4 Post-Rescue Considerations
by Lt Col Maurice Salcedo, Seymour Johnson AFB, N.C.

7 Life Assurance
by Mr. Vincent Dotson, Barksdale AFB, La.

8 Forward Quarter Night Vid
by LCdr. Vic Weber

10 Taking the Next Step in ORM
by Lt Col Daniel Surowitz, Langley AFB, Va.

12 Over the Hills and Through the Woods
by CW4 Paul Gaudette, Florida National Guard

16 Tuskegee Airmen
Courtesy of the National Park Service

18 Avoiding Carbon Monoxide Exposure
Reprinted by permission of Safety Smart Magazine

26 RED HORSE Aids Keesler
by MSgt Kevin Owen, Hurlburt Field, Fla.

Departments

22 Monthly Awards
30 Stats
31 FLEAGLE
**ACCent on Safety**

**Bailout, Bailout, Bailout!**

The final decision to eject rests with you, no matter whether in a controlled situation, or in an out-of-control event. Almost every aircraft’s boldface comes down to ... EJECTION HANDLES — PULL, because when it’s time to go, there isn’t time to consult the checklist or Dash 1. While crewmembers practice writing and reciting the ejection boldface, they don’t often consider what work is done before, or what actions come after they eject. In this issue, Lt Col Salcedo discusses his personal post-rescue thoughts after his “orientation” mission; as a rescue event unfolds for the participants, it also involves first responders, public affairs, medical personnel, and others. Also, take a look at our back page before putting this issue down, as it’s dedicated to our life support professionals who work behind the scenes to make every ejection and rescue a successful one.

Take the opportunity to review Operational Risk Management (ORM) plans by Lt Col Dan Surowitz. He passes along lessons learned and 10 elements of successful risk management we’ve seen across ACC. Applying these lessons learned and sharing information is the key to keeping our Airmen safe, and the following link [https://wwwmil.acc.af.mil/se/ormexample.html](https://wwwmil.acc.af.mil/se/ormexample.html) contains several best practices from around the command. Check it out and see what you can use at your home station.

Finally, we are off to a great start for 2006. We went an entire quarter without a flight mishap; we’ve gone 21 quarters without a Class A weapons event; and our ground stats are on par with our best-year rate. Mishap reduction is hard work — it takes focused **leadership** at all levels, **training** to the right threat and not taking shortcuts, and involves **accountability.** Stay focused on the mission and make safety your **Combat Edge!**

Colonel Creid K. Johnson, ACC Director of Safety
There you are: On a CONUS peacetime mission with a catastrophic failure in your aircraft, which is unresponsive to all proper Dash One procedures and results in an ejection. The ejection goes smoothly. The post-ejection life support procedures are uneventful. You are basically OK medically and are boots-on-the-ground near an urban city. Now what? This article will address some of the post-parachute landing fall ejection experiences I had following a very similar incident. Also included are some ideas for safety officers or commanders who are responsible for training aircrew or Air Force incident response team members (both safety and medical personnel).

Ours is an information society. The local community emergency first-responders (i.e., firefighters, police, and ambulance) will each ask you a whole litany of questions (e.g., base of assignment, rank, full name, social security number, home address and home phone number, etc.). They will then broadcast any and all information you provided over their radios (see next paragraph). Wing safety offices should consider consulting local first-responders so a decision can be made about the minimum information that must be provided by downed aircrew members. All aircrew members then need to be briefed on this information release policy so they are ready in advance. I had to make these decisions on the fly. As a starting point, I recommend aircrew limit their on-scene initial information release to: base of assignment, aircraft type and call sign, military rank, last name, and last four of social security number.

Radio scanners are everywhere. Therefore, expect the press to be on scene very quickly, even possibly before local emergency first-responders. The press will push for an impromptu interview or comment. If you answer any of their questions, you might pre-empt the Air Force’s need for thoughtful press interaction or potentially compromise the Safety Board or Aircraft Incident Board’s respective missions. Your best bet is to sanitize your uniform (if your squadron does not fly training missions sanitized) and politely, but firmly, refer the press to your installation’s Public Affairs office.

The safety and medical personnel on the nearest Air Force installation’s incident response team might play a bit of tug-of-war over who has priority with a downed aircrew member. To avoid this, each base
Post-Rescue Considerations

by Lt Col Maurice Salcedo, Seymour Johnson AFB, N.C.

Photos by Staff Sgt Ben Bright
needs to clearly establish their incident response team’s priorities; it should be relatively easy. First priority should be for an Air Force flight surgeon to verify the Airman is or is not injured and to ensure all aviation physiological hazards are properly addressed. If the Airman is injured or an aviation hazard needs attention, the medical team will keep priority. If not, then the flight safety officer should gain priority to provide the Airman their safety privilege brief and capture the Airman’s initial testimony. Furthermore, I recommend each base’s incident response medical team is trained on the locations and capabilities of civilian medical laboratories in the communities surrounding that base. They also need to be comfortable using them. The continuing Base Realignment and Closure process makes it more and more likely a near-scene civilian medical facility might be the best option to collect the required blood and urine samples.

Cell phones are a blessing and a curse. Expect almost every member of the incident response team, both at the nearest Air Force installation and your home station, to have a cell phone. If the respective team leaders do not control cell phone usage, the whole incident response process can quickly devolve into too many phone calls and not enough action in a timely manner. In my case, most of the cell phone calls appeared to be asking for the same information from multiple levels in the chain of command. Other than the incident team leader, I recommend the other safety and medical responders turn off their cell phones until they have completed their piece of the response. A good policy is: Do your job first; talk second.

Finally, interaction with your home station can get a bit tricky. You will have to balance what level of information is or is not proper to release to your home station’s chain of command prior to the arrival of the Interim Safety Board personnel. You have several options for your first call back to home station: command post, supervisor of flying, or your squadron. I recommend your first call be made to your squadron commander, operations officer, or Top-3. Let them keep the chain of command informed until the battle staff is up and running. Once the home station battle staff is stood up, I suggest you then route your communications only through them. It was clear that my home station chain of command had a “need to know” about: my location and health status, the location and status of the aircraft, and any potential bio-environmental impacts (e.g., weapons, hydrazine, fuel, dropped objects, etc.). However, the natural human tendency to ask questions on the sequence of events and any potential causes could breach the Interim Safety Board’s sphere of influence.

