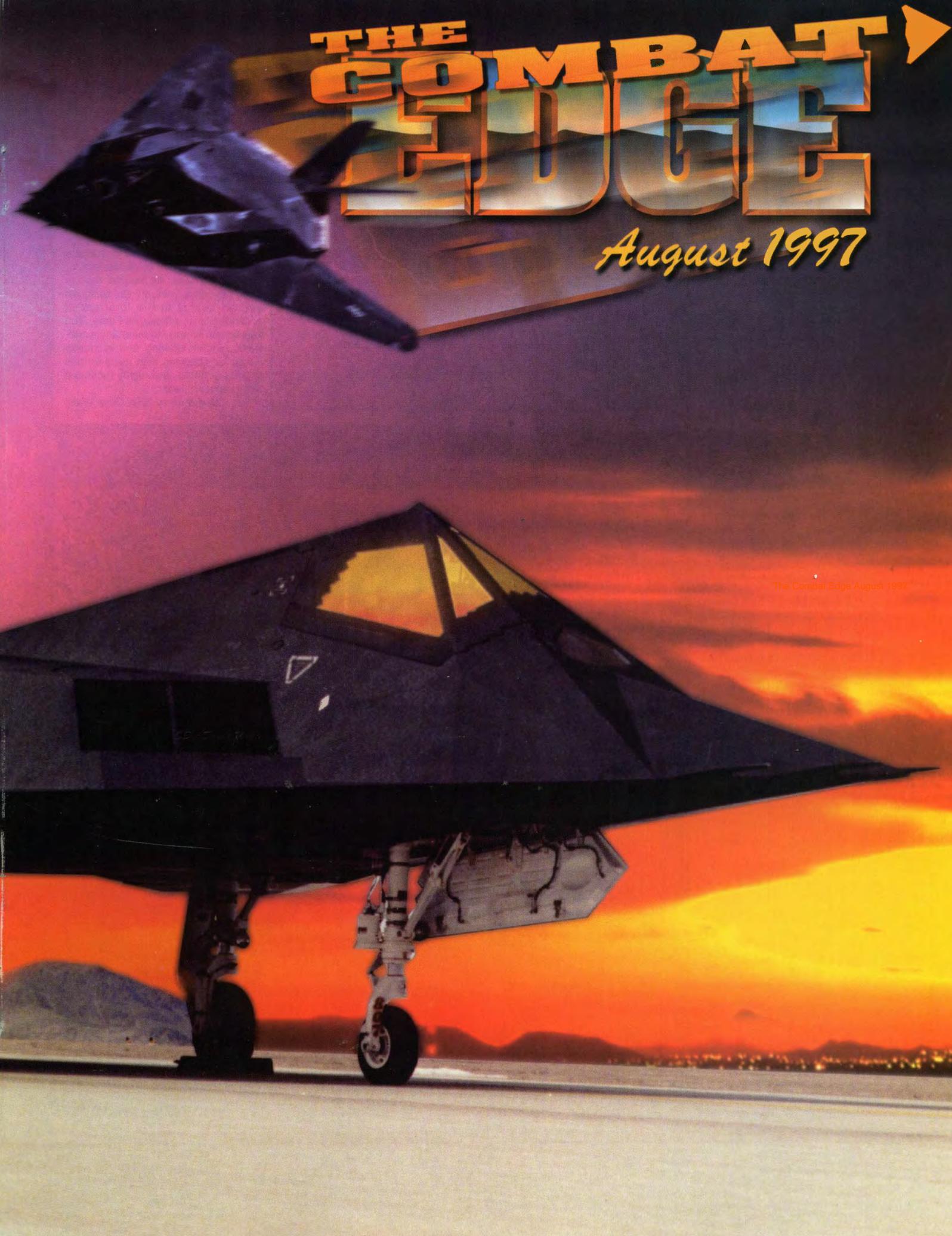


THE COMBAT EDGE

August 1997

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The Combat Edge

AIR COMBAT COMMAND
SAFETY MAGAZINE

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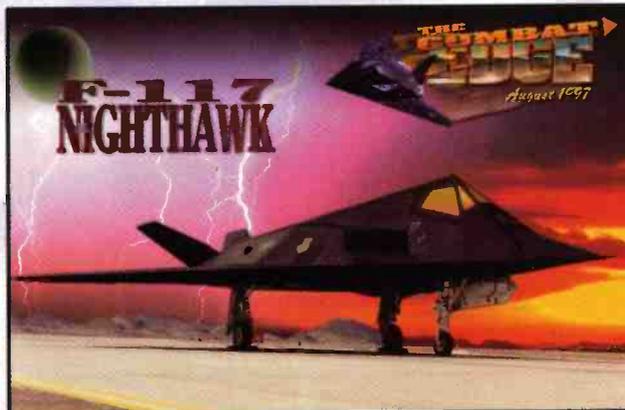
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About the cover: This is an artist's concept of an F-117 Nighthawk in a surreal, stormy and unpredictable setting, much the way the artist sees the future. Through partnership of precision guided munitions with radar-evading stealth technology, the Nighthawk has revolutionized the conduct of air warfare for decades to come. As the 21st century begins to unfold, this uniquely designed aircraft stands at the forefront of America's United States Air Force. The Nighthawk is ready to meet any worldwide mission tasking and is ideally suited for attacking high value targets located in dense and highly defended threat environments.

Illustration by SSgt Dave White

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HQ ACC/SEF
Langley AFB VA

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Accent on Safety

HOT! You betch'a! We're talkin' sun drenchin', sweat pourin', cotton dry in the mouth AFRICA HOT! This is summer — Dog Days and heat lightning flashin' at dusk! You know'em, days so hot you pour a cold drink on ice, not so's you can drink it, but just so you can hold it to your head. It's August, named after Caesar Augustus, adopted son of Julius and first Roman emperor to wear the crown. So what's the connection? What's some old Roman got to do with 135 degrees of steaming, rippling heat oozing out'a the flightline?

Well, I'll tell you about something I learned on my last assignment as a NATO staff (Gag!) officer in the Mediterranean. For more than two thousand years, since even before our old friend Augustus, those hot and humid dog days of summer have meant a time where people escape the madness of the heat by breaking from their normal work routine. They don't enslave themselves to the clock. They recognize that, sure as they were born, there'll be another hot day tomorrow; so there's no point in dying today. The custom of the Mediterranean is to make August the month of holiday — take a vacation, work half a day, take a nap when it's hot, whatever — just slow the pace and don't let the madness seize you. See, that's another old Roman thing ... “dog days.” Those were the days when bright Sirius, the “dog star,” rose together with the sun, adding to its heat, which supposedly drove dogs (and people) to madness. That NATO ally's Air Force I worked with went so far as to make August the one month in the year when all promotions were made, all PCS's were done, and most everyone went on leave. Back on the flightline, they did the absolute minimum basic flying to keep the tires from melting on the pavement. No exercises, no evals, no last minute taskings, no intense training, no jumping through a tail orifice just to get a sortie airborne today. Man, we Americans used to think they were crazy! Well,...

I got to tell ya' ... after last summer, I began to wonder who's crazy. Best as I remember, that NATO Air Force never lost a jet in August. Last summer, we in ACC and our gained units, filled the pitot booms of five aircraft with dirt and buried near a dozen of our comrades and some innocent victims. Look, guys and gals, it's as plain as can be — SUMMER IS A THREAT! Don't let yourself be rushed; think before you do. Use that ORM process to keep a'hold of your risks. If it ain't workin', STOP! Barring cataclysm, there'll be plenty of daylight tomorrow to do it right.

Last word, then I'll let you get to our great articles (and maybe a fresh cup of ice on the forehead). Aviators hear it all the time, the word is “compartmentalization.” It means locking the excess baggage in the trunk when you need to focus your attention on the job at hand. Aviano's Major “Moses” Burgess gives us a great perspective that, with a little tweak, applies to all of us (see page 16). In six months of national headlines, there's been darn little press on the folks wearing AF Blue doin' their #1 job. Seems like just about everything but has made the printer's ink. Let me make it plain — I know it, you know it, “they” know it. All the press aside, we fly and fight — and we do it better than anybody in the world. [Read that again, slowly!] And that's the real “Case Closed.” ■

Stay cool, stay focused, stay #1!
Colonel Turk Marshall
Chief of Safety

The Decision to Abort

*Lt Col Ezequiel Parrilla, Jr.
HQ ACC/SEF
Langley AFB VA*



The decision to abort at high speed is one that really needs to start at ground speed zero... before you strap the jet to your back.

During FY 96 and 97, the Air Force experienced 4 Class A, 3 Class B, and 35 Class C mishaps during the takeoff portion of the mission. (Note: As this article was about to go to press, we got word of yet another high speed abort Class B mishap.) These are rather excessive numbers when you consider that this phase represents only a small portion of a sortie. However, initial takeoff presents one of the most dangerous phases of a mission when you take into account that this is the first time both machine and crew are "put to the test." The aircraft is put through the stress of full engine power with afterburning engine thrust significantly greater than normal power levels and fuel flows can reach over 1,000 pounds per minute per engine. It is also the first time you are getting enough lifties jumping on the wing to turn it from a hunk of metal/composites with carbon based units inside to a flying machine. In addition to all the stress created from within the machinery itself, you now also have to contend with aerodynamic forces. Furthermore, things are no longer taking place at ground speed zero, so the carbon-based unit needs to absorb inputs and make decisions a lot faster than it had to when the machine was just sitting there.

There are many problems that can happen

in the seconds it will take you to be free from the bonds of earth which require an almost instantaneous response. You can break them down into internal problems (aircraft) and external problems (weather, birds, other jets, etc.). The internal problems you can expect are generally the same regardless of what runway you operate from (thrust loss, fire, etc.). However, your reaction may be different depending on your current situation (i.e., runway, weather, etc.). You need to decide ahead of time which caution lights or malfunctions you would abort for and when. Figure out what lights/malfunctions are more of a nuisance and which ones are telling you that you are about to have an extremely bad day.

One technique some use is to break down the takeoff into a low speed and a high speed portion. During the low speed portion, many malfunctions that would affect the mission could result in an abort; however, at high speed, an abort would only be for a safety of flight item. For example, one approach in the Bone is to abort above 120 knots for a fire or caution lights in the upper left side of the master caution panel, which includes mostly engine/bleed air malfunctions.

The decision to abort at high speed is one that really needs to start at ground speed zero... before you strap the jet to your back. That "Chair-flying" habit you acquired in UPT

is one that should stay with you as long as you wear a flight suit. Think about the local conditions and what would cause you to abort instead of continuing the takeoff. Whether you do a high speed abort or not must be tailored to the current situation. How much runway do you have in front of you? How much of an overrun do you have available and what lies past it? Are you better off continuing the takeoff? With the current conditions, how much performance degradation can you take and still fly the airplane? Does the visibility/local conditions or seriousness of the emergency prevent you from completing the takeoff and return to the field?

