

November 1997

# THE COMBAT EDGE

The Combat Edge November 1997





# The Combat Edge

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## CONTENTS

NOVEMBER 1997

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**About the Cover:** F-22 Chief Test Pilot Paul Metz gives a "thumbs up" as he steps to board Aircraft 4001 at Dobbins Air Reserve Base on September 7th, 1997, prior to taking the jet on its first flight over the skies of Georgia. The F-22 Raptor is the Air Force's next generation "Multi-Mission Air Superiority Fighter" currently under development by Lockheed Martin, Boeing, and Pratt & Whitney. Esteemed to be the most advanced fighter aircraft in the world, the F-22's revolutionary combination of stealth technology, integrated avionics, maneuverability, and supercruise design (supersonic flight without afterburner) will provide the Raptor with a "first look, first shot, first kill" combat capability. With the first operational squadron planned for Air Combat Command in 2004, the F-22 Raptor will provide the Air Force with the ability to dominate the skies over any battlefield as the 21st Century begins to unfold.

### FEATURES

#### 4 BEEN THERE, DONE THAT, GOT THE T-SHIRT!

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

#### 30 CANCER: A MEDICAL MISHAP?

*Captain Louis R. Flowers III*  
14 MDSS/SGSAP  
Columbus AFB MS

### DEPARTMENTS

FLIGHT SAFETY

22, 26

GROUND SAFETY

8, 24

WEAPONS

21

ORM

10

AWARDS

12, 18

CHOCK TALK

14

ACCOLADES

29

FLEAGLE

7



# ACCent on Safety

Aaaahhh, autumn! What a great time of the year. After the heat and sweat of summer, it sure is great to breathe the cool, crisp air, to feel the chill on the night air, and in particular, to have an Academy team that's goin' great guns! How 'bout them Falcons! I'm writing this as they've jumped into the Top 25 with a 6-0 record. Safety guys always have to be careful about jinxes (Yeah, we really are superstitious), but I can't help but be enthusiastic. The Air Force Academy is OUR "blue-suiter" team, and whether that's our alma mater or not, it's good to see them doing well. Good luck to the "Zoomies" and may they keep on flying high!

But back to more mundane matters — it's time for some "timely" reminders about what that cool fall weather brings as excess baggage. First off, summer's humidity hasn't left as quickly as the high temperatures; so the dew point is up, the temp is not, and that means — FOG! Sometimes so thick, you won't be able to see your hood ornament (if you had one). Summer's heat made us take it slow in the afternoon, but the fog of fall means to plan on a long, slow drive in the mornings. Remember that low beams are the key, stay alert (that means no loud music, no cell phones, and drink the coffee at home — not behind the wheel), and don't drive faster than you can see to stop. If you end up a few minutes late, your supervisor may yell at you a bit; but at least you'll be there to hear it.

Up north and out west, there'll be places that have already had their fog turn solid and drop on the ground. This is a particularly tough time up there 'cause there's usually no warning before a rapid drop in temperature, sudden clouds, and next thing you know, swirls of the white stuff comin' sideways. Knowledge is the key — the Weather folks have gotten pretty good at tossin' darts, so listen up to forecasts and be prepared for those sudden changes! Have a CB or a cell phone, put a blanket in your car trunk (and maybe an MRE and some water), and you'll be better prepared for that unexpected stay while Momma Nature does her thing. Even if there's none of the white stuff sticking, be head's up for the roads to have turned slick. The snow lands on the road, melts, and refreezes faster than you can say, "A-slippin' and a-slidin'!"

Well, I've beat up the weather enough — you ought to have gotten the hint that we're in a time of change. But unlike the seasons, there's one truth about flying safety that hasn't changed since Orville and Wilbur were best known as bicycle makers. Namely, there are old aviators and there are bold aviators; but there are no old, bold aviators. Rock Parrilla, who's survived bein' bold to become an old aviator, has some thoughts on "experienced aviators" that I think you'll find well worth reading. Being another one of the "old" category that survived some "bold" times, I heartily recommend his column as a good read for the aviator of every age and phase. Earning the T-Shirt shouldn't cost a life, and Rock's article points out that all of us — young, old and bold — share in that responsibility.

Stay safe, fly smart, and GO FALCONS!

*Colonel Turk Marshall  
Chief of Safety*



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



**Been There, Done That,  
Got the T-Shirt!**

Highly experienced, respected aviators are not immune from mishaps. Your superior ability to fly the airplane can also be your Achilles' heel.

**W**e were on an instrument approach on the last sortie of instructor pilot (IP) upgrade training for an IP candidate. It was not a good day for the home team, and I was in doubt whether the candidate was ready to pass the course. He had been critiqued on long landings on prior sorties, so I figured his pattern work may wind up as the tie breaker. As we got on short final, we started getting more on the "Three red, one white" lower area of the Precision Approach Path Indicator (PAPI) glide path instead of the nominal "Two red, two white." As we ap-

proached the overrun, we descended into all red in the PAPIs and I realized I was lifting my feet away from the floor (NOT A GOOD SIGN!). My first impulse was to take the jet and go around, but I figured, "I've got almost 5,000 hours (2,000 of them in the Bone), and my hands are next to the throttles. I'm so good I can take this around before we hit anything, so I'll let him continue to see what corrections he makes." The only reason those did not become "Famous last words" is because even though I was being stupid, it was not time for me to go yet. Fortunately we did not get any windshear or flight control/engine malfunction, and the candidate held power long enough that we landed about 500 feet down the runway, still short of the desired 1,000.

As I was writing the corrective training requirements for the candidate the next day, it really bothered me that in my overconfidence I allowed another pilot to place me where I could have bent a jet and maybe even hurt someone. I got away with it. However, many other old heads have not fared so well when they let their guard down. Of the last 37 ACC/ACC-gained Class A mishaps, 15 had an aircraft commander with over 2,500 flying hours. In FY 96, 9 out of 15 Class A mishaps had operators as a factor. In 4 of those, the pilot had over 2,500 hours.

Some mishaps with experienced aviators go back to the very basics of airmanship:

- A junior wingman watched as a highly experienced lead in an emergency fuel situation overlooked suitable airfields, used excessive descent rates, and eventually ejected too late, resulting in injuries.

- More than one highly experienced and respected pilot was so hasty in shutting down a malfunc-

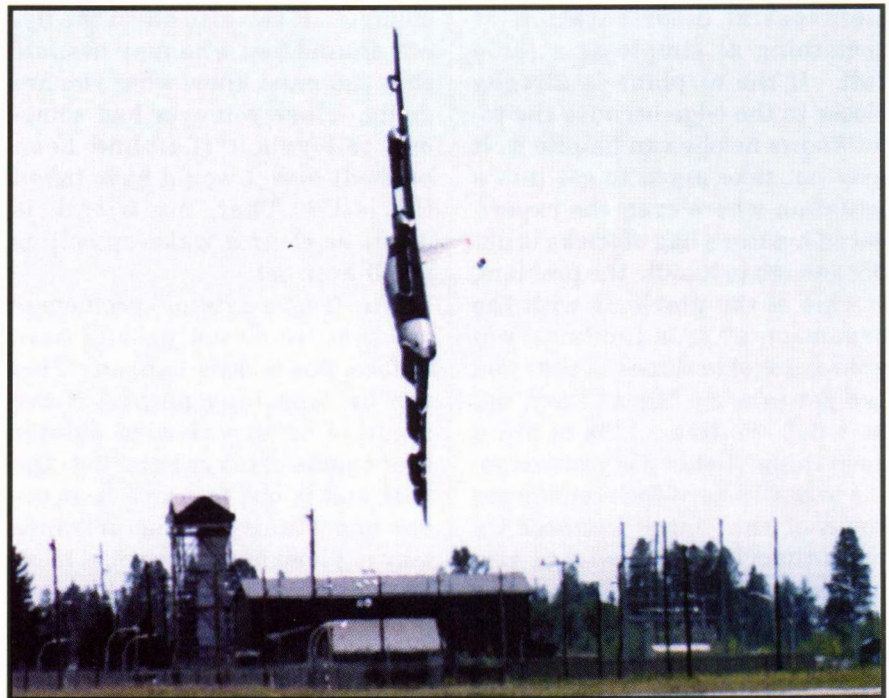
tioning engine, that they inadvertently shut down a good engine.

- A highly experienced and respected fighter pilot stalled his aircraft during a too tight final turn. This top aviator was well known for flying "Tiger" patterns, but no one had ever told him to back off.

- A relatively inexperienced crew sat quietly and watched as a senior instructor pilot made a series of errors in the approach leading up to a hard (make that

All these mishaps involved highly experienced aircraft commanders. In some cases, they had reputations for being overly aggressive; but in others, they were very respected and considered conservative aviators. Does this mean that the older, more experienced flyers are more dangerous? No. But it does mean that they are just as likely as less experienced flyers to encounter serious aircraft malfunctions and they too, can make mistakes.

As we gain more experience



*Several aircraft mishaps have involved very experienced aircrew members.*

extremely hard) landing.

- A highly experienced flight examiner with a long history of overaggressive/non-approved maneuvers disregarded instructions to "tone down" and overbanked the aircraft at low altitude, impacting the ground.

- Another highly experienced flight examiner with an experienced crew descended early below Minimum Descent Altitude (MDA) in a night/low ceiling situation, eventually impacting the ground.

and our bag of tricks gets heavier, our limits keep expanding and we find we can fly the airplane better and can do things with the airplane we could not do before — such as tighter patterns, better bombing, etc. Our situational awareness also improves to where we can see things developing before others do. This may be in part due to having done something before, or being familiar with weather patterns, local traffic, etc. In spite of this (or maybe because of this), some of the mis-



haps involving experienced aviators took place when the pilot was doing something that he was familiar with and was within his capabilities. Sometimes things happen that can overtask or distract pilots from what they are doing, and then become that last connecting dot for the mishap sequence. This can be an aircraft problem such as an engine/flight control malfunction or a caution light; a weather phenomena such as turbulence, windshear, or crosswinds; traffic; visual illusion/spatial disorientation or something as simple as a radio call. If the airplane is already closer to the edge because the pilot knows he/she can handle it, it may not take much to get into a situation where even the experienced aviator's bag of tricks is not big enough to handle the problem.

One of the problems with the expansion of your limits as you gain more experience is that you can get into the "Do as I say, not as I do" routine. This is not a good thing. Reality is you are going to have a hard time convincing some of the young lieutenants (with their hair on fire) that yes, indeed, you are that much better than they are. Many of our limits have a flyer's blood attached to them. DO NOT allow yourself to expand your limits to the point that you are treading a fine line with tech orders, command guidance, or plain old common sense. If you can do it, others are going to feel they can do it too.