These were some of the situations I encountered, which I had not thought a lot about or been briefed on prior to my ejection. Hopefully, this article will generate some discussions during your next Situation Emergency Procedures Training session or your base’s next Major Accident Response Exercise debrief.
Have you ever noticed the people around you? You know ... the ones that play Russian roulette? They are the people who get in their cars and drive away without fastening their seat belts!

The reality is that not wearing a seat belt is like playing a form of Russian roulette. Instead of people betting their lives against a bullet, they are betting their lives against other drivers' skills. They are also betting that they themselves won't make any driving errors. Those odds aren’t very favorable.

As we all know, human beings operate vehicles, and human beings are prone to making mistakes and errors in judgment. As long as this is the case, there will always be mishaps. This, in turn, means there will always be a need for each of us to protect ourselves while driving.

Most of us buy vehicle insurance to protect ourselves from financial loss in the event of an accident. We also have life insurance to protect our families from financial ruin in case of our death. We spend fortunes on fire, flood, earthquake, and even wind insurance. Despite taking these other preventative measures, many people still seem hesitant about doing the one thing that will protect them while in an automobile -- fastening their seat belts.

This one simple act is a cheap Life Assurance Policy. While seat belts won’t stop an accident from happening and might not keep you from being hurt, they can make the difference between minor injuries and a long painful stay in the hospital or an eternal stay in a cemetery. Take a couple of minutes right now to review your Life Assurance Policy. If you’re not using it, start today.
It was a typical strike sortie during a Western Pacific deployment. We had been spending an entire line period cleaning out an integrated air defense system (IADS) that had been beefed up recently. On this particular night, I was flying a suppression of enemy air defenses (SEAD) mission in section as wingman. The strike’s mission was to hit some targets to the north in two waves of attack. The Air Force had a package that was going to hit the target area first, to be followed by the Navy package. Our mission was to provide SEAD support for both strike packages. We were operating in the high altitude regime. My radar contract was to sanitize the low block. My radar coverage offered no information about my own ship altitude as the top of my coverage was 4,000 feet below our operating altitude at max range. In short, I had to rely on my flight lead, Link 4, Night Vision Goggles (NVG) aided eyeballs, radio-assisted ears and Radar Warning Receiver (RWR) gear for situational awareness about contacts at or near my altitude. As a radar-crippled former Gun School IP, this was not the position I enjoyed best but one I should handle easily.

I was flying a slightly stepped-up NVG wing off my flight lead’s left wing, and we were capping a good distance south from the target. The night was fairly dark with minimal illumination—just enough for decent goggle work.

It can be done if you are willing to die for it!
To my pleasure, the Link was 4.0 so I pretty much had the entire picture on my scope. I watched the Air Force hit the target on my Foward Looking Infra-Red (FLIR), and saw their package come off target as a “gorilla” on the Link. Anti-Aircraft Artillery (AAA) was sporadic in the target area, but I could see flak in the distance there exploding near our altitude. I could see occasional light AAA well below us. Needless to say, the blood was pumping a little more than usual. My blood pressure, was about to shoot higher.

At about 40 miles north of us, I saw a Link track file begin to separate from the rest of the Air Force package as it headed south. The Link track was about 45 right on my scope, and had about 45 degrees left target aspect. Just about any Intercept 101 course would define this as perfect collision bearing. Throw in the fact that the Link altitude of this track was exactly the same as mine, and you have a situation warranting further examination. I remember thinking, “Where does this guy think he’s going?” Flight Lead didn’t say anything about having radar contact on this track. I assumed he did, and was saying nothing because his radar was showing the track altitude as no factor. Link track altitudes frequently do not reflect reality, so I thought this was likely the case. Meanwhile, the contact had closed to about 20 miles, still on perfect collision bearing.

At about 10 miles, I couldn’t stand it anymore and rolled up my radar elevation to take a look at this guy. I immediately got an Light Thermal Weapon Sight (LTWS) altitude hit that was the same as my own altitude, and noted a RWR spike from the bearing of the track. I asked Flight Lead if he had the guy 45 right at 6 nm, co-altitude. I do not remember any reply from Lead. At less than 5 miles, I did not have a visual yet and I recall “breathing forward” on my stick a bit just to change altitude. I got a tally on a totally “midnight” aircraft too late to do much more than say a quick expletive to myself. Lgot a Visual Identification (VID) on an F-15C passing directly over my canopy at less than 200 feet. Burned into my memory from that fleeting instant was a visual ID of the F-15’s shoulder station missile load.

Applying typical Navy compartmentalization, we finished the mission in support of the Navy package and flew back to the ship without giving it further thought. These Approach articles always seem to include the OK 3 wire and slider factor, but I have no idea how my pass went that night. (You can be sure the Landing Signal Officer’s (LSO) probably unjustly savaged my performance!) I guarantee I had a slider though!

On deck, I discussed the situation with Flight Lead, who had no idea how close the F-15 and I had come to impact. We learned later that the Eagle pilot had lost sight of his formation, and was attempting to rendezvous with us (hence the collision bearing). I learned some valuable lessons from the incident.

First, as communications that night were not clobbered, I had time early on to ask Flight Lead if he had the Link track. As it turns out, he did not have the Link picture at all; communication could have cued him to QC my Link track with his radar. He would have had the chance to maneuver the section if required.

Second, I waited too long to take a peek at the Link track with my own radar. I was applying disciplined TOP-GUN standard radar sanitization, which generally precludes peeking under most circumstances when operating as a section. However, my mission circumstances that night certainly warranted it. If I had taken a quick look at 20 miles, I would have had time to communicate with Flight Lead. Once again, he could have maneuvered the section as necessary.

Finally, although the F-15 was lights out, I have to admit that I could have picked up the F-15 visually sooner than I did. I know I was not scanning in the vicinity of the radar track as well as I could have been.