The Elmendorf E-3 mishap brought to the forefront the seriousness of bird hazards, especially during takeoff. However, there is a big difference between flying into a flock of geese and watching a couple of blackbirds fly under your nose as you are reaching decision speed. What is the greater threat — the medium/small birds or the high speed abort? You need to know your aircraft's capabilities. Has your type of engine been tested for bird ingestion? Some engines, such as the CFM-56 in the KC-135, have been tested for medium sized bird ingestion. Even though we have raised the awareness of bird hazards, reality is that you could have no birds at the airfield for hours. But as you are rolling down the runway, the only group of birds within miles of the field decides that the grass on the other side of the runway is greener and has tastier seeds; so across your flight path they go. The best decision will depend on your type of aircraft, airspeed, runway available, and size/number of birds, among other things. A low speed abort will probably be rather uneventful. However, a high speed abort can get to be an interesting ride. In some high speed abort situations, you may have a short runway, good engine performance, etc., where a continued takeoff would be the safer alternative.

What are you going to have to do to stop in the remaining runway? Your tech order should have procedures for maximum/optimum braking; know them cold! Each airplane has its peculiar characteristics that will affect how you should react. For example, with some engines, the afterburners may stay lit for a few seconds after bringing the throttles to idle. It may be a good idea to delay brak-

ing until you don't have the burners cooking. Generally, crew airplanes will eat up more runway and need more of it to stop. This makes it essential for those not flying to back up the pilot flying the aircraft in getting the procedures done right. Once you stop, you may have a new set of circumstances to deal with (hot brakes, fire, etc.). Remember the sortie isn't over until the jet is turned over to maintenance.

The abundance of mishaps during takeoff roll resulted in ACC Special Item of Interest (SII) 97-3, *Abort Decisions*, which emphasizes the importance of abort decisions in fighter/attack/recce/FAC aircraft. This SII notes that poor decisions to abort, or not to abort, along with two cases of incorrect or nonexistent takeoff and landing data were factors in several mishaps. This message is one to be taken to heart by us all, not just those who fly fighter/attack/recce/FAC aircraft. Takeoff is about as critical a phase of flight as there is; you have to be ready for it. This is a test, and your life may well depend on it.

To summarize, we "identified the hazards" by looking at some of the dangers we might encounter during takeoff. Then we "assessed the risk" by looking at ways to determine what presented the greatest risk during this part of the mission. Hopefully, these terms are familiar to you. They are the first steps of the risk management process. Somehow, we managed to start a risk assessment of the takeoff process without mentioning Operational Risk Management (ORM) or even the word risk once. One of the problems we face when a new initiative like ORM is being implemented is the tendency to "lose sight of the forest for the trees" by getting hung up on terms and making sure we use some of the key words at least once in every paragraph. Of course, this winds up with a lot of people being turned off because they associate it with being "politically correct." Hopefully, we will not do that with ORM. It is not so much talking the talk as making sure we can walk the walk by thinking about what we are about to do before we step out. We have all been doing ORM through our careers in one way or another. The problem is that not all of us have been doing it all of the time, and we are getting people hurt in the process. So think smart during takeoff, and give ORM a chance; you'll be glad you did.

FLY SAFE! ■

Who, Me? The

Colonel Vinnie Noto
HQ ACC/SEF
Langley AFB VA

This story completes Colonel Noto's four-part series of "Who, Me?" articles depicting the actual events he experienced after being selected to serve on a B-1 crash investigation team in 1987. This special focus series (Who, Me?, Part I - March 1997, Part II - May 1997, Part III - July 1997, and now Part IV) provides unique and interesting testimony from the Investigating Officer's point of view. Although this investigation occurred over 10 years ago, it provides "lessons that live" for any individual that may be assigned to an aircraft mishap investigation team in the future. - Ed.

After what seemed like an eternity out in the field and in our small isolated work area, it was time to move the mishap investigation board. We thanked our hosts and said good-bye to that small Colorado town which took us in and treated us like their own. We had met many wonderful people who went out of their way to help us. We moved up to Peterson AFB and began what turned out to be the hardest part of the investigation — the writing! We had done some writing before, but what was to come couldn't compare. I would equate the effort to writing the B-52 Dash-1 several times over.

To write your section of the report, you must read everything. All those boring technical reports, seemingly endless witness statements as well as everyone else's sections. The report must make sense, and each section or part must fall in place with your end result or conclusions. Speaking of "witness statements," trying to put on paper what someone says is near impossible! But wait, there are some wonderful people

who work in the legal office; they were our saviors! I was amazed at how fast they could transcribe sounds into actual words. For the next 10 days, they were the most popular people on the board. They did superb work and completed hundreds of hours of testimony in a professional and precise manner.

Our writing was not so easily done. In 1987, computers were just coming into daily usage; and we absolutely needed them. The few who knew how to use them were constantly typing away. Those of us who hadn't a clue did all the editing. I don't think I ever used so many red pens in my life! No pride of ownership here; from the Board President (BP) to our Tech reps, our paper bled red! At times, I thought we got carried away; but this was just a prelude to the real fight...findings, causes, and recommendations (F, C, & Rs).

I knew something big was going to go on during our evening briefing, our Numbered Air Force (NAF) rep had been preparing all day. He put up slides, went through numerous examples, and gave us all handouts on how to write F, C, & Rs. It was a good briefing and a necessary one. This was the first time I saw some cracks developing in our board which had worked so closely together for 6 weeks. Our BP gave us all homework and said, "Come back in the morning and be prepared to put on paper our F, C, and Rs." All of our dinner discussions were focused on our homework, and it seemed like different camps were posturing for a strategic advantage already! I completed my homework that night with a certainty that I had all the correct words.

It was a beautiful, sunny, fall Colorado day, and the tension was evident in the room. The whole team was present and we started — "fights on" was the call! Being the self-assured, trained investigator, I got up first and put mine on the butcher paper. I hadn't gotten past my first finding before a precision

“Food Fights, Crusades, Repercussions... or Findings, Causes and Recommendations” Investigation Ends

nuclear strike devastated my ego. The rest of the morning went downhill from there. Counter strikes, alliances, subversion, spit balls, paper cups, rubber bands; any and all weapons were used, and no one left the field uninjured. We all ate lunch alone that day. Our BP sat back and watched the action with a keen eye — he had a plan. The BP beat us back to the “combat zone” and was ready. This was one of the few times he actually told us to sit down and get a grip! Those weren’t his exact words; they were unprintable. He spent the next hour reviewing what we as a team had accomplished and reminded us about the critical importance of what we were doing. We knew he was right; but we had to be reminded several times during the next 2 days as we finalized our F, C, and Rs. Those 3 days were not fun. Very few of us talked to each other, but we did get over it and completed our task.

Along with the writing is the massive production of the “white elephant”...the formal books. HINT: get a big table with lots of room. Give someone on the board the primary task of putting the report together, and I don’t mean writing it...I mean building the books. We spent many hours pasting pictures and cross-checking indexes, etc. It all had to be correct. Next, have someone help the BP build the briefing. This will be for many the only contact they will have with the mishap. It is your visual statement of what happened. It better be precise, to the point, based on well founded facts and assumptions, and believable with thoughtful recommendations. These will be your legacy.

The final day was rapidly approaching, and we were all in afterburner. We were going directly to the NAF to start the briefing process. We had been away for almost 2 months and were very excited to get this last challenge over with. We couldn’t believe how much stuff we had accumulated, from canteens

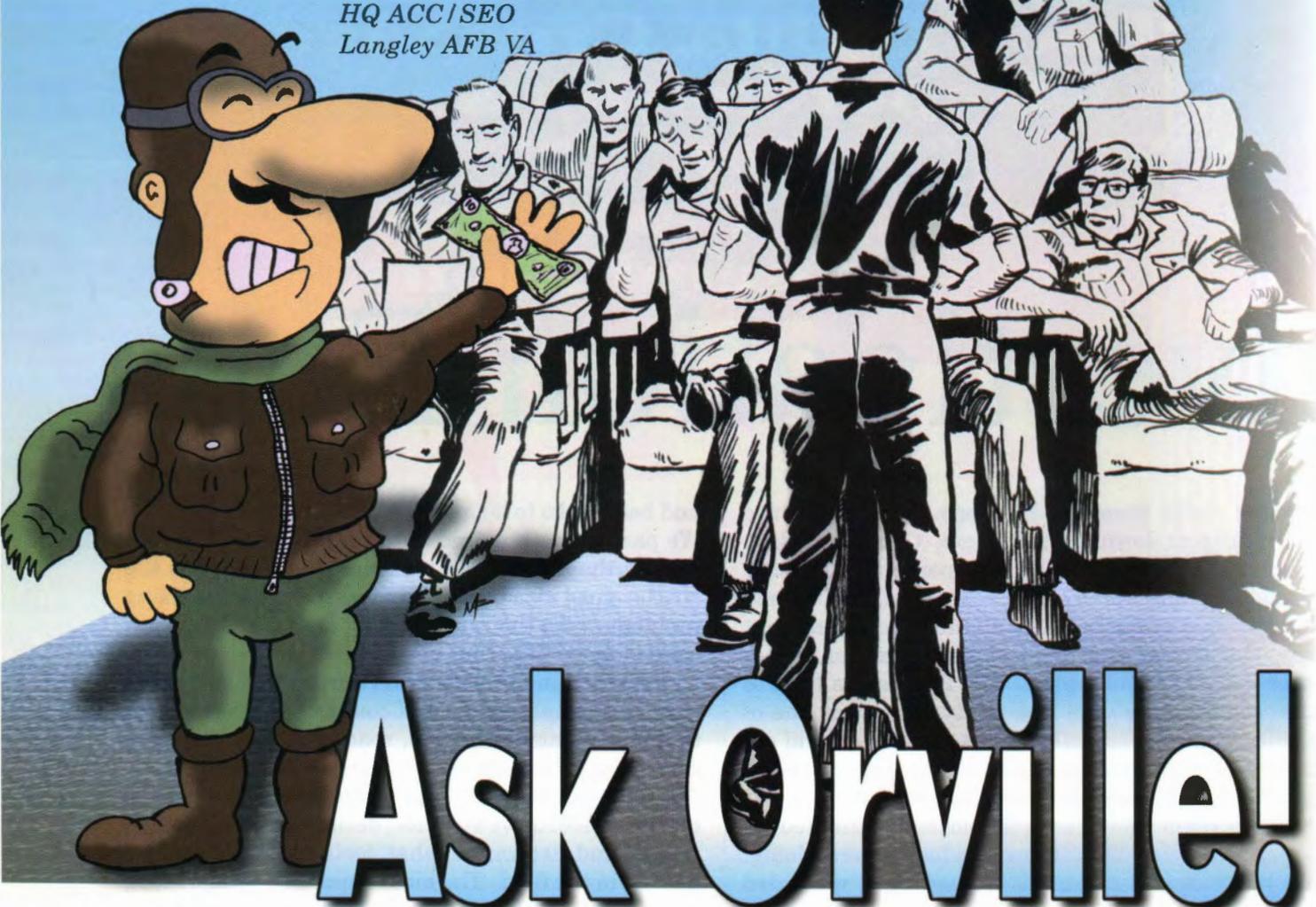
and backpacks to long ago discarded summer clothes. We passed the required data to the legal board and wished them luck. We took the whole board to the NAF — good idea because we spent lots of time fixing problems with the report. Hint: Don’t send your recorder home, take that person with you.

