THE MOBILITY FORUM

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Understanding Procedural Safety Barriers
Part 1: Standardized Callouts

Operation Baby Formula

Global Peacekeeping: The Role of the U.S. Air Force

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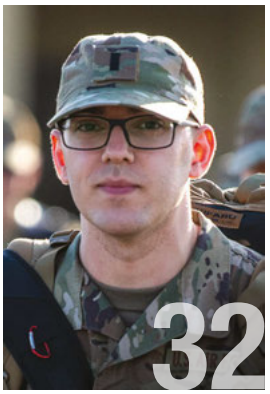

ON THE COVER

Airmen assigned to the 721st Aerial Port Squadron push a pallet of infant formula onto a C-17 Globemaster III at Ramstein Air Base, Germany, May 22, 2022. U.S. Transportation Command expeditiously coordinated across federal agencies, to support President Joe Biden's direction to conduct Operation Fly Formula. The 521st Air Mobility Operations Wing provided critical aircraft maintenance, aircrew support, command and control, and aerial port services to coordinate logistics and execute the mission with urgency and safety.

USAF photo by 1 Lt Emma Quirk

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Happy Holidays, Mobility Warriors!

Gen Mike Minihan, Commander, Air Mobility Command, Scott Air Force Base, IL

USAF photo

As we head into the holiday season and prepare to wrap up the year, I want to take a moment to express my gratitude to the Total Force team of Mobility Airmen across the globe. Throughout 2022, you have projected, connected, and sustained the joint force every day, in every corner of the globe. I could not be prouder of the work this team has accomplished.

You have worked incredibly hard over the past year to prepare for our pacing challenge, and in executing the Rapid Global Mobility operations our Nation relies on. Our airlift arm continues to ensure we deliver combat strength, as well as hope, at a moment's notice. Hope comes in many forms—most notably, with our ongoing assistance to Ukraine, in the form of military aid deliveries, and humanitarian efforts following natural disasters in countries like Pakistan.

Our air refueling remains a mainstay in enabling global reach, even more now, with the recent addition of the KC-46, which brings unique refueling, cargo, and aeromedical capabilities. Our aeromedical evacuation teams are still the premier experts of life-saving care, while our Global Air Mobility Support experts and Command and Control personnel underpin everything we have accomplished this year. Your expertise and passion to serve is the fuel that drives our mission and has been critical to our success.

What will the new year bring for Mobility Airmen? Our focus will remain on China, and, in all things, we will remain steadfast with one objective in mind: victory. In August, we installed a one-year shot clock in our headquarters building, and we intend to demonstrate a winning scheme of a maneuver next summer during Mobility Guardian 2023 in the Pacific Area of Responsibility. We have also been very intentional about acting upon and accomplishing big things—quickly. This year, everything we have done—every meeting, every staff-to-staff, every rehearsal, every conference—was geared toward positioning the joint force to win. The lethality required for the big fight is only possible by way of this team; if called upon during conflict, the victory of the joint force will rest on our shoulders.

We will only succeed in our future challenges if we have healthy, resilient Airmen and families. Our unique strategic advantage has been and will continue to be rooted in our Airmen.

We will only succeed in our future challenges if we have healthy, resilient Airmen and families. Our unique strategic advantage has been and will continue to be rooted in our Airmen. My team is working hard to ensure we continue to support and improve things like mental health care, family readiness support, family housing options, childcare, and improvement to spouse employment and education opportunities. We have been working hard on cultivating the resilience required of our Mobility Warriors, with an equal focus on mind, body, and craft—a leadership model that I call "Warrior Heart."

As you take some well-deserved time off during this holiday season, I ask that you do so safely, and to remember our Airmen who are deployed or away from their families. For many, separation at this time of year is difficult. A phone call, holiday party invitation, or even just a smile and kind word can show those we serve alongside that we care. We are a family of Warriors, and we take care of each other.

Our Active Duty, Guard, Reserve, and Civilian Airmen are the heart of the Air Mobility Command's total force team. My wife, Ashley, and I want to thank you again for an inspiring year. We have much to be thankful for, and much to be excited about in 2023! We wish all of you a safe and happy holiday! *LET'S GO!*

Maj Gen Jeannie Leavitt, Department of the Air Force Chief of Safety, is pictured in front of an air traffic controller at Edwards AirForce Base, CA, Feb. 24, 2022. Leavitt visited Edwards to gain a better understanding of the safety protocols implemented during flight test missions as well as receive an overview on how artificial intelligence initiatives are being integrated to enhance human performance.

USAF photo by Katherine Franco

Safety Celebrates First Anniversary of Maj Gen Leavitt Taking the Reins

BY MS. JESSIE PERKINS, AFSEC PUBLIC AFFAIRS HEADQUARTERS

On August 13, the safety enterprise commemorated one year under the leadership of Maj Gen Jeannie Leavitt, Department of the Air Force Chief of Safety and Commander of the Air Force Safety Center.

A path of historical firsts, Leavitt was selected to be the Air Force's first female fighter pilot in 1993, where she excelled in the F-15E Strike Eagle. Another first in her career was marked when she became the first female commander of a combat fighter wing in 2012. It is the here, now, and tomorrow, however, that Leavitt encourages Airmen and Guardians to contemplate.

Since taking command, Leavitt has been the first chief of safety to visit many units and locations within the Department of the Air Force (DAF), improving policy, programs, and education across multiple safety disciplines.

One of Leavitt's first charges as commander was to look at the Air Force Safety Center (AFSEC) organization and mission to ensure safety's role was fully aligned with the DAF. Immersing herself in the scope of safety across the Air and Space Forces (USAF and USSF), she challenged her leadership staff to "think outside the box" during organizational strategic planning sessions and develop a way forward for the safety mission and vision.

"It was an incredibly successful event—Leavitt concentrated on topics that are pivotal and ensured that everybody was heard during the discussions," said CMSgt Amber Person, Chief Enlisted Manager and Safety Career Field Manager. "The meeting has been key to some of the actions we've implemented during the year since she took command."

"Airmen and Guardians are our most valuable resources, and our leaders recognize their inherent responsibility to protect them," said Leavitt. "We need to provide the training and tools to help leaders protect our teammates."

Indeed, both manned aviation mishaps and ground fatalities have decreased over the past few years. "While it is good to see that mishaps are trending downward in recent years, it is important to stay vigilant when it comes to hazard identification and risk management. Mishap prevention is a journey, not a destination," said Leavitt. "I challenge leaders at every level to help our Airmen and Guardians develop a proactive mindset."

Leavitt also spent much of the year traveling to Air Force and Space Force installations to learn how safety is integrated into their missions. She has been immersed in everything from pilot training issues to advancements in human performance.

Safety touches every task within the Department of Defense (DoD). To ensure appropriate attention from senior leaders is placed on preventing mishaps, Leavitt invited Laura Macaluso, Director, Force Safety and Occupational Health for the DoD, to Edwards and Los Angeles Air Force Bases in California to gain a better understanding of the safety protocols implemented during flight test missions. They also witnessed how artificial intelligence initiatives are being integrated to enhance human performance, yielding a look into the mission of Space Systems Command.

As the chief of safety for two services, Leavitt has had the opportunity to be the first to visit all three USSF field commands.

Lt Col Joshua Egan, 412th Test Wing Chief of Safety, Maj Gen Jeannie Leavitt, Department of the Air Force Chief of Safety, Laura Macaluso, Director, Department of Defense Force Safety and Occupational Health, and Maj Philip Downing, 370th Flight Test Squadron, F-16 Test Pilot, pose for a group photo following a T-38 flight at Edwards Air Force Base, CA, Feb. 24, 2022.

USAF photo by Katherine Franco

For more information on the safety mission, vision, and current news, visit: https://www.safety.af.mil/

"My field command visits helped me gain a better understanding of the safety concerns specific to the USSF," said Leavitt. "In addition to space safety, AFSEC support crosses all safety disciplines such as aviation, occupational health, weapons support systems, and explosive siting. I will work to continue normalizing safety support across the Air and Space Forces."

Leavitt's participation in the Senior Steering Group of the Common Standards Working Group, paired with visits to launch facilities at Patrick Space Force Base, FL, and Cape Canaveral Space Force Station, FL, has helped AFSEC stay in lock-step on developing standards that enable the USSF to succeed in its mission while strengthening relationships with industry.

"The space launch arena is a dynamic environment with new commercial partners, platforms, and propellants, which will require a creative approach across the DoD to ensure we move at the speed of relevance," said Leavitt. "This [approach] will be a key issue as we continue to expand launch partnerships with both commercial entities and sister organizations, including the Federal Aviation Association and the National Aeronautics and Space Administration."

Leavitt has also tackled weapons safety head-on, including the "nuclear bow wave," the DoD's modernization and recapitalization of its nuclear weapons systems. AFSEC is working with numerous Air Force and interagency partners on safety design certifications and the integration of nuclear surety requirements for multiple nuclear assets. These assets include existing weapons systems such as the Minuteman III Intercontinental Ballistic Missile System, the F-35 fighter jet, and the B-2 bomber, plus programs under development such as the Ground Based Strategic Deterrent —now Sentinel— program and the new B-21 Raider bomber aircraft.

Leavitt's visit to F.E. Warren Air Force Base, WY, to view the current and future intercontinental ballistic missiles' capabilities and to become more familiarized with Global Strike Command's mission to maintain and protect these weapons systems proved exceptionally eye-opening.

Leavitt has also heightened the importance of off-duty risk management, getting the word out about the role Airmen and Guardians have in it. Off-duty is where the DAF sees the largest number of preventable injuries and deaths (led by motor vehicle mishaps) recur every year.

In March, Leavitt kicked off the DAF rider safety campaign with the Air Force motorcycle safety program manager. This campaign focuses on improving motorcycle safety awareness through seven educational videos, seven podcasts, numerous articles, digital visual aids, social media posts, personal protective equipment demonstrations, and a safety roadshow. Motorcycle fatalities are currently trending downward, but we must stay vigilant in our mishap prevention efforts.

"Safety is a foundation to ensure mission effectiveness," said Leavitt. "As we advance the Air and Space Forces into the future, we need to focus on taking care of our people—and keeping them safe—so they can take care of the mission," Leavitt continued. "Our Airmen and Guardians will be our competitive advantage in future conflicts."

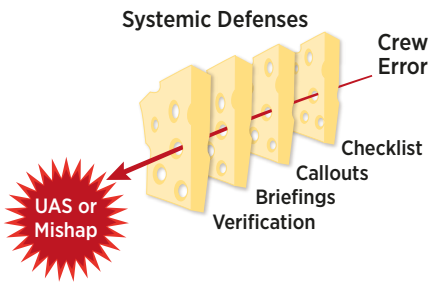
Today, the influence of safety is critical to meeting its mission: Safeguard Airmen and Guardians, while protecting resources to enable mission success.

Understanding Procedural Safety Barriers

Part 1: Standardized Callouts

BY MR. SEAN BORDENAVE, HQ AMC CRM/TEM PROGRAM MANAGER

Have you ever stopped and wondered about the reasoning behind some of our procedures? Going through initial qualification training as a new student, our mentality is like a Nike commercial: "Just Do It." We read the procedures, our instructor demonstrates how to perform those procedures, and we spend hours in training devices learning those procedures through memorization and repetition. Over time, we begin to understand some of those procedures, like checklists and critical action items/boldface, but we sometimes overlook the safety aspect of those procedures. Those procedures are there to ensure we properly operate the aircraft. They become our safety barriers. There are many procedures that we utilize while operating an aircraft, but briefings, checklists, cross-verification, and callouts represent some important procedural safety barriers.



As highlighted by Dr. James Reason's "Swiss Cheese" Model, these procedures provide an opportunity to detect and correct errors that we might make while flying. If we omit those procedures or we do not properly utilize those procedures, then those procedures could become "holes" in the Swiss cheese that allow an error chain to continue. In other words, those procedural barriers become procedural errors in the error chain.

One procedural barrier that we tend to loathe is standardized callouts (Air Mobility Command [AMC] refers to them as Advisory Calls). Callouts are often dismissed as something we give the Pilot Monitoring (PM) to do while they are not flying, something we do if we have time, or something we simply ignore altogether out of complacency. In actuality, callouts play a major role in the safe operation of the aircraft.

CHARACTERISTICS OF A CALLOUT

Verbal Cue: Obviously, as the name implies, callouts are normally standardized communications that provide a cue. The callout is intended to be a short, concise, and unambiguous verbal communication between the crew.