My closing words are these: We conduct thousands of sorties in various hostile AORs, year after year. It is a common belief among some of the experienced aircrew that we are more likely to lose airplanes in a midair collision than enemy fire in these areas. De-confliction by altitude block is a good thing, but must be adhered to with discipline. When something doesn’t look right, the old adage, “a peek is worth a thousand sweeps” certainly applies. Minimum communication is a good thing; it can even save lives. But this concept was inappropriately applied in the above circumstance. Finally, to the young guys, don’t assume your flight lead knows what is going on or is even doing his job. On a long mission we all can suffer lapses in performance. When in doubt, ask a question, sooner rather than later.
I have recently had the opportunity to observe and evaluate Operational Risk Management (ORM) programs throughout Air Combat Command (ACC) as well as other major commands. Programs come in all shapes and sizes and are managed to different levels of detail. Some units display thick binders of publications and PowerPoint slides, but demonstrate minimal understanding or application. Others have little or no documentation, but members display a thorough understanding and cite successful application of mission enhancing risk management principles. One observation is universal: The success or failure of ORM depends on the attitude of leadership and the ORM advisor.

There is an Air Force requirement to integrate risk management into all levels and all decision-making processes, yet there are varying degrees of how well units are accomplishing this. After scouring evaluations and reports, there are several key areas that set successful risk management programs apart. What follows is a list of 10 elements of successful risk management programs throughout ACC. These comments are intended for commanders and advisors at the wing level, but when tailored to unit needs, these techniques can enhance risk management programs at any level.

**Taking the next step in ORM**

Step One: Have a plan. The Air Force requires that commanders at all levels have an integration and sustainment plan, but there is little direction on how to put one together. Risk management plans don’t have to be lengthy, but successful plans do share common elements: leadership, training, and accountability. It is no small coincidence that these elements form the basis of the ACC Safety risk management plan. Engaged leadership may be the most critical factor. Leaders determine objectives, allocate resources, and advocate applications, legitimizing their use throughout the unit. Training gives people at all levels the tools to apply risk management principles to their part of the unit mission. Accountability addresses two sub-areas. First, it clearly defines responsibility of each level in the chain of command. Second, it addresses failure to fulfill those responsibilities. A good plan is the simplest way to communicate the commander’s plan for what is expected, and who is expected to do it.

Step Two: Appoint an ORM advisor and set expectations. ORM advisors frequently live in the Safety office, but this is not a requirement. Many ORM advisors are deputies or supervisors with the knowledge, skills, training, and ability to be effective leaders. The most successful ORM advisors are selected for their abilities—not their office symbol. This person also needs to know what is expected of them. These expectations may be communicated in a job description, a memo in a continuity book, or specified in a detailed ORM plan. The successful method is the one which clearly communicates the commander’s intent.

Step Three: Provide training. ORM training is included in Air Force Development Education courses at several levels, but it is not all-inclusive. Units must ensure that all individuals receive risk management training commensurate with their job and level of responsibility. There are Air Force training programs for all levels, including fundamentals, leaders, supervisors, and teachers. Training may be accomplished through base orientation, commanders’ calls, mass briefings, or, when required, in-residence attendance. The minimum acceptable standard for personnel trained in ORM fundamentals is 100 percent.

Step Four: Ensure risk management strategies and techniques are tailored to the unit mission. Risk management is not “one size fits all.” ORM strategy for building a flying schedule is not the same as one used for building a flight line maintenance training schedule or managing a base construction project or a unit deployment plan. Personal Risk Management (PRM) applies to all personnel, but the strategy may differ based on the age or military status of personnel or even contractual limitations. The key to this step is to ensure risk management supports the unit mission, rather than becoming an additional checklist requirement, which does not improve decision making or resource protection.

Step Five: Define and communicate acceptable and unacceptable risks. Our mission requires that we accept certain risks in order to accomplish that mission. We are also obligated to not accept unnecessary risk. The Air Force is filled with individuals dedicated to accomplishing their mission and demonstrating their ability to accept more responsibility. At the same time, flight and ground safety mishap reports are filled with cases of individuals taking unnecessary risks in the name of mission accomplishment or failing to inform appropriate level supervisors when doing so. There are no absolutes (except possibly Step Six), but the most successful ORM strategy provides clear guidance to all supervisors dictating the level of risk acceptance, and clear guidance on when to go to the next level in the chain of command.

Step Six: Address compliance with directives. This is a basic principle, yet it is absent from many plans and far too common in mishap reports. Published guidance simplifies decision making in most routine tasks. Failure to follow technical orders, Air Force Instructions, speed limits, and seat belt or alcohol laws usually indicates a conscious decision to take an unacceptable risk.

Step Seven: Provide resources. Risk management programs do not require additional funding, but they do require the time and effort of all those involved. Risk management decisions may require spending money to implement controls. Sound risk management requires an investment of time and perhaps money to preserve resources in support of the mission. A successful program acknowledges that risk management will compete for resources on an equal basis—support of the mission—and, when necessary, provide those resources.

Step Eight: Regularly monitor progress. The final step in the six-step ORM process is to supervise and review. Periodic program review ensures that good risk management programs don’t wither with a change in oversight, and that plans continue to support leadership and mission changes. Periodic review also helps maintain program priorities and supports resource allocation decisions.

Step Nine: Maintain documentation. In addition to the basic plan, document training and any periodic reviews. Any risk management actions taken, discontinued, or formally assessed should be recorded.

Step Ten: Anticipate change. If your entire risk management program consists of an average checklist to fill out at step time, then your program is static. A dynamic program addresses future scheduling, incoming deployments, construction, and changes in personnel or mission. A successful risk management program identifies hazards and implements control measures before they become mishaps or lost opportunities. We know what we are doing now. The question we must ask is: “How do we prepare for what we are doing next?”

In summary, let me provide a word of caution. These steps are not a substitute for Air Force Instructions or published guidance. They are not necessarily listed in order of importance. Successful risk management is a commander’s responsibility. It is also important to remember that risk management is actually a process, not a program. The key is to enhance mission accomplishment through effective risk management, not to create additional duties with a requirement for another program. By effectively integrating risk management into all decision-making processes, and by tailoring risk management strategies to mission needs, we will enhance mission success, preserve resources, and take risk management programs to the next level.
Over the hills and through the woods

by CW4 Paul Gaudette, Florida National Guard
y story starts on a beautiful winter day in 1970. I woke up on this day very early because: It was Christmas; I was visiting my father in Massachusetts; and we were going tobogganing. I was 10 years old and life could not have been much better.