I learned many new skills during this investigation. I got my first taste of computers, learned how to identify damaged parts, read technical manuals, edit, spell (although my secretary will tell you in no way did that happen), use audio-visual equipment, drive 4-wheel drive vehicles, decide which MREs not to eat, and determine what tools and equipment I needed in the field. The most important things I took away from my first investigation were: (1) Many things are not as they first appear, (2) A dedicated team can accomplish almost anything, (3) You are not always the expert, (4) The investigative process is critical to the flying business, and (5) PASS ON THE LESSONS LEARNED.

* Lastly — and this is for those commanders and supervisors who call you at 0100 — when your troops return home, they need a break. I remember my mentor, Lt Col Teigen, telling me before I left that I would need some time off when I returned home. Never had a truth been better spoken. I did take that time off, never realizing how exhausted I was until I got home. I slept most of the first day. You will also need time to grieve, especially if there is a fatality. I know I did. You get very close to the deceased and don’t have much, if any, time to say good-bye as those at home get to do.

I hope those of you who have read my series of articles have enjoyed them and gained some useful insight into the investigation process. Maybe, just maybe, you will be a little more prepared than I was when your name is drawn out of the hat for a future investigation team. ■

Colonel Ronald L. Garhart
HQ ACC/SEO
Langley AFB VA



Ask Orville!

This month's challenging letter to Orville regarding Operational Risk Management (ORM) comes from Phil, a Lieutenant Colonel stationed at Mountain Home AFB ID.

Phil writes:

Dear Orville,

As a nominee on the squadron commander's list, I recently attended the Squadron Commander's Course at ACC mecca where I was appalled by the short-sighted proposal to replace the experience and judgment of future commanders by the ORM 6-step process. Given all of the hoopla, one might think that this ORM stuff was some kind of artificial intelligence. Orville, what makes you think that ORM can possibly replace all the years and training that I and other potential commanders have accumulated over our distinguished careers? I take my position and responsibilities very seriously. When-

ever I am faced with a decision, task, or problem, I weigh all of the factors, apply 11 years of hard-earned, finely-tuned experience and judgment, and select the best available alternative. On behalf of myself and other future Air Force leaders, leave the problem solving to us professionals.

*Hot at the Home,
Phil*

Dear Phil:

You sat on the first row — second seat from the left — didn't you? Well Phil, your letter just cost me \$10. You see, I bet the briefer that you didn't hear a word he said. But the fact that you know there are 6 steps in the ORM process definitely proves me wrong and puts an end to the mystery surrounding one's ability to hear with their eyelids closed. Hearing is one thing, and comprehension is evidently another.

Let me say this as loudly and clearly as I possibly can, Phil: "Operational Risk Management is in

no way, shape, or form, a replacement for the sound judgment and experience of our exceptional Air Force leaders.” On the contrary, the purpose of ORM is to increase Situational Awareness (or “SA” as we like to call it) so that it can complement the hard-earned experiential and intuitive capabilities of today’s leaders. Personally speaking, most of my air victories were not attributable to any superior stick and rudder skills on my part. Similarly, on my occasional loss, seldom was it due to inferior air skills (well, there was one blunder — but that’s another story.) Most of my victories and losses were a direct correlation of my SA. Our basic stick and rudder skills seldom determine success or failure. Given that most of us were similarly trained and have comparable experiences in the art of air warfare, SA usually gives one side or the other an insurmountable advantage before airmanship even enters the fight.

You stated it perfectly, Phil, when you said that when faced with a decision, task, or problem, you weigh all of the factors, apply your experience and judgment, and select the best available alternative. Your attention span in the classroom aside, I have no doubt that your experience and judgment are on par with the finest command nominees that ACC has to offer. But Phil — and here comes the hard to comprehend part — you can neither weigh all the factors nor select among the best alternatives if they remain hidden to you. The point that the briefer was valiantly trying to get across was that the tools and techniques associated with ORM are the keys to unlocking those hidden factors and alternatives. ORM is key to building the decision maker’s SA; and putting it quite bluntly, Phil, ORM is key to your success as a commander. Given that the fate of few of your decisions as a commander will rest solely on your inherent wisdom, the SA built by sound use of the ORM process will most likely determine the outcome on the majority of your judgments.

Let’s take a quick look at an example from our USAFE counterparts. About 2 years ago, Lakenheath leadership used the ORM process when faced with operating out of a nearby Royal Air Force Base while their runway was being resurfaced. They used several ORM techniques to identify hazards, associated risks, and control measures — but that is a detailed story best saved for another time. For illustration purposes, let’s choose one of the identified

hazards ... potential automobile accidents.

The combined safety council at Lakenheath obtained information from the United Kingdom Ministry of Transport (MOT). The council determined that 1 fatality per 100,000 units (i.e. miles) of Road Hazard Exposure (RHE) could be expected on the B roads in England. Based on 300 people at 20 miles per day for 90 days, Lakenheath could expect 5 deaths from the 540,000 RHE miles driven.

One of the control measures they looked at was bussing (I understand the B roads were so narrow that they had to measure the road width to make certain that the side mirrors would not be knocked from the busses as they passed.) The MOT statistics on busses showed that Lakenheath could expect 1 death for every 200,000 RHEs. That along with the fact that bussing reduced the RHEs to 21,600, the expected death toll now computed at .1 for the 90-day period. Desiring to spend more time flying and less time at funerals, the decision was an easy one for then Colonel, now Brigadier General MacGhee (see how that works Phil: Old Rank + Prudent Use of ORM = Opportunity for New Rank.)

The automobile accident potential was only one of the many hidden “show stoppers” waiting to sideline Lakenheath’s runway repairs. However, a thorough risk management effort up front systematically identified the hazards in plenty of time to work solutions.

So there you have it, Phil. Just as SA is so often the determining factor in air engagements, SA will assuredly be the determining factor in most decisions facing you in command. Operational Risk Management is that SA builder for leaders. I guess it boils down to one question that was so eloquently asked by a famous actor a few years back; “Do you feel lucky,” Phil? Well ... do ya, commander?”

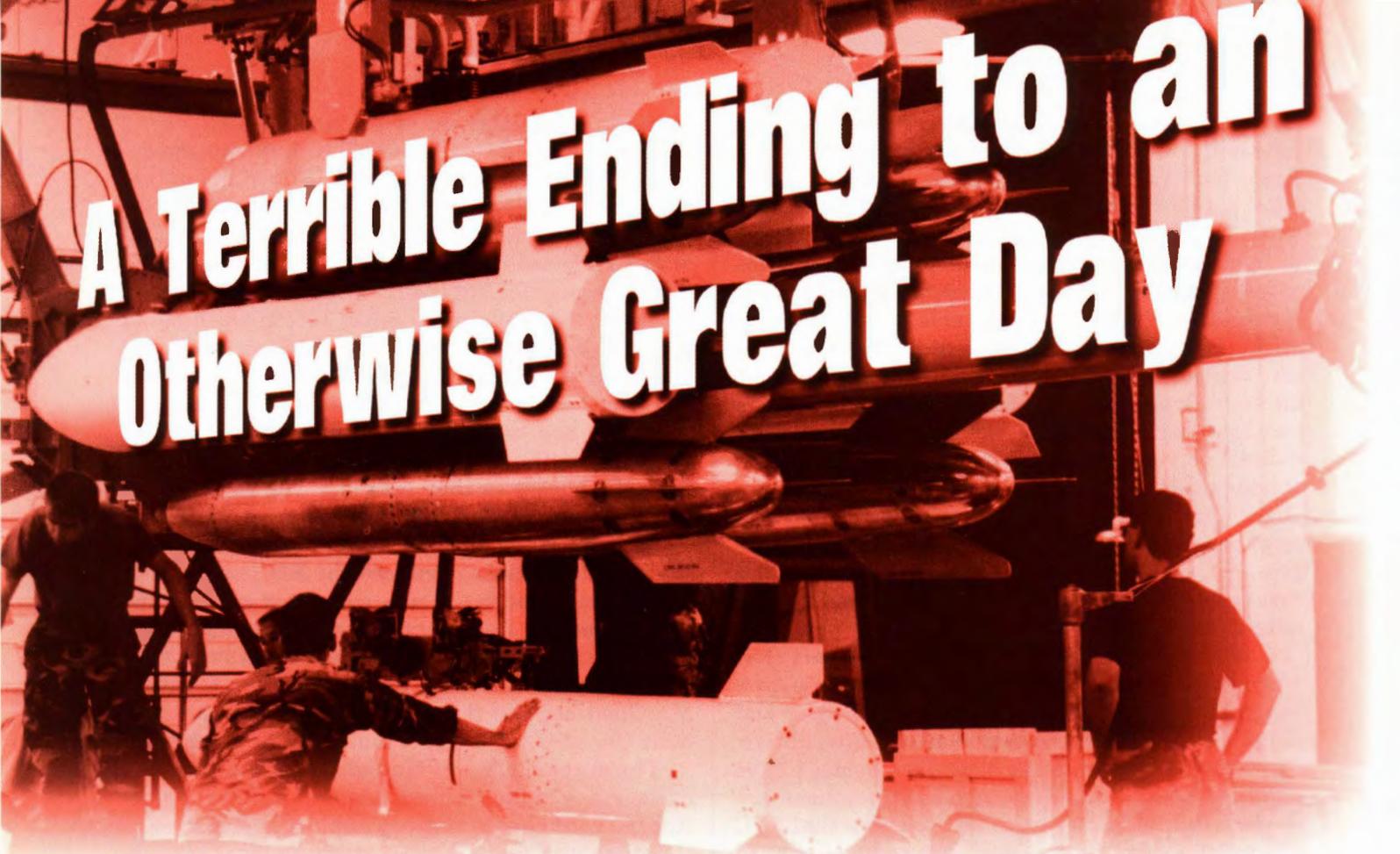
Keep those cards and letters coming,

*Orville R. Mudd
ORM Dogfight Veteran
ACC Office of Safety*

**If you have any questions
or comments regarding
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A Terrible Ending to an Otherwise Great Day

*MSgt Thomas S. Foster, Jr.
HQ ACC/SEW
Langley AFB VA*

As the HQ ACC Nuclear Surety Superintendent, I review all Dull Sword deficiency reports generated in ACC. In the process of reviewing these reports, I look for trends related to the cause of these deficiencies. The Air Force Safety Center at Kirtland AFB NM and the ACC Weapons Safety Branch at Langley AFB VA have noticed that the majority of Fiscal Year 97 Dull Swords were the result of “complacency.” I have thought about writing this particular article for some time now since complacency was the cause of a mishap I experienced early in my Air Force career. Here’s the mishap as it unfolded that fine Texas day.

It was late August 1985; the crew I was assigned to was on a swing shift which began at 1500. The first part of my day was great. My son was 6 months old at the time, and I

was able to spend a lot of quality time at home with him before going to work. On this particular day, we received our crew safety briefing at 1530 and were told which task was to be accomplished during the work shift. Our crew worked extremely well together. We all had entered the Air Force within 6 months of each other, except for our crew chief who had been in for 6 years. We were all the best of friends, both on and off duty.

