THE MOBILITY FORUM

THE MAGAZINE OF AIR MOBILITY COMMAND | SUMMER 2015

Critical Days of Summer 2015

Boats, Water, and Alcohol: a Deadly Cocktail

C-5M Super Galaxy Claims World Records

CONTENTS THE MOBILITY FORUM

ON THE COVER

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Hangar Flying, Yesterday and Today

By LT GEN BROOKS L. BASH
Vice Commander, AMC

In all my 34 years in the Air Force, safety has been at the forefront of my leadership emphasis. However, in those three decades, advances have been incremental and somewhat ad hoc due to the lack of a clear prescribed methodology for integrating disparate safety-related data and information. Indeed, I considered the primary proactive safety activity, until the last couple of years, was hangar flying.

In the early 1980's and before, there was significantly less collaboration between the crew and the all-knowing, all-seeing aircraft commander … that was a fallacy that led to mishaps. As a result, Crew Resource Management (CRM) was implemented within MAC. No longer did the crew sit idly by in silence hoping to avoid a foreseen disaster; instead, they were given the *duty* to intervene when witnessing a pilot error or improper action. Few in our Air Force today were in the cockpit during those seemingly dark days of aviation, but those who were will tell you the age of crew empowerment and the cultural shift in the cockpit that followed influenced much of how we fly, fight, and win today.

The most significant shortfall during the last three decades was an almost complete reliance on reactive safety analysis: an accident happens with loss of life or aircraft … we investigate … we make recommendations and add Warnings to the Dash-1. While somewhat effective, the Safety Investigation Board (SIB) process is retroactive and limited to previous accidents. Fast forward to a new millennium and the explosion of technology that gave us the ability to compile and decipher complex data. With such tools at our fingertips, we are developing safety programs such as MFOQA (Military Flight Operations Quality Assurance) to analyze flight data and proactively identify triggers for mishaps. Initially, gathering the precious data from outdated flight recorders in our aging fleet of aircraft was a challenge. For instance, at one time, we were only able to capture roughly 15 percent of data from C-17s; now we are able to gather 60 percent, and much more in other AMC aircraft. Using this data, we initially focused on unstable

A Special Tribute to a Visionary Leader

LT GENERAL BROOKS BASH, AMC Vice Commander, retires from the USAF in May after 34 years of outstanding service to the Nation. He began his military career as a 1981 graduate of the U.S. Air Force Academy. He has been an operational commander at the squadron, group, wing, and task force levels. The general served as the Deputy Executive Secretary for the National Security Council in the Executive Office of the President under the Clinton and George W. Bush Administrations. Prior to his current assignment, he served as the Director for Logistics, The Joint Staff. He also served as the Pacific Air Forces Vice Commander; and in 2011, he deployed as the Pacific Command Air Component Coordination Element during Operation Tomodachi, supporting the Japanese earthquake, tsunami, and nuclear radiation relief efforts.

General Bash deployed as Commander of the 4413th Air Refueling Squadron in support of Operation Southern Watch and as the Deputy Director of Mobility Forces in support of mobility operations for operations Enduring Freedom and Iraqi Freedom. In 2005, he was the Director of Mobility Forces for Operation Unified Assistance, supporting tsunami relief efforts throughout South Asia. He received the Bronze Star as Commander of the 321st Air Expeditionary Wing and the Coalition Air Force Training Team while deployed to Baghdad, Iraq.

In addition to his Bronze Star and logging more than 6,700 flight hours in 20 different aircraft, General Bash also earned the Air Medal and the Aerial Achievement Medal.

Not listed among his extensive and impressive accomplishments, however, is his unwavering dedication to the safety of all Airmen during his career. While at A3 many years ago, AMC's Ops RAMS model of proactive safety was but a vision for General Bash. But as Vice Commander, he put mighty muscle behind the vision to make it a reality. General Bash retires in May, but our tribute to this champion will be to carry on his safety legacy.

approaches—the number one cause of accidents—and today we have achieved a 50 percent reduction of unstable approaches in some units. We are still in the middle of a great journey to unlock or decode and comprehend the vast information before us to make changes, but we are seeing undeniable progress.

Simultaneously, we looked to the commercial aviation world and adopted a Safety Management System (SMS) that we call Operations Risk Assessment Management System (Ops RAMS). Among several integrated pillars of Ops RAMS is the Aviation Safety Action Program (ASAP) self-reporting, which relies on Airmen to voluntarily report mistakes, inaccuracies, or other challenges we face. Currently, despite flying over 200,000 sorties a year, we only receive about 800 ASAP reports a year. When compared to the 10,000 ASAPs a year received by a single major airline, we must seriously consider the lost opportunity. Although crew coordination philosophy in the cockpit has dramatically changed over the course of time, that cannot yet be said for our aircrew culture when it comes to filling out an ASAP report that could lead to potential life-saving policy or procedural changes. The answer? Culture change that equates ASAPs to hangar flying! Just think about the potential of a "there I was" vignette that is literally shared with every crewmember in AMC!

But Ops RAMS offers us even more! In conjunction with the Line Operations Safety Audit (LOSA), Aviation Operational Risk management (AvORM), and other proactive programs, the synchronized safety perspective these programs provide is quite revealing. Indeed, our LOSA efforts result in a formal Safety Investigation Board to analyze the findings and to recommend changes directly to the four-star, to policy, training, and equipment … how cool it is that we investigate BEFORE the accident! Airmen no longer fly in ignorance of life-saving knowledge like those who sat in a cockpit some 30 years ago. Instead, through analysis and integration of data and information, we are creating a new type of hangar flying that captures experiences and communicates to our aircrew the imperative to participate in a proactive safety culture for Airmen who will safely fly, fight, and win tomorrow.

French and U.S. pilots walk back to a hangar after sharing experiences gathered flying the C-130J Super Hercules at Orleans - Bricy Air Base, France. Two U.S. C-130s supported exercise Volfa 15-1 in order to develop and hone coalition skills.

USAF PHOTO BY SRA ARMANDO A. SCHWIER-MORALES

CRITICAL DAYS OF SUMMER 2015

MSgt Danell Hall, Special Operations Central Command intelligence superintendent, checks tire pressure and wear patterns before MacDill AFB's CDS joint operations check ride.

USAF PHOTO BY SSGT BRANDON SHAPIRO

By MR. WAYNE BENDALL
Occupational Health and Safety Manager

This year's Critical Days of Summer (CDS) campaign will run from 1600 hours on Friday, 22 May through 0700 hours Tuesday, 8 September. Our command slogan this year is **Make the Right Choices**. To kick off the campaign, we will feature a video with AMC/CC addressing how making poor decisions can result in accidents.

Poor decisions can have impacts that last a lifetime. The sad thing is the tragedies that often result could be prevented by putting a little more thought into the things we do each day, both on and off duty.

Throughout the summer, Airmen will be afforded the opportunity to participate in discussions dealing with a variety of scenarios and the choices that were made. In the process, those discussions will reinforce what being a good wingman means and emphasize the importance of making good decisions.

Being a good wingman is a lot more than being a drinking buddy. It is extremely important to (1) recognize when things are getting out of hand and (2) not be reluctant to step forward and intervene when the situation calls for it. After the fact, it is too late.

We lost two AMC Airmen during last year's campaign, one on duty and the other off duty. Better decisions could have prevented these tragedies.

Off-duty accidents are much more frequent. Many of those are motor vehicle accidents, which are often the result of poor choices like driving too fast, drinking and driving, and distracted driving. Following these poor choices with other poor choices, such as failure to wear seatbelts or motorcycle helmets, just compounds the problem and often results in fatalities.

The Air Force Safety Center is promoting these initiatives to help reduce mishaps.

- **Quest For Zero Campaign**, which primarily emphasizes on-duty safety and risk management. The belief is that a stronger, more powerful message regarding the on-duty work environment will be carried outside the installation borders to off-duty activities. The primary focus is that recognition of hazards is the first step in mitigation and risk management.
- **Air Force Combined Mishap Reduction System (AFCMRS)** is a tool that allows new commanders to get a real-world look at the safety culture within their organizations and allows them to see their Airmen's perceptions about safety. It replaced the Air Force Culture Assessment Tool (AFCAST).

  Additional info on these two initiatives can be found at **www.afsec.af.mil**.

Let's enjoy the summer, but remember that our safety matters to family, friends, and co-workers.

The AMC/CC video and other command initiatives can be found at **https://cs3.eis.af.mil/sites/OO-SE-AM-16/default.aspx**

Keeping the "Active" in Proactive Safety

By TIM GROSZ,
Ops RAMS Chief

Traditionally, aviation safety has been reactive—investigating an incident to prevent a future similar occurrence. However, several years ago, AMC took steps to preclude an accident from happening in the first place. Hence, the creation of the Operations Risk Assessment and Management System (Ops RAMS) team, which is proactively refining the tools and processes used to identify and mitigate operational risks across the Mobility Air Forces (MAFs).

After nearly four years, Ops RAMS is finally reaching full manning strength. Although we'll have some turnover with military positions in summer, we created two civilian positions. This allows Ops RAMS to expand our Military Flight Operations Quality Assurance (MFOQA) analysis capabilities and keep up with ASAP submittals. Last October, Gen McDew signed a memo supporting *Just Culture* and our Proactive Aviation Safety Programs. Here's an update on these programs.

ASAP Thanks to you, the Aviation Safety Action Program (ASAP) continues to gain momentum and effectiveness. We've increased from about one ASAP submission per day in 2014 to almost two per day in 2015. We're pleased that most submitters feel comfortable enough to provide their contact information; it is extremely beneficial if we need additional information to resolve an issue. As a reminder, ASAPs are "identity protected" but can be submitted anonymously. We take ASAP identity protection seriously; we will **not** release your information without your approval.

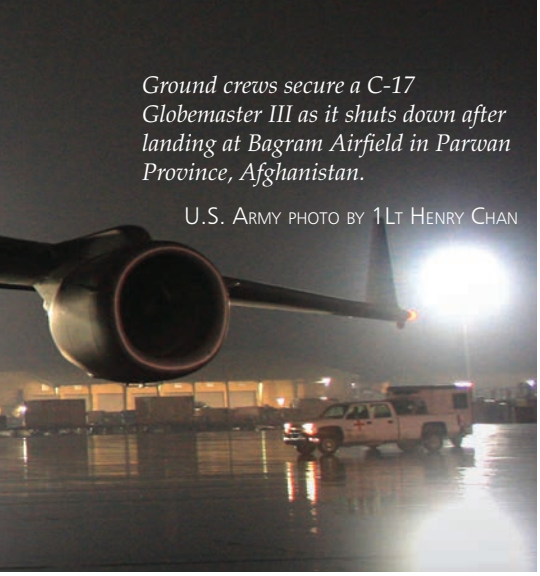
The ASAP website got a much-needed facelift, making it easier and more intuitive to submit a report. Also, the ASAP scoreboard can now be sorted to search for information by weapon system or airfield, which aids in pre-mission planning and provides discussion topics for training and/or hangar fly sessions. Please keep the ASAPs coming—even if it appears to duplicate someone else's input. A big part of ASAP is accumulating trend information to accelerate resolution. In many cases, we've influenced funding and/or expedient actions due to the volume of reports on a specific problem.

MFOQA We've focused on our Military Flight Operations Quality Assurance program compliance rate for good reason! As documented in the Flight Safety Foundation's *Flight Safety Digest*, approach and landing phase accidents account for 56 percent of the worldwide jet-fleet accidents and 44 percent of all the fatalities. Keep in mind, though, that the approach and landing typically span only 16 percent of total flight time. In addition, about two-thirds of approach and landing accidents and serious incidents had an "unstable approach" as a causal factor. Therefore, AMC's MFOQA analysis focuses on the probability (frequency) of unstable approaches, with the goal of mitigating landing phase risk—simply by reducing that frequency. Through the MFOQA process, unstable rates decreased across all weapon systems with only a slight increase in go-arounds from unstable approaches. Bottom line: we must continue reducing our unstable approach rates while increasing our go-around compliance when warranted, but we can only accomplish this with your dedicated attention.

