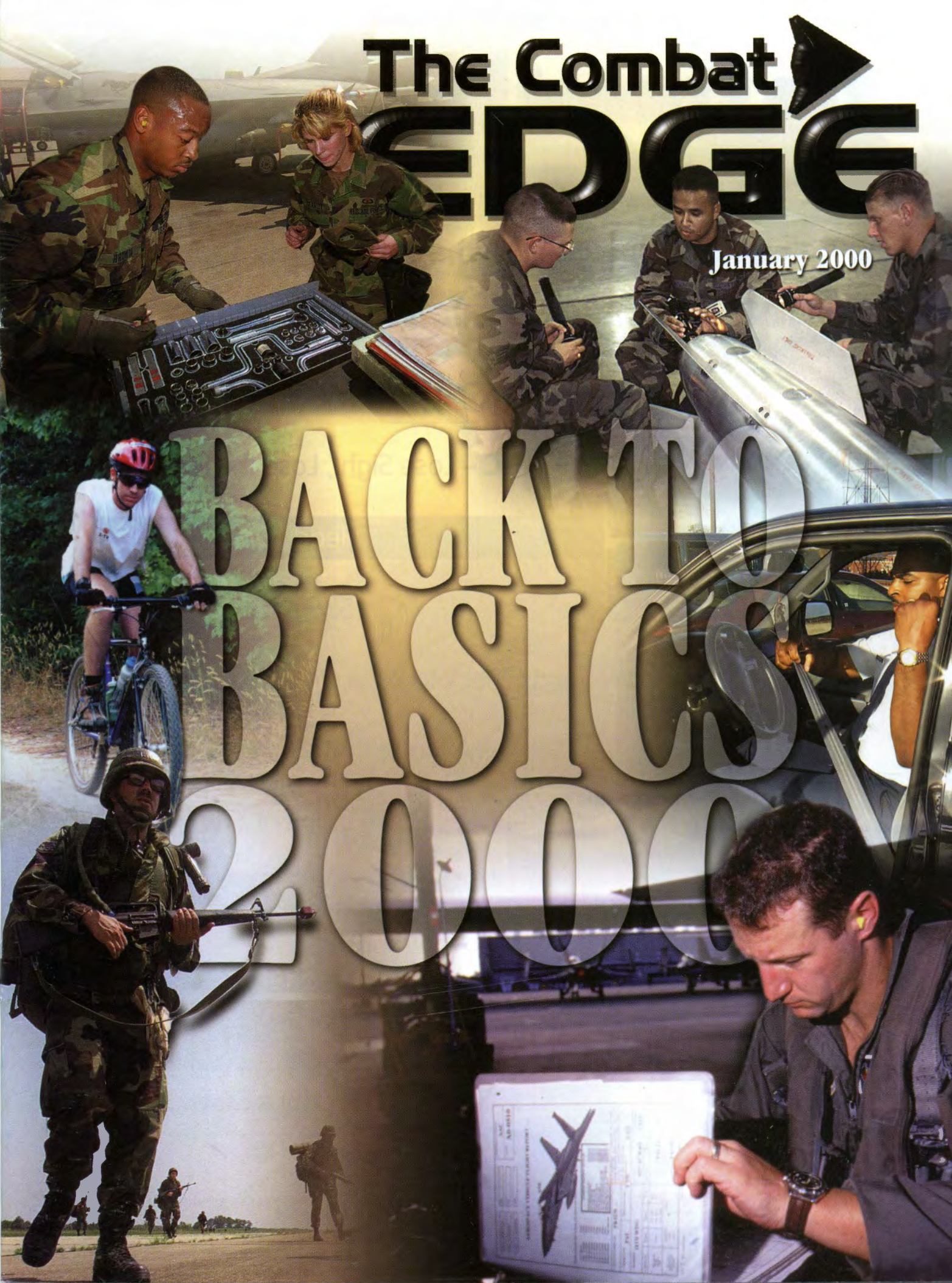


The Combat EDGE

January 2000

BACK TO BASICS 2000



The Combat EDGE

Volume 8 Issue 8
January 2000

ACC SP 91-1

Air Combat Command's Mishap Prevention Magazine

GENERAL RALPH E. EBERHART, COMMANDER

COL. GREGORY A. ALSTON, CHIEF OF SAFETY

COL. MICHAEL B. PERINI, DIRECTOR OF PUBLIC AFFAIRS



Safety: The Constant Fundamental 4

G-LOC – Lose Sight, Lose the Fight 6

Head -On Basics 10

Simplifying ORM 16

Weapons "Back to Basics" Perspectives 20

Twice the Love, Twice the Pain 22

1999 Index of Articles 26

Winter Driving Tips 31



Departments

Awards.....12, 18

Fleagle.....30

Weapons Stats....25

RON SMITH
EXECUTIVE DIRECTOR

1ST LT. ERIN BRADLEY
EDITOR

BARBARA TAYLOR
AWARDS ADMINISTRATOR

STAFF SGT. DAVE WHITE
DESIGN & LAYOUT

The Combat Edge (ISSN 1063-8970) is published monthly by the Air Combat Command, HQ ACC/SEP, 175 Sweeney Blvd, Langley AFB VA 23665-2700. Periodicals postage paid at Hampton VA and additional mailing offices.

POSTMASTER: Send address changes to *The Combat Edge*, HQ ACC/SEP, 175 Sweeney Blvd, Langley AFB VA 23665-2700.

DISTRIBUTION: F(X). OPR: HQ ACC/SEP. Distribution is controlled through the PDO based on a ratio of one copy per 10 persons assigned. Air Force units should contact their servicing PDO to establish or change requirements. Other Department of Defense (DoD) units have no fixed ratio and should submit their requests to the OPR.

ANNUAL SUBSCRIPTIONS: Available to non-DoD readers for \$35 (\$43.75 outside the U.S.) from the Superintendent of Documents, PO Box 371954, Pittsburgh PA 15250-7954. All subscription service correspondence should be directed to the Superintendent, not HQ ACC/SEP.


CONTRIBUTIONS: Articles, comments, and criticisms are welcome. Write:

Editor, *The Combat Edge*
HQ ACC/SEP
175 Sweeney Blvd
Langley AFB VA 23665-2700

Telephone: (757) 764-8842
DSN 574-8842
FAX: (757) 764-8975
e-mail: erin.bradley@langley.af.mil

The editors reserve the right to edit all manuscripts for readability and good taste.

DISCLAIMER: This magazine is an authorized publication for members of the DoD. Contents of *The Combat Edge* are not necessarily the official views of, or endorsed by, the U.S. Government, the DoD, or the United States Air Force. Information contained in any article may not be construed as incriminating under Article 31, UCMJ.

 Denotes images digitally manipulated.



BASICS TO LIVE BY...

Happy New Year! I hope the year 2000 brings you success and happiness. One way to ensure happiness, or at least to avoid sadness and tragedy, is to not lose sight of basic operational and safety rules. This issue of *The Combat Edge* is an important one because it's about getting "Back to Basics." Last year we lost lives and equipment because we failed to follow the rules.

This issue features an interesting article by ACC commander, Gen. Ralph Eberhart, called, "Safety: the Constant Fundamental."

I encourage you to read and heed his words — they offer strong insights to live by. Even if you think you always follow the rules, the COMACC's article may help you stop someone else from losing sight of basic procedures and common sense.

The bottom line — it should make you stop and think when 12 of ACC's ground fatalities resulted from people not following basic rules and procedures. Twelve lives lost. These were not just statistics; they were friends, loved ones, and family.

As you read through this issue you'll find awareness tools to help you focus on the basics. Basic procedural knowledge is critical; it is what we need to fall back upon when tasks and stress become overwhelming. When a pilot becomes maxed-out during severe weather and complex missions, he or she falls back on basic instrument procedures and airmanship to cope with the complexities. This is true for all of us, in all missions. Whether you are a security policeman, a medical technician, or involved in any other mission, it's "the basics" that provide the foundation of your thought process, and it's "the basics" that help you get through the tough moments.

Operational Risk Management provides tools that help us recognize hazards and risks. ORM helps us make smart operational and personal decisions — it is basic to safety and can drive our mishap rates to all-time lows if we all use it. An article by ACC's "ORM Czar," Col. Jim Stanley, outlines COMACC's push for a simple, user-friendly ORM model that can be easily used at all levels, on and off duty. Feel free to pull the ORM centerfold out of this issue and tack it to your bulletin board. "Back to basics" begins with basic ORM.

Make basic safety your New Year's resolution!

Col. Greg "Vader" Alston
ACC Chief of Safety

Photo by Tech. Sgt. Jack Braden, 1st Communications Squadron

**We all must
be proactive
about
promoting
and
following
fundamental
safety
practices.**

SAFETY: The Const

*A*ir Combat Command had the lowest number of flying-related fatalities ever in Fiscal Year 1999, making the final year of the 20th Century our safest on record. That is a significant accomplishment, and reflects the tremendous efforts of all the dedicated men and women in the command.

While we can be proud of this record, we can do even better in the future. Our goal, as challenging as it may be for us to achieve, must be to reduce these numbers to zero. To reach this goal in the future, looking at the past can help.

History has shown us that when we don't pay attention to safety procedures and risk management, tragedy will probably be the result. We know that the smartest way to improve safety is typically the simplest. Just emphasize the basic rules of safety in whatever you do, whether it is flying a Red Flag sortie, repairing a jet, or planning a family vacation. We all must be proactive about promoting and following fundamental safety practices.

When you review mishap reports, you can read about situations where we could have been better focused on safety fundamentals. Spending time learning from these mistakes will help us prevent them from happening again. Ultimately, it is up to each of us to follow safety procedures to reach our goal of zero mishaps.

As we move into the new millennium, the future remains boundless. We'll be flying new airplanes. We'll be developing even better weapons. We'll be relying more on space for communications, weather forecasting, and reconnaissance.

One constant that remains in this time of change is the need to execute all aspects of our operations with sound safety practices. Keep your safety awareness sharp in all that you do.

*General Ralph E. Eberhart
Commander, Air Combat Command*

ant Fundamental

By Maj. Craig King, ACC Flight Safety, Langley AFB, Va.

G-100

Lose Sight!

