

The Combat EDGE

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The Combat EDGE

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OOPS!

The 53 WG Annual Traffic Safety Award, Category II winner, is located at Eglin AFB FL, not at Tyndall AFB FL as previously published in the February 2000 issue.



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ACCent on Safety

SAFETY FOCUS

Spring is here, which means warm weather, vacations, Spring fever, and....expeditionary deployments. This time of year normally presents greater risks that center around human factors during both work and play. Just as a mountain climber needs to prepare for the new season with technical training, physical fitness, and extra caution in his first few climbs, our expeditionary forces need to take the same precautions prior to a deployment.

This edition of THE COMBAT EDGE has excellent articles to help you focus on safety. I encourage you to pay close attention to the words of Air Combat Command's commander, General John Jumper. His article outlines the "expeditionary warrior's" needed safety focus mindset, which equates to safety awareness and attention to detail. We've enjoyed tremendous safety dividends from Operational Risk Management (ORM) while moving large forces, but since 80 percent of our mishaps are caused by human factors, we must also look to each individual to have a truly safe operation. Accountability and leadership are at the forefront of safe deployments. COMACC ties his thoughts together with an important message: When you're asked who's accountable for safety in your unit, your response should be, "I am."

The idea that "YOU" are responsible for safety is key. We're beginning a new emphasis in risk management to capture this concept, known as Personal Risk Management (PRM). As we look back over 1999 and the first quarter of this year we see many people having mishaps by themselves — the result of accepting greater risk than necessary. Thus, there is a need for each individual to focus on his or her task at hand, assess the risks, and control or eliminate them. Look for PRM to become an important safety concept for ACC in the days to come.

Col. Greg "Vader" Alston
ACC Chief of Safety

Safety Principles Part of "Expeditionary Warrior"

By General John P. Jumper Commander, Air Combat Command, Langley AFB, Va.

As we enter the new millennium and transition into the Expeditionary Aerospace Force (EAF) we're in need of "expeditionary warriors" to carry us from our storied history into our boundless future.

We've already seen these new expeditionary warriors in action in recent conflicts such as Operation ALLIED FORCE, and we see them every day patrolling no-fly zones and defending our nation's interests around the world.

Being an expeditionary warrior means having an expeditionary mindset, but it also means ensuring safety principles are at the forefront of all you do.

We're in need of expeditionary warriors, because the way we carry out our business of war fighting has changed. The EAF requires us to be light, lean and lethal, and it represents a shift in the way our leaders employ our Air Force. The Air Force's stock and trade are in getting to the fight fast, so we need to develop the capabilities necessary to quickly become operational once our forces arrive. We can't afford to do this, however, at the expense of safety. So, while the way we carry out our business has changed, the way we safely prepare, train and employ our forces hasn't changed — and won't change.

Safety becomes an even more important aspect in our new expeditionary role where frequent worldwide deployments are the norm. It's in these real-world deployed environments that people are most likely to miss important safety steps or details because they are under pressure — but this is exactly when skipping a step or missing a detail can result in death or cost millions of dollars in damage.

We need expeditionary warriors with this safety-focused mentality like never before because our people have experienced a spike in operations and personnel tempos, and we've seen a surge in the tasking of aircrews — particularly our reconnaissance, rescue and other low-density

and high-demand assets. As our people's stress levels increase, so does the potential for mishaps. In addition, we've also heard so many safety buzzwords and seen so many new initiatives that, to some, safety has become cliché. Nothing could be more dangerous to our lives and our mission than such complacency.

This is where strong leadership needs to come into play. We are all leaders in one way or another. As leaders we need to ensure we train like we fight. We do this by making safety our sixth sense and utilizing the principles of Operational Risk Management.

In theory, ORM is not a new concept. The idea of weighing risks and balancing them against desired outcomes is something we've always done in one way or another. ORM merely formalizes this concept into a process that's easily understood and can and should be used daily by everyone. The importance of ORM has been repeatedly demonstrated, because about 80 percent of all mishaps can be attributed to human factors.

It was determined that human factors contributed to the four ACC mid-air collisions experienced last fiscal year (there were seven Air Force-wide); a reason the fighter/attack community had their worst mishap rate since FY 1988. We were very fortunate that no lives were lost in these mishaps, but it's up to all of us to learn from them and implement recommended safety changes so we don't repeat the past. Other human factors, such as driving under the influence of alcohol and not wearing seat belts, also contributed to avoidable accidents, and more importantly, senseless loss of life on the ground.

The good news is that it appears we're on an upswing with safety. During last year's "101 Critical Days of Summer," ACC had the fewest fatalities in the command's history. Looking at FY 1999 statistics we see that, as an Air Force, we had the fewest fatalities ever. Our desire will

New Mindset

always remain zero fatalities, and it seems the tide is turning. I believe it is turning because of strong leadership and making ORM a part of how we do business.

Along with strong leadership and a commitment to ORM principles, we all need to be accountable for our actions. When someone asks you, “Who’s in charge of safety in your unit?” your answer should be, “I am.” Our potential as an Air Force and our hope of zero fatalities will only be reached if everyone — enlisted, officer, civilian, and family member — accepts responsibility for ensuring safe operations on and off duty.

We all have the authority to “knock it off” when something doesn’t seem safe. It’s much better to start over or change plans than have to explain to family or friends why they unnecessarily lost someone they loved.

We’re a new Air Force and we need a new type of warrior. We need warriors that have an expeditionary mindset, who understand that we can’t afford to conduct business as usual in our new EAF construct. We also need warriors who understand that having this expeditionary warrior mindset means adhering to the safety principles that helped make us the world’s strongest and most respected Air Force. ■



Safety becomes an even more important aspect in our new expeditionary role where frequent worldwide deployments are the norm.

All Quiet on the A Bird Aircraft Strike



Several 7-pound Canada geese struck this C-141 at 200 knots in the traffic pattern just after dusk. Imagine the same scenario with a fighter or bomber doing a night low level sortie at over twice that airspeed. Though migratory birds, many Canada geese have become year-round residents in the park-like settings often found near airports.



 Digitally manipulated for anonymity

Southern Front?

Hazard (BASH) Review

By Lt. Col. Ron Maxwell, ACC Flight Safety, Langley AFB, Va.

As we approach the annual springtime migration of millions of birds from parts south back to Canada and Alaska, it's time to review some aspects of BASH management. Much of this is common knowledge to program managers, but it deserves greater awareness in the operations and support communities through a forum such as THE COMBAT EDGE. Fewer things get your attention like the smack — and often worse — of a bird hitting your aircraft, or the disorientation that follows with the rush of noise and air, glass, mangled bird parts, and other debris when one smashes through the canopy.

Environmental laws and policies designed to protect our wildlife are working! Thirty years ago DDT threatened the extinction of many four-legged and winged critters we now enjoy in ever-increasing abundance. If it seems like you see a lot more birds now than you used to, it's because there are more — lots more! Non-migrating Canada geese populations have tripled over the last decade, the number of nesting cormorants in the Great Lakes region has increased 900 percent over the last 30 years, and American White Pelicans have rebounded from near extinction to becoming a common sight in our wetlands — and the skies above them. Turkey vultures and red-tail hawks, the most frequently stricken birds during low-level flight, are flourishing, and the American bald eagle is no longer considered an endangered species. Of additional concern to BASH managers are the exponential growth of white-tail deer populations and their increasing urbanization as they move into suburban areas and encroach on our airfields.

Corresponding to the increase of these animal populations is the dramatic increase in aircraft bird strikes just over the past five years. The Air Force currently averages about 2,500 bird strikes a year. Since 1995 these strikes have cost over \$138 million and resulted in the loss of dozens of lives. Though ACC has had no Class A bird strikes this

year, 33 percent of Class B mishaps have been bird-related. Most of these strikes result in insignificant red smears, but we have suffered the loss of B-1, E-3, and F-16 aircraft in the past decade. While most strikes occur in the traffic pattern, the danger rises exponentially on low-level routes where higher speeds are flown, greater forces are sustained on impact, and little reaction time exists. Exacerbating the problem is the creation of park-like environments in the urban sprawl mentioned earlier and even on our own airfields. That manicured golf course or park with the ponds and trimmed sidewalks in the new subdivision looks like a luscious garden salad to many birds. Migrating birds are attracted to this environment, particularly when no one is shooting at them, and are having more of a tendency to stay year-round. Our increased nocturnal flight operations don't provide safer haven either. Most activity occurs at dawn and dusk, and migrating birds don't stop just because it gets dark. It cannot be overemphasized that birds are not only unwelcome, but they should not be tolerated in the airfield pattern or vicinity!

AFI 91-202 requires each flying wing to implement a BASH reduction program. This instruction establishes a BASH plan that meets operational requirements, lists responsibilities and procedures for wildlife control, develops bird hazard warning systems for aircrews, and establishes a bird hazard working group (BHWG) chaired by the vice wing commander. The BHWG consists of members from the flight safety office, airfield management, air traffic control, civil engineering and environmental offices, base operations, security forces, and others. Each of these offices has a role in combating the threat of bird strikes, and the group meets at least twice a year to review actions taken, identify new issues, and develop solutions. (Of particular note here is the importance of identifying problems that have specific funding requirements and projecting them in the base financial plan, since there is

usually not a quick source of funds on base or from the MAJCOM. This almost guarantees that they'll be on the next meeting's review of action items because of the funding cycle. So if you have improvement projects, such as stringing wires across sewage ponds or removing stands of trees, etc., plan ahead!

There are many control methods available to BASH managers, and no single method works all the time. Propane cannons and bioacoustics are great, but they lose their effectiveness when they're fired on the same cycle from the same places. Birds habituate to almost any method, so therefore a variety of techniques must be employed. AFP 91-212 describes many of these, and there are numerous web sites available on the Internet. Firearms/pyrotechnics authorized are listed in AFP 91-212, but sometimes overlooked are training, quantities and storage requirements. Remote-controlled airplanes, falconry, and specially trained border collies are other techniques in vogue, but they require training and care, and are not a panacea for all BASH challenges. Utilizing the services of a wildlife biologist who can work the right combination, timing, and administration of control measures is a sound investment for any base with significant BASH problems.