We are also developing Flight Safety Alerts (FSAs). An FSA can be defined as "What makes the hair stand up on the back of your neck?" Besides

Maj Christopher Marriott and Capt Alexandra Trana, both KC-135 Stratotanker pilots from the 909th ARS, taxi behind several KC-135s during an elephant walk at Kadena Air Base, Japan.

USAF PHOTO BY SSGT MAESON L. ELLEMAN



Ground crews secure a C-17 Globemaster III as it shuts down after landing at Bagram Airfield in Parwan Province, Afghanistan.

U.S. Army photo by 1Lt Henry Chan

reducing unstable approaches, FSAs will help Ops RAMS analysts assess and mitigate the severity of a concern. We're working with subject matter experts in Training and Standardization and Evaluation to identify what constitutes an FSA for each weapon system (such as flaps or gear moved below 300', 10 knots slow on approach speed, GPWS/TAWS warnings not responded to, or a stall warning of more than three seconds). FSAs will be measured, analyzed, and trended with appropriate courses of action developed. Additionally, we offer unit-specific analysis by request—so far, we've accomplished these for about half of the MAF units. Our goal is to produce an analysis package for all MAF units at least twice a year.

LOSA We continue to conduct one Line Operations Safety Audit (LOSA) annually. Though no accident has occurred, each LOSA culminates in a Class E Safety Investigation Board so actionable findings and recommendations can be produced. LOSA studies are repeated every 3–4 years for each weapon system so previous findings/recommendations can be evaluated. We are completing our second LOSA on the C-17 flying community; results will be available later this year. Remember, LOSA observations are not evaluations! In fact, **NOTHING** ***whatsoever*** is recorded that ties you or your crew to the mission.

CRM/TEM With Crew Resource Management/Threat and Error Management (CRM/TEM), we've progressed to a Generation 6 CRM/TEM program comparable to some of the best in the commercial aviation industry. Upgrades include a new AMC Supplement to AFI 11-290, *Cockpit/Crew Resource Management Program* and the user-friendly AMC Form 4031, *CRM/TEM Skills Criteria Training/Evaluation Form*. This new form allows for better trending of CRM/TEM strengths and weaknesses. In addition, the Program Manager reviews all LOSA reports and ASAP submissions for CRM/TEM-related items so we can adjust training programs as needed.

Also CRM/TEM-related, you have probably been told to monitor the pilot flying (PF) as part of your pilot monitoring (PM) responsibilities but haven't received any techniques to accomplish this goal. Where are PM duties taught? What is a PM supposed to monitor during different phases of flight with different levels of automation engaged? The CRM/TEM Program Manager has established a PM Working Group to answer these and other questions.

WELL, GREAT! BUT HOW DO THESE PROGRAMS BENEFIT ME? **HOW AND WHERE HAVE THEY BEEN SUCCESSFUL?**

- We did not have any taxi accidents at Kandahar, Afghanistan, because AFCENT and ISAF (International Security Assistance Force) painted taxi lines and trained marshallers after **ASAPs** reported several near misses.
- Numerous **ASAPs** reported deteriorating Velcro that held the aircraft armor in place; this accelerated installation of the "L" brackets that replaced the Velcro. Thus, no aircraft became uncontrollable due to armor interfering with flight controls.
- At Grant County Airport, Washington, the tower routinely directed C-17s to make an immediate turn after completing a GOAT (Go-around After Touchdown) on the Assault Strip so as not to cross the primary runway. **MFOQA** analysis showed several aircraft were as close as 20 feet (wingtip clearance) to the ground during this turn. McChord AFB worked with the tower to cease issuing this clearance.
- A C-130J aircrew submitted an **ASAP** after an incident where the aircraft started to tip. During the review, we discovered weight limits were transferred directly from the C-130H, but the C-130J's additional pallet position creates a longer moment arm.
- We produced a C-17 Fuel System Safety Supplement because of numerous **ASAPs** concerning incorrect or blanking fuel gauges.

Ops RAMS has led to many improvements that reduced AMC mishaps. With your cooperation and participation in these programs, we can continue to make a difference. Keep sending us your ASAPs! Use the MFOQA products to enhance your knowledge. Ops RAMS is on your side—protecting your identity and working daily to keep our missions safe and effective!

AMC's $AVEings Plan

By DR. DONALD ERBSCHLOE
Chief Scientist, AMC

Much has been discussed about aviation fuel efficiency lately. How can you get the most bang for your buck? First, improving operations often just requires a change in procedures or protocol. The percentage of improvement is often low, but so are the costs and implementation time. Then, look at technological solutions. New engines or major modifications can be hundreds of thousands per aircraft (plus downtime while improvements are made), but fuel savings can be substantial.

But what if you could achieve significant fuel savings with minor changes at a very low cost?

Look to Nature: Creatures in the wild exploit conditions that give them an energetic advantage. Dolphins ride bow waves off ships, eagles circle in thermals to gain altitude, and geese fly in v-shaped formations to reduce their exertion while migrating. Early attempts to fly aircraft in formation for energy efficiency showed that you could save energy, but close range flights with fighters caused a white-knuckled workload for pilots.

About five years ago, the Defense Advanced Research Projects Agency studied this technique for large aircraft. The project enlisted experts from the Air Force Research Laboratory (AFRL), the C-17 Program Office, NASA, Boeing, and operators from HQ AMC, the 62d Airlift Wing, and the 418th Flight Test Squadron at Edwards AFB.

At the core of the program, called *Surfing Aircraft Vortices for Energy*, or $AVE, is a transfer of energy. In air refueling, energy is transferred from the lead (tanker) to the trail (receiver) in a chemical form—liquid fuel pumped through the boom. In $AVE, this energy transfer is mechanical energy from the motion and strength of lead's wingtip vortex. An object in flight churns up molecules and gases of the air as it travels. For a sharply defined edge, like the tip of a wing, the air curls up into a nice coil (the vortex) that persists behind the aircraft, sometimes for miles. Another aircraft in the updraft of that wingtip vortex gets free lift and a net energy gain because the engines don't work as hard. As a result, the aircraft can lower its angle of attack to hold altitude. The reduction in induced drag could exceed 40 percent—meaning a 15-20 percent potential drop in fuel burn!

On with the Show: The $AVE vision is to pair up when it makes operational sense. Early on, the project concentrated on the C-17, however, the concept applies to any

Photo: A C-17 Globemaster III from the 14th Airlift Squadron, Charleston AFB, S.C. releases flares over the Atlantic Ocean during a training mission. The "smoke angel" is caused by the vortex from the engines.

USAF PHOTO BY TSGT RUSSELL E. COOLEY IV

The reduction in induced drag could exceed 40 percent—meaning a 15-20 percent potential drop in fuel burn!

aircraft. Excellent computer models on which to hone the science existed, it had station keeping equipment (the Flight Formation System) capable of fixing a configuration to within 10-15 feet, and many aircrew were trained in formation flying procedures—techniques pilots would need to fly $AVE.

We came into the project with a list of "showstoppers." For us, $AVE had to be safe, not beat up the aircrew, not beat up the aircraft, make good operational sense, and make good business sense.

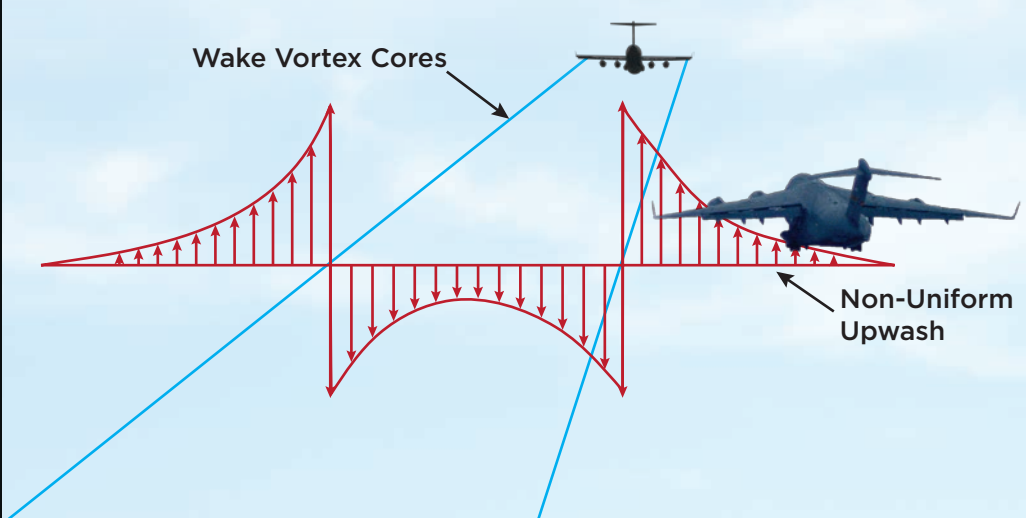
Safety: Almost every aircrew member who has flown close to another aircraft has been intimidated by the proximity and gun-trigger response time in case something goes amiss. This is not the case for $AVE—we want to fly this only during extended, non-maneuvering flight phases. The position of the trail aircraft is typically 4,000-6,000' back from lead, slightly to the outside of the wingtip vortex, and slightly lower than lead (see illustration below).

Effect on aircrew: Another concern was the tremendous workload. In $AVE, we use automation—the C-17's Flight Formation System maintains position, and the autopilot/auto throttles do the rest. Feedback from actual aircrew members during our operational tests is that the workload, vigilance, and stress are practically identical to solo flight.

Effect on aircraft: The closer you fly to the wingtip vortex, the rougher the ride. Wake encounters during low altitude airdrop sorties are typically at slow speeds, with aircraft configurations (e.g., flaps), and at low altitudes. But the vortex forces at high altitude, clean, and cruise speed conditions are reduced by about 75 percent. Detailed measurements during $AVE show low to no effect on airframe structure or engine wear and tear. At fuel burn savings in the 6-8 percent range, the ride is similar to light chop. Early results suggest you have more stress to the aircraft in a typical A/R or airdrop sortie.

Operations compatibility: We tested many normal operations during a $AVE pairing from Edwards to Hickam to Travis in July 2013. We simulated taking off from different bases, we flew at night using normal formation procedures, we flew oceanic routes, and we took copious aircraft system and instrument readings, as well as periodic aircrew workload and human factors surveys. Done properly, $AVE will be familiar to and comfortable for our aircrews and command and control system. We don't have many opportunities for C-17s to pair up because we purposely deconflict our missions. But we control the schedule. We can increase pairing opportunities with creative scheduling, timing, and routing—in fact, we are working on new mission planning tools that do this.

Business case: At first glance, $AVE is a bargain—around 10 percent savings by changing a few score lines of code in our autopilot and station keeping systems, done in a few hours before flight. However, we must account for the costs of training, changes to manuals, insertion into simulators, etc.



Next Steps and a Vision for the Future: The AFRL has a multi-year program to refine the $AVE software, determine how to incorporate $AVE procedures into simulator training, look at $AVE in other aircraft and dissimilar aircraft pairs (e.g., fighter drags), and develop alternative methods for station keeping. Meantime, we have asked the wings at Joint Bases Charleston and Lewis-McChord to explore opportune missions on which aircrews can familiarize themselves with $AVE principles and practices. Their feedback may accelerate AFRL's technical program.

The vision for $AVE is that when two or more aircraft are close together for extended, non-maneuvering flights, they should configure themselves to save energy. It only makes sense ... just look to nature!

A C-5M Super Galaxy from the 22d Airlift Squadron arrives at Travis AFB, Calif. early April 3, 2015. The flight, which lasted approximately one hour, claimed 45 aeronautical records, positioning the U.S. military's largest airframe as the world's top aviation record holder with a total of 86 world records.

USAF PHOTO BY KEN WRIGHT

C-5M Super Galaxy Claims World Records

By MS. RITA HESS, Staff Writer

As part of its mission for the "advancement of the art, sport, and science of aviation in the United States," the National Aeronautics Association (NAA) recently advocated a unique historical opportunity for AMC and the USAF. In a single flight, the C-5M had the opportunity to set 51 world records, positioning the Super Galaxy as the world's top aviation world record holder with 93 world records, beating both the An-225 (73 records) and the B-1B (at 83 records).