G-100 Lose Sight, Lose the Fight

By Maj. Craig King, ACC Flight Safety, Langley AFB, VA

If you're a fighter pilot or WSO (weapon system officer), you've been to centrifuge training at least once and have demonstrated your ability to withstand the Gs in a controlled environment. You eventually learned to stay ahead of the Gs proficiently or you wouldn't have gone on to become a steely-eyed war-fighter.

The Air Force is committed to improving our training, our systems (such as the COMBAT EDGE ensemble), and our knowledge about the threat of G-induced loss of consciousness (G-LOC). Nevertheless, too many of us still fall victim to G-LOC, and we all know that not every single occurrence is properly reported.

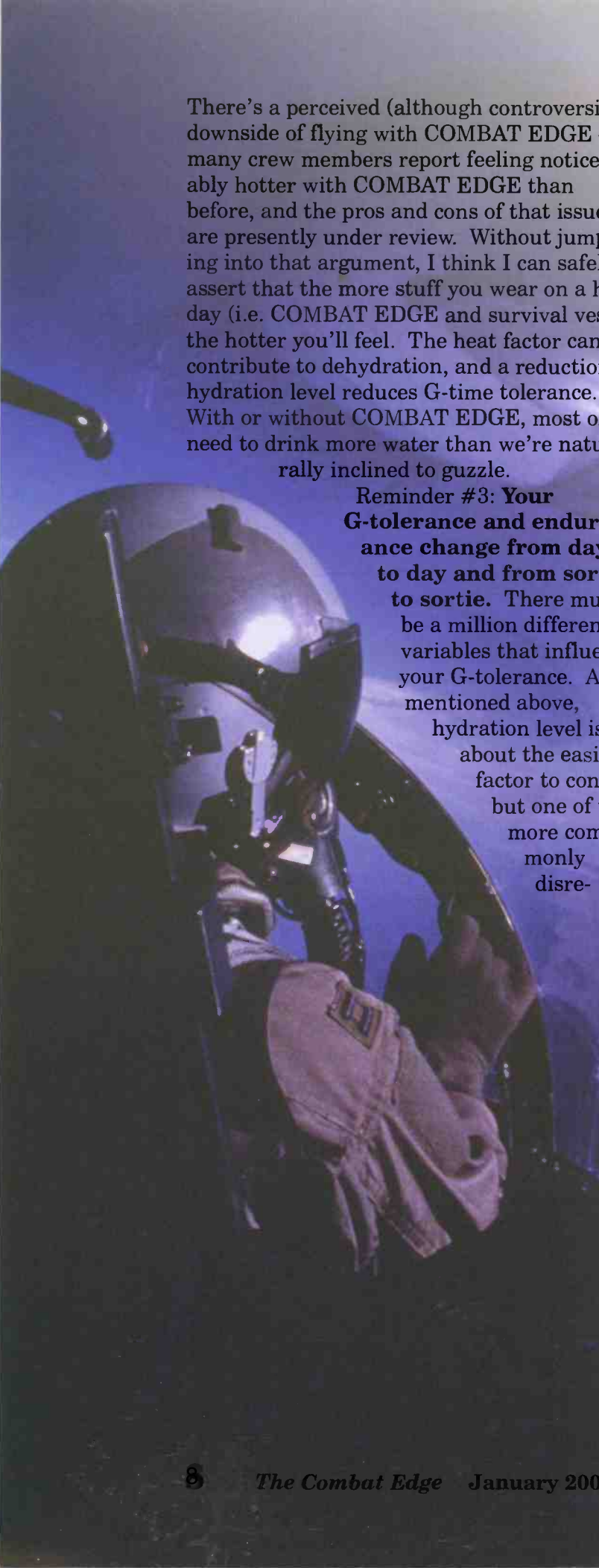
There's little I can do in a three-page safety article to teach you *how* to perform a proper anti-G straining maneuver (AGSM) — you should've already gotten that training from the physiology experts.

Instead, I'm going to offer up some reminders on its tactical significance, reinforce the importance of performing the AGSM in a *timely* manner, highlight some factors that may detract from your G-tolerance, and review some common mistakes that can lead to G-LOC.

Reminder #1: The AGSM is a TACTICAL maneuver. It's a fundamental part of nearly every air-to-air and air-to-ground mission, and it's as elemental to combat as lift vector control or solving for a gun solution. A properly performed AGSM is part of the bag of tricks you draw from to stay ahead of the enemy. Aside from keeping you awake and alive, the better you perform the AGSM, the better your vision and alertness — obviously key areas for maintaining a tactical advantage. If your squadron's newest wingman is having trouble with his BFM, it's highly likely that an ineffective AGSM is at least a part of his problem. Accordingly, that ineffective AGSM makes him more susceptible to G-LOC. Just as G-awareness is a mandatory briefing item, proper execution of the AGSM should be revisited carefully as part of each mission (including tape review) — not just as lip service, but to make sure each flight member knows that his life, as well as sound tactical employment, depends upon it.

Reminder #2: The COMBAT EDGE system alone does not increase G-tolerance. There are already numerous documented G-LOCs by fighter pilots flying with COMBAT EDGE equipment. The system does reduce the workload of doing an AGSM somewhat and works to enhance your *G-endurance*; however, it clearly does NOT compensate for a less than adequate strain.

Close to the Fight



There's a perceived (although controversial) downside of flying with COMBAT EDGE — many crew members report feeling noticeably hotter with COMBAT EDGE than before, and the pros and cons of that issue are presently under review. Without jumping into that argument, I think I can safely assert that the more stuff you wear on a hot day (i.e. COMBAT EDGE and survival vest), the hotter you'll feel. The heat factor can contribute to dehydration, and a reduction in hydration level reduces G-time tolerance. With or without COMBAT EDGE, most of us need to drink more water than we're naturally inclined to guzzle.

Reminder #3: Your G-tolerance and endurance change from day to day and from sortie to sortie. There must be a million different variables that influence your G-tolerance. As mentioned above, hydration level is about the easiest factor to control but one of the more commonly disre-

garded. Some of the other factors that affect your G-tolerance are: the number of days since you last pulled some Gs (the longer the layoff, the lower your tolerance); the *reason* for the layoff (a break in flying due to illness makes you more susceptible to G-LOC); your fatigue level; the amount and quality of sleep you've received; physical conditioning; and how well your G-suit and/or COMBAT EDGE equipment fit.

Reminder #4: Listen to what your body is telling you during G-awareness turns. Research, experience and common sense all confirm that your ability to withstand G forces fluctuates, but it's our nature to want that high-onset, max-G turn every time it's called for tactically. Remaining conscious during that "perfect pull" always demands a timely and aggressive straining maneuver *before* the onset of Gs, even on days when you're feeling like King Kong. Taking into account those factors that can detract from your G-tolerance, there are times when your body is going to have to work harder than normal to give you the AGSM you need, and there are other times when you may not have nine-G tolerance in you at all. So pay attention during the G-awareness turns! Use them to demand a perfect AGSM from yourself and to demand perfectly functioning equipment. If something's not right, either fix it or don't proceed to the high-G part of the mission. And if your body isn't up to your jet's max Gs on a *training* sortie, remember — it's a training sortie.

Reminder #5: You won't always get visual cues before losing consciousness. First, if you start to get visual cues, like tunnel vision, you need to back off of the stick pull *immediately* and get your act together with a world-class AGSM — call a "knock it off" and get it right the next time. "Duh," you say, but too many of us try to "fly the line," not worrying too much about an aggressive AGSM until we start to lose a little visual acuity. In my opinion, this is the single most common (and danger-

ous) bad technique out there. There are two glaring reasons not to try to "fly the line."

1) With high G-onset rates, you can achieve "sleepy time" without ever getting any visual cues at all, and if you wait until after the G-onset to start your AGSM, you may never catch up. 2) Even with a moderate or slow G-onset rate, if you wait until losing a little vision to start really honking on that AGSM, you've only allowed yourself about one-half to one G of "slop" before gray-out, black-out or loss of consciousness. If you wait that long to start doing a proper AGSM, you're risking a G-LOC today and reinforcing a very bad habit pattern for tomorrow.

Reminder #6: Your physical conditioning doesn't make you immune to G-LOC. Top-notch physical conditioning (both anaerobic and aerobic) definitely helps out by increasing your resting G-tolerance, your max G-tolerance and your G-endurance, so keep it up! However, that Steve Canyon physique and seven-G resting tolerance alone won't keep you awake if you disrespect the Gs with a poor AGSM, especially if you've had a long layoff from the high-G environment.

Reminder #7: You're never truly 100-percent focused on doing a perfect AGSM. And for good reason - if it were *all* you were thinking about, you'd be a hazard (and a strafe rag in BFM). Here's the dilemma: the AGSM requires good situational awareness (SA) and attention management, and *lots* of physical exertion, but the only folks who have the luxury of concentrating almost solely on their AGSM are centrifuge trainees and demo pilots. The rest of us have other stuff to worry about while yanking on the pole. This is probably the most compelling reason to develop good habit patterns from Day One of flight training and to nurture them daily from then on. Classroom training is necessary and fine, but in keeping with the "train like you fight, fight like you train" axiom, what you do day to day is what counts most. That's why G-awareness is briefed before every sortie, it's why you tape your G-awareness turns, and it's why flight leads need to be checking for textbook AGSMs during tape review in

debrief. If you can't execute a perfect AGSM during a G-awareness turn, you're highly unlikely to develop the skill when trying to create angle, range and closure problems for the bandit behind you. By developing outstanding habit patterns in the G-awareness exercise and applying them all the way back through pitching out on initial, you'll minimize the risk of forgetting to do a good AGSM when you've got competing distractions.

Reminder #8: Learn from the mistakes of others. I'm going to stick with my plan of not trying to re-teach the straining maneuver, but I'd be remiss if I didn't point out the most common mistakes during AGSM execution. According to the resident guru out at Holloman AFB, I've already addressed the most common mistake of all — *starting the AGSM after G-onset*. Others include: straining for longer than 3 seconds without cycling your breath (very bad with COMBAT EDGE); holding your breath; breathing too frequently; and relaxing lower body (such as leg) muscles between breaths. I'm going to reiterate the one mistake I noticed when my buds were going through centrifuge training — continuing to pull on the stick after noticeable vision loss. If you're already behind with your strain, the odds of catching up while pulling harder don't justify the risk.

