



RISK MANAGEMENT

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY



SURVIVING THE COLD p. 4

CARBON MONOXIDE POISONING p. 6

FIGHTING FATIGUE p. 14

WINTER MOTORCYCLE RIDING p. 26



<https://safety.army.mil>



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The U.S. Army Combat Readiness Center has developed multiple tools to provide leaders information on risk mitigation, all available at <https://safety.army.mil>, including the following:

• **Army Readiness Assessment Program**

— a web-based tool that provides battalion or equivalent commanders with data on their formations' readiness posture by sampling unit safety climate and culture in five key areas: process auditing, reward systems, quality control, risk management, and command and control.

• **Army Risk Management Information System** — the central repository for all Army mishap data (Class A-D ground, on and off duty; Class A-E aviation). RMIS is designed to give leaders, safety officers and other personnel access to both current and archived mishap reports, with a goal of preventing similar incidents within their formations. Among other functionalities, users may search RMIS for specific mishaps by case number; conduct searches for a given timeframe or accident class; and obtain risk and hazard reports broken down by age, grade, equipment and additional variables. All data retrieved from RMIS is classified For Official Use Only and limited in use to accident prevention.

• **USACRC Lessons Learned** — one-page mishap investigation summaries produced for accident prevention purposes. Summaries contain information protected by DODI 6055.07 under safety privilege and are available only to CAC holders within the .mil network.

• **Ground Risk Assessment Tool** — a mission planning tool developed to augment the military decision-making process. Consisting of five integral parts, it assists users in identifying potential hazards and controls for specified ground missions or activities, both on and off duty.

• **Off-Duty Safety Awareness Presentation**

— a highly informative safety presentation containing statistics, contributing factors and other relevant information regarding off-duty mishaps. Developed for use at battalion level and below, the presentation comes complete with embedded videos and speaker notes that may be used as is or modified to reflect unit-specific mishap trends.

• **Preliminary Loss Reports** — short synopses of recent Army mishaps resulting in Soldier or civilian employee losses that alert commanders, leaders and safety professionals to circumstances affecting readiness. PLRs provide actionable knowledge and real-time information regarding accidental fatalities, both of which are critical in prevention through risk management.

• **Safety Campaigns** — a monthly focus on seasonal and non-seasonal risk management products and tools. Each monthly topic includes supporting videos, graphics and posters, articles and external links for additional resources.

• **Risk Management Magazine** — the official safety magazine of the U.S. Army, published online quarterly. In addition to the online version, the USACRC releases a weekly RM newsletter highlighting a variety of safety articles, posters and videos, seasonal safety campaigns and USACRC tools and programs.

• **Flightfax** — an aviation safety publication published online monthly. It provides leaders a snapshot of Army aviation hazards through analyses of mishaps within the last 30 to 60 days, near-term mishaps, aviation safety issues and historical context via a "blast from the past" feature.



USACRC WEB-BASED TOOLS AND INITIATIVES



CONTENTS

- 4 Surviving the Cold
- 6 Garage Hazards
- 10 Keep Going in the Snow
- 12 Managing Winter Workplace Hazards
- 14 Fighting Fatigue
- 16 Winter PMCS for Mission Success
- 18 Shopping for Weather
- 20 On Thin Ice
- 22 Fishing for Trouble
- 24 Roadrageous
- 26 Rocky Road
- 30 Mishap Briefs

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RISK MANAGEMENT provides a forum for Soldiers, leaders and safety professionals to share best practices and lessons learned and maintain safety awareness. The views expressed in these articles are those of the author and do not necessarily reflect the official policy or position of the U.S. Army, Department of Defense or U.S. government. Contents are specifically for accident prevention purposes only. Photos and artwork are representative and do not necessarily show the people or equipment discussed. Reference to commercial products does not imply Army endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission. Please credit the magazine and author.

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Mission Statement:

Meet the intent of the Army Strategy by enabling commanders, leaders and individual Soldiers to build readiness, modernize across the operational spectrum, empower and push processes to the lowest level of authority, and strengthen our alliances and partnerships through education in and application of risk management.



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The Army Public Health Center reported there were 205 Army cold weather injuries in fiscal 2019 (October 2018 – March 2019), according to data from the Defense Health Agency’s Weather-Related Injury Repository. Are you prepared?



The typical individual who suffers a cold weather injury is usually male; E-4 or below with less than 18 months in service; about 20 years old; from a warm climate; uses tobacco, alcohol and/or medications; and neglects proper foot care. However, anyone can become a cold weather casualty. Training Circular 4-02.3 states every Soldier will protect against “cold injury in cold climates by wearing proper cold-weather clothing and frequently changing socks to keep feet dry, by careful handling of gasoline-type liquids and by avoiding contact between skin and cold metal.”

Cold weather injuries include hypothermia, frostbite, nonfreezing cold injuries (chilblains and immersion/trench foot), and injuries related to cold exposure (dehydration, sunburn, carbon monoxide poisoning, snow blindness, and slips, trips and falls). There are several factors that influence these injuries, including:

- A prior cold weather injury, which increases a Soldier’s risk to suffer another one; medical conditions such as anemia, diabetes, sickle cell disease, hypotension (low blood pressure) and any other disease of the blood vessels, which can decrease blood flow to the extremities; and some medications impair blood vessel constriction and the body’s ability to conserve heat. Soldiers should alert their leaders and battle buddies about prior cold weather injuries, medical conditions and medications that make them susceptible to a cold injury.
- Alcohol may make you feel warm, but it causes the skin’s blood vessels to dilate, resulting in an increase of heat loss. It also impairs judgment, making it difficult to detect a cold injury. Alcohol and caffeine increase urination and the risk of dehydration. Nicotine use (smoking or chewing) constricts the blood vessels, leading to less blood flow to the extremities (hands and feet) and increasing the risk of frostbite.
- Vigorous activity or exercise leads to sweating, wet clothing and heat loss. Remove or loosen clothing as needed to prevent sweating. A low heat production from underactivity can lower the body’s core

temperature. Exercise the large muscle groups, toes, feet, fingers and hands and continue to move.

- Cold weather clothing is designed to reduce heat loss to the environment and protect against hypothermia. Tight-fitting clothing reduces insulation, restricts movement and leads to heat loss. When dressing, consider these tips:
 - Multiple layers of clothing allow air to be trapped to provide insulation. This allows Soldiers to remove layers as needed based on their activity level and environmental conditions. The inner most layer that is in contact with the skin must have wicking properties, allowing water vapor to be transmitted to the outer layers for evaporation. Wet clothing will reduce the insulation provided by the layers of clothing. Choose clothing made of polypropylene, fleece, a Gore-Tex shell or other equivalent synthetic materials.
 - Protect the feet by keeping boots and socks clean and dry and change them out if they become wet.
 - Protect the hands by wearing gloves or mittens with the appropriate inserts/liners. Avoid contacting snow, fuel or bare metal with the hands. Mittens provide a greater protection from cold injuries but reduce dexterity.
 - Be sure to wear a cap. The head can account for up to 50 percent of the body’s total heat loss (TB MED 508).
 - Use the acronym COLD: Keep it **clean**; avoid **overheating**; wear clothing **loose** and in layers; and keep **dry**.

SURVIVING IN THE COLD

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- Dehydration limits a Soldier's ability to sustain physical activity and their body's ability to balance heat production and loss. The cold may decrease sensitivity to thirst. When adding strenuous activity, this increases the risk of dehydration. Drink water or warm liquids for hydration and monitor the color of urine (a lighter color indicates good hydration).
- Inadequate nutrition can cause low blood sugar (hypoglycemia), impairing shivering and the body's ability to generate heat. It also limits a Soldier's ability to maintain physical activity. Do not skip meals.

Other injuries related to cold weather exposure, include:

- Carbon monoxide poisoning is the result of being exposed to engine exhaust and stoves and heaters with inadequate ventilation in an enclosed space. Ensure tents have adequate ventilation and use only heaters that are approved for indoors. Do not remain in an idling vehicle for long periods and never sleep in an idling vehicle.
- Snow blindness is caused by not wearing eye protection when exposed to ultraviolet (UV) radiation. This type of injury is related to the intensity of the sun, not the air temperature. Snow blindness can degrade a Soldier's performance due to blurred vision, pain and a gritty feeling, tearing, and a headache. Snow blindness can be prevented with the use of sunglasses or goggles that block more than 90 percent of UV radiation.
- Sunburn will increase heat loss and make a Soldier more susceptible to hypothermia. Sunburn is related to the intensity of the sun and not the ambient temperature. Use an appropriate sunblock

DID YOU KNOW?

For more information on preventing cold weather injuries, see:

- **TB MED 508, Prevention and Management of Cold Weather Injuries**, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/tbmed508.pdf
- **TC 21-3, Soldier's Handbook for Individual Operations and Survival in Cold Weather Areas**, https://armypubs.army.mil/epubs/DR_pubs/DR_b/pdf/web/tc21_3.pdf
- **TC 4-02.3, Field Hygiene and Sanitation**, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/tc4_02x3.pdf
- **The Army Public Health Center's Cold Weather Casualties and Injuries webpage**, <https://phc.amedd.army.mil/topics/discond/cip/Pages/Cold-Weather-Casualties-and-Injuries.aspx>

with at least a 15 sun protection factor (SPF), ensuring it blocks both UVA and UVB rays.

- Slips, trips and falls on ice and snow cause fractures, sprains and strains of the lower extremities, wrists and ankles. These can be prevented with the use of shoes with good traction.

Fortunately, cold weather injuries are preventable. It is the responsibility of every Soldier to know the risk factors and use that information to mitigate an injury. They should also notify their leaders and battle buddies of any of these risk factors for a cold weather injury. In turn, leaders must know their Soldiers who are at an increased risk due to medical conditions, medications or a prior cold weather injury. ■

GARAGE HAZARD

Carbon Monoxide Poisoning

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Industrial Scientific reports that each year about 500 people in the United States die from carbon monoxide (CO) poisoning, and over 10,000 more seek medical treatment, despite the wealth of information about its risks. According to the Occupational Safety and Health Administration, one of the most common sources of CO exposure is the internal combustion engine. The risk of CO exposure is increased when operating a gasoline-powered engine in enclosed spaces, specifically attached garages.

Carbon monoxide poisoning has been studied since at least the 1920s, when ventilation concerns in major motor vehicle tunnels were examined (Parker, 2014). Since then, many states have enacted laws regarding CO detectors. As of 2018, 27 states and the District of Columbia have adopted varying statutes regarding CO detectors. Another 11 states have helped spread awareness on CO detectors through their building codes or the adoption of the International Residential Code (National Conference of State Legislatures, 2018).

Carbon monoxide is formed by the incomplete burning of any material containing carbon, such as natural gas, gasoline, kerosene, oil, propane and coal. Dangerous levels of CO can be produced from any fuel-burning appliance, including automobiles. When the gas builds

up in enclosed spaces, people who breathe it risk being poisoned.

With more than 274 million vehicles registered in the United States, now is not the time to become complacent with the inherent risks associated with the operation of fuel-burning automobiles (Statista, 2019). As cooler weather approaches, people may mistakenly begin to warm their cars in garages. It may be even more tempting now that remote car starters have become commonplace; however, this is never a good idea. A study by Iowa State University concluded that operating an engine in a closed building is extremely dangerous, even for short periods of time. It's so dangerous that the study concluded it should never be done. High concentrations of CO build very quickly and an individual "may collapse before they even

realize there is a problem" (Greiner, 1996). Furthermore, cold engines produce higher concentrations of CO and for longer periods of time.

For the first two minutes of operation, an automobile engine can produce CO concentrations at 80,000 parts per million (ppm) (Greiner, 1998). The risk is compounded when the vehicle is started in an attached garage. Air typically flows into the house from an attached garage, bringing with it any CO and exposing everyone inside to unsafe fumes (Greiner, 1998).

Is operating an engine with the garage door open acceptable? No, according to the same study, which found that CO concentrations in the garage were at 500 ppm with the garage door open after warming up a vehicle for only two minutes. Even with windows and doors open,

ARDS: Awareness

Table 1: Symptoms of Carbon Monoxide Poisoning

Low to Moderate Levels	High Levels
Fatigue	Mental confusion
Shortness of breath	Vomiting
Nausea	Loss of muscular coordination
Dizziness	Loss of consciousness
	Death

one should never run any gasoline-powered engine, to include a power generator, inside a garage or other enclosed structure (Greiner, 1998).

The Centers for Disease Control and Prevention (CDC) recommends that every home have at least one working CO detector in the house. These detectors should be battery operated or have battery backups (2017). Since CO is slightly lighter than air, detectors should be placed higher than ground level.

Early signs of poisoning are difficult to detect, as CO is colorless, odorless, tasteless and non-irritating (Industrial Scientific, 2018). This “silent killer” strikes quickly, catching victims off guard. People who are sleeping or who have been drinking alcohol can die before ever having symptoms of CO poisoning (National Safety Council, 2019). For more on CO poisoning symptoms, see Table 1.

Carbon monoxide is dangerous because it binds to hemoglobin in the blood (carboxyhemoglobin) and prevents the blood from carrying enough oxygen. Non-reversible

physical damage can occur quickly when the body suffers any oxygen shortage (Industrial Scientific, 2018). Parts of the body that require a lot of oxygen, such as the heart and brain, are particularly susceptible to damage (OSHA, 2012).

High concentrations of CO kill in less than five minutes. It will take more time for the body to be affected by lower concentrations of CO, but the risk is still tremendous. How long a person is exposed, the concentration of CO and the activity level of the person breathing it will determine the effect on the body (Berg, 1984). For more on the toxic effects of CO, see Table 2 on page 8.

According to the CDC, if CO poisoning is suspected, the victim should immediately move into fresh

air and seek medical treatment (2017). The half-life of carboxyhemoglobin in fresh air is about four hours. Medical treatment includes the administration of oxygen. If there are large amounts of CO in the bloodstream, the oxygen may be administered via a hyperbaric chamber, a pressurized oxygen device that forces the CO from the body (Greiner, 1996).

Protect yourself and your family from the risks associated with automobiles and CO poisoning. Never leave a vehicle running in an enclosed or partially enclosed space. Open the garage door before starting your vehicle and immediately back out. Additionally, know the state requirements for CO detectors where you live, and install them to alert you to the silent killer.

Table 2: Toxic effects of carbon monoxide

Parts of carbon monoxide per million parts of air	Carbon monoxide in percent	Physiological effects
100	0.01%	Concentration allowable for an exposure of several hours
400 to 500	0.04%-0.05%	Concentration that can be inhaled for one hour without appreciate effect
600 to 700	0.06%-0.07%	Concentration causing a just appreciable effect after exposure of one hour
1,000 to 1,200	0.10%-0.12%	Concentration causing unpleasant but not dangerous effects after exposure of one hour
1,500 to 2,000	.15%-2%	Dangerous concentrations for exposure of one hour
4,000 and above	.4% and above	Concentrations that are fatal in exposure of less than one hour

References

- Berg, F. P. (1984). The Diesel Gas Chambers: Myth Within A Myth. Retrieved from Institute for Historical Review: www.ihr.org/jhr/v05/v05p-15_Berg.html
- Centers for Disease Control and Prevention. (2017, September 27). Natural Disasters and Severe Weather. Retrieved from Preventing Carbon Monoxide Poisoning: www.cdc.gov/disasters/cofact.html
- Greiner, T. (1996, July). Carbon Monoxide Poisoning: Health. Retrieved from Iowa State University: <https://www.abe.iastate.edu/extension-and-outreach/carbon-monoxide-poisoning-health-effects-aen-166/>
- Greiner, T. H. (1998, September). Carbon Monoxide Poisoning: Garages. Retrieved from Iowa State University: www.abe.iastate.edu/extension-and-outreach/carbon-monoxide-poisoning-garages-aen-207/
- Industrial Scientific. (2018, January 18). Carbon Monoxide vs. Carbon Dioxide: Let's Compare. Retrieved from Industrial Scientific: www.indsci.com/blog-search/carbon-monoxide-vs.-carbon-dioxide-lets-compare/
- National Conference of State Legislatures. (2018, March). Carbon Monoxide Detector Requirements, Laws and Regulations. Retrieved from National Conference of State Legislatures: www.ncsl.org/research/environment-and-natural-resources/carbon-monoxidedetectors-state-statutes.aspx
- National Safety Council. (2019, August). Home Safety Topics- Carbon Monoxide. Retrieved from National Safety Council: www.nsc.org/home-safety/safety-topics/other-poisons/carbon-monoxide
- OSHA. (2012, April). Carbon Monoxide Poisoning. Retrieved from OSHA Fact Sheet: https://www.osha.gov/OshDoc/data_General_Facts/carbonmonoxide-factsheet.pdf
- Parker, W. (2014, June 27). In-cab diesel fumes-separating carbon monoxide fact from fiction. Retrieved from Over Drive Online: www.overdriveonline.com/in-cab-diesel-fumes-separating-carbon-monoxide-fact-from-fiction/
- Statista Research Department. (2019, July). Number of Motor Vehicles Registered in the United States. Retrieved from Statista: <https://www.statista.com/statistics/183505/number-of-vehicles-in-the-united-states-since-1990/> ■

**Get the tools before
the road gets rough.**



Driver's Training Toolbox

<https://safety.army.mil>



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INFORMATION



Driving is a challenging task. Traffic, road construction, rain, kids making noise, the radio and ringing cellphones can all be very distracting. Couple that with wintry roads, black ice, snow and sleet and you've added a whole new element to driving. Toss in those four-wheel-drive owners who think they can still go 60 mph on these roads and the risks rise considerably. While you can't control the weather or other motorists, you can apply risk management to reduce your driving risks.

First, identify the hazards. Among those are things such as black ice, snow accumulation and other traffic, including snowplows and vehicles spreading sand or salt. Checking your local weather forecast and road conditions can help keep you on top of these hazards.

Second, assess the hazards. Examine each one in terms of its probability and severity should an accident happen. Consider historical lessons learned, experience levels and judgment. If you've had an accident driving on icy roads, you know the possible consequences. Ask yourself, "Is this trip necessary?"

The third and fourth steps — developing controls and making risk decisions, and implementing controls — can begin well before the first snow falls. One important part is winterizing your vehicle. Here's what you can do:

Windshield wipers

One of the most overlooked parts of vehicle maintenance is replacing the windshield wiper blades. Automobile experts recommend these be changed annually because torn, cracked and dry-rotted blades can fail to keep your windshield clear when driving through rain, sleet or snow. Also, fill your windshield washer reservoir with a fluid designed for the cold temperatures. If needed, you can supplement your washer fluid with concentrates designed to keep your windows clear at extremely low temperatures. Keep an extra bottle of fluid in your vehicle so you won't run out in the middle of a trip.

Battery

Check your battery and charging system. Overlooked batteries can lose power when temperatures drop, making it hard to start your vehicle.

Tires

Tires are also a vital part of safe winter driving. Maintaining the best possible traction with the roadway is crucial in determining how well your vehicle rides, turns and stops. Make sure your tires have plenty of good, deep tread and are properly inflated. Remember, your tire pressure drops about 1 psi for every 9 degree drop in temperature. While you're at it, check your spare tire for proper inflation and ensure you locate your jack and the other equipment you'll need for changing tires.

**KEEP
GOING
in the
SNOW**

MASTER SGT. RAYMOND CADORET JR.
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"TAKING YOUR TIME, MAINTAINING GOOD SITUATIONAL AWARENESS AND PLANNING FOR THE POSSIBLE HAZARDS ON THE ROAD WILL GREATLY IMPROVE YOUR CHANCES OF ARRIVING SAFELY AT YOUR DESTINATION THIS WINTER."

Radiator

Check your radiator to make sure it has the proper amount of coolant and has been properly serviced. It is important to have the radiator flushed and the coolant changed periodically. Your owner's manual will tell you when that needs to be done. Many antifreeze products are pre-mixed; if yours isn't, a 50-50 mix of coolant to water is normally appropriate. When in doubt, check your owner's manual.

Fuel

Watch your fuel level, keeping your tank at least half full to reduce moisture buildup inside the fuel tank. Knowing you have enough fuel can give you peace of mind when stuck in traffic. Remember, as long as you have fuel, a properly maintained engine can idle indefinitely, keeping you warm inside your vehicle. Make sure you keep a window open slightly for proper ventilation.

In case of emergency

There are some useful items I recommend you keep in your trunk, including a blanket or two, snow shovel, some cat litter or sand for traction, fire extinguisher, an old pair of boots, jumper cables, proper-fitting tire chains, flares and a first aid kit. And, of course, you'll need a snow brush and ice scraper to clear off your windows, mirrors, headlights and brake lights.

This will help you to better see and be seen by others. Warming up your car before driving is also a good idea. This allows your oil and coolant to reach operating temperature and your heater to warm up and clear your windows.

On the road

Everyone knows hurrying increases the risk of an accident, so allow yourself extra time to get to your destination. When driving in snowy conditions,

allow extra stopping distance when approaching intersections. Start braking early just in case you begin sliding on the snow or ice. On primary and secondary roads, increase your following distance to allow ample stopping time in poor weather.

You can use your vehicle's transmission to help maintain control. By downshifting a manual or automatic transmission, you can use your engine's braking power to help slow you. Some newer automatic transmissions offer a second gate for the shift lever that allows you to upshift or downshift through the gears as desired.

Don't panic if you go into a skid. If your vehicle has an antilock braking system (ABS), brake firmly and steer in the direction you want to go. If you don't have ABS, steer into the skid and avoid braking. A good tip to remember is to always look in the direction where you want your car to go.

Drive with low-beam headlights and, if possible, stay in the right-hand lane. Should you become stranded or stuck in snowy conditions, don't panic. If blizzard conditions make it hard to see or you're unable to shovel out of the snow, remain in your vehicle. Stay as warm as possible and limit your exposure to the wintry conditions.

Turn on your flashers or set up flares. Run the car in 10-minute intervals to provide heat while conserving fuel. Make sure your tailpipe is free of snow and open a window slightly on the downwind side of your vehicle to prevent the buildup of carbon monoxide. Use your blanket to help stay warm, but avoid falling asleep or staying in the same position for too long. Also, monitor yourself and other passengers for frostbite and hypothermia.

One last thing

The final step of risk management is to evaluate how well your control measures worked. Did you arrive at your destination without an accident? If you did have problems, ask yourself what you could have done differently and make that a part of your controls in the future.

Taking your time, maintaining good situational awareness and planning for the possible hazards on the road will greatly improve your chances of arriving safely at your destination this winter. And by the way, keep an eye out for those overconfident drivers who flew by you earlier. Chances are you'll see them again a few miles up the road — in the ditch. ■



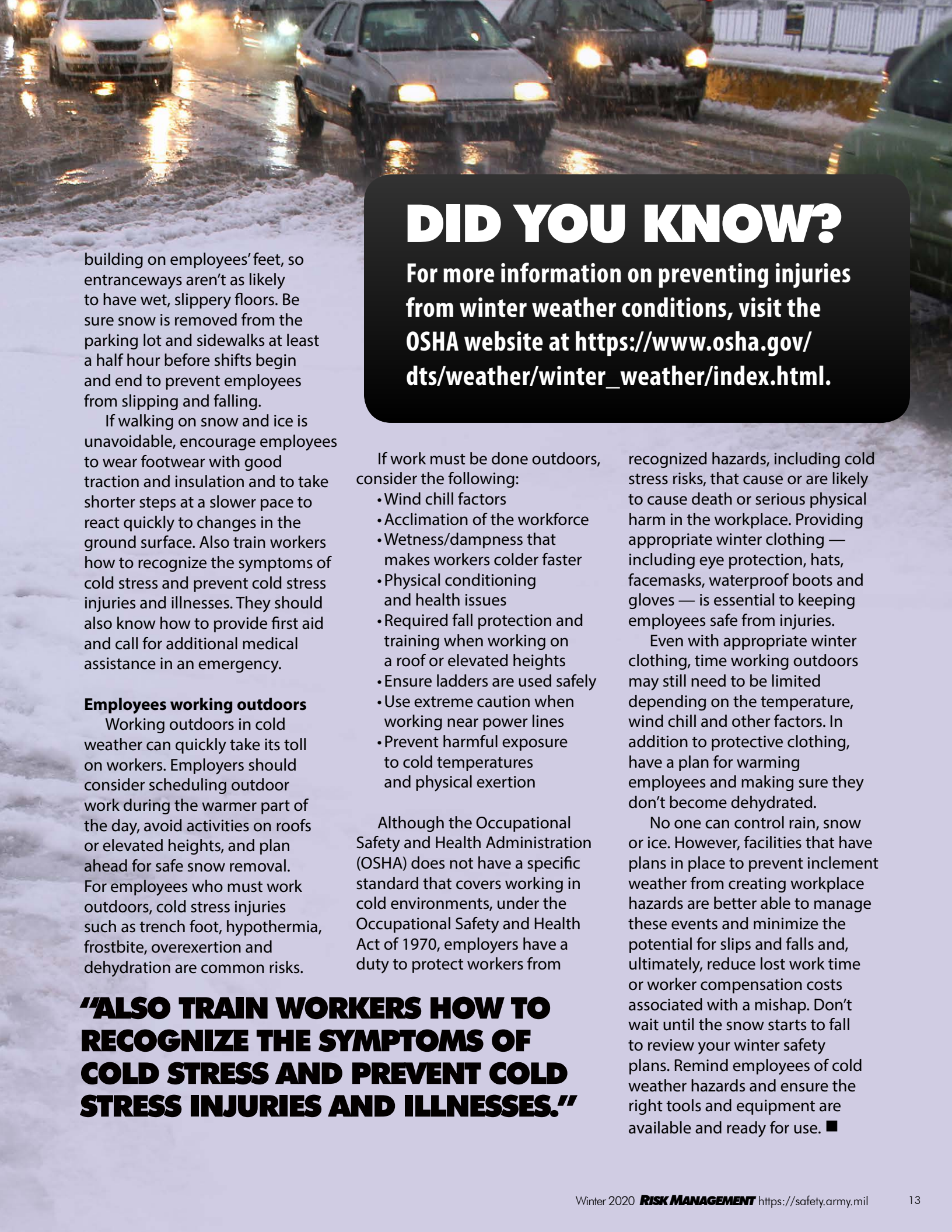
Planning for winter weather at the workplace includes more than just having a bag of rock salt on hand or hanging a poster in the employee break room. Taking a look around your facility (inside and outside) will help you identify the winter hazards you will need to mitigate.

Parking lots and sidewalks

Parking lots and sidewalks share a common hazard: They can be incredibly slippery in the snow, especially when it hides a layer of ice underneath. Keeping outdoor areas clear of snow and ice in the winter can be a challenge, so having a well-established plan is crucial. An added advantage of keeping parking lots and sidewalks clear is that less snowmelt will be brought inside the

MANAGING WINTER WORKPLACE HAZARDS

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building on employees' feet, so entranceways aren't as likely to have wet, slippery floors. Be sure snow is removed from the parking lot and sidewalks at least a half hour before shifts begin and end to prevent employees from slipping and falling.

If walking on snow and ice is unavoidable, encourage employees to wear footwear with good traction and insulation and to take shorter steps at a slower pace to react quickly to changes in the ground surface. Also train workers how to recognize the symptoms of cold stress and prevent cold stress injuries and illnesses. They should also know how to provide first aid and call for additional medical assistance in an emergency.

Employees working outdoors

Working outdoors in cold weather can quickly take its toll on workers. Employers should consider scheduling outdoor work during the warmer part of the day, avoid activities on roofs or elevated heights, and plan ahead for safe snow removal. For employees who must work outdoors, cold stress injuries such as trench foot, hypothermia, frostbite, overexertion and dehydration are common risks.

“ALSO TRAIN WORKERS HOW TO RECOGNIZE THE SYMPTOMS OF COLD STRESS AND PREVENT COLD STRESS INJURIES AND ILLNESSES.”

DID YOU KNOW?

For more information on preventing injuries from winter weather conditions, visit the OSHA website at https://www.osha.gov/dts/weather/winter_weather/index.html.

If work must be done outdoors, consider the following:

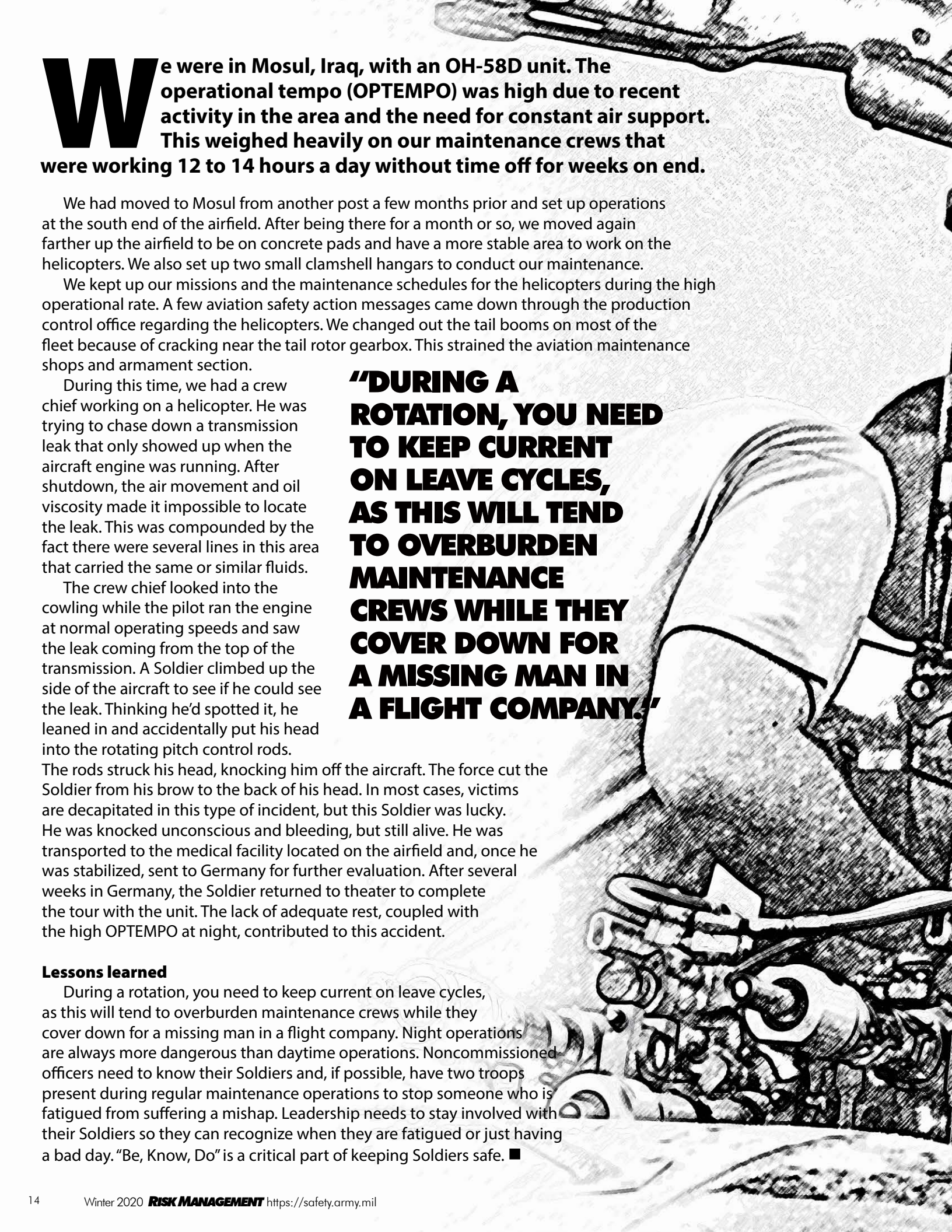
- Wind chill factors
- Acclimation of the workforce
- Wetness/dampness that makes workers colder faster
- Physical conditioning and health issues
- Required fall protection and training when working on a roof or elevated heights
- Ensure ladders are used safely
- Use extreme caution when working near power lines
- Prevent harmful exposure to cold temperatures and physical exertion

Although the Occupational Safety and Health Administration (OSHA) does not have a specific standard that covers working in cold environments, under the Occupational Safety and Health Act of 1970, employers have a duty to protect workers from

recognized hazards, including cold stress risks, that cause or are likely to cause death or serious physical harm in the workplace. Providing appropriate winter clothing — including eye protection, hats, facemasks, waterproof boots and gloves — is essential to keeping employees safe from injuries.

Even with appropriate winter clothing, time working outdoors may still need to be limited depending on the temperature, wind chill and other factors. In addition to protective clothing, have a plan for warming employees and making sure they don't become dehydrated.

No one can control rain, snow or ice. However, facilities that have plans in place to prevent inclement weather from creating workplace hazards are better able to manage these events and minimize the potential for slips and falls and, ultimately, reduce lost work time or worker compensation costs associated with a mishap. Don't wait until the snow starts to fall to review your winter safety plans. Remind employees of cold weather hazards and ensure the right tools and equipment are available and ready for use. ■



We were in Mosul, Iraq, with an OH-58D unit. The operational tempo (OPTEMPO) was high due to recent activity in the area and the need for constant air support. This weighed heavily on our maintenance crews that were working 12 to 14 hours a day without time off for weeks on end.

We had moved to Mosul from another post a few months prior and set up operations at the south end of the airfield. After being there for a month or so, we moved again farther up the airfield to be on concrete pads and have a more stable area to work on the helicopters. We also set up two small clamshell hangars to conduct our maintenance.

We kept up our missions and the maintenance schedules for the helicopters during the high operational rate. A few aviation safety action messages came down through the production control office regarding the helicopters. We changed out the tail booms on most of the fleet because of cracking near the tail rotor gearbox. This strained the aviation maintenance shops and armament section.

During this time, we had a crew chief working on a helicopter. He was trying to chase down a transmission leak that only showed up when the aircraft engine was running. After shutdown, the air movement and oil viscosity made it impossible to locate the leak. This was compounded by the fact there were several lines in this area that carried the same or similar fluids.

The crew chief looked into the cowling while the pilot ran the engine at normal operating speeds and saw the leak coming from the top of the transmission. A Soldier climbed up the side of the aircraft to see if he could see the leak. Thinking he'd spotted it, he leaned in and accidentally put his head into the rotating pitch control rods.