As a crew, we had good continuity. Since we had worked so long together, it seemed as if everyone knew what the other person was thinking before he or she would complete a particular procedure. Things seemed to flow very smoothly for us as a crew. We were not assigned and certified to a specific position like some Air Force Specialty Codes do. Instead, we certified as a crew. As a result, we knew which functions each one of us performed extremely well. Our crew chief also ensured we always stayed current and knowledgeable in our jobs. Regarding overall crew performance, we knew we were good ... but, I’m sorry to say, we were also “very cocky.”

That night, we were tasked to crossload an 8-pack of nuclear capable Short Range Attack Missiles (SRAMs) from one launcher to another launcher across the high bay. The job normally takes 2 hours to complete, and our crew had done the procedure over 100 times before. Everything was going well that night. We had finished crossloading 5 of the 8 missiles in about an hour, well ahead of schedule...so we decided to take a break.

That night I was the Jammer driver for the MHU-174/E Lift Truck. After we finished loading the fifth SRAM missile, I lowered the lifting boom to the floor and shut off power right under the missile we just loaded on the launcher. Breaks are normally 15 to 20 minutes long. However, on that particular night, another crew member and I finished our break early. So, we decided to go back out to the bay and reposition all the equipment to start uploading the sixth missile before the rest of the crew returned. As I was repositioning the Jammer to download the sixth missile, I heard the most sickening sound of metal

crunching through the SRAM's phenolic fin platform. At that instant, I realized what had happened. For some reason that I can't explain, I drove the Jammer forward instead of in reverse. The forward action drove the mast, which supports the power cable for the Jammer, into the SRAM fin platform causing \$3,000 dollars worth of damage. My heart sank down to my feet, and the rest of the crew felt the same way ... I had fallen into the "COMPLACENCY" trap.

As you can see, it only takes a fraction of a second of not paying close attention to de-

tail to have a mishap. AFI 91-204 "Safety Investigations and Reports" defines "complacency" as "an inappropriate state of well-being, overconfidence or undermotivation resulting in a diminished level of vigilance." If the Jammer mast had been located just 6 inches more to the right, there may have been a chance of busting off a high pressure cap on the rear of the SRAM. Had this happened, the release of the metal cap as it ripped through the air would have killed me, or even worse, my best friend ... something that no one wants on their mind for the rest of their life.

Throughout their careers, experienced weapons managers at all levels have most likely seen or heard of mishaps similar to mine that could have been avoided. As flight chiefs, we need to share some of our war story experiences with others. Presenting new ideas as well as lessons learned in weapons safety will help educate our people in preventing mishaps by staying alert and focused on the task at hand. By letting your mind

wander off to never, never land, you increase the risk of possibly damaging valuable equipment — or even worse, losing a life. Remember, our goal in ACC is to fulfill our mission while preserving our people and combat capability. In support of this goal, proactive leadership and involvement at every level throughout the command is key to preventing mishaps while maximizing mission success. Don't let the bug of complacency bite you, your unit, wing, or base. It could easily cause ... "a terrible ending to an otherwise great day." ■

As I was repositioning the Jammer to download the sixth missile, I heard the most sickening sound of metal crunching...

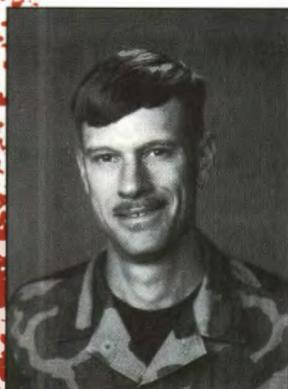
MONTHLY AWARDS



PILOT SAFETY AWARD OF DISTINCTION

*1Lt Daniel E. Ferris
59 FS, 33 FW
Eglin AFB FL*

Airborne for over 7 hours as number two in a six-ship F-15 CONUS redeployment package from Southwest Asia, Lt Ferris had just completed his fifth air-to-air refueling in instrument meteorological conditions (IMC) at 25,000 feet when he noted the sudden onset of severe "banging and vibration" accompanied by smoke and fumes in the cockpit. At the same time, the control augmentation system and autopilot disengaged. Lt Ferris calmly accomplished all immediate action emergency procedures and accurately assessed a severe and rapidly deteriorating malfunction. He swiftly confirmed normal operation of the right engine and shut down the left engine as the oil pressure quickly decreased. He informed his flight lead, the squadron commander, who expertly accomplished all required coordination with the tanker cell and began an immediate recovery for the two-ship element to the designated emergency airfield over 200 miles away. Despite the range involved, the weather conditions encountered, and the fact that this was a true "strange field" recovery, Lt Ferris executed a flawless single-engine approach and landing. The inflight discipline and mutual support exhibited by this two-ship element were exemplary. Postflight investigation revealed a failed number two bearing. Significant internal collateral damage was also discovered, including evidence of a titanium fire. Well known for their destructive power and resistance to systems designed to extinguish aircraft fires from more benign sources, inflight titanium fires are extremely dangerous. Although short lived, this particular fire was very intense and caused extensive damage. Accurate analysis and timely action on the part of Lt Ferris prevented this condition from becoming irreversibly self-sustaining. His decision to promptly shut down the engine kept this fire under control. Having successfully resolved an extremely complex failure mode never before encountered, Lt Ferris deserves recognition for his expert airmanship and the safe recovery of a severely damaged, multi-million dollar F-15 aircraft.



CREW CHIEF EXCELLENCE AWARD

*SSgt Dennis B. Breese, Jr.
421 FS, 388 FW
Hill AFB UT*

On 1 Apr 97, while performing a scheduled 200-hour phase borescope inspection on aircraft 89-0533 (F-16C), Staff Sergeant Breese found a cracked high pressure turbine blade. Research of the technical data determined the crack was out of limits and the motor was rejected. During a subsequent 200-hour phase borescope inspection on aircraft 88-0422, he noticed a number of small nicks on the second and third stage fan blades. While inspecting the fourth and fifth stage compressor blades, he worked the borescope around to see more of the compressor section than required. His extra effort revealed a large portion of the fifth stage stator blade missing. Teardown of the engine ensued revealing a total of 63 blades throughout the engine damaged due to foreign object ingestion. Several blades have been sent to analysis to determine the exact cause of the damage. Sergeant Breese's extra effort and expert attention to detail during engine borescope inspections prevented catastrophic failure of a single-engine aircraft and possible loss of life.

FLIGHT LINE SAFETY AWARD OF DISTINCTION

*SSgt Marty P. Minor
4404 CES, 4404 WG(P)
Prince Sultan Air Base, Saudi Arabia*

While working in the vicinity of the runway at Prince Sultan AB, Kingdom of Saudi Arabia on 30 Apr 97, SSgt Minor observed the tire tread separate from the left main landing gear of a combat loaded F-15C Eagle on takeoff. Recognizing an extremely serious situation affecting both the mishap F-15C Eagle and other departing or landing aircraft, Sergeant Minor quickly notified tower personnel of the mishap aircraft's problem and the foreign object damage hazard located on the runway. With the only runway at Prince Sultan Air Base now closed, departing Operation SOUTHERN WATCH combat missions were halted. Sergeant Minor quickly coordinated entry to the runway and personally began clean-up operations to remove all debris. By exhibiting initiative and resourcefulness in solving problems under pressure, Sergeant Minor helped restore Prince Sultan Air Base to fully operational status in minimum time. As a result, all tasked combat sorties were able to depart and complete Air Tasking Order requirements. His quick response further ensured the safe recovery of a commercial cargo aircraft delivering much needed supplies to Prince Sultan Air Base. Due to his sound judgment, air traffic control personnel were ultimately able to notify the F-15C pilot of the serious aircraft problem. Now aware of the tire malfunction, the mishap pilot coordinated for a battle damage check by his flight lead. Following the in-flight check, the flight lead confirmed the left main tire tread had separated with no other apparent damage to the aircraft. With the true integrity of the tire unknown, the mishap pilot completed emergency checklist items for "Blown Tire and Approach-end Arrestment." On the ground, Sergeant Minor prepared for the approach-end arrestment. Following the successful aircraft barrier engagement, Sergeant Minor had the barrier rewind, reset, and recertified within 15 minutes. Once again, Prince Sultan Air Base returned to fully operational status in minimum time. His superb efforts ensured the completion of important Operation SOUTHERN WATCH combat taskings and the safe recovery of a pilot and valuable combat aircraft.

GROUND SAFETY INDIVIDUAL AWARD OF DISTINCTION

*SSgt Dwayne H. Chilcutt
1 ACCS, 55 WG
Offutt AFB NE*



SSgt Chilcutt has become synonymous with the 1 ACCS AFTO Form 244 program as a trained and highly motivated technician with safety as his number one priority. Continuous improvement of this important program has developed into one of the finest at Offutt AFB. Among some of his accomplishments since taking over the duties of the engine removal and installation equipment monitor are: Creation of a pre-use and post inspection checklist for the CF6-50 Engine Bootstrap, Main Engine Lift Sling, and APU Bootstrap Trailer, ensuring much safer and thorough inspection criteria. He obtained safety and test certificates from equipment manufacturers including Ingersoll-Rand Company and Harrington Hoists and Cranes, validating serviceability and integrity of manual operating hoists used by the 1 ACCS jet engine technicians. SSgt Chilcutt reevaluated all engine slings and lifting devices as a result of a major accident that occurred recently within the command, using similar equipment and found deficiencies that were immediately addressed and corrected in accordance with the most stringent guidelines available. Working closely with Boeing Engine Technical representatives allowed him to stay abreast of all safety issues regarding engine removal and installation support equipment. SSgt Chilcutt also completed an in-house inspection of his entire inventory with the 55th Wing Ground Safety Office and was praised for maintaining such an outstanding program. He also engineered an improved inventory system for all AFTO Form 244 items by implementing state-of-the-art bar code equipment utilized in the Support Flight ensuring his equipment inspections are complied with in a timely manner. He presently monitors 133 different AFTO Form 244 items and single-handedly cares for 43 of those items.

UNIT SAFETY AWARD OF DISTINCTION

*7th Fighter Squadron
49 FW
Holloman AFB NM*

The 7 FS is the only Formal Training Unit (FTU) in the USAF to conduct F-117A Initial Qualification Training. Each year, the Demons train 32 new F-117A pilots using a syllabus that covers initial transition, air-to-air refueling and surface attack. The FTU Instructor Pilot (IP) maintains dual qualification in both the F-117A and T-38A aircraft, enabling them to fly demanding T-38A chase sorties with an upgrading F-117A pilot and provide time-critical airborne instruction. The 7 FS also trains approximately 20 49 FW pilots in upgrade syllabi that include T-38A Continuation Training Program (CTP), CTP IP, FTU IP, and Standardization Evaluation Flight Examiner (SEFE) courses. Since the 417 FS moved from Tonapah Test Range, Nevada, to Holloman AFB, New Mexico, in May 1992, and was redesignated the 7 FS in Nov 93, the Demons have flown 19,840 sorties and 27,264.4 hours through Mar 97 without a Class A or B mishap. This 5-year period without a Class A or B mishap is a direct reflection of the squadron's superior professionalism, attention to detail, and superb safety environment. Additionally, the 7 FS has no doc statement but were major team stealth players, directly contributing to a recent ACC/IG Phase I overall "Excellent" rating by providing 45 personnel and 2 jets. The numbers are especially significant when considering the 7 FS has operated at an 80 percent manning level since Oct 95. The Demons maintain a close working relationship with Air Traffic Control, where pilot and controller feedback sessions are frequent, fostering an atmosphere of efficiency and safety. In the most congested tower pattern in ACC and with the language challenges presented by the Taiwan and German Foreign Military student pilots, the 7 FS IPs and tower controllers did an outstanding job keeping students safe. There has been no high accident potential involving the 7 FS since May 92. In addition, the Demons' established exemplary safety environment is not limited to home base. The 7 FS has successfully maintained the Langley AFB, Virginia, ACC East Coast Airshow Detachment for a 60-day deployment supporting numerous regional airshows and static displays. The Demons have also taken safety with them on deployment to Hickam AFB, Hawaii (in support of the World War II 50th Anniversary and Victory in the Pacific Celebration, attended by President Clinton); the United Kingdom; Nellis AFB, Nevada; El Toro NAS, California; and many other locations throughout the United States and Canada—all without a single incident. This is a tribute to the 7 FS professionals and their attitude toward safety. Whether teaching a new F-117A upgrading pilot, turning a wrench, or keeping up with daily paperwork demands, the personnel of the 7 FS always excel when challenged.