Nope, I didn't say anything new here, and I can hardly claim to have scratched the surface of an already well-documented subject — articles about G-LOC were published as early as 1919 (in those days it was called "fainting in the air"). Although we've learned a lot in the years since, the outstanding capabilities of current and future warplanes will continue to try to pull the blood that we need for our eyeballs and brains down towards our feet. However, as long as we internalize our training, stay mindful of the physical traps that reduce our tolerance, remember to apply a first-rate AGSM *before* the onset of Gs, and respect the ever-present threat of G-LOC, it doesn't have to result in any more Class A mishaps. ■

Major King wishes to thank Major Jim McClain (ACC/TRSS), Major Don White (49 ADOS/SGGF), and Colonel Pete Demitry (ACC/XRX) for their assistance.

Head-On Basics



It wasn't a dark and stormy night. It was a beautiful spring day and all was going as planned until... the head-on collision! My wife plans her trips over lightly traveled roads and leaves in plenty of time to ensure our children are not late for softball, baseball, basketball, and soccer practices or games. It's been a battle over the years to get everyone to use their seat belts, but I have succeeded — they have been buckling up for many years without me being present to remind them. I have also been effective in getting them to remember to maintain the appropriate pressure in the tires, check all fluids and lights, and ensure the vehicles receive timely maintenance and inspections. But, when it comes down to prevention, selecting a vehicle that will afford your family the best possible protection goes a long way in easing the crises that often result from any auto accident. The most important basic preventive measure, however, is for you, the driver, to ensure that those who ride with you are seated properly. This means that there should be no children under age 12 in the front passenger seat, children under three years of age must be in

an approved, properly installed, safety seat, and all occupants should be properly buckled in the vehicle.

I remember the details of my wife's accident clearly. I had just arrived from work to an empty house, changed my clothes, and then the telephone rang. On the other end was a cool calm voice of a man who informed me that my wife, daughter and granddaughter had been in an accident, but that they were fine. He said there was no need to rush to the location and advised me several times to take my time as he gave me directions. I thanked him. It was only about a mile and it took some effort to keep myself focused on the trip and keep my foot off of the throttle, but I drove safely to the site of the accident.

When I arrived, I parked behind the fire chief's sedan and got out of my truck. I saw our van from the rear in the same lane — smoke or steam rising from the front. I immediately began looking for my wife, daughter and granddaughter, and saw them sitting quietly on the ground several yards from the road. They seemed fine and got up and headed toward me. I asked how they were and hugged them after ensuring they were not injured. My daughter had been buckled up in the back seat next to my granddaughter, who was in a child safety seat. The air bags and safety belts had functioned as advertised and prevented serious injuries. My wife was dazed from her impact with the air bag and had suffered a burn to the back of her right hand when the air bag deployed.

I removed the child safety seat from the van and installed it in my truck. I asked my daughter to place my granddaughter in the child safety seat and to sit next to her. My wife was being questioned by a highway patrolman and was informed that the other driver, who was alone, would be charged with DWI (driving while intoxicated), and that she may be called in as a witness. I think she was later glad that she did not have to appear in court, since the other driver pleaded guilty. When I talked with my wife some time after the accident, she said that she did not remember much of what happened after the other driver's head hit his windshield as he collided with the front of

our van, because the air bag deployed instantaneously!

I am elated that the safety equipment kept my family safe, but I have discovered more basic prevention information that could help you to protect your loved ones:

1. Air bags are designed to supplement the protection provided by safety belts. Hence the label "Supplemental Restraint System," or SRS.
2. Serious air bag inflation injury is a cause for concern if there is less than 10 inches between the belted driver and the steering wheel.
3. The positioning of your hands on the steering wheel should be at the 5 and 7 o'clock positions to prevent injury to hands, etc., when the air bag deploys.
4. When air bags deploy, they explode at speeds of 200 mph for 12 to 18 inches — not in the billowing cloud-like manner you've seen on television.
5. When the air bags deploy, there is usually a certain amount of "smoke" that makes the vehicle appear to be on fire to occupants as well as others.
6. Rear-facing child safety seats must not be installed in the front seat of vehicles with a passenger-side air bag! In fact, the rear-facing child restraint device should always be installed in a rear seat.
7. Rear-facing child safety seats are for infants less than one year old and/or weighing less than 20 pounds.
8. Forward-facing child safety seats are for toddlers over one year of age and over 20 pounds.
9. Recommend all children, ages 12 and under, ride in the back seat and be properly restrained.

The best approach to utilizing safety equipment and informing/teaching passengers how to use this equipment is to follow the vehicle manufacturer recommendations. I haven't covered all of the information available, but I hope that the knowledge you gain from reading this article will benefit you and your loved ones as my family and I have benefited. ■

Monthly Awards

AIRCREW SAFETY AWARD OF DISTINCTION

*Lt. Col. Robert G. Hampton, 2nd Lt. Edward J. Ellis
4th Fighter Wing and 334th Fighter Squadron
Seymour Johnson AFB, N.C.*



On 13 Jul 99, Lt. Col. Hampton, instructor pilot, and 2nd Lt. Ellis, student, were number-two of an F-15E two-ship surface attack and low-altitude step-down training (LASDT) sortie from the 334 FS. The mission was uneventful, including take-off, departure, low-level navigation, and LASDT exercises, until 30 minutes into the flight, as the aircrew practiced weapons deliveries on Navy Dare of the Dare County Range Complex. During their second weapons delivery pass the aircrew heard the airframe-mounted accessory drive (AMAD) fire voice warning and observed an intermittent illumination of the AMAD fire light.

Col. Hampton assumed control of the aircraft, retarded the throttles to the lowest practical power setting, called "Knock-It-Off," and began an immediate divert to Marine Corp Air Station Cherry Point, the closest suitable emergency airfield. The AMAD firelight became steady. After confirming AMAD fire indications in both cockpits, Col. Hampton directed Lt. Ellis to initiate checklist procedures.

Lt. Ellis depressed the AMAD fire-button and discharged the extinguishing agent, resulting in the immediate extinguishing of the AMAD firelight. Lt. Ellis then tested the fire detection circuitry and confirmed system integrity. As a result of the left AMAD fire, the aircraft lost the left generator, left utility hydraulic pump, and total primary control 1 (A&B) hydraulic power. The correct diagnosis of a left AMAD failure and timely checklist accomplishment prevented the left AMAD fire from propagating to the right. To lose both AMADs is to lose the jet. Col. Hampton coordinated with Cherry Point for an emergency approach and landing. During the emergency recovery the lead aircraft conducted a visual inspection of the mishap fighter and confirmed no configuration abnormalities or visible indications of damage. Lt. Ellis executed a flawless approach and landing. Crash, Fire and Rescue met the emergency aircraft at the end of the runway and directed the aircrew to shut down and emergency ground egress.

Post-flight inspection revealed hydraulic fluid and AMAD oil coating the left underside of the fighter aircraft. When fire department personnel opened the AMAD bay access panel to ensure the F-15E was completely fire-safe, pieces of the AMAD fell out of the bay. Col. Hampton and Lt. Ellis' thorough systems knowledge, immediate and unerring emergency response, teamwork, airmanship, flying skills, and coolness under pressure led to the successful recovery of an irreplaceable Air Force Combat asset.



PILOT SAFETY AWARD OF DISTINCTION

*Capt. Brett R. Blake
390th Fighter Squadron
Mountain Home AFB, Idaho*

On 4 Aug 99, Capt. Blake was performing a military power takeoff as the number-one F-15C in a four-ship. After raising the gear, Capt. Blake heard a loud popping sound and felt severe vibrations. After quick analysis, he determined this noise to be the right engine stalling. The aircraft started settling back to the runway and Capt. Blake made a timely decision to select afterburner to maintain flight. As the aircraft climbed out, he heard an audible engine overtemp warning. He continued his climb to a safe altitude, pulled the #2 engine back to idle and rechecked his engine gauges to confirm the problem. He decided to shut down his #2 engine immediately because of continued engine vibrations. His wingman rejoined on him and informed him there were flames in the augmentor section of his #2 engine. He checked for other indications of fire, but the circuit and all lights checked out to be good, and he had no voice warnings. The vibrations continued until he was below 180 knots. He completed the remaining checklist items for single-engine operation and performed a flawless approach and landing. Investigation of the #2 engine revealed that the third stage turbine failed. The third stage blade failure subsequently caused the fourth turbine wheel to sustain considerable FOD damage. This mishap could have easily escalated into a Class A were it not for Capt. Blake's textbook execution of continuing takeoff with a single engine. In addition, his immediate decision to shut down the engine ensured the damage was contained fully in the #2 engine.



CREW CHIEF SAFETY AWARD OF DISTINCTION

*Tech. Sgt. Jeffery J. Kusz,
Senior Airman Michael J. Gilkes
28th Bomb Wing
Ellsworth AFB, S.D.*



On 21 Jul 99, Sgt. Kusz and Amn. Gilkes were involved with the launch of a B-1B that was scheduled to fly a surface attack training sortie with post-strike air refueling at 1130. During launch a non-operational left auxiliary power unit (APU) forced the aircrew to perform an inter-nacelle, cross-bleed start on engines #1 and #2. As the aircrew brought engines #3 and #4 to 90 percent during the start sequence, Amn. Gilkes observed the #3 radar cross-section (RCS) vane, located in the middle of the engine inlet, vibrating at least 1/2 inch left and right. Recognizing a potential catastrophic situation for engine #3, Amn. Gilkes signaled Sgt. Kusz to have the aircrew shutdown the #3 and #4 engines. With engines shut down, Sgt. Kusz checked the vane manually and got only minimal movement. Recognizing tech order limits for RCS vane movement is minute (0.0063 inches), Sgt. Kusz directed further analysis of the vane. The RCS vane was removed from the aircraft and the upper-forward and middle-lower adjustment pins were found broken. Ingesting a RCS vane in-flight could have caused a catastrophic engine failure and possible fire. The quick action and attention to detail of Sgt. Kusz and Amn. Gilkes most certainly saved a catastrophic event, loss of a critically limited combat resource and potentially grave risk to the aircrew.



