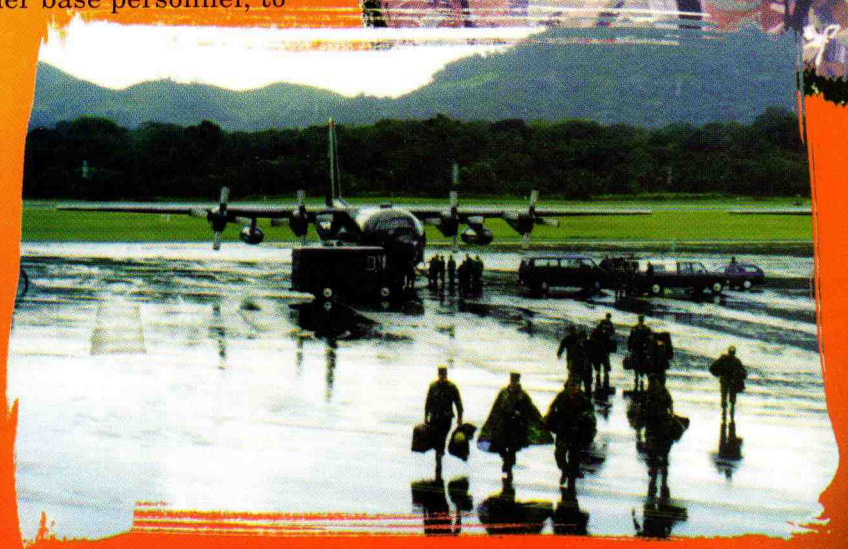
TY Style

Ms Ellen Eaton
928 AW/PA
O'Hare IAP IL

Cuban Missile Crisis.

In July 1967, our unit was redesignated as the 64th Tactical Airlift Squadron and converted to C-130A's in September 1970 and to C-130H's in January 1988. We were redesignated the 64th Airlift Squadron on March 2, 1992.

During the Vietnam Conflict, between 1964 and 1973, much of our unit's mission support was devoted to paratroop training at Fort Benning, Georgia. In 1968 alone, the 64th dropped more than 650 paratroopers. We also sent humanitarian support to Northern California in 1965 to support flood relief and supported relief efforts on the Gulf Coast after Hurricane Betsy with Operation "Heavens to Betsy." Our unit was on hand, with other base personnel, to welcome back the first area POW in 1973 who landed here en route to Duluth, Minnesota.



In 1979 we participated in the International Air Tattoo at RAF Greenham Common, United Kingdom, Europe's biggest military flying display. That year, most of the world paid homage to the venerable Lockheed C-130 to celebrate its 25th anniversary.

Although our unit has always been active in supporting the Air Force

mission, since 1991, we've seen our Ops Temp increase with even more participation in real world contingencies. We provided aircraft and personnel to support Operation Desert Shield in August and September 1991. In 1992 through 1993, we supported Operation Restore Hope. Also in 1993, we participated in Operation Provide Promise. In 1995, we supported Vigil Nomad in Albania and the operations in Haiti. We will be called upon to support the peace-keeping efforts in Bosnia for NATO's Operation Joint Endeavor through March and April of this year.

In addition to providing airlift to the many real world contingincies, we've kept a full load of continuing missions and exercises such as Coronet Oak, a deployment to Panama in support of our nation's interests in Central and South America. We have participated in Coronet Oak since the Air Force Reserve and Air National Guard took on the mission in 1977.

The 64th has also furnished humanitarian relief on the home front during the devastation of the Mississippi floods and Hurricane Andrew in Florida. Most recently, under the auspices of the Denton Amendment, which allows for humanitarian airlift of supplies on a space available basis, we flew several missions to the Dominican Republic.

Throughout all of these real-world contingencies, exercises and ongoing missions, we continued with our normal schedule of aircrew training and proficiency flights, working on an every day basis out of the world's busiest airport, without a single flight mishap.

Traditionally, reservists serve 1 weekend each month, and 2 weeks of active duty per year. Members of the 64 AS spend an average of 100 days per year, fulfilling mission and proficiency requirements. Benjamin Franklin is quoted as saying "Well done is better than well said," or as we express it in our wing's motto, "Deeds, not words." Our unit's proud history is testament to our willingness to get the job done without a lot of fanfare.

How can a unit fly almost 50 years and more than 170,000 hours without a Class A or B mishap? As you have seen from our unit's history, we don't fly a powder puff mission. You can't say it has been all luck, because even luck runs out eventually. Our unit has successfully flown without a major aircraft mishap because of a synergistic combination of a sound safety attitude, highly professional aircrews, excellent maintenance and support troops, and continuous commander emphasis on safe mission accomplishment.

From the moment new members arrive at the unit, we tell them of our unparalleled flight safety record. Most express amazement that a unit flying such a difficult mission has done so without losing an aircraft to a mishap. After spending time

with the unit, the reasons for the record become apparent. The safety record and doing things right and safely the first time completely pervade the thinking of our people. Because this attitude is so common among our unit members, we are close to establishing flight safety as a value, not merely a priority.