As well as reinforcing non-lethal techniques, depredation is periodically required to physically remove a threat to flight ops in the airfield environment. This is a last resort that must be coordinated with your base environmental office in particular; but also with others on the BHWG. Because of the attention depredation may receive from the media and animal rights groups, it wouldn't hurt to involve the legal and public affairs offices. Pigeons, house sparrows, and starlings may be taken without special permits; however, most species that are hazardous to flight ops are considered migratory birds (including seagulls). About 90 percent of all bird strikes in the U.S. are by species federally protected under the Migratory Bird Treaty Act. The U.S. Fish and Wildlife Service policy addresses permit requirements, the Endangered Species Act, and the National Environmental Policy Act. For example, it requires that an impact analysis be completed. This ensures the action is within the scope of the base natural resource plan (which should contain some discussion on BASH issues and control plans) and coordinates the action with state and federal game agencies and special interest groups, including civil environmental and animal protection groups and local government.

The environmental folks are well schooled in these requirements, but BASH managers need to be aware of the depth and timing of actions required.

For flight safety officers (FSOs), flight safety (FSNCOs), and aircrews new to the business, here is a brief, but by no means complete, list of articles and Web sites available to you so you don't have to reinvent the wheel in combating the risk of a bird strike.

Flying Safety, "Building a BASH Program," Mr Gene LeBoeuf, AFSC/SEF, Apr 97;

The Combat Edge, "ORM and Low-Level BASH," Maj. Tom Donalds, ACC/SEF, Nov 97;

The Combat Edge, "ORM for Airfield Wildlife Hazards," Maj. Tom Donalds, ACC/SEF, Dec 97;
www-afsc.saia.af.mil/AFSC/Bash - AFSC BASH Team Guidance Web page - a great site listing AFIs, pubs, reporting, BASH plans, and depredation discussion.

www.cevp.com/apps/bam/index.html - The Bird Avoidance Model (BAM) can be found on this ACC Web site.

www.tc.gc.ca/aviation/aerodrome/birdstke - Transport Canada - a comprehensive site with a lot of BASH information.

www.ahas.com - Geomarine, Inc. site posting the Avian Hazard Avoidance System (AHAS), which complements the long term planning feature of the BAM with near-time predictions for low-level routes and military operating areas.

Additionally, a forum for military and civil BASH managers exists. Bird Strike Committee USA was formed in 1991 to facilitate the exchange of information, promote the collection and analysis of accurate wildlife strike data, and develop new technologies for reducing wildlife hazards. BASH FSOs/FSNCOs are encouraged to attend the next Bird Strike Committee USA meeting August 8-10 at the Minneapolis/St. Paul International Airport.

The bird strike threat has grown exponentially and shows no sign of abating. Our combat assets are fewer and more costly than ever, and cultural development will encroach further on our airfields. BASH program managers can't eliminate these hazards unassisted. The teamwork required to plan, program, and coordinate efforts to ensure safe flight operations and the preservation of combat assets with regard to bird strikes cannot be over-emphasized. When weighed against the very real risk of losing an aircraft and crew, it's easily worth the effort. ■

Boiled Like a Lobster

Staff Sgt. Patrick J. Adami, 932nd Air Control Squadron, Keflavik Naval Air Station, Iceland

The following is a true story about a co-worker of mine who took a serious risk that, luckily, caused only minor injury. As the noncommissioned officer-in-charge of safety for the 932nd Air Control Squadron, I felt it was important to share this story as an example of risk management (or lack thereof). Even though it was an incident that occurred off duty, operational risk management (ORM) needs to be applied to off-duty situations as well.

The airman in this article made a bad decision and probably did not think of the possible effects it could have. Lucky for him no permanent injuries occurred, but they could have. Hopefully this story will help teach a lesson to everyone out there, and remind folks to think before they act. As a believer in the buddy system, I also think that his friend should not have let him take such a risk. So here's the story, in my co-workers own words.

In July of 1998 a friend and I decided to go sightseeing in the beautiful countryside of Iceland. We planned to see the geysers (the natural boiling hot underground water that erupts straight up into the air) and waterfalls that characterize the island. When we arrived in the countryside, we hiked around the falls for about an hour, and then decided to make our way to a geyser.

We were sightseeing during the early morning hours (about 1 a.m. to be exact), but there was still plenty of daylight, and we wanted to get lots of snapshots to send home. Now comes the decision that I never should have made. Around the geyser was a roped-off area that no one was supposed to walk past. I decided I wanted a picture of me in front of the

geyser as it erupted. I figured the closer, the better. I thought that just 10 feet past the rope wouldn't be a big deal. Guess what? I was wrong!

The geyser sprayed and the camera flashed, and suddenly my feet and ankles felt excruciatingly hot as the water boiled over them. This water is heated by underground volcanic rock, so you can imagine how hot it was. I know I sure won't forget! After getting out of the roped-off area, my first reaction was to take off my shoes and socks. After doing this, my friend immediately helped me to the car and we

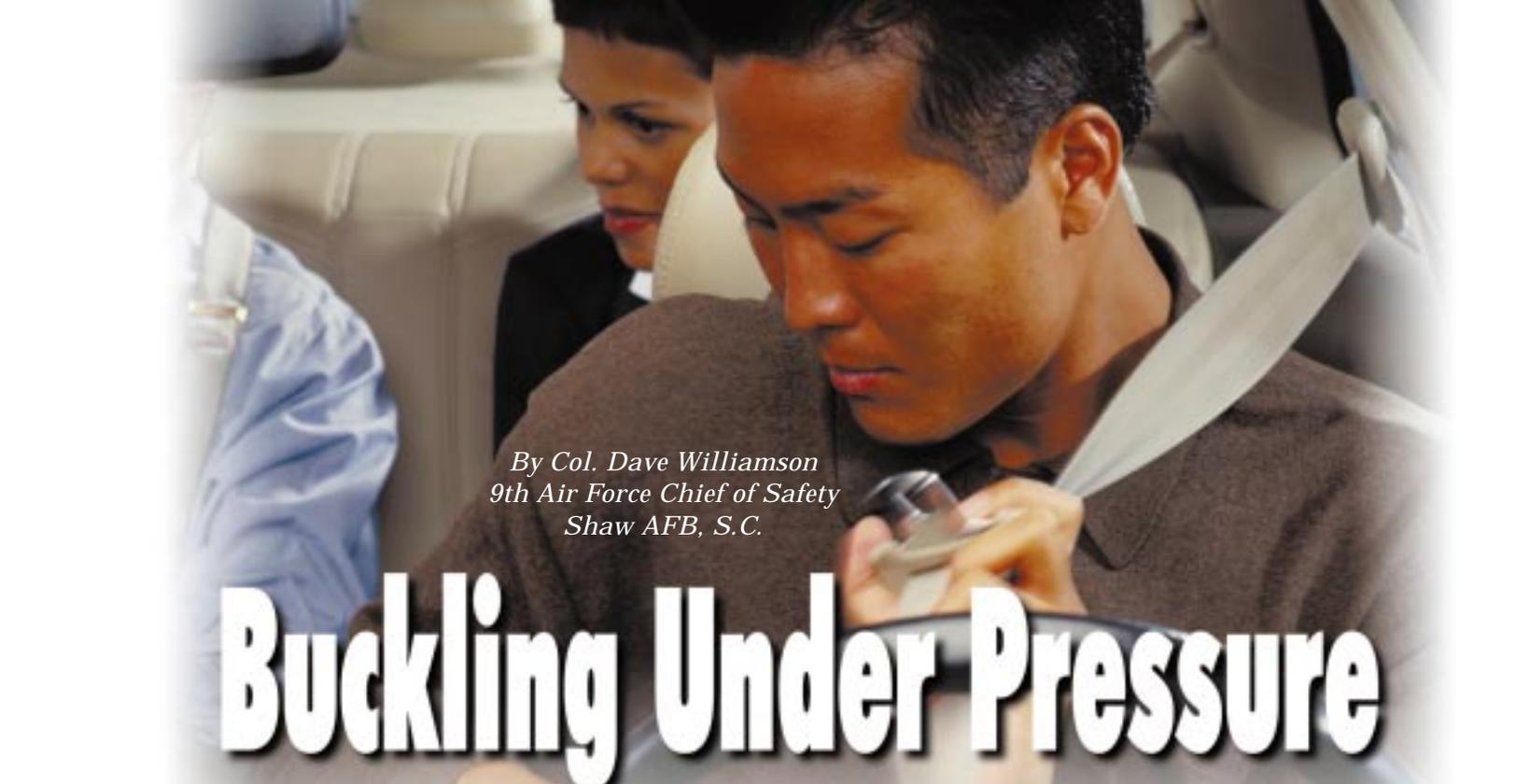
sped off to the hospital. It was a very long hour-and-a-half ride. When we arrived at the base hospital the staff immediately wheeled me in for emergency treatment.

The first thing they did was to administer pain medication (for obvious reasons). They then started to work on my feet and ankles. They cleaned the burned areas and called in a doctor. The doctor determined that I had second- and third-degree burns and would therefore have to remain hospitalized for evaluation. After two days they decided that I would get an all-expenses paid trip on a MEDEVAC flight to a burn treatment center at Bethesda Naval Hospital in Maryland.

When I arrived at Bethesda, they examined me and decided

that skin graft surgery would need to be done. The morning of my surgery arrived, and a small miracle happened! My feet and ankles had miraculously healed enough over night that surgery was no longer necessary. I was given a month of leave to recuperate and was playing flag football by September. I consider myself very lucky, but I will also think before I act now, and never take that kind of unnecessary risk again as long as I live. ■





*By Col. Dave Williamson
9th Air Force Chief of Safety
Shaw AFB, S.C.*

Buckling Under Pressure

As I was watching the pre-game show before the Super Bowl, there was a report on Derrick Thomas of the Kansas City Chiefs. As most of you football fans know, Derrick Thomas was an NFL all-pro and whose father, coincidentally, was a USAF pilot who was lost in Vietnam. Anyway, the weekend prior to the “big game,” Derrick Thomas and two companions were traveling along snowy roads in Kansas City on their way to catch a commercial airline flight. They were involved in an accident when the driver lost control of the vehicle while traveling 70 mph on icy roads. The vehicle veered into the median and rolled several times, resulting in tragedy.

Two of the occupants, including Mr. Thomas, suffered fatal injuries, and the other was treated for minor injuries and released from the hospital.

Now those of you who are familiar with the latest bad safety trend in the USAF know where I’m going with this story. What was the difference among the three occupants of this vehicle? **The man who walked away had his seat belt on — the other two did not.** Their negligence cost them their lives.