WEAPONS SAFETY AWARD OF DISTINCTION

*Tech. Sgt. Robin Zehr, Staff Sgt. Kevin Chambers
Senior Airmen Vinnie DiPietro, Mike Eder
174th Fighter Wing, 111th Fighter Wing
Willow Grove ARS, Pa.*



On 28 Jul 99, during a live forward-operating location (FOL) exercise at Wheeler-Sack Army Airfield, Fort Drum, New York, the quick responses of munitions specialists prevented significant

equipment damage and averted an explosive detonation. At the time, Sgt. Chambers and Amn. DiPietro were in a bobtail towing an MHU-110 trailer and an MHU-141 trailer loaded with 16 MK-82 bombs. After completing their nearly five-mile trip to storage pad #4, a loud "bang," similar to the sound a car makes when it backfires, was heard by several members in the area. Amn. Eder, who had noticed an odd smell as the trailers passed, noticed the rear wheel on the passenger side of the MHU-141 trailer was on fire. Sgt. Zehr, located across the storage pad, started yelling that the trailer was on fire and that

someone should grab the fire extinguishers. Sgt. Chambers and Amn. DiPietro quickly exited the vehicle and surveyed the situation. Amn. Eder and Sgt. Chambers attacked the fire and completely discharged their extinguishers. While fighting the fire in the back end of the trailer, the front passenger tire blew and became engulfed in flames. The initial fire-fighting effort exhausted the four extinguishers carried on the trailers. During the time that Sgt. Chambers and Amn. Eder fought the fire, Sgt. Zehr and Amn. DiPietro departed the pad in another bobtail to get additional fire extinguishers. The fire on the two wheels continued. After Sgt. Chambers disconnected the bobtail, Amn. Eder recommended a withdrawal until more extinguishers arrived. Amn. Eder transmitted for help to munitions control and then departed the area to call the fire department. Soon after, Sgt. Zehr arrived with a Halon extinguisher in tow. Finally, the group extinguished the fire, which required nearly all of the contents of the Halon extinguisher. The area was evacuated until the fire department arrived and confirmed the fire was out. It is important to note that this parking revetment contained over 200 MK-82s and 200 rockets nearby. The quick and accurate responses of these four airmen are credits to their training, motivation and daily supervision. Their actions not only prevented the destruction of valuable combat resources, but the loss of life as well.



GROUND SAFETY AWARD OF DISTINCTION

*2SG Low Yin Leng
428th Fighter Squadron
27th Fighter Wing
Cannon AFB, N.M.*

On 17 Aug 99, 2SG Low Yin Leng was performing leading-edge flap operational checkout on an F-16 when she noticed that the emergency power unit (EPU) fuel tank pressure gauge was reading 300 psi when it should be 0 psi. Knowing the potential for hydrazine leakage, she immediately ceased all operations and evacuated all personnel from the aircraft. The aircraft was then brought to the EPU servicing area for troubleshooting. The EPU system is fueled by hydrazine (H70), which is extremely toxic and volatile. The EPU fuel tank contains 6.8 gallons of hydrazine and is located on the right side of the aircraft. The EPU fuel tank is normally not pressurized unless the system is activated. Activation pressure comes from a 3000-psi gaseous nitrogen bottle upstream. This pressure is checked by a nitrogen valve that regulates the pressure to 400 psi before input to the EPU fuel tank. Hydrazine is concealed within the fuel tank by a burst disc and is further prevented from uncommanded leakage to the atmosphere via a fuel control valve downstream. In this case the nitrogen valve was leaking and had allowed nitrogen to pressurize the EPU fuel tank over time. The burst disc was ruptured and the hydrazine had discharged to the fuel control valve, which acted as the last stage to prevent a H70 leakage. 2SG Low Yin Leng has consistently performed in an enthusiastic and outstanding manner in the squadron. This incident further demonstrated her excellent technical knowledge and situational awareness. Her decisiveness and positive actions prevented possible serious injuries to personnel through exposure to hydrazine. We are proud of her professionalism and extraordinary effort in arresting a potentially hazardous situation.



FLIGHT LINE SAFETY AWARD OF DISTINCTION

*Staff Sgt. Ng Kah Sing
428th Fighter Squadron
27th Fighter Wing
Cannon AFB, N.M.*

Weapons load crew member Sgt. Ng Kah Sing was carrying out an after-flight inspection on an F-16 at Eielson AFB, Alaska, on 14 Jul, when he noticed a chaff/flare module safety pin from a Tucson Air National Guard F-16 drop onto the taxiway. Another aircraft from the same unit was taxiing towards the path of the safety pin. Realizing an imminent foreign object damage (FOD) hazard, Sgt. Ng Kah Sing hastened to the taxiway and signaled the pilot of the aircraft to stop. The pilot did not come to a stop immediately, but Sgt. Ng Kah Sing's firm and undaunted gestures finally got the message across. After the pilot stopped the aircraft, Sgt. Ng Kah Sing retrieved the safety pin and signaled the pilot to radio contact the other pilot to hold his position. Sgt. Ng Kah Sing then proceeded to safe the chaff/flare module. Sgt. Ng Kah Sing's high degree of professionalism, excellent situational awareness, and extreme vigilance are testimony to the success of the wing and squadron's efforts to inculcate the right FOD-prevention values into the servicemen. His actions prevented a potentially catastrophic FOD accident.

A

Assess the Environment
for Risk

C

Consider Options to **Limit** Risk

T

Take Appropriate Action

Simplifying ORM

By Col. James Stanley, ACC Safety, Langley AFB, Va.

In the May '99 issue of "The Combat Edge" I wrote an article that discussed Operational Risk Management (ORM) from a "common sense" perspective. Essentially, I talked about how there were three levels of ORM — Basic, Operational, and Strategic. Each level is equally important; however, each requires a different amount of ORM effort.

The Air Force ORM program and methodology is a formal, 6-step process:

1. Identify the Hazards
2. Assess the Risk
3. Analyze Risk Control Measures
4. Make Control Decisions
5. Implement Risk Controls
6. Supervise and Review

This program is perfect for the "Strategic" ORM analysis, which lends itself to complicated, critical analysis of how we do business. Death or the loss of critical assets can often be the result of ORM not being executed. While Strategic ORM is effective, the majority of ORM falls under the "Basic" and "Operational" categories. This is especially true for on-duty operations, off-duty activities, and for our families — our most precious resource.

Simplifying ORM By Col. James Stanley, ACC Safety, Langley AFB, Va.

In order to simplify the process, and to ingrain it into our ACC culture, in October COMACC approved a new ORM methodology that is action-focused and easy to remember. We call it A...C...T:

1. Assess the Environment for Risk
 - a. Be aware of your surroundings, duties, and tasks on and off duty.
 - b. Analyze what could go wrong.
 - c. What are the chances of something happening?
2. Consider Options to Limit Risk
 - a. What can you do about it?
 - b. Is it worth the risk to do it?
 - c. Does the risk require you to elevate the decision making process?
3. Take Appropriate Action
 - a. Implement risk controls (take preventive action).
 - b. Does your action control the risk? If not, start the process again.
 - c. Spread the word! Let others learn from your experience.

We believe that simplifying ORM principles will help establish the ORM culture into our every day tasks — both on and off duty. I know that your base, squadron, or wing may have their own ORM process that is working great — continue to use what works! Remember, the new ACC 3-step process is additive to the established Air Force 6-step process or to your unit's initiative. Utilizing all of these tools gives us the ability to maximize ORM understanding and use.

FLIGHT SAFETY AWARD OF THE QUARTER



Master Sgt. Leonard D. Best
422nd Test and Evaluation Squadron
Nellis AFB, Nev.

Sgt. Best is tops in his field! He is constantly striving to enhance and promote safe helicopter operations Air Force-wide. Hand-picked for his superior expertise, Sgt. Best is one of only two test-qualified H-60 flight engineers in the Air Force. He tests new procedures, tactics and equipment, providing safety observations and operational recommendations to HQ ACC for fielding consideration.

He identified a critical flaw in the HH-60G gunner/flight engineer seat crashworthiness design. He noticed that a gun power unit had been placed under the seat during a block modification that had occurred at least eight years earlier. His recommendations to relocate the gun power unit would allow the seat to fully stroke downward and absorb impact forces in the event of a crash. In addition to identifying and devising a fix to this serious

problem, Sgt. Best also recommended that all future modifications that affect gunner/flight engineer workstations be routed through his office for review and approval. Sgt. Best's new routing recommendation will ensure the operator's considerations are truly represented. In an effort to facilitate the process, he provided seat design and installation suggestions to the aircraft manufacturer for consideration for use in a newer block-modified aircraft.

His second hazard report identified a beaded panel modification design flaw that could inhibit crewmember egress in the event of ditching, a crash, or a fire. Sgt. Best's research showed the beaded panel modification conflicted with the intent of JSSG-2010-7 Contact Injury Protection and did not conform to MIL-STD-1472D, Human Engineering. His recommendation to use a streamlined version produced by Sikorsky would not interfere with gunner/flight engineer operations or inhibit egress and could save lives. This part had already been tested by Sikorsky and could be approved and installed quickly with great savings to the Air Force.

Additionally, his bulldogged determination led to the publishing of a time compliance technical order (TCTO) that called for identification and removal of helicopter M240 machine gun mounts that could catastrophically fail without warning. Identified over three years earlier, this issue went unresolved with gun mount failures continuing to occur. Through personal visits to the item manager and aggressive follow-up action, he brought closure to an issue that had been "on the books" for three years. His critical analysis of and suggested enhancements to the HH-60 GAU-2B minigun feeder-delinker system resulted in an improved feeder-delinker, which was acquired by DoD. Adopted for use by the U.S. Navy, with acquisition being considered by the Army, the new delinker decreases malfunctions, increases reliability, and decreases weapon downtime by more than 80 percent. Sgt. Best's contributions to improving this weapon have greatly enhanced survivability of the HH-60G during combat search-and-rescue (CSAR) operations.