AIRCREW SAFETY AWARD OF DISTINCTION

*Lt Col Patrick J. Thomas, Maj Craig S. Girard
Maj Ronald J. Sanders, Capt Robert N. Burgess
Capt James R. Bortree, Capt Brian A. Tom
23 BS, 5 BW
Minot AFB ND*

On 3 Dec 96, a B-52H, call sign Chill 21, was returning to Minot AFB after a routine training mission when it received a request from Minneapolis Center to help contact a civilian aircraft. Upon making contact, the aircrew found that the aircraft, a single-engine Cessna with a pilot and one passenger onboard, had crashed. Both occupants were uninjured but in shock. The temperature was about 20 degrees F with blowing snow and a 100 foot ceiling. The weather was expected to worsen, with temperatures eventually reaching -17F that night. Sunset was 2 hours away and the



WEAPONS SAFETY AWARD OF DISTINCTION

*Airman Darren Green, Airman Jason Close
7 EMS, 7 BW
Dyess AFB TX*



On 2 Apr 97, team members Airmen Darren Green and Jason Close were performing a bomb mate operation involving eight weapons and a 180-inch multipurpose launcher. Airman Green was operating the remote control unit (RCU) on the MJ-40/E lift truck. The RCU allows the technician to align and raise the bomb into position for mating with the launcher. Airman Close was observing all clearances as Airman Green was positioning the unit. Airman Green, with help from Airman Close, positioned the unit within 3 inches of the launcher as required by technical data. At this time, the Team Chief directed Airman Green to raise the unit between two other units for final mate procedures. As Airman Green rotated the knob on the RCU, the boom and table on the lift truck reacted by moving erratically. Airman Green noticed the erratic movements made by the lift truck and yelled to Airman Close. Airman Close instinctively shut off all electrical power to the lift truck, stopping the weapon within 1/2 inch of striking two other units. Airman Green and Airman Close averted a potential incident that would have resulted in extensive damage to three weapons designated as critical to our war-fighting capability. Their quick thinking and decisive actions reflect favorably on their knowledge, training, and character.

survivors had no signaling or survival equipment. They were unable to light a fire due to fuel on and around the aircraft. Weather conditions prevented launch of rescue aircraft. Chill 21 was the only aircraft in contact with the downed Cessna. They relayed survival information and coordinated with Air Traffic Control the ground rescue efforts. With bad weather at their home base, Chill 21 coordinated emergency refueling with Raid 23, a KC-135 from Grand Forks AFB. During refueling, they discovered they had detailed chart coverage of the crash area. The aircraft was within 75 feet of a power line. There were three power lines in the area. The aircrew could see the most likely power line on radar. With less than an hour before sunset and the survivors complaining about the cold, the aircrew descended to 1,000' AGL and flew above the cloud deck, following the power lines for 3 minutes before receiving an Emergency Locator Transmitter for 5 seconds. The downed pilot informed them he could hear the B-52 fly over his position. The aircrew then executed figure eight patterns to pinpoint the site and forwarded position updates to the sheriff's search party. Low on fuel, Chill 21 started a climb, to FL 280 to accomplish another refueling. Passing 12,000', the downed pilot informed them that there was a snowmobile pulling up to the crash site. On return to base, Chill 21's aircrew had visibility reported right at the 2400 RVR minimum. They flew a precision approach, landing in a blowing snowstorm. Their outstanding performance and innovative thinking resulted in the safe recovery of the downed crew.

Am I Ready to Fly?

Here are some thoughts from an attached F-16 pilot on how we can mentally prepare ourselves every time we fly. For months, the 31st Fighter Wing (FW) at Aviano had a special interest item on “personal readiness to fly.” We recently received an interesting briefing from Captain Tracy “Lilith” Dillinger, the 31 FW Flight Physiologist. She was talking about our ACES Personal Preflight ... or how we get ourselves ready to fly. It

hit home with me, especially now that I’m a member of the “leper colony” as an attached weenie. Specifically, it made me realize how differently I have to prepare myself to fly now that I spend more time pushing papers from one side of my desk to

the other than I do reading MCM 3-1 or talking about Viper versus Fulcrum visual merges. My thoughts here may apply to you if you’re a fat-bellied, attached field grader like myself or a hair-on-fire lieutenant whose only additional duty is not letting the unit’s refrigerator go empty. We all have to get ourselves pumped up and focused to fly fast, break, and kill things.

Captain Dillinger used the acronym “ACES” to highlight four areas which affect our readiness to fly. ACES stands for “Affect, Cognition, Environment, and Somatic.” I can’t remember what all these words really mean — except

*World War
and we won
to be right
Mavericks,*

*Major Rick “Moses” Burgess
31 FW/SE
Aviano Air Base, Italy*

Am I Ready

that if you can't remember acronyms any longer, you're headed downhill. However, the one thing I do remember her talking about was "compartmentalization."

We've all heard for years that pilots have a great ability to put pieces of their lives in small containers, reach into them, and grab the applicable portions out as we need them. Once we hit life support, zip up our G-suits, and step to the jet, our son's expulsion from school or the car's "strange grinding noise" doesn't seem to matter any more (or at least until we return to life support in a few hours). World War III could be happening around us, and we wouldn't care (except that we want to be right in the thick of it with live GBU's, Mavericks, Slammers, and a hot gun). But I've found that I "compartmentalize" differently now that my "real job" requires me to spend a lot of time and brain cells thinking about things that have

nothing to do with flying or employing the jet.

Before I moved from being a squadron Assistant Operations Officer to my present job as Chief of Safety, I was aware of everything that was going on in the squadron. I knew who was on what upgrade rides, who was flying with the 2-star as well as who was in the sim at Ramstein. Just by being in the scheduling shop or sitting around the weapons shop, I was constantly surrounded by discussions on when to do a vis bracket on an aware bandit or the advantages of a level versus a diving CCRP (Continuously Computed Release Point) self-lase delivery. But now I spend most of my time worrying about terms I couldn't even spell 3 months ago — like NSI (Nuclear Surety Inspection), EMR (Electromagnetic Radiation), NEW (Net Explosive Weight), QD (Quantity Dis-



to

It could be happening around us, we wouldn't care (except that we want to be right in the thick of it with live GBU's, Slammers, and a hot gun).

tance), etc. When I moved into the Chief of Safety position, my predecessor called it right (almost). He said about 80% of my time would be taken up dealing with ground and explosive safety issues ... well, try about 95%. As I'm writing this, we're in the midst of our INSI (Initial Nuclear Surety Inspection). The last 2 months have been non-stop dealing with explosive site plans, electromagnetic radiation hazards, Net Explosive Weights, as well as the 101 Critical Days of Summer campaign.

What's my point? I could spend 7 days a week, 12 hours a day trying to be the best Chief of Safety in the Air Force — do trend analyses and risk assessments on everything from the BX to the flightline — and never get near a cockpit. But fortunately for me, I still get to fly. **I want to fly. I must fly!!** But I'm finding the ability to auto-switch my brain from queep to a 2 v 2 ACT (Air Combat Tactics) mission is not what it used to be. I cannot work for hours or days on some critical weapons safety issue and then expect to be full up ready to give a 9-G BFM (Basic Fighter Maneuver) brief in 30 minutes. I now need more time to **get ready to fly**. My ACES Personal Preflight now takes me longer to accomplish.

Here are some things I do now when I'm fortunate enough to fly my one sortie of the week whether I need it or not.

— I go into the squadron much earlier to get the "admin" stuff signed off. It used to be that I signed off the FCIF (Flight Crew Information File) or Pilot Read File about once every 4 or 5 sorties. Now every time I walk into the squadron to fly, I have a list of about 6 letters (S, SE, F, C, L, P) next to my name on the board of things I need to do before I'm allowed to fly a jet. Getting a jump start in completing all of the required paperwork allows me more time to clear my mind of all the admin responsibilities early on in the schedule. This, in turn, allows me more time to focus on the mission at hand as I prepare to fly.

— I force myself to go into the squadron just to read the MCM 3-1 or some new *Weapon*

Review article or the ALR-56 radar warning receiver manual. "Was it skate or banzai?" "Do I load the DTC (Data Transfer Cartridge) first and then turn on the ALE-47 chaff and flare dispenser ... or is it the other way around?" "Does MAR (Min-Abort Range) mean I can still pitch back in after a merge abort ... or was that MOR (Min-Out Range)?" I used to know these things. Now the personalized checklist I carry to the jet (i.e., where I write things down I used to know by heart ... like how to start the engine) is the size of a Webster's dictionary.

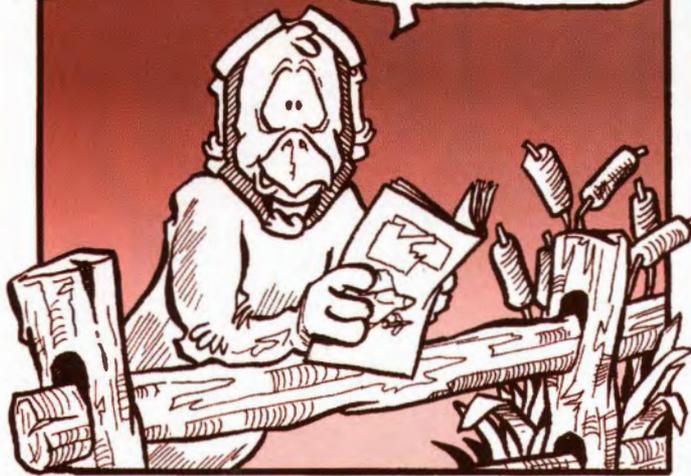
— I force myself to focus only on flying when I'm in the squadron. I used to have a "bubble" of about 30 minutes, which means I wouldn't talk to anyone about non-flying stuff inside of 30 minutes to brief time. Now my bubble starts when I walk in the door of the squadron. I've told my safety staff that if they ever call me in the squadron, there had better be a mushroom cloud nearby.

— And finally, I try my best to be at as many squadron pilot meetings, academic sessions, social get-togethers, and pick-up basketball games as I can be. This is for my own sanity and gives me a good excuse to get out of the office. It helps me "stay focused on the flying mission and the squadron" so I can stay in touch with what's going on.