The rods struck his head, knocking him off the aircraft. The force cut the Soldier from his brow to the back of his head. In most cases, victims are decapitated in this type of incident, but this Soldier was lucky. He was knocked unconscious and bleeding, but still alive. He was transported to the medical facility located on the airfield and, once he was stabilized, sent to Germany for further evaluation. After several weeks in Germany, the Soldier returned to theater to complete the tour with the unit. The lack of adequate rest, coupled with the high OPTEMPO at night, contributed to this accident.

Lessons learned

During a rotation, you need to keep current on leave cycles, as this will tend to overburden maintenance crews while they cover down for a missing man in a flight company. Night operations are always more dangerous than daytime operations. Noncommissioned officers need to know their Soldiers and, if possible, have two troops present during regular maintenance operations to stop someone who is fatigued from suffering a mishap. Leadership needs to stay involved with their Soldiers so they can recognize when they are fatigued or just having a bad day. "Be, Know, Do" is a critical part of keeping Soldiers safe. ■

“DURING A ROTATION, YOU NEED TO KEEP CURRENT ON LEAVE CYCLES, AS THIS WILL TEND TO OVERBURDEN MAINTENANCE CREWS WHILE THEY COVER DOWN FOR A MISSING MAN IN A FLIGHT COMPANY.”



FIGHTING FATIGUE

MICHAEL DAHLE
2nd Brigade Combat Team, 101st Airborne
Fort Campbell, Kentucky

Some consider a properly maintained and safely operated Army combat vehicle (ACV) or Army motor vehicle (AMV) the Army's first line of defense. Getting to the fight with all the necessary equipment is critical. If Soldiers don't have a way to travel, the unit is less capable of achieving its mission, putting forces on the front line at risk. Cold weather can add another layer of complexity to already challenging conditions for vehicle crews — especially in theater — so it's vital leaders and Soldiers focus on preventive maintenance checks and services (PMCS) to keep their equipment fully mission capable and safe on the road.

When performing maintenance checks, it is imperative operators or crews follow maintenance standards published in the PMCS tables of the -10 technical manuals. The preventive maintenance checks guidelines listed in TMs help identify potential failures of subcomponents that can cause a main system to fail and result in damage to equipment and injury or death to personnel. Improperly inspected equipment can fail and degrade the unit's readiness.

First-line supervisors are vital in establishing and maintaining effective PMCS programs and ensuring their Soldiers drive in accordance with published standards. Attention to detail is important for leaders and Soldiers throughout the year, but driving in wintry conditions can be particularly dangerous. Using properly maintained equipment and following safe driving practices can help prevent mishaps and save lives, so be prepared to beat the cold.

Tips for maintaining and driving ACVs and AMVs during winter include:

- Perform PMCS before, during and after vehicle operations.
- Ensure windshield wipers are serviceable and the rubber lip is not torn.
- Check the windshield washer fluid reservoir regularly and refill as necessary. Debris from winter roads can be especially grimy.
- Ensure the vehicle battery is fully charged and in good condition.
- Check the lights to make sure all are operating properly. Brush off snow from all headlights and taillights so the vehicle is more visible to other drivers.
- Check tires and chains and train your crews how to install snow chains. Inspect tires regularly, checking tread depth and tire pressure.
- When planning for operations in adverse weather conditions, add additional time to travel.
- Check road conditions along the entire route and know the difference between conditions. Road conditions might start out as GREEN or AMBER but be RED farther along.
- Take it slow! You'll need additional time and stopping distance on icy roads. Drivers should adjust the following distance between their vehicle and the vehicle in front of them on ice-covered surfaces.
- Apply your brakes early to allow enough time for stopping. If your vehicle is equipped with anti-lock brakes, simply press the pedal down and hold it. In vehicles without anti-lock brakes, gently pump the pedal to bring the vehicle to a stop without skidding.
- Stay alert. Other drivers may fail to use their headlights, reduce their speed or adhere to other appropriate rules of the road.

Leaders need to be cognizant of the importance of PMCS and know it is a force multiplier. Poor PMCS can adversely affect Soldier morale and safety. Today's Army is composed of highly motivated Soldiers that are committed to doing the right thing. When given guidance, proper resources and unyielding supervision, Soldiers can and will perform proper PMCS. ■





WINTER PMCS FOR MISSION SUCCESS

GROUND DIVISION

Directorate of Assessments and Prevention
U.S. Army Combat Readiness Center
Fort Rucker, Alabama

DID YOU KNOW?

Did you know that Army Regulation 750-1, Army Materiel Maintenance, states that operator or crew PMCS are the foundation of the Army's maintenance program? Having a strong, solid foundation enables the development of a long-lasting maintenance structure as well as safe posture of personnel.

Don't shop around for weather. We've all heard it. I took it to heart, but recently I learned the importance of backing up my legal weather brief with outside sources.

My company was deemed the Crashworthy External Fuel System (CEFS) company in the battalion, and we had started mounting the wings and tanks for training purposes. No one was using the CEFS to extend the range of a flight beyond our standard unfitted capability, and this was beginning to bother one of our senior pilots. He had planned a few long-haul flights that got canceled at the last minute due to weather. His goal was to fly from Fort Riley, Kansas (KFRI), to Sioux Falls, South Dakota (KFSD), at the very edge of our "local" flying area. I, being a very green pilot in command, decided I would gladly take the long flight to help accrue PC hours.

On the day of our flight, we received the official weather brief from our Air Force briefers. There wasn't a single red flag (or amber, for that matter). It was all green across the board — albeit a little

chilly in South Dakota. I didn't even think to consult other weather sources. If the official forecast is questionable, obviously I'll confirm with an outside source. However, when it's forecasted to be clear skies for the duration of the mission, I like to assume the weather briefers can at least get that right. Of course, we all know what it means to assume.

Fast forward a few hours and we're about 20 minutes south of KFSD. We had been tuning up Automated Surface Observing Systems (ASOS) and Automated Terminal Information Services (ATIS) for airports along our route of flight. Everything seemed to be as forecasted. Then, as we are approaching our destination, I saw a wall of clouds forming in the distance. This was a serious wall of clouds. We were now in range to tune up KFSD's ATIS. No ceiling, light winds. I thought my eyes were fooling me. Those

storm clouds must be farther away than they appeared. Wrong!

We landed, closed out our flight plan, and headed inside to pay for fuel and call for a weather update. I checked the radar on my phone. A snowstorm was fast approaching. I remember my PI saying, "I guess this is why nobody ever flies to South Dakota." By the time I got on the phone with Fort Riley weather, it was starting to get dark outside, and sunset wasn't for another hour. I began to catastrophize.

I wondered how much a hotel stay for five people was going to cost in Sioux Falls. But weather said we were good to go — legal visual flight rules (VFR) conditions all the way back to Riley if we could get off the ground before the storm was upon us. They were predicting 200-foot ceilings moving in with and behind the storm. I deliberated with the entire crew and called my mission briefer. This was my first major decision as a PC. Did I cancel our return flight right then and risk being socked in by the low ceilings behind the storm? Or did we try to beat out the storm?

DON'T SHO

CHIEF WARRANT OFFICER 2 DAN CLAPP
3-1 Assault Helicopter Battalion, 1st Combat Aviation Brigade
Fort Riley, Kansas

I decided not to cancel just yet. I knew if we did the storm would slow down, giving us plenty of time to take off and we would have squandered it. We would proceed as if we were going to take off immediately after refueling was complete. We wouldn't rush or push the VFR envelope; but we weren't simply going to wait either.

My PI called to file the flight plan while our crew chiefs and I went back out to the helicopter. About half way there, I felt the first snowflake. We could see the clouds descending on the airfield. In another minute, it was like a blizzard. Snow was blowing sideways, and we could barely see the hangars on the other side of the runway. Getting ready to fly quickly became tying down blades and throwing on all the covers. At least

we didn't waste a chance at getting out. With freezing hands and faces, we buttoned up the bird and hurried back to the shelter of the FBO.

This seemed as good a time as any to grab the keys to the courtesy car and head into Sioux Falls for dinner. We wouldn't be going anywhere anytime soon — at least not if the cloud cover was anything near what we had just been briefed in our weather update. As we pulled out of the airport, five grown men crammed into a Ford Fiesta, we began to see sunlight from behind the storm clouds. In a matter of 30 minutes, the weather went from cloudless skies to a dark winter squall and was now beginning to clear up again.

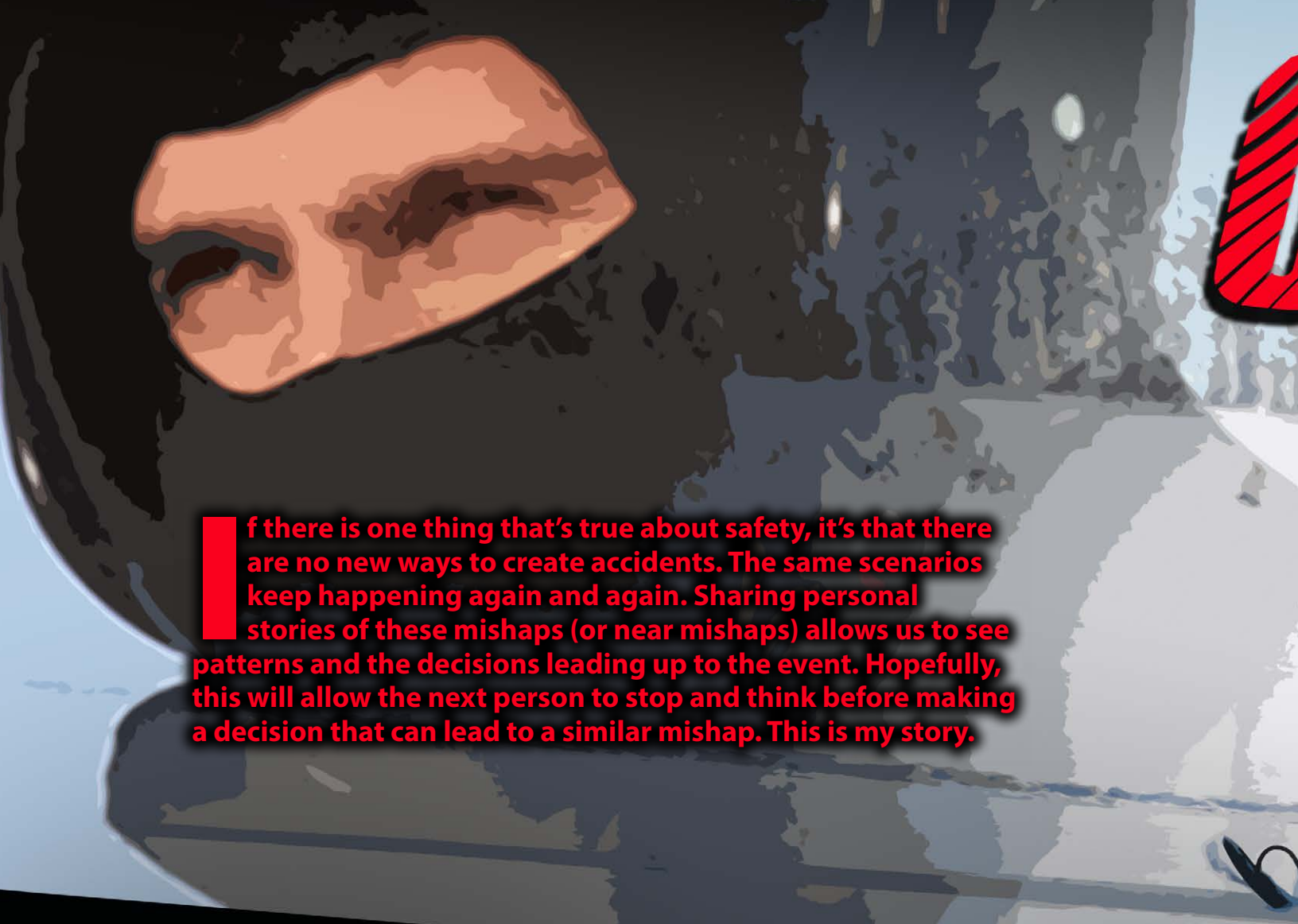
By the time we made it to our dinner locale downtown, we could see every star in the sky. So

much for those forecasted 200-foot ceilings coming in behind the front. After dinner, our return flight was uneventful and straight forward. Luckily, we avoided any dangerous situations. Unfortunately, we also seemed to avoid any accurate weather briefs that day.

Don't shop around for a legal weather brief. Army Regulation 95-1 tells us weather information will be obtained from a U.S. military weather source. But there's nothing that says we can't double-check that — even if you're briefed clear, blue and 22. With all of the resources out there like Foreflight, 1-800-WX-BRIEF, Accuweather, etc., literally at our fingertips, there's no reason to not do it. ■



OP AROUND



If there is one thing that's true about safety, it's that there are no new ways to create accidents. The same scenarios keep happening again and again. Sharing personal stories of these mishaps (or near mishaps) allows us to see patterns and the decisions leading up to the event. Hopefully, this will allow the next person to stop and think before making a decision that can lead to a similar mishap. This is my story.

Growing up, I loved snowmobiling. I especially enjoyed the adventure and speed. When I joined the Army, though, I had to put snowmobiling on hold. Eight years later, I completed active duty and joined the Army National Guard. I made new friends and colleagues in the Guard, one of which was Jim, who liked to ride and rebuild snowmobiles.

I'd wanted to get back into snowmobiling, so Jim suggested I go up to northern Wisconsin with him after drill in December. I was looking forward to this trip because all of my previous snowmobiling had been in southern Minnesota on frozen lakes and open fields. When drill weekend came, I was all set to go. Unfortunately, Jim said he could not meet me in Wisconsin until Tuesday. That meant I'd be snowmobiling alone until he arrived.

I drove up to Wisconsin and checked in to my hotel. There was six inches of fresh snow on the ground, so I was eager to go snowmobiling. After I unpacked, I unloaded my snowmobile and took it for a spin on the trails. I made sure I didn't go too far since I wasn't familiar with the area. I figured I would explore more come daylight.

The next day I got up early and went riding. My

new sled was running great and, man, it was fast. I must have put 100 miles on it riding those trails. I was feeling confident in my snowmobiling abilities and thought I now knew everything about these trails. That night there was a full moon out and temps were in the 20s, a perfect time to go riding. Jim was coming up the next day and we would ride together then, but I didn't want to wait, so I headed out again.

About two hours into my ride, I noticed a new trail. I could tell the groomer had been through there so it must be a good one to ride. I wasn't disappointed, as the trail was pretty straight with a lot of trees. As I admired the cabins along the trail, the trees suddenly disappeared and I found myself in an open area. I figured I was now on a plowed field because the terrain was getting rough. I decided to press on to a hill up ahead and take a break. The hill would also give me a better view of the area.

When I reached the top of the hill, I was hit with a sinking feeling as I started putting the pieces together. The hill was really a little island in the Chippewa Flowage, a 15,300-acre impoundment created to augment downstream water flow, and what I thought

DOWN THE ICE

CHIEF WARRANT OFFICER 4 KIP KNUDSON
Headquarters and Supply Company, 834th Aviation Support Battalion
Minnesota Army National Guard
St. Paul, Minnesota

"I MADE SOME PRETTY POOR CHOICES THAT NIGHT THAT PUT ME IN A LIFE-THREATENING POSITION."

had been a plowed field was actually broken ice. I also noticed wolf tracks in the snow. Wolves are common in the northern woods of Minnesota, Wisconsin and Michigan, so I was in a bad spot thanks to my overconfidence and sense of invulnerability.

I figured I had two choices: I could stay on the island and hope someone found me before I was taken out by hypothermia or the wolves, or I could try to go back the way I came and risk falling through the ice and drowning. I knew my sled was fast enough to skip over the water should the ice break, so I cracked the throttled and hung on. Just before the shore, my sled broke through the ice and began to spray water. I continued to hold the throttle wide open and finally made it ashore. Once safe, I thanked God and asked Him to forgive me for my stupidity.

I made some pretty poor choices that night that put me in a life-threatening position. First, I failed to learn about the hazards in the area. I should have talked with some other riders who were familiar with

the trails before heading out. Second, I rode at night — alone! That was just plain stupid. Third, I didn't tell anyone where I was going. Had I not returned, no one would have known where to even begin looking for me. This incident happened before everyone had cellphones, so I wasn't even able to call for help. Fourth, I didn't have an emergency kit with me. Flares, a fire starter, food, knives, blankets, etc., all would have come in handy had I been forced to stay on that island. Finally, I failed to do proper risk management. Doing so would have surely helped me realize what a huge mistake I was making by heading out that night.

I learned some important lessons from this adventure, the most important being that there is no substitute for risk management. No one expects you to stay locked inside your house out of fear that something bad may happen to you. Get out and explore the outdoors. Create some new adventures and enjoy life — just do it safely. ■



FISHING for TROUBLE

In my 10 years with the Arkansas Army National Guard and eight years as a law enforcement officer, I have encountered numerous hazards and situations that did not turn out how I planned. Fortunately, they've never led to a serious mishap, which I credit to my heightened situational awareness I have at work. Most of my near misses happen off-duty, when we tend to let our guard down. This story is a good example.

CHIEF WARRANT OFFICER 2 JOHN T. JONES
Headquarters and Headquarters Battery, 142nd Field Artillery Brigade
Arkansas Army National Guard
Fayetteville, Arkansas

"I WAS ABLE TO KEEP THE WATER FROM FILLING MY WADERS AND DRAGGING ME UNDER."

Let's face it — relaxation is important. Since winter is here, I think it's necessary to address the fly fisherman out there. At home in Arkansas, winter is the prime time for catching monster brown trout on the White River. With it, however, comes some hazards such as high water flows and cold temperatures.

A few years ago, I drove over to Mountain Home, Arkansas, for a weekend of fishing. I did not take my drift boat because the Army Corp of Engineers posted the generation schedule online, which indicated prime wading conditions. As any tailwater fisherman will attest, you never know 100 percent what the generation is going to be. As you've probably guessed by now, the conditions were not perfect to wade fish. But I drove two hours and was determined to get some time on the water.

It was a perfect day for fishing.

The weather was below freezing and the sky was overcast. I had sufficient layering, but I did not have my studs in my boots because I usually spend most of my days in a drift boat during the winter months, chasing that illusive unicorn with 8-inch flies. I also did not have my wading staff.

I was fishing around Buffalo Shoals since I was wanting to swing my two-handed fly rod. The water was swift and the rocks were slick. As always during the winter, I wore my wading jacket. It is built to inflate with air if you fall in while you're wading. It also keeps water from filling up your waders, which is extremely dangerous in swift conditions, especially in the winter months.

I was out on the shoals, doing my best to fight the water. I'd cast, step, cast, step. Then it happened; I

stepped into a hole. Before I knew it, I was floating down the White River. Luckily, my jacket did its job and kept me afloat. I was able to keep the water from filling my waders and dragging me under. Once I got to the bank, I gathered what gear I could salvage and started the mile walk back to my truck. Getting out of the water was only half the battle, however. That walk was miserably cold.

Sometimes when we do things often, we forget the dangers. If I would have worn another jacket, there is a good chance I would have drowned that day. I wasn't prepared for those conditions. Even if I had the studs in my boots and wading staff, I probably should have just canceled the trip. I was lucky. We talk about personal protective equipment for a reason. It was created to save your life. ■

DON'T DIE OUT THERE

The combination of moving water, slippery surfaces and icy temperatures is dangerous. Hypothermia is the biggest risk, but drowning is right up there too. Keep in mind the following tips to ensure you survive your winter fly-fishing adventures:

- Always tell someone where you're going and when you expect to return. Offer as many details as possible.
- Prepare for the worst. Bring backup clothes and a fire-starting kit in case you take a spill or your waders leak.
- Dress much, much more warmly than you think you should. Even on sunny, relatively warm days, you will cool down fast when standing near — and especially — in a river, despite neoprene waders. Wear heavy fleece pants and jackets and avoid jeans and other cotton pants or undergarments. Cotton absorbs moisture and won't insulate when wet. Combine a breathable raincoat over a down vest or jacket. A heavy wool or fleece cap is also a good idea.
- Keeping your fingers warm is the biggest challenge. Use thick fleece fingerless gloves with mitten tops you can pull over your exposed digits when you don't need dexterity. Yes, you can cast and reel line with mittens.
- Use a wading staff. Even if you never consider one in summer, a staff is vital in winter, when boulders ice up and banks are especially slippery. Remember, in winter a slip and fall into icy water can spell disaster.
- Bring a thermos of hot coffee, tea or hot chocolate. After a few hours in the cold, it's easier to warm up from the inside out than from the outside in.

Source: Montana Fish, Wildlife and Parks

Roadr

While I was attending the Aviation Maintenance Technician Course as a part of my Warrant Officer Basic Course at Fort Eustis, Virginia, my wife and 2-year-old daughter came for a visit. This weekend allowed us to spend some quality family time together, but it was also memorable for a very ugly and scary event that happened on the roadway.

We'd spent the day playing and relaxing on the shore of Virginia Beach and were now heading back to the Newport News area on the Hampton Roads Beltway. If you are familiar with the area, you know you have to travel through the Hampton Roads Bridge-Tunnel under the Chesapeake Bay. On this night, the westbound lane on the Fort Monroe side of the tunnel was under construction, so traffic was almost at a standstill — much to the dismay of my wife, who is a little claustrophobic and didn't like the idea of being stuck in a tunnel.

The Department of Transportation had placed numerous signs several miles prior warning that the left-lane traffic had to merge right. It was frustrating watching motorists remain in the left lane until the last possible minute and then force their way over to the right. After being stuck in traffic for more than two hours, my common courtesy and military bearing was starting to wane as more and more drivers continued to jump in front of everyone else.

It was finally our turn to ease past the log jam when a pickup truck driver tried to force his way ahead of us. To put it mildly, I wasn't having any of it. I continued to position our SUV to ensure I maintained our place in line while the pickup driver kept trying to cut ahead. Eventually, it got to the point that our vehicles were going to make contact if I didn't relent, so I backed off. Here's where it got scary.

The pickup driver got out of this truck, blocking both lanes of traffic on a major highway, and started ranting like a madman. Of course, I wasn't backing off in expressing my opinion of him and his driving abilities. He then reached into his truck to grab something and made his way over to my window, still yelling and causing quite a scene. I rolled up my window to protect my family and was about to step out of the SUV when I realized he had a gun in his right hand.



rageous!

CHIEF WARRANT OFFICER 4 ROBERT J. JONSON
B Company, 127th Aviation Support Battalion
Fort Bliss, Texas

#!&%\$!


#!&%\$!

“AT FIRST I THOUGHT, ‘IS THIS GUY KIDDING? HE’S COMING AT ME WITH A GUN IN FRONT OF ALL OF THIS TRAFFIC AND CONSTRUCTION WORKERS — AND WITH MY FAMILY IN THE VEHICLE?’”

At first I thought, “Is this guy kidding? He’s coming at me with a gun in front of all of this traffic and construction workers — and with my family in the vehicle?” It seemed so surreal, like something you’d see in a movie. He continued to approach, so I secured the doors and grabbed my cellphone from the console. The man then proceeded to pound on my window and windshield in protest. I told him he’d better leave because I was calling the police. After a few minutes he got the point and drove off. We stayed behind the driver until he exited the interstate at the next off ramp. The police told me they would try to track him down, but I never got a return

phone call from them, so I suspect he got away.

This event served as a wake-up call regarding how I handle my frustration toward others while on the road. Although I can’t control another driver’s behavior, I can control my own. After all, how you react to a driver’s actions determines what happens next. It’s best to just back off and remain calm. Like the Chinese proverb says: “If you are patient in one moment of anger, you will escape a hundred days of sorrow.” ■



Whether it's a convoy operation or a trip with your family, it's always a good idea to perform a map or route reconnaissance. You'll have the advantage of locating rest stops, places to fill up or, just maybe, possible road hazards. I didn't do that during a winter ride from my home in Colorado Springs, Colorado, to Woodland Park, and it literally proved to be my downfall.

Hooky Hoops

CHIEF WARRANT OFFICER 2 ROGER KOSS
66th Military Intelligence Company, 3rd Squadron,
3rd Armored Cavalry Regiment
Fort Hood, Texas

I opened my garage and rolled out my bike into a beautiful winter day, the snow around me capped by a dazzling blue sky. I looked over my bike, making sure I checked my lights, tire pressure and fuel just as I had been taught in my Motorcycle Safety Foundation training. I put on all the required personal protective equipment, to include a full-face helmet and a thick canvas riding jacket, and headed on my way.

My route would take me through Colorado Springs on Powers Boulevard and then onto Highway 24. There, I would exit and drive through Manitou Springs before getting back onto Highway 24, heading toward Woodland Park.

The ride through Colorado Springs was uneventful until I reached the onramp for Highway 24. As in many other cities that experience heavy snow, crews spread a mixture of rock salt and gravel to help improve road conditions. When the ice and snow melts, the city sends out street sweepers

to push the remaining gravel to the side of the road. Sometimes they don't quite get it all.

I started onto the on-ramp for Highway 24. It included a series of curves that went first to the right, then to the left and back to the right before merging onto the highway. I maneuvered into the curves the way I was taught in my MSF training — entering the first curve on the outside (away from the curve and near the line dividing the lanes) then cutting inside on the right and outside on the left curve — as I prepared to merge onto the highway. Unfortunately, it didn't quite work out as planned.

As I leaned into the final curve, I noticed some gravel directly in my path. I tried to straighten up the bike and ride through it, but I didn't have enough time. The rear tire suddenly slipped out from under me, sending my bike and me sliding down the pavement. Instead of being on top of the bike, however, I was on the bottom, cushioning the



slide with my body! As I slid, I stuck out my right arm to keep my helmet from hitting the pavement.

I was fortunate not to suffer a serious injury. My battle scars amounted to a section of road rash about the size of a quarter on my right elbow, along with some minor road rash on my right leg. Sticking out my right arm had saved my helmet from hitting the road, and I only suffered a very sore shoulder. Still, things could have been a lot worse, and I was grateful I wore my PPE that day.

Looking back, while I did a lot of things right that day, I made an assumption that later proved wrong. Because the roads were typically cleared of gravel, I let my guard down. I didn't completely plan for all of the potential hazards in my environment. I assumed the roads would be cleared of gravel because they normally were. In my case, a route reconnaissance, at a minimum, would have helped me identify potential hazards and improved my

“I SLID, I STUCK OUT MY RIGHT ARM TO KEEP MY HELMET FROM HITTING THE PAVEMENT. ”

situational awareness. The good news is that although my bike and I took a good beating, I walked away from this one with a lesson learned. Thanks to my PPE, I am still able to go out and enjoy the road.

Take a few minutes to learn from my mistake. Plan for the hazards on your route before you hit the road. In the process, leave yourself a little extra margin for life's little surprises. ■

UNMANNED ~~=~~ EXPENDABLE

- ✓ **Conduct deliberate mission planning and reassess as mission dictates**
- ✓ **Secure proper mission approval and update as risk elements change**

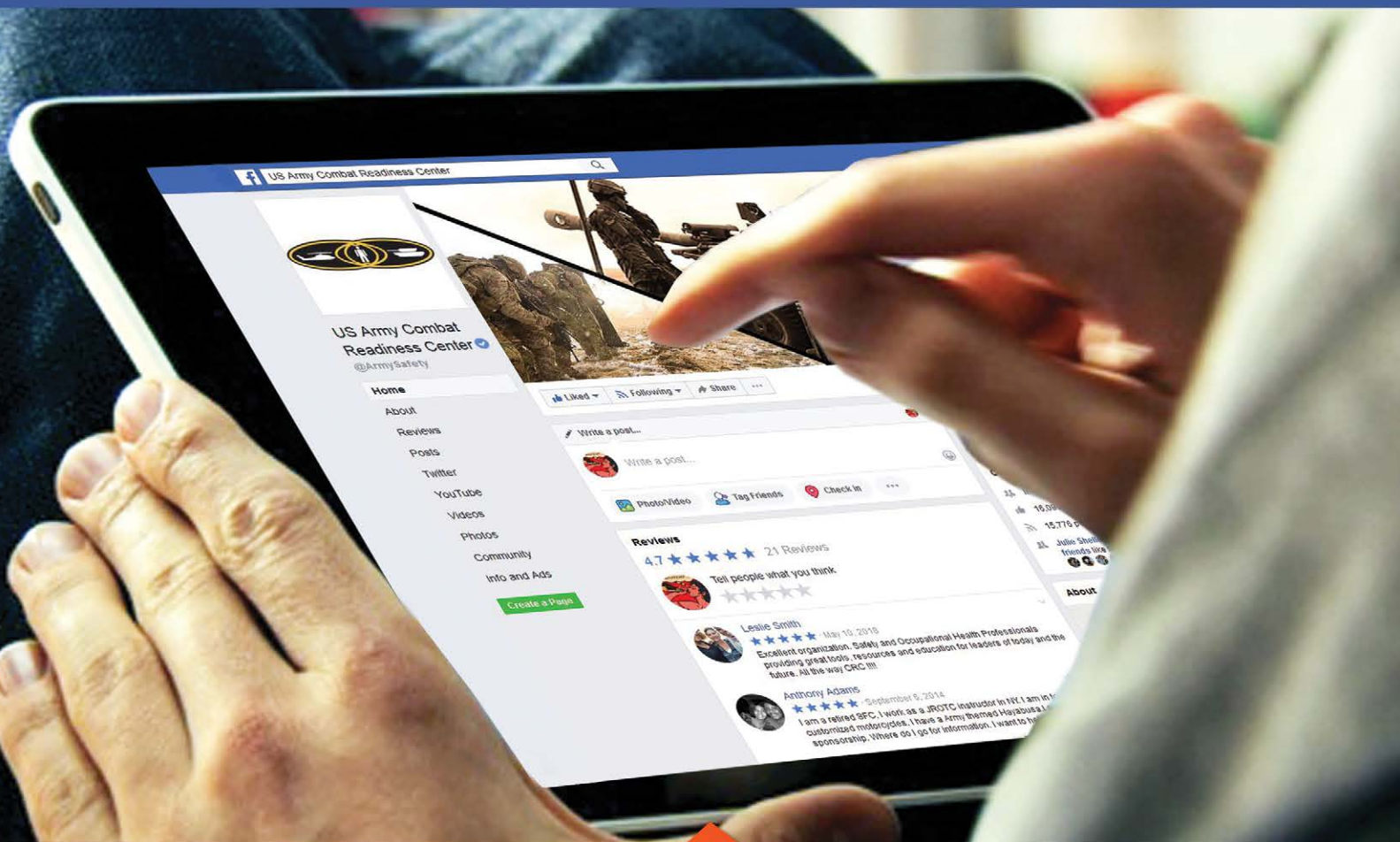
- ✓ **Know your equipment**
- ✓ **Stay in the fight, follow your checklist**



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SELECT FISCAL 2020 MISHAP SUMMARIES

ON-DUTY FATAL MISHAPS

AVIATION

■ A 28-year-old Chief Warrant Officer 2, 30-year-old Chief Warrant Officer 2 and 28-year-old Sergeant, all assigned to the Minnesota Army National Guard, died in an aircraft mishap 5 December 2019 near St. Cloud, Minnesota, at 1620 local. The crewmembers were conducting a maintenance test flight when they sent a mayday call shortly after takeoff. Local authorities found the aircraft at the crash site.

ACV

■ A 21-year-old Private First Class, 22-year-old Corporal and 42-year-old Sergeant First Class assigned to Fort Stewart, Georgia, died in an Army combat vehicle mishap 20 October

2019 on the installation at 0258 local. The Soldiers were traveling in an M2A3 Bradley Fighting Vehicle when it rolled over into a water crossing. The vehicle inverted, fell approximately 15 feet and submerged to its tracks. Three other Soldiers suffered non-fatal injuries.

■ A 20-year-old Private First Class assigned to Fort Hood, Texas, died in an Army combat vehicle mishap 6 November 2019 at Camp Humphreys, Korea, at 1432 local. The Soldier was driving an M2A3 Bradley Fighting Vehicle when it rolled over during a road test. He was airlifted to a local hospital, where he later died. Four other Soldiers suffered non-fatal injuries.

AMV

■ A Specialist assigned to Huntsville, Texas, died in an Army motor vehicle mishap 12 November 2019 in Walker County, Texas, at 1620 local. The Soldier was driving an M1165 up-armored HMMWV southbound on a highway when it overturned. He and the truck commander were reportedly ejected from the vehicle. Both Soldiers were transported to a local hospital, where the driver later died. The truck commander suffered non-fatal injuries.

OFF-DUTY FATAL MISHAPS

PMV-4

■ A Specialist assigned to Schofield Barracks, Hawaii, died in a PMV-4 mishap 27 October 2019 in Mililani, Hawaii, at 0445 local. The Soldier was riding as a passenger in a vehicle when the designated driver reportedly fell asleep behind the wheel. The vehicle struck a median and flipped multiple times. The Soldier was pronounced dead at a local hospital. The driver and another passenger suffered non-fatal injuries.

■ A 20-year-old Specialist assigned to Darien, Illinois, died in a PMV-4 mishap 15 November 2019 in Van Buren, Arkansas, at 0511 local. The Soldier was operating his vehicle when he fell asleep behind the wheel and struck a guardrail. He reportedly woke up, overcorrected the vehicle and struck a tree in the median. The Soldier was pronounced dead at the scene.

■ A 20-year-old Private First Class assigned to Winder, Georgia, died in

a PMV-4 mishap 22 November 2019 in Walton County, Georgia, at 0904 local. The Soldier was operating her PMV-4 when she ran off the edge of the roadway, overcorrected and drove into another lane, broadsiding a vehicle. The Soldier's vehicle was subsequently T-boned on the passenger side by another vehicle in oncoming traffic. The Soldier was transported to a local hospital, where she was pronounced dead.

■ A 19-year-old Private First Class assigned to Fort Riley, Kansas, died in a PMV-4 mishap 15 December 2019 in Texhoma, Texas, at 0515 local. The Soldier was attempting to pass a semi-truck when he collided with an oncoming vehicle. He was pronounced dead at the scene. The civilian passenger in the other vehicle also died, and the driver suffered non-fatal injuries.

■ A 23-year-old Specialist assigned to Fort Campbell, Kentucky, died in

a PMV-4 mishap 19 December 2019 in Unicoi County, Tennessee, at 1924 local. The Soldier was reportedly driving in the westbound lane when he collided head-on with a vehicle traveling in the wrong direction. The Soldier, his 1-year-old son and the civilian driver of the other vehicle were pronounced dead at the scene.