Shortly after I traded in my helmet and checklist for a pocket protector, a wraparound modular desk, and a laser pointer (Did I mention how much I love staff work? No? ... Good!), we had two mishaps where a pilot in my age group jettisoned a jet from his back only to have a less than successful Parachute Landing Fall (PLF). This made me wonder if I

had ever sat back during our life support class with an attitude of "I've been there, done that, got the T-shirt. Airman, just wake me up when it is time to do my demo and be thankful I showed up." ... NAAH, surely I wouldn't have done that, would I? Complacency is one of the dangers facing us as we gain more experience and get set in our ways. This can include such things as being in a state of complete relaxation during a class or being less than prompt in updating pubs with the new changes. It can also affect the flyers around you who may assume that you must know what you are doing. Have you ever had someone tell you, "If it had been anybody else, I would have taken the jet!"? That, my friend, is about as clear a wake-up call as you'll ever get.

The "rogue aviator" problem is one that we do not usually have to face, but it does happen. This can be especially painful if the rogue is an experienced aviator that thinks of his or herself as the best and is out to prove it at every opportunity. Peer pressure may not help much here; it is more of a leadership issue. However, peers need to speak up in-flight and in the debrief. Supervisors need to step in ASAP. The best fix for this species is to hunt them down and eliminate them from the pack. The sooner, the better, before they take themselves out (and who knows how many more).

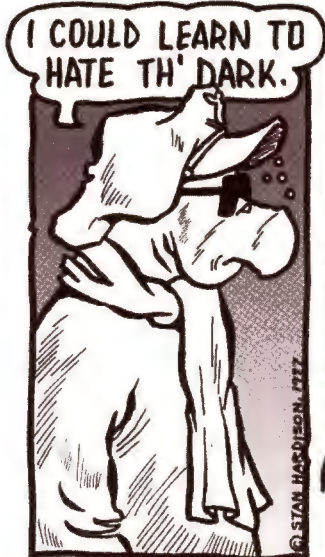
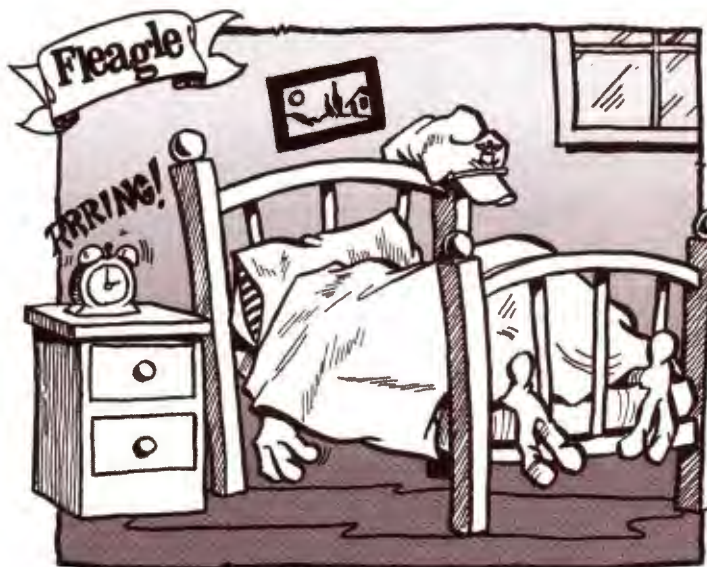
Fatigue and stress are things we all have to deal with. In the case of the experienced flyer, supervisory responsibilities add even further to this. Do you, as a squadron supervisor, squeeze in the very last second available before going into crewrest and then take work home with you? How long can you do this before it starts affecting your flying? Another stress factor is the

likelihood of the experienced aviator getting the "hangar queens" during aircraft generations. This aviator knows more about the aircraft and is probably better equipped to handle a problem, so they are the logical pick to mitigate the risk. However, the handicap posed in this case must be taken into account both by the flyer and supervisors.

Pressure to succeed can affect an old head just as it does a 2Lt. How much does it affect you when you know that the aircraft in front of you landed, but you are at MDA and still in the clouds? How hard are you willing to pull through the final turn before you decide "This is stupid," and go around? Unit culture is a big influence. Does a flyer have to buy the rounds or take verbal abuse for taking a bad pattern around or is that seen as a good decision to take after an initial mistake?

Highly experienced, respected aviators are not immune from mishaps. Your superior ability to fly the airplane can also be your Achilles' heel. Do people know when you are in the traffic pattern just by looking at how aggressively you are pulling the jet around? It is not so hard to develop habits or practices that could lead to mishaps when another factor is added to the equation. As a senior aviator, you are looked up to and may be setting the stage for others to get themselves into trouble by following your lead. Fellow flyers owe it to the senior aviator and our taxpayers to point out when standards are not being met or guidance is not being complied with. Some old heads may not like it initially and may even point out how they have more time in the walkway of the jet than you have total flying time, but in the long run, we will all be better aviators for it. FLY SAFE! ■









*The skier hit the tree head on with a crack! The sharp, sudden sound was so loud that it echoed around the mountain!*

**T**HERE I WAS, standing at the top of the mountain. The view was magnificent — I felt like I could touch the clouds sweeping in (clouds do look like cotton balls you know). The surrounding peaks shone in the sun, reflecting off the pristine white snow. The valley below was barely visible with the people and cars looking like ants on the two-lane road leading to the resort. Taking a deep breath and pulling my cap just a little farther down my forehead, over the brink I went.

Swish, swish, swish! Several minutes later, I took a break and looked back up the mountain. What a beautiful day! Swish, swish, swish! Another break — and this time, to get a sip from the bota bag and check to see whether my friend was coming down okay. Across the slope were some other people as my friend stopped with a laugh and a skid, throwing snow onto my legs.

As we stood there, taking in the beautiful scenery and gasping for breath, another skier came into view. He was heading

straight down the mountain. (Normally that's not too bad and only causes a little bit of grumbling when there's a lack of consideration for others.) But then it happened — CRASH!!! The skier hit the tree head on with a crack! The sharp, sudden sound was so loud that it echoed around the mountain! As if in slow motion, the mishap skier slowly fell backwards into the snow piled around the base of the tree. And I have to tell you, it was "not" a small tree! He tried to get up and then fell back. That was the first indication (other than hitting the tree) that anyone realized how much he was hurt. His friends were able to quickly get over to him and started to provide as much help as they could. Being farther down the slope, I couldn't do anything except head down the mountain and find the ski patrol. Besides the fact that he came off the mountain on a stretcher, I never found out anything more about him.

If you haven't guessed yet, this article is about one of my favorite winter sports — skiing! I'm not the best skier in the world.



I normally ski the “blue,” or intermediate, slopes. For those of you who do not ski, the slopes are designated by color: green slopes are novice, blue are intermediate, black is expert, and the double black diamond are for those who (in my opinion) are trying to kill themselves. The difference in the slopes is fairly obvious from gentle smooth terrain to slopes with so many bumps (moguls) that it hurts just to look at them!

Now, this wouldn't be a safety article if I didn't discuss safety concerns. Most notably, be sure to maintain control over yourself while on the slopes. The incident I described at the beginning of the article really did happen. The skier headed straight for that tree without a turn or change in course. In case you've forgotten, trees do NOT move out of the way when you are coming down the slope! Most of the resorts I've skied at have groomed trails to work down, and normally there are trees on both sides of the run, as well as occasional pockets of trees on the run itself. I wrote previously about mountain biking and told you then that the trees reach out to grab you as you pass by. Ditto for skiing! Now, if you really want to check out this phenomenon, put on some skis this winter, head down the slope, and aim for the trees. No, I don't really advocate this nor do I want to see what happens! Seriously, stay on the run and away from the trees. And stay out of the trees lining the run — if you don't, you're asking for trouble.

My next concern is knowing your limitations and those of whoever you are skiing with — be it your spouse or friend. Just because you are the greatest at your job does not mean you will make the world's greatest skier! Judge your capabilities, and be smart about where you are skiing. Last winter, I watched a husband/wife team going down the mountain. The husband was an intermediate skier and brought his novice wife to the blue slopes while he taught her how to ski. After every turn, the wife fell and headed downhill in some of the most awkward positions you can imagine. She looked like she was doing floor exercises on

a set of snow skis. Because of this frustrating experience, the wife did not return to the slopes for the rest of their vacation.

The other part of knowing your limitations is knowing when to quit — and I don't mean just when the slopes close for the evening. I can't tell you how sore and tired I am after the first day of skiing when I haven't previously been on the slopes. Skiing while injured or tired does not make for an enjoyable time and could cause or aggravate an injury. Here's a good, safety tip — the first day you ski, start on the novice slopes for an hour or two to “warm-up” prior to moving on up. Hopefully, that will keep the injuries to a minimum and allow you to get stretched out and ready to hit the harder slopes with a lesser chance of really hurting yourself.

Paying attention to your energy level can also keep you from skiing “outside the envelope” of your limitations and hurting yourself. To keep your energy level up, all you have to do is take a swig of your favorite drink from your bota bag and you're ready to go, right? Wrong! Every nutritionist tells us to eat at least three meals a day. Start a trend and eat right. You'll thank me when you're still on the slopes after getting some lunch and your buddies are lagging behind because they have no energy left. And probably the most important tip of all — DRINK WATER! Not liquor, not a sports drink, but clear water. No one thinks about the possibility of dehydration while skiing, but it can happen; and its onset is subtle. Most of the time, I miss it until it's too late; then I've got a headache the size of New York! To spare yourself some pain, drink plenty of water while on the slopes.

Well, I can't think of anything more to tell you. Be cautious, be alert to the other skiers, and know your limitations and capabilities. Like every other avid skier, my dreams are filled with the memory of snow creaking softly under my boots as I walk to the lodge, silent trees whispering in the breeze, and the swish of powder under my newly waxed skis. See ya on the slopes! ■





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

# Ask Orville!

**Our letter this month comes from Sgt Ken Williams. Ken writes:**

Dear Orville,

"I am an engine troop here at the Swamp, and I recently took the ACC Computer Based Training (CBT) course on ORM Familiarization. While I found the course user friendly and easy to understand, I just do not see any practical application for ORM in my career field, especially since I am not a supervisor. In short, I feel that the course was a waste of my time — that I'll never be called on to apply ORM. Perhaps you could give me an example of ORM that I can relate to."