Verbal Cue for Action: In some cases, the callout might be the initiation of a required action or procedure. For example, passing through FL180/18,000 (Transition), the PM gives the verbal cue to set the proper altimeter. The PF, or Pilot Flying, responds accordingly.

TABLE 29.1. (AMC) CLIMB OUT ADVISORY CALLS

Climb Out	PM Call	PF Response
Transition Altitude	"Transition Altitude, 29.92, Set" (or 1013)	"29.92, Set" (or 1013)

AFMAN 11-202V3 AMC SUP, Table 29.1

Verbal Cue for Situational Awareness: A callout is frequently used as a cue to help maintain situational awareness, most often using altitude as our situational awareness cue. At the same time, the callout might be prompting a decision for action, depending on the situation. This occurrence is often seen in our instrument approach callouts:

TABLE 29.4. (AMC) PRECISION APPROACH ADVISORY CALLS

Precision Approaches (1)	PM Call	PF Response
100' above glideslope intercept altitude	"100 above"	
1,000' above touchdown	"1,000, stable" or deviation	
500' above touchdown	"500, stable or "go-around, unstable"	(Acknowledge)
100' above Decision Height (DH)/Decision Altitude (DA)	"100 above"	
At DH/DA	"Minimums"	**(2)**
Only approad lights in sight (CAT I ILS)	"Approach lights in sight"	"Continuing" **(3)**
Runway environment in sight	"Runway in sight"	"Landing" or "Going Around"

AFMAN 11-202V3 AMC SUP, Table 29.4

Callouts help us maintain situational awareness, ensure that the aircraft is maintaining the proper flight path, and in some cases, both.

Verbal Cue for Aircraft Deviation: This cue is very similar to the situational awareness cue mentioned previously. It deserves its own category because it is a critical alert to the PF of deviations from flight path, such as heading, altitude, and airspeed. This callout is intended to use Crew Resource Management/ Threat and Error Management (CRM/ TEM) to detect an aircraft deviation quickly in order to prevent an Undesired Aircraft State (UAS), which is a reduction in safety margins.

29.6.4 **(AMC) Deviation Advisories.** In accordance with sound CRM/TEM practices, aircrew members will inform the PF when flight path deviations exceed (or will exceed) MDS tolerances and no attempt is being made to correct the deviation. **(T-2)**. Any crewmember noticing a potential terrain and/or obstruction issue will immediately notify the PF. **(T-2)**. The PF will take immediate corrective action. **(T-2)**. This is especially important during critical phases of flight, nighttime, NVG ops, and/or instrument conditions.

29.6.4.1. **(AMC)** Under normal flight conditions, deviations observed in excess of heading (+/-5 degrees), airspeed (+10/-5 knots), or altitude (+/- 100 feet) will be announced by any aircrew member using clear and concise terminology (example: "XX knots fast. **(T-2)**. When conducting planned maneuvers with tolerances different than those listed above, comply with AFTTP 3-3 guidance for "Terminate criteria." **(T-2)**.

AFMAN 11-202V3 AMC SUP, 29.6.4

TIMELY CALLOUT = TIMELY RESPONSE

Finally, another critical characteristic of a *successful* callout is the callout being made at the appropriate time. A callout made early, late, or omitted may be an ineffective safety barrier.

THE "SO WHAT?"

You may not recognize the importance of callouts in your everyday flying, especially if everything is going smoothly. However, callouts matter greatly when things are not going smoothly. As mentioned previously, callouts help us maintain situational awareness, ensure that the aircraft is maintaining the proper flight path, and in some cases, both. Let us look at an Aviation Safety Action Program (ASAP) example that highlights the importance of timely callouts.

ASAP #18177 SUMMARY [KC-135 AIRCRAFT], SUBMITTED ANONYMOUSLY

Getting vectored to visual on 34R at OTBH [Al Udeid Air Base, QA], [KC-135] [Aircraft Commander] AC was pilot hand flying approach. The weather was hazy. On base leg, we thought we had adequate visual references to complete the approach. We descended and configured gear and flaps 50, turned to dogleg, and began to slow to final approach speed. We overshot final, notified tower, and began a turn back to lineup with runway. AC was looking outside through the haze to aquiare [acquire] the appropriate runway. The power was not up enough to maintain final speed, and the airspeed began to slow. Copilot noticed the slow airspeed and called out "airspeed." Pilot immediately added power to get back to appropriate speed and line up on final. We were approximately 15-20 knots below [Reference Airspeed] REF speed when airspeed was noticed as slow. No stall indications were noticed. We intercepted final, got on the appropriate glide path, and completed the landing without incident.

First, let us analyze this ASAP event using Threat and Error Management (TEM). The first aspect we notice in this narrative is the **hazy weather, which is a threat**. Of course, low ceiling or visibility during the approach can increase the mission complexity, especially if the conditions are not forecasted or noted in the current observation. As a result, the narrative suggests the hazy conditions led to an overshoot of the final approach, and the Aircraft Commander, as the PF, was trying to visually acquire the runway environment. Although not directly stated in the narrative, the crew is most likely fixated on finding the runway. Due to this fixation, the hazy conditions led to a chain of crew errors.

The first error that is described in the narrative is the incorrect power setting, leading to an **airspeed error**, in which the airspeed starts to decay.

The next error may not be quite as obvious. **The second error is the late airspeed deviation callout.** You might be saying, "Hey, wait a second, the PM did make an airspeed deviation callout!" The PM did make a callout: *"Copilot noticed the slow airspeed and called out 'airspeed.'" Pilot immediately added power to get back to appropriate speed and line up on final. We were approximately 15-20 knots below REF*

Although callouts might feel like a mundane and useless task in our everyday flying,
this task is a vital procedural safety barrier.

speed when airspeed was noticed as slow." The AFMAN 11-202V3 AMC SUP helps us see the callout error.

> 29.6.4 **(AMC) Deviation Advisories.** In accordance with sound CRM/TEM practices, aircrew members will inform the PF when flight path deviations exceed (or will exceed) MDS tolerances and no attempt is being made to correct the deviation. **(T-2)**. Any crewmember noticing a potential terrain and/or obstruction issue will immediately notify the PF. **(T-2)**. The PF will take immediate corrective action. **(T-2)**. This is especially important during critical phases of flight, nighttime, NVG ops, and/or instrument conditions.
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AFMAN 11-202V3 AMC SUP, 29.6.4

The guidance states that an airspeed callout should be made when a deviation of 5 knots slow occurs. According to the ASAP narrative, the aircraft was approximately 15-20 knots below REF speed when airspeed was noticed as slow. Thus, the airspeed deviation callout was not timely. Analysis of this ASAP event showed that the aircraft was in an undesired state when the callout was made.

Analysis of this ASAP event revealed the reference airspeed for this approach was 150 knots. Based upon this reference speed, the speed slow deviation callout should have been made at 145 knots to comply with the AFMAN 11-202V3 AMC SUP. Furthermore, the analysis showed the lowest airspeed encountered during the event was 114 knots. The analysis showed that 22 seconds elapsed between 145 knots (when the callout should have been made) and throttle increase, which signified recovery from the undesired state. Thus, recognition of the slow airspeed probably occurred around 20 seconds after the airspeed decayed below 145 knots, which is a long time without recognizing the decaying airspeed.

We now see how crucial a timely aircraft deviation callout is. In this ASAP event, the crew was fixated on finding the runway due to the hazy conditions. While this situation was occurring, the airspeed was decaying along with the crew's situational awareness of the aircraft's state. Although an airspeed callout was made, it was not a timely callout (20 seconds late).

So how do we classify the airspeed callout? Recognition of the undesired state. AFMAN 11-290, 3.5.3 states: *Undesired State (US) is a safety- or mission-compromised aircraft state (position, altitude, condition, configuration, or mission crew events/ performance) resulting from ineffective CRM/TEM.* ***The appropriate response to a US is: Identify and Recover. Once the US has been identified, aircrews must take immediate corrective action—this action will likely include a combination of CRM, TEM, and technical skills. A US from which a crew does not immediately recover may lead to an incident, accident, mishap, or mission failure.*** Although the airspeed deviation callout was late, it was an important recognition of the Undesired State, which prompted the immediate recovery by the PF. The callout broke the error chain, which resulted in a positive outcome.

WRAPPING IT UP

Although callouts might feel like a mundane and useless task in our everyday flying, this task is a vital procedural safety barrier. Callouts are a verbal cue for initiating procedures, maintaining situational awareness, and announcing deviations from the desired flight path. In order for these callouts to be an effective safety barrier, we have to practice them in our everyday flying. If we do not practice them in our everyday flying, the callouts will not be a part of our habit pattern when we need them most … like when we lose situational awareness or become fixated on a task other than flying the aircraft. We need to treat callouts like a safety barrier; otherwise, the procedural safety barrier becomes a procedural error in the error chain on our way to a mishap.

Airmen assigned to the 721st Aerial Port Squadron load a pallet of infant formula onto a C-17 Globemaster III aircraft assigned to Joint Base Pearl Harbor-Hickam, Hawaii, at Ramstein Air Base, Germany, May 22, 2022.

USAF photo by A1C Jared Lovett

Operation Baby Formula

BY MS. TIFFANY L. TOLBERT, STAFF WRITER

In the spring of 2022, a nationwide baby formula shortage impacted millions of American families. In response, the Biden Administration initiated "Operation Fly Formula," in which the U.S. Air Force transported large quantities of baby formula to the United States from overseas.

On May 22, the first shipment was delivered by a U.S. Air Force C-17 Globemaster III to Plainfield, IN—132 pallets or 1.5 million 8-ounce bottles worth of baby formula, which included hypoallergenic mixtures. The shipment was offloaded into semi-trailer trucks and driven to a distribution center, where quality control checks were conducted on the formula. The formula was then dispersed among hospitals, pharmacies, and medical offices in regions where the needs were most acute.

Although the White House initially directed the Pentagon to use commercially-chartered aircraft, there were none available for use during the week of May 22—leading to the use of Air Force aircraft. As such, the proficiency of the Air Force and its equipment were key to the success of the missions. A C-17 cargo plane has a payload of up to 169,000 pounds, equivalent to nearly 85 tons. This high capacity allowed the planes to carry large shipments of formula, such as one weighing nearly 35 tons. This shipment in particular originated from Zurich, Switzerland, and was trucked to Germany, where it was loaded on the C-17 and flown to the United States. Typically, transporting formula from Europe to the United States would take weeks; however, due to the urgency and logistics of Operation Fly Formula, it took only three days. The flights were intended to provide a bit of relief and work in conjunction with other actions by the government to replenish store shelves with formula. The second shipment of 114 pallets from Ramstein Air Base in Germany arrived at Washington Dulles International Airport soon after the first one. Overall, the United States conducted more than a dozen formula shipment missions in the spring and summer of 2022.

The emergency began weeks before cargo planes airlifted formula from overseas, as parents scrambled to find baby formula in-store and online. Typically, for children under 6 months old, there is only one item on their meal plan: milk, either human or formula. Three-fourths of all American babies receive at least some formula as part of their diet. Unfortunately, some children during the shortage were hospitalized because parents were unable to get the specific formula their child needed.

The rush for formula began with the closure of the country's largest formula production facility in February 2022. The Michigan plant, owned by Abbott Nutrition, was shut down because of a leaking roof, water pooled on the floor, and cracks in key production equipment that provided a passageway for bacteria to seep into the formula.

The plant reopened in June 2022, having replaced the leaking roof and corrected the other hazards. Formula from the plant was expected to reach store shelves within one to two months; resumption of full production at the plant will take longer.

This mission was not the first time the Air Force has provided swift assistance in a crisis. In 2021, the Air Force evacuated more than 124,000 people from Afghanistan with little notice. The C-17 is made to move heavy equipment—or many people—quickly, efficiently, and effectively. Combined with the logistical expertise of the U.S. Air Force and Air Mobility Command, Airmen stand ready to deliver humanitarian aid at a moment's notice.

Braking During Rejected Takeoff

BY MAJ TRAVIS CORD, HQ AMC FLIGHT SAFETY

Photo above: A C-17 Globemaster III prepares to take off in an undisclosed location to provide support to operations throughout the area of responsibility, March 16, 2021.

USAF photo by TSgt Paul Duquette

Making the go/no-go decision to continue a takeoff or reject it is not new. With the advent of jet engine technology for transport aircraft in the 1950s, more crews were faced with the decision to either continue or reject a takeoff more often than in previous aircraft types. Crews continue to face the same go/no-go decision points; however, with the reliability of aircraft, it is not often that crews reject a takeoff, especially in the latter part of the takeoff where the decision is most crucial. Although crews routinely train for these scenarios, it is crucial to emphasize the importance of making the decision and rapidly transitioning the aircraft to stop.