In summary, no matter what our "real job" is or what additional duties we have, we all have figured out ways to compartmentalize our lives so we can fly with our minds on the mission. But as we get bigger around the mid-section and pick up more non-flying related daily responsibilities, we need to concentrate harder on getting ourselves ready to fly and staying focused on the mission. Our ACES Personal Preflight may need some adjustments and may take a little longer than we'd like. That's okay. When we're strapped into the jet rolling down the runway in full afterburner, no one will hear us screaming with laughter or realize our hair (slightly gray) is on fire again. ■

Fleagle

WHATTA YA THINK OF THE COMBAT EDGE?



LIKE IT?
(ESPECIALLY ME!)



HATE IT?



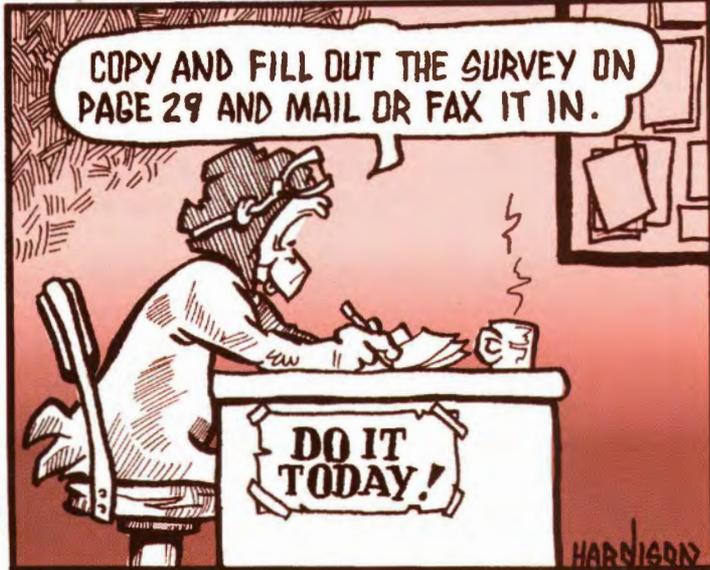
CAN'T USE IT?



YA GOT ANY IDEAS ON HOW TO MAKE IT BETTER SO IT HELPS YOU TO WORK AND PLAY MORE SAFELY?



COPY AND FILL OUT THE SURVEY ON PAGE 29 AND MAIL OR FAX IT IN.



Safety Goes Beyond the Work Environment

Timothy M. Edwards
4 FW/SEG

Seymour Johnson AFB NC

In carrying out my job as Ground Safety Manager at the 4th Fighter Wing, I have a very aggressive program in place to track and investigate first aid injuries. Many people sometimes don't see the need for such a program, especially concerning home-related mishaps where personnel are assumed to be safe in their own private domain. Nevertheless, I think the following true life story submitted by a fellow member sells my case for the reason I do what I do.

On a Saturday morning in late October, I was hanging a plant in my house. Instead of using a ladder, I decided that it would be easier just to climb up on a counter to do such a menial task. What could that hurt? Well, at the time, I thought taking a short cut like this wouldn't harm a thing. Now after the hospital has reconstructed my toe and foot, I think differently — a lot differently!

I didn't have a problem getting the plant

hung on the wall. It was when I jumped down off the counter that I got into trouble. As I landed on a curtain rod I had temporarily placed on the floor, I almost severed my toe. Needless to say, if I would have taken just a few moments to set up a ladder and check the area around my workspace, I would have been spared months of agony...an ounce of prevention is worth a pound of cure. There is a moral to my story: *Safety goes beyond the work environment; even in the safety of your own home, there is no task too small that does not warrant consideration for elimination, reduction, or control of risk.* After you read what my family and I went through after my injury, I'm sure you'll agree.

After the initial visit to the hospital, a follow-up visit was scheduled because of the difficulty I was experiencing in moving my toes. After close examination, my doctor decided he could do nothing about the problem. Dissatisfied, I returned home and

requested a second opinion. I was then referred to a different hospital over 3 hours away. At this point, I was beginning to get upset because my toes were beginning to stretch out in several different directions. Through some research and inquiries of my own, I discovered that I might have some tendon damage that went undetected. So once again, I was referred to another hospital about 2 hours away.

It turned out that I did, in fact, have some tendon damage. After repair, however, the tendons came loose again because of strain induced by walking. I was then

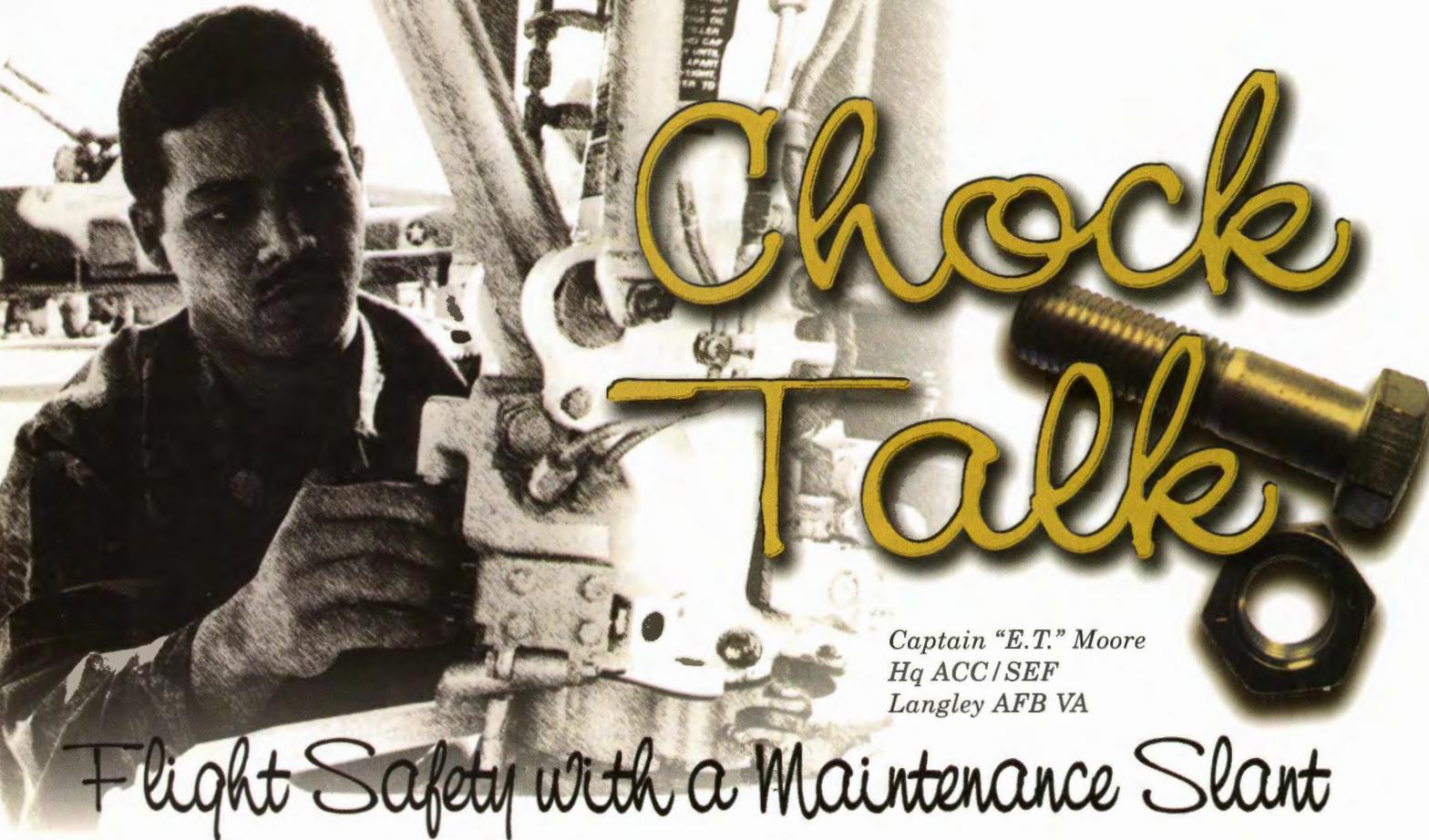
Safety goes beyond the work environment; even in the safety of your own home, there is no task too small that does not warrant consideration for elimination, reduction, or control of risk.

scheduled for further surgery to repair the tendons. During this process, a stutter in my heart was discovered. It wasn't until a month later that I got my heart checked and was cleared for surgery on my foot. I was told the operation to repair the tendons would take about an hour. As it turned out, it took 4 hours; my toes had to be fused together leaving a steel pin protruding out the end of one toe.

I was then placed on 30 days convalescent leave. During my leave, I slipped on my crutches and jammed the pin into my toe. The pin was bent and the webbing between my toe was torn where the initial laceration was located. I was then placed on an additional 21 days convalescent leave. Two weeks later, I began experiencing a lot of pain. Fluid was coming from the wounds in my foot, and I was given antibiotics to clear that up. It wasn't until another week later that I returned back to work and was placed on light duty.

During this whole ordeal, my wife had to drive me everywhere I needed to go. Her job was put into jeopardy also. A total of about 70 days lost ... all due to a failure to use simple risk management techniques on a job that should have taken only a few minutes for me to do. Instead, those few minutes turned into months ... agonizing months. ■

This is only one of many cases that happen like this everyday, and each one takes directly away from mission accomplishment. For example, someone else had to fill in or take up the slack for this lost resource in the workplace for over 2 months. That's why, as a Ground Safety Manager, I put so much importance on reducing first aid injuries through education and training. I encourage you to do the same. Prevention of mishaps like these will not only enhance your unit's operations, it will increase your unit's efficiency and combat effectiveness. Remember, don't let what takes only a few moments to ensure a safe operation be put aside...it's not worth the risk. Your mission depends on it!



Chock Talk

Captain "E.T." Moore
Hq ACC/SEF
Langley AFB VA

Flight Safety with a Maintenance Slant

LOX and Water Really Don't Mix!

While assigned to an overseas remote location, I was given one of those opportunities to shine that I just as soon would have gladly passed on. Late one evening while sitting in my dorm room, I received a call from my Fighter Squadron Commander. There had been an accident at another base. An explosion of some sort...two airman were injured and an aircraft severely damaged. It turned out that I was the only safety trained maintenance officer on base, and I was needed to investigate the mishap. Early the next morning, I was on my way.

Upon arriving, I was immediately taken to the Hardened Aircraft Shelter (HAS) where the explosion occurred. The scene was left just as it looked the night of the mishap. The sight sent chills down my spine. The fighter

aircraft had a huge hole blown in its right side, just below the cockpit. Metal was torn, wires and lines were dangling and red blood stains were on the aircraft, on the floor and on the walls of the HAS. Sharp shards of metal were strewn throughout the hangar. The shards of metal were what used to be a 5 liter liquid oxygen (LOX) converter. It had obviously exploded with a tremendous amount of force. Unfortunately, two airmen were at the aircraft when the explosion occurred. One was seriously injured; the other received some cuts and scrapes. My job was to find out what happened.