The flight was to be a one-hour 60 AMW training mission. Travis AFB would provide the aircrew, aircraft, fuel, loading, weighing, etc. Lockheed Martin and NAA required at least one member from each organization to fly in the aircraft during the attempt. The aircraft had to remain above 660,000 pounds (lbs) gross weight until all records were set, using one of two options.

Option A – 120 kilograms (264,000 lbs) – At this weight, the C-5M could climb above 9,000 meters and set 45 records. The challenge would be finding cargo dense enough but would likely include M-1s, Strykers, MRAPs, or other armored vehicles.

Option B – 100 kilograms (220,000 lbs) – At this weight, the C-5M could climb above 9,000 meters and set 41 records, which would achieve a tie with B-1B. Climbing above 12,000 meters

MSgt Matt Thomas, 22d Airlift Squadron Section Chief of Loadmaster Standardization and Evaluation, listens to his headsets and watches out the window during the preflight checklist aboard the record-setting C-5M Super Galaxy.

USAF PHOTO BY A1C AMBER CARTER

The inside of the C-5M Super Galaxy was filled with pallets, making the total weight of the aircraft 731,220 pounds.

USAF PHOTO BY KEN WRIGHT

Maj Jonathan Flowers, from the 22d Airlift Squadron at Travis AFB, Calif., piloted the C-5M Super Galaxy along with Lt Col Matt Jones, Mission Commander.

USAF PHOTO BY A1C AMBER CARTER

would set 51 records. The same payload challenge existed. This would require 36 pallets weighing approximately 6,120 lbs each or "pet rocks."

Attempting the flight would:

- Provide a unique historical opportunity to capture the most aviation records of any aircraft;
- Highlight C-5M capability to taxpayers and firmly establish it as the world's premier long-haul heavy lifter;
- Demonstrate C-5M efficiency and capability improvements; and
- Strengthen the USAF partnership with the NAA.

Preparing the aircraft began weeks earlier, and the flight was scheduled for April 3, 2015, at 0000 hours. The plan was simple: break the records while executing an unrestricted climb to altitude, and then return to base—taking about an hour from start to finish. Maj Jonathan Flowers, the most experienced C-5M Evaluator Pilot at Travis, having more than 3,200 flight hours, commanded this historic mission.

The result? Mission accomplished! The flight established standards in 45 previously unset categories.

"We took on approximately 265,000 pounds of cargo, and our goal was to climb as fast as we could at 3,000, 6,000, and 9,000 meters," said Flowers, 22d Airlift Squadron pilot for the flight. "We got up to an altitude of approximately 37,000 feet before we ran out of performance."

Among the records achieved were altitude in horizontal flight at 37,000 feet, altitude with payload of 265,000 pounds, time it takes to climb at 27.5 minutes, and greatest payload to 9,000 meters. The Super Galaxy has now unofficially claimed 86 world aeronautical records. All of us—the entire Air Force—can be proud of this accomplishment.

"The successful completion of this mission exemplifies both the great teamwork required by the whole team to keep Travis' aircraft flying and the fabulous strategic mobility capabilities the C-5M brings our combatant commanders around the world," said Col Joel Jackson, 60th AMW commander. "Thanks to everyone who contributed to this powerful showcase of Travis' culture of excellence."

STRESS? What Stress?

By MSGT JULIE MEINTEL
445 Wing Historian

"Stress" is not an especially useful term, at least for scientists, because it is such a highly subjective phenomenon that it defies definition. If you can't define stress, how can you possibly measure it? The term "stress," as it is currently used, was coined by Hans Selye in 1936, who defined it as "the non-specific response of the body to any demand for change."

Well, that clears things right up, doesn't it? Stress actually has several meanings, depending on how it is used. It can mean a physical or emotional reaction to an event; it can mean to test the strength of an object, or it can mean to worry or to fret about something. The kind of stress I want to talk about now, though, is heat stress. My purposely vague definition covers heat stress pretty well. There are a few different kinds of risks associated with sun and heat: there is the UVA/UVB ray damage like sunburn and even skin cancer, and then there are internal injuries like heat cramps, heat exhaustion, or heat stroke.

As aircrew members flying around the world, we are all susceptible to the whims of Mother Nature. Within the crew, you might think that loadmasters are most at risk for heat and sun related injuries. They spend a lot of time out in the elements, and pushing pallets can be pretty physical. But once the plane is loaded and takes off, they are protected from the rays and much of the heat of the sun. Pilots, however, sit right in the front windows and take the brunt of the damaging effects of the sun.

According to a study conducted by University of California at San Francisco and published in late 2014 in the Journal of American Medical Association Dermatology, pilots and flight deck crewmembers get as much exposure to cancer-causing UV rays in an hour-long flight as they would during 20 minutes in a tanning bed. In fairness, this risk

HEAT CONDITION CATEGORY CHART

RISK	TEMP*	RISK MITIGATION	HEAT INJURY SIGNS AND SYMPTOMS
White Flag MINIMAL	< 82 WBGT	Time to exercise! Drink water/sports drink before and after exercise.	Recognize early symptoms and take appropriate action to prevent serious heat disorders in yourself and others.
Green Flag LOW	82–84.9 WBGT	Drink at least 1 quart of water/sports drink every 20 minutes.	Recognize early symptoms and take appropriate action to prevent serious heat disorders in yourself and others.
Yellow Flag MEDIUM	85–87.9 WBGT	Take rest breaks during exercise and keep drinking fluids.	**HEAT CRAMPS LIKELY:** Painful contraction of muscles, weakness.
Red Flag HIGH	88–89.9 WBGT	Consider reducing workout intensity.	**HEAT EXHAUSTION LIKELY:** Dizziness, nausea, vomiting, headache, fainting, disorientation, weakness.
Black Flag EXTREMELY HIGH	> 90 WBGT	**Extreme Caution!** Exercise indoors in a cooler setting.	**HEAT STROKE HIGHLY LIKELY:** Extremely high body temperature, confusion, convulsions, unconsciousness, death.
CAUTION: If you are experiencing a heat-related injury, call 911 immediately! Move to a shaded area and treat for shock (lie down, cool body with cold compresses, and elevate feet).			

* Wet Bulb Globe Temperature

... pilots and flight deck crewmembers get as much exposure to cancer-causing UV rays in an hour-long flight as they would during 20 minutes in a tanning bed.

isn't limited to flyers; it also includes people who drive trucks or buses and spend long periods exposed to sunlight through vehicle windows. But pilots were a focus of the study, and some of the recommendations included sponsored skin cancer screenings and improved guidance for preventive care, like regular dermatologist appointments and wearing sunscreen every day. Dermatologists recommend wearing a broad-spectrum (meaning protection from both UVA and UVB rays) sunscreen of at least SPF 30 and reapplying at least every two hours spent in direct sunlight.

When the rays of the sun penetrate the flight deck windows, it creates a kind of greenhouse effect and traps heat inside the aircraft. It gets and stays hotter when the aircraft is at lower altitudes, such as below 10,000 feet; up higher, where the air temperature and relative humidity are milder, it's not as bad, but the risks are still there. The aircraft itself and the body heat of the crewmembers on the flight deck are also sources of heat; when the cockpit is full, you will notice it feels warmer and probably stuffier. With some aircraft in some situations, you can open windows and let air flow. However, that's not the case for the big airlifters like the C-17 or the C-5 up at altitude, so you'll have to figure out other ways to combat heat stress on the aircraft.

You can stay hydrated to compensate for moisture lost through sweating, and if you are wearing too many layers, remove them as you can. Use the temperature control and pressure systems to keep things comfortable, somewhere in the range of 60-85 degrees, where people tend to like it best. Check often with the crewmembers in the cargo compartment to make sure the temperature in the back is reasonable. When temperatures get too hot and there is no way to cool down, you can move into serious heat injury territory. Heat cramps, heat exhaustion, and heat stroke can all cause major damage and can even be fatal if not addressed. Pay attention to weather reports, humidity levels, heat indexes, and wet bulb globe temperature (WBGT). These all indicate the risk of heat injury, as well as what you can do outside in the heat and for how long.

So let's talk a little about the different types of heat injuries. Heat cramps are the least severe condition and the easiest to treat. This happens when you lose moisture and salt to sweat, and the salt loss causes painful muscle cramps, especially in the abdomen, arms, and legs. When you see someone exhibiting symptoms, take the person to a cool spot inside or in the shade and provide cool, clear liquids to drink. The person should stop working until a few hours after the cramps subside. Returning to work too soon could end up making it worse. And if the cramps don't go away within about an hour, call for medical help. Heat syncope is an episode of lightheadedness or dizziness, possibly including fainting, due to overheating. Someone showing these signs should go rest for a couple of hours out of the direct sunlight and sip on a cool clear drink like water or Gatorade.

When someone shows symptoms of heat exhaustion, things are getting serious. Signs include:

- Sweating profusely or acting confused
- Sudden extreme weakness
- Quick, shallow breathing
- Nausea
- Pale, clammy skin

This person needs help, as the body is reacting to an extreme loss of moisture and salt. He needs to rest in an air-conditioned spot; drink something cool, clear, and nonalcoholic; and take a cool shower or sponge bath if possible.

The most serious case can become heat stroke, when the body completely loses its ability to regulate temperature. Core body temperature can rise to 106 degrees within 10-15 minutes, and this can be fatal. Some signs of heat stroke are hot, dry skin and heavy sweating; possible hallucinations; throbbing headache; confusion; slurred speech; and chills. Call 911 immediately and get the person's supervisor if possible. Move the person to a cool spot and spray him with cool (not ice-cold) water.

Heat injury can be very serious; it can cause permanent damage or even death, but it doesn't have to. When you know that you and your crew will be working outside in high heat for a long time, or if you have a long flight during the peak of sunlight, take a few precautions. Drink lots of water, wear and reapply sunscreen, dress in light layers that can be removed, and take plenty of breaks. Pay attention to each other, watch out for your wingman, and you may never need the information contained in this article!

Mishap **After-Effects**

By MS. AMANDA HILLES
Staff Writer

At around 2:30 in the afternoon on a cool, late October evening, a 19-year-old sat in his fishing boat, casting out and checking social media. The airspace above and around him was a theatre for military combat maneuvers, and the humdrum of jet noise is second nature to the cadence of Kansas crickets and the throaty acoustics of bullfrogs. The young man reeled in; no fish on his hook. Settling into his hoodie, he leaned back to stretch his shoulders and soak in the weak autumn sunlight on his face. When he opened his eyes, he saw a cataclysm unfolding in the widescreen of the sky, high overhead. He jerked upright, rocking his small boat. Thumbs flying, he released a quick tweet about the event: *Hey, did you guys see that? Think I just saw a plane crash.*

The plane crash in question involved two Tulsa-based F-16s colliding over Moline, Kansas, during a combat training maneuver.

Maj Aaron Stark, Chief of Flight Safety from McConnell Air Force Base, responded. During the two-hour drive out to the small town,

TSgt Patrick Vitamvas, 22d Maintenance Squadron repairs and reclamations, orders an F-16 Fighting Falcon wing to be lifted in October 2014, near Moline, Kans. Vitamvas was part of McConnell Air Force Base's Crash, Damaged, Disabled, Aircraft Recovery team helping the Oklahoma Air National Guard 138th Fighter Wing recover a downed aircraft.

USAF PHOTO BY A1C DAVID BERNAL DEL AGUA

Airmen from McConnell AFB look for part of the F-16 Fighting Falcon that crashed near Moline, KS.

USAF PHOTO BY A1C DAVID BERNAL DEL AGUA

A representative from every agency on base was involved in this effort, as well as local personnel.

Stark briefed himself on Class A investigation processes. He reviewed his training information, gearing up and trying to wrap his head around what awaited him at the end of the drive. As the first investigator on the scene, his training quickly kicked in, and his first action was to snag a public affairs professional trained on crash investigation photography. Said Stark, "…once you're there, it just kicks in. You do what you have to do."