■ A 20-year-old Private Second Class assigned to Fort Drum, New York, died in a PMV-4 mishap 20 December 2019 in Jackson, Tennessee, at 1030 local. The Soldier was driving his vehicle through a construction zone on the interstate when he struck the rear of a slow-moving 18-wheeler. The Soldier was transported to a local hospital, where he was pronounced dead. The Soldier's spouse, who was a passenger in the vehicle, died at the scene.

■ A Private First Class assigned to Joint Base Lewis-McChord, Washington, died in a PMV-4 mishap 30 December 2019 in Spotsylvania County, Virginia,



1ST QUARTER FY20 ARMY MILITARY MISHAP FATALITIES

TOTAL YTD: 25

as of 31 Dec 2019



Category	FY19 EOY	1QTR FY20
Army Vehicle	15	5
Aviation	2	5
Fire	0	0
Personnel Injury Other	27	2
Private Motor Vehicle	65	12
Weapons & Explosives	6	1
Total	115	25

at 2300 local. The Soldier was a passenger in a private motor vehicle that left the roadway and struck a tree. The civilian driver survived, but the Soldier was pronounced dead at the scene.

PMV-2

■ A 19-year-old Private First Class assigned to Fort Eustis, Virginia, died in a PMV-2 mishap 16 October 2019 in Newport News, Virginia. Emergency medical technicians performed CPR on the Soldier at the scene before he was transported to a local hospital for surgery. He later died from his injuries. Authorities reported speed and reckless riding contributed to the mishap. The Soldier had completed the Motorcycle Safety Foundation's Basic RiderCourse and was wearing personal protective equipment.

■ A 33-year-old Sergeant assigned to Fort Sam Houston, Texas, died in a PMV-2 mishap 23 October 2019 in Houston, Texas. The Soldier was operating his motorcycle when he lost control, hit the road median, entered oncoming traffic and was struck by a vehicle. Paramedics found the Soldier unresponsive and transported him to a local hospital, where he was pronounced dead. The Soldier had completed the Motorcycle Safety Foundation's Basic RiderCourse I and II.

■ A First Lieutenant assigned to Schofield Barracks, Hawaii, died in a PMV-2 mishap 25 October 2019 in Honolulu, Hawaii, at 0030 local. The Soldier was operating his motorcycle when he lost control and crashed into a pillar. He had completed the Motorcycle Safety Foundation's Basic RiderCourse I.

■ A 26-year-old Staff Sergeant assigned to Tampa, Florida, died in a PMV-2 mishap 9 November 2019 in Glade County, Florida, at 1545 local. The Soldier was operating a motorcycle in a group of four riders when he attempted to make a U-turn in the left lane. One of the civilian riders sped up to catch the Soldier and they collided. Both riders died at the scene. The Soldier had completed all Army-required motorcycle training, but was not wearing any personal protective equipment other than boots.

PEDESTRIAN

■ A 19-year-old Private First Class assigned to Fort Bliss, Texas, died in a pedestrian mishap 5 October 2019 in El Paso, Texas, at 0340 local. The Soldier was attempting to cross an interstate highway on foot when he was struck by several vehicles.

■ A Staff Sergeant assigned to Fort Riley, Kansas, died in a pedestrian mishap 27 October 2019 in Junction City, Kansas, at 0100 local. The Soldier was towing a vehicle when he stopped on the side of the road. Upon exiting his vehicle, he was struck by oncoming traffic. The Soldier was evacuated to a local hospital, where he was later removed from life support.

FALL

■ A 24-year-old Sergeant assigned to Fort Bragg, North Carolina, died in

a fall mishap 31 October 2019 on the installation. The Soldier was running on the fourth floor of the barracks when he fell over the balcony head first. He was reportedly under the influence of alcohol. Once emergency services personnel arrived, they immediately began patient care. The Soldier died en route to the hospital.

POW

■ A Sergeant assigned to Fort Carson, Colorado, died in a privately owned weapon mishap 27 October 2019 in Colorado Springs, Colorado, at 1830 local. The Soldier was struck by a chambered round discharged from a weapon other Soldiers were handling.

TRAINING

■ A 29-year-old Sergeant assigned to Evansville, Indiana, died in a training-related mishap 7 December 2019 in North Vernon, Indiana, at 1815 local. The Soldier was found unresponsive in a shower trailer. The on-site medic and another Soldier performed hands-only CPR as emergency personnel were dispatched to the scene. The Soldier was transported to a local hospital, where he was pronounced dead on arrival. The coroner's preliminary report determined the cause of death to be asphyxia due to carbon monoxide inhalation.



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RISK MANAGEMENT

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

PREVENTING ARMY VEHICLE ROLLOVERS p. 4

SUMMER WEATHER
HAZARDS p. 10

DRIVER TRAINING p. 20

RIDER COMPLACENCY p. 24



**FIVE QUESTIONS IN MISHAP
INVESTIGATIONS p. 14**



SCAN HERE FOR
RISK MANAGEMENT ONLINE

The U.S. Army Combat Readiness Center has developed multiple tools to provide leaders information on risk mitigation, all available at <https://safety.army.mil>, including the following:

• Army Readiness Assessment Program

— a web-based tool that provides battalion or equivalent commanders with data on their formations' readiness posture by sampling unit safety climate and culture in five key areas: process auditing, reward systems, quality control, risk management, and command and control.

• Army Risk Management Information System — the central repository for all Army mishap data (Class A-D ground, on and off duty; Class A-E aviation). RMIS is designed to give leaders, safety officers and other personnel access to both current and archived mishap reports, with a goal of preventing similar incidents within their formations. Among other functionalities, users may search RMIS for specific mishaps by case number; conduct searches for a given timeframe or accident class; and obtain risk and hazard reports broken down by age, grade, equipment and additional variables. All data retrieved from RMIS is classified For Official Use Only and limited in use to accident prevention.

• USACRC Lessons Learned — one-page mishap investigation summaries produced for accident prevention purposes. Summaries contain information protected by DODI 6055.07 under safety privilege and are available only to CAC holders within the .mil network.

• Joint Risk Assessment Tool — a mission planning tool developed to augment the military decision-making process. Consisting of five integral parts, it assists users in identifying potential hazards and controls for specified ground missions or activities, both on and off duty.

• Off-Duty Safety Awareness Presentation

— a highly informative safety presentation containing statistics, contributing factors and other relevant information regarding off-duty mishaps. Developed for use at battalion level and below, the presentation comes complete with embedded videos and speaker notes that may be used as is or modified to reflect unit-specific mishap trends.

• Preliminary Loss Reports — short synopses of recent Army mishaps resulting in Soldier or civilian employee losses that alert commanders, leaders and safety professionals to circumstances affecting readiness. PLRs provide actionable knowledge and real-time information regarding accidental fatalities, both of which are critical in prevention through risk management.

• Safety Campaigns — a monthly focus on seasonal and non-seasonal risk management products and tools. Each monthly topic includes supporting videos, graphics and posters, articles and external links for additional resources.

• Risk Management Magazine — the official safety magazine of the U.S. Army, published online quarterly. In addition to the online version, the USACRC releases a weekly RM newsletter highlighting a variety of safety articles, posters and videos, seasonal safety campaigns and USACRC tools and programs.

• Flightfax — an aviation safety publication published online monthly. It provides leaders a snapshot of Army aviation hazards through analyses of mishaps within the last 30 to 60 days, near-term mishaps, aviation safety issues and historical context via a "blast from the past" feature.



USACRC WEB-BASED TOOLS AND INITIATIVES



CONTENTS

4 A Tragic Ending

6 Rollover!

8 Looking Forward

10 Weather Happens

14 Five Questions

16 Managing the Transitions in Aviation Operations

18 Territorial Terror

20 Buying in to Driver Training

22 Asleep at the Wheel

24 My Little GSXR

26 Mishap Briefs

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A TRAGIC ENDING

COMPILED BY THE RISK MANAGEMENT STAFF

The platoon's first real combat mission was scheduled to be a nighttime show of force. Equipped with Strykers, they were part of a larger unit and eager to get going to prove what they could do. They would be driving down some narrow, muddy roads. Although a few of the Soldiers had been down the route before, they'd been in the back of a vehicle and didn't really get a good look. The road was bordered by canals and had an 8-foot drop-off on both sides, making the route very dangerous.

Earlier that day, the Soldiers had readied their equipment and lined up for movement. It was still daylight when they began their mission, driving the route over the muddy roads. Darkness fell just as the platoon reached the most dangerous part of the route. Because the road was barely visible, many Soldiers donned their night vision goggles as they moved.

Suddenly, an urgent message came over the radio — one of the Strykers had gone off the left side of the road, rolled over and landed upside down in the canal. What the platoon didn't know, however, was that in fact two Strykers more than 200 yards apart had gone off the road and rolled over into the same canal. Both vehicles were sitting upside down on their remotely operated weapons systems, with one side of the vehicle resting against the bank. Nineteen Soldiers were trapped inside the partially submerged Strykers.

Both Strykers began rapidly filling with water, which was soon up to the Soldier's chins. As they stood inside the troop compartment, the Soldiers were afraid the Strykers might tilt and allow more water to flood in. The squad leader inside the first Stryker yelled for a head count. He thought he heard each Soldier yell back and assumed everyone was accounted for. What he didn't realize was that he heard a Soldier calling out the name of a missing Soldier as he searched

for him. The driver, who also was underwater, was having trouble escaping his compartment. Equipment blocked the passageway to the troop compartment, so he couldn't escape through that route. Ultimately, he got the driver's hatch open, swam out of the Stryker and then crawled on top of it. There he was joined by one of the vehicle's air guards, who'd barely managed to get out his hatch after the vehicle rolled over.

Inside the troop compartment, the second air guard struggled underwater to open the back door. He passed out; possibly not realizing the door, which would have fallen open were the vehicle right side up, now had to be pushed open. The driver and air guard who'd gotten out of the vehicle opened the rear door, allowing the Soldiers inside to escape. They then climbed onto the road, resuscitated the second air guard, and conducted another head count. Finding one Soldier missing, the squad leader went back inside the Stryker to locate him. He found the Soldier lifeless, just a few inches beneath the water's surface. His load bearing equipment (LBE) had become entangled inside the vehicle, trapping him underwater.

The water was also up to the Soldiers' chins in the second Stryker. They tried to open the troop compartment door, which was their only way out, but heard someone outside yelling, "There's a lock

on the troop door!" The Soldiers started to panic, so the team leader tried to calm them and asked for a head count. Two Soldiers — the driver and squad leader — were missing. The driver was trapped in his compartment. Equipment in the passageway leading to the troop compartment blocked his escape. The other missing Soldier, the squad leader, was trapped underwater by his LBE. It was almost a half hour before the lock was cut and the Soldiers could escape. By then, the driver and squad leader had both drowned.

The platoon's first mission ended in tragedy as three Soldiers died without ever engaging the enemy. It was a high price to pay to learn the following lessons:

- Before heading out, leaders must conduct risk management for the entire mission, to include the complete driving route, to mitigate the hazards.
- Leaders must brief the route to the entire platoon so every Soldier knows the hazards to be faced.
- Crews must conduct rollover drills and ensure those drills are tailored to the mission. For example, if the route

DID YOU KNOW?

Since FY16, the Army has lost an average of 12 Soldiers a year to Army vehicle mishaps. Leaders must be proactive in risk management during Army vehicle operations.

follows canals, Soldiers must know what to do should their vehicle roll over and land upside down in the water.

- Rollover drills are important; however, Soldiers also need to practice exiting their vehicle. The Soldiers who died in these Strykers had survived the rollovers, but couldn't egress their vehicles. For example, had the crew in the second Stryker practiced exiting their vehicle, someone would have noticed the lock on the troop door.

- Soldiers must follow proper load plans, making sure escape routes and hatches are accessible.

- Soldiers must conduct thorough pre-combat inspections on their vehicles to ensure all equipment is serviceable and there are no locks on hatches or doors. ■

Perhaps the worst thing a Soldier can hear in a vehicle during training is someone yelling, “Rollover!” What usually follows is a discombobulated few seconds where only gravity and momentum have control of everything left unsecured inside the vehicle — including its occupants.

The Army experienced a significant increase in rollover fatalities in FY19 and in the first quarter of FY20. We lost nine Soldiers in rollover mishaps in FY19 compared to an average of four fatalities during the previous five years. These losses gained senior Army leaders’ interest. The U.S. Army Combat Readiness Center (USACRC) spent significant time studying vehicle mishaps/rollovers and reached some conclusions units can use to prevent these types of incidents going forward. First, though, let’s look at a few numbers:

- Overall, the Army is in a period of significantly reduced on-duty ground Class A mishaps and fatalities. During the past 15 years, on-duty ground deaths have fallen from 108 in FY05 to less than 30 per year from FY10 to present. There were 24 on-duty ground fatalities in FY19.
- Total Army on-duty vehicle fatalities have averaged 12 annually from FY15 to FY19. This was the lowest five-year average since comprehensive recordkeeping began in 1972.
- In FY18, 12 Soldiers died in tactical vehicle mishaps.
- In FY19, 13 Soldiers died in tactical vehicle mishaps.
- In the first quarter of FY20, five Soldiers died in three tactical vehicle rollover mishaps. Three of the Soldiers died in a single mishap when they drowned after the vehicle drove off a bridge.

- Total rollover mishaps have not increased; fatal rollovers have increased. Failure to use restraint systems is a common denominator for fatalities.
- From March 2018 to Sept. 30, 2019, THERE WERE NO SOLDIERS KILLED IN TACTICAL VEHICLE MISHAPS WHILE WEARING OPERATIONAL SEAT BELTS OR OTHER RESTRAINTS.
- Of the nine rollover fatalities in FY19, two Soldiers did not have restraints available; one was in an M1A2, and the other in the cargo area of an FMTV. Two Soldiers were knowingly operating vehicles with non-operational seat belts. Five Soldiers did not use — and leaders did not enforce — fully operational and available restraints.
- There were no fatal injuries in rollovers attributed to crushing because of a compromise

ROLLOVER!

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Fort Rucker, Alabama

of space inside the vehicle. Other than the Soldier in the FMTV, every Soldier killed was at least partially ejected from their vehicle.

I could simply say, “See, we told you to wear your seat belts,” but that would not answer everything. Studying the FY19 mishaps reveals that every fatal rollover in FY19-20 has had at least five of the following contributing factors present:

- Failure to use available restraints and seat belts
- Lack of route and terrain reconnaissance
- Inadequate mission-specific and crew rehearsals
- Failure to adhere to load plans
- Failure to identify hazards (water crossings, bridges, complex terrain, etc.)
- Lack of leader oversight/enforcement of standards
- Excessive speed while navigating corners
- Poor crew coordination
- Improper pre-combat checks and inspections
- Improper maintenance procedures (restraint systems)
- Limited driver experience
- Poor driver training programs
- Fatigue/poor rest plans

Every one of these issues can be addressed by leadership at the company level and below. Most of them are platoon- and squad-level corrections. Why aren’t we doing this? I’ll leave that answer to you.

I don’t mean to lead you to believe that the Army is leaving everything on the backs of junior leaders. The Army is pursuing policy and training updates to decrease ground vehicle mishaps. A short list of some of those efforts include Army Regulation 600-55, Army Driver and Operator Standardization Program (SEP 2019), which directs significant changes in driver and trainer certification and commander involvement. It also requires written and hands-on examinations.

The USACRC has a Lessons Learned webpage where you can review mishaps. We also have an excellent ground guiding video to address the significant number of Soldiers struck by tactical vehicles in FY18, and we recently fielded the Joint Risk Assessment Tool (JRAT) to provide commanders with automated support for their risk management efforts.

The Army is pursuing materiel upgrades and retrofits to decrease ground vehicle mishaps. The Joint Light Tactical Vehicle will include cab structural requirements (crush resistance), five-point seat belts, an antilock brake system (ABS), electronic stability control (ESC), an automatic fire extinguishing system (AFES), front and rear driver display cameras, a driver visual enhancement system, and self-adjusting ride height and tire pressure. There will also be upgrades to all new HMMWVs, including improved door mechanisms, upgraded restraints and ABS/ESC retrofit kits. Legacy HMMWVs will be retrofitted with ABS/ESC. Finally, the Army is developing troop kits for cargo vehicles, providing restraints and rollover protection for Soldiers riding in the backs of trucks.

The secretary of defense has stated that our goal for injuries and fatalities in training should be zero. He’s right. Every Soldier death or injury in training is a loss to the unit and a family. We must act at every level of leadership to prevent these needless losses. The last line of defense is the first- and second-line leader. Training and enforcing standards is the very essence of taking care of Soldiers. Let’s get to it. ■



LOOKING FORWARD

REVERSING THE FOURTH-QUARTER AVIATION SAFETY TREND

BRIG. GEN. ANDREW C. HILMES
 Commanding General
 U.S. Army Combat Readiness Center
 Fort Rucker, Alabama

The Army closed fiscal year (FY) 2019 with the fewest manned flight fatalities on record, a reflection of the Aviation Branch's tenacious approach to safety and commitment to continuous improvement.

Overall, aviation Class A-C mishaps continued a downward trend during FY19, with a nearly 40 percent reduction from FY18. Class A-C flight mishaps (58) and rates (5.54 per 100,000 flying hours) were the lowest in the past 10 years. Due to Armywide emphasis, ground taxi mishaps fell from four Class A's in FY18 to zero. Most importantly, aviation mishap fatalities decreased from six in FY18 to two. These achievements conclude the safest five-year period in Army Aviation history and place us on a solid foundation as we begin the new decade.

However, we still have work to do. In the first quarter of FY20 alone, the Army experienced four Class A mishaps with five resulting fatalities. This figure exceeds the total number recorded in FY19, and Class A mishaps are on track to surpass each of the past five years. This difficult start to the new year reminds us how quickly our environment can change and the need

for continuous, ruthless adherence to risk management protocols at all echelons of our formations.

The U.S. Army Combat Readiness Center remains steadfast in its role of leading Armywide loss prevention efforts and serving as your enduring "backside" support. We continue to disseminate the latest mishap summaries, trend analysis, aviation near miss brief and other safety materials to your safety officers, as well as placing them on our website (<https://safety.army.mil>). Our goal remains the same — to get in front of mishaps through predictive analysis and drive them to zero.

With that in mind, I ask each of you to begin turning your focus to an alarming trend in Army Aviation that has, unfortunately, proven reliably consistent. The graph to the right depicts Class A mishaps relative to flight hours, by quarter, for each of the past five years.

As you can see, Class A mishaps

have almost doubled during the fourth quarter of each fiscal year (with the exception of one) since FY15. In other words, we are experiencing nearly 50 percent of our Class A mishaps during the fourth quarter of every fiscal year. The graph also shows that flight hours for the fourth quarter remain relatively consistent with the other three quarters, so it is difficult to attribute this trend to increased OPTEMPO during the fourth quarter or end-of-year execution of unit flight hour programs.

The USACRC continues to analyze this problem from multiple perspectives. While fourth quarter mishap data from the past five years does not reveal any appreciable trends, this time period is ripe with risk factors that, when aggregated, present a complex situation increasing the chance for mishaps. We are looking closely at the impact of environmental and training factors, along with the summer permanent change of station and leader change of command cycles to see if personnel and leadership turbulence, usually more pronounced later in the third quarter, has a residual safety effect in the fourth quarter.

We know from history and our own experience that risk increases significantly during transitions, whether it be the transition between distinct operations and phases or the

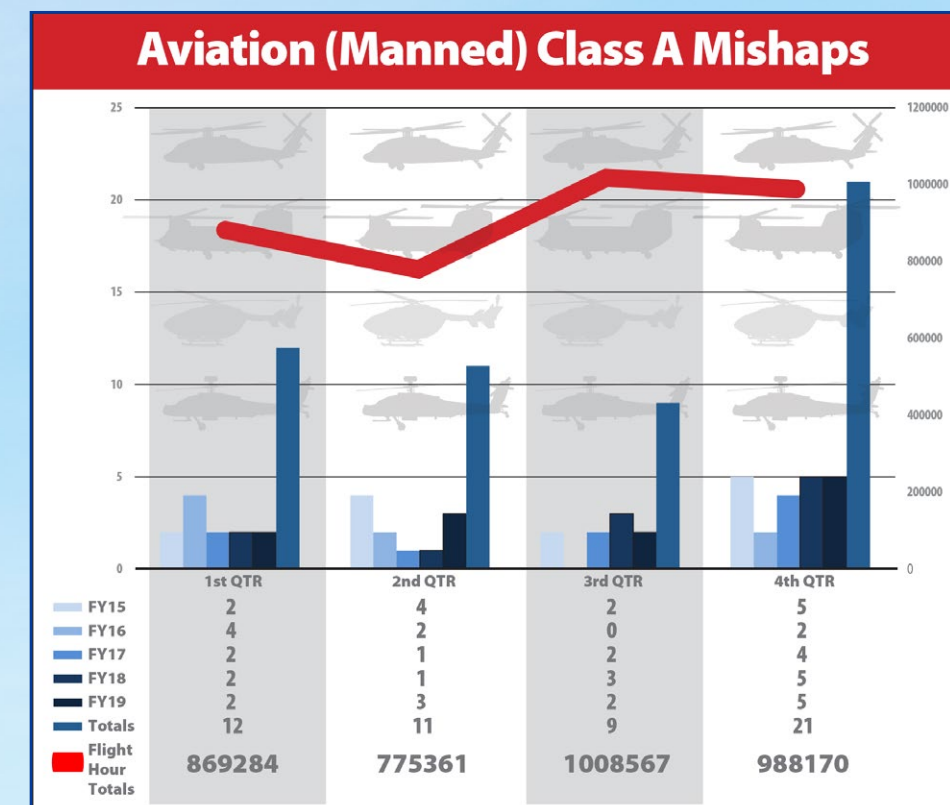
transition from one leader to another. Seasoned Army leaders understand that establishing relationships and a shared understanding with supporting and supported units decreases confusion, misinformation and mishaps. Thus, we tend to be very deliberate in planning the transitions between commanders, ensuring sufficient time for onboarding briefings, touch points with certain staff functions, and even equipment inventories. But how deliberate are we with aviation safety officer (ASO) transition plans? Some recent feedback from the field indicates a lack of face-to-face handoff and, even worse, no continuity files for incoming ASOs. Personnel turbulence is nothing new in the Army, so we must anticipate and plan for it. If commanders emphasize, receive back-briefs on and make modifications to ASO transition plans, not only will the quality of those hand-offs improve, so will the unit risk profile.

As we think about leader transitions, particularly during

periods of high personnel turbulence, consider that new leaders in positions of risk acceptance might be initially unable to holistically assess hazards in their new unit, installation or mission role. Limiting their risk acceptance authority the first several weeks as expectations are set and relationships built is one measure to ease the transition. Established ASOs and instructor pilots (IPs) can typically help the commander make good crew mix decisions, but those new to the unit will be unaware of numerous, potentially harmful, factors. In concert with the higher headquarters commander, it makes good sense for senior aviation officers, ASOs and IPs to limit new personnel as mission briefers and/or mission approval authorities for a predetermined onboarding time and for scenario-based mission approval training, as programmed into the unit standing operating procedure. This will allow leaders to train the force on how to identify, assess and mitigate risk and ensure standardization of the mission approval process across the breadth of a formation. Finally, new commanders might consider implementing tactical and training imperatives, deliberate mission briefings and rehearsals at their level for a set amount of time to assess and appreciate the level of rigor within existing mission planning and risk management processes.

I hope these recommendations are the start of an engaging dialogue within your formations about how we prepare for success in the fourth quarter. We know the challenge is coming. We have a clear, established trend the past five years. However, the collective critical thinking, discussion and sharing of best practices within our community will allow us to reverse this trend. Winning matters! ■

Readiness Through Safety!



For many adults, summer is the time we look forward to taking family vacations. For kids, the season provides a much-needed break from school work. For teenagers, it's a time to bask in the sun at the beach. For aviators, though, summer is a time when many flight hazards exist. Understanding and preparing for these hazards are the keys to staying safe.

WEATHER HAPPENS

PREPARING FOR SUMMER AVIATION HAZARDS

As we transition into summer, gone are the days of cold fronts and nor'easters. Most of summer's weather is tied to thunderstorms. Whether you're talking about the sea breeze, air mass thunderstorms, severe weather or a tropical system, all thunderstorms have certain inherent dangers: severe turbulence, severe icing, low-level wind shear (LLWS), heavy rain, hail and lightning. It even says so right there in Block 22 of Department of Defense (DD) Form 175-1! All thunderstorms have the potential to turn severe with little or no notice. And finally, any thunderstorm can produce a microburst. There are a few other summertime hazards besides thunderstorms, but I'll address those later.

Thunderstorm development

It is important to understand the basic dynamics of a thunderstorm. To put it simply:

Moisture + Instability + Lift = Thunderstorm

When these three ingredients come together, it is the perfect recipe for a thunderstorm. As a harmless cumulus cloud grows into a dangerous thunderstorm, it goes through three stages: developing, mature and dissipating.

During the developing stage, the cumulus cloud grows vertically and an updraft develops. Little, if any, precipitation falls, but there is some occasional lightning. Expect some light turbulence in and around these convective clouds.

In the mature stage, the updraft continues to feed the storm and a downdraft is formed. Precipitation falls, sometimes heavily, often reducing flight visibility to < ½ statute mile. Frequent lightning, hail, damaging winds and tornadoes are possible.

As the downdraft reaches the surface, it cuts off the updraft and the storm reaches the dissipating

state. Although the precipitation tapers off, lightning is still present and isolated instrument flight rules ceilings are possible. It is during the dissipating stage that you have to watch out for microbursts.

Types of thunderstorms

There are three types of thunderstorms: single-cell, multicell and supercell. Let's take a closer look at each type.

A single-cell storm (also known as a pulse storm or air mass thunderstorm) is generally short-lived, lasting only 30-60 minutes, and usually does not produce severe weather. It contains a single updraft. Strong winds and marginally severe hail are possible, but tornadoes are rare.

Multicell storms are clusters of single-cell storms. New storms tend to form on the rear edge of the cluster, mature cells are in the center, and dissipating storms are along the front edge. New cells can continue to develop every five to 15 minutes. Flash flooding, large hail and strong winds are the main hazards, but short-lived tornadoes are also possible.

A supercell contains a single, rotating updraft and is usually isolated from the main thunderstorm outbreak — a renegade, if you will. Large hail, severe winds and tornadoes are possible. The lifespan of a supercell can be several hours.

Forecasting thunderstorms

As Air Force meteorologists, we have many tools at our disposal to detect and predict thunderstorms. As you probably guessed, we use the operational weather squadron's hazard charts. These forecast turbulence, icing and thunderstorms in three-hour increments out to 120 hours. We also look at surface and upper-air analysis as well as the Skew-T Log P diagram. The Skew-T gives

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us a vertical profile of the atmosphere at a particular location so we can identify the availability of moisture, instability and lift. (Remember those three ingredients?)

Every day is different, as is every thunderstorm. I've seen days when I'd have bet the farm on getting severe thunderstorms and received absolutely nothing. I've also seen days when I had to amend the mission execution forecast before it was even valid because thunderstorms fired up hours earlier than expected. That's what makes thunderstorm season so interesting and exciting!

Satellite imagery

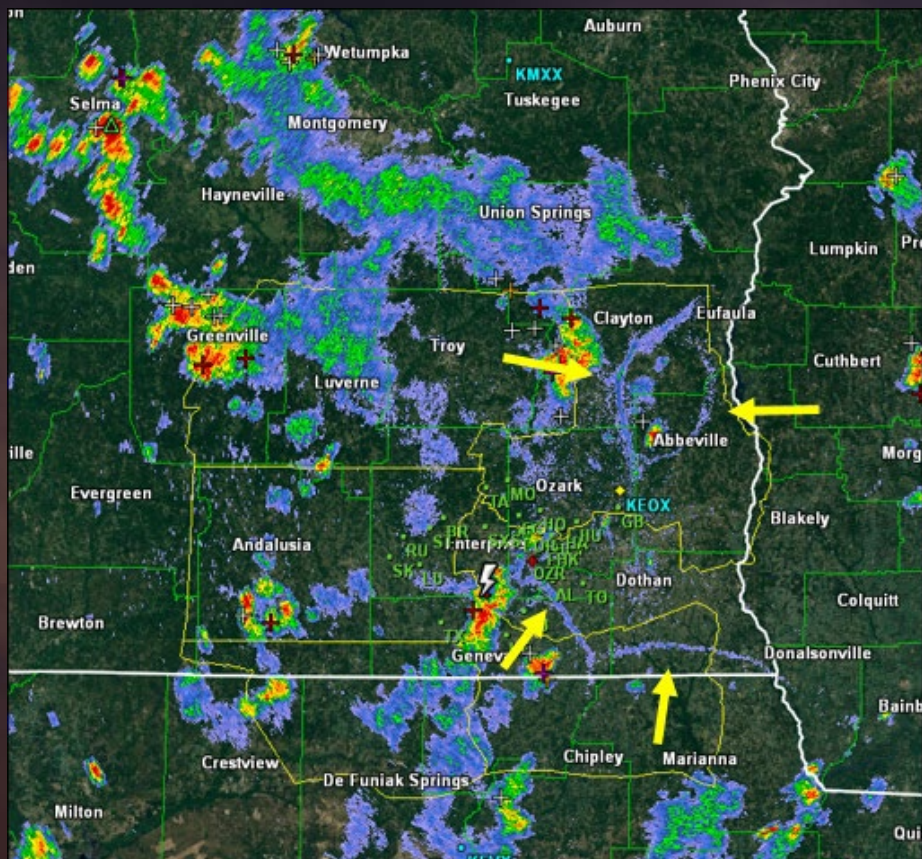
Satellite imagery is a great tool for identifying clouds, areas of turbulence and thunderstorms. I'm particularly fond of visible imagery, but it is only available during the daytime hours. With a 1 kilometer resolution image, you can watch the cumulus clouds build, the thunderstorm bubble up, the anvil top blow off and the outflow boundaries form. It's quite a sight. At night, we use infrared imagery. There are various enhancements that help identify thunderstorms.

Radar

Of all the tools at our disposal, radar is the single most important in monitoring the development and progression of thunderstorms. Using radar imagery, we can track the location and movement of precipitation, identify thunderstorms versus showers, pinpoint any areas of hail or rotation, and interpret whether the storms are building or weakening.

So how does the radar work? Basic radar theory is that the radar shoots a beam at the lowest elevation angle. The returns are bounced back to the radar, where the data is processed into the imagery we all know and love. Once the radar has completed a 360 degree sweep of the lowest elevation angle, it moves on to the next highest elevation angle and so on and so forth. Within minutes, we have a full picture of all slices of the atmosphere. Each individual slice is plotted as a base reflectivity product, and the composite of all slices is plotted on a composite reflectivity product.

Radar imagery can be deceiving. Don't fall into the trap of seeing red and thinking it means a thunderstorm.



So what does one look for? First, use a data source that does not filter outflow boundaries. The National Oceanic and Atmospheric Administration (NOAA)/ National Weather Service (NWS) and College of DuPage are excellent sources. Be sure you're looking at base reflectivity, the lowest elevation/slice/tilt. Finally, look for the classic arc-shaped return that is moving away from the parent storm. The screenshot to the left captured four outflow boundaries (yellow arrows) near Cairns Army Airfield in summer 2019.

I mentioned earlier that every thunderstorm has the potential to produce a microburst. A microburst is a sudden, violent downdraft of wind in a thunderstorm that is less than 2 1/2 miles in scale. The winds rush down and out, radially, in all directions. The damage from a microburst can be even worse than that of a tornado, and microbursts present a grave danger to aviation, particularly to rotary-wing pilots.

Unfortunately, predicting microbursts is a challenge. We can't tell you which cell will produce a microburst and when that microburst will occur. The science and technology just isn't there yet, at least not on the military side. We can examine radar data for signs a storm might collapse by looking at the echo tops trends and vertically integrated liquid trends; but by the time we receive the data, it's already several minutes old. Unfortunately, we usually only find out about a microburst after the fact — when one of our weather sensors reports a gust of 65 knots. That's not a good feeling!

Air mass thunderstorms are prevalent during the summer months. In and of themselves, they are usually manageable and easy to pick around. However, certain interactions can quickly wreak havoc on aviation. We constantly monitor the radar for outflow boundaries, merging cells, sea breeze and other interactions that tend to ramp up convective activity. Any of these interactions increases the risk of warning-level winds. Thunderstorm hazards exist up to 20 miles outside of the core of a thunderstorm. The best way to avoid thunderstorm hazards is to steer clear of thunderstorms.

Other hazards

We've been talking a lot about thunderstorms, but they are not the only game in town during the summer months. Let's not ignore other summer aviation hazards like turbulence, LLWS and fog. Hurricane season also spans the summer months.

That is not necessarily the case. While red on the radar could mean a thunderstorm, it could also mean large raindrops or a great number of raindrops. The interpretation of red also depends on which product you are viewing. Most forecasters I know use the composite reflectivity as a briefing tool because it gives a nice overview. However, this product is a compilation of all layers in the column, so the presence of red might make you think the situation is worse than it actually is. A scan of the lowest two to three layers of base reflectivity is a better way to check out a storm. Or better yet, ask your local weather experts at the Air Force weather team!

Some other things to watch out for: Beware of the bow! When you see a line of thunderstorms begin to bow outward, that's an area you want to avoid. A bow echo is usually indicative of damaging straight-line winds.

Outflow boundaries are no picnic either. An outflow boundary marks the dissipating stage of a thunderstorm. That sounds like good news, but it's not. Across an outflow boundary you'll notice a wind shift, gusty winds, and cooler, drier air. What does that sound like? A very small-scale cold front, perhaps? Yes, and it is along these boundaries new thunderstorms are likely to form. When outflow boundaries converge with each other or with other storm cells, things can go downhill fast. Since most commercial websites and apps (including ForeFlight) filter the outflow boundaries and air traffic control radar doesn't detect them, it's challenging to identify one unless you know what to look for.