Sgt. Best's impact on flight safety is far-reaching and affects all Combat Air Forces helicopter operations. His work during the last quarter has provided improvements that will save lives, aircraft and dollars, not only now, but also for years to come.

GROUND SAFETY AWARD OF THE QUARTER

Master Sgt. Jose A. Alfonso
34th Combat Communications Squadron
Tinker AFB, Okla.

Sgt. Alfonso has created a first-class safety program that has touched every echelon of his 120-member mobility squadron. The Tinker mission calls for troops to operate, maintain and deploy heavy tactical communications and airfield systems any time, anywhere. With over \$32 million worth of equipment, including over 100 tactical vehicles, 25 generators, and 22 systems that emit hazardous radio energy, the hazards are both frequent and varied.

Sgt. Alfonso's continuous presence in the work centers, aggressive e-mail campaign, and regular briefings during physical training and commander's call formations has instilled grass-roots safety awareness, ensuring mission readiness during our highest operations tempo ever. At any given time over half the squadron was deployed supporting Kosovo bombing and relief efforts, the Roving Sands '99 exercise, or the regular 120-day Southwest Asia rotation. During these times he corrected 80 percent of all discrepancies, several of them major, that had been documented during a recent annual group safety inspection. He spearheaded the creation of 10 work center job safety training outlines (JSTOs), which guarantee that personnel receive training and briefings by supervisors on all required fire, health and safety issues relating to their jobs as directed by AFI 91-301.

Sgt. Alfonso was on the scene during preparations for a deployment to support an air show at Great Bend, Kansas. He identified and corrected a major oversight pertaining to the transportation of 600 gallons of diesel fuel for power generators. People had forgotten to pack an initial spill cleanup kit, used to contain accidental fuel spills until emergency cleanup crews can arrive. He ensured the kit was packed, and he briefed personnel on the requirements for hazardous materials shipments and documentation to prevent future mistakes. He also played a key role in pointing out deficiencies in the vehicle training and qualification program.

After two mishaps involving almost \$6,000 in damage to M-35 "deuce-and-a-half" tactical trucks, he recommended and won squadron commander approval to suspend off-road training activities until a full review of training procedures could be made. He organized a squadron working group to re-educate trainers, and to reinstate the use of written training plans for qualifying and certifying new drivers. His actions have brought consistency and rigor back to the unit's vehicle training program and his impact has expanded to involve the entire group. Voicing his concerns at a group-wide safety forum resulted in the group commander identifying vehicle training as a priority interest item, which will ultimately result in safer operations of the group's 700-plus vehicles. Sgt. Alfonso has not just promoted safety in this unit — he's institutionalized it.





WEAPONS "BACK TO BASICS" PERSPECTIVES

Weapons "Back to Basics" perspectives

By the ACC Weapons Safety Branch, Langley AFB, Va.

This issue of *The Combat Edge* is dedicated to the concept of getting "back to basics." This principle is needed now more than ever in the weapons safety community. With the advent of the Air Expeditionary Force, extensive utilization of our limited resources, and the necessity to posture critical resources in constrained locations, we find that Air Force people are increasingly exposed to operations involving explosives. As weapons safety managers (WSMs) we must be ever vigilant to the increasing possibility of an explosive mishap.

To help combat the increased risks, weapons safety managers in today's opera-

tional environment need to help keep everyone focused on the basics. What that means is to focus your time and effort on mishap prevention. Institutionalize the principles of Operational Risk Management (ORM) into the unit's daily activities, and be proactive by getting out and visiting the high-risk areas, where mishaps are most likely to occur. WSMs should also assist unit personnel in the identification of potentially dangerous activities and aid in development of procedures to reduce risks, before a mishap occurs.

You will need help to make this "back to basics" approach effective. Utilize the additional duty weapons safety managers

WSMs; provide them enhanced training and refocus them on risk reduction and mishap prevention; let them help motivate the workforce and be very visible in their area of responsibility. Our basic responsibility as WSMs is mishap prevention — so let's get back to basics.

Explosive site planning is a complex process that requires much of the weapons safety manager's time being devoted to deciphering k-factors, maximum credible events and net explosive weight quantity distance, etc. Although necessary tasks and key elements of the Explosive Safety Program, the WSM must balance his or her responsibilities and spend as much time as possible helping to motivate others on risk reduction and mishap prevention.

On the horizon are several DoD-imposed deadlines that will increase the amount of time the WSM's will have to spend on the administrative requirements of explosive site planning. We are concerned that this increased workload will have a negative impact on mishap prevention efforts. So, in an effort to maintain a strong mishap prevention atmosphere, where WSMs are out in the field talking to commanders and supervisors, completing spot and annual inspections, and being readily available for consultation, we are taking an initiative to automate this labor-intensive site-planning process within ACC. HQ ACC and Numbered Air Forces (NAF) Weapons Safety staffs will assist unit WSMs in re-siting many of their explosive facilities. This will reduce the unit WSM's workload and allow them time to perform the basic duties of supporting mishap prevention.

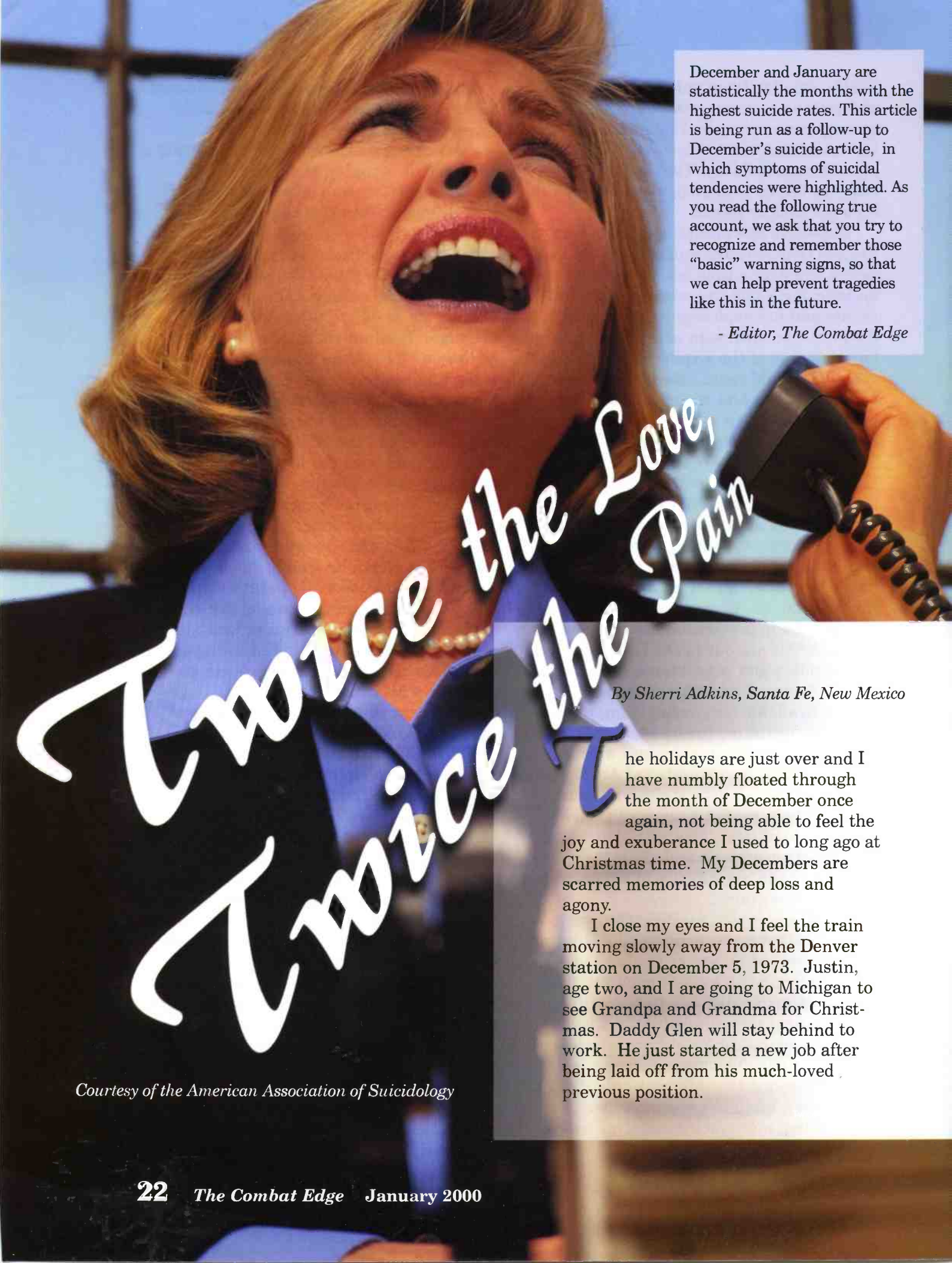
We all know that meeting the operational mission is our primary objective, and mishap prevention is a critical element to continually and efficiently meeting that goal. Reporting mishaps and identifying high accident potential situations helps to preserve our resources — both equipment and personnel. The basic purpose for these reports is to get the information out to other units, systems program offices, and even system manufacturers. This safety

information, if disseminated properly and timely, greatly reduces the potential for repeat occurrences.

To refocus on the benefit of reporting a potential or actual mishap, the key is timely reporting, and a factual narrative that properly identifies cause and effect. Base the narrative on facts derived from witness statements and any documented information. Probable causes, if cited, should include leading information and, in a sense, be "sold" to the readers of the message. Recommendations should achieve a "fix" to the situation. Do not make blanket recommendations for the Air Force or command based on a local situation. Many mishaps are a result of material failure, and the WSM must work hand-in-hand with the logistics personnel to ensure product deficiency quality reports are submitted in order to properly focus corrective actions. Mishap reporting is NOT airing dirty laundry and, if done properly, is worth its weight in gold.

With the increase in operations tempo, many of our AF unit personnel are either deployed to forward-operating locations or stay at their home base maintaining assigned weapons systems with fewer resources. This often creates an environment that fosters a mentality of "getting the job done no matter what the cost." We have seen an increase in Mishaps related to technical data violations, lack of training, or lack of supervision. Fortunately, there have not been any serious mishaps as a result of these deviations. However, there has been equipment damaged and lost production time.