The primary objective was to secure the site and preserve the evidence of the crash. After locking down his photographer, Stark assessed the local dispatch: a sheriff, an undersheriff, and two deputies. Stark and the sheriff had conversed while Stark was en route; the sheriff wanted to know if he could deploy his firemen and whether it was safe, but Stark had no answer for him. F-16s carry hazmat, and there was no way for Stark to assess the situation until he was on the scene.

The local rescue personnel were ready to assist and stood at the ready, eager but unable to contribute. Approximately 45 minutes after Stark's boots touched the ground, McConnell Air Force Base Fire Department arrived, trailed by a pair of Blackhawks.

While avoiding reporters and requesting that people call in their findings but not touch anything (as it could be hazardous), Stark began coordinating. The two main entities involved were the Interim Safety Board (ISB) and the Preservation of Evidence Division, a support section that arranged trailers and tents, and provided food, water, and latrines. Reflecting on previous discussions with board members of other ISBs, Stark expected to manage 5-10 personnel. Instead, he found himself leading 250 individuals in the support, recovery, preservation, and investigation efforts over the course of the next six days.

A representative from every agency on base was involved in this effort, as well as local personnel. A large

number of the people involved in the effort were not trained in safety protocols, didn't know how to handle the unique circumstances of a military plane crash, and didn't have experience assisting in this type of activity. They were completely green, but Stark needed the help. "I had to have them out there," he said.

Each day, the search area expanded. Initial estimates of the crash radius was a quarter square mile, but by the end of the investigation, 32 square miles contained evidence. Two search parties, each headed by a team lead, worked 18 hours a day those six days, painstakingly combing through the grass and scouring the land for pieces. The ultimate prize was the black box, which is actually orange.

Watching the teams was humbling; individuals stood within an arm's reach of each other. The team lead yelled *STEP!* And everyone took a step, surveyed the grass in front of them, and awaited the next command. *STEP!* Another step. When anyone found something, they'd holler *FIND!* Investigators swooped in, and the item was photographed, marked, tagged, ID'd, and logged. Friendly competitions waged, songs and cadences were chanted, and the search for the black box continued with the lofty incentive of a dinner on Stark's tab.

"Sometimes we would step on each other's toes. You say, 'Hey, dude, I'm sorry.' Brush yourself off, and you keep going … you have to work together as a team," said Stark of the investigation process.

No one was hurt in this accident, so the objective was met with optimism. The success of the crash investigation allowed the teams from McConnell AFB, Tulsa, Joint Tactical Air Control of Smoky Hills, the Air National Guard, Air Mobility Command, HQ AMC/SE, and everyone involved to shine. Recovery and investigative teams didn't care how it happened and weren't concerned with blame or cause; their only concern was securing evidence as quickly as possible. They brought the sheriff along when they had to make house calls before entering farmers' fields. "…you didn't want to show up on someone's doorstep in the part of the country where people have shotguns," Stark chuckled.

Oklahoma Air National Guard members from the 138th Fighter Wing wrap a vertical stabilizer following the October 2014 incident. The Crash, Damaged, Disabled, Aircraft Recovery team prepared the part for safe transport to a new location.

USAF PHOTO BY A1C DAVID BERNAL DEL AGUA

Spotlight Award

JBADS Test Crew

MSgt Anthony Dickerson

TSgt Jonathan Blackwell

Mr. Larry Magnuson

In this issue, the AMC Safety Spotlight Award goes to MSgt Anthony Dickerson, TSgt Jonathan Blackwell, and Mr. Larry Magnuson. Their quick thinking averted a potential environmental disaster earlier this year while executing a test on the Joint Biological Agent Decontamination System (JBADS) at Orlando International Airport, FL. MSgt Dickerson and TSgt Blackwell were assigned as Test Directors from AMC Test and Evaluation to observe the operational testing of JBADS, a $7 million program designed to decontaminate aircraft. Mr. Magnuson was the HQ AMC/A3N JBADS Operational Manager.

On January 23, the trio was observing preparation of the test site and equipment for decontamination when the system contractors started the 1,500 kW generator. MSgt Dickerson noticed red-dyed fuel spilling from the generator, so he quickly ran to the nearby test enclosure and alerted the other personnel of a major fuel leak. A contractor activated the emergency shutoff and notified the airport operation authorities while TSgt Blackwell, Mr. Magnuson, and the contractors rushed to aid with the spill.

MSgt Dickerson and TSgt Blackwell quickly realized that the drainage ditch the generator straddled was directing the fuel towards a storm drain. TSgt Blackwell and Mr. Magnuson quickly assessed available resources—they grabbed some sandbags that were part of the test site cordon and used them to construct a barrier. Meanwhile, MSgt Dickerson grabbed a shovel from a nearby storage container and reinforced the sandbags with dirt from the edge of the parking apron.

Their efforts contained the fuel just eight inches before it would have entered the storm drain. Additional personnel responded and placed five-gallon buckets under the generator to prevent additional spillage. Shortly thereafter, the fire department arrived to verify the safety of the scene, and the generator rental company arrived to continue the cleanup.

Over 200 gallons of fuel spilled from the generator. An EPA representative praised MSgt Dickerson and TSgt Blackwell for their quick reactions. He said that the storm drain they barricaded lacked a fuel separator. Consequently, due to the possibility for groundwater contamination, the minimum fine if fuel had entered the drain would have been $17,000. A bioenvironmental engineer from MacDill AFB stated the cleanup cost for a spill of that size would have ranged from $100,000 to $300,000.

In addition to monetary savings, the quick actions of MSgt Dickerson, TSgt Blackwell, and Mr. Magnuson prevented a reportable incident and enabled the JBADS test to continue on schedule.

Outstanding work, everyone!

Keeping the 4th Safe

By MSGT CHAD GRADY
Weapons Safety Superintendent, AMC

Fireworks become a special part of our lives during summer. Many of us will be at family gatherings, picnics, or other social events that involve fireworks. If you decide to participate in such events, safety is paramount. Fireworks cause thousands of burns and eye injuries each year. They not only injure personnel and pets, they were responsible for almost 18,000 fires in 2011, as reported by the National Fire Protection Agency (NFPA). These included 1,200 structure fires and 400 vehicle fires, and the remaining were outside/other fires. They caused 8 civilian deaths, 40 civilian injuries, and $32 million in property damage.

Sparklers cause 16 percent of all firework-related injuries. They are often viewed as a child's version of fireworks but burn at temperatures up to 1,200 degrees Fahrenheit. To put this into perspective, water boils at 212 degrees, cakes bake at 350 degrees, wood burns at 575 degrees, and glass melts at 900 degrees. In 2012, U.S. hospital emergency rooms treated an estimated 8,700 people for firework-related injuries. Over half of those were to the extremities, and almost one-third were to the head. Risk of injury was highest to people ages 15-24, followed by children under age 10. On July 4, two out of five fires reported are because of fireworks.

The National Safety Council advises that the best way to enjoy fireworks safely is to watch a public display conducted by professionals. Several such demonstrations have ended with unfavorable outcomes—some even resulted in death of the personnel in charge or onlookers in the crowd. If mishaps routinely occur under the supervision of professionals, maybe it's a good idea to keep your distance and let *them* handle the dangerous part of Independence Day!

Here are a few safety tips to ensure a safe summer that doesn't involve any firework- related trips to the emergency room.

First and most importantly, alcohol and fireworks do not mix. If you choose to involve alcohol in your summer activities, leave the explosives for someone else.

Photo: Booze and boom do not mix. In 2012, over 900 people received hospital treatment from accidents involving fireworks. Obey local and installation laws in order to enjoy a safe and responsible Independence Day.

USAF PHOTO ILLUSTRATION BY A1C CLIFFTON DOLEZAL

Sparklers cause 16 percent of all firework-related injuries. They are often viewed as a child's version of fireworks but burn at temperatures up to 1,200 degrees Fahrenheit.

Also, obey all local laws regarding fireworks. If you have to drive over state lines to purchase them, they probably aren't legal in your state. If they are, there may be restrictions on the type of device. Check with your local municipality, county, or state if you have questions; failure to do so could result in a fine or other action by law enforcement.

Be familiar with the fireworks you are handling. Read all labels prior to igniting, and do not allow children to handle or ignite them. If you allow children to handle fireworks, ensure that a responsible adult supervises. Always wear safety glasses or goggles when shooting fireworks.

Keep a bucket of water or a water hose nearby. Fires spread quickly, and it's much better to be proactive than reactive. Light only one firework at a time and quickly move away. If you think that there is a potential "dud" firework, allow 20 minutes to pass, and then soak the device with water or submerge it in your water bucket.

Store fireworks in a cool, dry, and secure place until ready for use. Never carry them in your pocket or shoot them into a metal or glass container. Even though most fireworks only contain a small amount of explosives, there is a chance of fragmentation when they are ignited in a confined space. DO NOT experiment with homemade fireworks; there is a chance it may not end well. A simple YouTube search will provide all the evidence you need … solidifying the fact that this is NOT a good idea!

When you travel, FAA regulations strictly prohibit the possession and transportation of fireworks in checked baggage or carry-on. Bottom line: don't take fireworks to the airport! It's also your responsibility to report illegal devices like M-80s and quarter sticks to the local fire or police department.

Finally (and this is extremely important), always dispose of spent fireworks by wetting them down and placing them in a metal trash can away from buildings and combustible materials until the following day.

Although we are in a more fiscally restrained Air Force than in previous years, some installations still host fireworks displays. There are specific requirements in AFMAN 91-201, *Explosives Safety Standards* for these events. Ensure proper steps and coordination take place when preparing a comprehensive explosives risk assessment. Additionally, comply with any specific MAJCOM supplemental instructions that exist. Finally, don't forget that the contractors performing the event must comply with the safety guidelines in NFPA 1123, *Code for Fireworks Display* and the requirements in AFI 91-202, The *US Air Force Mishap Prevention Program*. These risk assessments can be time consuming but are well worth the effort. Make sure you start early and provide them to your MAJCOM for approval in a timely manner.

This 4th of July Celebrate Safely

The safest way to enjoy fireworks is to attend a public display conducted by trained professionals.

After the fireworks display, never pick up fireworks that may be left over; they may still be active.

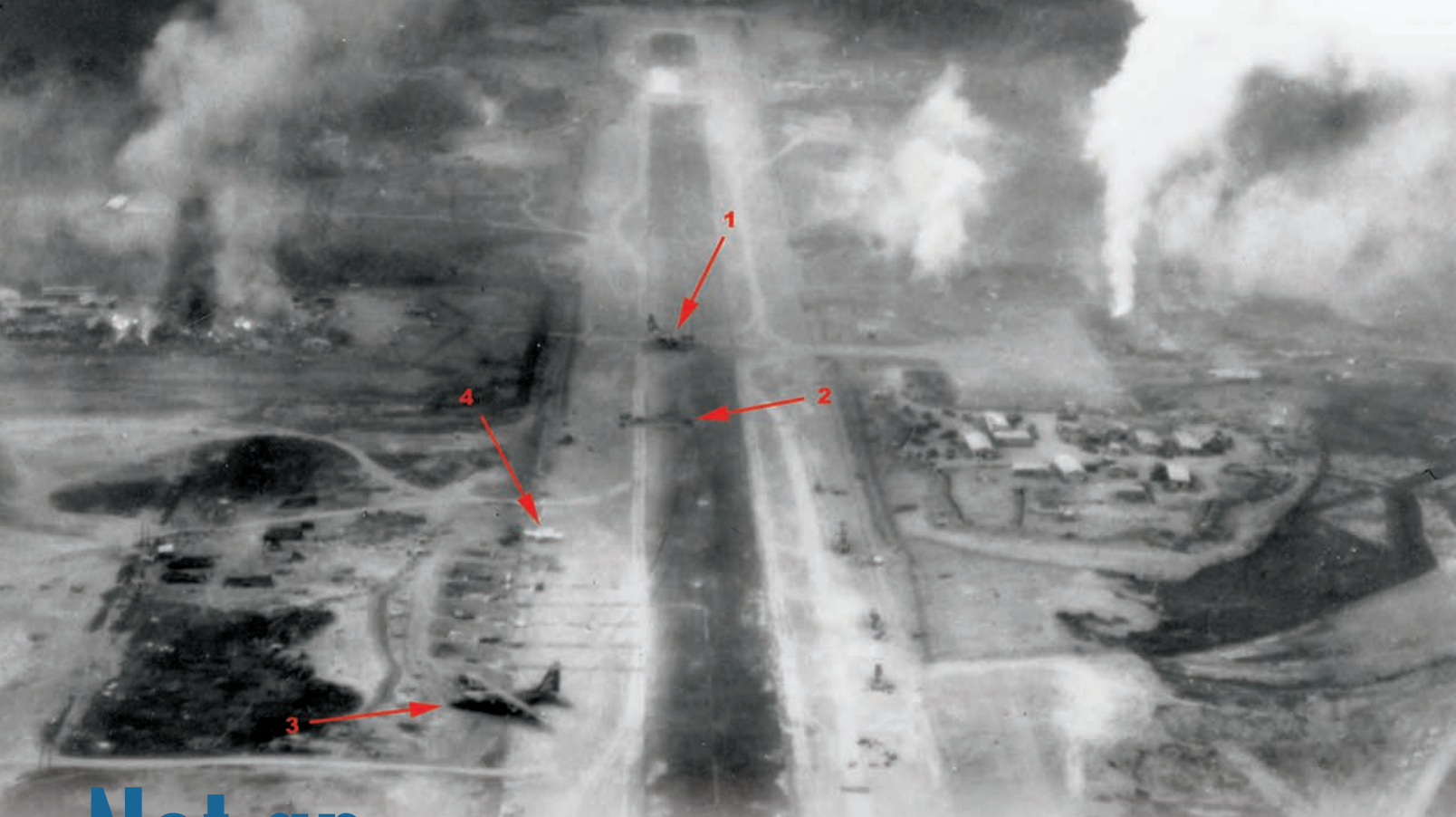
2012 Fireworks-Related Injuries by Type of Injury