Turbulence Intensities for Different Categories of Aircraft

Cat. I	Cat. II	Cat. III	Cat. IV
N	N	N	N
(L)	N	N	N
L	(L)	N	N
L - (M)	L	(L)	N
M	L - (M)	L	(L)
M - (S)	M	L - (M)	L
S	M - (S)	M	L - (M)
S - (X)	S	M - (S)	M
X	S - (X)	S	M - (S)
X	X	S - (X)	S
X	X	X	S - (X)
X	X	X	X

Key: N = None, () = Occasional (less than 1/3 of the time), L = Light, M = Moderate, S = Severe, X = Extreme

Turbulence: The two main types of turbulence are thermal and mechanical. Thermal turbulence occurs when the surface heats up and warm air rises. Thermal turbulence is usually light and confined to the lowest levels of the atmosphere. As you probably guessed, the peak times for thermals to occur is from late morning until late afternoon, since that is when heating is at its max. Mechanical turbulence is caused by horizontal and/or vertical wind shear and can be the result of pressure gradient, orographic effects or frontal zones. Mechanical turbulence is generally found in a thin layer with a width of 10-40 miles and a length much greater than that. Watch out for rotor, lenticular and cap clouds. These clouds are associated with mountain wave turbulence and should always be avoided.

In general, the effects of turbulence for rotary-wing aircraft are amplified with increased airspeed, decreased weight of aircraft, decreased lift velocity and increased arc of the rotor blade. The turbulence intensity depends on aircraft type. The table above shows the turbulence intensities relationship across Category I, II, III and IV aircraft.

LLWS: This is drastic changes in speed and/or direction in the lowest levels of the atmosphere. Outside of thunderstorms, LLWS most often occurs near/along frontal zones and in mountainous areas.

Fog: It is common after heavy rain to have periods of dense ground or tree fog. This happens frequently during the summer months. The good news is this is usually localized and short-lived. Radiation fog is also common during the summer months. More good news: Radiation fog burns off when the inversion breaks, usually by mid-morning. Terrain can also impact fog formation.

Upslope winds will cause fog to form; it will persist until the winds change direction. Upslope fog can last for days.

Hurricanes: Hurricane season runs from June 1 through Nov. 30. Hurricanes form over the warm ocean waters and can even impact areas well inland. Impacts vary by location. Coastal locations will see the strongest winds along with storm surge. Winds weaken as a tropical cyclone moves inland, but these locations can still see hurricane-force gusts, heavy rain, flooding and tornadoes in the right-front quadrant as the rain bands rotate around the center of circulation.

It's a little early for the NOAA or Colorado State University 2020 hurricane season predictions, so I'll end with a wrap-up of the 2019 season. The 2019 Atlantic season featured above-normal activity with two subtropical storms; two tropical depressions; 10 tropical storms; and six hurricanes, three of which were major hurricanes. The average season consists of 12 named storms, six hurricanes, and three major hurricanes. What will 2020 bring? Only time will tell.

A final word

Many aviation hazards exist during the summer months. We are all impacted by weather in our daily lives, but probably no one more so than aviators. Mother Nature can quickly turn a routine mission into a life-threatening situation. Ensuring you have the most current weather brief, understanding these hazards and how to mitigate them is critical to keeping your aircrew safe. Weather happens ... are you prepared? ■



“MOST ARMY MISHAPS INVOLVING HUMAN ERROR HAVE AT LEAST ONE OF THESE FIVE ISSUES IN COMMON:”

The majority — 83 percent — of all major accidents involve human error. When human factors are present, we invariably see common indicators that set the conditions for a catastrophic mishap. The deliberate mishap investigation process includes documenting evidence, taking photographs and analyzing data. However, the best source of information for determining what went wrong usually comes from witnesses.

After decades of witness interviews, the USACRC continues to uncover the same mishap causal factors. Five questions we always ask up front often begins to unravel the mystery surrounding the mishap and helps lead the board to findings and recommendations. Most Army mishaps involving human error have at least one of these five issues in common:

FIVE QUESTIONS

G3, INVESTIGATIONS, REPORTING AND TRACKING
U.S. Army Combat Readiness Center
Fort Rucker, Alabama

- 1. Was the Soldier trained properly?**
- 2. Was the Soldier supervised?**
- 3. Was the Soldier undisciplined?**
- 4. Was the Soldier overconfident?**
- 5. Was the Soldier complacent?**

If you step back and review the timeline leading up to and through the mishap sequence, you will more than likely find that if the leader or Soldier had taken the time to address one or more of these questions, the outcome would have been different. When units get these five questions wrong, the results consistently produce damaged property, loss of equipment and Soldier deaths.

The applicability of these five questions are broad, and the corrective actions are not black and white. How you approach these questions prior to a mishap will always be a challenge for leaders and commanders. It starts with knowing your Soldiers and their behaviors through communication and observation. Planning, executing and documenting training events and qualifications is a step in the right direction. But it's communication up and down the chain of command and a deliberate face-to-face risk assessment process that truly informs the leader of what questions to ask and what corrective actions need to be taken.

There are no routine missions or repetitive tasks. Treat each task and mission as if it were your first. Follow and enforce the standards and recognize when your capabilities are less than what is being asked of your unit. Failure to take the time to address these five questions during planning and preparation will undoubtedly lead to them being addressed during a USACRC mishap investigation. ■

If you ever belonged to a unit that experienced a fatal Class A mishap, then you may have seen a team from the U.S. Army Combat Readiness Center (USACRC) arrive to investigate. The USACRC has conducted mishap investigations since 1975, dispatching teams to about 40 fatal Class A incidents annually. The organization does not investigate every Class A mishap. Factors such as complexity of the mishap, public interest and potential for Army-level recommendations help shape whether the USACRC will conduct the investigation. When the decision to investigate is made, the USACRC assembles a board of subject matter experts and follows a deliberate process to determine what happened, why it happened and how to prevent it from happening again.



MANAGING THE TRANSITIONS IN AVIATION OPERATIONS

COL. JASON MILLER
Deputy Commander
U.S. Army Combat Readiness Center

We've all heard that there's no such thing as a "routine mission" in Army Aviation. Time and again, mishap investigations have proven this to be true. The devil is often in the transitions before and after the primary mission. The paragraphs below detail the most common findings in recent Class A aviation mishap investigations.

Risk-Common Operating Picture (R-COP): While mishap units might have an R-COP on file, investigations show they often failed to identify several key factors that increased mission risk. Missed factors include operational environment (dust/sand/terrain), fighter management and currency in night vision system training. Exclusion of these considerations means the mission briefing officer (MBO) and approval authority miss critical information in determining proper crew selection for mission success. Units should regularly scrub their R-COPs and make sure they cover all factors affecting unit operations, whether for training or in combat conditions.

Aircrew Training Program (ATP): Investigations often find that the unit was inadequately managing its ATP. Left unchecked by leadership, "small" deviations from standard can quickly turn "normalized." Commanders and their standardization staff, including the aviation safety officer, must review their ATPs regularly and monitor the health of the program by conducting no-notice evaluations and commander fly-alongs, sitting in on MBO briefings, and taking a direct role in developing unit training to ensure it meets the standard.

MBO Training: It can be argued that MBO training is the final defense in mishap prevention, but investigations show deficiencies in some training programs. The mission brief is the last opportunity for a risk check prior to the crew's departure, and MBOs must know the right questions to ask and fully understand

crew requirements for the specific mission at hand. Commanders at all levels have a stake in designing and validating their MBO training program and should conduct periodic reviews to ensure it remains on target.

Staff Planning: Investigations are revealing the absence of key staff officers (to include the safety officer) in mission planning and a lack of detail in the Deliberate Risk Assessment Worksheet. Ensuring the right emphasis is placed on the planning process allows units to war-game hazards and contingencies and implement controls before mission execution. Leaders must treat the DRAW and R-COP as living, evolving documents, not a paperwork drill, and ensure the correct experts are part of the planning process. Furthermore, through intent and mission command, subordinates must be empowered to make dynamic risk decisions when conditions, environment and missions change to ensure successful mission execution.

Crew Complacency: Complacency is a natural byproduct of all the above — standards deviations, inadequate planning and training, and insufficient risk management. Leaders and aviators alike should routinely self-check to ensure they aren't becoming complacent both in and out of the aircraft. Additionally, complacency can have a dramatic effect on one of the most important aspects of successful mission execution, and that is crew coordination. Everyone must understand the dangers of becoming too comfortable in such a risky profession.

Rehearsals: Just as on the ground side of operations, aviation mishap investigations are increasingly uncovering a lack of pre-mission rehearsals. Rehearsals give crews an opportunity to address hazards before, during and after the principal operation and can help identify small glitches that could lead to a catastrophic event. Standardizing rehearsals prior to each flight gives commanders a prime opportunity to implement controls and drive risk down to acceptable levels. It will also train subordinates and build our professional bench on what "right" looks like.

As you can see, each failure within the system ultimately cascades to the mishap. Implementing controls, following SOPs, maintaining standards, conducting comprehensive training and planning appropriately with the correct personnel (i.e., standardization instructors and aviation safety officers) while standardizing pre-mission rehearsals will go a long way toward safe mission accomplishment. ■

Readiness Through Safety!

We all know the dangers of snakes — especially those of us who live in the South, where the weather is hospitable nearly year round for the slithering serpent. If you see a snake, usually you won't have any issues if you just leave it alone. That was not the case in my situation.

A couple years ago, my brother, Ben, and I decided to go fishing at a friend's family pond. We arrived early to avoid the heat, loaded our gear into a small aluminum jon boat and shoved off into the water. We only had one paddle and Ben had it at the rear of the boat to control our direction around the pond.

We were about an hour into our outing when I saw a water moccasin on the far side of the pond. I pointed it out to Ben and we continued fishing in our area. A few minutes later, I noticed the moccasin again, swimming in a back-and-forth "S" pattern. Ben and I decided we'd just stay away from that portion of the pond and continued fishing for another 15 minutes or so, catching a few bass here and there.

Now comes the good part! I cast my rod and got hung in a tree. I should've just cut the line, right? Absolutely not! That was a \$12 lure stuck up there. I tugged and pulled to no avail. At the same time, the moccasin resumed its "S" pattern swim about 35 yards away. I continued to tug on my line, trying to get my lure free as the snake swam farther from shore. I jokingly told Ben that if the snake came in our direction, he'd have to kill it. "I'll save you, little brother," Ben replied.

Apparently, I had managed to cast my lure into the strongest pine tree branch in the world and it was not coming free. Suddenly, the snake, now about 30 yards away, made a beeline for the front-right side of the boat, where I was seated. I pulled harder on my line, as my flimsy rod



was the only thing I had to defend myself from the snake. At 20 yards I hollered, "Brother, you better kill that 'bleeping' snake!" Ben told me to calm down. As the snake drew closer with Michael Phelps-like speed, I remember looking over my shoulder and seeing Ben tying on a rubber worm, not even paying attention.

When the scaled beast closed the gap to around 10 yards, it raised its head off the water in an offensive striking posture. Then I noticed something. The two of us, one tall and one large, had managed to press the boat's buoyancy limits. It was apparent to me that the amount of boat sticking out of the water was less than the height of the snake's head above water — and it was coming directly at me.

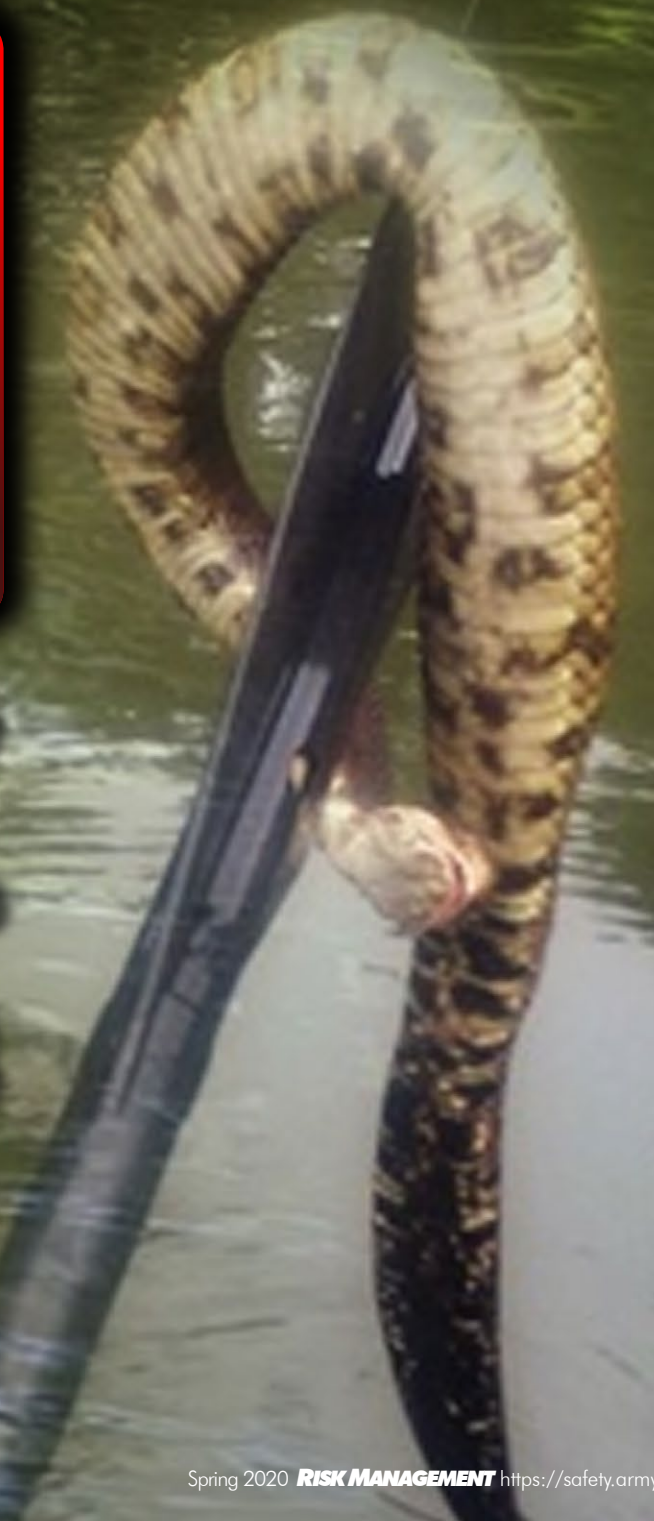
DID YOU KNOW?

According to the Alabama Department of Conservation and Natural Resources, the cottonmouth — also known as a moccasin or water moccasin — is the only venomous aquatic snake in North America. They are found in the southeastern United States and can grow to more than 6 feet in length. Cottonmouths are commonly found in ponds, swamps, streams, springs, marshes and even roadside drainage ditches. The snake's bite is highly dangerous and can be fatal.

I cannot stress how quickly this snake moved on top of the water. As it crossed past the 5-yard marker, I thought it was just seconds from laying its head down in the boat and striking me until I was dead. In an attempt to save my own life, I began to rock the boat to the left to raise the right side to block the snake's entry. When the boat was at its lowest point, Ben yelled, "What are you doing?" He then picked up the paddle and struck the moccasin just feet from the edge of the boat. With the threat neutralized, Ben turned to me and asked what I would have done had I turned the boat over and was in the water with the snake. I remember saying a few curse words and something about walking on water like Jesus.

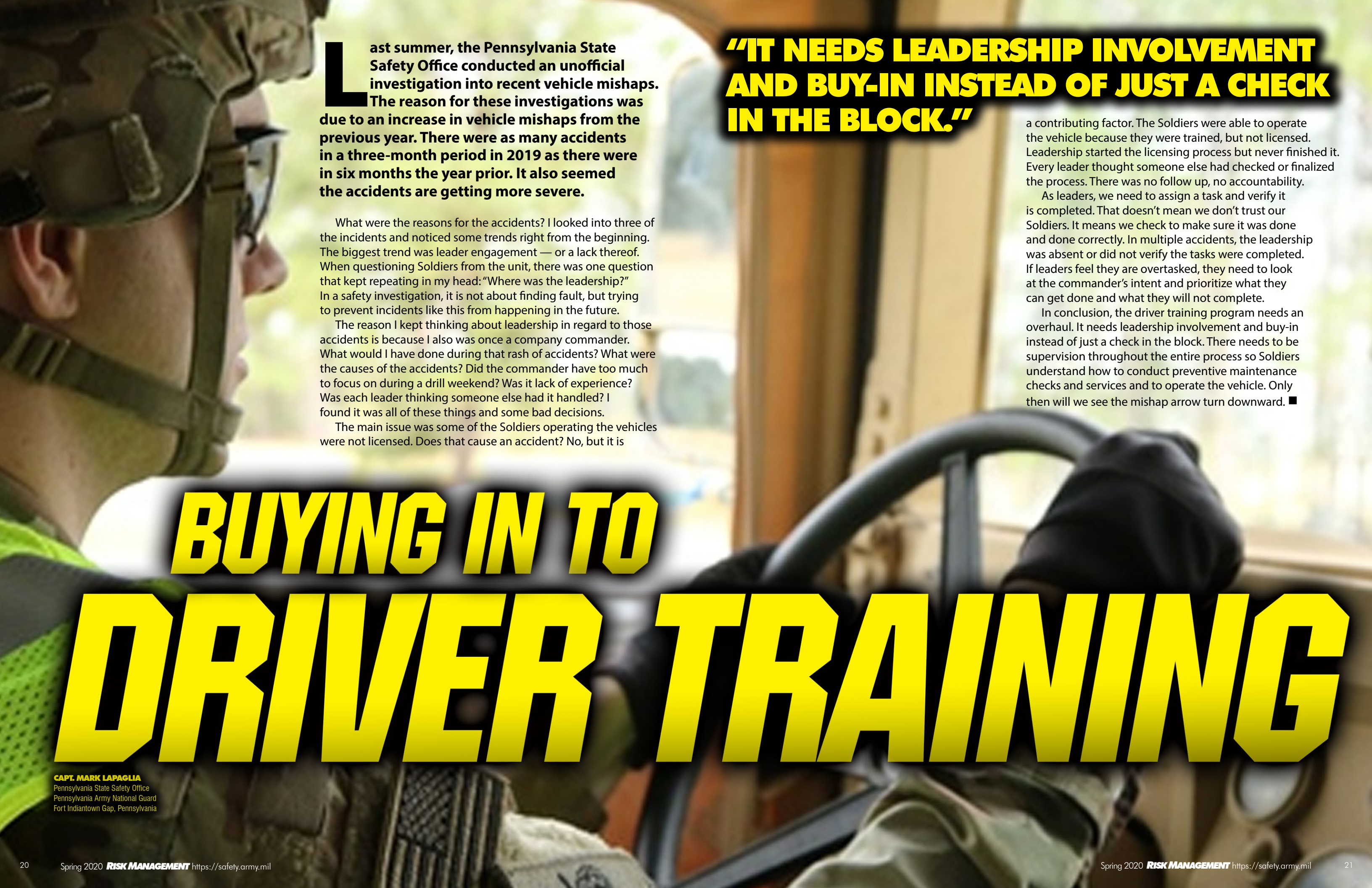
You can see in the photo to the right that this was a big water moccasin. I have seen some snakes that become aggressive as you approach them, but I have never seen a snake charge at a boat fully intending on breaching it. We assume that there was a nest in the corner of the pond where it came from, but again, we were 30-plus yards away. After all was said and done, Ben, a former Marine, told me the snake's body was so stout that striking it felt like hitting a galvanized telephone pole guyed wire.

The lesson I took from this experience was to never let your guard down. We fished this pond multiple times and never saw a snake. Sure, we'd encountered water moccasins on some local lakes, but I'd never seen one as aggressive and bold as this one. As I wrap up my tale of the "Territorial Terror," I leave you with this: Know the type of wildlife you can reasonably expect to see on your outings and prepare for them as best you can. Never fail to consider the unexpected outcomes — however far-fetched they may be. Oh, and if you were wondering, I eventually managed to snap my 14-pound test line and lost my lure. ■



TERRITORIAL TERROR

SHAWN BOOMS
U.S. Army Aeromedical Research Laboratory
Fort Rucker, Alabama



Last summer, the Pennsylvania State Safety Office conducted an unofficial investigation into recent vehicle mishaps. The reason for these investigations was due to an increase in vehicle mishaps from the previous year. There were as many accidents in a three-month period in 2019 as there were in six months the year prior. It also seemed the accidents are getting more severe.

What were the reasons for the accidents? I looked into three of the incidents and noticed some trends right from the beginning. The biggest trend was leader engagement — or a lack thereof. When questioning Soldiers from the unit, there was one question that kept repeating in my head: “Where was the leadership?” In a safety investigation, it is not about finding fault, but trying to prevent incidents like this from happening in the future.

The reason I kept thinking about leadership in regard to those accidents is because I also was once a company commander. What would I have done during that rash of accidents? What were the causes of the accidents? Did the commander have too much to focus on during a drill weekend? Was it lack of experience? Was each leader thinking someone else had it handled? I found it was all of these things and some bad decisions.

The main issue was some of the Soldiers operating the vehicles were not licensed. Does that cause an accident? No, but it is

“IT NEEDS LEADERSHIP INVOLVEMENT AND BUY-IN INSTEAD OF JUST A CHECK IN THE BLOCK.”

a contributing factor. The Soldiers were able to operate the vehicle because they were trained, but not licensed. Leadership started the licensing process but never finished it. Every leader thought someone else had checked or finalized the process. There was no follow up, no accountability.

As leaders, we need to assign a task and verify it is completed. That doesn’t mean we don’t trust our Soldiers. It means we check to make sure it was done and done correctly. In multiple accidents, the leadership was absent or did not verify the tasks were completed. If leaders feel they are overtasked, they need to look at the commander’s intent and prioritize what they can get done and what they will not complete.

In conclusion, the driver training program needs an overhaul. It needs leadership involvement and buy-in instead of just a check in the block. There needs to be supervision throughout the entire process so Soldiers understand how to conduct preventive maintenance checks and services and to operate the vehicle. Only then will we see the mishap arrow turn downward. ■

BUYING IN TO DRIVER TRAINING

CAPT. MARK LAPAGLIA
Pennsylvania State Safety Office
Pennsylvania Army National Guard
Fort Indiantown Gap, Pennsylvania

ASLEEP AT THE WHEEL

WALT BECKMAN
Ground Division
Directorate of Assessments and Prevention
U.S. Army Combat Readiness Center
Fort Rucker, Alabama

Drowsy driving is a major problem in the United States. The risks and often tragic results are alarming. Drowsy driving is the dangerous combination of driving and sleepiness or fatigue. This usually happens when a driver has not slept enough, but it can also happen because of untreated sleep disorders, medications, alcohol consumption or shift work.

No one knows the exact moment when sleep comes over their body. Falling asleep at the wheel is clearly dangerous, but being sleepy affects your ability to drive safely even if you don't fall asleep. Drowsiness makes you less able to pay attention to the road, slows reaction time if you have to brake or steer suddenly, and affects your ability to make good decisions.

The National Highway Traffic Safety Administration estimates that drowsy driving was responsible for 72,000 crashes, 44,000 injuries and 800 deaths in 2013. However, these numbers are underestimated, and up to 6,000 fatal crashes each year may be caused by drowsy drivers. An estimated 1 in 25 adult drivers (aged 18 or older) report having fallen asleep while driving in

the previous 30 days. So who is more likely to drive drowsy?

- Drivers who do not get enough sleep.
- Commercial drivers who operate vehicles such as tow trucks, tractor-trailers and buses.
- Shift workers (who work the night shift or long shifts).
- Drivers with untreated sleep disorders such as sleep apnea, where breathing repeatedly stops and starts.
- Drivers who use medications that make them sleepy.

The warning signs of drowsy driving include yawning or blinking frequently, difficulty remembering the past few miles driven, missing your exit, drifting from your lane and hitting a rumble strip on the

side of the road. According to a survey of among nearly 150,000 adults in 19 states and the District of Columbia, 4 percent reported that they had fallen asleep while driving at least once in the previous 30 days. People who snored or usually slept six or fewer hours per day were more likely to report falling asleep while driving.

There are several things drivers can do to prevent drowsy driving, including:

- Get enough sleep! Most adults need at least seven hours of sleep per day, while teens need at least eight hours.
- Develop good sleeping habits, such as sticking to a sleep schedule.
- If you have a sleep disorder or symptoms of a sleep disorder such as snoring or feeling sleepy

“A STUDY FROM VIRGINIA TECH REVEALED 20 PERCENT OF CAR CRASHES ARE CAUSED BY FATIGUE, WITH YOUNG DRIVERS PARTICULARLY VULNERABLE.”

during the day, talk to your doctor about treatment options.

- Avoid drinking alcohol or taking medications that make you sleepy. Be sure to check the label on any medications or talk to your pharmacist.

A study from Virginia Tech revealed 20 percent of car crashes are caused by fatigue, with young drivers particularly vulnerable. Previous estimates attributed fatigue to only 2 or 3 percent

of crashes. Fatigue can cause weariness, sleepiness, irritability, reduced alertness, impaired decision-making, and lack of motivation, concentration and memory. Studies have shown that fatigue is linked to health problems such as heart disease.

The Army is not immune to the drowsy driving problem either. Although fatigue is not the leading cause of vehicle accidents in the Army, it was involved in 34 Class A-D mishaps over the past four fiscal years. For example:

- 18 of 34 reported fatigue mishaps occurred between 0001 and 0500 and indicate the driver fell asleep at the wheel.
- 16 of the 34 involved Soldiers who failed to get adequate sleep before departing on leave or pass or waited to depart their leave location until late evening or early morning on the last day of their leave or pass. Several had recently given blood and indicated they felt light-headed and fatigued while driving home or back to work.

As in the civilian world, fatigued driving it is also believed to be an underreported causal factor in Army vehicle mishaps. Always take the proper steps to prevent drowsy driving so you don't find yourself asleep at the wheel. ■

Sources: Centers for Disease Control and Prevention and EHS Today.

MY LITTLE GSXR

1st Armored Division
Fort Bliss, Texas



Author's note: The story below was written by a Soldier-rider and is true. The events are retold to give insights into the many hazards riders face when they are on the road. The lessons will help us all become more experienced motorcycle riders.

I had just gotten off work and my buddy and I were leaving post. There was just a little more than 1,000 miles on my new bike, a Suzuki GSXR, and I was loving it. I'd been riding for more than eight years but had been without a bike for about a year. Man, I missed riding.

My buddy went straight on Sergeant Major Boulevard and I hung a left onto Airport Road. I gently rolled on the throttle around the long, sweeping corner. As the turn progressed and my ability to see it completely opened up, I spotted sand and gravel that had washed onto the road. My eyes fixated on the hazard as my mind worked to swerve around it. My body tightened and I had a death grip on the bars as I wrenched the bike around. The rear wheel bobbled. I managed to get the bike upright, but then hit the outside curb and was thrown onto the asphalt.

I slid and rolled on the ground. My buddy, who had happened to look back, raced toward me, convinced I'd been killed. As I laid in the dirt, I was surprised I survived. It was hours later before I realized just how much I hurt. At that moment, however, the road rash on my arms was the only injury that registered.

A week later, my wife was no longer upset and the insurance company had sent a check for the totaled bike. Since then, I have spent some time thinking about what I might have done differently that day. Of course, I initially blamed the gravel on the road. But this is the real world, not the race track. In the real world, people cross the street in front of you, trucks spill their loads, animals dart across the road and traffic jams stop the flow of vehicles unexpectedly. Also, there is no one sweeping the sand and gravel off the road every day. So what caused my accident?

Complacency

I took that same corner every day for the past two months. I loved it. It was perfectly banked and almost always had no traffic. It begged to be ridden through. But that day was different. I was expecting the turn to be the same even though I could not see the entire road surface all the way around the corner. Luckily, I survived to learn to treat every corner in the real world as though it is the first time I have encountered it. From now on, I will go to the race track for predictable corners I can blindly accelerate through.

Surface changes

Once I spotted the gravel, it took me a moment to comprehend it was a danger. When I was a new rider, I always assumed any change in the road surface could signify a change in traction and pose a threat. Back then, I did not need time to comprehend what the change in surface appearance represented because I treated every change with respect. That split-second advantage may have allowed me to manage the crisis with much more skill rather than just reacting badly.

DID YOU KNOW?

Each year, the National Highway Traffic Safety Administration designates May as Motorcycle Safety Awareness Month. The observance coincides with the beginning of riding season for many Soldiers and serves as an early kickoff for the critical days of summer. To learn more, visit the USACRC's motorcycle safety page at <https://safety.army.mil/OFF-DUTY/PMV-2.aspx>.

Skill or reaction?

I used to do track days on my old bike. With good coaching, I developed some great bike skills that translated well to the real world. But after taking a year off from motorcycling and then getting on a new, unfamiliar bike, those skills were not the first thing to rise to the surface in a crisis. I got target fixated on the gravel, stiff on the bike and put a death grip on the bars. Everything I did was driven by instinct. Everything I did was wrong.

On the race track, I learned to stay loose, look where I wanted to go and how to let the bike slide in a turn without crashing. Of course, these things take practice, but I don't have access to a race track. However, Fort Bliss offers the Motorcycle Safety Foundation's Military SportBike *RiderCourse*. This one-day course would have helped polish my rusty skills and given me ways to practice them without access to a race track. Right after I buy my new bike, I will ask my supervisor to schedule me for the next available course.

Personal protective equipment

I wear the gear I am required to wear by the Army. The gloves worked, but, fortunately, I never tested my helmet. My uniform top, however, did nothing to protect me from road rash, and my pants didn't protect me from the impact with the ground. There are mesh motorcycle jackets and pants with built-in abrasion resistance and padding that may have left me uninjured. This gear can be worn over my uniform. Even in the hottest weather they remain cool while riding. In cold weather, most of these jackets and pants have zip-in liners to keep riders warm, allowing them to extend the riding season far into winter. I plan to buy a jacket along with my new bike.

I learned from my accident. I will treat every corner in the real world as though it is the first time I have ever encountered it. I will treat every change in road surface with respect. I will practice my skills and to seek out training whenever I get a new bike or after a long break from riding. I will wear good motorcycle gear. I hope you will do the same. See you out there. Ride safe! ■

SECOND-QUARTER FY20 MISHAP SUMMARIES

ON-DUTY FATAL MISHAPS

ACV

■ A Second Lieutenant assigned to Fort Benning, Georgia, died 3 February 2020 as a result of injuries sustained in an Army combat vehicle mishap that occurred 22 January 2020 on the installation at 1420 local. The Soldier was serving as tank commander in an M1 tank when the vehicle struck a tree, causing a limb to fall and strike him on the head. The Soldier was transported via air medevac to the local hospital, where he later died.

■ A Specialist assigned to Henderson, Tennessee, died in an Army combat vehicle mishap 24 January 2020 in Syria at 1023

local. The Soldier was serving as the gunner in an M1240A1 M-ATV (MRAP) during mounted operations when the vehicle overturned. Initial reports from the scene indicate that the Soldier was wearing the Gunner's Restraint System. He was reportedly unconscious and unresponsive when evacuated to the nearest troop medical clinic, where he was pronounced dead.

AMV

■ A 21-year-old Private First Class assigned to Fort Irwin, California, died in an Army motor vehicle mishap 9 March 2020 at the National Training Center during daylight hours. The Soldier was driving an M1113

OFF-DUTY FATAL MISHAPS

PMV-4

■ A 29-year-old Private assigned to Fort Carson, Colorado, died in a PMV-4 mishap 22 February 2020 at 0300 local. The Soldier had attended a party where he was allegedly drinking. Afterward, he lost control of his vehicle, driving off the road and onto a grass knoll. The Soldier's vehicle flipped three times, during which he was ejected. He was pronounced dead at the scene.

■ A 20-year-old Private First Class assigned to Joint Base Lewis-McChord, Washington, died in a PMV-4 mishap 14 February 2020 in Redding, California, at 0117 local. The Soldier was driving his PMV when he was struck from behind by a civilian driver. As the Soldier's vehicle came to a halt, it was struck again by a semi-truck. The civilian driver who initially struck

the Soldier's vehicle was reported to be intoxicated. The Soldier was pronounced dead at the scene.

■ A 23-year-old Specialist assigned to Fort Wainwright, Alaska, died in a PMV-4 mishap 7 February 2020 on Parks Highway, Alaska, at 1540 local. The Soldier was operating his PMV, with two other Soldiers as passengers, when he collided head on with a civilian F-350. All three Soldiers were pinned inside the vehicle. The driver was pronounced dead at the scene. The two passengers were transported to the local hospital for unspecified non-fatal injuries.

■ Two Privates assigned to Fort Hood, Texas, died in a PMV-4 mishap 1 February 2020 in Austin, Texas, at 1913 local. One of the Soldiers was operating his PMV when he

HMMWV when he struck a winch cable that a Rotational Training Unit had stretched across the roadway to extricate an M978A4 fuel tanker with a Palletized Load System trailer carrying a modular fuel system. He was fatally injured and the truck commander was medically evacuated with non-life-threatening injuries.

PARACHUTING

■ A Master Sergeant assigned to Fort Bragg, North Carolina, died in a military freefall parachuting mishap 13 January 2020 in Eloy, Arizona, at 2130 local. It was reported that the Soldier may have performed a cutaway. He was found dead during an organized search.

crossed the median into oncoming traffic and struck another vehicle. His vehicle flipped into a nearby culvert, killing him and the Soldier riding as a passenger. The civilian driver of the other vehicle also died.

■ A 39-year-old Master Sergeant assigned to Fort Bragg, North Carolina, died in a PMV-4 mishap 18 January 2020 in Sanford, North Carolina, at 1800 local. The Soldier was operating his private motor vehicle when he collided head on with another vehicle that crossed the median.

■ A 25-year-old Specialist assigned to Joint Base Lewis-McChord, Washington, died in a PMV-4 mishap 12 January 2020 on the installation at 0200 local. The Soldier was driving when she was involved in a single-vehicle accident at a traffic circle.

2ND QUARTER FY20 ARMY MILITARY MISHAP FATALITIES

TOTAL YTD: 22

as of 31 Mar 2020



Category	FY19 EOY	2nd QTR
Army Vehicle	15	3
Aviation (AVN)	2	0
Fire	0	0
Personnel Injury Other (PIO)	28	3
Private Motor Vehicle (PMV)	65	14
Weapons & Explosives (WPNS & EXPL)	7	2
Total	117	22

PMV-2

■ A Captain assigned to Fort Carson, Colorado, died in a PMV-2 mishap 10 March 2020 in Colorado Springs, Colorado, at 1730 local. The Soldier was stopped at an intersection, and was struck by another vehicle. He was pronounced dead at the scene. It was reported the Soldier was wearing personal protective equipment.

