Accident Investigation:
The other side of risk management!

Without accident investigation, many questions would go unanswered, prevention measures could not be developed, and soldiers would be left to make the same mistakes that took the lives of fellow soldiers.
Accident Investigation: The Other Side of Risk Management

When an accident occurs, determining the circumstances surrounding the accident and finding answers becomes a driving force. With the information obtained from accident investigations, safety programs and prevention measures are developed to protect and safeguard our soldiers and equipment in similar future accidents.

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The worst has happened: This Safety Officer’s unit has just had a Class A aviation accident. Read and find out what you could face someday at an accident site.

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A driver was killed and his vehicle commander injured when their HMMWV ran off a tank trail and overturned. The driver WAS wearing his seatbelt, but he was not wearing it correctly. Excess speed, driver inattention, and driver inexperience were also factors in this accident.

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Gene M. LaCoste
Brigadier General, U.S. Army
Commanding Officer
Obviously, the most asked question following an accident is “What happened?” Was it caused by materiel failure? Were environmental factors responsible for the accident? Or was it human error? But, we also must know “why it happened.” If a weakness in leadership, training, standards, or support functions led to the tragedy, then we must find that weakness.

When an accident occurs, determining the circumstances surrounding the accident and finding answers to these questions becomes a driving force. Following an accident, the very reliability of the equipment—whether it is track, wheeled, or aircraft—is sometimes questioned. If a mechanical malfunction caused the accident, the possibility exists that the same malfunction could strike again. Although mechanical malfunctions do occur, the majority of accidents result from human error. And we need to know why the errors occurred.

Before prevention measures can be developed, we must determine what happened, what caused it to happen, and why specific errors occurred. If cause factors can be determined, then the question becomes “What can we do to prevent this kind of accident from happening again?”

The Army Safety Center has been seeking answers to these questions and developing preventive measures since April 1978, when the Army conducted their first centralized accident investigation (CAI). And CAI has proven so effective that it is still the process we use today to find answers.

The quest for answers
The Safety Center investigates virtually all Class A and selected Class B accidents Armywide. Even as this issue of Countermeasure is being prepared, accident investigators are diligently searching for answers, trying to determine what happened and why. But it will be some time before those answers are known.

Sometimes in spite of all the enormous efforts of the CAI team and the specialists who are called in to assist with the analysis of what little evidence is available, definitive answers cannot be found. In a few cases, suspected scenarios are the only answers that can be determined. All accidents are tragic, but these are especially so because unanswered questions limit our ability to develop prevention measures.

However, in most cases, the accident investigation process yields answers. Based upon those answers, the readiness shortcomings—whether they be individual, leader, training, standards, or support failures (and often combinations of failures)—are identified.

The focus can then be diverted to finding ways to enhance the safety of our soldiers. Sometimes the fix is at unit level, such as improving unit training or enforcing standards. Other times, the fix is at Army level, such as improving school training or changing equipment design or operating procedures.

The important thing is that it gets fixed. That’s why accident investigation is so important—it’s the other side of risk management. With the information obtained from accident investigations, safety programs and prevention measures can be developed to protect and safeguard our resources—whether it is costly equipment or priceless lives—in similar future accidents.
The worst has happened: My unit has had a Class A accident and I’m the Safety Officer. I’ve had the training, I’m responsible, and I’ve got to get moving.

These are just a few of the many thoughts that raced through my mind as I stood there fighting against the numbing effects of shock. I had arrived on the scene of a safety officer’s worst nightmare. I saw the burning, twisted wreckage of one of our Army aircraft where it had crashed into two civilian homes, damaging one severely. In addition to the aircraft crew, somewhere in the midst of this wreckage was an unknown number of civilian casualties. And some 200 feet away, still attached to an unopened parachute, my best friend lay dead.

I was a qualified, school-trained aviation safety officer (ASO) and I was supposed to know what to do; but at that moment, I must have been brain dead. The overwhelming shock had momentarily halted my thinking processes. I needed a 1-2-3 checklist to help me get started without having to think.

Several things came to my rescue. The local fire department was on the scene immediately with the proper equipment to extinguish the fire. As a result of previous safety classes, members of the unit produced engineer tape, ropes, stakes, mauls, and protective equipment they would need to quickly secure the area. With outstanding support from local authorities, the area was quickly cleared of unnecessary people. We then established a site-pass system and traffic control around the area.