I always looked forward to wintertime in the northeast, largely due to all the winter sports that were available. At this tender age, I knew nothing of terms like risk management, preventive maintenance checks and services, risk assessment, or any of the other terms we use on a daily basis in the military. As it turns out, I found out at an early age what happens when you don’t apply those principles to everyday event planning.

I remember getting up before everyone else, dressing, eating breakfast, and then jumping on my father to wake him up so we could get going. As the rest of the group slowly got ready, I waited patiently by the car. Finally, everyone piled into the car and we were on our way: all eight of us crammed into the family station wagon with the toboggan strapped to the roof.

When we arrived at the hill of our choice, we all jumped out of the car and began getting the toboggan off the roof. It was a miracle we didn’t kill someone in the process! For those of you unfamiliar with a toboggan, it is basically an oversized sled, and ours was about 8 feet long and weighed somewhere around 100 pounds. There was enough space to fit all eight of us, and then some. The only major difference between a sled and a toboggan is the toboggan has a steering wheel in the form of a bicycle handlebar.

After we finally got the toboggan on the ground, we all participated in pulling it up the hill, which seemed at least a mile high. When we got to the top of the hill, we all piled on with my father at the wheel.

At first we went screaming down the hill, all laughing and having a great time. This went on for a few hours until some of us got tired, the first being my 5-year-old brother. He agreed to stay at the bottom of the hill and watch as everyone else continued to have fun.

After a while, my father said the next run was going to be our last run. When we got to the top, we pushed extra hard to get a good start and again went screaming down the hill. Since we had pushed so hard at the top, we carried more speed at the bottom and ended up going a lot further than we
had gone before. Unfortunately, the bottom part of the hill was very icy, and my father lost control of the toboggan. And there, directly in the path of that out-of-control beast, was my little brother.

Even though my father frantically tried to steer away, yelling for my brother to move, we slammed right into him. I expected to see my little brother go flying through the air as we hit him, but instead he stuck like glue to the handlebar and was dragged for a while until we finally stopped.

All of us were in a panic because it appeared as though the handlebar had gone right through my brother's head. There was blood all over the place. I thought he was dead.

As it turned out, the handlebar had penetrated the pile cap my brother was wearing, but only gashed his head. Thankfully, he was not badly hurt. One hospital visit and a few stitches later, we were on our way home.

There were many lessons learned from this accident. If proper pre-mission planning had been used by my father, he would have taken a couple more adults with him to help supervise all seven children. My father should have also conducted a proper safety check of the equipment. The steering handle had a grip missing, which is the reason my little brother was injured the way he was. And last, but certainly not least, my father never should have allowed my brother to be anywhere near the path of the toboggan. He never would have been hurt if he had been in a safer location.

As you can see, if my father had taken just a few simple safety steps that day, the outcome of our otherwise fun-filled day would have completely changed. I think my father realized what had gone wrong that day because the toboggan was fixed that same day, and he never again took any of us out for rides by himself.

I learned a valuable lesson that day about Personal Risk Management (PRM) principles. None of us that were sledding that day had properly assessed the situation ahead of time or considered the possibility of anything going wrong. Had we done so, we might have taken a different path down the hill that didn't put my brother in danger, worked out emergency procedures to roll off the toboggan, or just have called a “knock-it-off” and not taken that last trip down the hill. “Know when to say when,” to avoid “pressing your luck,” no matter what the activity; use those natural pauses to reflect and evaluate whether it's smart, or safe to continue on, as that's when mishaps tend to occur.

Instead of taking my brother's cue to call it a day, we pressed on, headed for disaster, because nothing had gone wrong up to that point. PRM principles didn't exist by name back in 1970, but common sense did, and our sledding accident could have been avoided by simply taking the time to apply a little common sense/PRM. My father didn't hit my brother on purpose; it happened because he thought he had everything under control and found out too late that he didn't.

What is the cost of being wrong? Take a look at the whole picture when you're doing something, and consider the cost if something unforeseen happens. If you don't want to pay the consequences, find a way to do it safer and smarter to reduce the chance of a mishap, because sometimes the payoff of making one more run isn't worth the risk.
Either called the “Red-Tail Angels” by the appreciative bomber crews, or the “Schwarze Vogelmenschen (Black Bird Men)” by their enemies, the Tuskegee Airmen’s combat record speaks for itself: 15,500 missions flown, destroying over 260 enemy aircraft, sinking 1 enemy destroyer, and demolishing numerous enemy installations, while never losing a bomber to enemy fighters. In recognition, the Tuskegee Airmen were awarded numerous high honors, including Distinguished Flying Crosses (approximately 150 of the 450 overseas-deployed pilots received this honor), Legions of Merit, Silver Stars, Purple Hearts, the Croix de Guerre, and the Red Star of Yugoslavia. A Distinguished Unit Citation was awarded to the 332nd Fighter Group for “outstanding performance and extraordinary heroism” in 1945. Today, “Tuskegee Airmen” refers to all who were involved in the “Tuskegee Experiment,” the Army Air Corps’ program to
train African Americans to fly and maintain combat aircraft. More than 10,000 African American men and women in military and civilian groups supported the effort serving as flight instructors, officers, bombardiers, navigators, radio technicians, mechanics, air traffic controllers, parachute riggers, and electrical and communications specialists. Having proven themselves in combat, they earned the respect of fellow bomber crews and military leaders.

The experiment confirmed that African Americans could fly and maintain sophisticated combat aircraft, and their achievements proved conclusively that the Tuskegee Airmen were highly disciplined and capable fighters. The Tuskegee Airmen’s achievements, together with the men and women who supported them, paved the way for full integration of the U.S. military.

*Courtesy of the National Park Service*
Carbon monoxide (CO) is an invisible, odorless poison. It’s so hard to detect without monitors that it kills hundreds of people in their homes and on the job every year.