We’ve seen this in the Air Force and we just can’t understand why people continually refuse to use their seat belts or other appropriate safety precautions. As I was writing this

article I became aware of the death of a Reserve troop in Louisiana. She was thrown from her vehicle after being involved in a four-car crash on an interstate. **Same old story — she wasn’t wearing her seat belt.**

In our command, 9th Air Force and CENTAF, we lost two troops in the CONUS and one in the area of responsibility (AOR) in the past 18 months because they were not wearing their seat belts or, in the case of motorcycle/bicycle accidents, were not wearing protective helmets.

What’s my point? No one, and I mean NO ONE, is bullet-proof. Accidents will unfortunately continue to occur, but fatalities don’t necessarily have to be the result. It is a dangerous world out there and failing to properly protect oneself to the maximum extent possible is foolhardy and stupid.

I am speaking from experience. I was involved in a head-on collision last summer that my wife and I walked away from. We were beaten up and in shock, but we sustained only minor injuries. Why? Because of our seat belts and the airbags.

So no matter how tough, smart, or lucky you think you are, you’re still vulnerable to circumstances completely out of your control when you take yourself and your family out on the roads. **BUCKLE UP SO YOU CAN WALK AWAY!** ■

GROUND SAFETY AWARD OF THE QUARTER

Staff Sgt. Richard DeZeeuw, 28th Bomb Wing, Ellsworth AFB, S.D.

Sgt. DeZeeuw provided outstanding leadership in promoting and executing a great safety program at the squadron level. Sgt. DeZeeuw's foresight and take-charge attitude shine like "bolts of lightning." Sgt. DeZeeuw went above and beyond the call of duty by designing, updating and publishing the first ever safety Web site for the squadron. This site was considered so impressive that other squadrons are duplicating it for their own use. Some of the numerous items on the web site include DUIs, wind chill charts, video clips of safety mishaps, and an assortment of other safety-related items. Sgt. DeZeeuw's topics for safety expand well past the gates of Ellsworth and into the community.

Sgt. DeZeeuw developed many briefings and programs to inform squadron members about different safety issues. Some topics covered were sports accidents, helmet and motorcycle safety, suicide prevention, winter safety, and holiday safety. Sgt. DeZeeuw also developed a "Safety Trivia" game to make safety issues interesting as well as informative. He initiated a safety self-inspection of the squadron to see if there were any shortcomings with the safety preparedness of the squadron. He went to every work center within the squadron and took pictures of safety violations. He posted these pictures on the web site and had the squadron members identify the location and violation. By doing this, he identified problems within the squadron and made everyone aware of the situation. He identified numerous items for improvement and made the correction either on the spot or sent information to the work center to make the correction.

Sgt. DeZeeuw actively searches the Internet for safety articles and reports stories that may be of interest to the squadron. Once he finds an article, he usually attaches a picture to help illustrate the point of the article. Sometimes the pictures are a bit graphic, but they drive the point home, and he warns of the graphic nature of the pictures beforehand.

A program Sgt. DeZeeuw started is "Safety Awareness E-mails." Sgt. DeZeeuw sends out safety-related messages to the squadron when he comes across pertinent information. In his duties of Safety NCO, he developed a checklist of items to be stocked in our government vehicles' winter survival kits. He also devised a list for squadron members' personally owned vehicles as well.

Finally, he spearheaded the placement of road markers for the roads leading to the various navigational aids (TACAN, ILS, ASR, TOWER, etc.) during harsh weather conditions so work crews could locate and plow their ways to sites without losing the roads. This came about due to an incident last year in which an Air Force member was trapped in his vehicle for over six hours during a snowstorm. If the markers had been in place then, that member would have been able to find his way back to his shop.

Ten Seconds

*By Maj. Phillip Beaudoin
4th Fighter Wing Chief of Safety
Seymour Johnson AFB, N.C.*



Ten seconds. That's all. That's all it took for us to go from straight and level on a routine return to base to nearly swimming home.

Situation normal for a formal training unit sortie. The mission was a B course advanced handling sortie, the precursor to basic fighter maneuvers (BFM). I was in the student pilot's back seat. The student weapons system operator (WSO) was in the lead aircraft. It was just two F-15Es. If anything, I thought I had to be most wary during the advanced handling, not during a phase of flight that my student should have learned during undergraduate pilot training (UPT). But such was not the case.

We entered a very thin layer of clouds — the type in which you could fly a mile line abreast if you wanted. The flight lead put us in an en route formation that was very comfortable, given the weather. The mission had been flown with the 12 tactical air navigation (TACAN) in air-to-air mode, and we were approaching the coast still 80 miles from home base. My student asked me to change

the TACAN channel. When I looked up, the lead was gone. Having been a lost wingman in a previous jet, I was not immediately concerned because I thought I knew we could not be radically converging. Still, it baffled me how this young fighter pilot in the front could manage to lose sight of his lead so quickly or find the only patch of thick clouds on the eastern seaboard.

My curiosity peaked, and I asked if he saw the lead. He responded, "Yes." The next question, "Where is he?" was too obvious, but it wasn't being answered, so I had to ask.

The reply, "He's right below us" was uncomfortable until I picked the lead up forward of the left intake immediately below



us. My reaction turned to terror as I saw the top of a Strike Eagle converging toward us on a certain collision course. I recognized the left vertical stabilizer and left engine bay

and knew we were in trouble.

Instinct took over. I took the stick and snatched it to the seat pan. As I did this the airplane snapped into the heavy buffet. I didn't close my eyes, but I did hunch my shoulders bracing for impact. Staring at the instruments, I said, "Oh please God, don't hit."

What seemed like an eternity passed as the aircraft shuddered and rocked before I decided we had missed hitting our lead. I paused before I told the lead what happened. We flew through the rest of the clouds in a radar trail as I tried to explain to my student what had happened. Amazingly enough, he didn't seem that upset. Could it have been that he didn't understand what had nearly happened, or did he take such episodes way too lightly? I decided it was the former.

The mission profile called for a formation landing. I asked how he felt about this, and he replied he was up for it. That made one of us so we landed from instrument trail.

How could this happen? We were in a crewed airplane with qualified people in each cockpit in a relatively undemanding phase of flight. The answer is classic cockpit/crew resource management (CRM).

When my student asked me to change the TACAN, an operation that required me to go heads-down into the cockpit, he also went heads-down to call up an attitude deviation indicator (ADI). He wanted the ADI on the right monochrome video display instead of the standard center color position, a task that took more switch actuations than it should have. Of course, he failed to inform me of this. In the lead's jet, the instructor pilot (IP) and student WSO were discussing an air traffic control (ATC) call and were not looking at the other aircraft. So at the time of the incident, no one in the entire formation was looking at the other aircraft.

As this occurred, our aircraft converged and climbed over the lead. The student looked out, saw this, and perceived (in error) that the lead had banked right and that we were on the inside of a right-hand turn. He felt he was too high and decided the best way to slip into position was to push forward. In the span of about five seconds, he had devel-

oped a dangerous level of spatial disorientation. In addition, his control input, regardless of flight attitude, was incorrect.

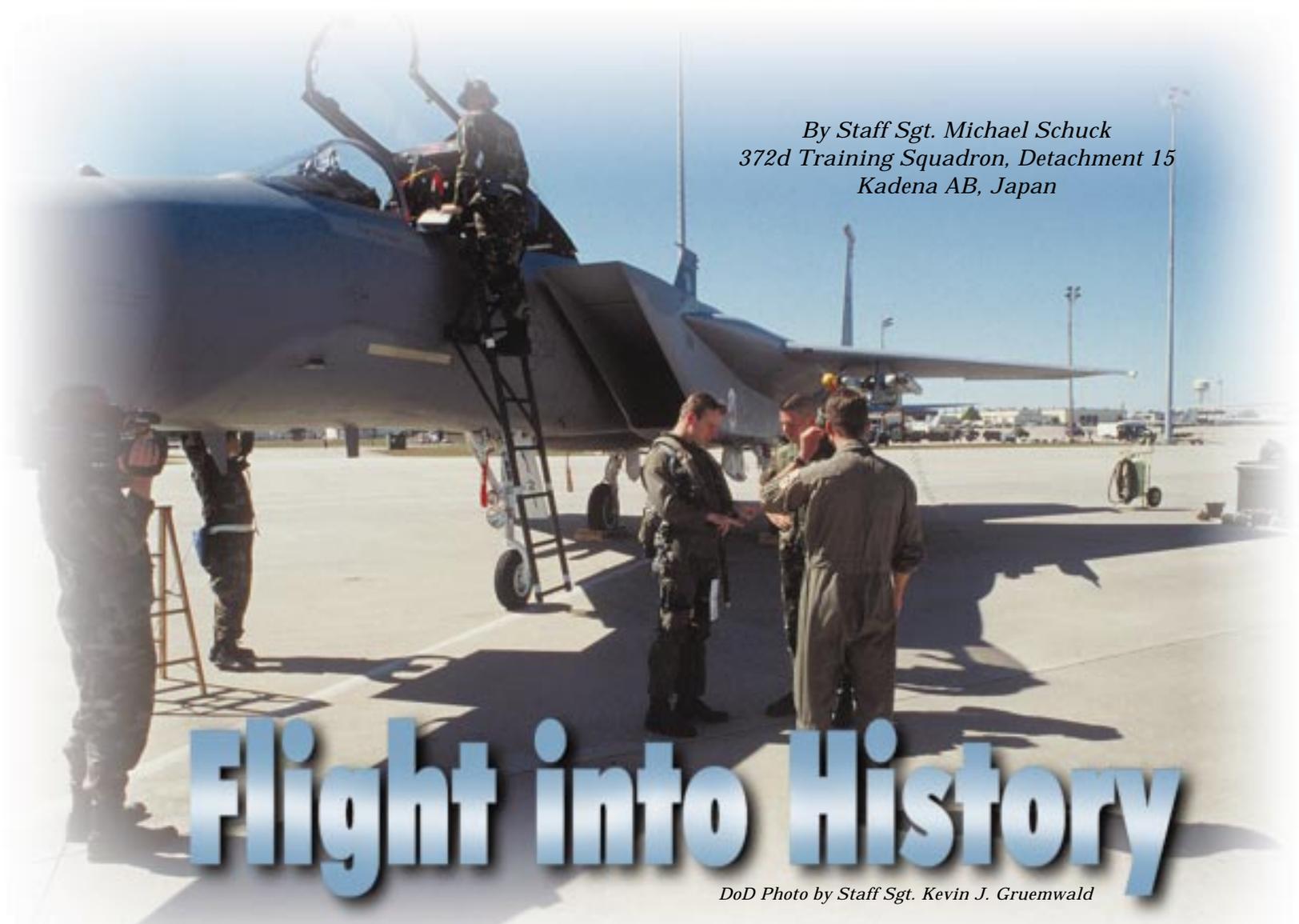
Lessons from this seem basic but are critical. First, brief crew coordination thoroughly. I thought ours was adequate, but I made several assumptions about what the student had been taught in prior training. Even if he had been trained correctly, a good brief is an excellent reminder.