By this time, our unit’s pre-accident plan was functioning well. The notification process was ongoing, areas of responsibility had been assigned, and things were beginning to work again. Within 15 minutes of the accident, the first of three TV-network crews arrived on the scene. I assigned escorts and allowed one team at a time to do their report and leave the area before allowing another team in.

The pace slowed from panic to frantic as the centralized accident investigation (CAI) team from the Army Safety Center arrived. Believe me, I was more than glad to hand over control of and responsibility for the situation to the investigation team.

From that point on, I acted as coordinator between the CAI team and the unit. I arranged for local investigation board members to supplement the CAI team. And I also took care of other support, such as personnel to search for missing parts of the wreckage, clear away debris, or to crate exhibits for shipment to maintenance facilities or laboratories for further examination and analysis.

After the CAI team arrived, I simply followed their instructions. But during those first few hours after the accident, I was responsible. And I tell you, in those first few minutes, I questioned my own ability to handle the enormous number of details needed to get the situation under control.

School training is necessary and valuable, but no amount of classroom work can fully prepare an ASO to deal with the multitude of details requiring attention following a major accident. It’s true that you can’t fully comprehend this kind of situation until it actually happens to you. I hope you won’t have to gain that experience first-hand, but as an ASO, you must be prepared or at least as prepared as you possibly can be.

Lessons learned

During the past 7 years since I stood there that hot July afternoon looking at the crash site, I’ve gained a lot more experience in dealing with aircraft accidents as both an ASO and an accident investigator. The following lessons that I’ve learned might prove helpful to others:

- Identify, equip, and train an emergency-response team that is able to react on a
moment’s notice. These are the people who will go with you to the accident site, and these are the people who should be responsible for having the necessary supplies and equipment to secure the site and preserve the evidence.

■ Ensure that your unit’s pre-accident plan is as comprehensive as it can be. Ask others for their ideas about what should be included in the plan. Then select an individual and an alternate to implement the plan. You will be far too busy at the accident site to do this yourself.

■ Plan ahead to ensure that a reliable communications system to your home station or facility is available. Make sure telephones are secure to prevent leaks of premature and inappropriate information.

■ Ensure that local authorities are aware of the special requirements that arise from a military accident that occurs off the military base. A pamphlet on What to Do and How to Report Military Aircraft Accidents is an excellent guide you can provide to civil authorities, firefighters, and emergency medical personnel. Copies of the pamphlet can be obtained by writing to Commander, U.S. Army Safety Center, ATTN: CSSC-SM (Ms. Sharrel Forehand), Fort Rucker, AL 36362, or by calling DSN 558-2062 (334-255-2062), or by emailing forehans@safetycenter.army.mil.

■ When an accident occurs off a military base and civilian injuries and property damage occur (such as what happened in my first accident), additional problems and questions for which you will have no answers must be addressed. Therefore, it is vital that you have legal and logistics personnel promptly address civilian questions, take care of medical expenses, and provide temporary lodging for those who may be displaced from their homes.

■ Officials from the Public Affairs Office (PAO) are the only ones who should release information to the news media. However, there will be times when PAO personnel are not readily available, and the media will be all over you. Remember, you cannot legally keep them from an accident site once the firefighting and crash rescue efforts are completed. Work with them. But you must also remember that you can only give generic statements, such as “The accident is under investigation. No details are available at this time. The PAO will issue a statement as soon as details become available.”

■ Consider issuing small index cards to all of your aircrewmembers and have them list who should be notified in case of their death. Also have them include whom they would like to make the notification and a last, short message if desired. This will serve two purposes. First, it will serve as a solemn reminder to all aircrewmembers of the inherent danger lurking in the environment in which they operate daily and possibly make them more safety conscious. Secondly, providing the requested information will ensure that a person of their choice—a close friend, their company commander, their chaplain—will be the one to tell their family about the tragedy should that dreadful notification process become necessary.

It’s not an easy job to put an accident plan in motion. But as the unit ASO, it’s your responsibility to see that it is done effectively and efficiently. You’re in charge until the accident investigation team arrives. The first thing you have to do is fight the shock and panic, and quickly get your thinking processes back in action. Remember the lessons you’ve been taught in formal schools and those you’ve learned from others who have had similar tasks to do.