The two airmen involved were on the mid-shift aircraft servicing crew...you know, that late-night, boring, dull and routine shift where nothing exciting ever happens. When

Metal was torn, wires and lines were dangling and red blood stains were on the aircraft, on the floor and on the walls of the Hardened Aircraft Shelter.

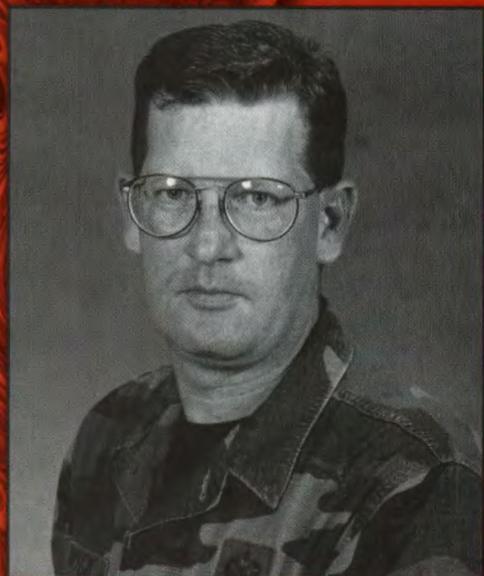
they arrived at the mishap aircraft, they noticed a strange hissing sound coming from the aircraft's LOX converter panel. Worker 1 climbed into the cockpit to check the LOX pressure indicator. He yelled down to Worker 2 that it read "zero." Worker 2 then proceeded to open the LOX servicing panel to investigate the source of the strange hiss. Holding the panel up over his head with one hand, he bent down to look under the aircraft and requested a wrench from Worker 1 to tighten the leads to the converter. This request probably saved his life. Just as he ducked his head beneath the aircraft, the LOX converter exploded, showering the HAS with sharp metal shards. Both airmen were rushed to the hospital and treated for their injuries. They were fortunate to be alive.

Why did the converter explode? Was it defective, improperly serviced or did the liquid oxygen somehow come in contact with oil or another foreign substance producing a volatile mixture? The investigation began. The converter had been installed in the aircraft earlier in the evening. It was picked up from the LOX storage area on another part of the base. The LOX storage area was on a low lying portion of the base prone to flooding during rain storms. There was a torrential downpour that morning. The converter sat through the storm without protective caps installed, in violation of technical data. Instead, cloth screw bags were placed over the converter's ports. The worker who picked up the converter testified that it was sitting in 3-4 inches of standing water when he picked it up. Instead of removing the bottle from service and identifying it as requiring a purge (also required by technical data), he promptly removed his BDU shirt and wiped down the bottle. Needless to say, this did little to remove the water that had penetrated the cloth screw bags and worked its way into the converter ports and, more critically, the over-pressurization vent. The converter was installed in the mishap aircraft and serviced with liquid oxygen...very, very cold liquid oxygen (-297 degrees Fahrenheit, to be exact). The water that had penetrated the rain soaked converter immediately froze; including the water in the critical over-pressurization vent. Without going into the physics on how a pilot gets breathable oxygen from the LOX in the converter, suffice

it to say that the liquid converts to gas, thus expanding the pressure in the bottle. The expanding pressure is relieved via the over-pressurization vent of the converter...unless, of course, it is blocked with ice. The expanding gas sought a place to escape and began to do so through the servicing ports of the converter. This was the hissing detected by the workers later in the evening. Now you're asking, what about the LOX pressure gauge in the cockpit reading "zero?" Well, the pressure was actually much greater than zero. You see, there was so much pressure on the converter that the indicator had swung all the way around the dial and stopped during its second trip around the dial at around the zero mark; thus, Worker 1's report of "zero" pressure on the converter. Finally, the converter could no longer contain the expanding pressure and exploded.

The fragmented remains of the converter were forwarded to the depot where my investigation findings were confirmed. A blocked vent port on the converter caused the violent explosion. The aircraft's structural integrity was so severely compromised that it was not deemed cost effective to repair it. It now sits in the "boneyard" at Davis-Monthan AFB. We learned some valuable lessons here. First, there is a good reason technical data dictates capping off exposed ports on the converters. Second, not only are oil and LOX a volatile mixture, but LOX and water don't go well together either. The technical data says so. It requires a converter to be purged if it comes in contact with moisture. I hope this mishap will send maintenance supervisors over toward the LOX converter storage area to take a look at the environment where the converters are stored. Are they capped and tagged? Perhaps a visit by senior maintenance supervision to the folks out there on the sometimes forgotten "servicing crew" would be beneficial. Let them know that they are a critical element in the sortie production effort. This near tragedy is yet another example of how the "dull and routine" can turn into a disaster if we don't follow technical data. ■

"Not a single sortie we fly is worth compromising the integrity of an aircraft or the life of an airman."



FLIGHT SAFETY AWARD OF THE QUARTER

*TSgt Edward L. Warwick
93 ACW
Robins AFB GA*

TSgt Warwick is the first 93 ACW Flight Safety NCO (FSNCO). In this capacity, he is forging the flight safety foundation on which future wing members will depend. His extensive knowledge of the Air Force's newest weapon system, the E-8 Joint Surveillance Target Attack Radar System, allows him to identify safety shortfalls and get them fixed. During a spot check of the airfield, TSgt Warwick discovered a serious deterioration of the runway and taxiway paint. His investigation revealed that the paint was flaking away in large quarter inch thick sheets. He immediately developed interim wing procedures to minimize FOD risk to our aircraft and highlighted the problem up through his chain of command. His quick action spearheaded the formation of a base tiger team on the issue. His initiative led to \$50,000 of out-of-cycle money being allocated for immediate repairs and \$700,000 was ear-marked for next fiscal year repairs. His attention to detail prevented serious damage to all host and tenant flying units at Robins AFB. When the wing discovered under certain conditions the E-8 aircraft would lose all communications, he researched the malfunction and discovered a Category II safety deficiency report (DR) submitted one year earlier, with no action taken. He submitted a new Category I safety DR and a control measure was in place within 1 day. The contractor installed a stand alone, back-up UHF radio on all operational E-8 aircraft. As the investigating FSNCO on an E-8 ground mishap, TSgt Warwick discovered numerous training and Technical Order (T.O.) deficiencies. His suggestion to separate tasks by skill level and accomplish an In-Progress Inspection were readily adopted by the wing. His insight led to new procedures and the T.O. has been changed to reflect the correct way to accomplish the task.

Hand-picked to be a member of the E-8 cockpit working group, he took the initiative to correct yet another deficiency with the aircraft. The fuel flow gauges were nearly impossible to read and failed at an abnormally high rate. Within 2 weeks of submitting a Category II safety DR, the system program manager issued a time compliance technical order to replace the older unreliable gauges with new state-of-the-art fuel flow instruments. TSgt Warwick's proactive Spot Inspection program is extremely effective. His program has identified and corrected numerous hazards. His first spot inspection revealed the flight planning area did not have a current airfield diagram, IFR departures, or FLIP documents. He had the problem fixed on the spot. The first line of defense in safety is education, and TSgt Warwick is leading the fight in that arena. He authored and currently teaches a bimonthly Dedicated Crew Chief Course to all new maintenance personnel. He is also our featured safety expert at the monthly initial inprocessing briefing. He has the ability to get the "safety" word out to people without lecturing them...and people pay attention! TSgt Warwick's professionalism and enthusiastic attitude is contagious. Whether developing a new program or correcting a deficiency on the spot, he has the maturity and knowledge that makes people listen. He is dedicated to the tenants of safety and is deserving of the Flight Safety Award of the Quarter.

WEAPONS SAFETY AWARD OF THE QUARTER

*SSgt Thomas Carson
509 BW
Whiteman AFB MO*

Individual's
Photo
Not Available



SSgt Carlson's efforts are without a doubt responsible for the 509th Bomb Wing's nuclear surety programs "Excellent" rating during the January 1997, ACC Inspector General, Nuclear Surety Inspection. His positive impact on the wing's safety and surety programs was noted by the inspectors whom recognized SSgt Carson as a superior performer. In the months that preceded this inspection, SSgt Carson conducted comprehensive inspections of all assigned units which identified and corrected program deficiencies. His willingness to help the unit safety representatives correct discrepancies built an atmosphere of teamwork between the staff and units that is unprecedented. SSgt Carson performed a 100% revision of the wing's nuclear surety training programs to ensure quality training was given by the units. He also developed a unit and wing-level tracking system to ensure that no individual would be allowed to miss Nuclear Surety Training without cause and documentation of the circumstances. Most importantly, this emphasis ensures that no individual will be allowed to perform nuclear related duties without current training. To ensure that all unit developed checklists, operating instructions and other guidance was initially coordinated and annually reviewed by the weapons safety function, SSgt Carson devised and implemented an efficient tracking and monitoring system for locally developed nuclear related guidance. The publicity program implemented by SSgt Carson raised the level of nuclear surety knowledge within the wing.

During the past 90 days, SSgt Carson has continued to build upon his history of exemplary performance. As the 509th Bomb Wing Safety Division point of contact for the integration of new munitions into the arsenal, SSgt Carson worked with the munitions area, loaders, and test team to ensure safety and surety concerns were addressed. His membership on this team contributed greatly to the implementation teams' success. The many changes to the operational flight program software for the B-2 aircraft was identified by SSgt Carson as areas of concern. His monitoring of the element of nuclear certification prevented a violation of the weapon system safety rules for strategic bombers by the B-2 weapon system. Through his unique working relationship with the units, SSgt Carson discovered that a time compliance technical order change was being issued for the B-2 operational flight program. The mission data entry cartridges for this change were already in the hand of the bomb squadron and literally in the process of being installed. Through his close monitoring of the software certification process, he identified that this software was not certified and took action to prevent this change from being implemented. This action prevented the violation of weapon system safety rules and/or the loss of the B-2 fleet from nuclear capability.

SSgt Carson represents the best the Air Force has to offer on- and off-duty. His tireless service as an elder in a local congregation extends his service into the local community. His steady pursuit of self-improvement is demonstrated through the attendance of college courses during off-duty time.