***Feeling Over-trained  
in ACC***

**Dear Over-trained:**

While I have no idea where the

"Swamp" is or what unit calls it home, I think I can help you get a better perspective on the value of your training. From the feedback that I have received lately, you are not alone in your perceptions. As you might have deduced from your review of the CBT course, ORM is both an attitude (the manner in which we approach our work and leisure) and a diligently applied and documented six-step process. I will concede that your being chosen to personally participate in a "deliberate" or "in-depth" unit application of the six-step ORM process is largely a matter of being the right person at the right time. Regardless of your rank, position, or supervisory status, it is certainly possible that you may never be formally appointed as a member of such a team. I would hasten to add though that the odds of your being selected are increasingly

likely as our units open their eyes to the benefits and competitive advantages afforded them through ORM.

But Ken, here is the "foot stomp." Even if you never use ORM by deliberately applying the six-step process, it is very important for you to approach all of your endeavors (both on and off duty) with a positive ORM attitude. Allow me to demonstrate the effect of this attitude, or the lack thereof, with two examples from your career field.

The first case involves an engine that has a known design deficiency, a bearing lubrication problem. Key indications of this problem are black (burned) oil and a resulting strong smell. On the seventh flight following an engine change, the crew chief questioned "black oil," but was told that the oil wasn't "that black" and to proceed with the



sortie. The aircraft was next aborted by the End Of Runway (EOR) crew for a strong engine smell. After the morning abort, another crew chief questioned the dark oil, but again the oil was deemed not to be "too dark." The aircraft with the suspect engine subsequently made it through EOR and launched — but it did not return.

How can I summarize the loss of that valuable combat capability delicately? I can't!

Let's move onto the next case. I received this story from Captain Kirk Kehrley, currently in 8th AF Safety. Kirk relates the story from his younger days: *The best part of a maintenance officer's job is working with great maintainers. My first assignment as a budding maintenance officer found me being taught by the most experienced maintainers I have ever come in contact with — the maintenance men and women who kept the F-111A and EF-111A flying. Their attitude exemplified ORM on a daily basis — even though the initiative as such did not exist at that time.*

The incident happened at a RED FLAG exercise. One afternoon, I went out to a deserted apron with an engine troop and two environmental technicians to troubleshoot an environmental control system (ECS) fan problem. In order to troubleshoot the ECS problem, the engines must be run at idle power. The TSgt engine troop "instructed" me, the new lieutenant, to call a fire truck to stand-by ... just in case.

However, I retorted, "it was only an idle engine run. We never used a fire truck at home when we were running engines at idle, so why should we do it here? Besides, fire trucks ordinarily stand by only for engine bleed air checks or fuel leak maintenance operational checks, not engine runs for ECS fan troubleshooting."

He exclaimed, "Lieutenant, this jet has been giving us problems with ECS for some time and besides, we are too far away from the fire department in case a fire does occur." I smartly listened to his reasoning and called for a stand-by fire truck, though still believing it was not necessary. While waiting, he checked the serviceability of the 150 pound Halon fire bottle on our designated run pad. When the fire truck had not arrived after 30 minutes, I decided to walk back to our maintenance area to check the status of our other jets for the afternoon launch. As I walked away, I thought my guys were unnecessarily waiting for a fire truck. After all, this was just an idle power engine run for troubleshooting. We needed to get this jet fixed so we could fly it!

After I walked back to our parking ramp and began chatting with the guys, we heard over the radio that an EF-111 was on fire. We jumped in our trucks and raced to the obvious scene. By the time we arrived, the fire was out. Three excited maintainers and fire department personnel were milling around an intact EF-111. The subsequent impoundment and investigation revealed an ECS fan had somehow caught fire.

When the fire started, one environmental troop emptied the Halon fire bottle into the wheel well, but that did not put the fire out. The other environmental troop ran to the fire truck (standing by, thank goodness!), and directed it to the fire. As we reconstructed the events, it is obvious that calling for a stand-by fire truck saved that airplane. And what if we had grown impatient and not waited for the truck?

The engine troop had analyzed and applied control measures to counter each potential risk. He

concluded that the combination of an unfamiliar work area, hot temperature, history of ECS problems, and distance from the fire department increased the overall risk of the maintenance procedure. To mitigate these risks, the TSgt's judgment told him he should have a fire truck standing by.

Well, there you have it, Ken. An EF-111 was saved by an engine troop that had no concrete evidence of danger; he was just implementing realistic controls for a possible hazard and associated risk. He even had to justify his conservative actions to his supervisor. The first case demonstrates the other end of the spectrum; an aircraft that should never have been placed in harms way was destroyed when the people entrusted with its care failed to heed the clear and present signs of a known and documented engine design deficiency. An appropriate ORM attitude and approach to business made the difference in these two cases. Ken, your time was not wasted. ORM is a tool that should be standard issue in everyone's personal CTK (Consolidated Tool Kit for the non-maintenance types.) ■

Keep those cards and letters flying,

*Orville R. Mudd*

*ORM Dogfight Veteran  
ACC Office of Safety*

If you have any questions or comments regarding ORM, send them to:

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# Monthly Awards



## AIRCREW SAFETY AWARD OF DISTINCTION

*Capt Wm. Wayne Melling, Capt Ronald C. Huffman, Jr.  
429 ECS, 27 FW  
Cannon AFB NM*

Captains Melling and Huffman were flying a two-ship redeployment sortie returning EF-111s from Prince Sultan AB, Saudi Arabia. Shortly after refueling and 500 miles off the coast of Nova Scotia, their aircraft experienced a catastrophic left engine failure. Capt Huffman expeditiously executed checklist procedures increasing available power, while Capt Melling informed lead and the tanker of the situation. Upon rejoin, their flight lead informed them that they were trailing fluid. Capt Melling and Capt Huffman, having already shut down the left engine due to excessive vibration, pushed the appropriate fire push button to stop the flow of fuel and hydraulic fluid. The engine had stabilized, windmilling at 27% RPM with vibration, and fuel flow was zero. Their wingman confirmed fluid had stopped trailing from the aircraft. Capt Huffman determined Greenwood Canadian AB to be the closest divert field. The accompanying tanker crew declared an emergency with controllers and coordinated for a divert into Canada, and an alert rescue aircraft launch. Unable to hold altitude with the good engine in military power at 13,000 feet, Capt Melling selected minimum afterburner to maintain an altitude safety margin for restarting the remaining engine should the need arise. One hundred miles off the coast of Nova Scotia, the Canadian rescue C-130 met the emergency aircraft and followed them to shore. Upon reaching land and having reviewed all appropriate checklists and charts, the EF-111A crew dumped fuel to adjust the Raven's landing gross weight on the short runway at Greenwood. Capt Melling executed a flawless single-engine landing, stopping the aircraft in the available runway. Both aircrew egressed without incident. Through quick reactions and superior aviation skills, and with a lot of help from a razor-sharp KC-10 crew, Captains Melling and Huffman brought to a safe conclusion what could have easily been a "high adventure" ejection 500 miles from the nearest coastline.



## CREW CHIEF EXCELLENCE AWARD

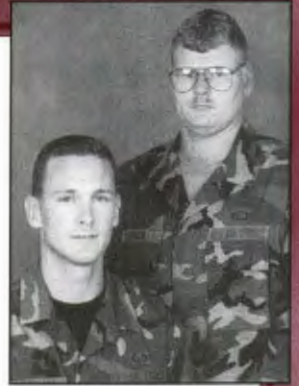
*SrA Gregory A. Ball  
78 FS, 20 FW  
Shaw AFB SC*

SrA Ball was assigned to launch aircraft F-16D 91-0476 on 14 Apr 97. During launch procedures, the aircraft experienced a fire in the right main landing gear (MLG) wheel well shortly after engine start. Amn Ball was positioned at the tail of the aircraft when he heard an explosion and noticed a black fluid leaking from the right main wheel well that was later determined to be hydraulic fluid burning. The fireball interrupted an otherwise normal launch sequence. Amn Ball analyzed the situation and immediately directed the pilot to shut down as the flames propagated towards the right stabilator. Amn Ball quickly deployed a flight line fire extinguisher and began extinguishing the fire on the aircraft. Later, Lockheed investigators determined had the aircraft fire burned 30 seconds longer, total loss of aircraft would have occurred. Amn Ball's immediate response to this potentially devastating mishap prevented injury to both aircrew members and serious damage or loss of a multi-million dollar combat asset.



## FLIGHT LINE SAFETY AWARD OF DISTINCTION

*SSgt Richard V. Davis, A1C William L. Wickham  
77 FS, 20 FW  
Shaw AFB SC*



While deployed in support of the 4th Air Expeditionary Wing, SSgt Davis and A1C Wickham were working as part of the end-of-runway inspection team. During the inspection of aircraft F-16CJ 1345, Amn Wickham noticed a strong smell emanating from the right main landing gear wheel well area. At first he thought the smell was coming from the brake since the brakes sometimes get warm due to the long taxi distance from the main parking ramp. After close inspection, he found the brake to be fine and realized the odor smelled like burned wiring. Amn Wickham immediately notified the end-of-runway supervisor, Sgt Davis, and motioned him towards the wheel well. Sgt Davis notified the pilot that the battery was overheating and to shut down the aircraft immediately. Because there was no evidence of smoke or fire, they did not declare a ground emergency. The pilot egressed the aircraft normally, the battery was removed, and an inspection of the aircraft and charging system revealed no damage. Inspection of the battery revealed an internal short circuit that had caused an overheat condition. If not for Amn Wickham's detailed inspection and Sgt Davis' experience and quick thinking, a potentially disastrous fire or explosion could have occurred, resulting in loss of life and/or an aircraft.