What do we mean by "value" versus "priority"? You've probably heard commanders say time and time again, "safety is paramount" or "safety is the highest priority." With all due respect, the mission is the highest priority; getting the mission accomplished without loss of life or valuable resources is paramount! So, what is a value? It is a deeply held belief or principle that does not change under challenging situations, unlike a priority which can and does. Here is an illustration I've borrowed from E. Scott Geller, a behavioral scientist and safety expert who writes for such publications as the American Society of Safety Engineer's *Professional Safety.*

When you get up every morning before going to work, you have a set of priorities before you leave your home: shaving, showering, eating breakfast, reading the paper, or maybe even watching a little television. What happens when you hit the snooze button on your alarm and you don't get up as early as usual? The morning paper or TV aren't important, so you just blow them off. Let's say you had a real bad night and you hit the snooze button three or four times. Now you don't have time for breakfast. Are you getting the picture? The later you sleep, the less you can do of your morning priorities. However, there is one of your priorities that you always do, no matter how late you get up. You always get dressed or, in the case of the military, put on a uniform. Why? Being dressed is a VALUE in our society. We just don't go around naked! If getting dressed weren't a value, it would just be one of the priorities you'd skip when you got behind the power curve in going to work. You'd just show up at work in your pajamas, skivvies, or birthday suit.

Imagine what would it be like in the Air Force if safety was a value for everyone. EVERYONE would follow tech orders, checklists, operating procedures, safety rules, EVERY TIME! We simply could not violate these principles because they would be so deeply ingrained into us. Mishaps would all but disappear.

Imagine what would it be like in the Air Force if safety was a value for everyone. EVERYONE would follow tech orders, checklists, operating procedures, safety rules, EVERY TIME! We simply could not violate these principles because they would be so deeply ingrained into us. Mishaps would all but disappear. You would never see maintenance personnel not using the tech order to fix an airplane in order to meet a takeoff for an important mission. A pilot would never perform unauthorized acrobatics or an impromptu flyby at his hometown. We're not saying our unit has reached this epitome of safety, but we are getting there. Our safety record is almost always foremost in our minds, and we want to keep it!

To go along with our safety attitude, we have some of the most experienced, professional aircrews in the Air Force. Since most of our pilots fly for a major

airline, they bring the airline experience and knowledge to our squadron, along with having thousands of hours in flying for the Air Force. (Remember, it was the major airlines who developed Crew Resource Management!) We use this additional experience in CRM to continually strive to keep the communication lines open among each other while flying. Of all we do, this is one of the most important factors in safe flying, because communication breakdowns are the most critical cause of human factor mishaps.

Our pilots haven't been by themselves all these years. The 64th has some of the best navigators, flight engineers, and loadmasters in the Air Force. Not only do they have a high level of experience, they too bring a fresh perspective to flying because most have a full-time profession unrelated to flying. Just like the Air Force went to the civilian sector for Total Quality Management, we use these crewmembers' ideas and experiences from their everyday life to enhance our flying mission. Because of this fresh input, we believe we can do our job better and safer.

We've talked about the flying mission and the crewmembers, but not the other valuable team members who have greatly contributed to our flight safety record. The same attributes of professionalism and varied experience we have in our crewmembers is very evident in our maintenance force. Without first class aircraft maintenance personnel, highly experienced crew chiefs, systems specialists, and all of the support organizations, our flight safety record could not exist. Because we are a Reserve unit, we have a very stable maintenance force. Most reserve maintenance squadrons have Technical and Master Sergeants turning wrenches on our aircraft. Because of this exceptionally experienced maintenance team, our aircraft are extraordinarily clean and free of mechanical discrepancies.

We would be remiss if we failed to mention the outstanding support the flying mission receives from all of our units on base. Unfortunately, time and space prohibit us from detailing the contributions of each division. Suffice it to say, every member of our wing is an important part of our flying mission and our unequaled flight safety record.

Our unit has also been blessed with commanders who have greatly supported our safety programs both in words and actions. Colonel Patrick Freeman, Group Commander from October 1969 to June 1970 stated: "I think it all started with Colonel Richard George, the first 928th Group Commander. He provided the leadership and the motivation. Do it right, do it safe, or get out! Most important was our policy that every man, regardless of rank, had to demonstrate proficiency, or he didn't fly." These attitudes live on today. Colonel Pete Sullivan, our current wing commander, puts it this way: "Any wing commander must be vitally interested in safety, but as the most recent commander, I feel a special responsibility to all those that have contributed over the past 49 years; a responsibility to continue this tradition and safety value system, for as long as I am responsible for it." Because of this outstanding leadership, aircraft commanders know if they make a decision and err to the conservative side, they will not be second guessed. Not the type to just sit behind their desks, our commanders practice MBWA - Management By Walking Around. This kind of active management style does wonders for morale and gives the commanders a much better perspective of their charges' working conditions. Because the commanders are more visible, our people feel they are also more approachable about potential problems. This all adds up to better command decisions and ultimately — safer flying.

We've all learned in CRM training about the concept of synergy where the whole is greater than the sum of the parts. Our parts: a winning safety attitude, professional aircrews, outstanding maintenance and support personnel, along with our commanders' dedication to safety have led to the synergy of the longest mishap-free flying record in the entire Air Force! ■


Fleagle
WHEN ARE YOU LEAVING, PEDO?
1600 TOMORROW.
FLIGHT LINE
SEEMS LIKE TDYs ARE GETTING LONGER AND LONGER.
YEP, BUT THAT'S ALL PART OF TH' GAME IN THIS FAST PACED WORLD. WE JUST HAVE TO LEARN TO LIVE AND WORK WITH IT.
BY TH' WAY, WHEN IS FLEAGLE DUE IN?
ANY MINUTE NOW.
HOW DO YOU KNOW?
TH' RENTAL TRUCK.
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RENTAL TRUCK?
YEP. EACH TIME HE DRAWS A LONG TDY...
HE HAS ONE WAITING FOR HIM TO HAUL HOME HIS DIRTY LAUNDRY.
RICK'S
RENTAL SERVICE
"WE HAUL ALL"
HARDISON