As unpleasant and demanding as this part of your job will be, the actions you take in handling the situation until the CAI team arrives will make it that much easier for the investigators to come in and begin their analysis. The sooner questions can be answered, the sooner it can be determined what can be done to prevent a similar accident from happening. And that equates to saving lives and equipment.

Accept the challenge to the best of your ability; prepare yourself now for what you could face someday at an accident site—it’s your responsibility.

—Adapted from Flightfax
Accident Reporting: Key to Army Safety

Accidents happen according to the old, time-honored saying. But, when they happen in the Army, an investigation of some sort is sure to follow.

All accidents are reportable at the local level—that means any unplanned event that caused property damage, injury, death, or occupational illness. Even if no one was hurt, the accident must be reported if Army equipment is damaged in any way.

The investigation includes a procedure almost everyone in the Army is familiar with—filling out DA Form 285, the U.S. Army Accident Report. The DA Form 285 is the catalyst for the recording of Army ground accident investigations. The form summarizes the basics of the accident—the who, what, when, where, and how the accident happened. It references resulting personal injuries as well as property damage. It also addresses the causes of the accident and corrective action that should be taken.

Command responsibility
The commander or supervisor over the operation, equipment, or persons involved is responsible for the notification of an accident. The local safety officer will normally determine the classification and board requirements and initiate action to have the accident investigated. He then forwards the report to the Safety Center by mail, fax, phone, or email. (See box on next page for notification and reporting requirements and suspenses.)

The Safety Center receives and processes a wide array of accident information daily. The Army uses this data—and that means all the way up to the Chief of Staff and Secretary of the Army—to generate countermeasure programs and reduce accidents and their resulting high cost. The accident data serves as the building block for Army safety. However, the building block is only as good as the information provided. If you don’t report an accident, we don’t know there’s a problem. And if you don’t complete the paperwork correctly, it takes us longer to pinpoint the problem.

Analyzing the information
So even though accident reports are generated locally, they have Armywide significance. Thousands of DA Forms 285 come through the Safety Center each year, and when they get here, they aren’t just filed away. They are reviewed, edited, and processed for accident prevention purposes.

Safety technicians process the information into a database. Quality-control experts evaluate the information for accuracy and completeness. If a discrepancy is found, the Safety Center contacts the submitter for clarification or correction.

Statisticians then look at the information for trends. This information can provide leaders with a quick “snapshot” of where their units are heading in the accident arena, or where and when most accidents happen.

After the data has been categorized, it is distributed to safety specialists who monitor the types of accidents that occur within their field or specialty. These specialists track accident data by branch and deal directly with field units in an effort to identify accident-causing hazards. Field units may also call safety specialists directly to discuss problems.

Getting the word out
As hazards are identified, safety personnel determine the urgency for getting the information to the field. The most urgent messages go out within 24 hours on a Safety Alert Notification and publicized on the Safety Center web site: http://safety.army.mil. Besides message traffic, the Safety Center has two publications that get the word out to the field: Countermeasure, the ground safety publication and Flightfax, the aviation safety publication. Publicizing hazards in this way gives soldiers an idea of safety problems that are actually occurring in the field.

Reporting accidents improves Army safety. In addition, accident reports will provide...
installation and Army leaders with a more complete picture of unit readiness, training deficiencies, and health hazards in the workplace. Also, equipment deficiencies may be identified at an early stage, passed along to the manufacturers, and corrected before soldiers get hurt or killed and equipment damaged.

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### Ground Accidents Notification and Reporting Requirements & Suspenses

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<tr>
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<th>Combat</th>
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<td>Telephonic Notification Worksheet</td>
<td>AGAR</td>
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<td>On-Duty</td>
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<tr>
<td>A</td>
<td>Immediately¹</td>
<td>Not required</td>
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<tr>
<td>B</td>
<td>Immediately¹</td>
<td>Not required</td>
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<tr>
<td>C</td>
<td>Not required</td>
<td>Within 30 days</td>
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<tr>
<td>D</td>
<td>Not required</td>
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| Off-Duty       |           |       |       |           |       |
| A              | Immediately¹ | Within 30 days | Not required | Immediately¹ | As time permits |
| B              | Immediately¹ | Within 30 days | Not required | Immediately¹ | As time permits |
| C              | Not required | Within 30 days | Not required | Not required | As time permits |
| D              | Not required | Within 30 days | Not required | Not required | As time permits |

**Notes:**

1. USASC must be notified IMMEDIATELY by phone at DSN 558-2660/2539/3410 (334-255-2660/2539/3410) or notify USASC Safety Rep forward (during combat).