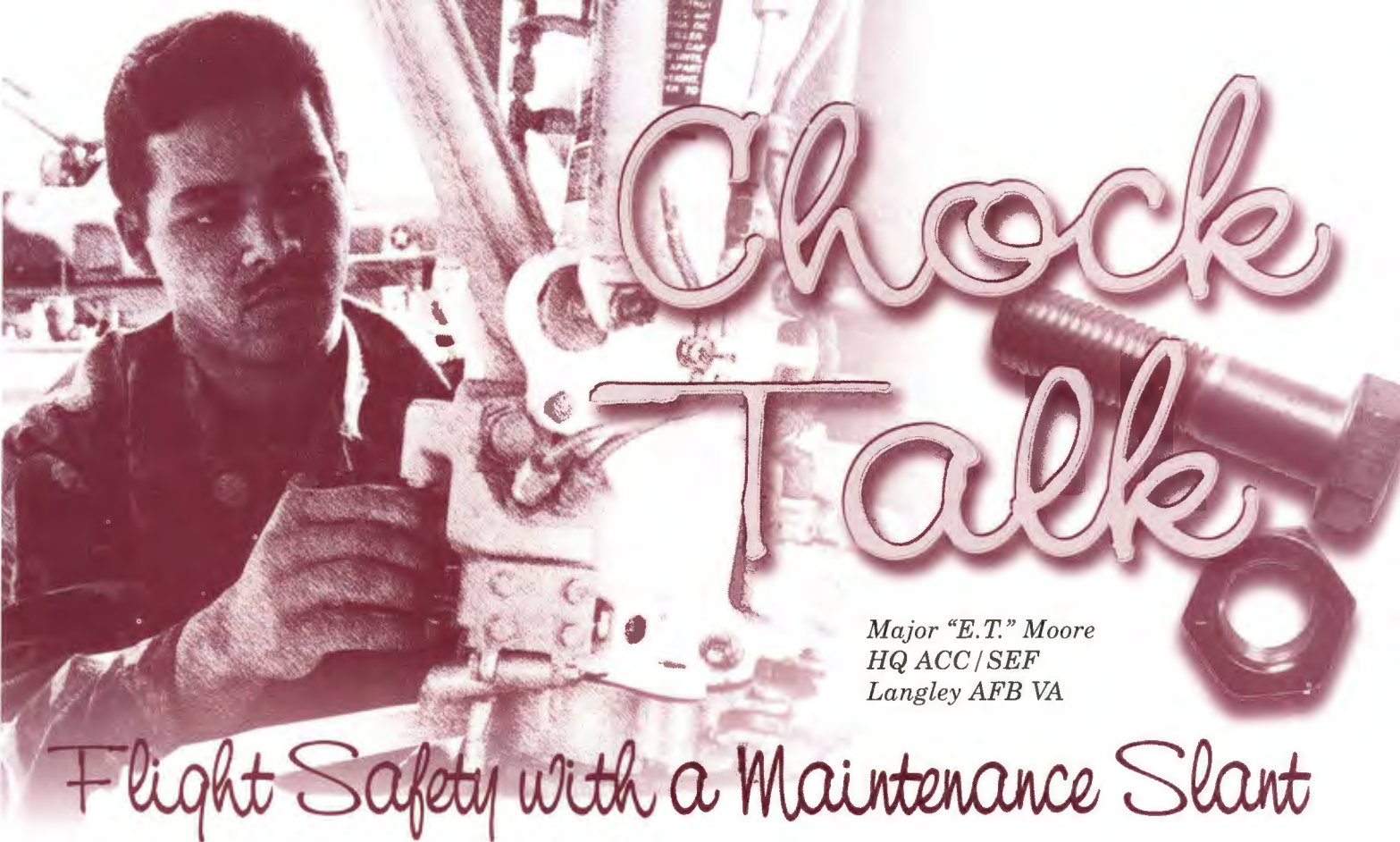
## GROUND SAFETY INDIVIDUAL AWARD OF DISTINCTION

*SSgt Paul G. Lomaglio  
99 CES  
Nellis AFB NV*



Under the strong leadership of SSgt Lomaglio, the 99th Civil Engineer Squadron safety program has become one of the strongest programs to be found. Sgt Lomaglio has put safety first on the minds of the entire squadron by using innovative briefings during safety days, quarterly safety newsletters, and weekly shop safety meetings. His dedication and positive influence throughout the squadron helped earn one of the largest civil engineer squadrons in ACC, back-to-back "Outstanding" ratings in the Weapons Safety Program, and consecutive "Excellent" ratings in the Ground Safety Program. Sgt Lomaglio has been able to anticipate a trend before it happens and has used this proactive approach to help reduce mishaps over the past 2 years by a staggering 43%. During the 101 Critical Days of Summer, he has ensured that squadron members take safety with them both on-and off-duty during this critical time frame, resulting in sharp reductions in on-duty, as well as off-duty mishaps since FY95. His tireless efforts in the development of shop specific safety lesson plans and hazardous communications programs earned praise from the ACC Compliance Inspector as the "best seen to date." He aggressively conducts spot and self-assessment visits to accurately monitor the status of safety within the squadron. He is responsible for ensuring all incoming personnel are trained in the principles of Operational Risk Management upon their arrival. He recently saved the Air Force more than \$25,000 in contract costs by researching and providing training in Confined Space Rescue. Hazardous Waste and Emergency Response Operations, and Asbestos Abatement for more than 150 personnel. He is also the alternate base asbestos program manager and is responsible for providing Asbestos Awareness Training for the base populace, as well as personnel from Indian Springs and the Tonopah Test Range, to ensure compliance with federal regulations. His efforts have not gone unnoticed as evidenced by his receiving the Safety Team Salutes for 2 consecutive quarters in FY97 from HQ AWFC/SE. His continuing efforts will ensure that the 99 CES safety program remains in the forefront and ensures the 99 CES personnel have the tools and information to maintain outstanding mishap prevention.





*Major "E.T." Moore  
HQ ACC/SEF  
Langley AFB VA*

## Maintenance Discipline

Maintenance discipline. We've all heard the term before. What does it mean to you? Where does it come from? How do you instill it in the troops? How do you know if you "got it," and if you "ain't got it," how do you "get it"?

My Webster's dictionary defines discipline as "training expected to produce a specific type or pattern of behavior, especially training that improves moral or mental improvement." So then, maintenance discipline must be the day-to-day, by-the-book, above reproach performance we expect from the troops maintaining our nation's critical assets. Wow! Sound like something you'd like to have in your maintenance outfit? You bet it is ... and the majority of our maintenance units display unprecedented levels of maintenance discipline on a daily basis. But what happens when that discipline begins to erode? What are the warning signs that maintenance discipline is beginning to take a "back seat" to operational requirements? What are the potential consequences? Let's take a look at a recent mishap scenario. Pay special attention to the warning

signs that should have caught the attention of maintenance leadership. The unit, aircraft type, date, and location will remain anonymous — these aren't important. Suffice it to say that this mishap could have occurred in your unit. The lessons learned here are universal in our business.

The mishap aircraft (MA) was scheduled for a high priority mission. Start, taxi, and takeoff were uneventful. Approximately 2 hours into the mission, the pilot began experiencing flight control problems and an autopilot that would not disengage. The aircraft became difficult to control. The pilot wrestled with the aircraft, and the autopilot finally disengaged. The pilot returned to the launch base and landed uneventfully. Postflight inspection revealed significant heat damage to the aircraft's structure and a wire bundle resulting from a bleed air leak in the engine bay. The source of the bleed air leak was a disconnected clamp. Damage to the aircraft was estimated to be over \$2 million. Of course, the good news is we still had an aircraft



to repair and a pilot to debrief. A warning to maintenance leadership: What you are about to read is not pretty.

Prior to the mishap sortie, a Time Compliance Technical Order (TCTO) was issued which was applicable to the MA. A team was assigned to perform the TCTO on the aircraft. During the procedure, one of the workers performing the TCTO asked another maintainer to loosen a bleed air duct in the engine bay in order to facilitate the ongoing maintenance. The maintainer complied with the request but failed to document the loosened clamp in the aircraft's 781 forms. The TCTO was completed, and two subsequent engine bay inspections (required prior to engine reinstallation) failed to detect the loosened clamp. The engine was reinstalled and the aircraft returned to fully mission capable status. The mishap sortie was launched, and the hot bleed air escaping through the uninstalled clamp damaged a wire bundle (resulting in the autopilot problem) and caused major structural damage to the aircraft. If removal of the clamp had been documented, this mishap could have been avoided. Sounds cut and dried, doesn't it? Another question begs to be asked here. WHY wasn't the clamp written up or caught during the engine bay inspections? A look at the unit's maintenance culture identified some disturbing trends that should have raised some eyebrows among the maintenance leadership. Here are just a few examples:

#### **General Maintenance Practices**

- Numerous inspections were overdue.
- Preventive maintenance was postponed to place priority on flying.
- Cannibalizations were occurring without documentation numbers.
- Condition of the maintenance area lacked organization and accountability.
- Inspectors were not certified in their 623 Training Records.

#### **Air Force Technical Order (AFTO) 781 Documentation**

- Aircraft forms documentation was inadequate.
- An engine on the MA was overdue inspection by 35 hours.
- The engine serial number did not match the aircraft forms.

#### **Core Automated Maintenance System (CAMS) Documentation**

- Time Change Item times were incorrect in the Core Automated Maintenance System (CAMS).
- Engines were loaded against the wrong aircraft.
- CAMS updates were accomplished late and sometimes not at all.
- Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD) items did not match CAMS.

Not pretty, is it? To sum it up, from this maintenance officer's perspective, maintenance supervision failed to enforce proper maintenance practices in the unit. Additionally, the unit placed the majority of its emphasis on getting the next sortie off of the ground at the expense of good, sound, preventive maintenance. This attitude scares me the most. I can't count the number of times that I've had to explain to Operations that jets not on the flying schedule weren't just "sitting there doing nothing." That's why we have flying schedules and scheduling effectiveness rates. That's why we have a Plans and Scheduling shop to ensure our aircraft are taken care of and are in the very best condition when we loan them to our aircrews.

We were fortunate this time. This could have easily been a smoking hole and a lost life. The warning signs were there. Recognize any of them in your unit? ■

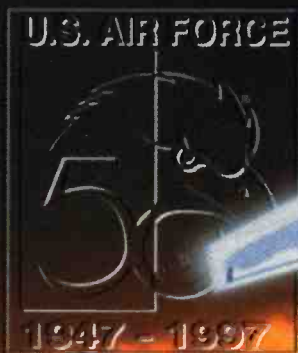
*"Not a single sortie we fly is worth compromising the integrity of an aircraft or the life of an airman."*





# MULTI-MISSION AIR

# RAPTOR



## Secretary of the Air Force Sheila E. Widnall Air Force 50th Anniversary Message

"...the Air Force celebrates 50 years as an independent military service. This Golden Legacy witnessed our fledgling Air Force emerge from the fire of World War II and mature into the world's premiere air and space force. Today's world-class airmen carry on this legacy of excellence as they push the envelope of air and space dominance into the 21st century..."