2012 Fireworks-Related Injuries by Part of Body Injured

Source: www.nfpa.org

Recommended Safety Tips for Consumer Fireworks

- ★ Obey all local laws regarding the use of fireworks.
- ★ Know your fireworks; read the cautionary labels and performance descriptions before igniting.
- ★ A responsible adult should supervise all firework activities. Never give fireworks to children.
- ★ Alcohol and fireworks do not mix. Save your alcohol for after the show.
- ★ Never relight a "dud" firework. Wait 20 minutes and then soak it in a bucket of water.
- ★ Always have a bucket of water and charged water hose nearby.
- ★ Better yet— leave fireworks to the professionals and enjoy a public display instead.



This remarkable photograph was taken just as Jackson was turning the C-123 around (arrow #1). The disabled and burning helicopter is visible blocking the runway (#2). A damaged C-130 and the tracks it made skidding off the runway are visible on the left (#3). Just beyond the C-130 is an O-2 which had been hit and crash-landed (#4).

USAF PHOTO

Not an Ordinary Day in Vietnam

By MS. KIM BRUMLEY, Staff Writer

"I wasn't scheduled for anything unusual that day. I was supposed to fly a normal cargo mission," said retired Col Joe Jackson as he reflected on one particular day in Vietnam in May 1968. No stranger to combat missions, Jackson entered the service in March 1941, completed aviation cadet training in April 1943, and served as a gunnery instructor to the end of WWII. In the Korean War, he went on to fly 107 missions as an F-84 fighter pilot, so it was no surprise that at 45 years of age, he again went to war. However, in Vietnam, he did not fly fighters; instead, his choice of aircraft was the C-123 transport plane while he was a member of the 311th Air Commando Squadron.

That day in May started out as any other for him in war-torn Vietnam as the commander of a routine resupply mission in a demilitarized zone of South Vietnam. While in flight, however, Jackson got a call to return to Da Nang for a special mission. He was then informed that a special-forces camp at Kham Duc had been overrun by opposing North Vietnamese forces. His mission was to evacuate American troops on the ground. Answering the call, Jackson and his crew circled in the sky above, waiting for the planes that had been called to action before him to pick up evacuees and get off the ground.

The first C-130 that attempted the rescue had all four engines shot out on approach. Another plane managed to successfully land and pick up 200 people, but it was shot down only moments after take-off, killing every brave soul on board. Against heavy resistance, the fearless pilots overhead refused to concede and leave the defenseless men below. They faced imminent death if not evacuated, so a third plane attempted the rescue. On the ground, it was sheer chaos as the plane sat on the runway amidst a flood of bullets coming from every direction. With no time to waste, the few remaining troops from the camp scrambled

President Lyndon Johnson congratulates Medal of Honor recipients at the White House on January 16, 1969. Col Joe M. Jackson (on Johnson's left) and Maj Stephen W. Pless (on Johnson's right) were both natives of the same small town of Newnan, Ga. and were both being honored for daring air rescues in Vietnam.

Retired USAF Col Joe Jackson

Stone marker honoring Col Jackson outside Coweta County Courthouse, Newnan, Ga.

through the debris and wreckage toward the wings of salvation and their only hope. If there were to be any survivors from the effort, the plane *had* to get back in the air and out of range quickly.

Against the odds, all on that plane made it out alive, and the pilot reported to the command post that he had picked up the last survivors. Command then called up the fighters to swoop in and unleash a merciless armory to demolish all remnants of the camp so nothing could fall into the hands of the Vietnamese. As the fighters prepared to deliver swift justice, the pilot radioed back in to command when he realized that three men who had not made it to the last plane out remained on the ground at the camp.

Still in the darkened sky—sporadically lit by bolts of lightning—Jackson and his crew heard the urgent radio request from command to save the men. Jackson knew exactly where they were and, without hesitation, radioed back and said, "Roger, we're going in."

At 9,000 feet, Jackson started an extremely steep landing approach with the C-123. The air speed was at the maximum and the rate of descent hit the limit on the instruments. Pushing the aircraft, Jackson whipped the plane in a 270-degree turn, rolled out just shy of 1,000 feet from the end of the runway, and touched down in the first 100 feet. "I was the luckiest guy in the world because I was able to stop that airplane exactly opposite of the three guys, who were in the ditch."

The men ran for their lives towards the plane as the co-pilot yelled out, "Oh, my god! Look at that!" as he watched a rocket being fired right at the plane. The rocket hit the runway, broke in half, and came to rest right before the nose of the plane. Breathless, the crew anticipated a fiery end, but there was no explosion. "Again, I was the luckiest guy in the world," said Jackson.

Certain the men were onboard, Jackson ripped down the runway as the enemy fired an arsenal of weapons at the departing aircraft. "We got off the ground safely," Jackson said, "but minutes later, the fighters flattened the camp."

On January 16, 1969, President Lyndon Johnson awarded the Congressional Medal of Honor to Col Joe Jackson for his unwavering dedication to fellow Airmen in the face of danger. The event, along with being bestowed such great honor, dramatically changed Jackson's life.

"I have to represent the thousands of Americans who have served their country," he said. "I have to make them proud of what I have done and what they have done, and that's a tough job."

The Domino Effect of **Careless Decisions**

By MS. RITA HESS, Staff Writer

A 30-year-old Senior Airman died in July 2014 when a fellow Airman ran over him during a training exercise at Fort Bragg, North Carolina. Last minute changes to the exercise started a chain of events that ultimately led to the death.

The 43d Aeromedical Evacuation Squadron (AES) 43d Airlift Group was engaged in hands-on training to prepare for future deployments. Early that day, the commander indicated that instead of simply a scenario in which a team member went missing, she wanted to see a capture scenario. That decision, which the Ground Accident Investigation Board (GAIB) report says "exceeded the scope of required training" of the team, started the unfortunate domino effect.

TRAGEDY UNFOLDS

During the exercise, a Humvee driver and two passengers acted as opposition forces (OpFor), taking a young Airman hostage and using duct tape to bind his hands and mouth loosely. According to the report, all four loaded into a Humvee and drove to a checkpoint to negotiate a hostage exchange. When negotiations failed, the OpFor simulated an execution; the acting hostage fell onto the pavement 5–10 feet in front of the Humvee and played dead. The OpFor returned to the vehicle to flee, but as the driver turned to exit the area, the Humvee ran over the hostage.

The report cites one passenger's testimony during the investigation. "After the vehicle started moving, all of us, we felt a bump, and I was like, 'Oh my God, we just ran over [him]'". The injured Airman's AES coworkers—experts in emergency response procedures—began treatment immediately to no avail. The cause of death was blunt force injuries to the upper chest.

GAIB FINDINGS

Multiple factors led to the devastating outcome, but it started with the commander's last minute change in the exercise. Also, the trainers who modified the exercise scenario were not "subject matter experts" as required by *AFI 90-201, The Air Force Inspection System*. One had only been in the squadron two months; the other had no personal experience developing an exercise.

Multiple factors led to the devastating outcome ...

No formal risk assessment included using the Humvee, since it was added on short notice. *AFI 90-802, Risk Management* states "[r]isk assessments of operations and activities are most successful when they are accomplished in the normal sequence of events … and not as a last minute or add-on process." GAIB tests indicated the driver could not see an object on the ground within 13 feet, 9 inches of the front of the vehicle, yet the Airman was within 5–10 feet. Also, the driver and a passenger understood that tapping the Humvee cab twice meant the vehicle was safe to move. But the driver thought it meant the vehicle was clear of obstacles, while a passenger thought it meant the passengers were safely seated and ready to go.

Additionally, participants didn't know when the scenario ended. Several thought the exercise ended after the execution. One Humvee passenger thought other participants would come retrieve the hostage, while the other passenger expected the hostage to get out of the way himself.

Another contributing factor was channelized attention. Just before the execution, the driver was busy shouting inflammatory remarks about Americans into a megaphone as he drove the Humvee to the checkpoint area, circled, and stopped. The report said the driver "may have been too focused on his role as a member of the OpFor: driving the Humvee, talking into the megaphone, and simulating a realistic hostage situation" to gauge the hostage's location before departing.

Another contributing factor was **channelized attention**.

Complacency played a role, too—a sense that others have the situation under control. "Although 43 AES members received several safety briefings both before and during the exercise, no one was appointed as an overall safety monitor for either the exercise or individual injects," according to the report. Any participant could stop the exercise for any situation deemed unsafe, but no one did, despite the hostage's prone position in front of the Humvee. Also, a trainer expected passengers to be spotters, while one passenger expected a trainer to be a spotter.

Finally, if the vehicle's occupants had walked completely around the vehicle before leaving (as required by *AFMAN 24-3006, Manual for the Wheeled Vehicle Operator*), they would have realized the danger before they left the area.

Complacency played a role, too—a sense that others have the situation under control.

Ultimately, the 43d Aeromedical Evacuation Squadron commander was relieved of command, the driver faced a summary court-martial, and other Airmen were held accountable for their actions and inactions. AMC lost a valued team member that day, and this mishap serves as a sober reminder: adhere to rules and procedures as if lives depend on them … because they do.

Vacation Time!

By MSGT JULIE MEINTEL, 445 Wing Historian

It's everyone's favorite time of year … vacation time! No matter what season you travel, it's always fun to plan and take a vacation. Although many of us in the mobility world travel for a living, and we get to go to some really interesting and beautiful locations around the world, Air Force missions are work, first and foremost. It's not really the same as taking a more leisurely vacation, making memories with your family.

So what's the best way to plan a great vacation? Well, that all depends. Who is going? Is it a family vacay or adults only? How long do you want to spend on your trip? Is it a quick weekend jaunt, or is it a two-week adventure? Where do you want to go? Do you want to take the kids to Disney, or do you want to go camping miles away from civilization and shopping malls? What's your budget?

Before anything else, check with your Morale, Welfare, and Recreation (MWR) folks on base. They have some great ideas for places to go, things to do, equipment to rent, and tickets to buy at a discount.

Some MWR locations offer more inclusive tour packages for purchase, depending on your base's location. MWR is a great resource for us military types! Among some other great options are the military resorts in popular vacation destinations.