The decision-making process to continue a takeoff or reject it due to a fault or malfunction is in recurring training and often centers around the discussion of the low- or high-speed regime. Generally speaking, once the aircraft enters the high-speed regime, the reject decision should be based on an increasing level of criticality or the aircraft's ability to take flight. Although it sounds simple, the decision must be well thought out before entering the runway.

Once the decision has been made to reject a takeoff, a quick transition must be executed as several key systems must be employed. Although these tasks are simple, crews may forget how easily they can become difficult when they were not expecting to have to stop and are most likely startled. Also, there may be a transfer of crew duties depending on who was flying the aircraft.

Various aircraft flight manuals have different terminology, but the procedures are roughly the same. A quick and simultaneous response is required by the crew, often beginning with reducing the power to idle to stop the acceleration forward. Next, speed brakes are often extended, either manually or automatically. Lastly, the aircraft brakes are applied. The utilization of the aircraft braking system is the most crucial component in the rejected takeoff scenario. A quick and proper application of braking is needed to validate the assumption factored into the takeoff planning.

Once the aircraft is transitioned into a reject configuration, it is not uncommon for a rejected takeoff

Conduct a thorough crew brief to ensure everyone has the same mental image of their roles and responsibilities during a rejected takeoff. The procedures must be carried out instantly, and any delay decreases your safety margin of available runway.

to lead to a runway excursion/overrun. This issue is due in part to the crew's perception that they have sufficient runway available to slow and do not initially apply maximum braking. As the aircraft enters the end of the runway, crews attempt to apply maximum braking to stop, only to have poor braking due to rubber deposits, as they are now in the touchdown zone of the opposite runway. This situation is preventable by applying maximum braking from the initiation of the reject procedure.

Instantaneous with the application of the aircraft's brakes is a rise in the brake energy. However, the brake energy utilized during the aircraft taxi from ramp to runway is often overlooked. A taxi consisting of multiple slopes, long distances, and multiple stops can already have started the increase of brake energy before a rejected takeoff. To mitigate this threat, crews should consider the taxi route in their takeoff planning and use proper taxiing techniques, such as not riding the aircraft brakes.

As the energy increases in the brake system, it begins to transfer outward toward the tire. One of the most potentially dangerous situations would be a tire exploding; therefore, a fuse plug feature is standard practice. The fuse plug functions as a pressure relief device to deflate the tire before the energy reaches the point of a tire explosion. The deflating tires will pose additional challenges for maneuvering the aircraft, especially given that not all fuses will melt at the same time due to differential brake heating. Also, although fuse plugs are excellent protection against damage from a rejected takeoff, they do not prevent all hazards. Existing hydraulic leaks in or around the brakes could quickly result in a fire.

Here are some practical steps to ensure you are utilizing the aircraft's brakes in the best way during a rejected takeoff:

- Thoroughly assess the environment and aircraft limitations for the takeoff. How close to maximum gross weight is your aircraft? Is there a long taxi? What is the runway condition (e.g., dry, wet, icy?), and how might it be during all phases of a ground roll from a rejected takeoff?
- Conduct a thorough crew briefing to ensure everyone has the same mental image of their roles and responsibilities during a rejected takeoff. The procedures must be carried out instantly, and any delay decreases your safety margin of available runway.
- At the aircraft, position the seat to allow for maximum braking. Maximum braking must be obtained by "standing on them," which means the ability to completely depress the top of the rudder pedals, ideally without having to release them.
- Once the decision to reject has been made, quickly transition the aircraft. Deploying the speed brakes will increase the vertical wheel load and make braking more effective. Studies have shown that speed brake deployment is more critical than thrust reverser deployment.
- Do not assume that you have more than enough runway available, and do not stop braking in an effort to reach the end of the runway sooner.
- Continue the maximum braking until the aircraft has slowed to a safe taxi speed, attempting to make this reduction in speed in one single braking application. Once slowed, attempt to vacate toward a designated hot brakes area or a location away from other aircraft.

A rejected takeoff is an event that is not outside the odds of occurring in a crew's career. However, it does not occur often enough to always be at the forefront of the mind. Given this infrequency, crews must continue to take the opportunity during crew briefings to reinforce the duties and procedures of a rejected takeoff. Furthermore, crews must be mindful of the after-effects of a rejected takeoff as they may not yet be out of harm's way.

GLOBAL PEACEKEEPING: The Role of the U.S. Air Force

BY MR. ANDREW HELLERSTEIN, STAFF WRITER

A USAF military transport (C-135B) taking off during Operation New Tape.

Photo by Gordon Macadie

America's strength is not only in its ability to protect its own people but also in its ability to preserve global peace. Since the 1960s, the U.S. Air Force and Air Mobility Command (AMC) have upheld this ideal, supporting United Nations (UN) peacekeeping operations in some of the most beleaguered parts of the world and assisting military personnel and civilians alike. Across the history of peacekeeping operations in which the Air Force has participated, three major ones stand out: the Republic of the Congo, the Republic of Haiti, and Darfur in western Sudan.

1960: THE REPUBLIC OF THE CONGO

After becoming independent from Belgium in 1960, the Republic of the Congo fell into a civil war between the new government and various secessionist forces. In one of the Air Force's first forays into international peacekeeping, it deployed major airlift missions to the country to support UN peacekeepers.

Lasting from July 1960 through June 30, 1964, Operation New Tape was the largest Air Force airlift since the Berlin blockade of 1948 to 1949. The U.S. Air Force carried 16,000 of the 20,000 UN troops airlifted from 16 of the 23 nations that sent troops.

Although most support focused on military personnel, the U.S. Air Force also contributed to humanitarian relief. In 1960, the Air Force transported more than 1,000 tons of food to the Republic of the Congo to alleviate a food shortage in the country. More than 40 sorties delivered 974 tons of food from France and Germany to the region. Additional sorties transported more than 100 tons of food from other African countries, such as Togo, to the Congo's capital city. The struggle between Congolese and Belgian troops during the crisis led to racial attacks in the Congo, and many sought evacuation. More than 2,500 refugees, including at least 300 U.S. citizens, flew out of the Congo on Air Force C-130 Hercules and C-124 Globemaster IIs.

UN peacekeeping forces provided direct combat support to the Congolese government, which led to the defeat of the secessionist forces and the end of Operation New Tape in 1964.

2004: THE REPUBLIC OF HAITI

In early 2004, a coup d'état forced Haiti's president to flee the country. In order to stabilize the fracturing country, the United States led a multinational peacekeeping force into the area, dubbed Operation Secure Tomorrow.

AMC helped establish this peacekeeping mission by airlifting more than 1,000 U.S. Marines into the area, along with at least 36 other missions involving the deployment of 1,200 short tons of cargo. The 18th Air Force directed airlift operations through its Tanker Airlift Control Center (TACC, now the 618th Air Operations Center) at Scott Air Force Base, IL, for these missions, which were fundamental to establishing the multinational force.

Operation Secure Tomorrow quickly transitioned into a formal UN peacekeeping mission in Haiti to oversee the transition of power, named the United Nations Stabilization Mission in Haiti (or MINUSTAH, an acronym of the French name). MINUSTAH persisted in the country

Under a Caribbean sky, 84th Aerial Port Squadron Airmen work with a C-141 Starlifter crew to load and unload cargo in Port-Au-Prince, Haiti, while supporting Operation Secure Tomorrow.

USAF photo by 1 Lt Rob Goza

TSgt Nate Hogan, 786th Air Expeditionary Squadron Security Forces, conducts a weapons check before boarding Rwandan Soldiers onto a C-17 en route to the Darfur region of Sudan Oct. 24, 2007, at Kigali International Airport in Kigali, Rwanda.

USAF photo

until 2017, fighting armed gangs and providing disaster relief to civilians to preserve the country's stability.

2006: DARFUR, SUDAN

The War in Darfur is one of the most infamous civil conflicts in modern history, involving ethnic cleansing and genocide. The conflict began in Sudan's Darfur region in 2004, with several rebel groups declaring war against the Sudanese government. The government responded with a brutal campaign against the rebel groups and the minority populations they claimed to represent.

In 2007, the UN and the African Union initiated peacekeeping operations called the African Union United Nations Hybrid Operation in Darfur, or UNAMID. The goal of this operation was to protect civilians, facilitate humanitarian aid, and mediate between the warring factions. The U.S. Air Force contributed to UNAMID, relying on AMC's TACC to transport at least 240 containers of equipment to the operation. Airmen from other wings also helped transport troops and supplies from Rwanda to bolster UNAMID, airlifting more than 1,500 Rwandan soldiers and 170 short tons of equipment.

At its height, UNAMID consisted of nearly 27,000 personnel. It helped advance the peace process throughout the conflict, culminating in a peace deal in August 2020. UNAMID ended its mission on Dec. 21 of that year.

From the early 1960s to modern times, the Air Force and AMC have been allies to those affected by conflict around the world. UN peacekeeping operations have prevented dire situations from spiraling out of control, and the support of the Air Force has been vital to these successes. These operations not only protect the security of our allies but exemplify the compassion that is part of our national identity. By upholding peace across the globe, the Air Force and AMC bring to light our nation's power as a force for good.

A Clean, Pristine Military Machine: The KC-46

BY MS. LAUREN SCHATZ, STAFF WRITER

On May 5–6, 2022, Airmen from the 22d Air Refueling Wing, McConnell Air Force Base, KS, completed one of Air Mobility Command's (AMC) longest duration refueling flights in history: a 24.2-hour flight on one of the Air Force's newest tankers—the KC-46 Pegasus. The flight, which spanned more than 9,000 miles (along both U.S. coasts), demonstrated the impressive capabilities of the mighty aircraft.

The Boeing KC-46 was selected as the U.S. Air Force's next tanker in the KC-X tanker competition in 2011. Boeing delivered the first KC-46 to the Air Force in 2019, with plans to complete the fleet of 179 aircraft by 2029.

Lt Col Joshua Renfro, deputy lead of the KC-46 Cross Functional Team and a former KC-135 pilot, gave insight into the aircraft's capabilities and the status of the tanker's acquisition—and why he has concluded that the KC-46 is the right tanker for the future fight.

"The KC-46 is at an exciting place right now," Renfro said. "It is the next generation tanker that we are fielding, and it is the designated replacement for the aging KC-10 fleet."

The modern tanker thankfully can provide similar capabilities as the KC-10 and KC-135 to the joint force, Renfro informed *The Mobility Forum*. "However, the KC-46 is generations beyond those tankers in terms of aircraft design. It is a clean, pristine, military aircraft," Renfro stated.

According to Renfro, the aircraft also has a suite of capabilities that extend beyond that of a tanker and allow for it to carry out multiple mission sets.

Among these capabilities, one worth highlighting is the tactical systems it brings to AMC—it can access Link 16 and the Joint Range Extension Applications Protocol (JREAP) data link. According to Boeing, "Link 16… integrates the JREAP data onto new, full-color displays with intuitive symbols and moving maps." Renfro explained that these tactical systems increase threat awareness so the tankers can be closer to the fight to deliver more fuel where needed. "This helps your fighters get into the fight that much faster," Renfro said.

According to AF.mil, more of the tanker's capabilities include:

- Multi-point simultaneous aerial refueling through two refueling receptacles (one on each wing).
- The capability to operate quickly and effectively at smaller, forward airfields, which often have shorter, narrower runways, little ramp space, and fewer on-the-ground resources.
- Fueling offload rates required for large aircraft.
- A hose and drogue system that adds additional mission capability that is independently operable from the refueling boom system.
- The space to accommodate a mixed load of passengers, aeromedical evacuation, and cargo.
- A number of self-protection, defensive, and communication features making it more survivable in a contested environment.

Although the tanker provides many military capabilities, it did not initially come fully equipped. Renfro explained that the tanker, based on the Boeing 767 2C model, is not sold commercially; it is a commercial variant produced solely for the military. By acquiring this type of aircraft, the Air Force saves significant time in the research and development phase making it one step closer to readiness.

"You are modifying it to meet your mission needs and then putting it out under what should be lower costs and faster fielding," Renfro said. "I believe that is true, but it also carries its own challenges."

Some of these challenges have included refining the aircraft's camera system, so the tanker is fully mission capable. Camera system technology, not previously used in aerial refueling, brings a learning curve. Boeing and Air Force engineers

have joined forces to find solutions for common camera problems such as sun angles and low clouds.