# F



# TOR

SUPERIORITY FIGHTER





# FLIGHT SAFETY AWARD OF THE QUARTER



*Maj Patrick J. S. Miller  
414 CTS, AWFC  
Nellis AFB NV*

Maj Miller has done an outstanding job as the Adversary Tactics (USAF Aggressors) Additional Duty Flight Safety Officer. He demonstrated unremitting skill in the service of our unit and the Air Force by ensuring the safe conduct of all flying and ground activities. This is reflected in the unit's safety achievements of no Class A, B, or C mishaps of any kind, flying or ground, during his tenure. Maj Miller ensured that all crew members were prepared for any contingency by continually updating and communicating critical safety information through monthly safety meetings and the safety read file. Maj Miller performed crucial flying safety duty officer functions during Nellis AFB's high tempo flying operations that include Red Flag, Weapons School, Air Warrior, and 422 Test and Evaluation missions. He is involved in every aspect of safety including spot inspections of the Air Traffic Control tower and the Supervisor of Flying (SOF) Program which resulted in changes to the SOF program instituted by the 57 OSS. Maj Miller has lent his safety expertise to such wide ranging programs as flight line operations, life support, maintenance debrief, and squadron scheduling, all of which have been improved from his inputs. He revamped the squadron Situational Emergency Procedures Training (SEPT) Program, especially important to the Aggressors which do not have the benefit of an actual cockpit trainer or simulator program. The new SEPT program includes improved emergency scenarios, general aircraft knowledge, and recent mishaps. This improvement allows for better training and systems knowledge which is vital to a unit that must integrate pilots from different MDSs in a short amount of time. Maj Miller was instrumental in the first Aggressor deployment to an operational F-15 unit and an F-15 Fighter Training Unit in 6 years. His close liaison with resident safety personnel and persistent monitoring of Aggressor flight operations allowed for the accident/incident-free completion of a 3-week deployment to 2 separate bases providing over 125 sorties. Maj Miller was our pointman for the ACC-directed Safety Day and his inputs to the 57th Wing Commander enhanced flying safety at Nellis AFB and within the Combat Air Forces. As our maintenance liaison officer, Maj Miller built a bond of trust between operations and maintenance with an improved Crew Chief Recognition Program. This translates directly to a better daily flying product. As the 57th Wing Commander and COMACC's safety monitors on the range, the Aggressors are entrusted to ensure the safe, effective conduct of all Red/Green/Maple/Coalition Flag missions. Maj Miller is the first link in that safety chain, and hence, responsible for the safe completion of thousands of US and allied sorties annually in the most demanding training exercise in the world. In addition, he was the key to ensuring effective core unit flying safety operations during the 6-week deployment to Cold Lake, Canada, for Maple Flag 30; one of the largest coalition exercises with over 100 aircraft in each mission. Maj Miller is a standout Additional Duty Flight Safety Officer who is responsible for the enviable Aggressor safety record and the unparalleled training the Aggressors provide the CAF.



# WEAPONS SAFETY AWARD OF THE QUARTER

*SSgt Robert J. Heppler  
57 EMS, 57 WG  
Nellis AFB NV*



SSgt Heppler accomplished the one-time 100% inspection and segregation of 7,053 rounds of suspended from issue and use 30 millimeter ammunition suspected of having cocked (sideways) cartridge primers. He ensured that all suspended items were removed from service to prevent a possible major aircraft explosive mishap. His prompt completion of reporting inspection results to the item Equipment Specialist aided in USAF-wide control and serviceability status of these assets. He reevaluated inspection procedures for munitions residue and empty munitions containers prior to turn-in to the Defense Reutilization and Marketing office (DRMO). Sgt Heppler incorporated a new securing system to ensure inspection munitions residue is not tampered with or unauthorized items added prior to turn-in to DRMO. These procedures enabled the section to turn-in over 40,000 pounds of scrap metals and over 600 empty munitions containers without incident. Sgt Heppler also assisted with the design and installation of a new grounded maintenance operations table needed to replace one that was badly worn and outdated. The safety devices built into the new table design will prevent munitions from rolling or accidentally falling off the table, eliminating possible incidents and greatly enhancing operations safety. This grounded table is critical to operations involving electrically initiated explosives to guarantee a safe working platform for these items and to prevent possible detonation.

Sgt Heppler supervised the integration and explosive operations for over 30 augmentee personnel deployed in support of Red Flag, Air Warrior, USAF Weapons School, and 422 Test exercises. Augmentees were quickly and thoroughly trained on operations safety and technical order procedures. Over 100,000 separate munitions items were processed, built, and delivered without a single safety violation or incident. He performed Returned Munitions Inspections on over 900 munitions items returned from flight line agencies. Items were inspected to determine serviceability status so unserviceable items could be removed and segregated. Meticulous inspection procedures guaranteed 100% serviceability and safe munitions assets were provided for flight line support. Sgt Heppler processed and inspected over 10,000 excess munitions items for transfer from the sections supply point back into base stock. He ensured all items were properly replaced, serviceable status identified, and were safe for handling by storage section personnel.

During a build-up operation of 2.75" aircraft rockets, Sgt Heppler noted that excessive amounts of static electricity were being created. The static electricity was being generated by extremely dry atmospheric conditions combined with high winds. He observed static spark discharges between the rocket motors and the rocket module during loading operations of the rockets into the modules. He immediately stopped operations and removed personnel from the bays. The quick thinking, adherence to safety guidelines, and the expedient emergency actions taken by Sgt Heppler resulted in removal of personnel from an extremely volatile situation and guaranteed the prevention of a potentially catastrophic explosive incident from taking place.



# GROUND SAFETY AWARD OF THE QUARTER

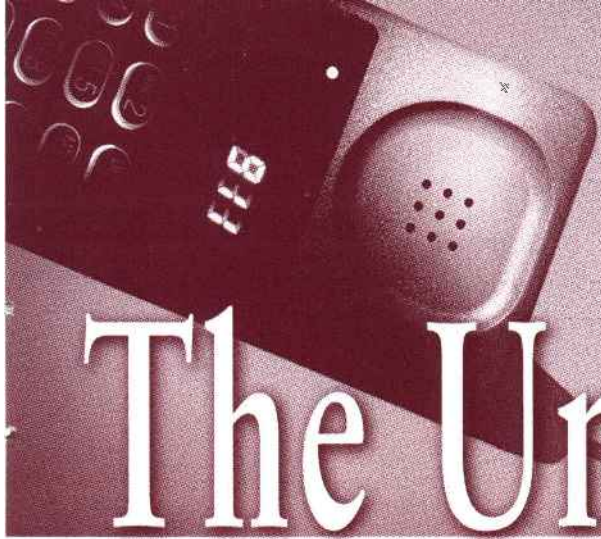


*TSgt John G. Morrison  
505 CCEG, 505 TSS  
Hurlburt Field FL*

Under TSgt Morrison's leadership, the 505th Test Support Squadron's Safety Program has become one of the best to be found, earning "Outstanding" ratings for 4 consecutive years. His energetic management of job safety training, hazard reporting, hazardous communications, environmental lockout/tagout procedures, radiation protection, unit inspections, and spill reporting contributed to the unit's latest "Outstanding" rating. The 53d Wing credited his superb management and motivation for the positive safety climate in the unit. Thanks to his aggressiveness, safety is an active part of both the on- and off-duty lives of the unit's personnel. Data for the first half of FY97 reflects a strong continuing commitment to provide a safe working environment for unit personnel. Despite an ever increasing operational tempo, no reportable mishaps have occurred. This is especially significant considering the mission is characterized by a wide variety of potentially hazardous activities including control of live fighters, maintaining/operating high-voltage equipment and mobilizing heavy

tactical command and control systems. Sgt Morrison's proactive approach includes tracking trends to use the resulting data to key in on potential problem areas that may result in a mishap. Also, he has facilitated the timely flow of relevant information between the commander, unit safety representatives, work center supervisors, and shop representatives to dramatically reduce mishaps. Sgt Morrison uses a wide variety of forums such as commander's calls, weekly staff meetings, daily operations/maintenance standups, and safety day programs to discuss and resolve safety issues. He has ensured work centers have comprehensive continuity books and work center supervisors actively promote safety awareness. Sgt Morrison actively conducts spot-and self-assessment reports to constantly evaluate the organization's safety posture. The result: FY96 rate for off-duty mishaps fell by 57 percent compared with FY95, and the on-duty mishaps also went down from 10 to 0 during the same time frame and included no reportable mishaps. He quickly trained personnel and implemented the Air Force's new Operational Risk Management (ORM) principals as the cornerstone of the squadron's daily mission. Sgt Morrison ensured that all personnel received ORM training and set up a program that allowed the individual work centers to tailor ORM principals to address their specific safety concerns. This effort has resulted in an excellent training outline for supervisors to use to brief employees of potential hazards in the work environment. Additionally, he promotes a concept called "Take Safety Home" to aid in developing the mind-set that ORM principles should be used 24 hours a day, including family and friends. For the last group safety day, Sgt Morrison organized both squadron and group safety briefings serving all members of the 505th Command and Control Evaluation Group and its three Hurlburt Field-based squadrons. Both successful briefings were highlighted with informative guest speakers who discussed a wide range of on- and off-duty safety issues. Finally, the 53d Wing also recognized the unit for its expertly maintained "Superb" environmental program. Additionally, the hazardous spill reporting procedures were successfully executed when a generator fuel tank leaked fuel. Sgt Morrison's philosophy, "safety should be proactive," has spread throughout the unit and resulted in people who are able and ready to meet the mission. His extremely enthusiastic pursuit of safety has spread throughout the squadron and gained the support of all.





While much of the Electromagnetic Radiation we're exposed to daily is harmless, there are times when it can be dangerous — even deadly.

# The Unseen Danger

SMSgt Brian D. Prucey, 2 BW/SEW, Barksdale AFB LA



You can't see IT, hear IT, or even feel IT ... in fact, you might not even know IT is there, but IT could kill you. IT is electromagnetic radiation, or EMR for short. EMR for us non techno-geeks is simply the energy released from radio-frequency (R-F) emitting devices such as radio transmitters, radars, microwave and satellite transmitters, and even cellular phones and some personal pagers. It's the proliferation of cellular phones and pagers we're worried about. Why worry? Well, many bases have things designed to explode. The trick is making them explode only when we want them to ... and that's where EMR poses a threat.

While much of the EMR we're exposed to daily is harmless, there are times when it can be dangerous — even deadly. The greatest danger exists around certain explosives that are triggered by an electrical impulse. Known as "electro-explosive" devices, some can collect enough EMR energy to cause an explosion. Some common electro-explosive devices include impulse cartridges used to release bombs from an aircraft and some aircraft gun ammunition. Bombs, rockets, and missiles can also have fuses, detonators, or initiators activated by electrical signals. Furthermore, Explosive Ordnance Disposal teams often use electrically initiated blasting caps and squibs.