Organic materials such as wood, oil, gasoline, and coal produce CO when they burn in an area with a limited supply of air or oxygen. CO is also generated when a flame contacts a surface that is cooler than the flame gas’s ignition temperature. CO can be found in foundries, blast furnaces, mining, gas works, refuse plants, and such processes as chemical synthesis, carbide and formaldehyde manufacturing, and acetylene welding in enclosed areas. Many industries also use liquid CO, which comes in cylinders.

The most common source of CO is incomplete fuel burning — often from a motor vehicle or a furnace — in an airtight building. That’s why CO is most dangerous in winter, when closed doors and windows eliminate natural ventilation. Since people can’t see or smell it, they inhale CO without realizing it. In small amounts, it can cause health problems; in large amounts, death can occur in minutes. That’s why it’s important to be alert to the risks of this deadly gas.

CO gas is so dangerous because it gets into the blood when it’s inhaled. Once there, it interferes with the blood’s ability to send oxygen to the tissues — including the heart and the brain — which can cause permanent brain damage or even death in the worst cases. It’s a double risk for pregnant women, because their blood can carry CO to the baby. While not as common, liquid CO is also hazardous. It is flammable and can cause frostbite-type burns if it comes in contact with skin.

The Occupational Safety & Health Administration lists CO in its table of air contaminants (29 CFR 1910.1000(a) Table Z-1). The permissible exposure limit is 50 parts per million (ppm) of air, or 55 milligrams per cubic meter of air, averaged over an 8-hour work shift. The American Industrial Hygiene Association believes short-term exposure for 15-minute periods shouldn’t top 400 ppm or 440 milligrams per cubic meter. Finally, the National Institute of Occupational Safety and Health says a level of 1,500 ppm is immediately dangerous to life and health.

Although CO is invisible and odorless, there are various sensors for work and home environments that can detect and measure its presence in the air and alert you when levels are dangerous. When there are no detectors, it’s important for everyone to know the following symptoms that can be caused by CO poisoning:

- Headache
- Nausea
- Dizziness
- Roaring in the ears
- Weakness
- Rapid breathing and pulse
- Confusion, irritability, and impaired judgment

While these symptoms are similar to those for the flu, there are some distinguishing signs. CO poisoning victims have pale skin when they first inhale the substance. As exposure continues, the skin turns red. Since CO exposure can aggravate heart disease (as well as anemia and respiratory illnesses), those affected might experience chest pains.

CO exposure symptoms may develop faster and get worse in the following situations:

- High temperatures
- Smoking (This raises the blood’s CO content, so smokers may feel the effects of CO inhalation earlier and more severely than nonsmokers.)
- Physical exertion
- High altitudes (There’s less oxygen in the air, which makes incomplete burning and CO production more likely. It also means less oxygen getting to your blood and therefore greater impact from CO.)

The first step in protecting yourself and others from CO exposure is to identify the equipment that could pose risks. When possible, enclose CO sources so the gases can’t be inhaled. To help ensure that fuels burn properly, heating systems and other fuel-burning equipment at home and at work need regular, thorough maintenance. Heating equipment leaks are a common source of CO poisoning.

Vehicles, the biggest source of CO, need careful maintenance too. Be sure they’re well tuned and burn fuel properly. Also look out for exhaust and pipe leaks and for body rot. Drivers have been overcome when exhaust leaked into the cab of a car or truck. If in doubt about your vehicle’s condition, keep a window slightly open at all times.

When vehicles are used indoors, including forklifts, the risks are higher for mechanics and drivers as well as people who work on or around loading docks.
forklift repair areas, etc. Take the following precautions:

- Vent gases out through an exhaust pipe when motor vehicles must run in enclosed spaces.
- Turn vehicles off during loading or unloading or any time they’re not moving. They generate plenty of CO when they’re idling.
- Don’t warm up a car or truck in a closed garage or other enclosed space. It only takes minutes to be overcome by the CO in the exhaust.
- Be especially alert to CO dangers if you drive a forklift into a truck body or even a dead-end aisle. Fumes can quickly build up to dangerous levels.

Good ventilation is the best way to prevent CO buildup in these danger areas and other enclosed spaces. When doors and windows are closed or too far away to help, use general and local exhaust ventilation to keep CO at safe levels. Ventilation is especially crucial in small areas, where CO can reach high concentrations quickly. Ventilation systems also need regular inspections and maintenance. Before you run any CO-generating equipment, make sure ventilation motors and fans are running. Check hose and duct connections to make sure no holes or blockages could prevent proper ventilation system operation.

Sometimes ventilation can’t provide enough protection. If detectors measure unsafe CO levels, or if you can’t judge the amount of CO in the air, you’ll need a supplied air respirator. You’ll also need personal protection equipment that prevents skin and eye contact when working with liquid CO. Equip yourself with impervious clothing and gloves, a face shield, and splash-proof safety goggles.

One of the best protections against CO poisoning is to react quickly to any signs of exposure. That’s critical, since you can’t see or smell CO and it can hit quickly and severely. If you or a coworker experience any symptoms that could result from CO exposure, report the problem immediately so others can be protected. Then move to fresh air. A few minutes in fresh air will usually relieve the milder symptoms of CO exposure. Administering pure oxygen can help the body get rid of the CO more quickly. A CO inhalation victim who isn’t breathing must have artificial respiration and immediate medical attention. Even without such dramatic symptoms, it’s wise to get medical attention if you’ve inhaled CO. If you have suffered the effects of CO inhalation, your body will probably need a day or two of bed rest to recover.

If you work with liquid CO, avoid exposure by treating it like any hazardous chemical. Check the label and Material Safety Data Sheet for hazard and protective information. Store cylinders properly in areas equipped with CO detector alarms. It’s also important to check CO cylinders regularly for leaks. If you do detect a leak, report it immediately. Then evacuate while trained personnel, equipped with protective clothing and respirators, handle the problem. They’ll ventilate the area to disperse the gas and shut off any ignition sources to prevent a fire. Then they’ll either stop the leak or take the leaking cylinder outside for repair. If you have skin contact with liquid CO, remove any contaminated clothing immediately and thoroughly rinse the skin.