What applies to the crew is also critical to the flight. If you think your wingman will always fly like you would, you haven't been a flight lead very long. If you simply brief your flight to be smart wingmen, you make significant assumptions about their capabilities. The place to tell the flight what you expect and what to do is in the brief.

Second, situational awareness (SA) is important, but it can disappear faster than you think. The funny thing is it never seems to reappear quickly. When you recognize situational awareness is lost, there are usually two basic sets of options, and the correct choice is almost always the conservative one. In our case, trying to get back into position before verifying our attitude nearly caused a collision.

Most importantly, the decision to react when the aircraft is in a dangerous situation must be instantaneous. I'm an instructor pilot with prior AETC experience. I've been in situations where I've had to take the stick before (though never so rapidly). How many WSOs out there would do the same for their pilot? This is an especially important question to new WSOs. The human factors guys talk about the "halo effect." When the time comes to react, will you? Can you? Are you able? In my aircraft, you'd better. I don't expect you to take the stick in a routine situation, but if we're going to hit, I'd rather be explaining in the debrief how I messed up than riding home in a raft.

This year there have been too many midair collisions — some tactical, some not. The human factors associated with these are many and varied. But the only prevention comes from the operator in the cockpit. ■



*By Staff Sgt. Michael Schuck
372d Training Squadron, Detachment 15
Kadena AB, Japan*

Flight into History

DoD Photo by Staff Sgt. Kevin J. Gruemwald

You have all heard those “there I was” stories. Well this is one of those “this is what I heard” stories. As an F-15 weapons instructor, I was discussing safety on the flight line with my class. The overall glaring topic was how the misuse and abuse of technical orders (job guides) can cause problems. The stories ranged from not having the right job guide, to using it for a kneepad, to not having one at all. I have heard these stories many times in the past, and have even done some of them myself while trying to get the job done. But one of the stories I heard just seemed a little too far out of the norm to be true. Or was it? Could this actually happen on the flight line? Well it did!

As the story goes, it was one of those days when a squadron of F-15E’s went TDY to Tyndall AFB, Florida. The weather was perfect, just like the ads you see on TV. The

sun was setting, and the maintenance crews were busy getting the planes ready for the next flying day. I shouldn’t even have to say this, but the maintainers were also focused on a night out on the town, so the work pace was a notch higher on the meter. In the maintenance career field, so I’ve heard, we work hard to play hard. Well naturally, everyone was excited about being TDY in Florida and wanted to get their work done so they could go and see the “sights.” However, that’s another story.

The maintainers were prepping the aircraft for the next day’s missions. One aircraft needed a jettison check on the number-8 weapons system pylon. An experienced crew went out to complete this simple 10-minute job. They had done this check many times before and felt as though they could do it with their eyes closed. The

technical orders were present on the site, but they chose not to follow the job guides. As a matter of fact, they never opened the job guide. To streamline their task, they asked the crew chief if the aircraft was safe. Naturally the response was yes, so they never bothered ensuring the aircraft was safe for maintenance. As they continued on, they chose to trust their memories and rush through the electrical check. The airman in the cockpit was about to hit the emergency jettison button, and asked if the impulse cartridges (carts) were removed. The reply was yes and the button was depressed, sending the firing voltage to all the weapon stations.

The electrical check was working perfectly. The only problem was a small puff of smoke and a loud bang coming from the left inboard pylon. The crewmember in the cockpit heard the noise and knew exactly what had happened. They had just forcibly ejected the left inboard pylon from the aircraft. The pylon made a very brief flight into history, before crashing to the concrete on the flightline.

The damage to the pylon from smashing into the concrete resulted in a repair bill costing several thousands of dollars. Most importantly was the damage to the crew's pride, because they will never be able to live down their mistake. The aircraft stores emergency jettison button worked as advertised. The jettison check is done to ensure that this would happen in flight in case of an emergency, not on the ground during testing.

So you ask how this happened? Even with the impulse carts installed in the pylon there should be an armament ground safety pin installed in the pylon. This pin is installed to prevent just this type of thing from happening. So what happened? The answer is easy — the pin was never installed. It was definitely not the crew's day.

However, others share in the blame of the mishap. The sequence of events seemed to compound the situation. When the aircraft returned from the sortie, it went through the end of runway (EOR) crew for safing. This is where the armament ground safety pins are installed. The first people, the EOR crew, started the sequence of events by not installing the pylon pin. Also, the crew that performed the original jettison check was not the first maintenance crew to work on the aircraft. There were three other groups of technicians that performed maintenance on the aircraft before the jettison check crew arrived, and they all missed the pylon pin as well.

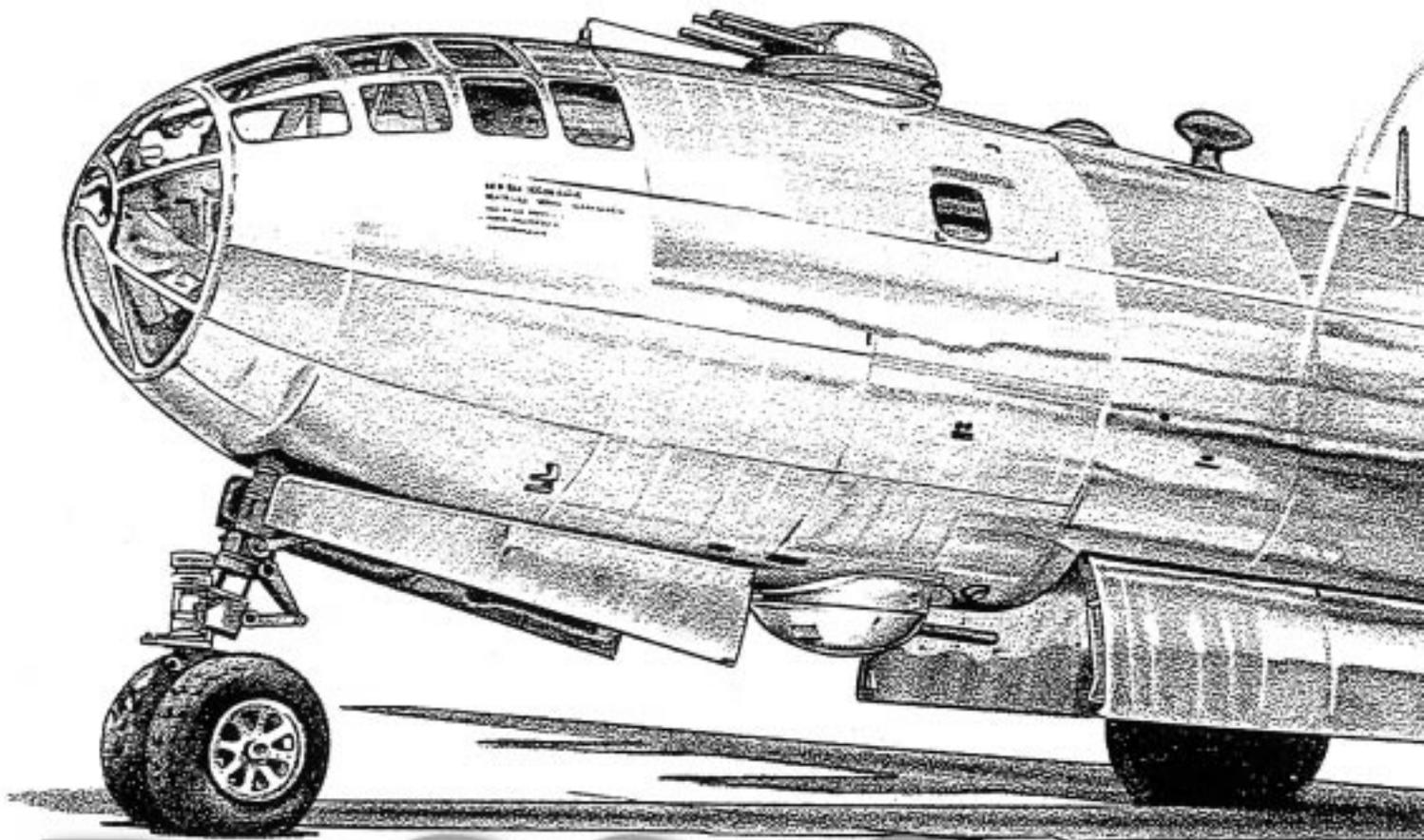
All the maintenance crews should have used their "job guides" to safe the aircraft for maintenance. If they had followed the technical data, they would have noticed the missing pylon pin. There is a job guide for electrical checks; in it is a warning that states "remove all impulse carts before applying power to aircraft." The warning is in there for just this reason. If they had read the warning, they would

have removed all the impulse carts, not just the impulse carts in station eight.

The best things about mistakes are the lessons we learn from them. In a nutshell, follow the job guides, never rush the job or cut corners, and focus on the mindset that, if something needs to be done, do it right the first time. In this situation communication broke down as well, and we need to make sure that we communicate effectively. Always make sure that the person with whom you are communicating understands what you are asking. I hate to repeat myself, but always read and follow every step in the technical orders, and pay attention to bold words like WARNING, CAUTION and NOTES - they are in there for a reason! ■

The pylon made
a very brief flight
into history,
before crashing
to the concrete
on the flightline.

The Boeing B-29 Superfortress was a long-range heavy bomber used primarily in the Pacific theater during World War II. It had many new features at the time including fully pressurized crew areas and remotely controlled guns. Nearly 4,000 B-29s were built when production ended in 1946. The Superfortress is most remembered by its first delivery of a nuclear weapon in 1945. After World War II, B-29s were adapted for several functions, including in-flight refueling, anti-submarine patrol, weather reconnaissance, and rescue duty. They saw combat duty again in Korea from 1950-53. The last B-29 in squadron use retired from service in September 1960.