When cellular phones are turned on — even when you are not talking to anyone — the phone broadcasts a continuous R-F signal. The cellular phone company uses this to locate your phone when someone dials your cellular phone number. If your phone's unique

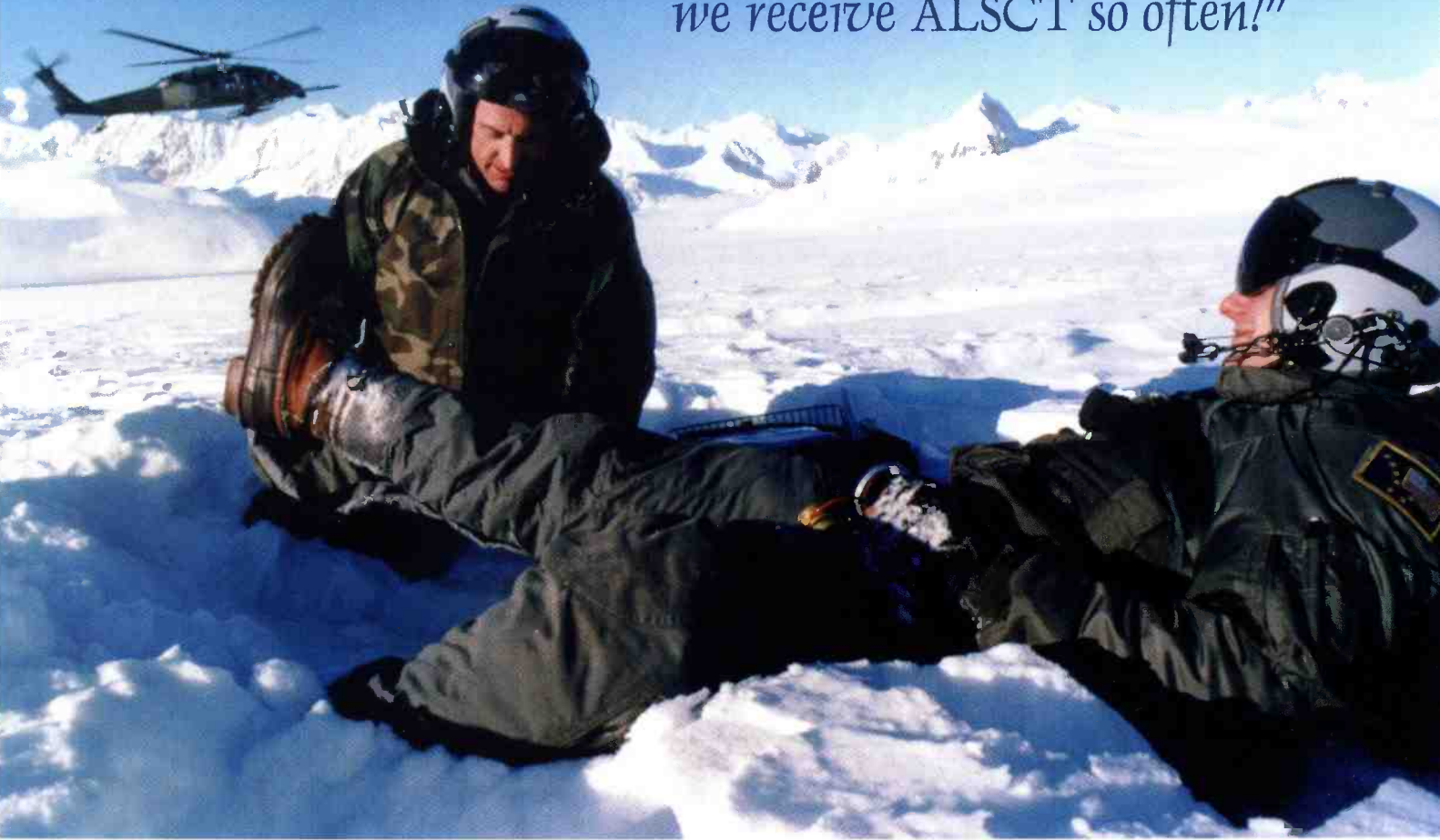
signal is not detected, a recorded message alerts the caller that the phone is either turned off or is out of broadcast range. The signal your phone emits presents an EMR hazard.

Most pagers are "receive only," that is, they do not emit an R-F signal and thus do not present a hazard. However, thanks to the wonders of modern technology, some newer pagers can transmit a "reply" signal to let the paging company know the page was received. This reply signal presents an EMR hazard. Your pager may not transmit a reply signal, but that must be validated by the installation weapons safety office before you can leave it turned on near an explosives operation.

So how far away is safe? Ten feet? Twenty feet? More? Well, it depends on the EMR source and the characteristics of the electro-explosive device. AFMAN 91-201, *Explosives Safety Standards*, requires an EMR analysis for all R-F devices used around explosives operations to determine how far away the device needs to be when operating. The installation weapons safety staff can determine the appropriate separation criteria for your cellular phone or pager. Additionally, squadron and wing Weapons Safety Managers need to maintain a listing of devices approved for use around explosives operations. It's also important to know that some commanders have prohibited the use of personal cellular phones and pagers on flight lines or munitions storage areas. You need to know the rules at your location. They're in place to help eliminate this "UNSEEN DANGER." ■



*A frequently asked question by many aircrew members is, "Why do we receive ALSCT so often?"*



## **AIRCREW SAFETY**

### **A Life Support Point of View**

*MSgt Steve Skaggs, HQ ACC/DOSBL, Langley AFB VA*

**F**inding yourself in a potentially life-threatening situation is not the optimum time to become familiar with the equipment designed to save your life! Think back to the last time you sat through an hour long — or longer — Aircrew Life Support Continuation Training (ALSCT) class. Did one of your buddies have to nudge you back to reality as you

drifted off to sleep? Or did you spend your time watching the clock, wondering when your agony would finally come to an end? During the training session, did you operate the equipment? Were you actively involved in your training? If not, you lost the opportunity to really understand how the equipment functions and how to fully utilize it.



The concept of an instructor providing information to a group of students is still the basic process in conducting an academic ALSCT session. However, the truth of the matter is, there are a limited number of ways that ALSCT instructors can acquire and retain their classes' attention while presenting the same material semiannually or biennially, depending on the training event.

A frequently asked question by many aircrew members is, "Why do we receive ALSCT so often?" ALSCT events are established and outlined in ACCI 11-301, *Aircrew Life Support Program*. Training events, such as aircraft egress and parachute hanging harness training, are required semiannually for aircrews on aircraft equipped with ejection seats and annually for aircrews of non-ejection seat aircraft due to the very real possibility that the seat and/or subsequent parachuting skills might be needed. Frequent training ensures these actions are performed correctly, **almost instinctively**, when needed. The real test of how successful ALSCT training has been accomplished occurs infrequently (thankfully) during actual emergency or survival situations. Aircrew members are seldom, if ever, afforded a second chance to perform an emergency ground egress, bailout, ejection, or parachute descent.

Additionally, within the past several years, numerous new life support technologies have been introduced ranging from the PRC-112 survival radio, hand-held global positioning system (GPS), night vision devices, Combined Advanced Technology Enhanced Designed Gravity Ensemble (COMBAT EDGE) equipment, second generation chemical defense equipment, and the manual reverse osmosis desalinator pump (M-ROD). This new, and sometimes intricate, equipment can challenge the instructor and the student alike. Instructors are required to provide critical operating information in a limited amount of time while the aircrews are challenged to remain focused on the "same old information" while

also learning the new skills, concepts, and procedures for new equipment. Aircrews owe it to themselves, their families, as well as their fellow airmen to take an active role in ALSCT to guarantee they have the skills and knowledge to survive any life-threatening situation.

Another safety concern recently brought to light is the use, or misuse, of aircrew flight clothing. If aircrews do not wear proper flight clothing per applicable directives, ALSCT is of limited value. A recent mishap clearly illustrated the importance of wearing the correct seasonal clothing. After a successful ejection, the mishap pilot suffered from hypothermia while awaiting rescue. He was not wearing the CWU-44/Paramid undershirt nor the CWU-43/Paramid drawers as directed by the unit's supplement to ACCI 11-301. To compound the situation, he was wearing the summer weight flight jacket versus the winter weight jacket, again in violation of the unit's supplement to ACCI 11-301. Another potentially life-threatening situation occurred recently when two aircraft were forced to divert well north of course to Newfoundland for maintenance problems during a trans-Atlantic crossing. The aircrews were not wearing anti-exposure suits. Due to the frigid water temperature, if the crew had been forced to eject over water, their chances of survival would have been marginal at best. When considering what flight clothing to wear for a particular mission, aircrews must consider the weather conditions for each leg of the mission in addition to command directives and guidance. ALSCT instructors often close their presentations with the phrase "Dress for egress" or "Wear what you want to walk home in." These phrases really sum it all up!

I'm convinced our aviators significantly improve their chances for survival and recovery every time they take an active role in ALSCT and wear authorized life support equipment and flight clothing! After all, "*Your Life Is Our Business*," but we can't do it alone. ■



# Let's Go Hunting!

*Mr. Michael P. Barnes  
HQ ACC/SEG  
Langley AFB VA*

*... around 40 percent of the hunters injured each year are accidentally shot by their hunting partner while another 35 percent figure out ways to shoot themselves!*



**W**hether you've hunted for years or this is your first time, each hunting adventure always brings a "new experience!" It can be good or bad depending on the **WHO, WHAT, WHEN, WHERE, and HOW.**

**WHO** you hunt with is important as far as their experience, habits, and general knowledge of wild game and its habitat. You may find yourself in a training mode, either as the trainee or trainer. Normally, an experienced hunter will ask a potential partner tons of questions to determine whether they want to go hunting with them or not. This is especially important when you consider that around 40 percent of the

hunters injured each year are accidentally shot by their hunting partner while another 35 percent figure out ways to shoot themselves! For the sake of your own safety — as well as that of your partner — make sure you take into account both parties' skill levels and knowledge base.

**WHAT** type of wild game are you planning to hunt? In the United States, some of the most common are deer, elk, bear, duck, turkey, quail, pheasant, squirrel, rabbits, grouse, fox, and raccoon — not to mention skunk, boar, woodchuck, coyote, weasel, and porcupine! And guess what? The seasons overlap each other. So, if you're



not careful, there's a big window of opportunity out there for you to become some hunter's trophy! Keep in mind, however, that the most serious accidents typically occur during deer season. This is mainly because of the greater shooting distance and destructive power associated with high velocity rifles.