■ A Private First Class assigned to Fort Bragg, North Carolina, died in a PMV-2 mishap 23 February 2020 in Fayetteville, North Carolina, at 0835 local. The Soldier was operating his motorcycle when he collided head-on with a civilian SUV. He was pronounced dead at the scene. The Soldier's civilian passenger on the motorcycle was transported to a local hospital, where she later died. The driver of the civilian SUV was transported to the hospital with minor injuries. The Soldier and his passenger were both wearing personal protective equipment. The Soldier had also completed the Motorcycle Safety Foundation's Basic RiderCourse.

■ A 29-year-old Corporal assigned to Fort Stewart, Georgia, died in a PMV-2 mishap 14 February 2020 on the installation at 0835 local. The Soldier's wife reported he left their on-post residence on his motorcycle the night prior to pick up dinner. When he failed to return, she notified the Soldier's friends and chain of command that he was missing. An initial search of the heavily wooded route the Soldier was believed to have taken yielded no results. The mishap site and Soldier were discovered during a search the following morning.

POW

■ A PV2 assigned to Fort Campbell, Kentucky, died in a privately owned weapons (POW) mishap 22 March 2020 in Clarksville, Tennessee, at 1711 local. A Private First Class was showing his newly purchased shotgun to two other Soldiers when one of them pushed the weapon away. A round was accidentally discharged, striking the PV2 in the head. Emergency medical services personnel transported the injured Soldier to a local

medical center, where he was pronounced dead. Alcohol use is not a suspected causal factor.

■ A 19-year-old Private First Class assigned to Fort Carson, Colorado, died in a POW mishap 10 January 2020 in Colorado Springs, Colorado, at 0800 local. The Soldier was reportedly attempting to disassemble a handgun when a discharged round struck him in the chest. He was pronounced dead at the scene by the county coroner.

OTHER

■ A Staff Sergeant assigned to Okinawa, Japan, died in a scuba diving mishap 2 February 2020 at 0959 local. The Soldier was reportedly handing the ship's captain his oxygen tanks when he began yelling and submerged below the water. The Japanese coast guard was notified to conduct the recovery and located the Soldier's body the following day.



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HEAT ILLNESS AND CORONAVIRUS: WHAT'S THE CONNECTION? p. 4

MISHAP RESPONSE
DEFICIENCIES p. 12

PRE-ACCIDENT PLANS p. 14

PMV-2 GROUP RIDES p. 18



**EMERGENCY
PROCEDURES p. 10**



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UNITED STATES ARMY
THE CHIEF OF STAFF

To the Soldiers and Army Civilians of Army Aviation:

Since our community was formally established in 1983, we have served as a model of safety across the force. Rigorous training, maintenance and currency standards keep aviators at the forefront of all Army operations across the globe. As the Army's senior aviator, I know too well the risk inherent to our profession and the measures we take to mitigate them daily.

The past five years have shown that we are approaching the most dangerous time of year, with August being the worst month. While flying hours remain the same during this time, accidents and deaths increase exponentially. We can and must do better.

This sustained pattern is alarming, but we have time to address potential issues now if we observe the following call to action:

- **Manage Transitions:** Risk increases significantly during transitions, whether it is between operations or leaders. During the summer PCS season in particular, changes in key personnel invite some hazards to slip through the cracks during handover. Identify who is most qualified for risk approval and as risk acceptance authority in your transition plans.
- **Understand the Environment:** Aircraft performance and the visual environment degrades with increasing heat. All members of the aviation team, from maintainers to crew chiefs to pilots to commanders, must be aware of the effects of weather on aircraft and personnel and adjust flight schedules accordingly.
- **Manage Crew Mix:** Similar to the challenges with transitions, personnel flux can create issues with crew selection. Leaders at all levels must holistically assess their aviators, regardless of time on station, and conduct a thorough assessment of their abilities and challenges to ensure appropriate crew selection based on the complexity of the mission and operational environment.
- **Be Present as Leaders:** Ensure the right leaders are present in all phases of operations – planning, rehearsals, and execution. Mission success depends upon leaders deciding how best to mitigate risk and authorize mission briefing officers and approval authorities.

I am confident Army Aviation will remain Above the Best. Continue to take care of your people, and always do the right thing the right way. Thank you for all that you do.

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FLY SAFE!


James C. McConville
General, United States Army



- 4 Exertional Heat Illness and Coronavirus: What's the Connection?
- 6 Three BFV Mishaps: A Common Theme
- 10 In-flight Emergencies: How Will You Respond?
- 12 Mishap Response Deficiencies
- 14 Preparing for the Worst
- 18 U-Turn
- 20 Plug into Safety
- 22 Preventing and Treating Tick Bites
- 24 Winning the Fourth Quarter
- 26 A Safe Fourth
- 28 Take it from Your Friendly Neighborhood Chemical Officer
- 30 Mishap Briefs

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Mission Statement:

The U.S. Army Combat Readiness Center preserves Army readiness through analysis, training, and the development of systems that prevent accidental loss of our people and resources.



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Exertional Heat Illness and CORONAVIRUS What's the Connection?

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The spectrum of exertional heat illnesses (EHI) ranges from relatively mild conditions such as heat cramps and parade syncope to more serious heat exhaustion, heat injury and heatstroke. When recognized and treated promptly, many heat illness casualties can return to duty in just a few days. However, heatstroke may lead to extended hospitalization, need for rehabilitation and reconditioning, and — in the worst-case scenario — death. In the past 18 years, more than 30 Army service members have died due to heat-related illness. Responsibility for preventing heat illness lies with both the individual Soldier and the chain of command.

Heat stress is the result of environmental, mission-related and individual risk factors. Environmental risk factors include air temperature, humidity, solar radiation and air movement, which is measured using the wet-bulb globe temperature index. Environmental risk factors are mitigated by altering the time of day of an event or, if that is not possible, modifying mission-related risk factors such as event duration or time standards. The mission-related risk factors include work intensity, clothing worn, equipment carried and duration of the activity. During routine training, these can often be modified to mitigate heat stress; but in some instances (e.g., operational missions, testing or training for special skill badges or tabs), they cannot be modified. Individual risk factors are about the Soldier, including his or her physical fitness, acclimatization status, any medication and supplement use, and existing illness.

A risk factor that has received additional attention lately is the existence of concurrent or recent viral illness.

Viral illness may cause fever, which is an increase in baseline body temperature. Coupled with the increase in body temperature during exercise, this may increase the risk of heat illness. Viral illness augments the body's normal heat response due to exertion, increasing heat strain due to the combined effects of fever and exercise. Well-acclimated and well-conditioned individuals who are otherwise low-risk may develop EHI or exertional heatstroke (EHS) if they have a recent or current infection. Upper respiratory infections (specifically those that are viral in nature) in particular have been implicated in a large number of EHI and EHS cases. A case report from the U.S. Army Research Institute of Environmental Medicine reported that an isolated local infection with inflammation has been shown to increase overall risk for heat illness.

The novel coronavirus SARS-COV2 (COVID-19) is a highly infectious viral infection causing systemic inflammatory response with symptoms of fever and respiratory compromise. In the young, healthy population, it may remain asymptomatic for as many as 80 percent of patients throughout the course (approximately 14 days); cause symptoms as mild as fever, wheezing and diarrhea or severe enough to require hospitalization for support; or lead to death. Even in more susceptible populations (elderly and immunocompromised), it is asymptomatic for the initial several days of infection, yet remains contagious during this period. With the close proximity of

working and living conditions in military members and trainees, it is imperative to monitor for signs of infection and isolate these individuals rapidly to prevent spread. Those with high-risk contacts associated with COVID-19-infected individuals should be identified and quarantined to limit further transmission.

The viral nature of COVID-19 as well as systemic inflammatory response and associated fevers make it a significantly concerning risk factor for heat illness even in well-conditioned, well-acclimated athletes. The virus predominantly affects the lungs (lower respiratory tract), causing shortness of breath and hypoxia, which may also increase susceptibility to EHI. Efforts should be made to identify individuals with new shortness of breath or new exercise limitations, as these may be evidence of otherwise asymptomatic illness which may cause severe or even life-threatening EHS if infected personnel continue to train. As such, COVID-19 represents an additional risk factor for EHI and EHS, which must

“EFFORTS SHOULD BE MADE TO IDENTIFY INDIVIDUALS WITH NEW SHORTNESS OF BREATH OR NEW EXERCISE LIMITATIONS AS THESE MAY BE EVIDENCE OF OTHERWISE ASYMPTOMATIC ILLNESS WHICH MAY CAUSE SEVERE, EVEN LIFE THREATENING EHS IF INFECTED PERSONNEL CONTINUE TO TRAIN.”

be considered and mitigated by leaders for any populations participating in exertional training, particularly in hot or arid environments.

At Fort Benning, Georgia, a Soldier who is diagnosed with a respiratory or viral infection is placed on a limited duty profile for seven days. They cannot participate in any maximum-effort or timed events, but can partake in submaximal intensity training while the profile is in effect.

As there may be latent but as yet undefined effects of COVID-19 infection, leaders and clinicians should consider a similar policy for Soldiers who are returning to duty after isolation to mitigate the risk of EHS.

No matter the cause of an EHI event, prompt recognition and treatment are the cornerstones of the initial response. More in-depth information on the prevention and treatment of EHI can be found in Technical Bulletin Medical 507, Heat Stress Control and Heat Casualty Management, and in TRADOC Regulation 350-29, Prevention of Heat and Cold Casualties. Detailed medical treatment algorithms and other information can be found on the Warrior Heat- and Exertion-Related Event Collaborative website at <https://www.hprc-online.org/resources-partners/whec>. ■

THREE BFV MISHAPS: A Common Theme

ERIC SCHWEGLER AND TIMOTHY EDGETTE
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A review of three recent M2A3 Bradley Fighting Vehicle (BFV) mishaps reveals a common theme. No, it's not that two of the three mishaps involved rollovers, or that each resulted in at least one Soldier fatality. The commonality is risk management — more specifically, the lack thereof. The absence or lack of risk management is identified as a contributing factor in many fatal mishaps the U.S. Army Combat Readiness Center investigates. These BFV mishaps occurred in active-duty units in three very different locations. All three could have possibly been avoided had the leadership or the individuals involved just applied risk management.

Risk management is the Army's process for helping organizations and individuals make informed decisions to reduce or offset risk. As defined in Army Techniques Publication (ATP) 5-19, Risk Management, the five steps of the risk management process are:

1. Identify the hazards.
2. Assess the hazards.
3. Develop controls and make risk decisions.
4. Implement controls.
5. Supervise and evaluate

Using this process increases operational effectiveness and the probability of mission accomplishment.

While risk management is safety-related, it is not solely a warfighting function. It should apply to all on-duty and off-duty operations, tasks and activities. The principles of risk management include: integrate the process into all phases of missions and operations; make risk decisions at the appropriate level; accept no unnecessary risk; and apply risk management cyclically and continuously. In other words, apply risk management continuously on a recurring or

repetitive basis. Soldiers should use a cyclical risk management process to identify and assess hazards; develop, choose, implement and supervise the controls; and evaluate and reapply the process as the outcomes and conditions change. Had this cyclical process been applied in any of the following three M2A3 BFV fatal mishaps, the outcomes could have (and should have) been different, if not avoided altogether.

Mishap 1

While performing maintenance on a BFV in a maintenance bay with a 10-ton lifting crane, a motor sergeant made a wrong choice of action during a common maintenance procedure. He failed to use the required special tools when lowering the vehicle's power unit access door (PUAD) as well as allowed a BFV maintainer to move between the PUAD and the engine compartment. When the improper piece of equipment — a troop strap — used to suspend the PUAD failed, it slammed shut on the maintainer.

The motor sergeant's actions were in violation of the field maintenance manual and set the conditions for the mishap. In addition to the motor

sergeant, the chain of command failed to provide adequate risk management. The motor sergeant and his Soldiers had worked 52 of the previous 72 hours preparing for a deployment. The chain of command's failure to apply a cyclical risk management process to the deployment preparations, along with the motor sergeant's failure to apply adequate risk management to his actions, resulted in the BFV maintainer's fatal injuries.

Mishap 2

The unit was conducting a nighttime tactical movement in combat vehicles using various night vision devices. Unfortunately, unit leadership did not identify the hazards associated with the night movement, including the impact the weather would have on the forward-looking infrared thermographic systems found on BFVs such as the driver's vision enhancement (DVE), commander's independent viewer (CIV) and improved Bradley acquisition subsystem (IBAS). The weather created a period of thermal crossover where the DVEs had limited contrast. Consequently, several drivers in the movement

"NO PLANNING, PREPARATION OR ASSESSMENT CAN IDENTIFY EVERY HAZARD IN A CONSTANTLY CHANGING ENVIRONMENT. THIS IS WHY A CONTINUOUS REASSESSMENT SHOULD OCCUR AT THE LOWEST LEVEL POSSIBLE."

were unable to see the entrance to a bridge. Two BFVs drove onto the right guardrail but were able to recover and traverse the bridge. The mishap BFV, however, drove onto the left guardrail, which collapsed, causing the vehicle to roll off the bridge and into the creek. The vehicle came to rest on its turret, submerged in the water.

The leadership's decision to conduct night tactical training in adverse environmental conditions (thermal crossover) with inexperienced crews was just one of the latent failures that contributed to this mishap. Had cyclical risk management been applied by the leadership, then maybe an administrative white-light movement would have been conducted instead. Leadership failed to cyclically identify and assess hazards. Their actions were in contravention to ATP 5-19 and resulted in three fatalities.

Mishap 3

The unit was conducting a road test during daylight hours following vehicle maintenance. The driver was operating the BFV at a high rate of speed when he

attempted to make a sharp, left-hand turn. The vehicle left the cement lane and its right track dug into the soft dirt and gravel shoulder. The BFV's momentum caused the vehicle to overturn, crushing and killing the driver.

The vehicle commander exposed the crew and passengers to an unsafe course of action by not correcting the driver's speed. He was overconfident that this road test was just a routine mission and set a portion of the conditions that led to this vehicle rollover and one Soldier fatality. Had the BFV commander assessed the hazards of allowing the driver to exceed the posted speed limit and of not enforcing standards, then he may have been able to apply a different course of action, thereby intervening prior to the mishap occurring. Additionally, unit leadership failed to provide adequate oversight on day-to-day tasks. When tasks/activities and day-to-day operations are viewed as routine, there is no cyclical application of the risk management process. When risk management is not applied at all

levels during all phases, then there is a breakdown in the process.

Conclusion

These three BFV mishaps are all tragedies that did not have to occur. Had one individual, one leader or any member of the chain of command intervened and applied risk management to the task, activity or mission at hand, then the hazards might have been recognized and controls could have been implemented and supervised, which could have averted the action(s) that led to the mishaps. No planning, preparation or assessment can identify every hazard in a constantly changing environment. This is why a continuous reassessment should occur at the lowest level possible. Failure to apply risk management on a continuous basis throughout the planning, preparation and execution phases of a task, mission or in everyday life is contrary to ATP 5-19. If you don't know how to adequately apply risk management, we suggest you familiarize yourself with ATP 5-19, Risk Management. ■

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IN-FLIGHT EMERGENCIES:

How Will You Respond?

TIMOTHY EDGE
G3, Investigations, Reporting and Tracking
U.S. Army Combat Readiness Center
Fort Rucker, Alabama

Looking back on two recent non-combat, rotary-wing, fatal aviation mishaps reveals several commonalities. Primarily, there was no emergency that should have precluded the flight crews from executing, at a minimum, safe precautionary landings. Having said that, had either flight crew reacted to the actual emergency procedure (EP) as presently written, they both could have — and should have — been able to execute a single-engine landing as soon as practicable.

Mishap 1

A UH-60L flight crew was executing a real-world MEDEVAC mission effectively at sea level when one of the aircraft engines experienced an internal component failure. This put the crew in a single-engine failure response scenario. After identifying that there was a single-engine emergency, the flight crew incorrectly executed the EP for the appropriate engine failure. While the aircraft was on the bottom side of the single-engine flight envelope, it was still flyable. Had the crew executed the proper response to the single-engine failure, they could have made a precautionary landing or returned to base and performed a roll-on landing. Either way, the mission was probably not going to be accomplished, but the fatal mishap would not have occurred either.

This mishap highlighted improper identification and crew interaction to an actual EP. It led the aviation community to take an internal look at the methodology and response to an EP as well as the initial and sustainment training of EPs. Expect changes to the identification, reaction and response to EPs from the currently taught and evaluated method.

Mishap 2

A UH-60L crew was executing a limited maintenance test flight (LMTF) for a component replacement and verification. To verify the aircraft's airworthiness,

the LMTF required the maintenance test pilot (MTP) to manipulate the power control lever (PCL) for the engine not being checked; the purpose of this was to place a greater load on the engine actually being checked. The MTP set up this maintenance task to standard and provided the flying pilot with the appropriate maneuver, abort criteria, limitation, emergency (MALE) briefing prior to initiating the action.

As the MTP retarded the No. 2 PCL, his attention was focused primarily inside the aircraft, monitoring the engine instruments. During the second portion of the maintenance task, the crew received an actual No. 1 engine failure indication. The engine experienced an external component failure, putting the flight crew in a single-engine failure scenario. Unlike the mishap above, this crew experienced their engine failure when their non-failed engine, the No. 2 engine, PCL was at or near idle. Their immediate action steps prior to responding to the single-engine failure were addressed in the MALE brief. However, the flight crew executed those steps incorrectly, which ultimately resulted in a rapid decay of the aircraft rotor system and an extreme rate of descent.

Following the actual failure of the No. 1 engine, the aircraft was still in a flyable condition. Had the crew responded appropriately to the engine failure by following the MALE briefing and recovering from the maintenance task, the

aircraft would have been able to maintain single-engine flight. This means continued flight was possible and the aircrew would have been able to return to home station, where they could have executed a roll-on landing.

Conclusion

After reading both of these mishap scenarios, do you know how you would respond to an actual EP? If you have never experienced a single-engine failure in a dual-engine aircraft, do you really know? Then ask yourself this: How would your co-pilot respond? You may know how you would want them to react, but it's impossible to say for sure until you are in that position. Both of these flight crews departed their home stations to execute missions for which they were fully qualified to conduct. When an emergency presented itself, their responses are what ultimately resulted in four fatalities, several significant injuries and the loss of two flyable aircraft.

Remember that being a professional requires you to know your duties and responsibilities as the flying and non-flying pilot. Emergencies generally do not give you an indication they are about to occur. Proper identification and response is critical. Sometimes this response requires immediate action steps and other times it does not. Be professional and ask yourself how you will respond. ■

Units often don't think about what happens behind the scenes of a mishap. Normally, units — mine included — would call in a 9-line medical evacuation or transport the injured Soldier to a casualty collection or ambulance exchange point. From there, we assume the installation will assist in getting the Soldier to the appropriate level of care as fast as possible. Unfortunately, not all installations have adequate systems and processes established to ensure this occurs. Several recent safety investigation boards (SIB) uncovered significant mishap response deficiencies at multiple installations.

SIB 1

In the first mishap, the SIB found an installation's unity of command for MEDEVAC procedures to be lacking. Following a mass-casualty Army vehicle accident, a military and a civilian fire chief arrived at

the scene almost simultaneously. They decided to share command, which led to each having different information and prevented injured Soldiers from being triaged and categorized quickly.

To further complicate matters,

the installation's organic MEDEVAC aircraft were deployed, which required another unit to cover for them. The two units had previously conducted a left-seat, right-seat ride, but no one notified the cover MEDEVAC crew that the hospital's

FM frequency had changed. Additionally, there were no systems in place to enable either fire chief to contact the installation's Army medical center. These deficiencies resulted in the hospital not tracking an inbound MEDEVAC aircraft. Therefore, when the aircraft landed, an ambulance was not waiting to transport the mishap victims to the medical center. As a result, the aircraft's crew chief ran to the emergency room to get an ambulance. The lack of systems and processes at this installation caused a 17-minute delay in an injured

from different civilian agencies, creating a knowledge gap among all of the necessary responders.

In addition, the SIB uncovered that the radar was not incorporated into the PCAS. While flying in the local training area, aircrews flight follow with the radar. If an aircraft were to have an accident and make a mayday call, radar would not be able to activate the PCAS. The airfield manager thought radar was included inside the PCAS, but, in actuality, it wasn't. This lack of oversight created a break in the installation's

picture. Garrison and training units often develop their own checkpoints and graphics when they train at their home station. This is great initiative, but it can desynchronize agencies required to respond to emergencies.

At the installation level, a single agency needs to be responsible for tracking, developing and overseeing the graphics inside the training area. Known checkpoints, roads and training areas must be established and disseminated to all training units as well as to agencies required to respond to an emergency. This is not meant to constrain the training unit. Rather, it gives flexibility and predictability to agencies required to respond.

SIBs also look at how often an installation rehearses its mishap response. Was a full dress rehearsal conducted with every agency responding? Or did it involve just the fire department driving to the commissary? The task and standards for responding to an emergency do not change. The only variable that changes are the conditions. Full dress rehearsals executed during the most demanding environments will identify friction points and deficiencies. Addressing these deficiencies will reduce response times and could save lives.

Conclusion

While these SIBs mentioned above ultimately found the units' responses were appropriate, they also revealed several deficiencies. Installations must have the proper systems and procedures in place before a mishap occurs. A responding agency's failure to understand its role and responsibilities could result in a delay in a Soldier receiving lifesaving treatment. No installation wants to discover its mishap response plan is deficient at a time when a well-organized operation is needed most. ■

ability to respond to mishaps.

What can units do?

One item an SIB always reviews is the post-mishap response. As the two incidents above illustrate, an SIB often finds deficiencies in an installation's response to a mishap. Normally, the deficiencies are a result of multiple agencies having different or incorrect information. For example, a unit might call Range Control to request MEDEVAC support for an injured Soldier at Checkpoint 3 inside Training Area 5. That sounds like a normal radio transmission until Range Control looks at its map and sees there is no Training Area 5 on the installation. Unfortunately, this is a common occurrence and should make a leader's skin crawl because it always results in a Soldier suffering.

To be successful in any mission, every unit needs common operating terms and graphics. These enable each maneuvering and non-maneuvering unit to have situational awareness of the battlefield and a common operating

Soldier receiving medical treatment.

The SIB also discovered that this installation expected the medics in the back of an ambulance to call the emergency room, which would have forced someone to stop treatment on an injured Soldier. This could be a major issue if a medic was engaged in lifesaving procedures. Regardless, none of the medics had the emergency room contact information, which prevented the hospital from tracking the number and types of injuries inbound.

SIB 2

During the investigation into another mishap, the SIB discovered issues with the installation's Primary Crash Alarm System (PCAS), which is designed to distribute accident information to all agencies (i.e., the fire department, control tower, military police, hospital and radar control). None of those agencies activated the PCAS after an aircraft crash. This prevented the smooth flow of information to the required responding agencies. Each found out about the accident

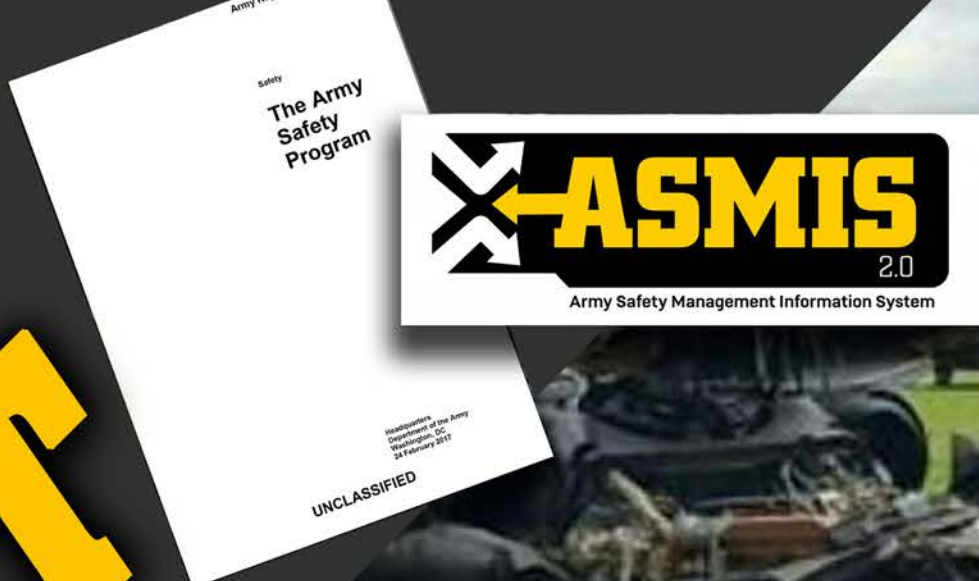
MISHAP RESPONSE DEFICIENCIES

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PREPARING FOR THE WORST

CHIEF WARRANT OFFICER 4 MARK LEUNG
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As aviation safety officers, we like to believe we are prepared to handle a catastrophic situation such as a Class A mishap with one or more fatalities. In reality, most units are unprepared for such an event. The alarming factor is they don't fully understand what they need to do to prepare until it is too late.

The pre-accident plan
A unit's first task is to prepare/review/update its pre-accident plan (PAP), which is required in accordance with Army Regulation 385-10, The Army Safety Program. The PAP needs to be nested with the higher headquarters and installation plan and must be updated when the unit departs home station for deployments, combat training centers and off-post training events. Units are required to test their

PAP quarterly, as well as conduct a full rehearsal with all responding agencies annually. During the course of mishap investigations, the U.S. Army Combat Readiness Center often discovers the unit's PAP had not been fully rehearsed in a long time. Consequently, many of the individuals with responsibilities within the PAP were unaware of their roles. Unit battle drills for downed aircraft should also follow the PAP. I have seen battle drills that were developed in a vacuum from the

PAP, and the unit's operations section was confused about which plan to follow in a time of need. When a mishap occurs, emotions often run high and it's not uncommon for steps to be skipped or key components forgotten. Therefore, the PAP should be easy to follow. All key personnel should have a copy of the plan on their smartphones — or at least their responsibilities and key phone numbers — because accidents do occur when you are away from your desk/workspace. The Soldiers in the flight operations cell are the quarterbacks of the PAP and must know it inside and out.

What to do following a mishap
Unfortunately, catastrophic mishaps do occur. Initial notification to the USACRC can be made via telephone 24 hours a day and the Department of the Army Form 7305 or 7306 as appropriate. When reporting a mishap, be sure to include as much factual information as possible so the USACRC can better

develop a plan for an investigation team. (In the near future, part of the initial notification will come through the USACRC's new accident reporting tool — ASMIS 2.0.)
Once a USACRC safety investigation board (SIB) is en route to your installation, what should the unit expect and what can it do to assist? Someone from the SIB, usually

“EVERYBODY HAS A PLAN UNTIL THEY GET PUNCHED IN THE MOUTH.”
~MIKE TYSON

the board recorder, will e-mail the unit point of contact with a list of data that will be needed immediately upon arrival as well as any required follow-on information. The email will also include instructions about the mishap scene. Nothing should be removed from the scene without the board president's direct consent. Should a unit be directed to remove a component for analysis,

such as a flight data recorder, step-by-step instructions regarding how to send it to the USACRC for exploitation will be included. The mishap site must be secured to preserve the location. This perimeter should encompass not just all wreckage, but also any ground scaring. The unit safety officer should document the area as much as possible before it is further contaminated by recovery efforts. Photographs and measurements will be immensely valuable to the SIB, especially if there is an extended travel time (e.g., the mishap happens in a combat theater and the investigation team has to move through Kuwait first). The SIB email will also include a list of documents and supplies that will be needed as soon as possible. Physical copies of documents and publications are good, but digital versions will make the SIB's job easier. Some examples of these documents include standing

operating procedures (SOPs), PAPs, digital photos, a witness list, initial statements (not sworn statements), risk assessments, crewmembers' Centralized Aviation Flight Records System (CAFRS) and aircraft historical files, and weather data.

Another thing the SIB will need immediately is a boardroom workspace. Ideally this would be a lockable room that only SIB members have access to. The room must be large enough to hold the entire SIB and allow them to work uninterrupted. An SIB is typically comprised of a board president and board recorder, both from the USACRC; a standardization pilot, typically from the Directorate of Evaluations and Standards (DES); a maintenance test pilot/examiner, technical inspector and flight surgeon, which normally come from within the mishap brigade; and a Department of the Army civilian from the Corpus Christi Army Depot (CCAD) Analytical

members will be present for every step to ensure the chain of custody is maintained as well as to further document the aircraft. This will assist with identifying damage from the actual mishap versus any damage that occurred during the recovery process.

The SIB will be as unobtrusive as practical during the investigation and, as much as possible, accommodate the mishap organization's work schedules, locations and security concerns. The SIB must consider the mission operations tempo and available resources of the subject organization during conduct of the investigation. The intent is to effectively execute the investigation in a timely manner while the organization successfully prosecutes its mission.

The SIB's overall goal is to answer three questions: What happened? Why it happened? What to do about it? The investigation is broken down into four distinct

and send off parts for further examination at CCAD or by the manufacturer.

During the data analysis/deliberation phase, the SIB will come together to answer the second question: Why it happened? The team will use a variety of methods to find the root cause of the mishap, whether environmental, materiel or human error. If human error is identified, the SIB will further analyze the roles of support, standards, training, leadership and individual failures (SSTLI).

The final phase, completing the field report, focuses on the final question: What to do about it? By this point, the SIB will have compiled an enormous amount of information, filled out dozens of forms, reviewed any audio/video files hundreds of times and poured over huge data spreadsheets. Next, it must show the findings and make recommendations that can prevent similar mishaps from occurring again.

Investigation outbrief

The SIB model is built around a 21-day investigation, though this is simply just an initial plan. We have had investigations that were slightly shorter and some that lasted several months. The SIB will outbrief the appointing authority on what it found during the course of the investigation, including issues that led up to the mishap, the mishap phase and the post-mishap timeline.

The outbrief culminates with the presentation of the findings and recommendations. Some of these issues will be able to be addressed by the battalion, brigade and division

"GREAT UNITS WILL LEARN FROM THESE INCIDENTS AND MAKE THE INTERNAL CORRECTIONS TO ENSURE THEY DON'T HAPPEN AGAIN."

leadership immediately. There might also be recommendations that go all the way to the Department of the Army level. The USACRC has a team that ensures these recommendations reach the appropriate offices and receives official responses on what that entity is doing to address the SIB's recommendations.

Conclusion

Any unit can suffer a catastrophic accident. When it happens, it will be devastating to morale, and the leadership will have the tough task of refocusing the unit. While it can be difficult to have your unit's deficiencies pointed out, take these learning points and make your unit better. The SIB is not evaluating the unit; it's there to "hold up a mirror" to provide insight into what is happening internally. Great units will learn from these incidents and make the internal corrections to ensure they don't happen again. Readiness Through Safety! ■

FYI

For more information on pre-accident plans, see Chief Warrant Officer 4 Robert Moran's article in Risk Management magazine at <https://safety.army.mil/MEDIA/Risk-Management-Magazine/ArtMID/7428/ArticleID/6367/Practice-Makes-Perfect>.

Investigative Branch as a materiel adviser. The board president may require other experts to join the SIB as necessary. Examples include weather officers, a host-nation liaison and aviation engineers.

The investigation phase

Once the team arrives, the first order of business is usually to visit the mishap scene as soon as possible for an initial investigation and to take more photographs and measurements. This may be the first of several visits to the mishap location before the aircraft can be recovered. When it does come time for recovery operations to begin, SIB

phases: organization, data collection, analysis/deliberations and completing the field report. The organization phase is relatively short, with key events such as the site visit, boardroom setup, briefing SIB members on their roles and any command in-briefs.

During the data collection phase, the SIB focuses on answering the first question: What happened? The team will review the documents the unit safety officer collected, request further supporting documents, conduct both formal and informal interviews, conduct analysis of the aircraft and other physical evidence,



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It was mid-summer and my wife and I were on my custom 2007 American IronHorse chopper during a group motorcycle ride through Fort Walton Beach, Florida. Our group of 11 bikes had been riding for most of the morning when we stopped at the local Harley-Davidson shop for a break and to check out the merchandise. After about 30 minutes, we decided to head back toward Panama City Beach, where we were staying. I was going to take lead this time, so I briefed the route.

My plan was to turn the group right (west) out of the Harley shop parking lot and travel about a mile to a large intersection with a stoplight. There, we would execute a U-turn and head east toward Panama City Beach. Everyone was good with the plan and we discussed who was going to be where in the riding formation.

As we pulled onto the road, I kept my speed down to allow the rest of the group to get out of the

parking lot. Once we were all on the road, I began to accelerate. Just as I rolled on the throttle, the rider to my right started turning left into me. I attempted to turn with him, but due to the length of my motorcycle (almost 10 feet), I was unable to match him. In a split second, I decided to straighten up my bike.

Realizing we were going to collide, I kicked out my leg to protect my wife's leg. My leg struck his front rim, causing his

motorcycle to flip back to the right. He lost his grip on the handlebars and immediately low-sided the bike on the left, crushing his left ankle. I was able to keep my motorcycle upright and maneuvered into the grass median. Still not fully in control of my bike, I knew we had to ditch it. I held on to my wife's arm and we both rolled off to the left side.

As she and I tumbled across the grass median, the bike flipped end over end three times and came to rest on the highway's

eastbound lanes. Thankfully, there was no traffic at the time because the light — the one where we were supposed to make our U-turn — had just turned green and the traffic was now beginning to move. I immediately jumped up and ran toward my wife. After realizing she was OK, I checked over myself. My jeans were ripped and I had a large laceration (oddly shaped like a motorcycle rim) that covered my right leg from knee to ankle.

The rider who collided with us said he thought we were going to make the U-turn at a median turnabout, not the intersection. This was a failure on his part for not understanding the route I briefed. He admitted afterward that he was only half paying attention, just hearing we were going to make a U-turn on the road. His actions cost not only a lot of money in motorcycle repairs, but also the personal injuries we all received. He suffered a broken left ankle and road rash on his arms, legs and side. In addition to the cut on my leg, my wife and I had turf burns from rolling in the grassy median.

This accident resulted in some lessons learned for our group — the first being the importance of not only briefing your route, but also ensuring everyone understands all the details of the plan. Just talking about it as a group may not be enough. It is important to ensure everyone acknowledges the brief. In this case, everyone was present for the brief, but it was not completely understood by one member, and the results were almost deadly.