We must take the time to slow down, follow the technical orders, and do the job right the first time. Even small deviations from the prescribed procedures reflect a negative trend, as well as a lack of discipline and professionalism. This discipline and professionalism start with the basics, like good military bearing, customs and courtesies, and flows into how we do our job, and protect and preserve our resources. It's what makes us the strongest, most feared Air Force in the world. ■



December and January are statistically the months with the highest suicide rates. This article is being run as a follow-up to December's suicide article, in which symptoms of suicidal tendencies were highlighted. As you read the following true account, we ask that you try to recognize and remember those "basic" warning signs, so that we can help prevent tragedies like this in the future.

- Editor, *The Combat Edge*

Twice the Love, Twice the Pain

By Sherri Adkins, Santa Fe, New Mexico

he holidays are just over and I have numbly floated through the month of December once again, not being able to feel the joy and exuberance I used to long ago at Christmas time. My Decembers are scarred memories of deep loss and agony.

I close my eyes and I feel the train moving slowly away from the Denver station on December 5, 1973. Justin, age two, and I are going to Michigan to see Grandpa and Grandma for Christmas. Daddy Glen will stay behind to work. He just started a new job after being laid off from his much-loved previous position.

Courtesy of the American Association of Suicidology

During the Michigan visit, I received several phone calls from Glen, sifting through all of the stressful problems — past-due mortgage payments, disagreements over money matters, and future changes with work. I was actually feeling much better, and being away from the whole situation for awhile lifted my spirits. Sometime during the next week there was another phone call from Glen — he seemed very apologetic and melancholy, talking about his inattentiveness towards me and how sorry he was. At that time, in 1973, I didn't know what depression was, as far as a clinical definition, so I was not feeling any concern about Glen's mental state. I thought we were just going through some discussions that were normal under the circumstances of unemployment.

My memories of all the events are clouded now, but I remember the phone call on December 23, 1973. It was my minister, and he told me, "Sherri, Glen has shot himself. He's dead." I still lose my breath and my palms go numb as I write these words on paper. The following moments had to be told to me by my mother and father. They put me into a bathtub of warm water and poured hot tea down me. I was going into an icy-cold physical state with symptoms of shock setting in.

My mother wanted to keep baby Justin while I flew home to Denver, but my minister wisely said, "No, Sherri, you bring that little guy with you. He will be a strong focus of love, and this will help you get through what you have to face." In the years that followed, those words of wisdom proved to be so true.

Justin became a powerful focus for my survival. I had to be strong to raise my beloved little boy, and beloved is the only word to describe Justin. He was the happiest, most delightful little child a mom could wish for. I even nicknamed him "Justin Joy." Although our newly acquired home was lost (there was no insurance money and no equity to utilize), I totally devoted myself to being the best mother I could be. I wanted my child to have every opportunity for having a normal family life, even with only one parent. I wanted him to beat the odds of

being dramatically affected by the suicide of his father.

I worked long hours. I grieved deeply over my husband's death, but silently held in my feelings. In 1973, no one talked openly about suicide, and there were no support groups I was aware of. My family expected me to just move right on and forget it ever happened. I know I was affected by Glen's death much more than I realized at the time.

I became totally consumed by my survival and raising my son. Justin grew into a very bright and talented young man. There were cub scouts, peewee soccer, basketball, camps, fishing trips, and cultural activities. We did all we could to have a rich life with so little economically.

Justin graduated second in his high school class. He was a member of the National Honor Society, and received the highest scholastic scholarship available from one of the top science colleges in the country. I was so very, very proud. He was so beautiful — so many friends loved him. All of the long hard work was worth it. We were surviving the suicide of his father and making our place in the world.

In April 1993, Justin graduated from college Magna Cum Laud. In retrospect, I remember that his personality began to change quite dramatically his junior year. He had outbursts of anger, and certain situations seemed extremely disturbing to him. He would feel depressed about the world and the environment he was inheriting. I didn't think too much about it at the time — I thought it was part of his brilliant mind and a normal moodiness. Inside, I was secretly becoming concerned about him genetically inheriting his father's depressive tendencies.

After graduation, Justin went to Alaska where he worked on the fishing docks, hiked, rock climbed, and did all of the marvelous things he loved to do outdoors. When he returned home from Alaska, he seemed happier than he had been in several months. He looked wonderful, and we shared some loving times. I was so relieved. He talked about his goal of working to pay off his college loan, traveling for awhile, and then

going to graduate school.

Returning to the city after Alaska was very stressful for Justin — he loved being out in the country. He decided to move to the Phoenix area to be with his girlfriend and have access to the wilderness he loved. In September of 1993 I said goodbye to the son I had devoted myself to raising, with a prayer in my heart for his safety and mental well-being — believing in a wonderful future for him. Justin's time in Arizona was full of disappointments. Hundreds of resumes were not answered. Justin finally took a position with a floor-covering supply company, becoming store manager within one year and leading the stores in sales amongst 26 others.

I knew his love was biology and being out-of-doors, but I felt so proud once again because I thought he was doing well and being successful in his stepping-stone position. He never missed a day's work in two years. He was working long hours, however, and stress can trigger depression. I knew he was feeling stressed. I visited several times during his two years in Arizona. We talked about his plans and, although he seemed impatient to move on to his dream, he seemed all right.

In November of 1995 I visited Justin for 10 days. We went camping. He had just bought a new puppy that he loved very much, but he also shared with me some personal problems with his girlfriend. He seemed down, but I was used to his pattern of pulling out now. He would not consider medical treatment. He wanted to control his mood swings on his own. I was beginning to be concerned this time. He told me that he had purchased a handgun for safety when he went out to remote areas. He said everyone in Arizona told him he was foolish not to carry a gun because he was always out in wilderness areas alone. I tried not to be concerned. Justin was very strong-willed and there wasn't much you could say to persuade him not to do something he wanted to do. I left to return to Michigan on November 20, 1995.

On December 1, 1995, I received a phone call at my mother's house once again. My

beloved son Justin had shot himself just as his father had 22 years earlier in the same month. Justin lived 13 hours in a coma. The plane ride to Arizona was excruciating. The shock, the numbness, the disbelief, the sameness, and yet not the same. This time it was my baby, my only child. This was the one thing I could not go through, oh God, not this, not my child, not my beautiful son — No - No - No - not Justin — I could not let go of my child, my only child.

I went through an almost catatonic state in the beginning and have moved on to a somewhat functioning state through two years of one step in front of the other — one day at a time. I am surviving once again, but my life is totally different now. There's no strong loving focus; there's only me. I must love me now; I must help me to survive the most difficult loss imaginable — two suicides — a beloved husband/father, James Glen (October 6, 1946 — December 19, 1973) and most beloved son, Justin Glen (March 5, 1971 — December 2, 1995). I am rebirthing once again, but oh so slowly, oh so gradually. I feel like my life is in very slow motion.

When Justin first committed suicide, I attended a 6-week "Survivors of Suicide" group at the University of Michigan Medical Center. I went to the first Washington session of "Suicide Awareness" in 1996. I carried two candles and two pairs of shoes. I was in the middle of deep grief and numbness, but I just knew I wanted to be there. I remember thinking, "How can I lay my two pairs of shoes down while I'm holding two candles?" With help from another survivor who held one of my candles, I was able to lay the shoes down. Acceptance and support from other survivors and my faith in God has kept me believing that I can survive even two suicides. I find that awesomely miraculous.



I still hear, "Hi Mom." I still long to touch my dear ones. Yet, I go on. Justin and Glen live strongly in my heart. Yet, my heart can heal. I hope I can inspire others to believe in their power to heal also. ■

In loving gratitude and hopefulness
— Sherri

Weapons Safety Stats



ACC Losses for FY 00

(1 Oct 99 - 1 Dec 99)

Number of Weapons Mishaps / Dollar Losses			
	Class A	Class B	Class C
8 AF	None	None	\$38K 
9 AF*	None	None	None
12 AF	None	None	None
AWFC	None	\$1.2M 	None
TOTAL	\$0	\$1.2M	None

Weapons Fatalities - None
Nuclear Mishaps - None

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

 = Missile Mishap
 = Explosive Mishap

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

1999 Index of Articles



A COMMAND TRYING TO FLY

HQ ACC's response to "A Wing Trying To Fly"

Maj Sid "Scroll" Mayeux - SEP 99, FLT

A CRITICAL TIME FOR SAFETY

101 Critical Days of Summer

TSgt Anthony Stennis - MAY 99

A LASTING IMPACT

Drunken driving brings lifetimes of distress.

TSgt Oland Whitecotton - MAY 99, GRND

A NEAR MISS!

Safe lawn mowing practices

Unknown - AUG 99, GRND

A REDBALL BRUSH WITH DEATH

Sorties are important but don't kill your friends.

SMSgt Michael Mlodzik - FEB 99, GRND

A SAFER HOME AND HEARTH

Home fire safety

National Fire Protection Assoc. - DEC 99, GRND

A VIRTUAL MATTER OF LIFE AND DEATH

Parachute descent simulator

1Lt Erin Bradley - DEC 99, FLT

A WING TRYING TO FLY

Pilot proficiency undermined at 33 FW

Capt Dean "Stag" Stephens - SEP 99, FLT

ACCENT ON SAFETY

Explaining the "January Challenge"

Col Turk Marshall - JAN 99

The "January Challenge" continues

Col Turk Marshall - FEB 99

"Old heads" and ORM

Col Turk Marshall - MAR 99

Applying ORM

Col Turk Marshall - APR 99

Learn from others, read The Combat Edge

Col Turk Marshall - MAY 99

Commander's farewell

Gen Richard E. Hawley - JUN 99

Set aside ego, share knowledge

Col Turk Marshall - JUL 99

Progress in mishap prevention needed.

Col Turk Marshall - AUG 99

Heat pushes some to take risks.

Col Turk Marshall - SEP 99

Join SAFE FORCE 2000

Col Greg "Vader" Alston - OCT 99

We all live or die by our choices

Col Greg "Vader" Alston - NOV 99

Show you care

Col Greg "Vader" Alston - DEC 99

ALMOST A MISHAP

Constant reevaluation needed

SMSgt Bart Ivy - AUG 99, WPNS

ANTHRAX VACCINE IS SAFE

Alternative is death

Lt Gen Thomas J. Keck - NOV 99

ARE YOU A "MAINTAINER?"