B-29 Super

GENERAL SPECIFICATIONS

Span: 141 feet 3 inches

Length: 99 feet

Gross weight: 105,000 pounds

Maximum speed: 365 mph

Cruising speed: 220 mph

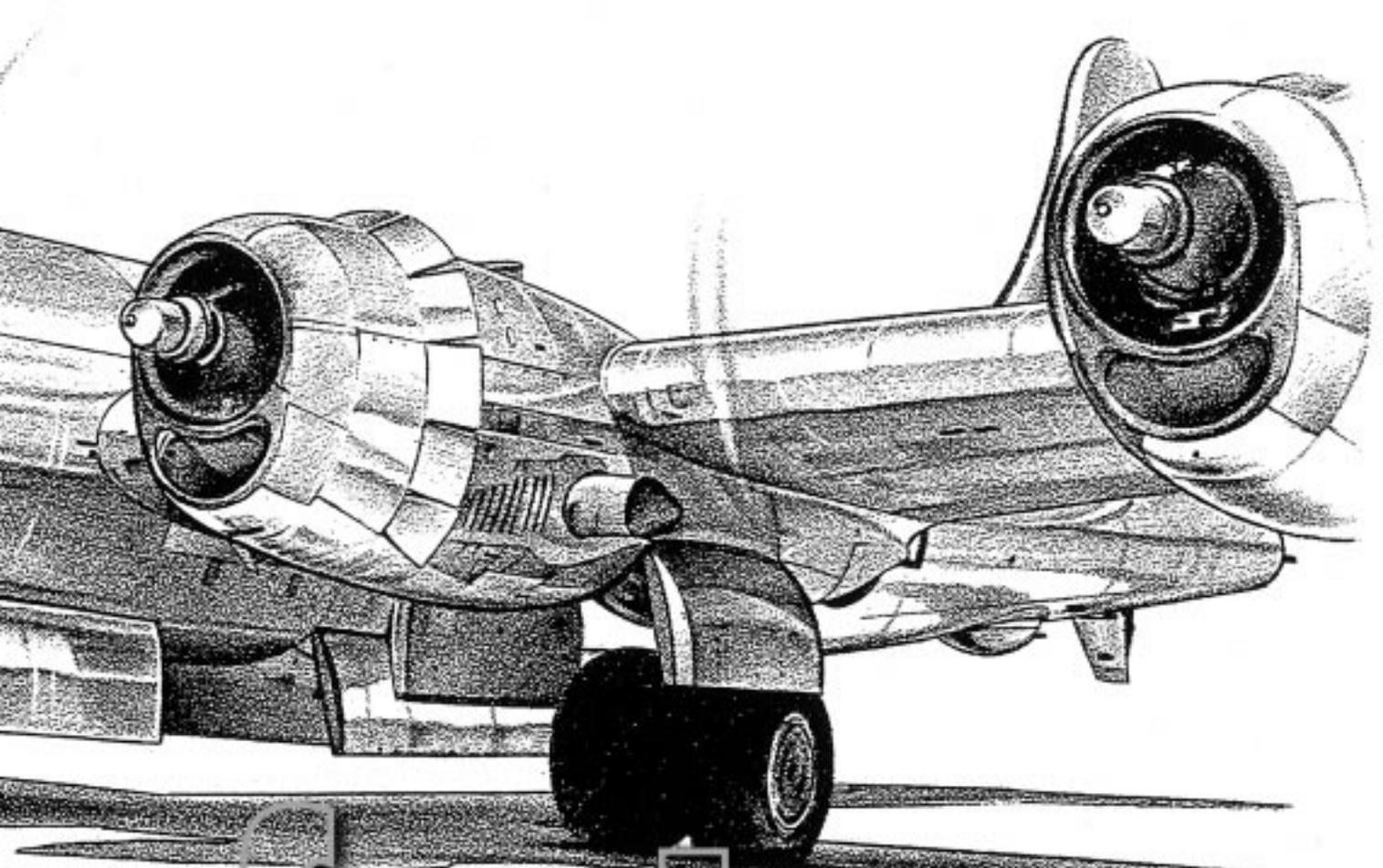
Range: 5,830 miles

Ceiling: 31,850 feet

Accommodation: 10 crewmembers

ARMAMENT

Twelve .50-caliber machine guns, one 20mm cannon, 20,000-pound bomb load



B-29 Superfortress

FORCE

Almost "Vapor"ized

*By Capt. Mark A. Hopson
38th Reconnaissance Squadron
Offutt AFB, Neb.*



We were aboard an RC-135V launching on a 13.5-hour round robin mission out of RAF Mildenhall, United Kingdom, supporting Operation Joint Guardian. The flight crew consisted of myself, an instructor pilot acting as the pilot in command, two dual-seat qualified aircraft commanders (one acting as the copilot, one in the auxiliary crew seat), an instructor navigator, and a mission navigator. In addition, there were 20 crewmembers on board performing the reconnaissance mission. The scheduled takeoff was 3:15 a.m., local, with a planned landing time of 4:45 p.m.

As soon as the gear came up, the instructor navigator smelled fuel. The smell was confirmed by the mission navigator shortly thereafter. At that time, fuel vapors were not detected anywhere else in the aircraft. Lakenheath Departure cleared us to climb to flight level (FL) 230 and direct MC6. The pilot in the right seat accomplished the takeoff and continued the initial climbout while I ran the after takeoff climb checklist and talked on the radios.

While the pilots finished the checklist, the navigators looked for a fuel leak in the air-refueling manifold. The manifold runs from the receiver receptacle in the center of the aircraft above the nav

station, aft and down the right side of the aircraft along the back of the nav station. The portion of the manifold that runs behind the nav station is not visible. The instructor navigator (IN) checked the visible portion and was unable to find a leak.

The after takeoff climb checklist was complete passing through about 10,000 feet and about 25 miles from the field. Just like we brief in mission planning, I delegated duties while we investigated the problem. The copilot continued flying the plane and took over the radios. The mission navigator took over all navigation duties and backed up the copilot. The extra pilot got out the Dash 1 and looked up procedures for fuel fumes on the flight deck. The instructor nav kept searching for the leak. I got out of the seat to help the IN determine the severity of the leak. The in-flight maintenance technician came forward to help and noticed that the fumes were also present behind the flight deck bulkhead. Collectively, we determined that the smell was JP-8 and that fumes were coming from behind the nav station - that dark tangled mess of power

cords, black boxes, and cooling fans. With that, the flight crew came to a consensus that this was definitely a problem. We turned on the navigator's fan and opened the sextant port in an attempt to dissipate the smell.

The IN asked if any work had been done on the air-refueling manifold before the flight. Since no one on the crew knew, he called 95 RS Operations on command post frequency to tell them our situation, and have them ask maintenance if they knew of a possible fuel vapor source. The Operations people relayed that maintenance had no explanation for the fumes.

By this time, we were at MC6 and had reached our final altitude of FL 290. The fumes had not diminished over the 20 minutes we had been airborne. The most experienced flyer, the IN, had never encountered such strong fuel fumes in the cockpit and was clearly concerned. The rest of the flight crew agreed that the situation was serious enough to warrant a return to Mildenhall to get the spare jet. We decided to dump gas over water in the fuel dumping "wash area" and land.

I got back in the seat and relayed our wishes to, by this time, Dutch Mil. The IN radioed 95 RS Operations and the Mildenhall command post and advised them of our intentions. The extra pilot read from the Dash 1 the procedures to follow for smoke and fume elimination and for a fuel leak. We increased the cabin altitude to 10,000 feet and set the rate of change to "maximum" on the air cycle machine to ventilate the aircraft. We limited the number of possible ignition sources by turning off non-essential electrical equipment and switched the copilot's instrument power from "normal" to "emergency." The flight crew went on oxygen and advised the rest of the crewmembers to do the same.

Going on oxygen caused communication problems on the flight deck. The RC-135 has a hot mic system that allows the pilots and navs to talk to each other without using interphone (and mitigates the need to key the mic). So, when we went on oxygen, each of us could hear our own breathing plus the breathing of the other four crewmembers on the flight deck. This was a communications hindrance we were forced to overcome.

En route to the fuel dump area, we declared an emergency. We passed the appropriate information to London Mil and the copilot actually got to set 7700 in the Mode 3 (I was jealous). We still intended to proceed to the wash area, dump gas over water, and then fly directly to Mildenhall. That plan changed several minutes outside of the dump area when the situation deteriorated.

The navigators discovered fuel puddling on the nav table. We began dumping immediately. We needed to dump about 55,000

pounds of fuel to get down to a landing gross weight of 210,000 pounds. So, we continued to the fuel dumping point and out over water. I figured that if we dumped about 30,000 pounds over water, we could proceed directly to Mildenhall. I hoped to finish the dump before descending below 10,000 feet to allow us sufficient time to configure for the approach and landing.

The pilots had the tactical air navigation systems (TACANs) off so we relied on the mission navigator to get us home. During the descent we talked about what we would do after landing. This discussion was difficult, considering the multiple distractions on the flight deck, five crewmembers breathing over hot mic, the command post and 95 RS Operations calling on the radio, and fans running. Oh yeah, and the smell of gas. Despite these difficulties, we came to a decision. We obviously wanted to get off the jet quickly, but we also wanted to taxi clear so we would have a runway to takeoff on with the spare aircraft. So, we decided to land, open the pilot and copilot windows on rollout to ventilate the aircraft, taxi clear, and egress the aircraft.

As we descended into Mildenhall, we continued dumping gas. We told a very helpful London Mil what we were doing. The dump went smoothly until the body tanks went dry. For the remaining offload we could only dump as fast as the fuel would drain out of the main tanks. This was something I should have considered. Consequently, we didn't finish the dump as quickly as planned and I was not able to take control of the aircraft until final approach. Fortunately, the copilot flew a superb en route descent and set up the jet for an autopilot coupled approach.