2. ONLY when the senior tactical commander determines that the situation, conditions, and/or time does not permit normal peacetime investigating and reporting.

3. Army civilian injury only accidents should be reported on appropriate Department of Labor forms IAW this regulation.

—Excerpt from AR 385-40
Securing the Accident Scene

Accident: An unplanned event that causes personal injury, illness, or property damage. When an accident happens, it creates confusion in the unit; a mission must stop; a cease-fire must be called; a unit must re-organize.

These activities, generated by the unfortunate event, create an atmosphere where soldiers and leaders lose focus momentarily and fail to follow pre-accident plans or other local Standing Operating Procedures (SOP). Immediately after the accident, crucial evidence of the accident scene must be preserved for further analysis. Therefore, it is imperative that proper procedures are followed to ensure no tampering of evidence occurs.

Generally, the classification of an accident will determine whether a Centralized Accident Investigation (CAI) from the Army Safety Center will deploy to investigate an accident. However, in many cases, a local Installation Accident Investigation (IAI) will be responsible for the conduct of an investigation. Regardless of who investigates an accident, there are certain procedures that must be followed to ensure the investigating team has access to the most accurate information and evidence of an accident scene.

Installation regulations, local SOPs, and pre-accident plans should provide specific details to accomplish the reporting of accidents and subsequently the determination of who will investigate the accident. As stated before, regardless of who investigates, the unit safety officer and unit members must know how to preserve and secure the accident scene and provide general guidance to local authorities.

Use AR 385-40, paragraph 4-5, as a guide on accident scene preservation and observe the following procedures:

- When the situation permits preservation of the accident scene, only those actions necessary for rescue or recovery of victims and the initial on-site investigation by MP/CID will be allowed. If the situation does not permit preservation of the accident scene, MP/CID will remove all items of evidence needed for the investigation.
  - The unit safety officer will coordinate with the installation safety office in conjunction with local authorities to secure the physical evidence collected. Additionally, the custodian will ensure the evidence is secured and readily available to the investigating board. The board will release all evidence to the unit once it is analyzed and no longer needed for the investigation. Until that time, the accident scene and all equipment associated with it are under the control of the investigating board.
  - When possible, photographs of the location of victims should be made before the victims are moved. Additional photographs of the accident site and a preliminary sketch should be done making sure the evidence is not moved or removed. Remember, the investigating board will conduct a thorough analysis of the site. Do avoid contaminating any wreckage, damage, and ground markings while doing your preliminary documentation. Once completed, secure the area and await the investigating board’s arrival.
  - Access will be restricted to those commanders and personnel directly involved in investigating the accident. Do not allow anyone not in an investigating role to disturb
During training exercises, units attempt to simulate as close as possible the environment they will encounter in the battlefield. Strong emphasis is placed on ensuring that conditions simulate those during combat. The tough and realistic requirements of training exercises ensure the Army is prepared to face any conflict with ready-to-fight soldiers and equipment. It is this level of preparedness that will ensure success in the battlefield.

As a result, during training preparation and execution, the soldier is highly focused on mission accomplishment. Many elements are involved in the planning stages that help ensure the executable part of the mission is performed effectively. A dilemma arises when mission accomplishment is hampered by an event that prevents the safe execution of the mission. What is the individual to do? Follow the plan and continue to train as you fight? Stop to correct the deficiency? Should the leader/soldier make the unforeseen event the current mission? Has safety become the mission? These are some questions soldiers face during training when dealing with an unsafe event. The approach we use to resolve the event will in effect determine if the mission is or isn’t accomplished successfully.

Safe mission accomplishment during training involves effective risk management. As part of the planning process, it should be addressed in the operations plan and order development. During the execution phase, risk management must be promulgated in safety briefings, as part of train-up exercises, and as
the training evolves.

Safety is an intricate part of mission accomplishment. Without a safe attitude to training, the unit may face a situation where an accident happens, a vehicle is destroyed, or other equipment key to mission success is no longer available to accomplish the mission. Without that key element—individual or equipment—the mission will not be accomplished successfully.