Accolades

QUESTIONS OR COMMENTS CONCERNING DATA ON THIS PAGE SHOULD BE ADDRESSED TO HQ ACC/SEF, CAPT "E.T." MOORE DSN: 574-7031

	TOTAL			ACC			CANG			CAFR		
	JUN	THRU JUN		JUN	THRU JUN		JUN	THRU JUN		JUN	THRU JUN	
		FY97	FY96		FY97	FY96		FY97	FY96		FY97	FY96
CLASS A MISHAPS	2	16	8	1	8	4	1	5	4	0	3	0
AIRCREW FATALITIES	0	14	0	0	2	0	0	2	0	0	10	0
* IN THE ENVELOPE EJECTIONS	1/0	10/0	7/0	0	3/0	4/0	1/0	4/0	3/0	0	3/0	0
* OUT OF ENVELOPE EJECTIONS	0	0	1/0	0	0	0	0	0	1/0	0	0	0

* (SUCCESSFUL/UNSUCCESSFUL)

CLASS A MISHAP COMPARISON RATE

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

	FY	MONTH											
		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
ACC	FY 96	0	1.1	0.8	0.6	0.9	1.2	1.0	0.9	1.0	1.4	2.1	2.0
	FY 97	0	0	0	0.6	1.0	0.8	1.6	2.1	2.1			
8 AF	FY 96	0	0	0	0	0	0	0	0	1.2	1.0	1.7	1.5
	FY 97	0	0	0	0	0	0	0	1.2	1.1			
9 AF	FY 96	0	0	0	0	0	1.1	1.0	0.8	0.8	2.1	1.9	1.8
	FY 97	0	0	0	1.7	1.4	1.1	2.9	2.5	2.3			
12 AF	FY 96	0	3.4	2.4	1.8	2.9	2.3	2.0	1.7	1.5	1.4	3.1	2.9
	FY 97	0	0	0	0	0	0	1.0	1.7	1.5			
DRU	FY 96	0	0	0	0	0	0	0	0	0	0	0	0
	FY 97	0	0	0	0	5.7	4.7	4.0	3.5	6.4			
CANG	FY 96	0	1.9	1.3	2.2	1.8	2.2	1.9	1.7	2.0	1.8	2.0	1.9
	FY 97	0	3.8	2.6	3.3	2.7	3.0	2.6	2.2	2.0			
CAFR	FY 96	0	0	0	0	0	0	0	0	0	0	0	0
	FY 97	0	6.3	4.2	3.1	5.2	6.1	5.3	4.7	4.2			
TOTAL	FY 96	0	1.3	0.9	1.0	1.1	1.4	1.2	1.0	1.2	1.1	1.9	1.8
	FY 97	0	1.9	1.3	1.7	1.9	2.0	2.3	2.4	2.4			

"Hum-vee" Versus Rain Ravaged Road



Driving military vehicles in Saudi Arabia is both challenging and dangerous. Now you ask yourself, "What does driving a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) in Saudi Arabia have to do with me?" Well, first of all, consider the fact that on any given day, there are more than 5,000 Air Force personnel deployed to Southwest Asia. In addition, since forward stationing is very important to our nation's strategy of global engagement, we will most likely continue our presence in the AOR for the foreseeable future. As a result, there is a real possibility for all of us to get first-hand experience driving a HMMWV or other military vehicle in Saudi Arabia sometime in the near future. Many military vehicle mishaps in the AOR have been the result of inattention, excessive speed and failure to drive defensively. Don't let complacent driving habits or not wearing seat belts rob you of your life. After reading the following true life story from the Prince Sultan Air Base safety files, I'm sure you'll agree.

-Ed.

TSgt "Safety Bob" Meloche, 4404 WG(P)/SEG, Prince Sultan Air Base, Saudi Arabia

During a dark and somewhat stormy night, an unsuspecting foursome traveling in a HMMWV departed Entry Control Point (ECP) #02 in the direction of "Ops Town" at Prince Sultan Air Base. Accelerating to the 30 mile per hour limit, the vehicle headlights picked up a large area of standing water straight ahead; so the driver began to slow down. As the vehicle entered the water, the road surface under the right front tire gave way, and the tire dropped violently down. All vehicle occupants were thrown forward in their seat belts; the jolt to the vehicle chassis was so immense that the HMMWV axle snapped in two. Because of their conscientious use of "seat belts," none of the people in the vehicle were injured.

What can we learn from this incident? First of all, the roads here in Saudi Arabia are subject to severe washout from violent thunderstorms. In this particular case, the rain and subsequent flooding had eroded the earth from under the asphalt. It looked fine from the surface, but the road couldn't

hold the weight of the vehicle after the soil erosion had taken place.

Secondly, the driver may have been able to minimize the jolt and subsequent damage to the vehicle had he slowed down more prior to entering the water. I know it's tough to identify a road hazard you can't see; but if you aren't 100% sure of the integrity of the road surface you're traveling on, "slow driving" should be the rule and not the exception.

Last of all, the incident proved to be an excellent example of how seat belts prevent serious injury. Without the belts fastened, the driver and occupants would have been tossed around inside (or possibly thrown out of) the vehicle. Either way, injuries would have been virtually guaranteed. ■

—Lessons Learned—

1. Be sure of road surface integrity.
2. If in doubt, drive S-L-O-W-L-Y.
3. Always keep your seat belts fastened in a moving vehicle.



While accomplishing our mission of mishap prevention through safety education and awareness, we are constantly striving to improve the quality of *The Combat Edge* magazine. Our goal is to help everyone benefit from safety lessons learned through the printed page rather than from painful personal experience or tragedy. As a result, the ACC Office of Safety is dedicated to providing command personnel with the best flight, weapons, and ground safety information possible. To “Keep Us On Target,” we need your help! We want “your” feedback concerning ACC’s mishap prevention magazine. After all, *The Combat Edge* is really “your” publication.

How can you help us? It’s simple — just complete the attached survey form and forward it to us by fax, regular mail, or through official mail channels (i.e., your local Base Information Transfer Center [BITC]). Rest assured, we read each and every survey that comes in from our readers and seriously consider all suggestions that are made. We know how busy you are in today’s high ops tempo environment, but please take a few moments to tell us how we can do a better job of serving you. We value your comments. By providing us with your valuable input, you will be helping us steer the future direction of *The Combat Edge*. Remember, your input is the one that can make a difference!

Thanks for your time!

- Ed.

Please fax your completed survey to DSN 574-6362/commercial (757)764-6362 or mail the form to the following address:

Editor, *The Combat Edge*
HQ ACC/SEP
130 Andrews St Ste 302
Langley AFB VA 23665-2786

P.S. - Don’t have a stamp? Just give the survey to your local, friendly Safety Office. They’ll get it to us.

1997 Reader Survey for *The Combat Edge*

(Check off or fill in all items that apply)

- 1. **Branch of Service** - Air Force ___ Army ___ Navy ___ Marines ___ Other ___
- 2. **Years in Service** - Less than 2 ___ 2-5 ___ 6-10 ___ 11-15 ___ 16-20 ___ 21+ ___ N/A ___
- 3. **Position** - Enlisted ___ Officer ___ Civil Service ___ Other ___
- 4. **Gender** - Female ___ Male ___
- 5. **How often do you read *The Combat Edge*?**
 - a. Very often (every issue) ___
 - b. Often (most issues) ___
 - c. Sometimes (some issues) ___
 - d. Seldom (very few issues) ___
- 6. **How do you normally obtain this magazine?**
 - a. Official USAF distribution (PDO) ___
 - b. GPO subscription through direct mail ___
 - c. Library ___
 - d. Co-worker, associate, friend ___
 - e. Other ___
- 7. **How much of this magazine do you read?**
 - a. All ___
 - b. Most ___
 - c. Some ___
 - d. A little ___
 - e. None ___

We are interested in your assessment of *The Combat Edge* magazine. When choosing an answer, write in the number corresponding to the extent you agree or disagree with each statement.

Strongly Disagree **Disagree** **No Opinion** **Agree** **Strongly Agree**
1 2 3 4 5

- 8. *The Combat Edge* articles are informative. ___
- 9. *The Combat Edge* articles are interesting. ___
- 10. *The Combat Edge* magazine is useful to me personally. ___
- 11. *The Combat Edge* is an effective mishap prevention tool. ___

12. For the areas listed below, please rate each using the following scale:

<i>Poor</i>	<i>Fair</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>
1	2	3	4	5
Quality of magazine covers ___			Variety of articles ___	
Graphics, layout and design ___			Award write-ups ___	
Article quality ___			Overall attractiveness of magazine ___	
Photographs ___			Contribution to safety education ___	

13. How would you rate *The Combat Edge* in comparison with other DoD safety publications? (i.e., Flying Safety, Road & Rec, Mobility Forum, Approach, Torch, Focus, etc.)

- a. The best ___
- b. Better than most ___
- c. Average ___
- d. Worse than most ___
- e. The worst ___
- f. No opinion ___

14. Please tell us how you would improve *The Combat Edge*:

15. What kinds of articles should we print "more" of?

16. What kinds of articles should we print "less" of?

Additional Comments:

FOLD

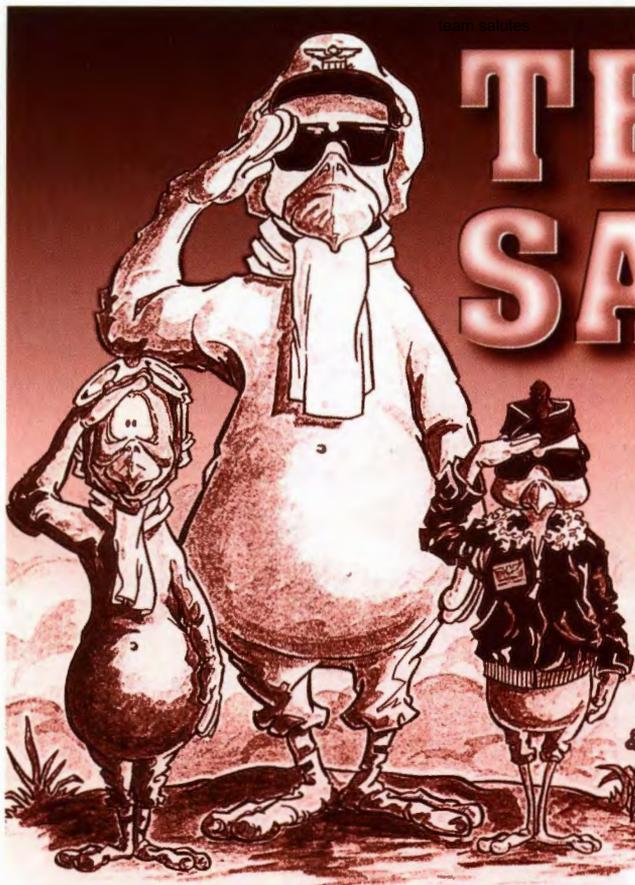
Please fax your completed survey to
DSN 574-6362/commercial (757)764-6362
or fold, tape and mail the form to the address below:

CUT LINE

FOLD

Official Business

Editor, *The Combat Edge*
HQ ACC/SEP
130 Andrews St Ste 302
Langley AFB VA 23665-2786



TEAM SALUTES

The HQ ACC TEAM SALUTE recognizes a person, group of people or unit for notable displays of quality performance in the area of mishap prevention. **TEAM SALUTE** recipients are selected by the ACC Safety Awards Board from the monthly nominees for ACC safety awards. Periodically, **TEAM SALUTE** recipients will be featured in *The Combat Edge* magazine. Our sincere congratulations to these outstanding performers in the safety arena.

TSgt Steven J. Brennan
20 TRNS, 20 FW
Shaw AFB SC

SrA Aaron J. Walker
70 FS, 347 WG
Moody AFB GA

SSgt Shawn D. Flowers
952 AGS, 552 ACW
Tinker AFB OK

SSgt Michael J. May
952 AGS, 552 ACW
Tinker AFB OK

SSgt Roderick T. Spenner
SrA Adam S. Judd
99 SVS
Nellis AFB NV

TSgt Thomas E. Bonifay
86 FWS, 53 WG
Eglin AFB FL

SSgt Brook A. Morris
5 BW
Minot AFB ND

SSgt James A. Suarez, Jr.
60 FS, 33 FW
Eglin AFB FL

F-117 NIGHTHAWK