**WHEN** are you going hunting? As I said before, the seasons overlap one another. Therefore, you may want to consider scheduling your foray when the level of activity for big game — like deer or bear — is low. Since the total number of hunters is highest when big game season first opens up, scheduling your hunt in the middle or last part of hunting season will reduce your risk of accidentally being shot by another hunter. You should also consider the weather and road conditions associated with your trip. The dates reserved for the game you plan to hunt coupled with the weather forecast for the areas you will hunt are important factors for you to consider. Furthermore, if you have a new firearm, it's a good idea to practice shooting your weapon on a firing range before you go hunting.

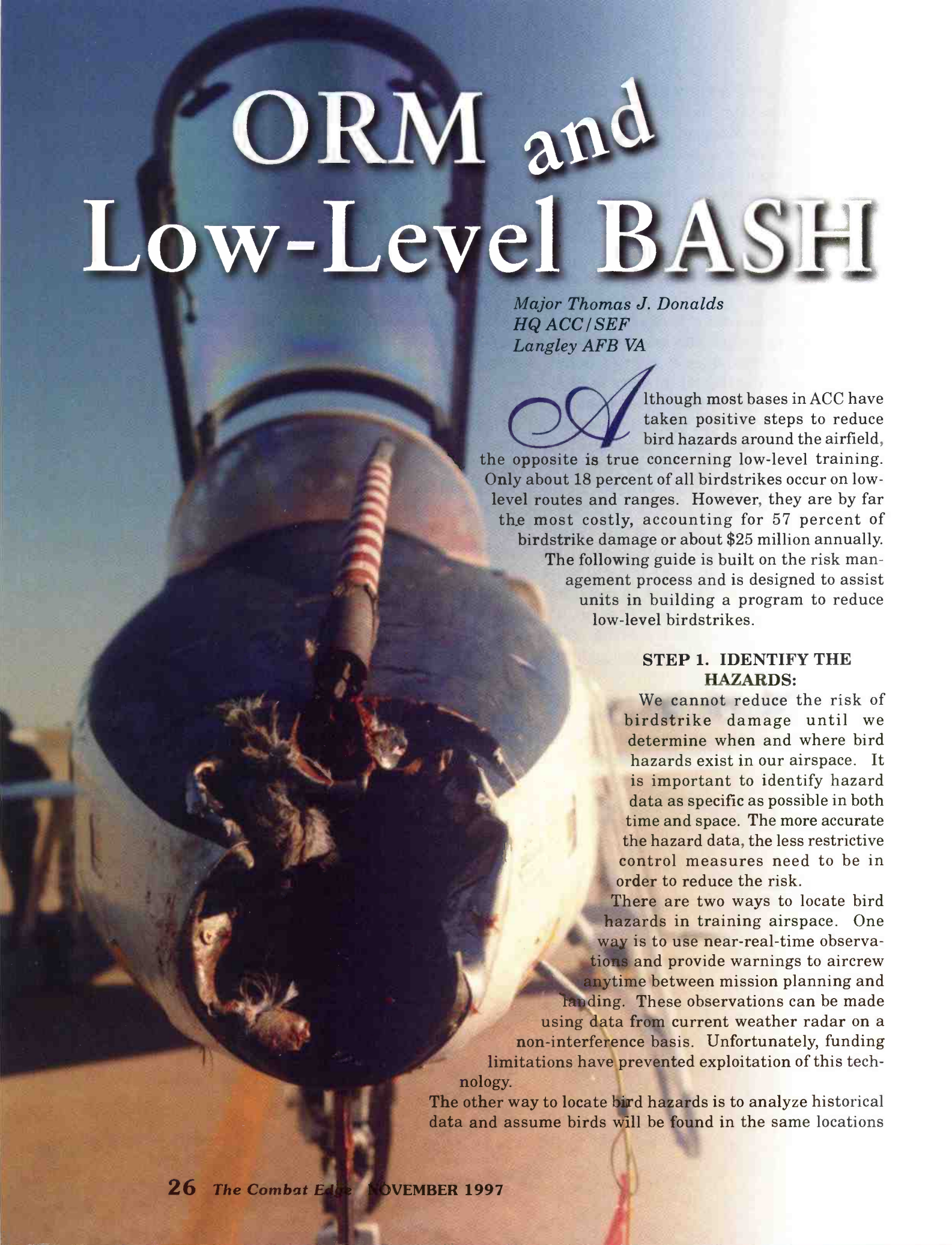
**WHERE** you hunt could be the difference between life and death! It's totally ridiculous for hunters to just jump in a 4x4 and drive for hours to hunt in a place they have never been before or haven't visited since last season! You need to do some pre-hunt scouting to visually check the areas you plan to hunt. This includes checking to make sure the land is open to hunting; checking for trails, ponds, game, etc.; determining if your cellular phone operates or locating occupied areas where telephones or help may be available; and talking with local officials and residents. Wow — what a concept!

**How** you hunt will largely determine whether you succeed or not. Remember when I mentioned that several hunting seasons overlap? Well, guess what? The

weapons you use to hunt with may also have some overlap. You can use muzzleloaders, assorted firearms, and the good old bow and arrow (archery), as long as you obey the rules and guidelines set by each state. Each state usually publishes their hunting regulations and includes pamphlets with special game permits that are a "must read" for all hunters. Planning how to carry out your hunting trip includes: (1) communications devices, (2) food and water, (3) first aid kit, (4) flashlight and/or lantern (matches), (5) blankets, (6) tools, and (7) pre-hunt safety briefings. Cellular phones, two-way radios, etc., are very important in keeping hunters in contact and obtaining help in the event of an emergency. Also, a backpack with food, water, first aid kit, flashlight, blankets, tools, etc., always comes in handy. It's not a bad idea to include signaling devices such as mirrors, flares, etc., whether you are in a remote location or not! Furthermore, most states ask or require you to wear hunter orange clothing. This helps other hunters to be absolutely positive of their target. Consider what is behind your targeted game to ensure your projectile doesn't glide through buildings, people, or in the direction of a road. One of the oldest safety messages is the control of your firearm's muzzle. Just like the safety mechanism on your firearm can fail, the assumption that a "firearm isn't loaded" has failed many a poor unsuspecting victim. Moreover, take advantage of the opportunity to attend any and all hunting safety courses, obey strict attention to proper firearm handling, and use proper target identification techniques — if it moves and makes noise, it's probably another hunter!

I know I've covered only a scant amount of information when it comes to all there is to know about hunting. The bottom line is don't forget to communicate your planned courses of action for any potential problem situations, wear that hunter orange clothing, pick your hunting buddies with care, and "Keep your gun barrel pointed in the right direction!" ■





# ORM and Low-Level BASH

*Major Thomas J. Donalds  
HQ ACC/SEF  
Langley AFB VA*

Although most bases in ACC have taken positive steps to reduce bird hazards around the airfield, the opposite is true concerning low-level training. Only about 18 percent of all birdstrikes occur on low-level routes and ranges. However, they are by far the most costly, accounting for 57 percent of birdstrike damage or about \$25 million annually.

The following guide is built on the risk management process and is designed to assist units in building a program to reduce low-level birdstrikes.

## **STEP 1. IDENTIFY THE HAZARDS:**

We cannot reduce the risk of birdstrike damage until we determine when and where bird hazards exist in our airspace. It is important to identify hazard data as specific as possible in both time and space. The more accurate the hazard data, the less restrictive control measures need to be in order to reduce the risk.

There are two ways to locate bird hazards in training airspace. One way is to use near-real-time observations and provide warnings to aircrew anytime between mission planning and landing. These observations can be made using data from current weather radar on a non-interference basis. Unfortunately, funding limitations have prevented exploitation of this technology.

The other way to locate bird hazards is to analyze historical data and assume birds will be found in the same locations



from one year to the next. The following are several ways to obtain this information:

1. The first place to look for this information is the Bird Avoidance Model (BAM). This model describes bird hazards on each low-level training route in the CONUS. Although this BAM is several years old and may not have enough specific hazard information to develop precise risk control measures, it is the best source of information that is readily available. A new BAM is being developed and should be available sometime next year.

2. The Air Force Bird Aircraft Strike Hazard (BASH) team's birdstrike database is another source of information. When requesting information, indicate how you want it broken down. It can be sorted by route, date, time of day, species, etc., which may all be important in determining when and where hazards exist. In order to increase the utility of this database, it is important for all units to send the BASH team the required report — and any feathers to assist in bird identification — for both damaging and non-damaging birdstrikes and include the most specific information available. Some units keep a local database containing similar details on each low-level birdstrike.

3. Additional information can be obtained during annual low-level route surveys. These surveys are usually performed using light aircraft or helicopters and primarily focus on ensuring all towers and other obstacles are

annotated on low-level charts. With a minimum increase in workload, bird attractants such as landfills, feedlots, wildlife refuges, water/sewage treatment plants, golf courses, fish plants, and slaughterhouses can be identified during these surveys. (If a biologist or the Civil Engineering natural resource advisor is available, have them accompany these flights to identify rookeries, bird

during migratory seasons. Universities, state fish and game offices, the Audubon Society, and the U.S. Department of Agriculture can also be contacted to obtain wildlife information.

5. Finally, surveys from aircrew can provide valuable information if done correctly. One technique is to have a sheet of paper for each low-level route with an outline of the route. Post-flight, aircrew should fill out the time and date, put a number on the route corresponding to where they saw birds, their approximate altitude, whether the birds were small, medium, or large, and indicate if there was less than 5 birds, 5 to 100, 100 to 1,000, or more than 1,000. This information can then be put into the local birdstrike database as if it was an actual



*T-37 struck a turkey buzzard at Laughlin AFB, 26 Mar 86.*

roosts, and bodies of water that could attract birds.) If a commonly flown route is owned by another unit, contact that unit to see if they have accomplished a BASH assessment and if not, consider working with them to perform one. In general, low-level route surveys are more effective in locating birds if they are performed during migratory seasons.

4. Another source of information is from environmental groups and hunt clubs. Bird watchers have internet sites to tell each other when and where to go to see certain species of birds. This information can often be used to identify migratory stopover points or other hazards. Local hunt clubs may also know where waterfowl stop in the local area

birdstrike.

## **STEP 2. ASSESS THE RISKS:**

The next step is to assess the risk and determine which of the identified hazards present the greatest risk. Consider the potential outcomes and their probability and severity.

1. Determine what species of birds are present that may cause a mishap. There are only about 10 species of birds commonly found in the U.S. that are large enough to bring down a jet from a single strike. By avoiding these species, about 90 percent of the damage costs can be eliminated. There are several other species that will do significant damage to wings, pylons, external stores,



and LANTIRN pods. Look at the migratory patterns of these species. Do they migrate during the day or at night? What weather patterns will increase the number of migrating birds?

2. Consider what type of aircraft are being operated. For example, a flock of blackbirds may be more hazardous to a fourship of F-16s than to a C-130.