When a safety issue arises that would compromise the safe conduct of a mission, it inherently becomes the new mission. Addressing the unsafe act is now the mission. As part of the planning process, the leader must program training time to address mission safety concerns and train soldiers to integrate the risk management process into their individual missions. Leaders should use thoughtful and innovative approaches to train soldiers on the five steps of the risk management model.

A recent accident investigation demonstrates the importance of understanding this concept. During a training exercise, a vehicle driver reported to his vehicle commander (VC) that a warning light had come on in the driver’s panel indicating a problem with the engine temperature. The VC acknowledged the information and elected to continue the mission. As the vehicle proceeded on the mission, another warning light came on indicating an even more serious situation. Still, the VC elected to continue the mission. Sometime afterward, the vehicle stopped and while scanning the area, the VC noticed that the vehicle engine was on fire. As a result of these actions, the engine was destroyed, the crew of the vehicle had to exchange the vehicle, time was lost, the unit did not meet their objective as intended, and the focus of the training event changed.

After interviewing the VC as to why he did not stop when the warning light came on, he responded that this condition occasionally occurred and the unit was to train as if in combat...and if in combat, he would have done the same thing.

Not recognizing the safety issues involved in his actions, the VC placed the crew of the vehicle at risk of serious injury and also the vehicle itself. Without the vehicle, the unit had to continue the mission knowing the possibility of success was now highly compromised. The rationale of the train-as-you-fight guidance had been lost in the fact that when a safety issue comes into play, the resolution of that issue becomes the mission.

Leaders must integrate risk management into all phases of training and seek innovative approaches such as “what if scenarios” to challenge unit members to react to unforeseen circumstances. The previous example is just one of many situations that soldiers face when engaged in demanding training environments. Regardless of the training situation, leaders and soldiers must also understand that training exercises are just that—training. Under no circumstances should safety be overlooked to achieve a training objective. It is the safety-oriented process that will assist the unit in achieving the mission successfully.

Another accident demonstrates the importance of maintaining focus on the objective safely. The unit was engaged in a challenging river crossing operation when the decision was made to float downstream. Even though current readings had not taken place, a safety boat was not on standby, and an exercise participant was not wearing a flotation device, the squad decided to proceed with the mission anyway.

Unfortunately, the river’s current was strong enough that it pulled all the team’s elements under an anchored barge. Some of the team members survived, but two of them did not. Again, the mission was part of a training exercise.

Now we can look back and think of all actions we could have taken to prevent this unfortunate accident; however, now it is too late for the unfortunate participants. Again, leaders must re-emphasize that when encountering an unsafe situation, the mission must now become safety.

Refer to FM 100-14, Risk Management, for an in-depth explanation of the risk management process. Remember that nothing beats a level head and common sense. If a situation creates doubt as to its degree of safety, stop...think...and apply the risk management process. Ask yourself the ultimate question, “Is this safe?” If not, then make safety the mission.

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We Need Your Lessons Learned

Safety Professionals, we need your help! As you identify lessons learned, please use one of the media avenues described below to get the information out to the field. It may be the difference between a life saved and one lost. Your lessons learned could keep people from making mistakes that someone else has already made. Your input is vital to an effective accident prevention program.

Tools available to help you get the word out

■ RMIS. The Risk Management Information System is a powerful risk management and research tool aimed at helping meet DoD and Army goals for accident prevention. It is a worldwide Internet-based risk management tool designed to help leaders and their staffs make informed decisions to do tough missions safely. The web site for RMIS is http://rmis.army.mil. Please send your lessons learned to Dwight Lindsey, RMIS Administrator, lindseyd@safetycenter.army.mil.

■ ASO/CP12 LISTSERVERs. This is a quick way to get information out to the field. Send email to Dr. Brenda Miller [millerb@safetycenter.army.mil], CW3(P) Darrel Smith [smithd@safetycenter.army.mil], or Mr. Lee Helbig [helbigc@safetycenter.army.mil] with the information you want disseminated. If you are a subscriber to these listservers, you can post the information directly.