Second, we should not have been riding next to one another. If we had staggered our riding positions, this accident may not have happened. As we become comfortable with one another on the road, there can be a tendency to begin riding closer and closer to each other without realizing

it. That was the case here. Our group had been riding together for a while. That comfort with one another may have led us to ride too closely. The incorrect spacing between motorcycles gave me less time to react when the other rider began turning into my bike. We must remain disciplined enough to resist this temptation to ride closer together and continue to do the right thing, even if you are comfortable with the individuals in your group.

Luck was definitely on our side that day. The lessons learned made us all safer riders, especially when we are in a group. Readiness Through Safety! ■





Electrical Hazards: Plug Into Safety

According to the National Fire Protection Association, 47,700 home fires in the U.S. are caused by electrical failures each year. The fires leave behind staggering results: more than 400 deaths, 1,500 injuries and \$1.4 billion in property damage. Overloaded electrical circuits are a major cause of residential fires. Getting to know the limits of your house's electrical system will help prevent overloading your circuits, lower your risk of electrical fires, and keep your home and family safe.

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The two ways that we access power inside of our houses are through lighting and power circuits. These circuits are made up of wiring, circuit breakers, outlets and switches. A circuit overload can occur when too much power is drawn through a circuit. Preventing a circuit overload starts with knowing the limits of each circuit and how much power can be drawn through it safely. Get to know your circuits. Familiarize yourself with the outlets, switches, circuit breaker ratings and even the wire sizes of the circuits around you.

Single-family houses and apartments typically have 15-amp circuit breakers and outlets with 14-gauge wires installed. By exception, bathrooms and kitchens are required to have 12-gauge wire with 20-amp circuit breakers and ground fault circuit interrupter (GFCI) outlets installed to meet the National Electrical Code. A kitchen and utility room are often wired with 220 volts to accommodate appliances like stoves and dryers, which require larger wires, circuit

Up to 100 ft/ over 100 ft, use next larger size
Safe maximum 80% rated value

600V	14ga	15 Amp max 12A
600V	12ga	20 Amp max 16A
600V	12-3	20 Amp max 16A
600V	10ga	30 Amp max 24A
600V	10-3	30 Amp max 24A

Figure 1. Wire size and circuit breakers

breakers and outlets. Figure 1 to the right illustrates how wire size and circuit breakers match up by use.

Circuit breakers are designed switches that operate automatically to protect an electrical circuit from damage caused by excess current from an overload or short circuit. Its basic function is to interrupt current flow after a fault is detected. The warning signs of an overloaded circuit may vary in severity and frequency but will be obvious compared to normal operations. Common electrical problems range between harmless and hazardous. Harmless faults include loose outlet plugs, broken light switches, simple short circuits, and flickering and dimming lights. Hazardous faults include light bulbs burning out frequently; dead outlets; a frequently tripped circuit breaker; mild shocks/tingles from appliances, receptacles or switches; a cracking or burning odor; and cut or damaged wires or cords.

Electricians calculate circuit loads with a 20 percent safety margin, making sure that the maximum appliance and fixture loads on the circuit are no more than 80 percent of the available amperage and wattage provided by the circuit. For example, a bathroom with a 20-amp circuit providing 2,400 watts of power can quite easily handle 1,800 watts of demand with a 25 percent safety margin.

Know the limits of your house's power

First, find the main electrical panel (typically in the utility room) and determine the voltage and amperage available (i.e., 120/240 voltage, 200 amperes service). Second, count how many circuit breakers are in the main service panel. The current is divided into individual branch circuits, each controlled by a separate circuit breaker. A typical house will have a dozen or more circuits, each supplying power up to the circuit breaker and wire-rated limits (15 to 20 amps). Third, determine where each circuit goes to in your house. The label on the circuit breaker should describe the circuit location (i.e., "master bathroom"). Fourth and final, calculate the total

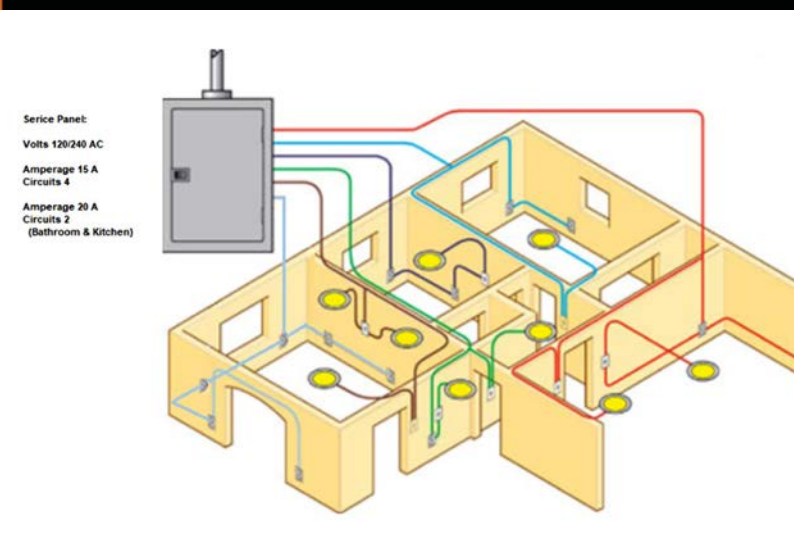


Figure 2. Partial house wiring diagram

power required by the devices plugged into each circuit. Figure 2 below illustrates a partial house wiring diagram.

Circuit capacity

Figuring the electrical power used by an appliance begins with an understanding of the relationship between amps, watts and volts — the three key means of measuring electricity. A relationship principle known as Ohm's law states that amperage (A) x volts (V) = watts (W). Using this simple relationship principle, you can calculate the available wattage of any given circuit size:

15-amp, 120-volt circuit:

15 amps x 120 volts = 1,800 watts

20-amp, 120-volt circuit:

20 amps x 120 volts = 2,400 watts

For example, think of a simple hair dryer rated at 1,500 watts running on a 120-volt, 20-amp bathroom branch circuit. Using the $W \div V = A$ variation of Ohm's law, you can calculate that 1,500 watts \div 120 volts = 12.5 amps. Your hair dryer running at maximum heat can draw 12.5 amps of power. Consideration should be given to the remaining power (900 watts or 7.5 amps) on that 20-amp circuit to avoid overloading the total capacity of 2,400 watts. Beware of adding a power strip to an existing outlet. This adds additional outlets but does not add amperage to the circuit.

A sample circuit calculation

The house wiring diagram below illustrates a section of a house or apartment with several rooms and circuits. Let's use a sample bathroom with a vent fan that draws 120 watts of power, a light fixture that has three 60-watt bulbs (180 watts total), and an electrical outlet where that 1,500-watt hair dryer is plugged. The load on that circuit could reach 1,800 watts, as all of these could easily be drawing power at the same time on the 20-amp circuit (providing 2,400 watts). A circuit overload could occur if you plugged in an addition appliance such as small space heater drawing 750 watts of power. The total power demand would be 2,550 watts, exceeding the 2,400 watts available and causing the circuit breaker to interrupt (trip) the circuit.

Overloading electrical circuits can happen easily and be the cause of a residential fire. Help prevent circuit overloads by knowing the power capabilities of your house. Know the total power consumption of your devices and limit the amount of power demand you place on each circuit. Never exceed the capacity of your circuits and be aware of the warning signs of an overloaded circuit. Getting to know the limits of your house's power will help lower your risk of electrical fires, prevent overloading your electrical system and keep your family and home safe. ■

Preventing and Treating Tick Bites

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Ticks — the mere thought of exposure strikes fear in some people due to the number of diseases these blood-sucking parasites can transmit. Avoidance is the preferred method to prevent tick-borne disease transmission; however, there are several additional precautions you can take to stay safe, including:

- Wear light-colored clothing. Light colors make it easier to spot ticks on your clothing. Stop occasionally and perform a visual check for ticks on your clothing.
- Tuck your pants inside your boots or socks. While it may not look flattering, it does create a physical barrier against ticks.
- Use insect repellent. Most of the chemicals that repel mosquitoes are somewhat effective against ticks, although it may take a heavier concentration of DEET to be effective. Military DEET is 33 percent and very effective against ticks. Permethrin clothing treatment is a stronger chemical that kills ticks as well as repels them. Products containing permethrin should be sprayed only on clothing, not the skin.
- Stay in the middle of the path. Ticks can't jump or fly, so they can only get on you if you come into contact with vegetation on which the ticks are resting. Avoid moist, shady, wooded areas with leaves, low-lying plants and shrubs.
- Ticks do not survive in open areas that dry out quickly. Lawn furniture and playground equipment should be set back from the edge of shady, wooded or high-grass areas. If you're picnicking, pick a patch of well-tended lawn or some open ground.
- Inspect yourself, your children and your pets, especially the legs and groin. Ticks usually get picked



“PROMPT REMOVAL USING APPROVED METHODS IS EFFECTIVE AT PREVENTING DISEASE TRANSMISSION.”

up on the lower legs and then climb upward in search of a meal. The odds of contracting Lyme or any other tick-borne diseases are minimized if the tick is removed soon after it's attached. The shower is a good place to conduct a tick check.

What do you do if you find a tick attached to your skin? Since their bites are nearly painless, most ticks are not discovered until after they attach. Fortunately, most disease transmission can take 24 hours or more. Prompt removal using approved methods is effective at preventing disease transmission.

Tick removal

Before discussing the best methods for tick removal, there are a lot of folk remedies that are best avoided. One of the first removal methods I ever heard was to place a blown-out match to the rear of the tick to get it to back out and release. Logic should tell you that if someone pulled a hot poker out of the fire and placed it on your backside, the one direction you would not move is back. Unfortunately, this results in people lighting multiple matches in an attempt to get the tick to release, raising the parasite's internal temperature and possibly causing the pressure created by the expanded volume of the heated gut contents to inject into the attachment site the very pathogen you are trying to avoid.

A popular removal method is to cover the tick with any number of substances to include petroleum jelly, nail polish, alcohol or gasoline. While this may cause a tick to release, it will only leave a blood

meal that it needs to complete its lifecycle as a last resort. When a tick has difficulty breathing from an applied coating, its first response is to regurgitate in an attempt to clear its airway. This potentially results in the pathogen being forced into the bite, theoretically increasing the risk of infection.

Another method is to grasp the body of the tick and pull. Since ticks have relatively soft bodies, substantial pressure needs to be asserted against its body. Squeezing the tick in this manner effectively injects any pathogen in the tick's mid-gut into the wound. You may have also heard that twisting the tick in a clockwise (sometimes counterclockwise) direction will remove it. A tick's mouthparts are barbed, similar to a fishhook. Twisting off the head should be avoided because this may cause the tick's potentially infectious body fluids to escape. It is important to remove the tick completely. This includes the mouthpart and the cement the tick secreted to securely attach itself. Improper tick removal can cause mouthparts to break off in the skin, possibly leading to a secondary infection.

So what is the proper method to remove a tick? The most commonly recommended tick-removal method is manual extraction. This can be performed with tweezers or any of the numerous commercially available tick removal devices. To remove ticks using the tweezers method:

1. Use fine-tipped tweezers to grasp the tick as close to the skin as you can.

2. Pull upward with steady, even pressure. Don't twist or jerk the tick. This can cause the mouthparts to break off and remain in the skin. If this occurs, remove the mouthparts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.

3. After removing the tick, clean the bite area and your hands with rubbing alcohol or soap and water.

4. Dispose of the tick by flushing it down the toilet. If you would like to bring the tick to your healthcare provider for identification, put it in rubbing alcohol or place it in a sealed bag/container.

To remove ticks using a commercially available device, follow the manufacturer's instructions. After removal, thoroughly wash the bite area and your hands with soap and water or alcohol.

While having a tick attached to your skin can be an emotional experience, by preparing in advance and having the proper equipment on hand, they can be safely removed without putting yourself at risk. If you develop a rash or fever within several weeks of removing a tick, see your doctor. Be sure to tell the doctor about your recent tick bite, when it occurred and where you most likely acquired it. ■

WINNING THE FOURTH QUARTER

Over the previous five fiscal years, Army Aviation has experienced roughly 40 percent of its Class A mishaps during the fourth quarter. In numbers, that's 21 of 53 Class A mishaps during that timeframe, nearly double the total of any other quarter. Plotted on a bar graph, the fourth quarter looks like the Himalayas of mishaps as compared to the remaining quarters. This fact should immediately garner the attention of every member of the Army Aviation team. However, arming the force with foresight of the hazards associated with this time period and employing effective leadership and mitigation measures can reverse this trend.

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Complex hazards

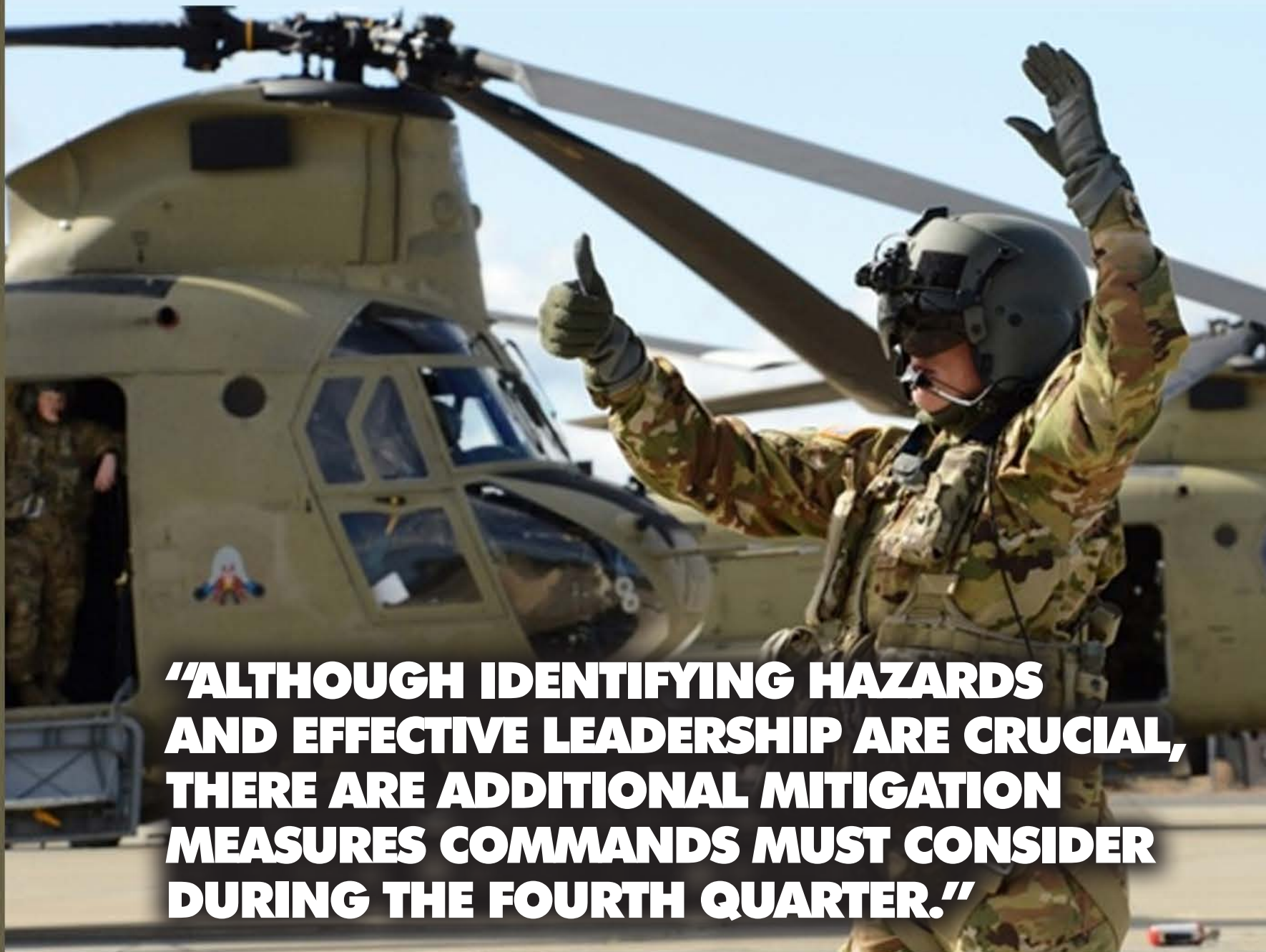
The fourth quarter represents a complex convergence of numerous factors that, individually or aggregated, if not mitigated create an increased risk to operations. The key to reducing risk during this timeframe is to ensure units adequately plan and train for associated complexities such as high operations tempo, fluctuations in combat power and leadership with the summer manning cycle, and a significant change in the operational environment and weather. Although Army Aviation historically flies the most hours in the third quarter, the fourth is a close second. When coupled with significant turbulence in leadership and combat power, as well as increased heat, dust and prolonged day/night operations, this time period is ripe with overlapping hazards. Armed with this knowledge, it is vital commands confirm their leaders and aircrews are cognizant of these complexities and employ sound planning and mitigation measures to reverse the mishap trend.

Effective leadership

Aviation operations — including the tough, realistic training required to support large-scale combat operations — are inherently dangerous. DA PAM 385-30 states, “Managing risks related to such operations requires educated judgment, situational knowledge, demonstrated experience and professional competence.” In essence, effective leader knowledge, presence and engagement leading up to and throughout the fourth quarter will reduce risk. We must ensure we thoroughly train our leaders for the missions they are tasked with, position the right leaders with the proper experience and judgment at critical points throughout the depth of the operation, and set expectations while empowering our leaders to make appropriate risk decisions to protect the force and mission. Doing so will ensure appropriate oversight is in place to mitigate fourth-quarter trends.

Additional mitigation measures

Although identifying hazards and effective leadership are crucial, there are additional



“ALTHOUGH IDENTIFYING HAZARDS AND EFFECTIVE LEADERSHIP ARE CRUCIAL, THERE ARE ADDITIONAL MITIGATION MEASURES COMMANDS MUST CONSIDER DURING THE FOURTH QUARTER.”

mitigation measures commands must consider during the fourth quarter. Managing transitions, especially given the current environment, will be complicated. However, proactive planning for transitions, seeking to rebuild habitual relationships and maintaining a running estimate of combat power based on personnel turbulence will provide senior leaders a realistic assessment of capabilities. Furthermore, instituting deliberate mission briefings and rehearsals, tied with an incremental training strategy to allow aircrews to establish (or re-establish) proficiency in the mission and environment, will pay significant dividends to the force. Finally, whether units see a significant transition in personnel or retain their combat power, the substantial change in the environment will make no mission “routine.” Maximizing unit ASOs, enforcing SOPs and having the right mitigation measures in place prior to and during the fourth quarter will help ensure mission success.

Winning the fourth quarter

The Army is a learning organization, and having foresight of the hazards associated with fourth-quarter operations, along with effective leadership and controls, will allow our formations to proactively plan for and mitigate risks. Turbulence during this timeframe happens every year and is forthcoming in FY20. However, as the USACRC commander states, “Collective critical thinking, discussion and sharing of best practices within our communities will allow us to reverse this trend.” One of my former Army football coaches preached that “we must win the fourth quarter.” How profound that those words still apply today in Army Aviation. Winning matters, especially in the fourth quarter! ■

Readiness Through Safety!



A Safe Fourth

U.S. ARMY TECHNICAL CENTER FOR EXPLOSIVES SAFETY
McAlester, Oklahoma

Fireworks are a Fourth of July tradition. To celebrate our nation's independence, many Americans will gather at professional fireworks events while others will choose to hold a personal pyrotechnics extravaganza in their own backyard. When done right, fireworks create spectacular displays of colored light against the night sky. Before lighting the first fuse on that bottle rocket or Roman candle, ensure you know the guidelines for safe and responsible fireworks use.

Have you ever wondered what makes those pretty colors when a skyrocket explodes? There are a lot of different chemicals used, but some of the most common are aluminum (produces silver and white flames and sparks), barium (green), copper (blue), lithium (red) and sodium (gold or yellow). In the air, these chemicals help create an eye-catching display. On the ground, however, they're nothing more than explosives and pyrotechnic materials.

Fireworks are classified as dangerous substances under the Federal Hazardous Substances Act. In fact, consumer fireworks are generally considered more hazardous than our military explosives. In the military, we spend considerable resources throughout the life cycle of

ammunition and explosives to ensure they're safe and reliable. While the safety of fireworks continues to improve, many manufacturers' standards do not achieve this same level of safety, quality and reliability.

Take firecrackers, for example. Many people have probably lit 1½-inch firecrackers. Were all the fuses the

DID YOU KNOW?

Sparklers can reach temperatures up to 1,800 F. According to the National Council on Fireworks Safety (www.fireworkssafety.org), more than half the sparkler-related injuries happen to children under the age of 14. If sparklers are a part of your child's celebration, ensure they only handle the unlit end. Also, remind them to keep sparklers away from their face, clothing and hair.

same length? Did they burn at the same rate? Did they sometimes fizzle out, leaving an even shorter fuse intact? In commercial fireworks demonstrations, have you seen low bursts or even ground bursts? Safety is very important, whether it's a big show or backyard fireworks use with family and friends.

The Consumer Product Safety Commission estimates about 9,100 people were treated in hospital emergency rooms for fireworks-related injuries in 2018. About 62 percent of those injuries occurred between June 22 and July 22. No one wants their fun to be spoiled by an accident or injury, so whether you're using commercial or consumer fireworks, the rules on their safe use should always be followed.

Current requirements for large public or commercial fireworks displays can be found in National Fire Protection Agency Document 1123, Code for Fireworks Displays. For personal use of fireworks, some generally accepted safety rules include:

- Read and follow the instructions on how to use the item.
- Keep a bucket of water or a garden hose handy in case of fires.
- Maintain adult supervision.
- Designate one person to shoot the fireworks.

FYI

Before spending a fortune on your personal celebration to independence, ensure fireworks are legal to possess and use in your city and state. The National Council on Fireworks Safety's website is a good source of information on state fireworks laws. You should also always ask your local fire or police department if fireworks are legal in your area. Although fireworks may be legal in your state, there may be reasons, such as a burn ban due to dry weather, why their use is prohibited in some areas. For more information, visit www.fireworkssafety.org.

- Do not drink alcoholic beverages while using fireworks.
- Use eye protection when shooting fireworks and do not let any part of your body cover the fireworks.
- Fireworks should only be used outdoors.
- Never throw or point fireworks at another person.
- Do not handle or try to relight duds. Wait 20-30 minutes, soak the duds in water and then properly dispose of them.

Fireworks can liven up any Independence Day celebration, but they should always be treated with respect. Remember to use good common sense and follow all safety rules so you, your family members and friends don't become a fireworks statistic. ■

After returning home from a 13-month deployment in Iraq as a chemical officer, I decided it was time to leave the military to pursue my dream of becoming a pilot. I was proud of what I'd accomplished in the Army but was ready for a new challenge. Stationed in Germany, I was given 10 days of permissive temporary duty authorization to travel back to the U.S. to look for a house. When I saw a beautiful four-bedroom home with an in-ground pool, I knew I had to buy it. Since this was central Florida, a pool was a must-have.

Being a first-time homeowner, I didn't know much about pool care. I researched the neighborhood and found a local pool and spa store less than 2 miles away. There, an employee tested my pool water and let me know the exact chemicals I needed to balance the pH level. If the water is too acidic, it will corrode metal equipment, cause etching on surface materials and irritate a swimmer's skin. If the alkalinity level is too high, it can cause scaling on the pool surface and plumbing equipment and cloud the water. Additionally, both high acidity and high alkalinity alters the effectiveness of the chlorine, which kills pathogens in the water. After a five-minute breakdown of pool care from the employee, I was sure I was up for the task. After all, I just returned from war, so how hard could pool care be?

Armed with my new knowledge, I donned the basic Florida personal protective equipment — flip flops and shorts — and went to work on the pool. Every Sunday for the next several weeks I would scrub and vacuum the bottom of the pool and pour in the required chemicals, including liquid chlorine, chlorine tabs, bromine and algaecides. My pool system used an automatic chlorinator instead of the floating one. That way it distributed chlorine in the jet system to help keep the water balanced.

On this particular day I was checking if the chlorinator tube had chlorine tablets. I had my cellphone pinned between my left ear and shoulder so I could use both hands to open the chlorinator top. I didn't have much leverage, so I crouched down and held the bottom of the tube with my right knee. I was chatting away on my phone rather than paying attention to what I was doing when I finally got the top open, releasing a high concentration of chlorine vapor. I dropped the chlorinator and immediately started gasping for air.

My chest tightened as I fought to breathe. I was panicking. On the other end of the phone line, my mom had no clue what was happening. I heard her say, "Are you OK? Do I need to call an ambulance?" but I couldn't respond. After what seemed like an eternity, I started coughing and was able to take a few short, shallow breaths. My lungs felt like they were full of mucus. For the next two weeks, I had a very bad cough and phlegm in my lungs. Fortunately, I eventually recovered.

The worst part of this ordeal, other than almost killing myself with toxic fumes, was the fact that my own mother asked me, "Weren't you a chemical officer?" The irony hit me. Yes, I was a chemical officer and I had the training to know better. Not wearing the proper PPE while handling hazardous chemicals and being complacent almost killed me. Pool care might seem simple, but it can turn deadly if not done properly. I recommend you leave it to the experts. Take it from your friendly neighborhood chemical officer. ■

TAKE IT FROM YOUR FRIENDLY NEIGHBORHOOD CHEMICAL OFFICER

CHIEF WARRANT OFFICER 3 CAROLYNE LESSARD-NERON
12th Aviation Battalion
Fort Belvoir, Virginia

DID YOU KNOW?

According to a Centers for Disease Control and Prevention report, in 2012, an estimated 4,876 people visited an emergency department for injuries associated with pool chemicals. Nearly half of these were younger than 18 years old, and the most common diagnosis was poisoning by inhalation of vapors, fumes or gases. Pool chemical handlers and others can be injured when critical safety rules for storing and using pool chemicals are ignored. Inhaling fumes when opening pool chemical containers, mixing pool chemicals, attempting to pre-dissolve pool chemicals, and accidentally splashing chemicals in the eyes are some common mistakes. Other mistakes may not be immediately obvious. For example, inadvertently spilling a cola-type soft drink near chemicals in the storage area could set off a dangerous reaction that puts people at risk. That is why one of the rules of safe pool chemical storage is to refrain from bringing food or drink into the storage area. Another "recipe for disaster" is storing liquid chemicals above bags of solid chemicals.

An unwanted reaction could occur if the liquid chemicals leaked onto the bags. That is why it is important to store liquid chemicals securely in the lowest location.

For more information on pool maintenance safety, including chemical handling and storage, visit the CDC website at <https://www.cdc.gov/healthywater/swimming/aquatics-professionals/pool-chemical-safety.html>.

Source: Water Quality and Health Council

THIRD-QUARTER FY20 MISHAP SUMMARIES

ON-DUTY FATAL MISHAPS

PERSONNEL INJURY-OTHER

■ A 31-year-old Private assigned to Fort Benning, Georgia, died in an on-duty physical training-related mishap 20 May 2020 on the installation at 0715 local. The Soldier was near the end of

a 4-mile run when he stopped running. When questioned by a Drill Sergeant, he stated he “didn’t feel good” and was lethargic. The Drill Sergeant put the Soldier in the trail vehicle, which took him to the company area about 1/4

mile away. The cadre applied ice sheets and called E911. While in the ambulance, the Soldier went into cardiac arrest. He was pronounced dead shortly after arriving at the local hospital.

OFF-DUTY FATAL MISHAPS

PMV-4

■ A Private First Class assigned to Fort Hood, Texas, died 1 April 2020 in a PMV-4 mishap. The Soldier was transported to a local hospital where he later succumbed to his injuries.

Soldier as a passenger when they were struck head-on by a vehicle traveling on the wrong side of the road. The Soldier driving died at the scene. The other Soldier was evacuated to a local hospital with a possible leg fracture. The civilian driver of the vehicle that caused the accident reportedly had a blood alcohol concentration of .244, more than three times the legal limit, and later died from his injuries.

■ A Sergeant assigned to Andersen Air Force Base, Guam, died in a PMV-4 mishap 9 April 2020 in Yigo, Guam, at 0100 local. The Soldier was presumed to be driving at a high rate of speed when his vehicle left the roadway and struck a cement guard pole. Local police and emergency medical technicians responded to the mishap scene and pronounced the Soldier dead.

PMV-2

■ A Sergeant assigned to Fort Carson, Colorado, died in a PMV-2 mishap 5 April 2020 in Fountain, Colorado, at 2340 local. The Soldier was riding his motorcycle when he crashed into a guardrail and was pronounced dead at the scene. He had completed his unit check ride with the battalion motorcycle mentor as well as all required Motorcycle Safety Foundation training.

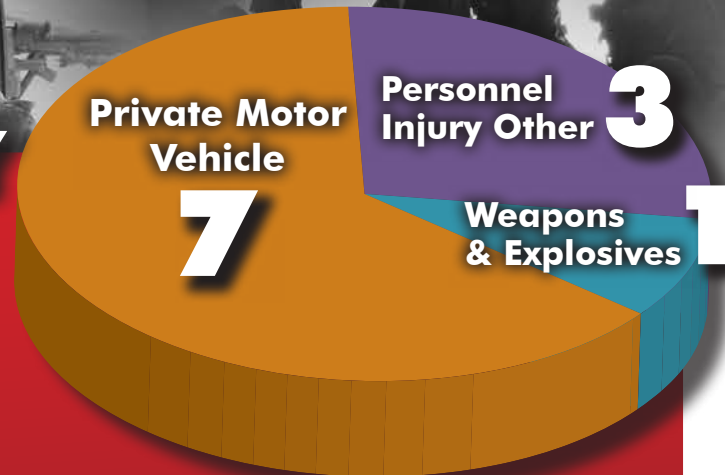
■ A Specialist assigned to Fort Stewart, Georgia, died in a PMV-4 mishap 18 May 2020 in Hinesville, Georgia, at 2230 local. The Soldier was driving his PMV on Route 84 with another

■ A Private First Class assigned to Fort Carson, Colorado, died in a PMV-2 mishap 2 May 2020 in Colorado Springs, Colorado, at 2045 local. The Soldier was riding his motorcycle when he swerved to avoid a halted vehicle in front of him. He then struck a curb and was thrown from the motorcycle. Emergency personnel attempted to resuscitate the Soldier but were unsuccessful and he was pronounced dead at the scene. The Soldier was wearing personal protective equipment, but had not completed a Motorcycle Safety Foundation training course. Neither alcohol nor speed appear to be factors in the crash.

POW

■ A Private assigned to Fort Hood, Texas, died in a privately owned weapons mishap 28 April 2020 in Killeen, Texas. The Soldier was with group of Soldiers at a private residence on

3RD QUARTER FY20 ARMY MILITARY MISHAP FATALITIES



TOTAL QTD: 11

as of 8 June 2020

Category	FY19 EOY	1QTR FY20	2QTR FY20	3QTR FY20
Army Vehicle	15	5	3	0
Aviation (AVN)	2	0	0	0
Fire	0	0	0	0
Personnel Injury Other (PIO)	28	2	2	3
Weapons & Explosives (WPNS & EXPL)	7	1	2	1
Private Motor Vehicle (PMV)	65	12	14	7
Total	117	20	21	11

26 April 2020 when he picked up a fellow Soldier’s privately owned weapon and accidentally shot himself in the head. He was transported to a local hospital where he died from his injuries two days later. The use of alcohol was involved.

OTHER

■ A Specialist assigned to Fort Riley, Kansas, died in an off-duty water-related mishap 2 May 2020 in Randolph, Kansas, at 1400 local. The Soldier was riding in his personal kayak when another Soldier noticed he was no longer in the cockpit. Multiple law enforcement and search-and-rescue agencies were involved in the search, later recovering his body.

■ A 45-year-old Staff Sergeant assigned to Fort Gordon, Georgia, died in an off-duty bicycling mishap 29 April 2020 in Evans, Georgia, at 0530 local. The Soldier was riding on an approved trail when the mishap occurred. He was found lying on the ground by a motorist and transported to the local hospital, where he was evaluated and admitted to the intensive care unit with a skull fracture and bruising to the brain. The Soldier was medically sedated and monitored by the attending neurosurgeon. Five days later, the care team attempted to bring him out of sedation, but he did not respond well. The following day, the Soldier underwent

surgery, but his condition deteriorated. He died from his injuries two days later. The Soldier was wearing a reflective shirt and vest, but no helmet.



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MOTORCYCLE STORAGE p. 8

MANAGING TRANSITIONS p. 10

HEARING PROTECTION p. 16



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CONTENTS

- 4 Proceed with Caution
- 8 Preparing Your Ride for a Winter Nap
- 10 Capitalizing on Transitions
- 12 Prepare to Embrace Change
- 14 Hunting Safety: Full-body Harnesses
- 16 Loud and Clear
- 20 You Bet Your Life
- 22 Phone FOD
- 24 Hazard Identification and Assessment
- 28 The Most Dangerous Time to Drive
- 30 Guiding Right
- 32 Think Beyond the Target
- 34 Mishap Briefs

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Mission Statement:

The U.S. Army Combat Readiness Center preserves Army readiness through analysis, training, and the development of systems that prevent accidental loss of our people and resources.



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Winter Driving Conditions Ahead

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Operating a vehicle safely in winter weather can be a challenge for even the most experienced drivers. It's easy to forget after months of mild conditions that snow and ice demand careful driving and special preparation for your vehicle. When 17% of all vehicle crashes occur in cold weather conditions, it's clear we could all use a refresher when it comes to making our way through a winter wonderland.

Readying your vehicle

Driving safely begins before you even get on the road. Vehicle preventive maintenance checks and services is the starting point for safe driving year-round. In winter, pay special attention to your vehicle's battery, wipers, coolant, tires and other systems that can take a beating when the temperature drops. When you know your vehicle is ready for the road, clear the snow, ice or dirt from the windows, forward sensors, headlights, taillights and backup cameras.

If you're using snow tires, have them installed before the white stuff begins to fall. Check state and local laws and the Department of Transportation when it comes to winter tires and the use of snow chains.

Most states only permit snow chains for hazardous weather or other related incidents, as long as they do not damage the highway surface. Studded tire use varies by state. Some states only allow the use of rubber studs, while others dictate specific dates for their use. To find out the rules for tire chains in your state, visit the American Automobile Association's (AAA) Digest of Motor Laws at <https://drivinglaws.aaa.com/tag/tire-chains/>. AAA lists states' studded tire laws at <https://drivinglaws.aaa.com/tag/studded-tires/>.