These advancements led to the fielding of an Enhanced Remote Visual System (eRVS) to correct flaws in the former system. The final product will reduce eye strain on the operators by letting them adjust their sight picture to fit their physiological needs.

"We were out at Boeing last week, and it is phenomenal the difference it [RVS 2.0] makes," Renfro said. "The eRVS is a minor fix, but the first major fix coming down the pipe will be RVS 2.0, which is a comprehensive re-work that will upgrade the cameras to the current technology levels, removing most of the current restrictions on employment." The second issue identified is the current boom design. This boom lacks the dynamic stiffness needed in refueling, limiting the ability to refuel thrust-limited aircraft. The fix for this challenge is a boom telescope actuator redesign. "After these fixes, we end up with essentially the tanker we wanted to begin with, without those system-induced limitations that are caused by the original design of it," Renfro said.

The robust test processes that the Air Force employs have been critical in making the KC-46 "today's tanker." Renfro continued giving insight into these processes. "Boeing has its own test processes," Renfro noted. Following those processes, he explained that when the Air Force obtains an asset, it goes through a developmental test (DT). "Test pilots and test booms put it through the paces: heavyweights, lightweights, hot, cold, heavy receivers, light receivers, in turns, in clouds, turbulence, and more."

The DT process generates deficiency reports, and Air Force engineers then work with Boeing engineers to identify the causes of any issues. This process, which every incoming aircraft to the Air Force goes through, helps identify and solve the main challenges previously discussed, plus a few additional issues, such as cargo operations and passenger considerations.

After the DT process identifies the safety parameters, operational tests take place in which non-test pilots use the tanker and give their unique insight. This practice adds an additional layer of safety.

Renfro believes these processes are essential to the current achievements and future success of the KC-46. The tanker's reputation may have been marred by what some view as setbacks, but delays are often part of the nature of fielding. "It is not dissimilar than what we saw with the C-17 when it was coming up," Renfro said. "I think the big misconception that we have now [regarding the KC-46's "slower" fielding] is because there are very few people in the Air Force who have ever seen a modern weapon system come online. It is easy to say that this process is taking a long time and that it is not delivering flawless out of the box; it is not, but neither has any other aircraft. As aircraft get more and more complicated, that will continue to be the case with future generations."

Renfro is close to all aspects of the KC-46 advancement, being a deputy lead of the KC-46 Cross Functional Team, which is a specific, staff-created entity. Because the Air Force needed to upgrade the aircraft into a fully combat-capable product, it then created a series of teams to provide a singular focus on various plans and work with Boeing engineers to make them happen.

Renfro credits his predecessor, Lt Col Kevin White, for his integral role in advancing the KC-46. He also praised the work of Gen Ryan Samuelson, the Cross Functional Team lead, and Capt Michelle Kuyper, the action officer.

Renfro says this team works across the entire enterprise that works with the KC-46 to align the stars and figure out what needs to happen next. They also report regularly to Gen Mike Minihan, AMC Commander, to highlight how the systems are progressing.

Renfro explained that their progress has been through the Interim Capability Release effort, which started in July 2021 and was completed in September 2022. This program accesses what the tankers can do *now*. Identifying what it can do now can bolster its progress. This approach to advancing the KC-46 is measured, deliberate, and risk-informed. Since starting these modifications, the KC-46 has made huge strides of improvement, going from being operationally tasked against no receivers to being cleared to refuel every receiver aircraft with a technical compatibility with the KC-46 except for the A-10. In fact, Minihan declared the KC-46 worldwide deployable at Air & Space Forces Association's Air, Space & Cyber Conference in September 2022.

Renfro's message to Airmen is that "sometimes it is hard to see what is going on. It may feel as if the process is taking forever, but all the actions of the Airmen involved have made tremendous progress. The data collection, essential to progress and improvement, is powered by Airmen."

A self-proclaimed skeptic when approaching new ideas, Renfro says he has been blown away by witnessing the tanker come to life.

The phrase "it's the journey, not the destination" may be overused, but it rings true for a reason. For the KC-46, the exemplification of leadership and safety layers has been incredible. Whereas its capabilities will be tremendous, the walk up the chain was deliberate and informed by the field and has shown what AMC Airmen are capable of when working together.

Today's tanker needed to be safer and more innovative, and the KC-46 is just that—thanks to all those involved.

Royal New Zealand Air Force loadmasters, CPL Toni Thompson (right) and SGT Ethan Moran, (left) cut free supplies above a Micronesian island as part of Operation Christmas Drop, Dec. 11, 2019.

USAF photo by SSgt Kyle Johnson

Toys for Islanders: **Operation Christmas Drop**

BY MS. TIFFANY L. TOLBERT, STAFF WRITER

SSgt Shanelle Newman receives her Grey Beret at the 18th Combat Weather Squadron, Fort Bragg, NC, April 28, 2021. Newman is the first African-American female to earn a U.S. Air Force Grey Beret.

Courtesy photo

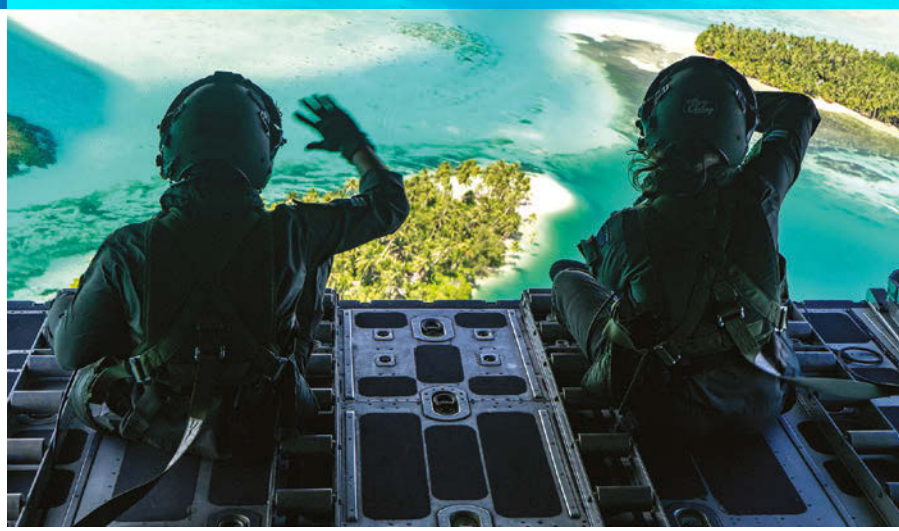
SSgt Shanelle Newman, the first African American female Grey Beret and now a Combat Weather Parachutist, was hesitant to go airborne during the early part of her Air Force career. That hesitancy quickly subsided once she learned of Operation Christmas Drop. Getting to "play Santa" would quickly become an incredibly rewarding experience.

Operation Christmas Drop is the world's longest-running humanitarian airlift operation.

In the spirit of the season, Airmen drop bundles of toys over more than 50 remote Pacific islands that may typically receive aid every four to five months or perhaps only once a year. Toys are not the only type of aid provided, however. Other items include clothing, food (e.g., rice and canned food), vegetable seeds, fishing equipment,

Gen Ken Wilsbach, Pacific Air Forces Commander, participates in the low cost, low altitude airdrop of essential supplies to the Federated States of Micronesia and the Republic of Palau during Operation Christmas Drop 2021, Dec. 6, 2021.

USAF photo by SSgt Gracie I. Lee



Royal New Zealand Air Force loadmasters, CPL Toni Thompson (right) and SGT Ethan Moran, (left) wave to locals after dropping supplies onto a Micronesian island as part of Operation Christmas Drop, Dec. 11, 2019.

USAF photo by SSgt Kyle Johnson

cookware, school supplies (e.g., pens, paper, and crayons), books, dental products, sunglasses, medicines, handheld tools, and coolers. A week before the drop, volunteer Airmen, Soldiers, Sailors, Marines, civilians, contractors, members from partner nations, and families assist in picking up and sorting the donations from private donors and charitable organizations.

This annual, weeklong effort not only brings together a diverse group of individuals in the name of giving, but presents a training opportunity for Airmen. The aerial, low-altitude air drops enable aircrews to develop and maintain combat readiness for future, real-world humanitarian assistance and disaster-relief missions.

As in prior years, the 2020 Christmas toy drop's planning and delivery efforts continued, despite the onset of the COVID-19 pandemic. The team followed a plethora of precautions and the guidelines issued by the Centers for Disease Control and Prevention: a virtual observer program was conducted with partner countries not attending in person; those participating in in-person activities were quarantined within their place of residence for 14 days and tested negative for COVID-19 before assembling with others; the donations were held in a sanitized location for a minimum of 24 hours; and participants wore masks and gloves while sorting the donations and building the bundles.

This past year marked Operation Christmas Drop's 70th anniversary. This operation was first conducted in 1951 when an aircrew assigned to Andersen Air Force Base in Guam flew a mission to the south of Guam over the

Gen Ken Wilsbach, Pacific Air Forces Commander, flies a C-130J Super Hercules during Operation Christmas Drop 2021, Dec. 6, 2021.

USAF photo by SSgt Gracie I. Lee

Micronesian atoll of Kapingamarangi. Upon spotting the island's residents waving to them from below for assistance, the crew gathered items on the plane, placed them in a container, attached a parachute, and dropped the cargo as they circled back. Fast forward to 2021, that same spirit continued as the Air Force and partner nations dropped more than 55,000 pounds of supplies, benefiting about 20,000 islanders. That same considerate, giving spirit continues to propel Operation Christmas Drop year after year, season after season.

2022 CRITICAL DAYS OF SUMMER WRAP-UP

BY MSGT THOMAS NORTHCUTT

Labor Day weekend has come and gone, which means one thing: summer is over. We now look forward to shorter days, a drop in temperature, and a new season of adventures. We have concluded the Critical Days of Summer (CDS) safety awareness campaign, which spanned from Memorial Day weekend through Labor Day. The campaign's purpose was to bring safety awareness to all Airmen while enjoying summer activities, road trips, and gatherings. Historically, the summer months are a period of increased mishaps, and Air Mobility Command (AMC) continues to promote CDS to bring awareness of the increased risk.

With our efforts towards mishap reduction, we proudly announce that AMC experienced ZERO fatal mishaps during the Critical Days of Summer period. Unfortunately, the Air Force lost seven Airmen due to off-duty activities, with the majority being motor vehicle accidents. This is a reminder to us all that we need to maintain constant awareness about our actions and our surroundings while traveling.

This year's campaign theme was *"Out & About … Take your Risk Management Tool Kit."* During the past two years the U.S. has been under varying COVID restrictions. These restrictions encouraged people to find new hobbies and stay inside more than usual, and limited the amount of travel our Airmen did during summer months. Nearly all states lifted restrictions and opened up venues this year, and Airmen may have felt the need to travel more for summer vacations. AMC focused a greater emphasis on travel and destination activity safety, targeting highway travel and summertime activity hazards.

Summer is over and the CDS campaign has ended; however, risks and hazards are still present and some have taken new forms. It's imperative that leaders, supervisors, and wingmen keep up their guard and implement mishap prevention strategies. The fall and winter months present new hazards, and we need our Airmen attuned to them. Our mission of Rapid Global Mobility is not slowing down, and neither should our safety-focused mindset. Airmen need to be focused and practice sound decision-making and personal risk management – through every season.

AMC FY22 **Mishap Statistics Scoreboard**

FY22 AVIATION MISHAPS

AIRCRAFT	CLASS A	CLASS B	TOTAL AS OF OCTOBER 2022
C-5M	0	0	0
C-17A	3	3	6
C-130	0	1	1
KC-135R	0	0	0
KC-46A	0	0	0
KC-10A	0	0	0
Total	**3**	**4**	**7**

FY22 FLIGHT SAFETY NOTES

CLASS A

Air Mobility Command (AMC) had three Class A aviation mishaps in FY22, compared with three in FY21.

C-17A Jet Blast Struck Three Parked HH-60s
On taxi, jet blast from a C-17 struck three parked Army HH-60s. Helicopters were damaged.

C-17A Engine Compressor Stall Inflight
The aircraft #2 engine experienced a compressor stall inflight. The aircraft landed uneventfully but engine damage was discovered. This is still under investigation.

C-17A Engine Overtemperature Inflight
The aircraft #2 engine experienced an over temperature indication inflight. The aircraft landed uneventfully but engine damage was discovered. This is still under investigation.

CLASS B

The total number of Class B mishaps was four, compared with four in FY21. Three were engine confined, however.

C-17A Engine Compressor Stall Inflight
On takeoff climb, the aircraft experienced high exhaust gas temperature to the #4 engine. The crew returned to base and landed uneventfully. This is still under investigation.