■ Countermeasure. This publication is focused on “Ground” accident prevention—to include Army motor vehicles (track & wheeled), POVs, munitions, fire protection, seasonal articles, recreation and athletics (all Army operations other than aviation). Countermeasure is published monthly with a circulation of 35,000 copies and is also posted to the Army Safety Center web site. Distributed down to unit level, its primary audience includes first-line leaders of soldiers and its secondary audience is commanders. Send your lessons learned or ground-related articles to Ms. Paula Allman, Managing Editor, allmanp@safetycenter.army.mil or countermeasure@safetycenter.army.mil.

■ Flightfax. This publication is designed for “Aviation” accident prevention. Flightfax is published monthly with a circulation of 18,000 copies and is also posted to the Safety Center web site. Distributed down to unit level, its primary audience is aviation safety officers and operational pilots, and its secondary audience is aviation commanders and maintenance personnel. Send your lessons learned or articles to Ms. Judy Wilson, Managing Editor, [wilsonj@safetycenter.army.mil] or flightfax@safetycenter.army.mil.

■ Center for Army Lessons Learned (CALL). CALL provides a forum for lessons learned. The CALL publications are distributed in both paper and electronic copy. The intent is to share knowledge, support discussion, and impart lessons and information in an expeditious manner. The CALL publication is not a doctrinal product and is not intended to serve as a program to guide the conduct of operations and training. The information and lessons are not staffed, but are the perceptions of those individuals involved in military exercises, activities and real-world events. If you have articles and lessons of interest to the Total Force, please contact the Managing Editor, Dr. Lon R. Seglie, segliel@leavenworth.army.mil. You can visit the CALL website at http://call.army.mil. If possible, articles should be submitted in either Word Perfect or WORD format. Graphs, slides and clip art should be submitted separately from the document in either ppt, pcx or wpg format.

POC: Dr. Brenda Miller, USASC Chief, Training and Education Division, DSN 558-3553 (334-255-3553)
A unit was conducting tactical operations as part of a planned training exercise. The plan called for each company to conduct continuous tactical operations against an opposing force (OPFOR). These operations were to last for three days. The accident occurred on the final day of operations.

By 1030 that morning, the soldiers from the unit completed an after-action review (AAR) and were conducting a police call of the training area. One of the vehicle commanders (VCs) directed his driver, who had only 2 months of driving experience, to take a high-mobility multipurpose wheeled vehicle (HMMWV) and return to the battle position to check for any equipment and pick up trash. The route from the battle position was along a gravel-covered tank trail marked by numerous curves and hills.

At approximately 1130, the vehicle entered an extremely sharp right curve at an undetermined rate of speed. This curve was at the end of a gradual downward slope. As the vehicle maneuvered through this portion of the tank trail, the VC directed the driver to slow the vehicle down because he felt that it was moving too fast for the conditions.

What went wrong?

As the vehicle entered the curve, the VC noticed the driver bending forward and reaching down to the floorboard with his right hand. At this time, the VC yelled out to the driver that he was about to run off the road. Immediately following this, the vehicle ran off the left side of the tank trail. The tank trail dropped off approximately 15 degrees at this point. As the vehicle’s right rear tire left the tank trail, the vehicle began to slide down the embankment. As this happened, the driver turned the wheels into the curve causing the rear of the vehicle to continue to slide to the left. The VC braced himself in the right front seat of the vehicle. The vehicle then abruptly overturned. The driver was thrown out and pinned beneath the vehicle. The driver was wearing his seatbelt, however he had not removed the slack from the retractor to tighten it properly. The VC sustained minor injuries.

Lessons learned

When the VC noticed the driver’s inattention to the road, he should have immediately made an on-the-spot correction. Army Regulation 600-55 states that part of the vehicle commander’s responsibilities are to ensure the driver complies with road signs and posted speed limits, and adjusts as dictated by weather, traffic, and road conditions. Further, he had a responsibility to ensure the proper wear of the driver’s seatbelt restraint device.

Several months prior to the accident, the unit commander decided to remove the front doors from the HMMWV. While the removal of the doors did not cause the accident, it did add to the severity of the injuries sustained in the accident. The driver was thrown out of the vehicle and ultimately pinned beneath the vehicle.

Alterations to a vehicle’s design often create new hazards, which must be addressed during the risk management process.
Commanders must examine the benefits derived by design changes versus additional hazards caused by these changes.