If you're stationed in Europe, remember that Germany has always had requirements for winter tires during the ice and snow season. However, in 2015, those requirements turned into a much more specific federal law for all of Germany. And since January 2018, there's a new winter tire requirement and symbol. Here's what you need to know:

- Most German motorists have long known the old rule of thumb for putting snow tires on the vehicle: von O bis O, which is short for von Oktober bis Ostern (from October to Easter). It is a recommendation that one should make the change from regular tires to snow tires in October and leave them on until Easter. The new German law does not set any time limits, but it

does clearly state that under icy conditions (bei Glätte, Schneeglätte, Schneematsch, Eis- und Reifglätte) you must not drive without snow tires on your vehicle. So, since it's difficult to predict the weather, for all practical purposes, the old "von O bis O" rule still applies.

- As of January 2018, newly fabricated winter tires must be marked with an Alpine symbol — a three-peaked mountain pictogram with a snowflake. The new icon is more than a symbol, though. It also reflects the new law that spells out what a winter tire is and sets updated standards. Existing winter tires (M+S-Reifen) with only the old M+S mark will be allowed until Sept. 30, 2024, but the ADAC German automobile club recommends getting new tires with the Alpine three-peak mountain mark as soon as possible. The new law also applies to trucks and buses, but motorcycles are exempt.
- If the police catch you driving in winter conditions without winter tires, you'll have to pay a fine (Bußgeld) of 60 euros, plus a point against you in Flensburg* and possibly an increase in your auto insurance premium. If you are involved in an accident or you block traffic in icy conditions without Alpine tires, the fine goes up to 80 euros and a point against you in Flensburg. (*Flensburg, Germany, is the headquarters for the Kraftfahrt-Bundesamt (KBA). The KBA adds or removes points assessed against your driving record.)
- Radial tires and bias-ply tires cannot be mixed. All four tires must be the same (radial or bias-ply).
- Two snow tires and two regular tires can be combined, but snow tires must be on drive wheels. Two snow tires and two regular tires may be used only if they are of the same type.

If you are stationed in Japan, be mindful the country does not use road salt or do a lot of snowplowing during the winter. Therefore, snow tires or chains are imperative for winter driving. In metro Tokyo, Nagoya or Osaka, you may get away with not needing snow tires. However, it is still highly recommended to keep a set of chains in the trunk, especially if you're likely to be driving to ski resorts or if your neck of the woods is prone to freak snowstorms. If you plan to ship or purchase a vehicle while stationed in Korea, check with your sponsor or gaining unit to determine if winter tires or snow chains are required.



DID YOU KNOW?

- **70% of U.S. roads and 70% of the population are in snowy regions and account for 70% of fatal mishaps during winter months.**

- **1,300 people are killed and 116,800 are injured in vehicle crashes on snowy or icy roads every year.**

Ready yourself

Time management is the key to winter driving. You should drive slowly because it is harder to control or stop your vehicle on a slick or snow-covered road. Increase your following distance enough so you'll have plenty of time to stop for vehicles ahead of you. Also, remember that every vehicle handles differently; this is particularly true when driving on wet, icy or snowy roads. Take the time to learn how your vehicle handles under winter weather driving conditions. In addition, know the weather and traffic conditions before you head out, and plan your route accordingly. Make sure to give yourself more time to get where you're going because you'll be driving more slowly.

Ready for an emergency

Even if you and your vehicle are prepared for winter weather conditions, crashes still do happen. Vehicles can also break down, stranding you in the elements without help nearby. Make sure your vehicle is stocked to help get you out of trouble

or keep you safe until help arrives. Carry blankets, flashlights, jumper cables, and flares or emergency lights in your vehicle. A small bag of non-perishable snacks and water isn't a bad idea either. Even if you don't need them, they can be used to help someone else in trouble on the road. A set of snow chains is also a nice item to have. You never know when they might be needed for extra traction.

Conclusion

Whether you're on or off duty, keep in mind how dangerous operating a vehicle in adverse weather conditions can be. Take the time to prepare yourself and your vehicle before any work-related or personal trip. Factor in extra time for the trip and carry extra winter-related items in case the worst happens. Leaders should also ensure drivers are trained in operating their assigned or personal vehicles in snowy and icy conditions. You may not start your trip in bad weather, but conditions can change rapidly. Be prepared. ■

ARRIVE ALIVE

The following accidents from the U.S. Army Combat Readiness Center's mishap database indicate just how dangerous operating a vehicle in less-than-optimal weather conditions can be.

- A Soldier was driving home in blowing snowy weather conditions when his vehicle slid on the slippery roadway and collided with an oncoming vehicle. The Soldier was transported to a hospital and pronounced dead.
- A Soldier was driving too fast for the icy roads when his vehicle left the roadway and overturned several times. The Soldier riding as a passenger was ejected and suffered fatal injuries. Neither Soldier was wearing a seat belt.
- A Soldier was riding in a vehicle that lost traction on wet/icy roads and slid sideways into oncoming traffic. An SUV struck the vehicle on the passenger side, resulting in the Soldier's fatal injuries.

As the mishap reports above show, operating your vehicle during winter requires special care; but safe driving is a year-round habit. First and foremost, you and every passenger in your vehicle should be wearing seat belts for every ride. Children must be in age- and size-appropriate child seats. Never drive after drinking or when distracted by an electronic device or anything else that takes your attention off the road. These reminders are the essentials for safe driving, whatever the weather.

The American Automobile Association recommends the following tips while driving in snowy and icy conditions:

- Keep a bundle of cold-weather gear in your vehicle, such as extra food and water, warm clothing, a flashlight, a glass scraper, blankets, medications and more.
- Make certain your tires are properly inflated and have plenty of tread.
- Keep at least half a tank of fuel in your vehicle at all times.
- Never warm up a vehicle in an enclosed area, such as a garage.
- Do not use cruise control when driving on any slippery surface, such as ice and snow.

Tips for driving in the snow

- **Stay home.** Only go out if necessary. Even if you can drive well in bad weather, it's better to avoid taking unnecessary risks by venturing out.
- **Drive slowly.** Always adjust your speed down to account for lower traction when driving on snow or ice.
- **Accelerate and decelerate slowly.** Apply the gas slowly to regain traction and avoid skids. Don't try to get moving in a hurry and take time to slow down for a stoplight. Remember, it takes longer to slow down on icy roads.
- **Increase your following distance from five to six seconds.** This increased margin of safety will provide the longer distance needed if you have to stop.
- **Know your brakes.** Whether you have antilock brakes or not, keep the heel of your foot on the floor and use the ball of your foot to apply firm, steady pressure on the brake pedal.

- **Don't stop if you can avoid it.** There's a big difference in the amount of inertia it takes to start moving from a full stop versus how much it takes to get moving while still rolling. If you can safely slow down enough to keep rolling until a traffic light changes, do it.
- **Don't power up hills.** Applying extra gas on snow-covered roads will just make your wheels spin. Try to get a little inertia going before you reach the hill and let that inertia carry you to the top. As you reach the crest of the hill, reduce your speed and proceed downhill slowly.
- **Don't stop going up a hill.** There's nothing worse than trying to get moving up a hill on an icy road. Get some inertia going on a flat roadway before you take on the hill.

Tips for long-distance winter trips

- **Be prepared.** Have your vehicle checked by an approved auto repair facility or conduct your own preventive maintenance checks and services using your owner's manual as a reference before hitting the road.
- **Check the weather.** Check the weather along your route and, when possible, delay your trip if bad weather is expected.
- **Stay connected.** Before hitting the road, notify others and let them know your route, destination and estimated time of arrival.
- **If you get stuck in the snow:**
 - **Stay with your vehicle.** Your vehicle provides temporary shelter and makes it easier for rescuers to locate you. Do not try to walk in a severe storm. It is easy to lose sight of your vehicle in blowing snow and become lost.
 - **Don't overexert yourself.** When digging out your vehicle, listen to your body and stop if you become tired.
 - **Be visible.** Tie a brightly colored cloth to the antenna of your vehicle or place a cloth at the top of a rolled-up window to signal distress. At night, keep the dome light on if possible. It only uses a small amount of electricity and will make it easier for rescuers to find you.
 - **Clear the exhaust pipe.** Make sure the exhaust pipe is not clogged with snow, ice or mud. A blocked exhaust pipe can cause deadly carbon monoxide gas to leak into the vehicle's passenger compartment while the engine is running.
 - **Stay warm.** Use whatever is available to insulate your body from the cold. This could include floor mats, newspapers or paper maps. Pre-pack blankets and heavy clothing to use in case of an emergency.
 - **Conserve fuel.** If possible, only run the engine and heater long enough to remove the chill. This will help to conserve fuel.

As the old saying goes: "An ounce of prevention is worth a pound of cure." These simple tips could prevent you from becoming a statistic in the USACRC's mishap case files. Stay safe out there this winter!



Preparing Your Ride for a **WINTER** Nap.

Properly preparing your motorcycle for winter storage can save time, headaches and money, especially once nice weather rolls around and the riding season begins. Since every motorcycle has different designs and specifications, these instructions are intended to provide a general overview of the process. You should refer to your motorcycle owner's manual and repair manual for additional information.

STEVE KURTIK AND WALT BECKMAN
Directorate of Assessments and Prevention
Ground Division
U.S. Army Combat Readiness Center
Fort Rucker, Alabama

Step 1: Give it a transfusion

Change the oil after you complete your last ride of the season. Oil is the lifeblood of the engine. Giving it a fresh transfusion of new oil will ensure your bike is ready to roll come spring. Each motorcycle is different, so be sure to consult with your owner's manual and/or repair manual for the specifics (particularly the type of oil, size of the oil filter, amount of oil, etc.) for your model. If you're mechanically inclined, clean the carburetors so they don't gunk up over the course of winter. If you plan on storing your bike for more than three months, this idea makes a lot of sense. A quick internet search of the type of motorcycle you own should provide you enough additional information about how to remove and clean your carburetors.

Step 2: Give it a bath

Cleaning the previous season's grit off your paint will ensure it won't damage the finish over the course of winter. Using soap, a sponge, a bucket and water, thoroughly wash the dirt, grime and bugs off your motorcycle and leave it out in the sun to dry.

Step 3: Give it a drink and a shot

A half-empty fuel tank and untreated gas can create major, expensive issues over the course of time. A full fuel tank helps prevent rust from forming inside, and treated gasoline will help prevent gunk and varnish from forming in the engine. After your bike has thoroughly dried from the washing you gave it in Step 2, remove the fuel cap, grab the gas can and give it a "drink" by filling the tank three-fourths full. After consulting the directions on the fuel stabilizer, give it a "shot" by pouring the appropriate amount into the gas tank. Then fill the rest of the tank with gas, which will help prevent the inside from rusting over the winter. After putting the gas cap back on, start your bike and let it run for about five minutes so the stabilizer will have a chance to treat

the entire fuel system. At this point, drive the bike to the location where it will be stored for the winter.

Step 4: Put it to bed

Drive your motorcycle to its winter storage location, preferably a warm, dry spot such as a garage or shed. If you don't have a garage or shed, a parking spot will do. Turn the motorcycle off and allow the engine and mufflers to cool down. If possible, to save wear and tear or prevent flat spots on your tires, set the bike on jack stands just high enough to break contact with the ground or place carpet or cardboard under the tires. Then fill the tires to the maximum air pressure. If you don't place your bike on jack stands, be sure to check for flat spots before operating it again.

Step 5: Protect it from unwanted guests

Critters love to climb in dark, cozy locations — like a motorcycle muffler — during winter months. To prevent them from nesting in your mufflers, place motorcycle exhaust plugs (recommended) in them. If you don't have motorcycle exhaust plugs, simply put a plastic bag over your muffler and use a rubber band to hold it in place.

Step 6: Prepare it for a bypass

For exact instructions, refer to your owner's manual or repair manual. Remove the connectors to your battery and lift it out of the battery case. Remember which side the red wire was attached to (and that red is positive).

Step 7: Connect it to a bypass machine

A trickle charger is highly recommended to provide a steady, low stream of electricity to the battery, enabling it to stay charged through long periods of inactivity. Follow the instructions on connecting your battery to the charger, being careful to make sure the clamps don't touch. Don't forget to plug in the charger!

Step 8: Tuck it in

Finally, cover your motorcycle. Use a cover designed for your bike. It should be made of breathable material that will not trap moisture. For those of you storing your motorcycle outside, this step is a must and can be augmented by adding a more weather resistant or waterproof tarp. If storing your bike outside, make sure you secure the cover to prevent it from blowing off. A cover will help shield the bike from the elements, namely snow, ice and other particles that may scratch the paint or cause rust. If you are storing your motorcycle indoors, the cover will also add an extra layer of protection — but hopefully your bike will not be as susceptible to winds or snowstorms. That's it! Your motorcycle is now properly prepared for its winter hibernation.

One final note

If you plan on storing your bike for longer than three months, it's a good idea to re-install the battery, remove the muffler covers and start the motorcycle about once a month, letting it run for 5-10 minutes. Rev the engine a few times to help clear gasoline that has been sitting out of the carburetors and then shut the engine off and allow it to cool down. Afterward, repeat Steps 5 through 8. See you again when the riding season begins! ■





CAPITALIZING ON TRANSITIONS

COL. RON ELLS
Deputy Commander
U.S. Army Combat Readiness Center
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Over the past few months, myriad challenges emerged necessitating agile leadership as we manage numerous transitions in how we do business in the Army. Not only are we dealing with transitions in how we conduct operations, we are also dealing with multiple personnel / leadership transitions. As I settle into my new role as deputy commander of the U.S. Army Combat Readiness Center, I see safety challenges and successes across the Army as the environment and leadership change. Now is the time to capitalize on transitions in each of our organizations and exploit this opportunity to make the Army team better. As the chief of staff of the Army said, we must follow certain calls to action, including managing transitions, understanding the environment and being present as leaders.

Managing transitions requires a multifaceted approach as we continue operations through the remainder of the fourth quarter. At this point in the fiscal year, we should be through the majority of the PCS season and are beginning to rebuild our team to conduct its wartime mission most effectively. It is essential to set expectations early and confirm they were conveyed to the lowest level within our ranks. Assessing our new leaders and training plans are key during this potentially tumultuous period to ensure we are minimizing risk while continuing to conduct tough, realistic training. Managing transitions is all about engaged leaders

being proactive, verifying that the entire unit knows the standard and providing the tools for success. Obviously, the environment continues to change throughout the year, and each season brings its own distinctive problem set. Leaders and Soldiers must know how to react to these changes. Part of managing environmental transitions is knowing the effects of the environment on Soldiers and equipment. For Soldiers, the environmental effects are exacerbated as they transition from one installation to the next. Just because a Soldier or leader was proficient at a previous duty station does not mean they will be in their new

environment. Leaders must carefully manage the transition of new Soldiers and leaders through specific environmental training for the location and time of year. Effective leadership in a unit requires three things — knowledge, presence and courage. Leaders must have the knowledge to lead; they must provide clear guidance and resource effective training to execute their assigned mission. Additionally, leaders must be present in the right location to provide required oversight and make appropriate risk decisions. Commanders must conduct holistic crew assessments to validate their ability to conduct their assigned mission. This applies to all aircrews, maintenance crews and vehicle crews. Finally, all members of the team must have the courage to speak up to protect the force and mission.

It's about developing a culture of safety through effective leadership as well as fostering a team that upholds standards and looks after one another on and off duty. Over the past year, Army Aviation has continued to react to numerous dynamic challenges to the force, requiring leaders at every level to be extremely agile. Whether these challenges are the result of normal Army processes such as PCS moves and changes of command/responsibility or

unique situations such as the challenges associated with COVID-19, we cannot afford to lose these lessons learned. We must capitalize on these hard-fought wins by updating our standard operating procedures and evolving our training plans. While some may see managing transitions as a plan to prevent mishaps during the transition, we must change our viewpoint to see it as an opportunity

“EFFECTIVE LEADERSHIP IN A UNIT REQUIRES THREE THINGS — KNOWLEDGE, PRESENCE AND COURAGE.”

for growth to improve our teams and prevent accidents throughout the year. Capitalize on the transition! Please don't forget to visit the CRC's website (<https://safety.army.mil/>) for many valuable tools to help your team preserve the readiness you have trained so hard to build throughout the year. ■

Readiness Through Safety!

PREPARE TO EMBRACE **CHANGE:** **ASMIS 2.0** NEW MISHAP REPORTING CATEGORIES

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An often-quoted Greek philosopher stated, “The only constant in life is change.” This is certainly true for the evolution of safety processes and how we collect, analyze and utilize information gleaned from mishap investigations.

When the Army Safety Management Information System (ASMIS) 2.0 mishap and near-miss reporting tool is released, you will find many changes to the reporting process beyond the reporting platform itself. To comply with Department of Defense mishap reporting requirements and to provide improved data for analysis, mishap categories have changed significantly. Common terminology must be used to properly aggregate mishap data provided from all the military services. This is a driving force behind the new mishap categories. There are also “minimum data elements” each of the services is required to report on mishaps, which will result in various data points that are required to successfully submit a mishap report to the U.S. Army Combat Readiness Center.

To ensure the appropriate data elements are collected while avoiding irrelevant questions (e.g., asking if a Soldier injured while running PT was wearing a seat belt), users will select a mishap category under

Aviation or Ground to create a report. They will then go through a series of questions/instructions to enter information. Further information may be required based on specific responses. Many of the data fields utilize a menu to select from rather than free text in order to standardize data for analysis. The new mishap categories for reporting are as follows:

AVIATION

- **Manned** — A mishap involving an Army aircraft flown under the control of onboard personnel.

- **Unmanned** — A mishap involving an Army aircraft operated without the possibility of direct human intervention from within or on the aircraft. It is operated by personnel on the ground or in a manned aircraft.

- **Aerostat** — A mishap involving an Army aerostat. *Note: Aerostat is a generic term used to describe lighter-than-air platforms that are tethered and considered operational when the system platform (or launchpad) is manned and power is applied to winches and other safety release devices as part of the launching process.*

GROUND

- **Motor Vehicle** — A mishap involving a motor vehicle while it is in operation.

- **Sports, Recreation and Physical Training** — A mishap associated with leisure, sports and physical fitness activities. Leisure/recreational activities are those often done for

enjoyment, amusement or pleasure. This includes both mandatory and voluntary, group and individual fitness activities (unit runs, physical training tests, organized unit fitness training, etc.) and events that occur onboard DoD vessels.

- **Industrial/Occupational** — A mishap that involves operations similar to those performed in private industry that is not included in the other mishap categories such as motor vehicle. This includes, but is not limited to, equipment maintenance, facility construction and maintenance, health care provision, veterinary services, laboratory research, public law enforcement, firefighting, transportation, and administrative and clerical tasks. It also includes mishaps that occur onboard DoD vessels that result from shipyard, repair facility or private contractor operations.

- **Weapons/Explosives** — A mishap involving individual weapons, weapon systems, ammunition or explosive materials. Any unplanned or planned explosion or functioning of explosives materials or devices, which results in unintended damage or injury (not as a result of enemy action) that are not guided missile, chemical agent or radiation mishaps. They include the inadvertent actuation, jettisoning, and releasing or launching of explosive devices and impacts of ordnance off range/target. They also include the accidental (negligent) discharge of small-arms

weapons (in unit arms rooms, on guard duty) and hunting or recreational shooting accidents.

- **Combat Skills/Military Unique** — A mishap that occurs while conducting combat operations or military training activities/exercises designed to develop or maintain individual or collective combat or peacekeeping skills. This includes those skills or tasks that are directly associated with training for, or conducting combat operations such as locate, close with, and destroy the enemy with fire and maneuver, and to repel the enemy assault by fire and close combat. It also includes these events that occur onboard DoD vessels.

- **Military Parachuting (Personnel)** — A mishap that occurs during operations involving the aerial delivery of personnel involving the use of aircraft. It does not include off-duty, recreational parachuting or skydiving activities. These should be reported as Sports, Recreation and Physical Training mishaps. Military parachute training not involving jumping from an aircraft in flight should be reported as Combat Skills/Military Unique.

- **Military Parachuting (Cargo)** — A mishap that occurs during operations involving the aerial delivery of equipment involving the use of aircraft.

- **Military Diving** — A mishap involving military dive operations, including construction/fabrication, tactical diving, and marine diving accidents classified as Type II Decompression Sickness or Pulmonary Over Inflation Syndromes. It does not include off-duty, recreational diving or dive operations in direct support of an afloat vessel. Recreational diving should be reported as Sports, Recreation and Physical Training mishaps.

- **Military Vessels** — A mishap involving shipboard-unique events, including collision, grounding, flooding, line handling, docking, resupply, rigging and shipboard fires. It does not include industrial and occupational events defined elsewhere, even though they took place while afloat.

- **Rail** — A mishap involving railroad-unique events involving Army-owned rail equipment, including impacts, derailment, a runaway train, fire/explosions initiated by the rolling stock or other rail-specific mishaps. It includes specialty equipment used for track repairs, inspections and construction. It does not include industrial and occupational events defined elsewhere, even though they occurred on or near rail cars. It also does not include damage to Army equipment damaged solely as a result of loading and unloading while the rail car is not in motion.

- **Other Ground** — A ground mishap that does not meet the criteria of other ground mishaps. This includes on-duty injury and property damage cases that do not fit elsewhere and other off-duty mishap types.

The entry of information in the tool will be further categorized in the database to provide greater detail for analysis. For example, while all motor vehicle mishaps will be entered in the same reporting category, output will allow that information to be presented in subcategories such as Government Motor Vehicle and Private Motor Vehicle. Private Motor Vehicle will be further categorized into PMV-2, PMV-4 and PMV-Pedestrian/Non-Motorist. The new application will also provide visibility to a multitude of mishap information to support decision-making at the appropriate level in the risk management process.

It is a well-known fact that human beings are resistant to change. Without a doubt, the new ASMIS 2.0 mishap and near-miss reporting tool is going to present a significant change to the reporting process. We ask that you embrace the change and work with us to continuously improve our Army's tools and processes as we deploy this mishap and near-miss reporting tool and the follow-on applications that will complete the Army Safety Management Information System. ■



Hunting Safety: Full-body Harnesses

Most tree stand accidents involve falls from heights. One of the consistent top 10 OSHA violations is lack of fall protection. What do these two things have in common? Falls at work or during recreational activities can be easily prevented by following a few safety rules.

One of the major innovations developed over the past several years to prevent tree stand injury is the full-body harness (FBH). The concept was borrowed from the construction industry, where it has been very effective at preventing injuries and death. An FBH is not the same thing as a safety belt. An FBH fits snugly, allowing freedom of movement so it is not in your way when shooting.

Safety belts were developed decades earlier. While they did prevent impacts with the ground, they caused other medical problems. Studies examining falls that occurred using a safety belt indicate that you only have a few minutes before loss of consciousness. It is also possible that the constriction around your waist could kill you, as blood flow is restricted and cannot get to

vital organs. While it is possible to have circulation problems with an FBH, it won't happen as quickly, giving you more time to extricate yourself from the situation.

To properly put on a safety harness, first put your arms through the shoulder straps and secure the chest strap. Next, secure and tighten the thigh straps. Your harness is then ready to go. The FBH straps must be

tight, but they should not bind or restrict movement. Most tree stand manufacturers provide an FBH with the stand, but more comfortable harnesses can be purchased separately. These improved harnesses include features like padding, quick-release buckles and pockets for storing smaller items.

An FBH secures the hunter to the tree or lifeline with a tether located on the back of the harness just below the neck. The harness straps around the thighs and chest, which distributes pressure throughout the body. This prevents you from being folded in half during a fall, which often occurred with a safety belt. A lifeline, or "safe line," is a rope that attaches at the bottom and top of the tree. The FBH is attached by a tether to the lifeline using a carabiner or similar system. The tether easily slides up and down the lifeline, providing fall protection from the ground to your stand. When used properly, a tether and harness keeps you from falling more than a foot to 18 inches.

Secure the tether on the FBH to the tree a few feet above your head when sitting in your stand. Hunters often don't attach the strap high enough in the tree. If a fall occurs, they are hanging too far below

the platform to climb back into the stand, leaving them dangling. When anchoring the FBH tether to the tree, place it around the trunk above your head, adjusting the height to leave only sufficient slack so you can sit down. If a fall occurs, this ensures a short drop, allowing you to climb back into the stand without much difficulty.

While wearing an FBH will prevent major injuries, you must act quickly to get back onto the security of the tree, your stand or the ground to prevent further injury. Hanging for long periods of time, even in an FBH, can cause serious complications. Suspension trauma is caused by being upright and immobile, which can occur if you fall while wearing an FBH. Because the victim is suspended in an upright position with their legs hanging, blood begins to accumulate in the lower extremities. This reduces the flow of oxygenated blood to the heart and brain. After a fall, the leg straps on the FBH can also exert pressure on veins in the legs, compressing them and further reducing blood flow back to the heart. One of the primary ways to slow the progression of suspension trauma is to stand up. Standing causes the leg muscles to contract, which improves circulation.

If you fall and cannot immediately return to your stand or ladder, act quickly to relieve pressure from your legs with the harness's suspension relief strap. Suspension relief straps are attached to each side of the harness, creating a loop that you can put your feet into and press against to simulate standing up. If your FBH does not have one incorporated in its design, one can be inexpensively added to the harness. Other methods to avoid suspension trauma include placing your feet against the tree while bending and straightening your legs or carrying a screw-in step. Screwing a step into the tree and stepping up on it several times a minute can relieve the pressure created by the straps in the groin area, improving blood flow. Carrying a cellphone is also important so hunters can call for help.

Proper use of an FBH can reduce the chance of serious injury. Unfortunately, many hunters don't realize the value of an FBH or using fall protection as they climb into their stand until they are lying on their back on the ground or in a hospital bed. ■

FYI

Following these simple precautions can reduce your chances of injury or death when hunting from an elevated position.

1. Always use a full-body harness (FBH) in accordance with the manufacturer's instructions.
2. Never leave the ground without wearing an FBH.
3. Do not use a safety-belt-type harness, which can cause loss of consciousness after a fall.
4. Use the FBH during ascent and descent from your tree stand. Most falls occur when hunters step onto or from their tree stands.
5. Prolonged suspension can result in trauma or death, so ensure suspension relief straps are attached to your FBH.
6. Always carry a cellphone or other means of emergency communication.
7. Inspect your tree stand and harness for signs of wear or damage before each use. The harness should be replaced after a fall has occurred.
8. Never climb while carrying gear, which could affect your balance. Use a haul line to pull up and lower your gear.
9. Let others know in advance your exact hunting location and when you plan to return.

We live in a noisy world. Combat military weaponry, personal and vehicle stereos and high-powered machinery are just a few of the noises Soldiers are exposed to every day. Excessive noise disrupts sleep, produces stress, impairs communication and, in high enough doses, causes significant noise-induced hearing loss (NIHL).

According to the U.S. Department of Veterans Affairs, hearing problems — including tinnitus, which is a ringing, buzzing, whistling or other sound in the ears or head without an external source — are by far the most prevalent service-connected disability among American veterans. Much of the hearing loss these individuals suffered is largely due to preventable, noise-induced wear and tear on the auditory system that happened much earlier in their lives.

Soldiers are required to have an audiogram conducted each year to monitor hearing loss. If the test reveals

sufficient hearing loss, the medical staff attempts to identify the type and educate the Soldier on hearing conservation to prevent future hearing loss. Often the education process is nothing more than the issuance of earplugs and a hearing conservation pamphlet that explains how to protect your hearing. The Soldier may attempt to arrest the hearing loss by wearing hearing protection for a few days, possibly even a couple of weeks. Eventually, though, many will fall back on their old ways until the next annual audiogram, at which time the cycle is repeated.

LOUD AND CLEAR

BILL WILLIAMSON

Numerous sources of noise in the environment have the potential to produce NIHL. Because shooting is so prevalent in our military culture, it poses the greatest risk to many Soldiers' hearing. Clinical reports documenting hearing loss after exposure to shooting have been documented since the 1800s. Reported peak sound levels from weapons have ranged from 132 decibels (dB) for small-caliber rifles and pistols to more than 172 dBs for high-powered rifles and shotguns. What does this decibel scale mean to the Soldier?

It is difficult to grasp how much acoustic energy is in a single gunshot. The acoustic energy in a single report from a high-powered rifle, pistol or shotgun is equivalent to almost 40 hours of continuous exposure at 90 dBA.

In other words, one bullet equals one week of hazardous occupational noise exposure according to Occupational Safety and Health Administration and Department of Defense standards. Because shells are often packaged in boxes of 50, shooting an entire box without hearing protection is equivalent to working in a 90 dBA environment for a full year! A Soldier qualifying on a target range without hearing protection can produce an entire year's worth of hazardous occupational noise exposure in just a few minutes.

Currently, the only way to detect functional hearing loss is through routine hearing tests. Unfortunately, by the time functional hearing impairment is detected, injury to the auditory system is usually at an advanced stage. Therefore, the key to prevention is education.

Leaders can assist Soldiers at risk for hearing loss by teaching them to avoid exposure to unwanted noise and how to become more sensible when exposing themselves to desired sounds. For example, leaders can recommend all Soldiers avoid other noisy activities the day before and day of firing weapons on a target range. Research has shown that rest periods interspersed with an otherwise hazardous exposure to noise can greatly reduce auditory damage.

In situations where noise cannot be eliminated, Soldiers should be advised to wear hearing protection. The most commonly used types of protection are earplugs or earmuffs, which come in a variety of styles and sizes. The advantages of earplugs include their small size, low cost and relative comfort. On the other hand, earmuffs fit over the ear, are heavier than earplugs and are reusable. When kept in good condition, earmuffs can also be considerably cheaper

than disposable earplugs. However, a seal must be made between the earmuff cushion and the side of the head; any break in the seal renders the earmuff useless.

Most Soldiers will find foam earplugs the protection of choice because they are inexpensive, comfortable, disposable and commercially available. While each is effective and wearing both is often recommended, the most effective type of earplug or earmuff is the one that is actually used.

Although there is a lot of published information on NIHL, it is usually undetected until the damage is already done. While efforts have been made to reduce noises at their source, educating Soldiers on the importance of preserving hearing into their old age is the best method for conservation. Leaders can help Soldiers understand the importance of preserving their hearing for their golden years by becoming involved and taking precautionary steps to prevent NIHL. ■

DID YOU KNOW?

October is recognized as National Protect Your Hearing Month. For information about protecting yourself from noise-induced hearing loss, visit the Centers for Disease Control and Prevention website at https://www.cdc.gov/nceh/hearing_loss/.

DECIBEL EXPOSURE TIME GUIDELINES

The following are the National Institute for Occupational Safety and Health's recommended exposure times to noise, which the U.S. Army has adopted as its standard to reduce hearing loss due to noise. For every 3 dB over 85 dB, the exposure time to noise is cut in half. Note that the Army standard is stricter than the OSHA standard that allows 90 dB over 8 hours and halves the exposure time with every 5 dB above 90 dB.

<i>Continuous dB</i>	<i>Permissible Exposure Time</i>
85 dB	8 hours
88 dB	4 hours
91 dB	2 hours
94 dB	1 hour
97 dB	30 minutes
100 dB	15 minutes
103 dB	7.5 minutes
106 dB	3.75 minutes (< 4 minutes)
109 dB	1.875 minutes (< 2 minutes)
112 dB	.9375 minutes (about 1 minute)
115 dB	.46875 minutes (about 30 seconds)

SOUND ENCOUNTERS

When you notice a difference between loud sounds and quiet ones, your ears are perceiving changes in sound pressure level. Intensity (or volume) is measured in decibels (dB). Zero dB is the softest sound that can be heard. Pain from hearing is subjective. To the average person, levels above 125 dB are painful, while to others, levels below 125 dB may be painful. Below are the decibel levels of a few sounds Soldiers might encounter.

Rustling leaves	20 dB
Quiet whisper (3 feet)	30 dB
Normal conversation	60 dB
Automobile (25 feet)	80 dB
Motorcycle (30 feet)	88 dB
Subway (inside)	94 dB
Power mower (3 feet)	107 dB
Jet plane (100 feet)	130 dB
.410 shotgun with 28-inch barrel	150.01 dB
12-gauge shotgun with 28-inch barrel	151.50 dB
20-gauge shotgun with 28-inch barrel	152.50 dB
.45 Colt	154.7 dB
.223/5.56, in 18-inch barrel	155.5 dB
.44 Special	155.9 dB
.308/7.62 in 24-inch barrel	156.2 dB
.45 ACP	157.0 dB
9 mm	159.8 dB
.357 Magnum	164.3 dB



You Bet Your Life

CHIEF WARRANT OFFICER 4 JEFFERY DANITZ
479th Field Artillery Brigade
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Would you go to Las Vegas and bet your life on one spin of the roulette wheel? I hope not! You'd probably question the intelligence of anyone willing to make such a gamble. Yet, many of our Soldiers bet their lives every day when they don't use their seat belts or restraints in tactical vehicles. Why is this happening?

I heard all of the familiar excuses while working as a safety adviser to the Combined Joint Task Force-7 command staff in Iraq: "The seat belt keeps me from getting out of the vehicle quickly." "It restricts me from turning sideways in the seat." This one really scared me — "I was told not to use it."

Aside from a commander telling them to not use seat belts, why would Soldiers make an independent decision to not buckle up

in combat? People make decisions based on their perception of the likelihood an event will occur. Roadside bombings and ambushes are common in combat, so it's natural Soldiers will do everything possible — including not wearing seat belts — to "protect" themselves during these events.

Perception of occurrence is influenced by perception of control, and this factor plays into Soldiers' decision-making processes,

including seat belt usage. When someone thinks they're in control, they believe they're less likely to have an accident. However, we can't control the enemy and can't predict with any certainty when they'll strike. Thus, Soldiers perceive the occurrence of an attack as being highly likely to occur because of their lack of control.

This skewed perception can get Soldiers in trouble. Some Soldiers believe they're

more likely to die because they can't get out of a vehicle quickly during an ambush or bombing. In their minds, the risk of injury or death in a rollover or other accident is secondary. It makes sense to them to not wear seat belts in combat. This logic is flawed. Plus, Army regulations say seat belts must be worn at all times — even in combat.