- Shades of Green is a resort on Disney property at Disney World in Orlando.
- Hale Koa Hotel has a prime stretch of property on Waikiki Beach in Honolulu.
- The Marine Corps base at Kaneohe Bay in Hawaii rents private beachfront cottages.

Those are just a few; a quick Google or Bing search will reveal others.

If MWR doesn't have what you are looking for, go online. There are lots of great online vacation planning sites and tools. For example, **www.travelocity.com**, **www.expedia.com**, **www.priceline.com**, and **www.orbitz.com** are well-known websites that can help you find good deals on airfare and hotels. There are pros and cons to using these sites, though, and you should always be aware of what you're buying. With many travel sites, you are purchasing a whole travel package, which can limit your options.

If you are a more spontaneous traveler and like to fly by the seat of your pants, this might not be the best way for you to go. If something changes on your trip, such as a canceled or delayed flight, you could end up sleeping in the airport because you never made it to your destination or missing the cruise because of the flight delay. If you change your mind about a place you want to visit or if you decide to stay a bit longer somewhere, you want to be able to make changes without penalties and fees. Always ask about fees before you book or change anything. Make sure they are refundable before you buy or that you know how much you are being charged and for what.

Wherever you go and whatever you do, ask about discounts, especially a military discount. Many airlines, hotels, and attractions offer discounts, but you have to ask for them, so don't be shy!

Are you traveling with your kids? Will you be at some crowded parks and attractions? Have a plan for what to do if someone gets lost or separated. Consider having everyone wear the same color so that if anyone gets separated, it will be easier to spot him or her in the crowd or tell security personnel what color the lost kid is wearing. And keep a current picture of your children in your wallet or on your smartphone so you can easily show pictures to park security. Also, consider designating a "rally point," a place to meet if the group gets separated. If your kids are old enough to have cell phones, charge them before each day's activities, and be sure everyone in the group has each other's numbers. If you are on a resort and the kids are running around nearby, consider using walkie-talkies to keep in contact.

During your hotel stay, be sure you know where your room key is at all times, and don't shout your room numbers across the lobby or down the hall. You never know who is listening. When you leave your room, don't leave money or valuables in plain sight because the door to your room is wide open when housekeeping is cleaning, and someone could wander in who shouldn't be there. And remember basic safety rules like knowing where the fire exits are located, not opening the door unless you know who is outside, and using your deadbolt lock.

While on vacation, you don't want to worry about anything, so make sure all is well on the home front before you go. Don't make your home an attractive target for bad guys. Lock everything up tight behind you, and set alarms if you have them. Go around the house and peek in your own windows to see if any valuables are in plain sight. If they are, go back in and put them away! If you'll be gone more than a week or so in summertime, arrange to have someone cut your grass. Also, leave a couple of lights on inside or put timers on them so that it looks like people are home. If you know and trust your neighbors, ask them to pick up your mail and your newspaper, and they can turn lights on when they take it in the house. You can also call the post office to ask them to stop delivery until you return. Leave your car in the driveway, or ask a friend or neighbor to leave theirs in your driveway every now and then so it looks like people are coming and going. These tips may sound silly or overblown, especially to seasoned travelers, but burglars are just looking for easy targets: homes that are obviously unoccupied or not being watched while the owners are away.

If you have pets, make arrangements in advance for their care. Kennels fill up fast during peak vacation season, so don't wait too long to make reservations or arrangements with a friend or neighbor to care for your animals.

Now that you've thought a little bit about protecting your home, let's take it one step further. Just as you don't want to advertise your absence around the neighborhood and to people in your area, you also don't want to advertise the fact that you are away online either. It's not a good idea to change your voicemail at home to say, "We're going to Disney for 10 days! It'll be awhile before we can call you back!" Nor is it wise to post your plans and itinerary on Twitter or Facebook. It can be lots of fun to post pictures and "check in" at all of your stops and see all the comments and thumbs up, but resist the urge to do it in real time. Wait until you get home to post a picture album and recap to share with your online friends.

It can take a lot of preparation to plan a vacation. But doing your homework and taking some preventive steps now can save you money, time, and headaches once you get going. Travel smart and travel safely!

Rising Waters

By MSGT JULIE MEINTEL
445 Wing Historian

Did you know ... that three quarters of all presidential declarations of disasters are due to floods?

Did you know … that flood damage cost an average of $5 billion per year for the 30-year period from 1975–2004? Hurricanes Katrina and Rita in 2005 skewed that average pretty badly, but in the 30 years leading up to those events, that was still a significant sum.

Did you know … that because of the nature of the threat of flooding, the National Oceanic and Atmospheric Association (NOAA) monitors conditions that could lead to floods 24 hour a day, 7 days a week?

As an Ohio native, born and raised, springtime always comes with a flood warning for me. For a land-locked state hundreds of miles from the nearest ocean, we have a lot of water. One Great Lake, several large rivers, and numerous smaller rivers, streams, and creeks all add up to the need to really pay attention to the issue of flooding, especially in the spring. National Flood Safety Awareness Week happens in March for a very good reason. Although certain times of year and certain areas or types of terrain are more prone to flooding than others, it is a year-round, coast-to-coast threat.

In Ohio, it varies from year to year, but we usually get a couple of good snowfalls every winter. Temperatures vary, too, but it's a safe bet there will be ice: ice on the trees, ice on the roads, ice on the lakes and ponds. In the spring, we have not only the melting snow and ice to contend with, but also heavy rain and storms. And one more major cause of flooding is the failure of water containment systems, like dams or levees in areas where flooding is more likely.

Flooding occurs when water overflows the confines of a stream or other body of water, or it accumulates via drainage over low-lying areas. If the melting snow or rain is particularly heavy, the soil simply can't absorb it all fast enough, and the rivers can't carry it away fast enough. That is when you will see streams and rivers rising or see standing water in fields or meadows.

Flash flooding, a subcategory of flooding, happens when intense rain and storms dump a lot of water in a very short time. Flash floods can happen with little to no warning and reach their peak in minutes. When you get flood watches and warnings in your area, especially flash flood warnings, you should take it seriously and take preventive steps to avoid becoming a statistic.

- **Watches** are issued for several hours and generally mean conditions are favorable for possible flooding.
- **Warnings** mean flooding or flash flooding is imminent or is already occurring. Flash flooding can roll big boulders and tear trees up, destroy buildings, and completely sweep away bridges.

As with other weather phenomena, and as a general safety rule, have an emergency plan, and have supplies on hand in case you need them.

Bottled water; canned or non-perishable food items like granola bars, trail mix, nuts or dried fruit; a battery-powered radio and extra batteries; candles and lighters; and blankets are all good things to keep in an emergency kit.

The best possible thing you can do in the event of a flood is to leave the area as quickly as you can, and get to higher ground. That being said, you should avoid walking through floodwaters; all it takes is six inches of fast-moving water to knock an adult person off his or her feet. Don't drive through floodwaters, either. Water can be, and often is, deeper than it looks, and if it's moving water, there will be a current. One foot of water is all it takes to float a car, pickup truck, or SUV. Also, depending on the intensity of the flooding, it may compromise the road's integrity, and the weight of the vehicle may be enough to make it buckle. And once your vehicle is floating, you are no longer in control. It can be swept away, flip, or sink faster than you realize, and you can't do much about it. Under these circumstances, you must get out of danger and not worry about your car or your property. Safety is your only concern; floods can be life threatening.

Hopefully, you won't find yourself in the position of rushing to get out of harm's way. You will have been paying attention all along, listening to the forecast and taking proactive steps to keep yourself and your family safe.

- Listen to the news for the most up-to-date information.
- Fill your bathtub, sinks, and empty jugs with clean water, in case the local supply becomes contaminated.
- If you have time, move your household items and valuable possessions to the highest level of your home.
- Be prepared to turn off utilities at the main power switch and close your main gas valve, if local authorities direct.
- Get yourself and your family ready to evacuate if you need to; don't wait until it's too late to get out. If the roadways are blocked by water or debris, you may be stranded for a long time until either help arrives or the water recedes.

If the worst does happen and you must evacuate your flooded area, listen carefully and follow directions from local authorities about when it is safe to return. It's likely to be very confusing, and local emergency management agencies will be doing the best they can to make sure everyone is safe. When you get back to your house, check carefully for cracks in the foundation or other structural damage, and make sure porch overhangs are still well supported before you enter. Don't use matches or other open flames until you are certain there are no gas leaks, and don't use appliances or motors that have been wet until they've been taken apart and dried completely.

This information can all be found on the NOAA website, and every state has a Department of Natural Resources, which is another good place for information relevant to your area. You don't always have a lot of time to prepare for a weather emergency, and it can turn deadly very quickly. So take the time now, before a disaster strikes, to be sure you know what to do when it does. During a flood is no time to play "chicken" with Mother Nature.

http://www.floodsafety.noaa.gov/

DISTRACTIONS

By MAJ BRIAN "DUTCH" DUTCHER
Iowa Air National Guard

It all started with a flash of blurred color—then the sudden total body twitch, followed by everything moving in slow motion. It ended with a tremendous blow to the body. I sensed the adrenalin rushing through my veins and felt all of the air within me escaping. A split second later, I heard the sound of metal on pavement.

Distractions are all around us in our everyday lives. The obvious ones are our cell phones and the temptation to text while driving. As dangerous as this act of ignorance is, the driver is protected by the 4,000+ pounds of automobile cage, safety restraints, and an assortment of air bags.

Those of us who enjoy the freedom of two wheels have come to accept that we participate in a high-risk activity and, in doing so, take certain steps to reduce our risk and improve our survivability. We wear helmets, riding boots, jackets, pants, and gloves, otherwise known as **All the Gear, All the Time** (ATGATT). We can take this to the next level by including high visibility colors, reflective materials, and LED daytime lights in an effort to improve our visibility and, if all else fails, to protect ourselves from the resulting impact of an incident.

But how do we protect ourselves from ourselves? Today's riders have an assortment of electronic gadgets that offer instant information: onboard computers, GPS, Bluetooth enabled MP3 players, cell phones, and rider-to-rider communications. Each can be a great resource but can also be a huge distraction to the rider. Honestly, how many times have you studied the GPS as it was "recalculating" while traveling down the road at 60+ MPH? At that speed, we are covering 88 feet per second. In taking three seconds to study the GPS, we travel 264 feet. Think about it. At 60 MPH, we travel the length of a football field in 3.4 seconds, and 100 yards can pass without our

Photo: SrA Jared Trimarchi, 628th Air Base Wing Public Affairs photojournalist, rides his motorcycle wearing the proper Personal Protective Equipment required.

USAF PHOTO BY SRA DENNIS SLOAN

In reflection, this accident made me realize that **even at slow speeds**, split second distractions can cause big surprises that present themselves in such a way that we have **no time to react.**

recollection or having any situational awareness (SA) of our surroundings. Fighter pilots call it "helmet fire," when so much incoming information overloads them and interrupts the decisionmaking process. The result is the same: distractions prevent us from making the proper assessments and decisions while riding.

Think about all the obstacles that could appear before you in that time/distance. Any number of assorted sized four-legged animals, an automobile, or debris could appear in our path without us even being aware of it. If we don't maintain SA of our surroundings, we are unable to execute evasive maneuvers using the skills we have learned and honed to avoid such objects.

While lying on the ground with my body throbbing, rocking in agony, the faces began to appear above me asking if I am okay. I try to answer but the air has not returned to my lungs, allowing me to speak. All I manage is to get out is a gasp. Finally, my lungs equalize. As I stagger to my feet, I begin to survey and assess the damage to body and bike.

This was a two-wheeled accident but not a motorcycle—it was a road bicycle accident caused by a split second distraction while going less than 15 MPH. I suffered more bodily injury (nearly lost a finger) in this accident than I did when I center punched a BMW 530i that ran a stoplight while on my GSA wearing full gear. ATGATT allowed me to get up and walk away without a scratch, bruise, or any soreness. Two weeks after nearly losing a finger from this bicycle accident, however, I still have recovering wounds and sore spots.