Knowing your troops

Col Dave Williamson - MAR 99

ASK ORVILLE!

Relationship of CRM to ORM

Col Ronald Garhart - JAN 99, FLT

Frangibility and ORM

Col Ronald Garhart - FEB 99, FLT

Orville R. Mudd's farewell

Col Ronald Garhart - MAR 99

ATTITUDE & ACTION

Protecting AF assets

SMSgt Ron Ross - FEB 99

BEFORE SPARKS BEGIN TO FLY

Fire on a B-52 in flight

Lt Col Adrian Robbe - MAR 99, FLT

BIRDS OF PREY

Our feathered friends can be killers

1Lt Erin Bradley - OCT 99, FLT

BOOZE & BOATING JUST DON'T MIX

Good rules for safe boating

National Safe Boating Council - JUN 99, GRND

BUCKLE UP AMERICA. THERE'S JUST TOO MUCH TO LOSE

Failure to buckle up is deadly

Excerpts from DOT HS 808 751 (Aug 98) - MAY 99, GRND

CALLING ALL COLONELS

Best candidates crucial to lead SIBs

Col Dave Williamson - NOV 99, FLT

CENTER ART

B-17 "Flying Fortress"

Bob Engle - APR 99

F-15 Eagle

Bob Engle - JUN 99

F-105 Thunderchief

Bob Engle - AUG 99

A-10 Thunderbolt II

Bob Engle - OCT 99

F-4D Phantom II

Bob Engle - NOV 99

CHOCK TALK

Don't be a "causal link" to disaster

Maj David Saville - JAN 99

Essential to pass on safety lessons learned

Maj David Saville - FEB 99

The MRP process works

Maj David Saville - MAR 99

Preserving critical evidence

Maj David Saville - APR 99, FLT

Hazards of unit deactivation

Maj David Saville - MAY 99

The "Gold Chit" program

Maj David Saville - OCT 99

COLD ROAD TO DISASTER

Drunk driving kills

Chaplain Thomas Azar - JAN 99, GRND

COMPLACENCY CAN KILL YOU!

AT-38 brush with death

Lt Col Grant "Noz" Bruckmeier - JUN 99, FLT

COMPLIANCE IS KEY TO AVOIDING A "BAD DAY"

A lapse can cause injury, death, or damage

SMSgt William Hodgson - APR 99, WPNS

CONFINED SPACES

Reducing the hazard

SMSgt Gary Reniker - FEB 99, GRND

COUNTDOWN TO DISASTER

Proper explosives storage

4 FW/SE - JUN 99

DEADLY DOZING

Sleep deprivation and driving

TSgt Kevin McDowell - APR 99, GRND

DEATH BY ACCIDENT

The consequences of unsafe driving

SSgt Virgil Hathaway - AUG 99, GRND

DID YOU KNOW...?

Statistics on fireworks injuries

Virginia State Police - FEB 99, GRND

Here is a simple survey on cooking safety.

U.S. Product Safety Commission - FEB 99, GRND

DOMESTIC VIOLENCE FROM A SAFETY PERSPECTIVE

What you can do
Debbie Allen and Larry Billups - DEC 99

DON'T BE ANOTHER STATISTIC

Avoiding driving mishaps
Lt Col Walt Ledford - MAR 99

EXCELLENCE PERSONIFIED

AF Combat Ammunition Center
Maj Lee Levy - SEP 99, WPNS

EXPLOSIVE SAFETY: WHO'S MINDING THE STORE?

Munitions operations
SMSgt Abel Hernandez - MAR 99, WPNS

FACING THE JANUARY CHALLENGE

Takeoffs and landings are the most hazardous
Lt Col Ezequiel "Rock" Parrilla - JAN 99, FLT

FEARLESS FREDS AND HYSTERICAL HARRYS

Safety extremes
SMSgt Gary Reniker - MAR 99

FIREARM SAFETY TIPS

Store and use carefully
Michigan Dept of Natural Resources. - NOV 99, GRND

FIRE IN THE HOME

Planning and knowledge can make the difference
SSgt Byron Randolph - OCT 99, GRND

FIRE IS FAST! FIRE IS HOT!

A personal testimony
SrA Jennifer Johner - AUG 99, GRND

FLEAGLE

Cold weather ops
Stan Hardison - JAN 99

Dangers of thin ice
Stan Hardison - FEB 99

Workout at the gym
Stan Hardison - MAR 99

Quick changing weather
Stan Hardison - APR 99

Lightning strikes
Stan Hardison - MAY 99

Bomb range safety
Stan Hardison - JUN 99

The danger of heat stress
Stan Hardison - JUL 99

A personal mishap demo
Stan Hardison - AUG 99

Weapons safety
Stan Hardison - SEP 99

Watch that ladder
Stan Hardison - OCT 99

Hydroplaning
Stan Hardison - NOV 99

Drunk driving statistics
Stan Hardison - DEC 99

FLIGHT LEADS VS. FLIGHT LEADER-SHIP

Developing your new role
Major Jack Patterson - JUL 99, FLT

FOREIGN OBJECT DAMAGE

Preventing it
TSgt Donald Felch - JUN 99

FREEWHEELING, IS IT REALLY FREE?

Ignoring ORM
Col Dave Williamson - MAY 99

FUN IN THE SUN TURNS DEADLY: IT COULD HAPPEN TO YOU!

Family safety at the beach
TSgt Rob Martinez - JUL 99, GRND

HEARING CONSERVATION

Avoiding permanent hearing loss
SSgt (S) Annabelle White - OCT 99, GRND

HOME Y2K TIPS

Prepare as for a storm
Editor - DEC 99

HOW SAFE IS YOUR CHILD?

Child safety seats
SSgt Andy Swenson - NOV 99, GRND

HUMAN FACTORS AND FOD PREVENTION

Too costly to ignore
MSgt Collin Roller - JUN 99, GRND

HUNTING SAFETY ON THE WATER

Know the limits
U.S. Coast Guard - NOV 99, GRND

HUREVAC!

Preparation is the key
Lt Col Matt "Gorilla" Donovan - JUN 99, GRND

HURRICANE!

What to do
National Disaster Education Coalition - AUG 99, GRND

INDOOR AIR QUALITY

"Sick" buildings foster illnesses
SMSgt Gary Reniker - JAN 99

INTEGRITY SAVES LIVES

A critical core value
TSgt Tim Dye - MAY 99, GRND

IN THE BLINK OF AN EYE!

Flying alert and ready
Lt Col Dennis Selvig - MAY 99, FLT

IN THE DRIVER'S SEAT: MAKING SMART DECISIONS

Driving safety tips
Advocates for Highway and Auto Safety - MAY 99, GRND

I THREW IT ALL AWAY

Drunk driving kills wife and career
AB Scott Willeke - APR 99, GRND

IT'S YOUR CHOICE

Is it worth the risk?
Col Dave Williamson - OCT 99, GRND

IT WAS FUN!

Seatbelts saved their lives
SrA Dante Damiani - FEB 99, GRND

JUST TO MAKE SURE

Situational awareness while driving
Bob Balsie - FEB 99, GRND

KEEPING THE MISSION SAFE IN ICE-LAND

Harsh weather operations
Capt Walt Shearer - DEC 99, FLT

KEROSENE HEATER SAFETY

A guide to home heater use
U.S. Consumer Product Safety Commission - JAN 99, GRND

KIDS: 0, MOWERS: 800

Children near mowers are at risk
U.S. Consumer Product Safety Commission - JUL 99, GRND

KIDS & AIRBAGS

Some safety tips
Insurance Institute for Highway Safety - MAR 99, GRND

KIDS & BICYCLE SAFETY

Helpful tips
MSgt James Raabe - APR 99, GRND

MILITARY PEOPLE MUST PROTECT INTEGRITY

Guard against negative, permissive behaviors
Lt Col Loren Lundstrom - JUL 99

MIND YOUR P'S

Refueling B-52 almost collides
Maj Mike McDonald - NOV 99, FLT

MISHAP RESPONSE PLANS

Getting it together
Lt Col Ezequiel "Rock" Parrilla - APR 99, FLT

NORTH TO ALASKA

Sub-zero flight operations
Maj Lori Pulaski - JAN 99, FLT

NUCLEAR SURETY, IS IT ALIVE AND WELL?

Keeping it a top priority
MSgt Curtis Northrop - JUL 99, WPNS

ORM 101: A BASIC COURSE IN COMMON SENSE

What ORM really is
Col James Stanley - MAY 99

PASSING THE PEN

Change of editors
Lt Col Adrian Robbe - SEP 99

PERSONAL PROTECTIVE EQUIPMENT... NOT JUST AT WORK

Safety at home
AE1 (AW) Larry Denman - APR 99, GRND

RECIPE FOR DISASTER

Performance can change with the weather
CMSgt (S) Michael Mlodzik - OCT 99, GRND

RESCUE AT SEA

Water rescue training
1Lt Erin Bradley - SEP 99, FLT

ROAD RAGE

Unacceptable driver conduct
SMSgt Gary Reniker - JUN 99, GRND

SAFETY AS A STATE OF MIND

We are there to help
TSgt Eric Dameron - NOV 99, GRND

SATURDAY TRACK MEAT!

Motorcycle safety
SSgt Gerald Davis - JUN 99, GRND

SECOND CHANCE

Auto related safety
TSgt Craig O'Neal - NOV 99, GRND

SLEEPINESS IN THE COCKPIT

Aviator fatigue compromises skills
Dr. John Caldwell - AUG 99, FLT

SPRING CLEANING

Room by room checklist
Michael Barnes - APR 99, GRND

SUMMER, ORM, AND YOU

Applying the ORM process to summer activity.
Editor - AUG 99, GRND

TAKE TIME TO WAIT!