Finally, what makes this accident especially tragic is that the driver of the vehicle was wearing his seatbelt during the course of the accident. Unfortunately, he was not wearing it correctly. This vehicle utilized a two-point seatbelt restraint system common to older versions of the HMMWV. While the seatbelt is retractable, it does not contain an inertial stopping device that most civilian vehicles have as standard equipment. This means that the user must remove all slack from the retractor and tighten the seatbelt snug across the body. Failure to do so prevents the seatbelt from performing as designed and endangers the user. Instructions on proper wear of the seatbelt and warnings about the hazards associated with this seatbelt are posted in TM 9-2320-280-10.

Summary
   Historically, Army motor vehicle accidents occur because of three factors:
   excess speed for the conditions, driver inattention, and driver inexperience. In this case, these factors also applied. Commanders must be vigilant in their efforts to ensure proper driver selection and training procedures are followed. They must also ensure that VCs are trained on their duties. Finally, commanders must rigidly enforce standards for the safe operation of Army equipment. Our soldier’s lives depend on it!

POC: Ground Systems and Accident Investigation Division, DSN 558-9525 (334-255-9525)
In an M1A1 tank crew conducting annual qualification gunnery had just finished Table VIIIb (night) and was preparing for a re-run of Table VIIIa (day). The crew needed one more qualified engagement in order to receive enough points for a “Q2” rating.

They started their day conducting personal hygiene and eating breakfast. Normally, they would conduct preventive maintenance checks and services (PMCS) on the tank; but the day prior, the crew had “walked the track” and replaced six grease fittings during their inspection. They felt comfortable that the vehicle was in good working order. The only maintenance that was conducted consisted of replacing one of the driver’s periscopes because of the glare created by a scratched lens.

Around 0600, they received their range safety briefing and moved to the boresight line to re-verify their boresight. When the crew completed the weapons boresighting, they repositioned the tank to an assembly area and waited for their turn to move down range.

About five minutes later, the TC received the mission to move down range and occupy Battle Position one (BP1). The driver made a left turn onto the service lane and accelerated toward Lane Delta. The turn pad at the intersection of the service road and Lane Delta was spotted with gravel. The driver had to make a 90-degree right hand turn onto Lane Delta and then proceed to BP1. As the driver maneuvered the tank into the turn, the left track skidded on the loose gravel. The tank continued to slide off the turn pad and down a steep shoulder. The combination of the lateral momentum and the angle of the slope at the bottom of the shoulder catapulted the vehicle into a violent roll. This 70-ton vehicle turned completely over and came to rest in an upright position, fatally injuring the TC.

What went wrong?

Both the TC and driver were overconfident. Although the driver had maneuvered through this turn several times before, the rate of speed was too great for the conditions. There was no time requirement or extreme urgency to reach BP1. The Range Safety NCO had specifically briefed the 20 mph speed limitation during his safety briefing; however the TC didn’t listen. The TC was quite experienced and should have realized the danger; however, he failed to communicate with the driver to slow the vehicle down—and the result was fatal.

Lessons learned

Once again, human error became a contributing factor in the loss of a soldier. Leaders must ensure that they and their crewmembers are positioned correctly in their vehicles and are taking advantage of all safety features. The nametag defilade position increases your ability to lower yourself safely inside the vehicle and prevents excessive exposure of body parts to the elements outside. Seatbelts (if provided), guards, clothing, and securing equipment enhance your survivability if your vehicle should happen to invert or strike a solid object.

Operators need to be
trained on and constantly reminded of the operating ability of their tanks on slopes, curves and different soil conditions. TM 9-2350-264-10-1, Operator’s Manual, page 1-16 (Performance Data), limits the maximum side slope as 40 percent or 22 degrees. While the shoulders of this road were within the identified limits for forward movement, there was little room for error.

Drivers need to know and maintain correct speeds and slow down on hard surfaces when attempting a turn. Although the turn pad was not a direct cause, it did play a major part in the accident. TM 9-2350-264-10-1, dated September 1990, page 2-154, states, “Avoid speeds greater than 32 km/h (20 mph) when making sharp turns. Tank skidding on soft ground, sand, or gravel can cause the tank to throw track.” The scattered gravel on the turn pad acted like a handful of ball bearings, and the tank lost traction, leaving the driver unable to control the vehicle. The tank track in this case stayed intact; however, at that speed, it did skid. A solid driver’s training program and active supervisor involvement will ensure a smooth running, incident-free mission.