C-17A Wildlife Strike to Engine
Departing the airport, the aircraft struck a bird in the #4 engine. The aircraft diverted without further incident.

C-17A Engine Compressor Stall Inflight
During flight, the #3 engine oil filter warning indicator lit and the engine experienced a compressor stall. The aircraft recovered without further incident. This is still under investigation.

C-130J Aborted Takeoff
On an aborted takeoff, the aircraft experienced a wheel well fire and damage to the gear, tires, and brakes. This is still under investigation.

FY22 OCCUPATIONAL SAFETY MISHAPS

CATEGORY	CLASS A	CLASS B	TOTAL AS OF OCTOBER 2022
PMV 2 Wheel (Motorcycle)	0	0	0
PMV 4 Wheel	0	2	2
Sports and Rec	0	0	0
Gov. Motor Vehicle	0	0	0
Pedestrian/Bicycle	0	0	0
Industrial	0	1	1
Miscellaneous	0	1	1
Total	**0**	**4**	**4**

FY22 OCCUPATIONAL SAFETY NOTES

CLASS B

PMV 4 Wheel

- A member was a passenger in a vehicle; the vehicle collided with an oncoming SUV and the member sustained multiple fractures and a collapsed lung, resulting in Permanent Partial Disability. This mishap is still under investigation.

- A member was driving at night in fog, failed to merge traffic lanes, and collided with a traffic control pole. The member suffered injuries resulting in Permanent Partial Disability.

Industrial

- A member was downloading shipping containers from a K-loader and pinched their thumb between two containers while activating the conveyor. The member's thumb was amputated, resulting in Permanent Partial Disability.

Miscellaneous

- A member severed the tip of their middle finger while cutting wood on a table saw, resulting in Permanent Partial Disability.

Airlift/Tanker Association Convention: The Fight to Get to the Fight

Gen Jacqueline Van Ovost, Commander of U.S. Transportation Command, delivers her keynote address during the Airlift/Tanker Association Symposium in Denver, Colo., Oct. 29, 2022.

USAF photo by MSgt Jodi Martinez

Gen Mike Minihan, Air Mobility Command Commander, delivers his keynote address during the Airlift/Tanker Association Symposium in Denver, Colo., Oct. 27, 2022.

USAF photo by MSgt Jodi Martinez

BY MS. LAUREN SCHATZ, STAFF WRITER

The chilly mountain air in late October contrasted starkly to the warm spirit of camaraderie felt at the 54th Airlift/Tanker Association (A/TA) Air Mobility Symposium & Technology Exposition. This year's convention took place at the renowned Gaylord Rockies Resort & Convention Center in Aurora, Colorado, on October 27-30, 2022. The nearly 2 million square-foot venue could hardly contain the energy of the enthused guests—Air Mobility warriors comprised of members from Active Duty and Reserve forces, National Guard, DoD civilians, retired military personnel, aerospace industry members, and more. Attendees buzzed around the sprawling halls, eager to network and learn from one another.

The convention's environment of growth can be credited to the structure itself. A/TA leaders carefully plan the event as a forum for ensuring that American military forces continue to have the Air Mobility capabilities required to implement the national security strategy. This is made possible by Airmen from different disciplines, with diverse duties, who are stationed at various bases. Where they do not differ, however, is their shared responsibility for the future fight.

This shared responsibility was a recurring concept at the 2022 A/TA. Acknowledging that mobility starts with every Airman is critical to facing today's and tomorrow's adversaries. That is why the theme of this year's convention was "the fight to get to the fight"—emphasizing the effort and responsibility involved in preparing for the road ahead.

Mobility Airmen have shouldered tremendous responsibilities during recent world events, which A/TA highlighted. Not only were mobility Airmen key players in the success of Operation Allies Refuge in 2021, but they also have had an enormous role in the United States' response to Russia's unprovoked invasion on its neighboring country of Ukraine in 2022. Meanwhile, China remains a looming threat that Airmen are addressing and consistently preparing for.

These scenarios confirm that complacency is never an option. Thankfully, mobility Airmen proved and continue to prove their ability to adapt. The concepts of Multi-Capable Airmen and Agile Combat Employment, which were seen operationally during recent events, demonstrate each Airman's ability to go above and beyond the responsibilities and expectations placed on them.

Gen Jacqueline D. Van Ovost, former Commander of Air Mobility Command (AMC), is the 14th Commander of U.S. Transportation Command as well as an honored guest at the 2022 A/TA. Van Ovost's ability to further energize an already energized room was just a minor reflection of her immense capability to take the Command a step further—and a step ahead.

In her keynote address, Van Ovost discussed how she has been a witness to Mobility Airmen's incredible efforts—and how these are needed for the future fight.

"Whenever our nation calls today, our joint logistical prowess remains on

CMSgt of the Air Force, JoAnne S. Bass, provides her keynote address during the Airlift/Tanker Association Symposium in Denver, Colo. Oct. 29, 2022.

USAF photo by MSgt Jodi Martinez

SrA Aundrea Britt, 60th Aerial Port Squadron Air Transportation Operation Center Information Controller, sits at her work station Nov. 3, 2021, at Travis Air Force Base, CA. Britt was awarded the Col Gail Halvorsen Award, an Airlift/Tanker Association-sponsored award that recognizes an Airman from the air transportation career field who has sustained an excellent record of accomplishment in aerial port operations.

USAF photo by Lan Kim

"We have always risen to meet our nation's strategic challenges. Our legacy is filled with those who met difficulties with innovation, determination, and professionalism. Time after time, when our nation called, we delivered."

Gen Jacqueline Van Ovost, Commander of U.S. Transportation Command

full display," Van Ovost stated. "… We will need your experience, your innovation, and your partnership now more than ever to evolve our rapid strategic advantage."

Airmen who particularly displayed this sense of innovation and partnership were highlighted in award ceremonies throughout the convention. Awards for outstanding effort, leadership demonstrations, and unique Phoenix Spark Tank inventions were among the accomplishments recognized. The awards further demonstrated how it is each Airman's duty to improve, innovate, and ignite the passion needed to move AMC forward. The Airmen were encouraged to take a look back at the legacies set by their predecessors.

"We have always risen to meet our nation's strategic challenges," Van Ovost affirmed. "Our legacy is filled with those who met difficulties with innovation, determination, and professionalism. Time after time, when our nation called, we delivered."

Seminars honoring recently passed heroes such as Col Gail Halvorsen, Gen Duane H. Cassidy, and more, bridged the generational gap through stories of a shared sense of humanity. Their legacies reminded young mobility Airmen to be mindful of their own actions, which, as Van Ovost stated, truly make a difference in life and death. While the future fight evolves, so will the need to evolve the lifesaving network.

This evolution takes place at every mobility event and within every Mobility Airman. The 2022 A/TA was a quintessential reminder that Mobility Airmen have always and will always do what it takes to fight to get to the future fight.

As Gen Mike Minihan, Commander of AMC, stated in his AMC Strategy, a warrior culture involves empowering incredible Airmen and families biased toward action, unencumbered by bureaucracy, and intentionally disruptive to the status quo.

For information about future A/TA conventions, please visit https://www.atalink.org.

Editor's Note: We would like to give a special thanks to Gen Duncan J. McNabb, USAF (Ret), Chairman of the Board for the A/TA, for his role in planning this great event.

SOFTWARE SAVES LIVES

BY MR. MIKE CREMEDAS, STAFF WRITER

"Science and technology revolutionize our lives, but memory, tradition, and myth frame our response."

– Historian Arthur M. Schlesinger

Spider-Man has his Spider-Sense—or Peter-Tingle if you are a fan of his most recent films—and Batman has years of ninja training under his utility belt to help keep him out of danger. Airmen live in the real world but still have access to aviation software that, to a nonpilot, sounds like something Tony Stark would use in one of his Iron Man suits.

Gravity-induced loss of consciousness occurs when a pilot passes out from blood draining away from the brain while experiencing heavy amounts of "Gs" (pronounced "Geez") or gravitational force equivalent. Airmen deal with this issue by performing the anti-G straining maneuver and wearing a special garment on their legs and abdomen, called a G-Suit, that helps push the blood back up to the brain. Tackling another issue Airmen face, however, may require something more advanced than an exercise and inflatable flight suit, such as highly sophisticated software.

Another dangerous hazard, spatial disorientation, can happen in any aircraft if the pilot is tricked by his or her senses. The inner ear can fool you into thinking motion is occurring when it is not, or can make you think you are staying still while moving at a high rate of speed.

Now comes the fun Tony Stark part. A system called an Automatic Ground Collision Avoidance System (Auto-GCAS) determines the geolocation of an aircraft, maps the surrounding terrain, and prompts pilots to act against a potential collision. If the pilot does not respond, the Auto-GCAS takes control of the aircraft and returns control to the pilot once the plane is on a safe trajectory. Col Matthew "Trap" Crowell, the Air Force Safety Center's (AFSEC) Chief of Aviation Safety, says it "works completely in the background, and it takes over control of the airplane to prevent you from hitting the ground." Crowell has been using this system since 2014 in the F-16 Fighting Falcon. He stated it is an advanced technology that was only implemented during the past 8 years, but has been in development since the mid-1990's. He added that it would advance in the years to come and likely be on more aircraft in the future.

Three F-22 incidents involving Auto-GCAS activation occurred between 2016 and 2021, with one of the software developers, Lockheed Martin Skunk Works, considering one out of three incidents to be a definite save. AFSEC says all three should be considered software-based saves. No one can disagree that all three pilots landed safely. Additionally, there have been 11 F-16s saved by the Auto-GCAS system since 2014. Crowell said, "We have documented cases of 15 individuals that are alive because of the system. Without this system, that's 15 families, 15 worlds destroyed." Lockheed Martin, on its website, said it "worked closely with its U.S. government and Air Force customers to

An F-35 Lightning II from the 461st Flight Test Squadron at Edwards Air Force Base, CA, soars over the Mojave Desert on a test sortie.

Courtesy photo by Chad Bellay/Lockheed Martin

Zach Demers, an Aerospace Engineer, demonstrates the Automatic Ground Collision Avoidance System (Auto-GCAS) in an F-16 flight simulator at the Air Force Research Laboratory, Wright-Patterson Air Force Base, OH.

USAF photo by MSgt Brian Ferguson

refine this game-changing Auto-GCAS capability." They added, "Auto-GCAS has already saved numerous pilots and will save many more in the future as the system is implemented more broadly across the global F-16 fleet and applied to other aircraft platforms." The company also worked with the National Aeronautics and Space Administration (NASA) and the Air Force Research Laboratory (AFRL).

California State University, NASA research centers, and AFRL studied Auto-GCAS software and said it is "in alignment with pilot culture and organizational mission." They pointed out, however, that more research is needed to "examine the various research issues raised [e.g., potential Auto-GCAS misuse/disuse due to pilot occupational culture and/or operational circumstances, trust evolution from beginning of deployment to stages when opinions are stabilized]."

Mark Ruddell, the Chief Aerospace Engineer for Aviation Safety at AFSEC, said there are incredibly compelling online videos of saves that show what the system can do. When discussing the resistance pilots initially had to the Auto-GCAS system, Ruddell explained that he has seen the mood shift during the 18 years that he has been working with the pilot community. "The pendulum swung completely because there are many, many times I sat in a room at a safety group meeting where we were advocating for this system. The mood has gone from 'I don't like the computer flying my airplane' to 'Yeah, I have a friend that would probably be alive today if this system was on their aircraft.'"

He added that the stance of many pilots "has really changed from one of resistance to one of acceptance," and said that he fields questions from pilots about when they will be able to get the Auto-GCAS system on their aircraft. Looking to the future, Ruddell added that the next step is "the automatic mid-air collision avoidance that will be integrated with the Auto-GCAS, and they're calling it ICAS, or integrated collision avoidance system."

Technology is only as good as the warriors who use them. Although Auto-GCAS can be a valuable lifesaving tool, Airmen should remember that they are their own most important safety measure.

Communication and Leadership

BY MR. MIKE CREMEDAS, STAFF WRITER

Col Matthew Crowell, Vice Wing Commander of the 332d Air Expeditionary Wing at Joint Base Balad, Iraq, officiating a ceremony at an undisclosed location in Southwest Asia.

Photo by TSgt Paul Duquette

"If your actions inspire others to dream more, learn more, do more, and become more, you are a leader."