Carbon monoxide has been called the silent killer, but most overexposure can be avoided. Keep all vehicles, heating systems, and other combustion-producing equipment in top condition. Operate this equipment only in well-ventilated areas. And don’t ignore or brush off symptoms of CO exposure. It could be the flu or it could be CO poisoning. Get to fresh air immediately. Then find out if CO caused the problem and take action to ventilate the area and fix the equipment so it doesn’t put you or anyone else at risk.
Flight Line Safety
Award of Distinction

SrA Daniel Box, SSgt Joel Black and TSgt Robert Etters demonstrated outstanding attention to detail, expert technical knowledge, and exemplary judgment in detecting and fixing an engine fuel leak. SrA Box was accomplishing the duties of ground supervisor during an F110-GE-100 engine idle operation on an F-16C aircraft. During the engine run, SrA Box noticed a mist emanating from the engine exhaust nozzle. He directed the engine run operator to shut the engine down immediately, and upon shutdown, SrA Box found a 10-inch wide streak of fuel at the 3 o’clock position on the exhaust duct liner and exhaust nozzle. SrA Box notified his production superintendent and contacted the Propulsion Flight to help investigate the fuel leak. TSgt Etters and SSgt Black were dispatched from the Propulsion Flight to the flight line to troubleshoot the fuel leak. Their efforts to determine the source of the fuel leak were hampered by the rate at which the leaking fuel was evaporating, as the fuel was no longer visible on the exhaust nozzle or duct liner within 20 minutes of shutdown. SrA Box, TSgt Etters, and SSgt Black were able to determine that the leak source was not from an augmenter spray bar, but from either a faulty fuel nozzle or the fuel nozzle manifold. They used a flex scope to isolate the leak to a fuel nozzle barrel nut. Maintenance personnel removed the engine and sent it to the engine back shop for repair. Engine shop personnel removed the engine sump cover and confirmed that the barrel nut was broken, allowing the number one fuel nozzle to migrate forward and spray fuel into a non-combustion section of the augmenter exhaust. A fuel leak of this magnitude typically causes an engine fire resulting in significant damage. The actions of SrA Box, TSgt Etters, and SSgt Black clearly saved an Air Force combat asset.

TSgt Robert B. Etters, SSgt Joel E. Black, SrA Daniel G. Box
27th Component Maintenance Squadron
27th Fighter Wing
Cannon AFB, N.M.

Weapons Safety
Award of Distinction

SSgt Gonzales passed a munitions flight line delivery driver pulling two MHU-141 trailers loaded with captive 9M missiles heading from the Munitions Storage Area to the Holding Area for Munitions Storage. As he passed by the munitions trailer, he noticed the odor of burning brakes. SSgt Gonzales immediately turned around and instructed the driver to pull over. He instinctively performed a thorough examination of the vehicle and trailers and determined that both rear wheels on one of the munitions trailers were on fire. SSgt Gonzales took immediate action to contact Munitions Control, which then notified the Fire Department and Security Forces. He further assisted in cordonning off a 300-foot safe zone. SSgt Gonzales’ alertness and outstanding efforts averted possible injury to personnel, and potential catastrophic damage to critical Nuclear Certified equipment. His swift actions saved $183,000 of already limited aircrew training assets from damage.

SSgt Martin G. Gonzales
355th Equipment Maintenance Squadron
355th Wing
Davis-Monthan AFB, Ariz.
During a recent Operation ENDURING FREEDOM combat sortie, the crew of Havoc 21 successfully supported ground troops in contact with the enemy despite the loss of both primary attitude reference systems. En route to the AOR, the attitude warning flag came into view on the copilot's attitude indicator (ADI) alerting him to a discrepancy between his ADI and the pilot's ADI. The copilot quickly cross-checked the standby ADI, confirmed his attitude reference was in error, and immediately switched to his backup attitude source, which also serves as the primary reference for the pilot's system. The crew continued the mission with both pilots periodically cross-checking the small standby ADI located well down on the instrument panel by the pilot's right knee. Once established on station, the crew was notified of troops in contact and immediately proceeded to the area to render assistance. The Joint Terminal Air Controller (JTAC) directed the crew to perform a show of force to influence the tactical situation on the ground. While descending for the mission, the pilot team observed "OFF" flags on both primary ADIs, indicating that the aircraft's only remaining primary attitude reference system had also failed, leaving only the standby ADI for attitude awareness.

Although the B-52 is primarily an IFR airplane, the crew utilized Night Vision Devices to visually avoid terrain while maintaining attitude with the tiny standby ADI. The JTAC reported that the crew's show of force had produced the desired effect and significantly aided coalition ground forces. With their task complete and at BINGO fuel, the crew returned to base. Approximately 50 to 75 miles from base, the crew penetrated thick weather using only the standby system before regaining visual references. The aircrew's thorough knowledge of aircraft systems and utilization of other on-board systems led to safe mission accomplishment and successful support of coalition ground forces, despite the loss of both main attitude reference systems.

Capt Jeffrey "U" Rivers was returning in his F-15 from a routine 3-ship sortie. As he was accomplishing his battle damage assessment check, smoke began pouring into the cockpit from behind the Vertical Situation Display. A quick glance inside the cockpit showed off flags in all of his primary flight instruments and "MPCD Bus Failure" on his Multi-Purpose Color Display (MPCD). He lost automatic pitch control, and TOT TEMP HI, L GEN, PITCH RATIO, and EMER BOOST ON were all illuminated on his caution panel. He quickly set his oxygen diluter lever to 100 percent and ran the electrical fire checklist. It appeared that this helped to alleviate the influx of smoke into the cockpit, but he was still without any working primary flight instruments. He notified the supervisor of flying of his situation and completed another battle damage assessment with his wingman.