In reflection, this accident made me realize that even at slow speeds, split second distractions can cause big surprises that present themselves in such a way that we have no time to react. Apply this scenario to our fully gadget-equipped rides at increased speeds, and the results can be disastrous—ATGATT or not.

So before you head out on your next ride, whether an epic adventure or to the local coffee shop, give some thought to the possible distractions you could face. Think of it as part of your pre-ride check: ATGATT, tires, oil ... distraction avoidance (DA). Manufactures have provided us with great technology, giving us access to endless information at our fingertips. Let's focus on how we can use this technology to improve our riding experience and not let it be a factor in our last ride. As I like to say, it is better to practice DA then to be DOA.

Boats, Water, and Alcohol: A DEADLY COCKTAIL

By MS. SANDRA JACKSON, Staff Writer

Anyone with a driver's license is aware of the dangers of driving a motor vehicle while under the influence of alcohol or drugs, but that knowledge often gets tossed overboard when the drivers get behind the wheel of a boat. Just as dangerous as driving under the influence is to those on shore, "BUI"—boating under the influence—is just as hazardous to those in the boat or in the water.

Alcohol affects balance, coordination, and judgment, and its effects are heightened by sun exposure and heat. This makes for a potentially deadly combination when mixed with boats. Add in dehydration—common during intoxication—constant motion, lack of experience, and other factors that increase fatigue and disorientation, and drink for drink, a boat operator is likely to become impaired more quickly than an automobile driver.

The U.S. Coast Guard reports that alcohol use, mostly by the boat operator, is the leading contributing factor in 16 percent of boating related deaths. In boating deaths involving alcohol use, over half the victims capsized their boats and/or fell overboard. Open motor boats are the most frequent types of vessels involved in fatal water accidents, with canoes and kayaks a distant second and third.

Alcohol on Board: A Boatload of Trouble

The Coast Guard continuously educates boaters about common problems encountered when drinking while boating. The effects of drinking are what you already expect, but mix in water and boating hazards, and you have created a dangerous cocktail:

- Cognitive abilities and judgment deteriorate, making it harder to process information, assess situations, and make good choices. Boating and water activities contribute added distractions from passengers, music, noise, other boats, and possibly nearby swimmers.
- Physical performance is impaired, causing problems with balance, coordination, and reaction time—all are more dangerous on water.
- Alcohol affects vision—decreasing peripheral vision and depth perception, reducing night vision, and impairing focus. Glare from the water and weather issues may affect visibility.

As a result of these factors, a boat operator with a blood alcohol concentration above .10 percent is estimated to be more than 10 times as likely to die in a boating accident than an operator with zero blood alcohol concentration. Passengers are also at greatly increased risk for injury and death—especially if they are also using alcohol.

BUI is as Serious as DUI

Aside from local park police who may be patrolling lakes, rivers, and water parks, the Coast Guard also enforces a Federal law that prohibits BUI. This law pertains to all boats, from canoes and rowboats to the largest ships. Every state also has stringent BUI laws. In waters that are overseen solely by the states, the states have the authority to enforce their own BUI statutes. In state waters that are also subject to U.S. jurisdiction, there is concurrent jurisdiction. That means if a boater is apprehended under Federal law in these waters, the Coast Guard will (unless precluded

by state law) request that state law enforcement officers take the intoxicated boater into custody. Operators determined to be impaired will be brought ashore. Their boat will be moored by an official or a sober person on board.

Depending on the circumstances, the Coast Guard may arrest the operator, detain the operator until sober, or turn the operator over to state or local authorities. State and Federal penalties can include large fines, suspension or revocation of boat operator privileges, and even jail terms.

Avoiding BUI Problems

The Coast Guard suggests several alternatives to using alcohol while afloat:

- Bring a variety of cool non-alcoholic drinks, such as sodas, water, iced tea, lemonade, or non-alcoholic beer. Stay hydrated.
- Bring plenty of food and snacks.
- Follow basic boating safety procedures—maintain your vessel, have floatation devices for each passenger, and know the waterways you will be navigating.
- Limit your time on the water to avoid fatigue. It's common to become tired more quickly on the water.
- Party onshore if you want to include alcohol as part of your day. Factor in "sobering up" time before getting back into your car or boat.
- If you dock somewhere for lunch or dinner and drink alcohol with your meal, wait a reasonable time (estimated at a minimum of an hour per drink) before operating your boat.
- Have a designated operator, just like you would have on land.
- Choose to have no alcohol aboard. Intoxicated passengers are also at risk of injury and falling overboard.

Remember that a boat is a vehicle, and safe operation is a legal and personal responsibility.

MORE INFORMATION ABOUT SAFE BOATING:

U.S. Centers for Disease Control and Prevention:
www.cdc.gov/HomeandRecreationalSafety/Water-Safety

U.S. Coast Guard's Boating Safety Division:
www.uscgboating.org

U.S. Coast Guard Boating Safety Hotline: (800) 368-5647

Takeaways from a Costly Mid-air Collision

By MR. MONTE NACE, Staff Writer

Damage to C-130: (top to bottom) Right wing; number four engine; flare dispenser hood; and gear door.

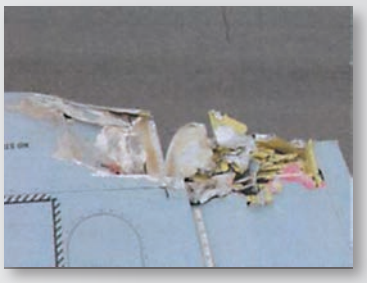
The mid-air collision of a C130-H and a C-27J near Fort Bragg, North Carolina, last December was costly—*and preventable.*

According to the Accident Investigation Board report, the aircrews weren't watching closely enough for traffic and relied too heavily on Traffic Collision Avoidance System (TCAS) alerts. The government loss and associated cleanup for the C-130 from the 440th Airlift Wing at Pope Army Air Field was valued at over $1.8 million. Damage cost for the C-27 from the Army Special Operations Command Flight Company at Pope has not been determined.

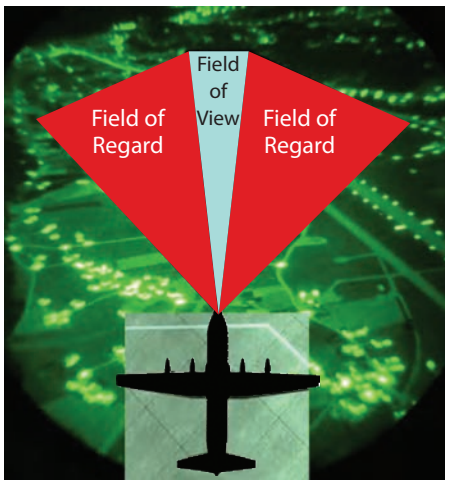
The AIB report cited "clear and convincing evidence this accident was caused by a breakdown in visual scan resulting in insufficient clearing of the aircraft flight path by both aircrews." According to Federal Aviation Regulation §91.113, aircraft commanders are responsible for collision avoidance "regardless of whether an operation is conducted under instrument flight rules or visual flight rules." Both aircraft were conducting simulated airdrops in the area that evening, and members of both crews were using night vision goggles (NVGs). Skies were clear with visibility of seven statute miles.

Earlier in the evening, the two aircraft saw one another, with radar recordings showing they passed in opposite directions approximately 2.7 miles of each other. Neither crew received TCAS traffic advisories at the time. The AIB investigation turned up a history of intermittent TCAS malfunctions on the C-27—it was an open write-up on the night of the accident—and although the C-27 crew didn't know it at the time, radar data indicates a transponder failure at some point in the flight. The crews "didn't expect to see traffic, didn't see traffic, and that perception was reinforced by the lack of a TCAS traffic advisory."

As explained in the AIB report, "Over 80 percent of a pilot's perception and decisionmaking comes from what he or she sees. As a result, the visual system is one of the most important senses used to operate an aircraft safely." The report cautions that scanning is an art that must be



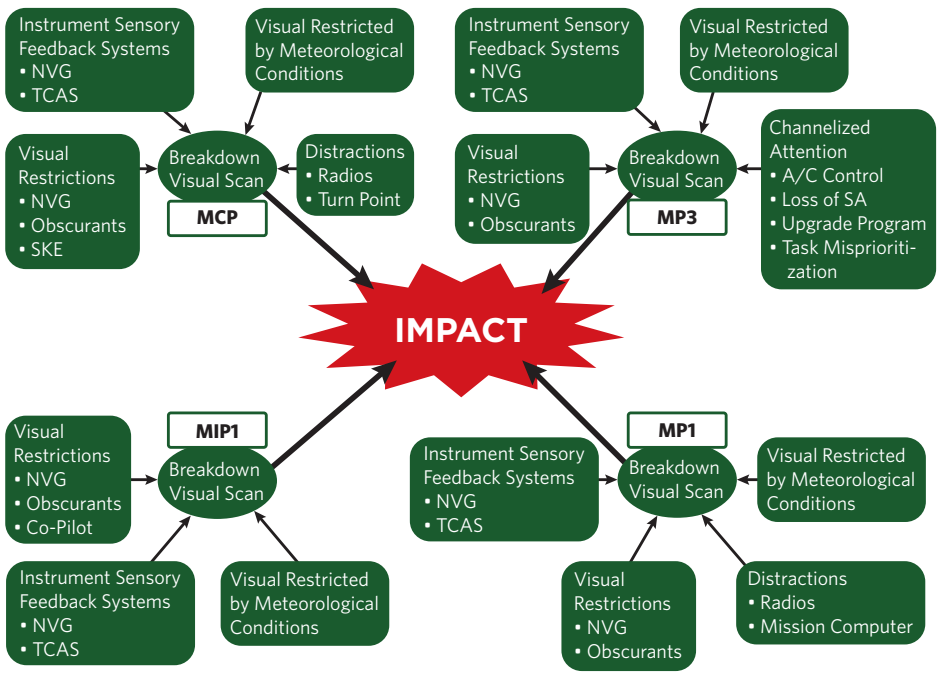
Damage to C-27: (left to right) Vertical stabilizer; Right wing tip.



consistent and deliberate. "There is no infallible scan. Pilots must develop a scan that works for them in various phases of flight and environmental conditions. Seeing takes conscious processing and the time it takes to 'see' varies due to physiological limitations of the eye."

This type of mission was common for both aircrews. In fact, the report says both crews were complacent "due to the routine nature of the mission profiles, despite the inherent risk associated with night, low-level, visual flight rules operations on Night Vision Goggles."

Other contributing factors include obstructed views (both aircrafts' windshields are separated by window posts that increase strength but impede a pilot's ability to conduct an uninterrupted visual scan) and crewmembers performing other inflight duties just before impact rather than assisting with scanning.



Human factors contributing to breakdown of visual scan.

The two aircraft collided at 8:22 p.m. As the C-27 passed slightly beneath the C-130, its wingtip grazed the underside of the C-130 at the nose gear door and tore the flare dispenser hood from the C-130. The C-27's vertical stabilizer then struck the right external fuel tank of the C-130, and it hit and disabled its number four engine.

One person on the C-130 "saw a flash and just a momentary sight of an airplane" before impact and then noticed a pitch change. "It started shuttering. The aircraft started shuttering. It was different than turbulence. It was shaking. It was worse than turbulence." Another crewmember recalled a "pretty severe right yaw and a slight right roll" upon impact, saying it felt like being rear-ended at a red light. The crew discussed whether they might have hit a Cessna but soon learned from nearby Mackall Army Air Field traffic control that they had collided with a C-27.

Both crews declared an emergency. The C-27 landed at Mackall, and the C-130 flew to Pope. There were no fatalities or significant injuries to any crewmembers. Fortunately, both crews prevented the incident from becoming catastrophic, but we can all learn valuable lessons from this costly mishap.

OPEN *and* SHUT CASE

Photos courtesy of SMSgt Roy Resto

By SMSGT ROY "ROYBOY" RESTO
Avionics Supervisor

From Royboy's library of training pictures, I bring you this gallery of embarrassing photos. Why embarrassing? *Because they were taken by passengers* who no doubt felt compelled to share them on all available social media platforms; the better to convince juries of the profound psychological trauma suffered at having witnessed such harrowing acts. Sarcasm aside, I seem to be getting these with some regularity from my fellow safety geeks. So, what's up?