The approach and landing went without a hitch. When I took control of the aircraft, we had just intercepted glide path for the instrument landing system (ILS), we were configured for landing, and the autopilot had the jet trimmed. I used the manual trim wheel some during the approach because we had previously cut out the electric trim. We intended to minimize radio and interphone transmissions to avoid a possible spark, but habit patterns are difficult to quell. The copilot and I each zipped calls from the

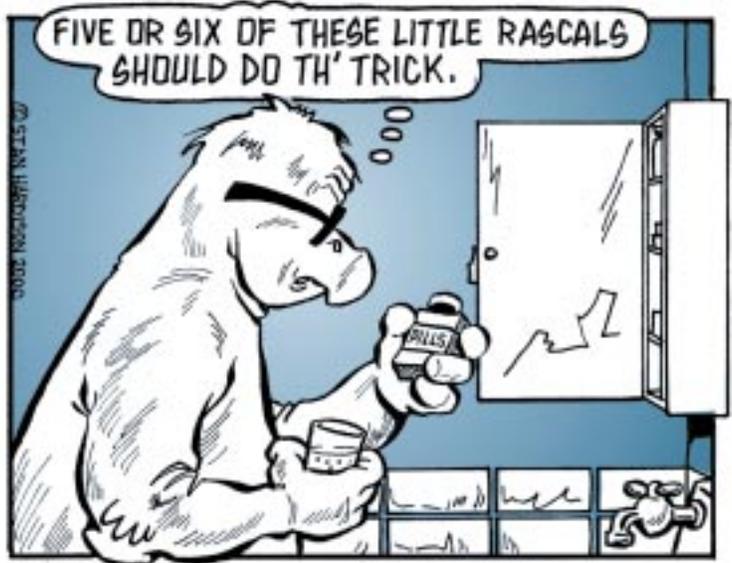
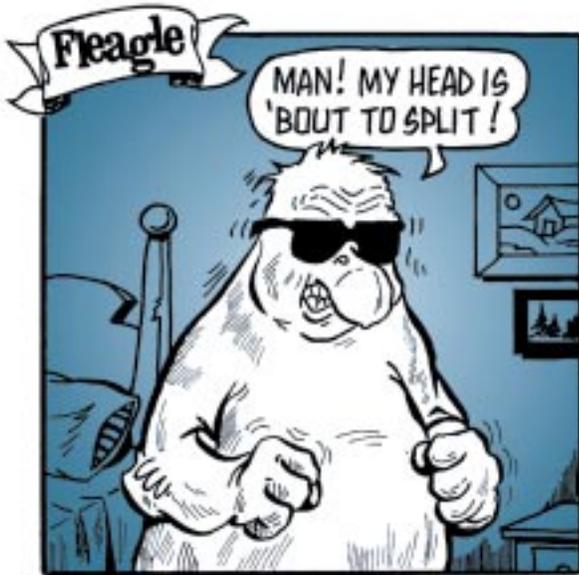
tower, pressing the "press-to-talk" switches an extra four times. We landed uneventfully to an airfield crowded with emergency response vehicles. We opened the pilots' windows, slowing through 90 knots, and very quickly ventilated the aircraft.

Taxiing clear we ran the ground evacuation checklist. The copilot got to pull the fire switches (again, I was jealous). Unbelievably, the ladder would not extend down the crew entry hatch, despite both navigators' best attempts. So, all 25 of us went down the rope and ran away with no broken ankles.

After 30 minutes the fire chief cleared us on the jet to get our gear. Following a bag drag to the spare we took off about an hour and a half after landing and flew an 11.2-hour sortie.

Maintenance found that there was indeed a leak in the air-refueling manifold. Needless to say, I'm pretty happy that we didn't blow up. We actually did some things well, and crew resource management (CRM) was the key. The copilot had the not-so-glorious job of simply flying the plane. The mission navigator was solely responsible for navigation. They focused on the jobs at hand, avoided the numerous distractions, and performed their assigned duties flawlessly. We also took advantage of the extra crewmembers on board. The IN was our primary investigator, we relied on his experience flying RC-135s, and we took it to heart when he expressed concern about the situation. The extra pilot took over Dash 1 duties and spoon-fed us the procedures.

During mission planning we always brief how we will delegate duties during emergencies. Having briefed this so many times, it was easy to take control of the situation and tell each crewmember what to do. One pilot was always actively flying the plane. One navigator was always backing up the pilot flying and navigating. All crewmembers were utilized to neutralize the problem. The mission was a success — we didn't fly the plane into the ground, we took care of the emergency to the best of our abilities, and we landed safely to fly another... well, the same day. ■



Monthly Awards



GROUND SAFETY AWARD OF DISTINCTION

*2SG Yeo Hong
428th Fighter Squadron, 27th Fighter Wing
Cannon AFB, N.M.*

On 4 Nov 99, 2SG Yeo Hong was assisting the crew chief in performing a post-flight cleanup on A/C 94270. In the process, he discovered that a grommet in the left-hand wheel well was loose. This grommet normally secures the tubing connected to the hydraulic system B pump. Sensing that the clamp securing the grommet could be loose or might have dislodged, he immediately informed his supervisor. Upon further inspection, the clamp was found dislodged. After a thorough inspection, the dislodged clamp was located at the right-hand nacelle ejector. A subsequent fleet check was carried out and another aircraft was found to have the same problem. A dislodged clamp in this area can potentially damage the engine power takeoff (PTO) shaft and jam the engine throttle controls. 2SG Hong's attention to detail prevented a potential aircraft incident. He consistently performs in an enthusiastic and outstanding manner and this incident demonstrates his excellent technical knowledge and situational awareness. His decisive and positive action prevented possible damage to the aircraft. The 428 FS recognizes his extraordinary effort in preventing this potentially hazardous situation.



WEAPONS SAFETY AWARD OF DISTINCTION

*Staff Sgt. Johnnie H. Patterson
7th Equipment Maintenance Squadron, 7th Bomb Wing
Dyess AFB, Texas*

While performing a pre-issue inspection on a box of flexible linear shape charges (225 grain per foot, five four-foot sections) in the munitions inspection facility, Sgt. Patterson noticed a strange odor coming from the box. After opening the container and performing a closer inspection, he also noticed the inside wooden surfaces, plastic liner and shape charge sheaths were coated with a thick amber colored liquid, and several areas had been crusted over with a paste-like amber colored substance. The item Technical Order did not specifically address defects of this nature, so the inspector relied on his training and experience and immediately notified munitions control and evacuated the building. Munitions Control initiated the emergency action checklist, which included notifying Explosive Ordnance Disposal personnel. These expert individuals confirmed the assets were indeed covered with explosive filler. This prompted the immediate destruction of the assets, preventing a dangerous situation from becoming catastrophic. The decisive actions taken by Sgt. Patterson resulted in the safe eradication of a potentially life-threatening situation.



CREW CHIEF SAFETY AWARD OF DISTINCTION

*Tech. Sgt. David M. Rosinsky and
Airman 1st Class Josiah S. Martin
27th Fighter Squadron, 1st Fighter Wing
Langley AFB, Va.*



On 17 Nov 99, Amn. Martin and Sgt. Rosinsky were assigned to launch aircraft 79-0064. They both observed the pilot as he attempted a normal start of the aircraft. The jet fuel starter (JFS) was running normally when he engaged the number-two engine. At this time the number-two engine wouldn't start and the JFS shut down. After carefully looking over the aircraft, the pilot and the crew chief attempted to start the number-one engine. The pilot restarted the JFS and, with it running normally, he engaged the number-one engine. The engine failed to start and the JFS shut off for the second time. Immediately after shut-off, flames and smoke were observed coming from the JFS. Amn. Martin immediately instructed the pilot to evacuate the aircraft while Sgt. Rosinsky proceeded to extinguish the fire. The quick and decisive actions of both individuals prevented potential loss of a \$50 million aircraft and loss of or injury to the aircrew.



PILOT SAFETY AWARD OF DISTINCTION

*Capt. August J. Marquardt
34th Fighter Squadron, 388th Fighter Wing
Hill AFB, Utah*

Capt. Marquardt was number three of a three-ship of F-16CGs flying his second night sortie of the evening. The mission was scheduled as a night surface attack tactics mission in the Utah Test and Training Range. Shortly after takeoff from Hill AFB, at 9,000 feet mean sea level (MSL) over the Great Salt Lake, Capt. Marquardt noticed what he perceived to be a slight loss of thrust. After scanning the engine instruments and seeing nothing unusual, Capt. Marquardt felt a slight increase in thrust and noticed an increase in engine RPM. Shortly thereafter, the engine surged noticeably several times in rapid succession. Capt. Marquardt immediately turned his aircraft toward Hill AFB, started climbing, and informed his flight lead he was making an emergency return to Hill AFB for engine surges. While in the climb, the main and standby generators dropped off-line, causing the emergency power unit (EPU) to automatically activate. Aware that he was in the vicinity of airline traffic and entering Class A airspace, Capt. Marquardt quickly squawked emergency and transmitted on Guard frequency he was an emergency returning to Hill. After running the appropriate checklists, Capt. Marquardt was unable to regain use of the generators, resulting in the loss of the head-up display (HUD) and the ability to monitor other aircraft faults and failures due to loss of his multi-function displays. Knowing subsequent loss of the EPU generator would result in loss of all lighting and navigation capability, Capt. Marquardt had to act quickly. After confirming the engine was running normally, and consulting with his flight lead and the SOF (supervisor of flying), Capt. Marquardt elected to fly a straight-in approach. Although extremely heavy and flying without use of his HUD, Capt. Marquardt flew an uneventful night approach and landing.

AIRCREW SAFETY AWARD OF DISTINCTION



*Lt. Col. Michael L. Bartley and
1st Lt. Jason T. Hokaj
523rd Fighter Squadron, 27th Fighter Wing
Cannon AFB, N.M.*



On 30 Nov 99, Lt. Col. Bartley and 1st Lt. Hokaj demonstrated exceptional airmanship and remarkable crew coordination in successfully recovering a badly damaged F-16D. Col. Bartley was the flight lead of Gemini 31, a flight of four

F-16s from Cannon AFB conducting dissimilar air combat training with four USN F-18s near Dyess AFB, Texas. Lt. Hokaj, an MQT (mission qualification training) pilot, was an observer in the rear cockpit. During the second engagement, Col. Bartley felt a thump and heard a loud bang immediately followed by severe aircraft vibrations. The aircraft rolled right to approximately 80 degrees while the nose yawed to the left. Col. Bartley quickly countered the uncommanded roll and yaw. With the aircraft now under control, he started a gradual climb while analyzing his engine instruments. After confirming that the engine was operating normally, Col. Bartley visually observed the right wing leading edge flap (LEF) had catastrophically failed in a full-up vertical position, 90 degrees from normal. Severe controllability problems required Col. Bartley to use a combination of full left roll trim and constant left pressure on the stick to overcome the right rolling tendency with almost full right rudder to overcome the left yaw moment. Despite his best efforts, he could only maintain flight in a 20- to 30-degree right bank.