Train crossing safety
TSgt Mike Ruikka - MAY 99, GRND

TAKING CARE OF OUR OWN

The dangers of suicide and how to help
Chaplain Thomas Azar - SEP 99

TEMPLATE FOR SUCCESS

Using the new ACC ORM worksheet
Col James Stanley - JUL 99

TERROR ON THE TARMAC

F-117 "meltdown"
Capt Clint Hinote - NOV 99, FLT

THE CORE OF THE MATTER

Practicing AF core values
Chaplain Thomas Azar - AUG 99

THE LINGERING PAIN OF SUICIDE

An AF widow's testimony
Mrs. Keele Santiago - FEB 99

THE SCHOOL OF HARD KNOCKS

Bicycle safety the hard way
Anonymous - MAR 99, GRND

THINK FIRST, THEN ACT

Good maintenance practices
TSgt Luis Ayala - AUG 99, GRND

THUMBS UP FOR WEAPONS SAFETY

"Extra set of eyes" can prevent a mishap
TSgt Donald Felch - OCT 99, WPNS

TO DULL SWORD OR NOT TO DULL SWORD... THAT IS THE QUESTION

Helpful tips
MSgt Thomas Foster - FEB 99, WPNS

TORNADO

What they are and what to do
National Disaster Education Coalition - JUL 99, GRND

TO THE POINT

Comments from our readers
Editor - MAR 99, GRND

TOY SAFETY TIPS FOR THE HOLIDAYS

A buyer's guide
American Academy of Pediatrics - DEC 99

'TWAS A SAFE NIGHT BEFORE CHRISTMAS

Holiday ORM
Lt Col Thomas Arko - DEC 99, GRND

UNDERSTANDING AND HELPING THE SUICIDAL PERSON

Things we all should know
American Association of Suicidology - DEC 99

UNTIL ONE BLEW UP IN HIS FACE

ORM applies to all activities
SMSgt Paul Bell - JUL 99, GRND

USE OR LOSE!

Comply with tech data
TSgt John Heimer - JUL 99, GRND

WHAT'S AN AVIATOR TO DO?

Applying ORM to flight ops
Lt Col Mark Larson - SEP 99, FLT

WHAT'S AN IO TO DO?

Ways to help the investigation
Maj Tony "Mayor" Monetti - JUN 99

WHAT'S LURKING AROUND THE CORNER?

Surviving with seatbelts
Col Dave Williamson - NOV 99, GRND

WHEN 5 MINUTES BECOME AN ETERNITY

A divert fuel incident
Capt Chris Pirkel - OCT 99, FLT

WHEN SAFETY HITS CLOSE TO HOME

Bicycle helmet saves life
SSgt James Baker - SEP 99, GRND

WHEN ZERO DON'T MEAN NOTHIN'

Always follow the T.O.
TSgt (Sel) Shannon Defeo - JUL 99, GRND

WHERE'S MY SITE PLAN?

Submitting and tracking ESPs
MSgt Aaron Solomon - JAN 99, WPNS

WHY BOTHER WITH ORM?

Ensuring mission success
Maj Phillip Taber - SEP 99, FLT

WINTER PREPAREDNESS SAFETY TIPS

Countering winter storms and floods
Federal Emergency Management Agency - JAN 99, GRND

YOU DRINK & DRIVE, YOU LOSE

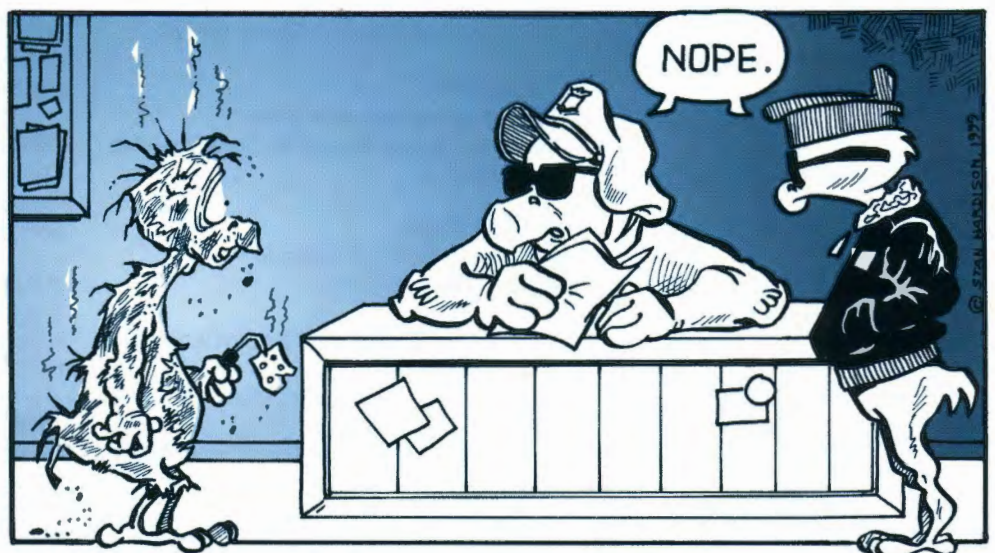
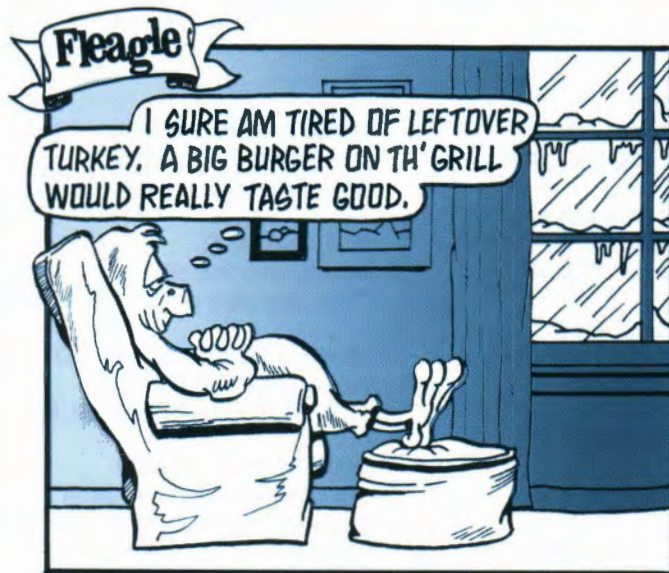
The impaired driving campaign
National Highway Traffic Safety Administration - DEC 99, GRND

1998 INDEX FOR THE COMBAT EDGE

Index of articles published
Editor - JAN 99

1998 SURVEY RESULTS

Evaluating our products
The Combat Edge Staff - FEB 99





Tips for Safe Winter Driving

*Reprinted with permission from the U.S. Department of Transportation
National Highway Traffic Safety Administration (NHTSA)*

The Three **P**'s of Safety Winter Driving:

PREPARE for the trip
PROTECT yourself, and
PREVENT crashes on the road.

PREPARE

Maintain Your Car: Check batteries and tire tread, keep your windows clear, put no-freeze fluid in the washer reservoir, and check your antifreeze.

Have On-Hand: Flashlight, jumper cables, abrasive material (sand, kitty litter, even floor mats), shovel, snow brush and ice scraper, warning devices (like flares), and blankets. For long trips, add food, water, medication and a cell phone.

Stopped or Stalled? Stay with your car, don't over exert, put bright markers on antennae or windows, shine dome light, and, if you run your car, clear the exhaust pipe and run it just enough to stay warm.

Plan Your Route: Allow plenty of time (check the weather and leave early if necessary), be familiar with the maps/directions, and let others know your route and arrival time.

Practice Cold Weather Driving!

- During daylight, rehearse maneuvers slowly on the ice or on snow in an empty lot.
- Steer into a skid.
- Know what your brakes will do: stomp on antilock brakes, pump non-antilock brakes.
- Stopping distances are longer on water-covered ice and ice.
- Don't idle for a long time with the windows up or in an enclosed space.

PROTECT YOURSELF

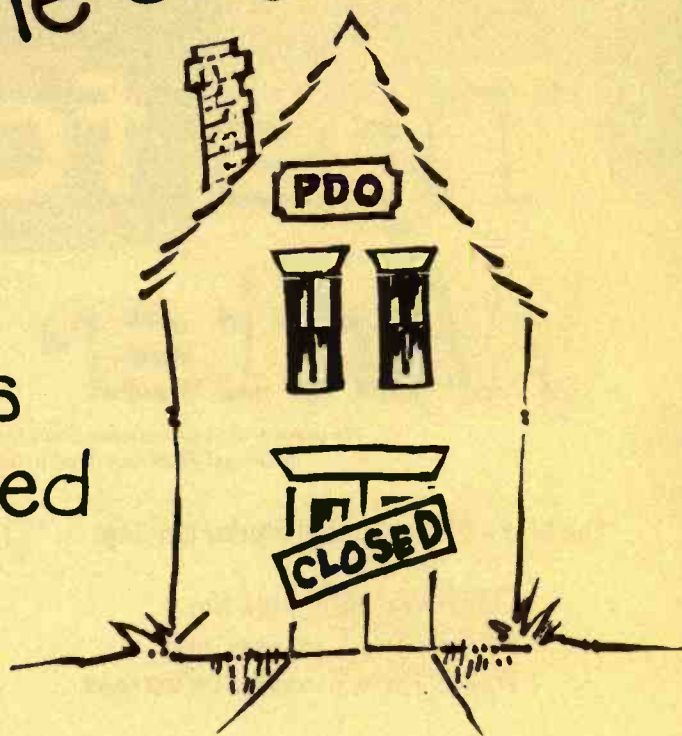
- Buckle up and use child safety seats properly.
- Never place a rear-facing infant seat in front of an air bag.
- Children 12 and under are much safer in the back seat.
- Sit back 10 inches from an air bag.

PREVENT CRASHES

- Drugs and alcohol never mix with driving.
- Slow down and increase distances between cars.
- Keep your eyes open for pedestrians walking in the road.
- **Avoid fatigue** — Get plenty of rest before the trip, stop at least every three hours, and rotate drivers if possible. ■

Not getting your copies
of the magazine anymore?

All Air Force PDO's
were officially closed
as of 1 Oct 99



To get your unit on our direct, U.S. Postal
mailing list, call or e-mail us at:

Commercial (757) 764-8846

DSN 574-8846

barbara.taylor@langley.af.mil

We'll need your unit's complete mailing address
(including 9-digit zip code), quantity requirement,
and POC name and phone number.

Happy New Year!