– John Quincy Adams

Col Matthew "Trap" Crowell, Chief of Aviation Safety at the Air Force Safety Center, has learned the importance of effective communication during his years in the Air Force and believes it starts with relationship building. An Airman since 1999, Crowell has seen the Safety Center work closely with all the major commands across the globe, including Air Mobility Command. He explained that relationships built over time at the Safety Center have a significant impact because they allow for "crosstalk" at the leadership level. Crosstalk is communication across the different enterprises in the Air Force with various levels of leadership on the chain of command, which results in a better understanding of the individual enterprises and operations. Crosstalk is essential to accelerating the changes needed in today's Air Force.

Crowell stated that "one of the challenges that exist from the Captain and Lieutenant levels, to your senior NCO [Noncommissioned Officer] levels, all the way up to your General Officers in Washington working with our general officer corps, is the ability to truly understand all aspects and all sides of an issue." According to the Air Force Center for Strategic Leadership Communication, "Complex operations are made more understandable and accessible through the eyes of an individual and his or her experience."

No individual has all the answers, and putting heads together is often the key to problem solving.

No individual has all the answers, and putting heads together is often the key to problem solving. The challenges Airmen face are multifaceted and require many perspectives to optimize success. This need is why it is important for all levels of leadership to foster a culture of crosstalk and sending feedback—to help Airmen recognize they are all equally qualified to problem solve.

When asked about the difference between a good leader and a great leader, Crowell explained that good leaders execute missions; a great leader has the additional ability to "truly encourage and empower the individuals within the organization." We can all be great leaders if we have the determination to be. No matter your rank, reflect on your approach to communication and ask yourself if you regularly consult others to learn more about a particular issue. If not, now is the time to start.

Crowell touched on the ability to transfer information up, down, and across the Air Force as "truly what allows us to get through the vast majority of challenges." As the Air Force faces new adversaries, new technologies, and new approaches, we will advance as a cohesive entity through effective communication.

Balancing Work, Family, and the Holidays: Becoming a Master Juggler

BY MS. BETTY NYLUND BARR, STAFF WRITER

The holidays are a time of joy and togetherness. In truth, however, they can also be a time of stress. We try to juggle so much—work, getting together with family and friends, perhaps buying that perfect gift for each special person. Something has to give, and usually, it is our physical or emotional health—or both.

The job of an Airman is undeniably rewarding but can be stressful. Balancing a demanding job with family obligations is challenging the rest of the year, but it can be downright back-breaking during the holiday season. Maybe your mother told you what mine did: burning the candle at both ends quickly leads to burnout. The trick is to find ways to make that candle last, which entails not burning it 24/7. These tips will help you avoid the worst of holiday stresses:

START SHOPPING EARLY

If you leave all your shopping until the last minute, you may contend with larger crowds in the stores, which exposes you to hazards including COVID-19, heavy traffic, or even human stampedes. Keep a piece of paper in your pocket and jot down the thought when you see or think of a great gift for a particular person. Your phone can come in handy for this purpose as well. You will enjoy the shopping process so much more if you start early and leave yourself open to inspiration.

JUST SAY NO

Prioritize your activities. Do you really have to go to that neighbor's party on Thursday when you have a party on Friday at your best friend's home? No. So stay home. You do not have to be Scrooge; just choose among the celebrations, and attend the ones you look forward to the most.

RELAX

Take a couple of minutes at least once a day to sit back, close your eyes, and unwind. Meditate, visualize, manifest—whatever works for you. Take a few slow, deep breaths, and exhale all the stress. You may even decide that you want to continue this habit for the rest of the year.

TAKE IT EASY WITH THE ALCOHOL

If you are going to drink, be responsible. When your inhibitions are relaxed by alcohol, you may say or do something you will regret at a family gathering or an office party. Knowing your options for rides ahead of time, such as rideshare, taxis, and sober friends, can also help ensure you get home safely.

LOOK OUT FOR NUMBER ONE

Take care of yourself. If possible, get at least seven or eight hours of sleep each night. Getting enough sleep keeps your spirits up, your immune system firing on all cylinders, and your mind sharp. Exercise provides the same benefits, so keep up your fitness routine during the holidays. Take vitamin supplements to get the ones you may not be getting from finger foods and desserts.

IF YOU NEED HELP, ASK FOR IT

If you are feeling overwhelmed, tell someone. Ask a good friend or a family member for help with whatever task(s) you need assistance with. If your distress goes deeper than that, an online counseling service, or teletherapy, can offer convenient, affordable alternatives to traditional, in-office therapy. It is a good choice if you want to continue the relationship after the holidays when you may go home to another state or country.

It is hard to find balance when you are being pulled in so many different directions, but it is possible. Just remember the reasons for the season and the people who are special to you, and you will not only manage to juggle the important tasks—you will finally get to enjoy the holidays.

Social Media Helps Us Connect— But What About the Scammers?

BY MS. KATHY ALWARD, STAFF WRITER

As with anything there is the good and the bad, which is also true of social media. It is great to have an opportunity to connect with others on such sites as Instagram, Twitter, TikTok, and Facebook, but there is a catch. How do you stay safe from the scammers who want to connect? You need to become aware of various online scams and then educate yourself about the various ways that scammers interact with us through social media. Scammers are dangerous because they often use social media opportunities for financial and identity theft.

The first thing to realize is that you should never share your personal information online. Secondly, it is important to review your privacy settings and limit your available personal information. Social media scams occur in many different ways, so awareness is the key to avoiding these scams that are constantly evolving. It is important to keep in mind that some groups are especially vulnerable targets for scammers who prey on young

Always be aware that when you are using social media, scammers are looking to make easy money by accessing your private data, so you must be vigilant in protecting your personal information.

adults, teens, the elderly, and people who may be overly eager to find meaningful relationships or improve their finances.

There are various types of online scams. One type is the card cracking scam where you provide access to your bank account by providing a debit card, PIN, or online credentials to log into your bank account instead of depositing a check. Once you have given access to your bank account, a scammer can deposit a worthless check by mobile deposit. Because you have given information about your bank account, the scammer can take your money with a wire transfer.

Another type of online scam is social media phishing. In this instance, a scammer appears to look like a credible or established company by creating a fake social media account. Oftentimes, you will be directed to a link that looks like an actual company website, where they will then ask you to provide personal information, such as a social security number or credit card number. A few examples are expensive items with high discounts, donation requests, requests to report vaccine side effects, and quiz games. It is best to avoid interaction with suspicious accounts. You can help prevent others from these types of scams by using the provided option to report accounts and posts.

Employment scams often offer readily available jobs with good pay and easy access to career opportunities. The scammers' targets, in this case, include your name, address, and even Social Security number, or collecting fees, such as an application that requires a processing fee or a sign-on bonus. This expense is difficult for vulnerable job seekers, so it is important that you accurately evaluate if a company and job offer are legitimate. Remember, you are not required to pay anything to be hired by legitimate companies. You can do a background check to confirm a company's legitimacy through the Better Business Bureau (BBB), local chamber of commerce, and review sites.

There are also charity scams where the funds raised never meet those in need. The Federal Trade Commission (FTC) recommends the following charity research tools to confirm whether an organization is authentic before donating money: The BBB Wise Giving Alliance, CharityWatch, GuideStar, and Charity Navigator.

Scammers also use social media as a tool in investment scams, especially cryptocurrency investments. People end up empty-handed after they send money, often a cryptocurrency, based on promises to receive huge returns.

Romance scams usually target young, inexperienced adults or the elderly by developing a personal connection and urgently requesting victims to send money to a stranger online. As long as there is a profit, romance scammers will keep coming back for more. First, a relationship develops between the scammer and the victim, and eventually they will ask for money, continuously coming up with new hardships or emergencies. The best way to avoid this scam is to never send money to anyone you have not met in person, and never provide anyone with your banking credentials.

Sometimes buying items online can be risky. A seller might present a great deal online that creates a sense of urgency for the buyer, who may want to seal the deal quickly. The seller might ask that you send a wire transfer or digital payment, but once you send the money, the seller will disappear or stop responding. It is important to remember to buy only from reputable sellers on sites with secure payment systems and wait to complete a local purchase until you have the item in your possession. Never make a peer-to-peer payment to a stranger. It is best to use a trusted third-party service when sending a payment to anyone.

Social media is a popular form of communication for many people to stay in touch, shop, make new friends, and sometimes just to have fun. Social media reaches billions of people worldwide at a low cost. The main thing to remember is that it is your responsibility to protect your financial and personal data. If the request is urgent, take the time to ask questions and verify sellers online with a proven track record. You should never provide your banking information or wire transfer funds to someone you do not know. Always be aware that when you are using social media, scammers are looking to make easy money by accessing your private data, so you must be vigilant in protecting your personal information.

Report a scam as soon as you see it to the FTC at **ReportFraud.ftc.gov**. If you have paid a scammer and need to recover money, or if you wish to learn how to recognize, avoid, and report scams, go to **ftc.gov/scams**.

Driving in a Winter Wonderland

BY MS. CHRISTINE WALSH, STAFF WRITER

Winter is a beautiful time of year, and the cold weather is a favorite among many. However, the snow and ice bring an increased chance of a vehicle crash. According to the Federal Highway Administration, more than 116,800 people are injured on snowy or icy roads each year. Thankfully, by being mindful of the increased risks, you can prepare for safer journeys.

PREPARING YOUR VEHICLE

Regular tune-ups and maintenance are necessary throughout the year to check for leaks, worn belts and hoses, or other parts. National Safety Council (NSC) driver safety education and training expert Ryan Pietzsch offers the following tips:

- Test your battery; battery power drops as the temperature drops.
- Ensure the cooling system is in working order.
- Check wiper blades and replace if needed. Consider installing heavy-duty winter blades.
- Add wiper fluid rated for −30 degrees.
- Keep your gas tank at least one-half full to avoid gas line freeze. Or, if you drive an electric or hybrid vehicle, plug in vehicles at night to keep the battery temperature in its optimal range.
- Clean your vehicle's external camera lenses and side-view mirrors to see your surroundings.
- Remove dirt, ice, and snow from sensors to allow the assistive-driving features such as automatic braking to work.
- Warm up the vehicle before driving in frigid weather.
- Have winter tires with deeper, more flexible tread.
- Check your tire pressure as it may drop when the temperature drops.
- Prevent carbon monoxide poisoning; never leave a vehicle running in your garage—even with the garage door open.
- Wait out the storm if possible; if you must travel, share your plans and route with someone before you leave.

PROTECTING YOURSELF

"The most common action that causes winter driving incidents…is inappropriate relative speed," Pietzsch said. "Relative speed can be defined as the appropriate speed necessary to allow the driver to recognize a hazard, understand the appropriate response, and act in time to avoid the hazard and maintain control of the vehicle." The NSC recommends a 3-second following distance under normal, clear, dry conditions, and 1 second for every additional hazard. If you are driving (1) at night, (2) while it is snowing, and (3) the roads are already slick, the recommended following distance between you and the vehicle in front of you is a minimum of 6 seconds.

According to the Michigan Department of Transportation, stopping your vehicle on snow or ice can take 10 times longer. Even four-wheel-drive vehicles may not be able to brake or turn well after losing traction. "Neither electronic

If you do skid, steer into it. Press down firmly and hold antilock brakes or gently pump standard (non-antilock) brakes.

nor manual four-wheel-drive systems will help you stop," Pietzsch said. "Both systems provide traction for propulsion, and drivers must always be aware of the conditions and their need and ability to stop in time."

"Electronic Stability Control [ESC] helps drivers maintain control of their vehicle by keeping the vehicle headed in the driver's intended direction," Pietzsch said. "ESC does not increase the available traction but maximizes the possibility of keeping the vehicle under control and on the road during the driver's natural reaction of steering in the intended direction in a skid or slide." Drivers must not become reliant on these systems or be overconfident in their abilities. "Winter driving still requires the driver to select an appropriate speed for the conditions and must be able to stop in time to avoid a collision or getting stuck in the snow," Pietzsch added.

If you do skid, steer into it. Press down firmly and hold antilock brakes or gently pump standard (non-antilock) brakes. Skidding is a reason not to use cruise control when snow or ice is on the road. If your vehicle skids, the cruise control will accelerate to maintain a constant speed and increase your chance of losing control.

What causes these slippery roads is referred to as "black ice—or ice patches that may not be visible. Therefore, it is important to be cautious at intersections, off-ramps, bridges, and shady areas that tend to ice over before the roads become slick.

PREPARING FOR AN EMERGENCY

If a crash does occur, your vehicle should contain jumper cables, road flares or reflectors, "winter" windshield washer fluid with deicer, and an ice scraper or snow brush. You will also need traction material such as sand or cat litter, blankets, a flashlight with extra batteries, a snow shovel, broom, gloves, hat, boots, tire chains, a first-aid kit, and a cell phone with a car charger. For longer trips, add nonperishable food and water, hand warmers, and any necessary medication.