Two of these occurred on CFM-56 engines, the same family of engines as our own KC-135R, so it bears discussing in this forum. First the obvious: the engine cowling flew open, and then broke off in flight due to improper latching. Is that it? Not quite.

These occurrences triggered a couple of memories I'll share with you. I was doing a preflight check of an aircraft rental ahead of a flight with an instructor. I had completed it when he came up and did a cursory check. He noticed the engine's exhaust pipe was hanging low and, upon closer examination, saw that the bracket used to secure and position it had broken and was interfering with the cowl flap. Needless to say, we did not go up that morning, but I learned another lesson, bruised ego and all: when doing my preflight, *bend down and look at the bottom of the plane, too, which is not visible otherwise*. The latches on the pictured offending cowlings are located on the bottom, inches from the ground, and these, too, are not visible unless you bend down sharply and look.

So, why were the latches not properly engaged? Only airlines and their respective countries' civil aviation authorities know the root causes. What comes to mind, however, is that we sometimes let down our guard or don't pay attention to detail ***after*** the primary task or job is completed. I'll casually call this "after-action complacency," a modification of one of the Dirty Dozen Factors. For example, let's say we've been troubleshooting a pesky write-up or performing a long task, and we nail the write-up or complete the task. Now we're basking in the feelings of closure, and all that's left is to clean up, close the panels or doors, and do the paperwork. What could go wrong? After-action complacency contributes to checklists not being completed after a flight, lost tools, foreign object debris, and perhaps cowl latches not being properly engaged. *Note to self: keep your mind 100 percent engaged in the task until your feet are on the crew bus or in the tool room.*

Expanding upon these factors, the literal flip side of this discussion is: what's on top that may be missed? From my airline days, I distinctly recall changes that had been made to all the final inspection work cards. These cards are the last maintenance inspection work cards performed prior to the aircraft being returned to service after scheduled maintenance checks. The changes involved opening additional inspection sign-off blocks on the cards (the second pair of eyes) to assure that the tops of the fuselage, wings, nacelles, and horizontal stabilizers were thoroughly checked for missing panels, doors, or anything else. It seems this was triggered by a couple of occurrences where aircraft were back in service and someone later discovered extra panels left in the dark bowels of the hangar. There is also a well-published human factors story involving a crashed Beech 1900 where the panels on the top of the horizontal stabilizer were left off. These are not readily visible to either aircrews or maintenance crews doing walk-around checks. No doubt, these are contributing reasons why an open panel or door becomes a Red X; a second pair of eyes will check to assure their proper closure. In the final analysis, all these issues are really an open and shut case … *Over 'n out.*

MISHAP-FREE

Flying Hour MILESTONES

7,500 HOURS

130 AS, Charleston, WV
MSgt Paul A. Dolin

158 AS, Savannah IAP, GA
SMSgt Michael L. Dykes

6,500 HOURS

3 AS, Dover AFB, DE
MSgt Donavan L. Beckford

109 AS, St. Paul, MN
MSgt Douglas Riesgraf

130 AS, Charleston, WV
Lt Col Paul E. Gardner

155 ARW, Lincoln, NE
Lt Col James L. Dalton

171 ARW, Coraopolis, PA
CMSgt Gerald P. Levato

709 AS, Dover AFB, DE
Lt Col Timothy Lyon

5,000 HOURS

3 AS, Dover AFB, DE
SMSgt Erik R. Appeldoorn
TSgt Stephanie S. Goodrich

99 AS, JB Andrews, MD
Maj Jim Crum

109 AS, St. Paul, MN
CMSgt Jeffrey Rosenthal
MSgt John Green
MSgt Aran Stromberg

130 AS, Charleston, WV
MSgt Michael S. Crum

155 ARW, Lincoln, NE
Maj Randall L. Douglas

158 AS, Savannah IAP, GA
Lt Col Jonathan M. Drew
MSgt Daniel G. Cisneros

171 ARW, Coraopolis, PA
Col Robert L. Garvin
Lt Col Keith L. Gailey
SMSgt Eric J. Apelskog

326 AS, Dover AFB, DE
Lt Col Jay Miller
Maj Miguel Lutman

3,500 HOURS

3 AS, Dover AFB, DE
Lt Col Steven D. Sylvester
Maj Eric A. Kut
Maj Richard V. Robichaud
Maj Lucas D. Spathes
MSgt David J. Grant
TSgt Garrett C. Blose
TSgt Shaun E. Flatter
SSgt Ryan A. Thompson

89 OG, Presidential Airlift Group, JB Andrews, MD
TSgt Tommy Hallows

109 AS, St. Paul, MN
Lt Col Jason Ceminsky
Maj Keegan McConaughey
Maj David Raab
Maj Benjamin Swanson
SMSgt Michael Tracy
MSgt Mark Norman

130 AS, Charleston, WV
Lt Col Gregory S. Lowe
Lt Col Kirk T. Teufel
Maj Jamie H. Aguilar
Maj Stephan G. Shy
Maj Christopher A. Wright
TSgt Clifford C. Umscheid

130 OG, Charleston, WV
Maj Dawn D. Teufel

155 ARW, Lincoln, NE
Maj Matthew E. Siemsen
Capt Joseph R. Remmenga

158 AS, Savannah IAP, GA
Maj Jack W. Groover
Maj John R. Kenard
Maj John A. Mims
MSgt Guy T. Lupica
MSgt Christopher Odom

171 ARW, Coraopolis, PA
Col Edward E. Metzgar
Col Gregg A. Perez
Lt Col Jack C. Barnes
Lt Col Kenneth T. Fingers
Lt Col William S. Nixon
Lt Col Christopher G. Novelli
Lt Col Troy E. Wing
Maj John McCullough
SMSgt Ryan J. Conley
MSgt Michael G. Schanck
TSgt William S. Paull
TSgt Daniel W. Zickefoose

512 OSS, Dover AFB, DE
Maj Lawrence Dingler

709 AS, Dover AFB, DE
Maj Todd Mullen
MSgt Mary Keenan

2,500 HOURS

1 AS, JB Andrews, MD
TSgt Crystal Dassance

3 AS, Dover AFB, DE
Lt Col Mark W. Radio
Maj Frank J. Angelone
Maj Ishan B. Avila
Maj Edmund A. Ballew
Maj David A. Floryan
Maj David A. Gebbie
Maj Daniel A. Matre
Capt Daniel R. Anderson
Capt Thomas D. Bockrath
Capt Ellen M. Canup
Capt Adam D. Franklin
Capt Matthew R. Hammerle
Capt Lane C. Riddell
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130 AS, Charleston, WV
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Maj Kristen J. Hoeckel
Maj Bente L. Simerman
Maj Darin T. Urban
Capt Justin S. Ensor
TSgt Glenn R. Taylor

130 OG, Charleston, WV
Lt Col Bryan W. Preece

155 ARW, Lincoln, NE
Maj Jonathan M. Fitzsimmons
Capt Troy M. Martin

156 AW, Carolina, PR
Col Raymond Figueroa
Maj Luis R. Martinez
Maj Raul O. Nieves
Maj Isbelia M. Reyes
Maj Jose R. Roman
Maj Russell G. Toro
CMSgt Hector Garcia
CMSgt Carlos Sepulveda
SMSgt Jose R. Vidal
MSgt Daniel Arias
MSgt Eric R. Circuns
MSgt William Santini
MSgt Alberto Torres

158 AS, Savannah IAP, GA
Capt Jeffrey M. Reynolds
Capt Stevie E. Rushing

164 AS, Mansfield, OH
Maj Patrick Cooney

171 ARW, Coraopolis, PA
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Lt Col Jeffrey S. Devore
Lt Col Ryan J. Sherbondy
Maj Damon K. Antonetti
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Maj James A. Moretti
Maj Gary B. Phillips
Maj Kelly S. Ramsey
Maj Andrew A. Schappert
Maj Erik C. Schillo
1Lt Joshua H. Wood
TSgt Kirk M. Boring

512 ALCF, Dover AFB, DE
MSgt Rebecca Fitch

709 AS, Dover AFB, DE
MSgt Anthony Bastone
MSgt Stephanie Miller
MSgt Jeffrey Montesa

SUBMITTING MISHAP-FREE FLYING HOUR MILESTONES

To submit mishap-free flying hour milestones, send your request to:
mobilityforum@us.af.mil **HQ AMC/SEE, 618.229.0927 (DSN 779)**
Please submit as shown in the listings above (first name, last name, sorted alphabetically within rank).

QUICKSTOPPERS

Intentional Noncompliance in LOSA

By LT COL JOHN OURADA
Flight Safety Officer

AMC Flight Safety has conducted Line Operations Safety Audits (LOSA) for four years. The results of these audits have proven extremely valuable, matching many AMC Class A mishap findings. Recent reports highlight a class of error that is troubling to military aviators and leaders. This error is Intentional Noncompliance. To understand the LOSA results, it is important to understand how broad this definition is in the Threat and Error Management (TEM) construct.

As defined by the LOSA Collaborative, "Intentional Noncompliance errors are borne from a lack of flight crew discipline, or a lack of procedural clarity that makes it difficult for flight crews to comply with SOPs as written, or deeper systemic/latent factors such as operational pressure, scheduling-induced fatigue, and/or morale. Sometimes the reasons for Intentional Noncompliance can be a combination of flight crew, procedural *and* systemic factors." So using nonstandard phrases such as "9s and 2s" instead of "29.92, set" at transitional altitude would be labeled Intentional Noncompliance for using the wrong term, versus not setting the altimeter.

Not making repeated callouts is another example of this error. The callouts may be during a challenging phase of the mission, or maybe the new procedures aren't incorporated into training completely. Therefore, this error is useful for determining when procedures are not producing the required results, as well as when more training is required to incorporate new procedures into flying habit patterns. The error highlights the need for flight crew to pay attention to details, and it identifies procedures or policies that need revision or improvement as well. The AMC staff is working to improve flying procedures, training, and evaluation of procedures in an effort to increase the margin of safety in our flying operations.

Critters on a Plane ... When Pax Bite

By MS. JEN YATES

Summer is upon us, and so is the season that brings all sorts of critters out of the woodwork. Unfortunately, these critters want to join us on our trips. While it seems like a bad Hollywood movie … Snakes on a Plane, Spiders on a Plane … the threat is real. Unfortunately, you can't just shut the movie off, especially when you are in the air.

Personnel need to be wary of where the baggage and cargo sits prior to aircraft loading. For example, during a stopover at Bangor, Maine, a lovely camel spider hitching a ride from Muscat, Oman, made an appearance on our crew bags. Luckily, no one was bitten and the spider's life expectancy was greatly shortened.

Sometimes we aren't so lucky. During airdrop preparation at Pope, a wheel bug—disgruntled over his home being airdropped out the back of a C-130—promptly took it out on our loadmaster's hand. The wheel bug is a spiny North American bug with a "wheel-like" back and fang capable of a painful stab to humans. Native to Eastern North America.

But the most unusual story I have heard (and the most painful to the aircrew) was a mother cat that stowed away on a trip from Kuwait. Unfortunately, her story doesn't end happily. While trying to contain her, she bit the flight engineer and flying crew chief, causing the cargo compartment to be vacated. Upon landing at Ramstein, she successfully eluded personnel and escaped from the aircraft, leaving behind two newborn kittens she had delivered during the flight. The crewmembers underwent rabies vaccinations, Duty Not Including Flight, and a trip to public health.

These stories, while mildly humorous, remind us to be vigilant of what is brought on the aircraft. Watch your bags, watch where you put your hands, and don't try to capture critters unless necessary.

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A DAY IN THE LIFE

437th Aircraft Maintenance Squadron

SrA Cody Richman, 437th Aircraft Maintenance Squadron C-17 Globemaster III flying crew chief, wears a head set that allows him to communicate with aircrew members inside the cockpit of the aircraft at Joint Base Charleston, S.C. Richman ensures the aircraft is working properly and safe to fly at a moment's notice.

USAF PHOTO BY SRA DENNIS SLOAN