He then elected to fly off of his wingman for a straight-in formation approach to compensate for not having any primary cockpit airspeed indications. At 300' AGL, his wingman executed a low approach and Capt Rivers flawlessly completed his landing without the use of any primary cockpit instruments or normal pitch compensation. His quick thinking and thorough checklist application allowed him to handle a myriad of emergencies at once and bring the aircraft home safely.
The 3rd Weather Squadron (3 WS) made significant contributions towards flight mishap prevention and resource protection in support of Fort Hood Army Installation. The 3 WS integrated ACC, AMC, and Army safety programs into a comprehensive and robust squadron safety program. With available manning at only 59 percent, 3 WS skillfully managed personnel to provide exceptional support to flight operations and resource protection to the Army's III Corps, 4th Infantry Division (4 ID), 1st Calvary Division (1 CD), 21st Calvary Brigade, and National Guard/Reserve units in-training. The 3 WS also supported the Homeland Security Operations Center (HSOC) and 1 CD Tactical Operations Center (TAC) Integrated Support Operations (ISO) Hurricane Rita relief efforts. The 3 WS provided briefings to the III Corps HSOC/1CD TAC that highlighted weather impacts to resources and flight operations based on Rita's projected strength, movement, and damage potential, as Rita initially targeted Fort Hood. These briefings were leveraged by the III Corps CC and HSOC staff to develop an ORM "timeline for actions," to not only safeguard Fort Hood's 60K permanent party and TDY populace, but to simultaneously determine "safe-havens" to preposition rapid-response aviation assets at the closest/safest airfields. Forecasters' spot-on timing allowed ground convoying forces the safest, fastest route to the area of operations so aerial recon operations could begin immediately.

ISO JTF Rita, the relief mission in Texas/Louisiana, both the garrison TAC and the two-person deployed team supported 24 rotary wing aircraft, generated 190 weather observations and 48 flight weather briefings, aiding the successful execution of 45 rescue missions. They also contributed to the successes of force protection, convoy security, relief, and MEDEVAC flights with zero weather related mishaps. The 3 WS tackled these monumental tasks while supporting AMC aircraft deploying troops ISO Operation IRAQI FREEDOM and earthquake relief in Pakistan. At this same time, 3WS deployed a five-person team of their own to provide flight weather support and resource protection to deployed 4 ID aviation forces.

**ACC Safety Salutes**

**Superior Performance**

**Capt James R. Bartran**
T-38A Instructor Pilot
1st Reconnaissance Squadron
9th Reconnaissance Wing
Beale AFB, Calif.

**MSgt Chalmer M. Addison**
Lead Production Supervisor
2nd Aircraft Maintenance Squadron
2nd Bomb Wing
Barksdale AFB, La.
Sgt Bettag is a vehicle and chemical safety expert! SSgt Bettag demonstrated superior performance in the squadron's National Training Center (NTC)-Iraqi equipment "quick-turn" in which equipment that had been deployed to NTC had to be quickly "turned around" to prepare it for cross-oceanic deployment to Operation IRAQI FREEDOM (OIF). This high-tempo operation was one laden with mishap opportunities yet the unit experienced no mishaps in this high-threat environment ... far exceeding the normal Army mishap rate in the same environment. SSgt Bettag's experience and knowledge with heavy-lift vehicles and HAZMAT protocols were essential in this effort. SSgt Bettag personally transported "Quad Con's" (1/4th of an Army "MILVAN") via 5-ton truck to the Army motor pool and connected the 5,000-pound metal containers without mishap. He personally operated the 6K forklift and supervised connection of quad-cons 100 percent injury free. While involved in this high-tempo, industrial environment, SSgt Bettag observed a dangerous situation with an Army soldier standing between two 5,000-pound quad-cons being joined together and directed another Airman to intervene ... all from the cab of his 6K forklift. The Army soldier was quickly removed from between the quad-cons preventing a potential fatality. During the pack out of equipment bound for OIF, SSgt Bettag ensured that lithium batteries were hermetically sealed and packed preventing reaction with any other HAZMAT materials. He also carefully monitored the purging of all the squadron's fuel cans and ensured that vessel shipping procedures were strictly followed. As a result, the unit's MILVANS passed U.S. Army and U.S. Coast Guard (USCG) inspections. The USCG Inspector was quoted as saying, 'Perfect paperwork'. An "old school" NCO, SSgt Bettag is always thinking 'Safety First'! He ensured everyone involved with loading Army MILVAN containers were wearing the necessary safety equipment. He briefed fellow workers on safety procedures and the incredible weight of the containers and he personally operated the 6K forklift. To round out his safety skill set, SSgt Bettag is qualified as a Combat Lifesaver Airman. He gained experience providing emergency first-responder care at NTC several times for cuts, dehydration, heat stress, and so on. Additionally, he also has demonstrated safety administration skills. He maintains the squadron's Material Safety Data Sheets (MSDS) and keeps them up-to-date — a total of 60 which requires a meticulous attention to detail. In fact, the U.S. Army HAZMAT inspector passed on compliments for the unit's MSDS paperwork that accompanied our quad-cons.
More than 90 823rd RED HORSE Squadron members deployed to Keesler Air Force Base, Miss., to support Hurricane Katrina recovery efforts on August 30. These combat engineers usually build combat support facilities in far off, austere locations. This time they were putting their many diverse skills to work right here in the United States. "I never thought I would be doing work like this..."
here in the States, but it feels great to help my fellow Airmen get back on their feet," said A1C Mike Elliot, a structural maintenance specialist turned chainsaw operator.

The squadron was put on standby just hours before Hurricane Katrina made landfall east of New Orleans, La., early on August 29. The advance team left for Keesler as soon as the operation was a go. Since that time, more than 40 convoys have made their way to the storm-ravaged area. RED HORSE had deployed 91 Airmen and 1,100 short tons of heavy equipment and supplies.

"The advance team did a great job of working with the Keesler folks and prioritizing where we would go to work," said SMSgt Paul Johnson, 823rd RED HORSE heavy equipment superintendent. "It allowed us to get the first piece of heavy equipment on its way to a job site within 30 minutes of its arrival."

Although there was a great deal of coordination, RED HORSE Airmen were working independently of Keesler’s 81st Civil Engineering Squadron (CES). Most of Keesler’s civil engineers are civilians, so many were unable to come to work because of damage done to their homes and communities. The 81 CES also did not have the heavy equipment they needed to recover from Katrina’s wrath. Since the role of RED HORSE is that of a heavy lifter, that’s where they made their contributions.

The first job of RED HORSE was to ensure shelters and facilities were safe and as functional as possible. Once that was done, the squadron began putting the base’s damaged infrastructure back together.

Tons of debris – ranging from downed trees, parts of buildings, watercraft, and cars to bodies of cats, dogs, and wildlife – had to be removed from perimeter areas so the fences could be put back in place to keep looters off the base. According to TSgt Bill Lipscomb, a heavy equipment operator leading one of the debris removal crews, several hundred tons have been moved to a staging area to await permanent removal.