An intelligent person learns from their own mistakes, but a wise individual learns from the mistakes of others. I hope you'll make sound decisions and carry out safe operating procedures every time you begin a mission.

Remember, the probability of you making it home safely is much greater if you wear your seat belt. Your family deserves it and the Army will thank you for it. ■





PHONE FOD

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In 2010, I was attached to a general support aviation battalion company. Just a year out of flight school, I'd become a pretty confident Black Hawk pilot. My company was about a year away from deploying to Afghanistan and recently acquired some new Soldiers. As is standard practice in the Army, the unit issued a roster with everyone's contact information, which I painstakingly entered into my Nokia flip phone. At this time, larger smartphones weren't as ubiquitous as they are now. Mine was one of the smallest phones on the market and easily lost in an Army flight suit's large pockets. I never imagined that little Nokia would help shake my confidence.

On this particular day, I was conducting preflight checks on a UH-60A in preparation for a joint training exercise with the Air Force. I hadn't noticed anything unusual until I got to the tail rotor, when I realized that my lower cargo pocket was unzipped. I didn't think anything of it. I just zipped it back up and continued about my business. I had other stuff to take care of before the exercise, so I was in a bit of a hurry.

We completed our mission late that evening. As we gathered our equipment out of the aircraft, I reached into my lower cargo pocket to grab my phone, but it was missing. I then looked through my other pockets and all of my bags, but still nothing. Out of places to search, I did the next logical thing: I got one of the new Soldiers in the unit, Jenny, to call my phone.

We were standing on the co-pilot side of the aircraft when I heard a faint ringing sound coming from the rear of the Black Hawk. As luck would have it, I'd put my phone on a setting that automatically sent callers to voicemail if I didn't pick up after five rings, so Jenny had to call it several times. As we walked the perimeter of the aircraft, it became apparent the ringing was coming from the engine cowling. My heart sank. "How could you be so careless," I thought to myself. I knew I would have to brief the commander on what I did.

I continued closing out our flight, all the while dreading what I was going to tell the commander. How would I even tell her? What would I say? Should I act remorseful or play it cool like it was no big deal?

Fortunately, my commander was a very compassionate leader. She was 10 years my elder but wise beyond her years. I'd never seen her lose her cool or yell. That wasn't her style. I realized the dread I was feeling was not out of fear of being yelled at or reprimanded; I didn't want to let her down. While I don't recall exactly what my

punishment was, I know it involved giving a safety briefing to the entire company. What I remember more vividly was my commander's compassion toward me.

I drove home in silence that evening, lost in deep thought. When I got home, I didn't address the incident with anyone in my household. I just went upstairs and showered. When I was done, I got dressed and went back downstairs to grab something to eat. I found my wife in the kitchen looking through my phone. She looked up and asked, "What's going on with you today? You haven't answered any of my calls. And why do you have 20 missed calls from someone named Jenny?" This broke me out of my spell. I explained

"ON THIS DAY, I DIDN'T FIND ANY FOD ON MY PREFLIGHT, BUT I UNKNOWINGLY LEFT SOME BEHIND."

what had happened at work and we had a good laugh about all of those missed calls from Jenny.

As aviators, we know the importance of conducting a thorough preflight of our aircraft. It helps us ensure nothing is out of place, such as hardware or tools from a previous maintenance task. These items, known as foreign object debris (FOD), may result in damage to equipment and become a contributing factor to a mishap. On this day, I didn't find any FOD on my preflight, but I unknowingly left some behind. What I hope you learn from my story is the importance of conducting a preflight inspection of your flight suit before you preflight your aircraft. Ensure all of your pockets are zipped or secured. Anything you carry on your person, from cellphones to pens to loose change, can become FOD. No one wants their carelessness to be the cause of a catastrophic accident. ■

Hazard Identification and Assessment

✓	Hazardous materials policy and safe work procedures are in place
✓	Products are labeled properly
✓	Safety Data Sheets are available
✓	Products are stored properly
✓	Education and training provided to employees
✓	Appropriate control measures are in place

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Failure to identify hazards on the job site is one of the root causes of workplace injuries. A critical element of any effective safety and health program is a proactive, ongoing process to identify and assess these hazards. To do so, units and organizations need to follow the six simple steps below.

1. Collect existing information about workplace hazards

Remember to consider your safety and installation industrial hygiene offices as resources for this as well as job hazard analyses (JHA) prepared for the worksite.

Information on workplace hazards may already be available from both internal and external sources. Collect, organize and review the information with workers to determine what types of hazards may be present and which workers may be exposed or potentially exposed. Information available in the workplace may include:

- Equipment and machinery operating manuals
- Workplace inspection reports
- Safety Data Sheets (SDS) provided by chemical manufacturers
- Records of previous injuries and illnesses
- Workers' compensation records and reports
- Patterns of frequently occurring injuries and illnesses
- Industrial hygiene surveys
- Existing unit safety and health programs
- Input from workers
- Results of JHAs

Some hazards, such as housekeeping and tripping hazards, should be fixed immediately. Fixing hazards on the spot emphasizes the importance of safety and health and takes advantage of a safety leadership opportunity.

2. Inspect the workplace for safety hazards

Hazards can be introduced over time as work processes change, equipment or tools become worn or replaced, maintenance is neglected, or housekeeping practices decline. Scheduling regular workplace inspections for hazards can help identify shortcomings so they can be addressed before an incident occurs.

- Conduct regular inspections of all operations, equipment, work areas and facilities. Have workers participate as members of the inspection team and talk to them about hazards they see or report.
- Document inspections so they can be used later to verify that hazardous conditions were corrected.
- Include all areas and activities in these inspections, such as storage and warehouses, facility and equipment maintenance, office areas, and the activities of onsite contractors, subcontractors and temporary employees. Don't forget to also check common areas like break rooms, restrooms and showers.
- Regularly inspect both powered industrial trucks (e.g., forklifts) and transportation vehicles (e.g., cars, trucks).
- Use checklists that highlight things to look for. Typical hazards fall into several major categories, such as those listed



may not have an immediately noticeable harmful effect. Health hazards include chemical hazards (solvents, adhesives, paints, toxic dust, etc.), physical hazards (noise, radiation, heat, etc.), biological hazards (infectious diseases), and ergonomic risk factors (heavy lifting, repetitive motions, vibration). Requesting your supporting occupational health office to review workers' medical records can be useful in identifying health hazards associated with workplace exposures.

below. Each workplace will have its own list of categories.

- General housekeeping
- Slip, trip and fall hazards
- Electrical hazards
- Equipment operation
- Equipment maintenance
- Fire protection
- Work organization and process flow (including staffing and scheduling)
- Work practices
- Workplace violence
- Ergonomic problems
- Lack of emergency procedures
- Before changing operations, workstations or workflow; making major organizational changes; or introducing new equipment, materials or processes, seek the input of workers and evaluate the planned changes for potential hazards and related risks.

3. Identify health hazards

Identifying workers' exposure to health hazards is typically more complex than identifying physical safety hazards. For example, gases and vapors may be invisible, have no odor and

- **Identify chemical hazards** – review SDS and product labels to identify chemicals in your workplace that have low exposure limits, are highly volatile, or are used in large quantities or in unventilated spaces. Identify activities that may result in skin exposure to chemicals.
- **Identify physical hazards** – identify any exposures to excessive noise (areas where you must raise your voice to be heard by others), elevated temperatures (indoor and outdoor), or sources of radiation (radioactive materials, X-rays or radiofrequency radiation).
- **Identify biological hazards** – determine whether workers may be exposed to sources of infectious diseases, molds, toxic or poisonous plants, or animal materials (fur or scat) capable of causing allergic reactions or occupational asthma.
- **Identify ergonomic risk factors** – examine work

activities that require heavy lifting, work above shoulder height, repetitive motions or tasks with significant vibration.

- **Conduct quantitative exposure assessments** – request the supporting installation industrial hygiene program office to sample the workplace.

4. Conduct incident investigations

Workplace incidents — including injuries, illnesses, close calls/near misses and reports of other concerns — provide a clear indication of where hazards exist. By thoroughly investigating every incident and report, hazards likely to cause future harm can be identified. The purpose of an investigation must always be to identify the root cause (and there are often more than one) of the incident or concern to prevent future occurrences.

Develop a clear plan and procedures for conducting incident investigations. Effective incident investigations do not stop at identifying a single factor that triggered an incident. They ask the questions "Why?" and "What led to the failure?" For example, if a piece of equipment fails, a good investigation asks: "Why did it fail?" "Was it maintained properly?" "Was it beyond its service life?" and



"How could this failure have been prevented?" Similarly, a good incident investigation does not stop when it concludes that a worker made an error. It asks questions such as "Was the worker provided with appropriate tools and time to do the work?" "Was the worker adequately trained?" and "Was the worker properly supervised?"

5. Identify hazards associated with emergency and non-routine contingency plans

Emergencies present hazards that need to be recognized and understood. Non-routine or infrequent tasks, including maintenance and startup/shutdown activities, also present potential hazards. Plans and procedures need to be developed for responding appropriately and safely to hazards associated with foreseeable emergency scenarios and non-routine situations.

- Identify foreseeable emergency scenarios and non-routine tasks, taking into account the types of material and equipment in use and the location within the facility. The time to consider how to

respond is gone while the scenario/task is happening. Scenarios such as the following may be foreseeable:

- Fires and explosions
- Chemical releases
- Hazardous material spills
- Startups after planned or unplanned equipment shutdowns
- Non-routine tasks, such as infrequently performed maintenance activities
- Structural collapse
- Disease outbreaks
- Weather emergencies and natural disasters
- Medical emergencies
- Workplace violence

6. Characterize the nature of identified hazards, identify interim control measures and prioritize the hazards for control

The next step is to assess and understand the hazards identified and the types of incidents that could result from worker exposure to those hazards. This information can be used to develop interim controls and prioritize hazards for permanent control.

- Evaluate each hazard by considering the severity of potential outcomes, the likelihood that an event or exposure will occur, frequency/duration of exposure and the number of workers who might be exposed.
- Use interim control measures to protect workers until more permanent solutions can be implemented.
- Prioritize the hazards so those presenting the greatest risk are addressed first.

The unit leadership has an ongoing obligation to control all serious recognized hazards and protect workers.

Conclusion

Risk is the product of hazard and exposure. Thus, risk can be reduced by controlling or eliminating the hazard or by reducing workers' exposure to hazards. An assessment of risk can help leaders to understand hazards in the context of their own workplace and prioritize them for permanent control. ■



Shorter days, fatigue, compromised vision, rush hour and impaired drivers are some of the risks we face when driving at night. These risks become especially pronounced moving into the weekend, with fatal crashes peaking on Saturday nights, according to the National Safety Council's analysis of National Highway Traffic Safety Administration (NHTSA) data.

When Daylight Saving Time ends Nov. 1, many people will find themselves spending more time driving in the dark. Depth perception, color recognition and peripheral vision can be compromised in the dark, and the glare of headlights from an oncoming vehicle can temporarily blind a driver.

Even with high-beam headlights on, visibility is limited to about 500 feet (250 feet for normal headlights), creating less time to react to something in the road, especially when driving at higher speeds.

So what should you do to combat darkness?

- Aim your headlights correctly and make sure they're clean.
- Dim your dashboard.
- Look away from oncoming lights.
- If you wear glasses, make sure they're anti-reflective.
- Clean the windshield to eliminate streaks.
- Slow down to compensate for limited visibility and reduced stopping time.

The Most Dangerous Time to Drive

NATIONAL SAFETY COUNCIL
<https://www.nsc.org>

Compromised night vision

Night vision is the ability to see well in low-light conditions. As we age, we have greater difficulty seeing at night. A 50-year-old driver may need twice as much light to see as well as a 30-year-old. At age 60 and older, driving can become even more difficult, according to the American Optometric Association (AOA). Some older drivers also may have compromised vision due to cataracts and degenerative eye diseases.

The AOA recommends older drivers:

- Have annual vision exams.
- Reduce speed.
- Take a driving course. Even experienced drivers can benefit from a refresher course, and some of the rules have probably changed.
- Minimize distractions, like talking with passengers or listening to the radio.
- Check with your doctor about side effects of prescription drugs.
- Limit driving to daytime hours if necessary.

Fatigue

A National Sleep Foundation (NSF) poll says 60 percent of adults have driven while they were tired, and another 37 percent, or 103 million people, have fallen asleep at the wheel. Of those, 13 percent say they fall asleep while driving at least once a month, and 4 percent say they have caused a crash by falling asleep while driving. The reasons are many — shift work, lack of quality sleep, long work hours, sleep disorders — and it doesn't only happen on lengthy trips.

These staggering numbers are backed up by a report by NHTSA that 100,000 police-reported crashes are a result of driver fatigue. Most crashes or near-misses happen at the times you would expect drivers to be tired: 4 to 6 a.m., midnight to 2 a.m. and 2 to 4 p.m., according to the NSF.

Drowsy driving puts everyone on the road at risk. Losing two hours of sleep has the same effect on driving as having three beers, and tired drivers are three times more likely to be in a car crash if they are fatigued. The NSF offers this advice:

- Get seven or more hours of sleep a night.
- Don't drive if you've been awake for 16 hours or more.
- Stop every two hours to rest.
- Pull over and take a nap if you're drowsy.
- Travel during times you are normally awake.

Rush hour

Evening rush hour (between 4 and 7 p.m. on weekdays) is a dangerous time to drive due to crowded roadways and drivers eager to get home after work. In winter, it's dark during rush hour, compounding an already dangerous driving situation. So how can you make it home safely during rush hour?

- Don't be an impatient driver; slow down.
- Stay in your lane and beware of drivers who dart from lane to lane.
- Even though the route may be

familiar, don't go on autopilot; stay alert.

- In unfamiliar areas, consult a map before you go and memorize your route.
- Don't touch your phone, eat, drink or do other things that are distracting.

Impaired drivers

Nearly 30 people die every day in crashes that involve a driver impaired by alcohol, according to the Centers for Disease Control and Prevention. Drivers impaired by prescription medicines and other drugs increase that number significantly. Impaired drivers are most frequently on the road after dark — particularly between the hours of midnight and 3 a.m. on weekends.

While drunk driving has declined by about one-third since 2007, the number of drivers under the influence of drugs has increased. Between 2013 and 2014, 22 percent of drivers tested positive for a drug that would cause impairment, according to a roadside survey conducted by NHTSA. The organization also found that the prevalence of THC (found in marijuana) among drivers on weekend nights increased 48 percent since 2007, from 8.6 percent of drivers to 12.6 percent. Many states have not yet updated their impaired driving laws to address this growing problem.

Conclusion

While we do only one-quarter of our driving at night, 50 percent of traffic deaths happen during those hours. It doesn't matter whether the road is familiar or not, driving at night is always more dangerous. By taking some extra precautions, we can all contribute to reducing these numbers. ■

GUIDING RIGHT

MASTER SGT. TOM COLLUM
Jefferson City, Missouri

Before deploying to Iraq, our transportation unit was understrength, so other Soldiers in the state that had an 88M military occupational specialty (transportation) were pulled from their units to head out with us. This caused some unforeseen issues. For instance, when ground guiding, these Soldiers used different hand and arm signals. At times, this could be frustrating.

When working around vehicles, a driver and ground guide must remain alert to everything surrounding them. Due to the noise level of vehicles and other equipment, they must be able to communicate effectively by using hand and arm signals. It's important everyone uses the same signals so we work more effectively as a team. The best way to accomplish this is to ensure all Soldiers are familiar with the standardized visual signals in Field Manual 21-60.

A driver must always use a ground guide when a vehicle is in a motor pool, bivouac or assembly area, or when backing up. If these areas are tight or congested, two ground guides must be used. This helps ensure the driver doesn't run into another piece of equipment, gear or, more importantly, a

Soldier. This is why it is very important that the ground guide and driver communicate effectively.

To avoid confusion, it's a good practice for the driver and ground guide to go over the hand and arm signals before they begin moving a vehicle. All commands should come from the ground guide, who must remain in the driver's sight at all times. If the driver doesn't understand what the ground guide wants him to do, he must stop immediately, get out of the vehicle and go over the hand and arm signals again. If the driver can't see the ground guide or notices he is in a dangerous position, he must stop immediately and get out of the vehicle to ensure the guide is OK.

The ground guide

must always stay at least 10 yards away from the vehicle or piece of equipment to ensure nothing will be damaged when the vehicle is in motion. He should never run or walk backward or between two vehicles. When using two ground guides, the driver and both guides must go over hand and arm signals and decide who will be the primary guide. The primary ground guide is the one from whom the driver takes his signals. If there is any confusion or one of the guides can't be seen, the driver must stop the vehicle immediately to ensure the safety of the guides.

Ground guides are an essential part of moving vehicles and heavy equipment safely. The proper use of ground guides can reduce injuries and accidents in the military. ■

FYI

Ground guides are a vehicle operator's eyes when maneuvering equipment in areas of limited visibility. Therefore, ground guiding a vehicle is one task where training and coordination between the two is paramount. To help prevent injuries to ground guides and other personnel, follow these simple steps:

- All drivers and other unit personnel will be trained to standard in the correct use of ground guides and ground-guiding operations.
- Always use ground guides when backing a vehicle and in congested areas.
- When traveling in a field environment during periods of limited visibility, ground guides will be used. Drivers will keep ground guides in view at all times.
- Ground guides will be used in bivouac and assembly areas.
- Two ground guides will be used when vision is restricted. Ground guides should never walk backward and never get between two vehicles.
- During periods of limited visibility or darkness,

equip ground guides with two suitable lights (and don't forget extra batteries, if applicable).

- Ground guides will use hand signals. Voice signals can be misunderstood or go unheard.
- Ground guides will also:
 - Keep a proper distance from the vehicle (10 yards).
 - Give signals only to the vehicle driver.
 - Stay out of the path of travel.
 - Stay in the driver's line of sight.
 - Keep to the side and front (or rear) of the vehicle (driver's side is best).
 - Clear themselves, clear the vehicle and, finally, give the command to move the vehicle.

For more information on ground-guiding procedures, see Army Techniques Publication 4-11, Army Motor Transport Operations; Training Circular 21-305-20, Manual for the Wheeled Vehicle Driver; Training Circular 21-306, Tracked Combat Vehicle Driver Training; and Field Manual 21-60, Visual Signals.





THINK BEYOND THE TARGET

DAN BOLAS
Headquarters, U.S. Army Criminal Investigation Command
Quantico, Virginia

It was the day before the start of deer season in upstate New York, and we were walking the farm to check the safety of our tree stands and search for recently used trails and buck rubbings. While out, I spotted a tree stand I'd never seen before that had been set up by a new neighbor at the farm to the north. The stand was about 50 yards into the woods near a roadway entrance to a large field. I made a mental note about the stand and continued my walk. Little did I know that the stand would later reinforce an important hunting safety lesson.

The first two days of our annual deer camp were very successful. We took two bucks (a spike and a four-pointer), two button bucks and a large doe. Since we'd maxed out the buck tags, we would now only be able to fill the deer management permits, or DMPs, with does. That meant we'd have to properly identify our target before firing to ensure we didn't take another buck.

On the third day, while hunting

solo, I was walking the wooded farm trail through a wetland area to the back field. It was a quiet morning with heavy frost but no wind or rain. About 75 feet ahead, near a left bend in the roadway, there was rustling in the brush. Just then, two large deer darted from the brush and broke to the right.

Before I shot, I had to ensure these deer were does, so I hesitated. Time stood still as they leapt at least

7 feet into the air to clear the brush on the right side of the road. At the pinnacle of their jump, I could tell both were clearly does. It would be an easy shot using my Remington semi-automatic 11-87 with sabot slugs, and I knew I could get both to fill my remaining DMP tags. But now I had another problem.

The deer were in a direct line with that new tree stand I'd spotted a few days earlier. I didn't know if the

new neighbor was hunting, so I held back from firing. I didn't want to take a chance shooting upward and toward the tree stand. Two minutes later, the neighbor shot one of the does as it ran underneath him, confirming my fear that he was indeed in the stand.

When I look back on that day, I'm thankful I used my 33 years of military training and considered what was beyond my target. A poor split-second decision could have changed both of our lives forever. While I would have loved to have gotten those two deer, there will be more opportunities. ■

FYI

In an effort to reduce weapons-handling accidents, the U.S. Army Combat Readiness Center developed the Range & Weapons Safety Toolbox, available at <https://safety.army.mil/ON-DUTY/RangeandWeaponsSafetyToolbox.aspx>. Check it out today!

DID YOU KNOW?

In an effort to promote, protect and preserve hunting and shooting sports, the National Shooting Sports Foundation offers the 10 Rules of Safe Gun Handling:

1. Always keep the muzzle pointed in a safe direction.
2. Firearms should be unloaded when not actually in use.
3. Don't rely on your gun's safety.
4. Be sure of your target and what's beyond it.
5. Use correct ammunition.
6. If your gun fails to fire when the trigger is pulled, handle with care!
7. Always wear eye and ear protection when shooting.
8. Be sure the barrel is clear of obstructions before shooting.
9. Don't alter or modify your gun, and have guns serviced regularly.
10. Learn the mechanical and handling characteristics of the firearm you are using.

FOURTH-QUARTER FY20 MISHAP SUMMARIES

ON-DUTY FATAL MISHAPS

AVIATION

■ A Sergeant and Staff Sergeant assigned to Fort Campbell, Kentucky, died in an aircraft mishap 27 August 2020 on San Clemente Island, California, at 1730 local.

GMV

■ A Specialist assigned to Fort Drum, New York, died in a government motor vehicle mishap 3 July 2020 in Farah, Afghanistan, at 1830 local. The Soldier was operating an M-RZR on a forward operating base when the vehicle overturned and pinned him under the roll bar. The Soldier was transported to a medical facility, where he was pronounced dead.

■ A Sergeant deployed in support of Operation Inherent Resolve died in a government motor vehicle mishap 21 July 2020 in Syria at 1716 local. The Soldier was performing gunner duties in an M-ATV when the vehicle left the main supply route and overturned. All four crewmembers were evacuated to the local troop medical clinic, where the gunner later died. The three other Soldiers were treated for non-life-threatening injuries.

■ A Sergeant assigned to Fort Bliss, Texas, died in a government motor vehicle mishap 28 August 2020 on the installation at 1934 local. The Soldier was the truck commander in an M1120 HEMTT

Load Handling System (LHS) that rear-ended another LHS during convoy operations. He was pronounced dead at the scene.

MILITARY PARACHUTING

■ A Private assigned to Fort Bragg, North Carolina, died in a military parachuting mishap 9 September 2020 on Fort Stewart, Georgia, at 1934 local. While conducting a tactical combat equipment night jump, the Soldier experienced a complete malfunction (cigarette roll) of a T-11 main parachute. The Soldier was pronounced dead at the scene.

OFF-DUTY FATAL MISHAPS

PMV-4

■ A Sergeant assigned to Fort Knox, Kentucky, died in a PMV-4 mishap 16 August 2020 in Elizabethtown, Kentucky, at 1930 local. The Soldier was traveling on the Bluegrass Parkway when he attempted to make a U-turn and was struck by an oncoming vehicle.

■ A Chief Warrant Officer 3 assigned to Fort Wainwright, Alaska, died in a PMV-4 mishap 5 September 2020 in Fairbanks, Alaska, at 0330 local. The Soldier was driving his PMV-4 with a civilian passenger when he struck

the curb. The impact launched the vehicle 25 feet before striking the ground and hitting a light standard. The vehicle continued for another 500 feet across the road, over a median, and down an embankment and into a water-filled slough. Another motorist that witnessed the mishap stopped and removed the occupants from the vehicle and began administering CPR on the Soldier. The Soldier was pronounced dead at the scene. The civilian passenger was conscious and sustained non-fatal injuries.

■ A Staff Sergeant assigned to Joint Base Lewis-McChord, Washington, died in a PMV-4 mishap 6 September 2020 in Lakewood, Washington, at 2200 local. The Soldier was driving his vehicle when he struck a light pole. He was transported to the local medical center for surgery and died the following morning.

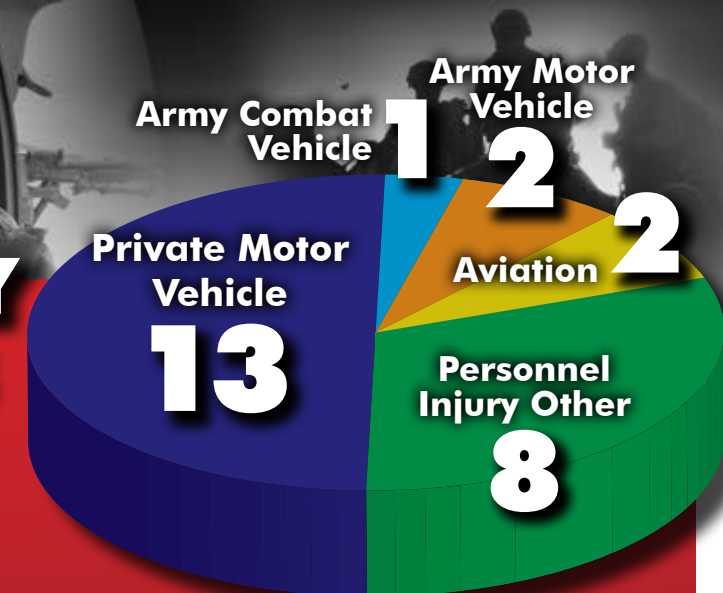
PMV-2

■ A Sergeant assigned to Fort Carson, Colorado, died in a PMV-2 mishap 2 August 2020 in Colorado Springs, Colorado, at 0100 local. The Soldier was riding another person's motorcycle

4TH QUARTER FY20 ARMY MILITARY MISHAP FATALITIES

TOTAL QTD: 26

as of 1 October 2020



Category	FY19 EOY	1QTR FY20	2QTR FY20	3QTR FY20	4QTR FY20	TOTAL YTD
Army Combat Vehicle	5	4	2	0	1	7
Army Motor Vehicle	8	1	1	0	2	4
Army Other Vehicle	2	0	0	0	0	0
Aviation (AVN)	2	5	0	0	2	7
Fire	0	0	0	0	0	0
Personnel Injury Other (PIO)	28	2	2	7	8	19
Private Motor Vehicle (PMV)	65	12	14	14	13	53
Weapons & Explosives (WPNS & EXPL)	7	1	2	1	0	4
Total	117	25	21	22	26	94

on the highway when he lost control. Reportedly, he was speeding and crossed the median before crashing. The Soldier was not wearing a helmet, was not licensed and had not completed the required Motorcycle Safety Foundation training courses.

■ A Sergeant assigned to St. Thomas, U.S. Virgin Islands, died in a PMV-2 mishap 26 August 2020 in St. Thomas. A civilian notified emergency personnel of a body in the bushes next to a motorcycle. The initial investigation suggests the Soldier was riding on the highway when he collided with a guardrail.

■ A Sergeant assigned to Fort Bragg, North Carolina, died in a PMV-2 mishap 4 September 2020 in Fayetteville, North Carolina, at

2330 local. The Soldier was riding with a group of other Soldiers when he attempted to traverse a corner at approximately 70-80 mph, causing his motorcycle to strike an electrical box on the side of the road. He was pronounced dead shortly after arriving at the local hospital.

■ A Staff Sergeant assigned to Fort Carson, Colorado, died in a PMV-2 mishap 17 September 2020 in Divide, Colorado, at 1806 local. The Soldier was operating his motorcycle with another civilian rider on the road when he lost control and struck a wooden utility pole. He was pronounced dead at the scene. According to the civilian rider, the Soldier was wearing all required personal protective equipment. The Soldier also

completed all required Motorcycle Safety Foundation courses.

PEDESTRIAN

■ A Specialist assigned to Fort Hood, Texas, died in a pedestrian mishap 12 August 2020 in Killeen, Texas, at 2150 local. The Soldier was traveling with two other Soldiers in a private motor vehicle on a multi-lane highway when they saw a serious automobile accident. The Soldiers stopped to render assistance. One Soldier attempted to direct traffic on an unlit, curved highway with vehicles traveling at high rates of speed when he was struck by a vehicle. Local emergency management services and fire department personnel responded to the accident and pronounced the Soldier dead at the scene.

FOURTH-QUARTER FY20 MISHAP SUMMARIES

■ A Lieutenant Colonel assigned to Naples, Italy, died in a pedestrian mishap 22 August 2020 in Rome, Italy, at 2040 local. While walking to meet his family for dinner, the Soldier was struck and killed by a civilian vehicle.

■ A Sergeant First Class assigned to Fort Bragg, North Carolina, died in a pedestrian mishap 14 September 2020 at Naval Air Station-Key West, Florida, at 1515 local. While outside the Navy Exchange, the Soldier was struck and killed by a vehicle.

SPORTS, RECREATION AND PHYSICAL TRAINING

■ A Private assigned to Fort Hood, Texas, died in an off-duty water-related mishap 17 July 2020 at Stillhouse Hollow Lake in Bell County, Texas, at 0630 local. On 16 July at 0630, the Soldier did not report for accountability formation. His NCOIC checked with other Soldiers and immediate family members, but they had not heard from him. Boaters discovered the Soldier's body the following morning.

■ A 36-year-old Active Guard and Reserve Sergeant assigned to the Texas Army National Guard died during a training event conducted on 13 August 2020 at Fort Hood, Texas, at 1645 local. The Soldier was attending the 136th Regional

Training Institute 11B Advanced Leader Course and participating in a land navigation course evaluation. The Soldier failed to return to the start point and a search was initiated with cadre and then with range control. The Soldier was found approximately four hours later and transported to the nearest medical facility, where he was pronounced dead. Weather conditions at Fort Hood at the time of the mishap were extremely hot with a high of 100 F and 33% humidity.



■ A Specialist assigned to Joint Base Lewis-McChord, Washington, died in an off-duty water-related mishap 15 August 2020 at a lake in the Rainier National Park in Ashford, Washington, at 1900 local. The Soldier was swimming with a group of fellow Soldiers and friends when he started having difficulties. He was unable to reach the shoreline, went under the water and did not resurface. The National Park Service recovered the Soldier's body a couple of days later.

■ A Private assigned to Fort Hood, Texas, died in a training-related mishap 28 August 2020 on the installation at 0700 local. During the individual release portion of a physical readiness training platoon run, the Soldier collapsed and lost consciousness. He remained unresponsive and had a core

temperature of 102 F as nearby Soldiers assessed his condition. The Soldier was taken to the installation medical center and placed in a medically induced coma. He was later pronounced dead by the attending doctor and removed from life support.





■ A Captain assigned to Joint Base Lewis-McChord, Washington, died in an off-duty hiking mishap 4 September 2020 in Big Heart Lake, Washington, at 1230 local. The Soldier was hiking with a group of other Soldiers when he slipped on loose rocks and tumbled down a slope, striking several other rocks on the way toward a lake below. He did not resurface. The Soldier's body was recovered the following day.

■ A Sergeant assigned to Vicenza, Italy, died in an off-duty hiking mishap 19 September 2020 in Valli del Pasubio, Italy. The Soldier was hiking on the Road of 52 Tunnels trail with another Soldier when he stopped to pose for a picture and fell approximately 300 meters through steep and rocky terrain. Italian medical personnel made multiple attempts in difficult terrain to retrieve the Soldier before finally evacuating him to a local hospital. While en route, the on-board physician pronounced the Soldier dead.

MISHAP CLASSIFICATION CHART

Did the mishap result in death?	YES	Class A Mishap <ol style="list-style-type: none"> Immediately notify the USACRC <ul style="list-style-type: none"> USACRC DSN: 558-2660 / 3410 USACRC COMM: 334-255-2660 / 3410 USACRC SDO: 334-202-1580 Civilian workforce fatality: Notify OSHA within eight hours <ul style="list-style-type: none"> OSHA 24-hour hotline: 800-321-6742 https://www.osha.gov/report.html Provide final report to USACRC; on duty mishaps in 90 days, off duty mishaps in 30 days.
Did the mishap result in permanent total disability?	YES	
Did mishap result in damage equal to or greater than \$2.5 million?	YES	
Did the mishap result in a destroyed aircraft? (excluding UAS Groups 1, 2, or 3)	YES	
Did the mishap result in permanent partial disability?	YES	Class B Mishap <ol style="list-style-type: none"> Immediately notify the USACRC <ul style="list-style-type: none"> USACRC DSN: 558-2660 / 3410 USACRC COMM: 334-255-2660 / 3410 USACRC SDO: 334-202-1580 Civilian workforce in-patient hospitalization, amputation, or eye loss: Notify OSHA within 24 hours <ul style="list-style-type: none"> OSHA 24-hour hotline: 800-321-6742 https://www.osha.gov/report.html Provide final report to USACRC; on duty mishaps in 90 days, off duty mishaps in 30 days
Did the mishap result in hospitalization for inpatient care of three or more individuals? (not including observation or diagnostic care)	YES	
Did the mishap result in damage equal to or greater than \$600,000?	YES	
Did the mishap result in a nonfatal injury or occupational illness resulting in one or more days away from work or training beyond the day or shift on which it occurred?	YES	Class C Mishap <ol style="list-style-type: none"> Aviation Class C: Immediately notify the USACRC <ul style="list-style-type: none"> USACRC DSN: 558-2660 / 3410 USACRC COMM: 334-255-2660 / 3410 USACRC SDO: 334-202-1580 Ground Class C: USACRC notification is not required Provide final report to USACRC; on duty mishaps in 90 days, off duty mishaps in 30 days
Did the mishap result in damage equal to or greater than \$60,000?	YES	
Did the mishap result in restricted work, transfer to another job, treatment beyond first aid, needle stick injury, and cuts from sharps contaminated from another person's blood or other potentially infectious material, medical removal under medical surveillance requirements, work related tuberculosis, or occupational hearing loss?	YES	Class D Mishap <ol style="list-style-type: none"> USACRC notification is not required Provide the final report to the USACRC within 30 days
Did the mishap result in damage equal to or greater than \$25,000?	YES	
Did the mishap result in property damage of \$5,000 or more but less than \$25,000?	YES	Class E Mishap <ol style="list-style-type: none"> USACRC notification is not required Provide the final report to the USACRC within 30 days
Did the mishap result in damage to the aircraft turbine engine because of unavoidable FOD? (does not include APU)	YES	
		Class F Mishap <ol style="list-style-type: none"> USACRC notification is not required Provide the final report to the USACRC within 30 days

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