Col. Bartley slowly maneuvered his crippled F-16 toward Dyess AFB, the closest suitable airfield, at 275 knots. Unable to remove his hands from the controls, Col. Bartley directed Lt. Hokaj to read the emergency procedures checklist, which was accomplished but had little effect on the flight characteristics due to the severe 90 degree position of the right LEF. Unsure if the aircraft was controllable at normal landing speeds, since roll and yaw tendencies increased at speeds below 230 knots, Col. Bartley and Lt. Hokaj also reviewed the ejection checklist. The empty external wing tanks were initially retained in case jettisoning both would aggravate the situation. Col. Bartley coordinated with the Dyess SOF (supervisor of flying) for controlled bailout and controlled jettison procedures and accomplished a controllability check over the controlled bailout area. He determined that the aircraft was not controllable below 230 knots — too fast to safely land.

Selectively jettisoning the right external wing tank to minimize drag on the heavy wing was discussed among flight members. With few other options, Col. Bartley maneuvered his jet to the controlled jettison area while Lt. Hokaj set up the stores management system to selectively jettison the right wing tank. After visually clearing the impact area, they jettisoned the right external wing tank into an empty field, successfully preventing injury to any persons or damage to facilities on the ground. With the tank gone, flight characteristics immediately improved.

A second controllability check was accomplished, and although left roll and right rudder inputs were still required, Col. Bartley could safely control the F-16 down to 210 knots. He performed a practice approach flying a shallow approach at 210 knots, over 65 knots faster than normal approach speed. Then, as Lt. Hokaj reviewed checklist items, Col. Bartley set up for a visual straight-in approach and successfully landed the jet at 205 knots, flew the nose gear to the runway immediately to maintain directional control, and stopped the F-16 on the runway.

Col. Bartley, Lt. Hokaj and the entire Gemini 31 flight displayed exceptional airmanship and superbly applied solid CRM (cockpit resource management) principles to recover a severely crippled F-16D, and prevented the certain loss of that aircraft.

Weapons Safety Stats

ACC Losses for FY 00

(1 Oct 99 - 1 Mar 00)

Number of Weapons Mishaps / Dollar Losses			
	Class A	Class B	Class C
8 AF	None	None	\$101K 
9 AF*	None	None	None
12 AF	None	None	None
AWFC	\$10.4M 	\$2.4M 	None
TOTAL	1/\$10.4M	5/\$2.4M	2/\$101K

Weapons Fatalities - None
Nuclear Mishaps - None

* Includes all Class C mishaps in CENTAF AOR
 ** Cost of most recent mishap(s) not yet available



Class A - Fatality; Permanent Total Disability; Property Damage \$1,000,000 or more
 Class B - Permanent Partial Disability; Property Damage between \$200,000 and \$1,000,000
 Class C - Lost Workday; Property Damage between \$10,000 and \$200,000

Learn From the Past

By Master Sgt. Jeff Chandler, 55th Wing Ground Safety, Offutt AFB, Neb.

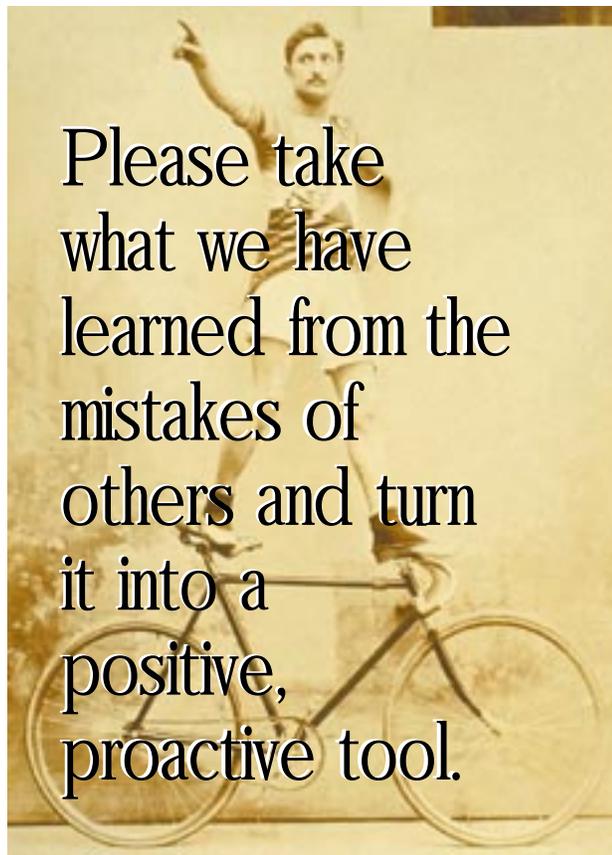
I remember when I was around the same age and mind set as my 8-year-old son. Hearing my parents say, "You're gonna get hurt," let me know I was about to do something exciting. "I told ya so," were words I could have lived without though. My parents were great and I know they would have stopped me from doing something that would have caused me "serious" injury, but their trial-by-error learning process just doesn't have a place in our Air Force.

Please take what we have learned from the mistakes of others and turn it into a positive, proactive tool. Your unit mishap trends analysis (fancy term derived from looking at the list of mishaps that happened in your unit) and the quarterly ACC "Two Plus Four News" are great tools to ensure the word gets out that we still experience preventable mishaps.

Additionally, if you have tasks or equipment in your areas and don't have "approved or verified" procedures established, work through the entire process to verify the necessary steps and to identify hazards or potential hazards. Finally, supervisors should take steps to mitigate the hazards so troops can perform their jobs safely and commanders can ensure safe mission accomplishment.

There are three levels of ORM — basic, operational, and strategic - but the basic level is where we need to focus the majority of our attention, because it is the appropriate level to use during our daily on- and off-duty routines. Remember, ORM can and should be used by everyone in everything they do.

But people were just not using the 6-step process. Who could remember the steps, provide additional training, form a team, and dedicate the time needed? Well, COMACC recognized this vicious cycle and implemented a useful risk management tool that can and, in time, will become part of the ORM culture. This tool is a simpler, easily applied, and equally effective 3-step ORM process known as ACT. Hopefully, you have already been introduced to ACT, but in case you haven't, the January edition of THE COMBAT EDGE featured a pull-out



poster that explains it in detail and can be displayed on safety bulletin boards and used to introduce and train personnel.

Continue to promote and use ORM, and lead by example by providing the safest working conditions possible. If we "practice what we preach," we can prevent the devastating mishaps that affect the mission in so many ways. ■

Driving in the Rain

Courtesy of the National Safety Council

Losing control of your car on wet pavement is a frightening experience. Unfortunately, it can happen unless you take preventive measures.

In all sorts of rain, you can prevent skids by driving slowly and carefully, especially on curves. Steer and brake with a light touch. When you need to stop or slow down, do not brake hard or lock the wheels and risk a skid. Maintain mild pressure on the brake pedal.

If you do find yourself in a skid, remain calm, ease your foot off the gas, and carefully steer in the direction you want the front of the car to go. Avoid using your brakes. This procedure, known as “steering into the skid,” will bring the back end of your car in line with the front.

While skids on wet pavement may be frightening, hydroplaning is completely nerve-wracking. Hydroplaning happens when the water in front of your tires builds up faster than your car’s weight can push it out of the way. The water pressure causes your car to rise up and slide on a thin layer of water between your tires and the road. At

this point, your car can be completely out of contact with the road, and you are in danger of skidding or drifting out of your lane.

To avoid hydroplaning, keep good tread on your tires and replace them when necessary, slow down when roads are wet, and stay away from puddles. Try to drive in the tire tracks left by the cars in front of you.

If you find yourself hydroplaning, do not brake or turn suddenly. This could throw your car into a skid. Ease your foot off the gas until the car slows and you can feel the road again. If you need to brake, do it gently with light pumping actions. If your car has anti-lock brakes, then brake normally; the car’s computer will mimic a pumping action.

A good defensive driver adjusts his or her speed to the wet road conditions in time to avoid having to use any of these measures! ■

National Safety Council

A membership organization dedicated to protecting life and promoting health.
1121 Spring Lake Drive, Itasca, IL 60143-3201
Tel: (630) 285-1121; Fax: (630) 285-1315

Saving Your Head

*By Master Sgt. Gary Sharpe
372nd Training Squadron, Detachment 15
Misawa AB, Japan*

What began as a normal bicycle ride on August 16 woke me up to the reality of how easy it is to get injured or to become another fatality in an off-duty mishap. I was riding my bike on the base jogging track, around the runway, when I encountered heavy sea fog. I continued to ride, but I had to remove my glasses because they were fogging up.

This turned out to be a major mistake, because I now had five feet of visibility while riding around 15 mph. What I couldn't see was a ditch running across the track in front of me. I hit it so hard that I broke my light and bent my handlebars — but thanks to my helmet, I came away with only a bruised neck. My helmet was cracked in several places, but it served its purpose. If I hadn't been wearing my helmet, I could have broken my neck or received several lacerations on my head. This incident incited me to do a little research and write an article about choosing an approved safety helmet that could save your head. Here is what I found out.

All helmets manufactured after March 1999 must meet the Consumer Product Safety Commission (CPSC) standard. However, many older helmets sold throughout the year do not meet this standard. The other standard I found for helmets was the American Society for Testing and Material (ASTM), which is the standard for most helmets carried by most military exchanges.

One very important thing I found out was that all helmets are legally required to have a certification



sticker. An independent organization called the Safety Equipment Institute (SEI) certifies both ASTM and CPSC standards.

When choosing a helmet, choose one that fits your head snugly without being tight, and is round and smooth on the outside. Helmets must have at least an ASTM or CPSC standard sticker inside. Other points to look for when buying a helmet are:

Cool helmets: Not marketing hype, but rather ventilation. This depends on the size of the front vents.

The cost: How much will you pay for it? Discount stores have round, smooth helmets meeting ASTM and CPSC standards from \$8 to \$20. Some local bike shops will have helmets from \$30 to \$125, but remember that you should disregard any helmet without a sticker saying it meets the CPSC or ASTM standard.

Kids' helmets: Kids' sizes range from one to five. No helmets are made for infants because it is not considered safe for them to ride.