If you are stopped or stalled, stay with your car. Put bright markers on the antenna or windows and keep the interior dome light on to increase your vehicle's visibility. Run your vehicle only long enough to stay warm and ensure that your exhaust pipe is free of any snow, ice, or dirt to avoid carbon monoxide poisoning. If you are stuck in the snow, try moving the vehicle using second gear/D2 (manual/automatic transmission) and press the accelerator gently; try rocking the vehicle back and forth by using the drive and reverse gears until the car rolls out.

SAFE DRIVING: WINTERTIME OR ANY TIME

"Regardless of the weather, drivers should drive distraction-free, designate a sober driver or arrange an alternative mode of transportation, and buckle up," Pietzsch said. Avoid fatigue by getting plenty of rest before driving, stopping at least every 3 hours, and rotating drivers if possible.

If you plan on traveling this winter, you can keep you and your passengers safe with these tips in mind. Enjoy the winter wonderland safely!

Taking Safety into Your Own Hands: Avoid the Seasonal Off-Duty Mishaps

BY MR. MIKE CREMEDAS, STAFF WRITER

Airmen are warriors who face danger regularly; they stay hyperfocused, often while under fire, to keep themselves and others safe during harrowing missions. Even warriors need downtime, but it is essential to keep safety in mind, even off-duty.

Airmen have responsibilities and activities outside of their military service that can lead to minor injuries that may majorly affect their military careers. Finding the numbers for cardiac events, fatalities, and catastrophic injuries that occur when someone is doing yard work, shoveling snow, skiing, or snowboarding is easy, but finding the statistics for minor injuries is more complicated. Instances of rolled or sprained ankles, fractured kneecaps, bruised shins, scratched corneas, mild concussions, back pain, and other health concerns may not be reported or receive the same scholarly attention as more severe issues; however, they are the kinds of injuries that can ground you.

According to the U.S. Department of Agriculture (USDA), bruises and broken bones are the most common skiing and snowboarding injuries; snowboarders typically injure their wrists or arms, whereas skiers most often injure their knees, heads, or faces. The USDA recommends that all skiers and snowboarders take the following precautions:

It can be difficult to stay concerned about safety when you are off duty and not in constant danger; however, you are responsible to your country, your family, and yourself to be safety-minded during all situations.

- Wear helmets designed for their specific winter sports.
- Use sunscreen and ski goggles to protect their skin and eyes from sun and wind.
- Wear boots that fit well and have bindings that are adjusted correctly.
- Prepare for the weather with layers of clothing, helmet liners, hats, or headbands.
- Avoid skiing or snowboarding alone.
- Follow all trail rules and stay on designated trails and only on trails that match their skill level.
- Take a lesson even if they have experience because they can benefit from a review.
- Use a ski lift, tow rope, or carpet to ensure they know how to get on, ride, and get off safely, and ask an attendant for help if needed.

Off-duty injuries could result in a line of duty determination, exposing an Airman to a reduction in salary and disability retirement or severance pay if the incident occurred due to misconduct. Time spent in the hospital, or any time the Airman is unable to work can extend the enlistment period. It is also important for Airmen to stay updated on their Survivor Benefit Plan eligibility, and veteran and family member benefits before a mishap happens, and in case of unforeseen injury or disability.

It can be difficult to stay concerned about safety when you are off duty and not in constant danger; however, you are responsible to your country, your family, and yourself to be safety-minded during all situations.

According to the National Ski Areas Association (NSAA), most of the 41 catastrophic injuries during the 2020 to 2021 ski season occurred on intermediate terrain. A hill with no black diamond can still be dangerous and become a significant detriment to your career and family stability if you happen to suffer an injury, minor as it may be. NSAA recommends that anyone hitting the slopes adhere to the following safety code:

- Stay in control.
- Remember that the people ahead of you have the right of way.
- Stop in a safe place for yourself and others.
- Look uphill and yield when starting downhill or merging.
- Prevent runaway equipment.
- Observe signs and warnings; keep off closed trails.
- Know how to use the lifts safely.

No matter which winter activity you enjoy, be sure to obey all rules and regulations and always maintain a keen awareness to help ensure your safety.

Even an off duty seasonal task as seemingly innocuous as clearing yard debris or snow from your property can be treacherous. According to the National Institute of Health, more than 76,000 injuries occur per year while raking leaves or using other garden implements. If you do any yard work this season, use caution and be sure to listen to your body; do not overexert.

Rest is important, but so is staying safe. No matter what you do while off duty, returning to active duty in peak physical and mental shape is your top priority. Just because you are the best does not mean you are invincible. The playwright Plautus noted that flying without feathers is not easy, so do not make it more difficult with an off-duty mishap.

Thank You, Deployed Airmen

BY MS. TIFFANY L. TOLBERT, STAFF WRITER

Airmen from the 621st Contingency Response Wing deploy from Travis Air Force Base, CA, March 30, 2022. U.S. forces deployed to multiple NATO nations to assure Allies and deter further aggression in the region.

USAF photo by Nicholas Pilch

The defense of our nation requires Airmen to be ready to deploy at all times. Consequently, at some point in their career, an Airman will likely receive news of an opportunity to be deployed—to take on the task of defending the people and resources of the United States.

Deployment can hold various meanings, depending on an Airman's job, unit, and service branch; however, every career deploys (including careers such as paralegals and pharmacists). For some Airmen, deployment means traveling to and working from an austere environment at a moment's notice; for others, it can mean executing wartime missions from a home station. Nevertheless, in all scenarios, how Airmen accept, conduct, and complete their deployment embodies courage and warrants appreciation.

Deployment often means moving away from one's regular duty station to a specified location—usually outside the United States. It may mean spending several months to a year (or longer) void of family and other familiarities like pets, comfort foods and restaurants, shopping centers, parks, privacy, and warm weather. Feeling detached from support systems (outside other Airmen) can make it hard to process and adjust to unfamiliar territories. Airmen are respected and admired for their agility to persevere and carry out their professional duties; in completing arduous mental and physical tasks, Airmen skillfully balance a wide range of emotions with what they have been trained to do. Even while being apart from friends and family, or perhaps

SSgt Efrain Cardinas, left, 921st Contingency Response Squadron Air Transportation Specialist, says goodbye to his family before deploying from Travis Air Force Base, CA, March 31, 2022.

USAF photo by Nicholas Pilch

For many Airmen, what removes the fear is getting the opportunity to fulfill the mission. Once fear succumbs to service, deployment can become a valuable and memorable learning experience.

nervous about how the deployment will unfold, they show bravery in every action. One Airman recalls experiencing other traumatic stressors while deployed: "Rocket attacks were frequent," he said. "There were 98 that I can remember, and I had a couple [of] close calls. One went about 15 to 20 feet over my head, but I got to the bunker in time ... it puts you in a different place."

Deployment can be a demanding experience. For Airmen, it is the unknown that causes the most trouble—whether they are being deployed in a war zone, or heading to remote areas removed from everyone and everything they know. Airmen often have to function in environments that are dangerous and outside of their comfort zone.

For many Airmen, what removes the fear is getting the opportunity to fulfill the mission. Once fear succumbs to service, deployment can become a valuable and memorable learning experience. Providing comfort and helping others also work to remove the fear. This includes but is not limited to: aiding families and children, forming friendships with joint and coalition partners, and displaying a sense of pride in the Air Force and the United States.

Through humanitarian aid, Airmen have the chance to pay their respects to others by showing kindness, empathy, and compassion. Correspondingly, Airmen are respected and admired for their hard work, compassion, kindness, service, and their abilities to show bravery and overcome fear.

Regardless of the type of deployment, Airmen do their best to complete the mission given to them. The next time you are deployed, remember that you are not alone—your friends, family, and fellow Airmen are all supporting you.

Winter Motorcycle Rides Require Preparation and Caution

BY MS. PAULA COLLINS, STAFF WRITER

Unpredictable weather patterns and lower temperatures combine to make this season quite challenging for motorcycle riders. It is imperative to dress properly and prepare for weather-related hazards that can reduce traction on the roadway.

FUNDAMENTAL PREPARATION

The preparation tips below should be taken into account before every ride.

- **Make sure you properly maintain your bike with the usual checks.** If you have been riding on salted roadways, wash all traces of salt from the bike and tires.
- **Always check tire pressure.** It can drop by 2 to 3 pounds per square inch on cold mornings, which is enough to make the steering and brakes feel heavy. All-season tires are recommended. Let the tires warm up at low speeds before hitting the road.
- **Consult a reputable weather app.** A reliable weather app can provide hour-by-hour forecasting.
- **Dress appropriately—make sure you are insulated, windproofed, and dry.** Protect your body with base thermal layers of clothing and cold weather gear designed specifically for winter riding. Wear a full-coverage helmet with vents and Bluetooth connectivity (so you can stay in contact with other bikers and the outside world), a neck gaiter, and windproof and waterproof outer layers. Eliminate any sources of drafts. It is a good idea to carry extra layers, spare gloves, socks, and handwarmer packets in the saddlebags. If you frequently ride in the winter, heated jackets, pants, and gloves that plug into your bike are a good investment.
- **Consider purchasing a heated seat and heated handlebars.** Both can help you stay comfortable if you plan to do a lot of winter riding.
- **Pack water and nutritious, high-protein snacks such as beef jerky and nuts.** These items will keep you hydrated and maintain your energy level while riding.

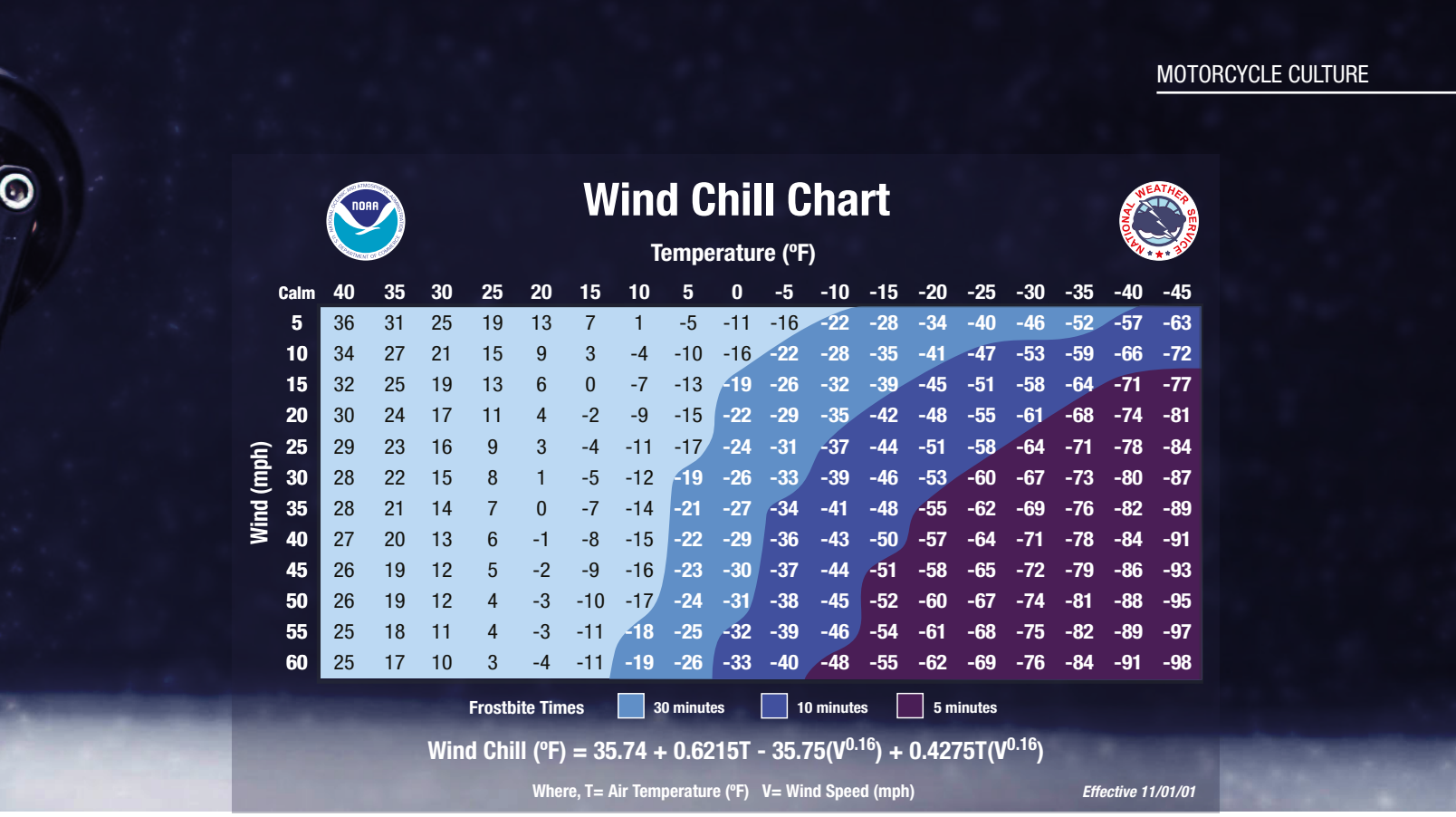
REASONS TO POSTPONE A RIDE

Sometimes a ride is not meant to be. Make sure to approach your rides with a "better safe than sorry" attitude by taking a rain check should you encounter the following scenarios:

- A winter storm is moving in.
- Severe weather alerts apply to where you plan to ride.
- Weather conditions are causing accidents.
- You do not have enough protective winter gear.
- You have not done a maintenance check on your bike.