### **STEP 3. ANALYZE RISK CONTROL MEASURES:**

Determine what controls can be implemented to counter the assessed risk.

1. By knowing what species need to be avoided and where they are, risk control measures can be analyzed. Examine each low-level route to determine within the route structure when and where the potential for a birdstrike presents unacceptable risk. Since training airspace is limited, it is critical to locate these high risk areas accurately. For example, a large landfill that attracts thousands of seagulls may account for 75 percent of the bird hazard on a particular route. Closing the route is unnecessary if a 1 mile avoidance zone around the landfill eliminates the hazard. Similarly, if your most significant risk on a certain route during September is red tail hawks, which migrate during the day, there is no need to close the route at night. If a waterfowl migration crosses a route between points A and C, the pilot should enter at C during the migration season. If point C is not an alternate entry point, it is quite possible to make it one. If this waterfowl migration normally lasts from the middle of September to the end of October, restrict the affected airspace during that period or pad it by a week or two

on either end to account for annual variations. If the only significant bird hazard on a route is along a river during migratory seasons, it may be possible to still fly the route and avoid the river either laterally or vertically.

### **STEP 4. MAKE CONTROL DECISIONS:**

Determine which courses of action will best accomplish the mission with an acceptable level of risk.

1. After determining the level of risk in training airspace, the impact of the restrictions on training must be considered. If a unit needs to fly low-level to maintain combat capability, or to graduate students from a training program, it is essential to provide a place to do this training. It may be necessary to schedule tankers, change profiles, load fuel tanks, or increase sortie duration to allow aircrew to fly routes with an acceptable level of risk. Some units may be able to schedule more air-to-air training or concentrate on medium altitude tactics during migratory seasons. If low-level routes with increased bird hazards must be flown, decreasing airspeed, reducing time at low-level, or increasing altitude may also reduce the risk to an acceptable level.

2. The results of this risk assessment should be incorporated into the long-range scheduling plan. In addition, bird hazards should be considered when determining when to conduct night flying.

### **STEP 5. RISK CONTROL IMPLEMENTATION:**

Implement the controls and the courses of action decided on in the previous step.

1. If routes or route segments need to be closed, it should be done at the wing level, not left up to individual aircrew. One technique is to produce a spreadsheet listing all limitations of training airspace for each month, which can then be posted in mission planning areas. The Flight Crew Information File (FCIF) can be used to mandate these restrictions. Ensure low-level route and range schedulers are aware of any restrictions or hazards so they can pass this information on to aircrew scheduling the airspace. Hazards, both seasonal and permanent, should be included in the narrative for each route contained in Area Planning AP/1B. Units that have a web page should consider developing a BASH section and including low-level hazards.

### **STEP 6. SUPERVISE AND REVIEW:**

1. Squadron supervisors need to ensure guidance is clear and posted in an appropriate place in the flight planning room.

2. Since migratory routes and bird populations change over time, an annual review of this process may highlight changes in bird hazards. It is also important to ensure birdstrikes are reported as accurately as possible to the Air Force BASH team. Their database is only as good as the information they receive.

By doing a one-time risk assessment — with an annual review — units can significantly reduce birdstrike damage during low-level training, limit the negative impact of necessary restrictions, and reduce aircrew workloads during mission planning. ■



# ACCcolades

QUESTIONS OR COMMENTS  
CONCERNING DATA ON THIS  
PAGE SHOULD BE  
ADDRESSED TO HQ ACC/SEF,  
MAJ "E.T." MOORE  
DSN: 574-8816

	TOTAL			ACC			CANG			CAFR		
	SEP	THRU SEP		SEP	THRU SEP		SEP	THRU SEP		SEP	THRU SEP	
		FY97	FY96		FY97	FY96		FY97	FY96		FY97	FY96
CLASS A MISHAPS	3	21	15	2	12	10	1	6	5	0	3	0
AIRCREW FATALITIES	4	18	9	4	6	8	0	2	1	0	10	0
* IN THE ENVELOPE EJECTIONS	2/0	16/0	11/1	0/0	7/0	7/1	2/0	6/0	4/0	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)

ACC	FY 96	0	1.1	0.8	0.6	0.9	1.2	1.0	0.9	1.0	1.4	2.1	1.9
	FY 97	0	0	0	0.6	1.0	0.8	1.6	2.1	2.1	2.3	2.2	2.6
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	1.0	0.9	1.6
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	2.7	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	2.0	1.8	2.3
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	5.8	5.3	4.9
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	2.2	2.0	2.2
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	4.1	4.0	3.9
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	2.5	2.3	2.4
MONTH	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	



# CANCER: A Medical Mishap?

Captain Louis R. Flowers III  
14 MDSS/SGSAP  
Columbus AFB MS

*Cancer is a leading cause of death in the United States today, and the number of people that die each year due to this dreaded disease continues to rise. As a result, the need for increasing our awareness regarding cancer "prevention" and how to minimize one's exposure at home or at work to substances that contribute to the onslaught of this life-threatening disease is important. In observance of "Cancer Control Month," the 14th Medical Group at Columbus AFB gathered information pertaining to cancer prevention and forwarded some helpful tips they collected from the Cancer Research Foundation of America relative to the prevention of skin, lung, and colon cancer. After reading this article, I'm sure you'll agree that practicing these simple cancer prevention steps makes good sense.*

*- Ed.*

## Skin Cancer Prevention:

Avoid exposure to the sun when ultra-violet (UV) rays are strongest — between 10 a.m. and 4 p.m. UV rays are damaging to the skin, regardless of how hot or bright it is outside. Also, be aware that your exposure risk is as intense in April as it is in August.

For protection against UV rays, always wear a waterproof sunscreen with a sun protection factor (SPF) of 15 or higher. Wear sunscreen even on overcast days; the sun's rays can still damage your skin. Apply sunscreen at least 30 minutes before going outside and reapply every 2 hours. Wear clothing with a tight weave and select a wide brimmed hat. A baseball cap will leave your ears and neck exposed.





Whether you are headed for the pool or the ski slopes, remember to protect your eyes and lips — they are susceptible sites for skin cancer as well. Surfaces such as water, snow, and sand can reflect up to 85 percent of the sun's rays. Wear sunglasses treated to absorb UV radiation and make sure that the glasses cover a large area around your eyes. About 20 percent of cataract cases are the result of repeated sun damage. Furthermore, wear a lip balm with an SPF factor of at least 15.

The same tips that apply to adults also apply to children. Encourage your children to get in the habit of wearing sunscreen protection by allowing them (under your supervision, of course) to apply the sunscreen lotion themselves. In addition, always keep young babies (6 months and younger) out of the sun. Start your children in the habit of wearing hats at a young age. If your child is going to be outdoors, look for a covered or shady environment.

### Lung Cancer Prevention:

Quitting smoking can reduce your risk of developing lung cancer. It is never too late to stop smoking. Research shows that the incidence of lung cancer decreases when smoking is stopped. Individuals who live or work with smokers have a higher lung



cancer risk than those not exposed to smoke. As a result, if you are a nonsmoker and are exposed to other people's tobacco smoke, it is wise to take measures to reduce your exposure. Never expose children to secondhand smoke which can decrease normal lung development and increase their risk of respiratory illnesses such as asthma.

In the workplace, follow work and safety guidelines to reduce your exposure to carcinogenic vapors, chemicals, or fibers.

### Colon Cancer Prevention:

Research suggests that: (1) the development of colon cancer is linked to insufficient intake of dietary fiber, and (2) a high level of dietary fiber has a protective effect. Reduce your risk of colorectal cancer by eating plenty of fibrous foods like fruits, vegetables, whole grain breads, and cereals. Also, limit your intake of the major sources of dietary fat such as meat, eggs, dairy products, and oils used in cooking and in salad dressings. This type of diet is protective against a large number of Western illnesses, including coronary artery disease, hemorrhoids, diverticulosis, thrombophlebitis, and gall bladder disease.

Fiber helps to lessen your risk of cancer by increasing stool bulk, reducing the effect of bile acids, and reducing fat absorption. Fiber speeds up the time undigested food and wastes move through the intestines. A study at the University of Toronto reports that an additional 13 grams of fiber daily (the amount in one bowl of bran cereal) could prevent 50,000 cases of colon cancer per year in the United States.

When grocery shopping, read the nutrition label on foods; and select those high in fiber. Look for whole grain, whole wheat, whole oat flour, or rolled oats at the top of ingredient lists. Beware of cereals that claim to be healthy (such as granola and muesli) which are often high in fat because of added oils. As a general rule, try to buy cereals of the low-fat variety; or try making your own. ■

*P.S. - By the way, if you are wondering what this subject has to do with safety and our mission of preserving combat capability, consider each of these exposures as an event building up to a severely debilitating and often fatal medical "mishap."*



# Safe Holiday Cooking

SrA AnnaBelle White, 1 AMDS/SGPM, Langley AFB VA

**W**ith the holidays quickly approaching, cooking and baking are soon to reach their peak of the year. With this increase in kitchen activities comes a need to observe some basic precautions. Raw meats such as beef, pork, and poultry have natural bacteria that thrive on improper handling and preparation. Here are a few safety tips for cooking that could help ensure your Holiday Season remains an enjoyable one.

- Thaw frozen raw meat in a refrigerator that maintains a temperature of 41° Fahrenheit (F) or below and **not on a counter top**. Plan on at least 24 hours of thaw time per 5 pounds of meat.
- Thoroughly wash your hands, utensils, and work surfaces with hot, soapy water **before and after** handling raw meat to prevent cross-contamination.
- With poultry, wash both the inside and outside with cold water before cooking.
- If you are stuffing a turkey, do so **just prior** to cooking.
- To ensure your meat is thoroughly cooked, insert a meat thermometer into the thickest part of the meat. Beef, ham, and pork should reach 165° F for at least a minute. The proper temperature for turkey and other poultry is 180° F, and the internal stuffing must reach 165° F.
- Do not allow meat to sit out in temperatures between 41° F and 140° F for longer than 2 hours; these are ideal temperatures for bacteria (such as salmonella) to grow and cause food poisoning.
- When saving leftovers for snacking or quick meals, store them promptly and properly. Store all items (such as stuffing, gravy, ham, and turkey) separately. It is recommended that you separate the meat from the bone and divide it into smaller portions for rapid cooling. If any items have been left at room temperature for longer than 2 hours, discard them.
- Discard meats that have been refrigerated for over 72 hours.

**Remember, the best way to deal with food poisoning is to prevent it!**

*Over the river and through the woods to Grandmother's house we go!*

*Happy Thanksgiving*