After you have chosen your helmet, you need to make sure that you are wearing it correctly. Making sure that it fits well includes putting it on forward and adjusting straps, or adding padding. On some helmets it is easy to tell the front from the back because they have stickers labeling them or the brand name on them, which is normally at the front. Virtually all helmets have the nape straps anchored near the rear. In the rear the two straps will come almost together at the rim, and some may join at the rim. The elongated "aero" style helmets are all made with the longer part toward the rear. The furthest forward strap on this one should come just in front of your ear. If you have the strap coming around the side and angling forward across your cheek, then you have the helmet on backwards.

Adjusting straps and adding padding is very necessary for ensuring that the helmet fits securely to your head. If you have a large head (size eight and up), then you will need to special-order one to fit your head. Don't remove all the padding to make it fit your head. Consumer reports have shown that helmets fitted securely can prevent up to 85 percent of cyclists' injuries.

When should you replace a helmet? Most people are aware that after any crash, whether you see cracks or not, you should replace it. This is because the foam of a helmet is made for one-time use. Once a helmet has been in a crash it is no longer as protective as it once was, even if it still looks intact.

Most shells now tend to hide any dents in the foam, but if you can see marks on it or notice that the foam is crushed, replace it. Also replace it if your helmet was made before 1984, if the outside is made of foam or cloth instead of plastic, or if it just doesn't fit your head securely.

Bicycle helmets do save lives and people's heads, like mine, from serious injury, but you must make sure that yours is fitted to your head securely. Here are some statistics from the CPSC on bicycle helmet usage:

- Bicycle helmet usage has increased from 18 percent in 1991 to 50 percent in 1998.
- Bicycle-related crashes kill over 900 riders every year and send about half a million to hospital emergency rooms with injuries.
- Wearing a helmet can reduce the risk of head injuries by 85 percent.
- Of the cyclists who reported wearing a helmet, almost all said they wore a helmet for safety reasons, most said it was because of their spouse or a parent who insisted on it, and less than half said because it was required by law.
- Sixty-nine percent of children under the age of 16 use them.
- Thirty-eight percent of adult riders use them.

In conclusion, let's take a look at the risk of riding a bike with and without a helmet. Only two percent of motor vehicle deaths are bicyclists. Among the majority of those killed, the most serious injuries are head injuries. No state has a bicycle helmet law applying to all riders. Local ordinances in a few states and all military bases do require all bicyclists to wear helmets, and 15 states have helmet laws applying to young bicyclists.

Basically, anyone who rides a bike is at some risk, but some more than others. For instance, riders who don't wear helmets are 14 times more likely to be involved in a fatal crash. Since males account for approximately 85 percent of bicycle-related deaths and 70 percent of nonfatal injuries, they are considered the high-risk category. But children also need more education and training, like bicycle safety videos, flags, vests, and helmets. For the adults, more education and more state and local ordinances requiring helmets for all riders are needed.

Remember — your helmet is valuable apparel as well as a safety appliance. It can save your head, just like it did mine. ■

Thunderstorms



*By Capt. Mark Quigley
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It shouldn't surprise you to know thunderstorms are the single most dangerous hazard to aviators and ground personnel alike. Rather than just dealing with a single hazard, thunderstorms can and do carry a multitude of hazards at the same time. Among these hazards are lightning/electrostatic discharge, severe turbulence, severe icing, poor visibility, hail, downbursts, strong winds, and tornadoes.

For you aviators, let's take a walk down memory lane to your days at undergraduate pilot/navigator training, when we first told you all about thunderstorms. Recall some of the key warnings? Fly at least 20 miles away from the anvil to avoid hail, lightning, and turbulence in and under the anvil. Don't fly just above the freezing level where the threat of icing is the greatest.

Don't take off or land if a thunderstorm is approaching because of potential downbursts and wind shear that could create such a severe loss of airspeed you won't be able to keep the aircraft aloft. Treat any thunderstorm penetrating the tropopause, higher than 35,000 feet, or with frequent lightning as severe. Lightning strikes and electrostatic discharges can occur in clouds long after the thunderstorm has dissipated.



Okay, so now you remember some of the do's and don'ts about thunderstorms. You've got to fly the mission anyway, so what's the next step? The supreme weather geeks, those with Ph.D.s, etc., have come up with this most profound statement: DON'T FLY IN OR NEAR THUNDERSTORMS. No kidding. It's in the book. The best way to follow this advice is to circumnavigate the storm, or as Bill Cosby would say, "Go around, idiot, go around!" What if this isn't possible? The next best option, though not necessarily a good one, is to fly over the top of the thunderstorm if your aircraft capabilities permit. Remember to clear the top by at least 1,000 feet of altitude for each 10 knots of wind speed at the cloud top. You can't do that, either? We're running out of options! You could fly underneath the storm if you're over flat terrain or seas, but this isn't too good an option either because of the violent downdrafts, microbursts, wind shear, icing, poor visibility, and hail.

Down to the last resort? If all else fails, fly through the thunderstorm. Ensure you penetrate at least 4,000 to 6,000 feet above the terrain because of the downdrafts. Establish your recommended turbulent air penetration speed and disengage the autopilot. Maintain attitude and ride out changes in altitude. Set instrument and cockpit lights full bright, turn pitot heat on, and tighten shoulder harnesses and safety belts. Penetrate the storm at a 90-degree angle to the storm's movement and don't turn around once inside. (Editor's Note: Air Force instructions state that there are no peacetime requirements to ever penetrate a thunderstorm.)

I haven't forgotten about us non-aviators! We have much more time to use common

sense than the aviators who sometimes have to make split-second decisions (though that doesn't mean we use more common sense). Have you ever had a summer go by when you haven't heard about folks killed by lightning because they took shelter under a big tree during a thunderstorm? Due to the nature of our jobs (fuels, computers, etc.), lightning is probably the most common hazard in most thunderstorms. However, severe thunderstorms can affect us with strong winds, hail, and tornadoes. It's extremely important that you listen to and heed the weather watches, warnings, and advisories issued by your local weather folks.

Okay, how many of you are confused about the difference between watches, warnings, and advisories? Go ahead. No one can see you raising your hand, and if they do you can just say you're stretching. It varies a little from base to base, but weather watches are generally issued for severe thunderstorms (winds greater than or equal to 50 knots and/or hail greater than or equal to 1/2 inch), tornadoes, and lightning. A watch means this: the potential exists for these conditions to occur in the future. We use watches to give you the greatest amount of "heads up" we can of possible severe weather. When you hear a weather watch has been issued, don't think, "Cool! We're going to get a really neat weather show tonight!" Instead, think, "What can I do now, ahead of time, to prepare and lessen my workload if the severe weather actually occurs?" You should review your severe weather checklists and accomplish as many items as possible without disrupting operations.

We use weather warnings and advisories to say bad weather is no longer merely a potential, but it's actually occurring or about to occur. We weather folks aren't perfect and sometimes we don't give you as much lead time for warnings and advisories as we'd like to give you, but that's why it's so important to do as much ahead of time as possible.

Well, to modify a common saying, "There are only three things certain in life: death, taxes, and thunderstorms." Hopefully you're now better prepared for the last one. ■

FY 99 Air Combat Command Flight Safety Award

The ACC Flight Safety Award recognizes units that flew the previous fiscal year without a command-controlled Class A or B flight mishap. Congratulations to the following winners of the Fiscal Year 1999 Flight Safety Award:

ACC ACTIVE UNITS

1st Fighter Wing, Langley AFB VA
2d Bomb Wing, Barksdale AFB LA
4th Fighter Wing, Seymour Johnson AFB NC
5th Bomb Wing, Minot AFB ND
7th Wing, Dyess AFB TX
9th Reconnaissance Wing, Beale AFB CA
20th Fighter Wing, Shaw AFB SC
27th Fighter Wing, Cannon AFB NM
28th Bomb Wing, Ellsworth AFB SD
33d Fighter Wing, Eglin AFB FL
55th Wing, Offutt AFB NE
85th Group, NAS Keflavik IC
93d Air Control Wing, Robins AFB GA
347th Wing, Moody AFB GA
355th Wing, Davis-Monthan AFB AZ
552d Air Control Wing, Tinker AFB OK

ACC-GAINED ANG UNITS

102d Fighter Wing, Otis ANGB MA
103d Fighter Wing, East Grandby CT
106th Rescue Wing, Westhampton Beach NY
110th Fighter Wing, Battle Creek MI
111th Fighter Wing, Willow Grove PA
113th Wing, Andrews AFB MD
114th Fighter Wing, Sioux Falls SD
115th Fighter Wing, Madison WI
119th Fighter Wing, Fargo ND
120th Fighter Wing, Great Falls MT
122d Fighter Wing, Fort Wayne IN
124th Wing, Boise ID
125th Fighter Wing, Jacksonville FL
127th Wing, Selfridge ANGB MI
129th Rescue Wing, Moffett Federal Airfield CA

132d Fighter Wing, Des Moines IA
138th Fighter Wing, Tulsa OK
140th Wing, Aurora CO
142d Fighter Wing, Portland IAP OR
144th Fighter Wing, Fresno CA
147th Fighter Wing, Houston TX
148th Fighter Wing, Duluth MN
150th Fighter Wing, Kirtland AFB NM
158th Fighter Wing, South Burlington VT
159th Fighter Wing, New Orleans LA
169th Fighter Wing, Eastover SC
174th Fighter Wing, Syracuse NY
175th Wing, Baltimore MD
177th Fighter Wing, Egg Harbor TWP NJ
180th Fighter Wing, Swanton OH
181st Fighter Wing, Terre Haute IN
183d Fighter Wing, Springfield IL
184th Bomb Wing, McConnell AFB KS
185th Fighter Wing, Sioux City IA
187th Fighter Wing, Montgomery AL
188th Fighter Wing, Fort Smith AR
192d Fighter Wing, Sandston VA

ACC-GAINED AFR UNITS

301st Fighter Wing, Carswell Field TX
419th Fighter Wing, Hill AFB UT
442d Fighter Wing, Whiteman AFB MO
482d Fighter Wing, Homestead ARB FL
513th Air Control Group, Tinker AFB OK
917th Wing, Barksdale AFB LA
919th Special Operations Wing, Eglin AFB FL
926th Fighter Wing, NAS JRB New Orleans LA
939th Rescue Wing, Portland IAP OR
944th Fighter Wing, Luke AFB AZ