RESPECT THE COLD

When your core body temperature drops even slightly, it can adversely affect your judgment. In addition, your body tenses, making the bike difficult to control. Cold, numb hands are not able to control the brake and throttle effectively. Watch for these four progressive warning signs and be ready to stop and warm up:



Wind Chill Chart

Temperature (°F)

Wind (mph)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

- Cold hands and feet indicate the body is moving blood to your major organs to protect them.
- Shivering is your body's attempt to warm itself.
- Shallow or slow breathing are signs of advancing hypothermia.
- Loss of coordination, poor throttle control, and confusion are also symptoms of hypothermia.

Take frequent breaks. Stop for 5 to 10 minutes every hour to walk around and stretch. This activity will help you stay warm and avoid fatigue.

The wind chill chart on this page shows wind (riding) speed vs. air temperature.

RESPECT THE ROADWAY

Reduced visibility and loss of traction can occur from pop-up snow showers, freezing rain, or fog. At other times, roads may appear clear of ice and snow, but there may be black ice patches or frost in shaded areas, so it pays to be vigilant. Following are some tips for such conditions:

- **Train yourself to continuously scan ahead.** It will improve your ability to interpret the roadway and give you more time to develop a plan of action. How might this work? You notice that a vehicle is approaching around a curve. You also note that a tree is hanging over your lane and casts a shadow on the roadway. You approach cautiously and intentionally slow down because the roadway could be icy, and the oncoming vehicle might lose control.
- **Ride on the portion of the road with the most traction.** Avoid areas worn smooth by cars and any area in shadow.
- **Use caution where the roadway has been salted or sanded.** This material can result in reduced traction.
- **Pay attention to car exhausts.** Billowing exhaust fumes indicate the car was probably just started, and the driver could be distracted while adjusting to the road conditions.
- **Ride in a group.** There is safety in numbers, especially when you are riding in winter.
- **Keep your phone charged,** and make sure it is protected from snow and moisture and stays warm.
- **Do not ride on snow or ice-covered roads.** Find a safe place to park the bike and wait out the storm or find another way home.

Winters rides can be exciting but also challenging and not for everyone. Your safety depends on a healthy respect for the roadway and exercising appropriate precautions. Remember to dress for the extremely cold temperatures you may encounter and know the signs of advancing hypothermia and frostbite. Preparing for winter conditions will go a long way toward keeping you safe and comfortable on your ride.

HYPOTHERMIA—
What It Is and How to Avoid It

BY KATHY ALWARD, STAFF WRITER

There are many things to consider once the winter season arrives and cold temperatures ensue. If you enjoy the outdoors and live near a pond or lake, you may encounter a frozen creek that you must cross.

During the winter months, being cold can be more than uncomfortable—it can be a health risk, especially if the exposure lasts for a lengthy period of time. It is even more dangerous to be cold and wet, such as if you were to cross a frozen creek, break through ice, and fall into the water. It is important to plan for the unexpected, because hypothermia—an abnormally low body temperature (below 95 degrees Fahrenheit)—can occur when a person is exposed to extremely cold temperatures.

Hypothermia can even occur at cool temperatures (above 40 degrees Fahrenheit) from submersion in cold water, rain, or sweat. The human body begins to lose heat faster than it is produced when it is exposed to very cold temperatures—causing a lower body temperature due to the body's stored energy being used up. Unfortunately, victims of hypothermia may not be able to move well or think clearly because the brain is affected when body temperature is too low. This is a dangerous situation because a person may not know what is happening and will not be able to do anything about it.

Although it may be tempting to walk or skate across a frozen lake or pond, it is a good idea to check with local experts and resources to obtain knowledge about the surrounding ice conditions first (e.g., a news telecast, residents, or staff at a local bait shop or resort). This type of information may be helpful in determining the safest way to approach and handle ice and in preventing hypothermia. Similarly, knowing the key characteristics of ice can be helpful. For example, old ice is not as strong as new ice; it is difficult for ice to form when there are underwater currents; when ice creates a cracking or booming noise it does not always mean the ice is unsafe, it can mean that temperature changes are causing the ice to shift; and bodies of water do not freeze uniformly.

Whether it is safe to walk or skate on ice can often be determined by the thickness of the ice. Be sure to check ice thickness every 150 feet. Ice thickness guidelines include:

- When ice is 2 inches thick or less, DO NOT GET ON THE ICE.
- When ice is 4 inches thick, activities on foot, such as ice fishing, are generally safe.
- When ice is 5 inches thick, it is generally safe for ATVs or snowmobiles.
- When ice is between 8 and 12 inches thick, it can generally support a car or small pickup truck.
- When ice is between 12 inches and 15 inches thick, it can generally support a midsize truck.

Ice thickness is not the only characteristic of ice to consider for safety; color is also important. Clear ice is typically newer and the strongest; air pockets in white to opaque colored ice make it weaker than clear ice; and light gray to dark black ice is unsafe and should be avoided as they generally do not hold heavy, weighted loads. Moreover, slushy ice should be avoided because, though the top may look non-threatening, its bottom layer, often referred to as "rotten" ice due to its texture, will unlikely be able to sustain weighted objects.

Warning signs of hypothermia include shivering, confusion, loss of memory, slurred speech, drowsiness, fumbling hands, and feeling very tired or exhausted.

If you ever fall through ice that is thin, there are several survival tips to keep in mind. It is important to stay calm; flailing your arms misspends energy and valuable body heat. Since hypothermia will set in after approximately 10 minutes in the icy water, try to get in a horizontal floating position and slide horizontally onto the ice by kicking as hard as you can.

As a reaction to the extremely cold water, the body naturally reacts by gasping for air which can lead to hyperventilation, which can cause lightheadedness and even lead to loss of consciousness. Any person nearby should immediately call for help, and avoid falling in as well by staying away from the broken portion of the ice. Help can be offered by throwing something a person can grab onto, such as a rope or a branch, to be pulled out of the water.

Although it is instinctive to stand up once you get out of the water, it is better to roll over the ice until you are safe. There's a greater likelihood of falling back into the water if you stand up.

Additionally, hypothermia can still occur once you are out of the freezing water. You should find shelter in a car or a building; remove any wet clothing; have something warm to drink; and if possible, keep your blood flowing by continuing to move your body. Continue to keep yourself dry and warm by wrapping your body, including your neck and head, in a warm blanket. Seek medical attention as soon as possible.

Warning signs of hypothermia include shivering, confusion, loss of memory, slurred speech, drowsiness, fumbling hands, and feeling very tired or exhausted. Even if a person with severe hypothermia may not seem to be breathing or have a pulse, handle the person gently to perform cardiopulmonary resuscitation, or CPR. Seek emergency assistance immediately; sometimes hypothermia victims who seem to have died can be resuscitated successfully.

It is important to keep this information and safety tips in mind when venturing out to enjoy the winter season. You can potentially avoid disaster and hypothermia by being aware of how to stay safe in the cold weather and on the ice.

MISHAP-FREE FLYING HOUR MILESTONES

BY MS. CHRISTINE WALSH, STAFF WRITER

The Mobility Forum regularly highlights Mishap Free Flying Hour Milestones. Those recognized have achieved 2,500 hours, 3,500 hours, 5,000 hours, 6,500 hours, 7,500 hours, 8,500 hours, and even 10,000 hours free of mishaps.

Flight safety does not happen by accident. The U.S. Air Force (USAF) continuously develops steps toward improving the safety of flight and preventing the mishaps that cost money, the loss of aircraft, permanent disability, and loss of life. In addition to improvements in aircraft engineering, control systems, and aircrew training, advancements are being made in human factors to improve safety.

In the early 1990s, the Air Force implemented Crew Resource Management (CRM) as a way to establish attitudes that contribute to effective teamwork among pilots, copilots, navigators, flight engineers, boom operators, and loadmasters. This teamwork has increased the safety and mission effectiveness of Air Force flight crews. The critical elements of CRM include leadership, communication, situational awareness, problem solving, and critique.

The USAF uses a number of proactive safety programs such as Military Flight Operations Quality Assurance (MFOQA), which analyzes flight data and proactively identify triggers for mishaps. The MFOQA process involves collecting data from multiple flights and then processing those data through customized software and identifying patterns that indicate unsafe conditions that could lead to a mishap.

The Aviation Safety Action Program allows the USAF to document and track unintentional errors, hazardous situations and events, or high-risk activities that might be missed through traditional formal safety reporting channels. The reported information is used to mitigate mishaps through operational, logistical/maintenance, training, and procedural improvements.

The Air Force Line Operations Safety Audit (LOSA) is a nonpunitive, identity-protected, peer-to-peer observation program that employs a standardized methodology to provide leaders and aircrews with information to assist in managing systemic operational risk. LOSA is used to collect safety-related data during normal operations by identifying the threats personnel face and the standard errors made to produce recommendations that help mitigate identified risks, prevent potential mishaps, and drive procedural and technical data rewrites or changes and system upgrades.

The Air Force Combined Mishap Reduction System (AFCMRS) is a survey that helps commanders assess the safety culture of their units through anonymously surveying members' attitudes and perceptions. AFCMRS helps leaders find hidden safety risks, inform mitigations, monitor changes, or affirm a safety culture.

An Organizational Safety Assessment (OSA) is a comprehensive, face-to-face assessment that provides a very detailed look at a unit's safety culture. A team of subject matter experts spends approximately 10 to 14 days within an organization conducting focus groups, interviews, and surveys to evaluate safety in operations, maintenance, and support domains, as well as on commander-specific focus areas.

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

Be a Safety Advocate

BY MR. STEVE PANGER,
HQ AMC FLIGHT SAFETY

Are you a safety professional? How about a safety advocate? Safety professional might be hard to define, but I know many people who are passionate about safety and some who are not. Some talk about a good safety game, but they are all words and little action. Many others turn words into action—they are safety advocates.

An effective safety attitude relies on individual involvement. Setting the example, visiting work centers, discussing safety with your peers, and being positive in how you go about your business are traits that safety-minded people should remember when on duty—and off. One must not necessarily be a safety professional to be mindful of these traits; anyone can be a safety advocate.

Safety is a leadership responsibility. Some leaders only address safety after an accident, such as an injury or damage to equipment. Safety may take a back seat to the mission if accidents are not occurring. Are you influencing your leadership in a positive way, or are you in a leadership position and advocating safety on a continual basis?

How would you describe yourself? Do you simply go through the motions, possibly lacking the courage to challenge the status quo or simply not caring? Have you run into folks who think safety gets in the way of the mission or safety is a roadblock to doing a job in an expeditious manner?

Safety winners are advocates: courageous, selfless, passionate individuals who do the right thing to maintain or grow a positive safety environment. They go above and beyond a standard 8-hour work day. They genuinely care about people and the mission and seek to learn from events to prevent their reoccurrence. Remember, perceptions are reality. We set the example by doing the right thing for the safety of our people to successfully complete the mission. Are you setting the example?

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A DAY IN THE LIFE

The aircrew from the KC-46A Pegasus' first combat sortie pose for a group photo Aug. 29, 2022, during Air Mobility Command's Employment Concept Exercise 22-08 at Al Udeid Air Base, Qatar. The Pegasus and aircrew participated in the exercise to provide air refueling operations to the U.S. Central Command theater. The team refueled two F-15E Strike Eagles assigned to the 335th Expeditionary Fighter Squadron.

USAF photo by A1C Brenden Beezley