Clearing the commissary’s entire inventory required equipment from RED HORSE and a strong stomach. The commissary’s inventory was a total loss after the entire facility was filled with several feet of water from the storm surge. Two heavy equipment operators used two small bulldozers to simply push its contents (shelves and all) out into the parking lot. "The stench of rotting food mixed with other spilled commissary products was breath taking, but health and safety concerns forced us inside," said CMSgt Mark Lewis, RED HORSE’s number two man at Keesler. "The Keesler folks did not have operators or heavy equipment that could fit inside to get the work done quickly."

Keesler residents welcomed the assistance, and they were impressed by the results. "These guys are absolutely amazing. Every time you see a work crew with the red hats, you know the work is going to get done fast and the results are going to be outstanding," said TSgt Carl Sephus from the 81st Service Squadron.

The 823rd RED HORSE mission at Keesler AFB continued for at least another 2 weeks according to Maj Stephen Blake, squadron director of operations. Keesler’s 81 CES will be augmented with specialized civil engineering teams from around the Air Force so that recovery and rebuilding efforts can continue.
hen given the chance to go to Keesler Air Force Base, Miss., to cover the 823rd RED HORSE Squadron's deployment, I jumped at the chance. I had been stationed at Keesler AFB before and experienced some of the best times I've known throughout my 15 years in the Air Force there.

My journey started when I arrived at the RED HORSE compound at 5:30 a.m. Although I was offered a ride in a comfortable six-passenger, pickup truck, I opted to ride in the passenger seat of a tractor-trailer with SrA Obie Oglesby at the wheel. After he checked the several tons of lumber and building supplies on his truck, the convoy headed out with the rising sun towards storm-ravaged Keesler. SrA Oglesby and I talked about how satisfying it is to work in a great unit like RED HORSE. We also discussed how these relief efforts were especially gratifying because of the impact it was having on our Wingmen assigned at Keesler.

About 40 miles from Biloxi, Miss., on Interstate 10, I started noticing newly damaged trees. By the time we rolled into the city itself, every tree, sign, and building had significant damage. The damage was just as extensive when we rolled into the base; trees on top of buildings, buildings not where they used to be, and cars that had obviously been moved by the storm surge. The littered streets were so out-of-place from what I had known when I had been stationed there.

It took the convoy crew just 20 minutes to unload the heavy equipment and supplies from all six trucks. Shortly after that, I was taken to a job site where the RED HORSE Airmen were removing debris. They were using a backhoe we just brought in to hoist debris into dump trucks. Even in the heat and the stench left after the floodwaters receded, morale was high. Every RED HORSE Airman I spoke to was excited about helping with the recovery efforts. In just 30 minutes, I saw three dump trucks worth of debris removed.

In order to really see the impact of Katrina, I asked to go by the military family housing unit where my family and I had lived. The first thing I noticed was a pickup truck that had been deposited in the front yard of our old home. It lay against the downed giant oak tree that had provided shade for my children to play under during the humid summer days we had spent there. The house itself was empty, so I peeked in through where the windows used to be. Six inches of mud and a 5-foot-high watermark greeted me in every room.

We made our way back to the RED HORSE staging area just in time to see Marine One circling overhead. As SrA Oglesby and I took our place in the convoy headed back to Hurlburt Field, I could not believe we had spent less than 2 hours at Keesler.

On the return trip, the passenger side, front tire blew out on our tractor-trailer. Others in the convoy said the explosion lifted the front end of the truck a foot off the ground. We slid off the road and through the grass for a couple of hundred yards nearly hitting a huge highway sign before SrA Oglesby wrestled the truck to a stop. Trooper Randy Lewis, who responded from the Alabama Highway Patrol, said, "In 15 years on patrol, I have never seen skid marks and vehicle damage that bad from a blow out that did not result in a serious accident."

Although the accident added 3 hours to our day, the only thing RED HORSE Airmen were concerned about was how much it was going to take away from the ongoing hurricane recovery efforts.
**FY05 Aircraft**

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**Aircraft Notes**

ACC had another good month with no Class A mishaps and a lower than average mishap rate for December. We need vigilant stick actuators to prevent the higher mishap rates we usually see in January and February. Many units have had the luxury of liberal leave or reduced flying over the holidays. Take the extra time to review EPs and get back into the Dash-1 after your well deserved break. Keep up the great work and continue using ORM.

**FY05 Ground**

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**Ground Notes**

ACC experienced one fatal mishap in December. The mishap occurred when a member re-entered a burning home to retrieve a family pet. This unfortunate mishap was the fourth ground fatality in FY06. To date, the command has experienced three fatal mishaps resulting in four fatalities this FY. Two motorcycle mishaps have accounted for three of these four fatalities. Changing safety behaviors and eliminating risk is a message worth repeating, we need your help to remind fellow Airmen to act and make good decisions to keep themselves safe. These mishaps clearly show that we can never take safety for granted. Airmen engaging and leading others, and working together, can prevent mishaps.

**FY05 Weapons**

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**Weapons Notes**

During this period we had no Class A or B mishaps, although we had several other minor incidents that could have been prevented. Attention to detail and sometimes that second look can save you a lot of problems and money later. If something seems out of order, it probably is. Stay sharp and don’t fall into the old “we’ve always done it that way.” Have a safe new year!

**Legend**

- Class A - 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 $20,000 and $200,000
- *Non-rate Producing
Fleagle

Another day on the range.

These new night vision goggles (NVG)...

Is gonna let me see everything light and bright.

Fleagle, be advised of near-hit BDU's scattered near the target.

Well there ain't gonna be much left of 'em when I'm through.

Light... bright... oooh... bright...

He's been like this since we found him out by the range.

Blam! Boom! Woosh!
The Combat Edge dedicates this issue to the professional men and women serving in Life Support units across ACC. The loss of any aircraft is unfortunate, but the loss of its crew is tragic. Our cover contains a powerful safety message of confidence in our technology and our equipment. Ultimately, it is a testament to the training, skill, and commitment of our unit Life Support personnel who make it possible for crewmembers to fly and fight another day.