**Summary**

Leaders are responsible for the actions of their crewmembers. The senior person is in charge and must take charge. Tasked with the responsibility of safe conduct and operation, the TC did not take control of the situation. The TC allowed the driver to accelerate beyond a safe handling speed due to his overconfidence in the driver’s ability. The result was permanent and preventable. The cost? A young soldier’s life.

POC: Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)

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**Mission: Conduct Tank Gunnery (Table VIII)**

**Hazards**
- Inexperienced driver
- Excessive speed
- Debris/gravel on turn pad

**Controls**
- Ensure Senior Occupant performs responsibilities
- Enforce speed limits
- Conduct detailed safety briefings

**Results**
- 1 fatality
- 2 Injuries
MESSAGE UPDATE
ZNR UUUUU
R 171919Z NOV 00
FM CDRUSASC FT RUCKER AL//CSSC-Z//

SUBJECT: Army Accident Reporting and Records


B. DODI 6055.7, Accident Investigation, Reporting, and Record Keeping, 3 October 2000.

1. Reference A provides Army policy and procedures on Army accident classification, notification, investigation, reporting, record keeping, and implements related DOD requirements.

2. Reference B recently revised DOD accident investigation, reporting, and record keeping requirements. A revision of AR 385-40 will be coordinated and published IAW Army publications procedures. Until publication of the revised AR 385-40, requirements in Reference A remain applicable Armywide.

3. The following clarifies the AR 385-40 requirement that all training-related deaths be investigated.

   a. Training-related deaths are deaths associated with a non-combat military exercise or training activity that is designed to develop a military member’s physical ability or to maintain or increase individual/collective combat and/or peacekeeping skills, and occurs during or within one hour after such training activity.

   b. Training-related deaths occurring during or within one hour after any training activity will immediately be reported to USASC Operations, DSN 558-2660/3410 (334-255-2660/3410). {Ref. Para 3-2}

   c. If the training-related death is not selected by the Director of Army Safety for central accident investigation, a MACOM or installation-level investigation will be conducted to determine cause of accident and identify controls that if applied would reduce the risk of further accidents or deaths. {Ref. Para 1-4b}

   d. Training-related deaths determined to result from natural causes will not be classified by USASC as Class A Army accidents. Training-related deaths determined to be Army accidents will be classified by USASC as Class A Army accidents. {Ref. Para 2-7i}

4. Point of contact is Fran Weaver, USASC Safety Occupational Health Manager, Policy and Programs Division, DSN 558-1141 (334-255-1141), weaverf@safetycenter.army.mil.
Don’t Be Left in the Dark
Less is More with NVGs
NVD Safety Alert
An M551A1 in the Wrong Hands
What You Don’t Know Could Hurt You

SPECIAL NIGHT-VISION ISSUE
About this issue...

The Army uses two types of night-vision devices: thermal/forward-looking infrared (FLIR) detectors and image intensifiers.

**Thermals/FLIR** work by sensing the temperature difference between an object and its environment. Thermal/FLIR-detector systems are installed on certain combat vehicles and helicopters.

**Image-intensifier** systems must have some light to function; they amplify available light 2,000 to 5,000 times. These devices include—

- Night-vision goggles (AN/PVS-7) mount on a helmet or head.
- Driver’s night sight (AN/VVS-2) provides passive, closed-hatch night vision in combat vehicles.
- Night sight (AN/PVS-4) is used on individual and crew-served weapons.

In this issue, we’re concentrating on image-intensifier devices. We’ll discuss thermal/FLIR detectors in a future issue of *Countermeasure*.
Don’t Be Left in the Dark

As night operations become more and more important in Army warfighting doctrine, it becomes more and more important that soldiers know how to best use their night-vision equipment. Unless soldiers understand what night vision devices (NVDs) can do—and just as important, what they can’t do—night fighters will be left in the dark.

The Army Safety Center recently analyzed 3 years’ worth of night operations ground accidents. Initial findings show that both soldiers and leaders need to know more about the unique hazards associated with night operations in general and with NVDs in particular. Night fighters cannot be expected to identify and control hazards that they do not know exist. In other words, they don’t know what they don’t know.

This special issue of Countermeasure is a primer on the hazards identified through analysis of real accidents. It’s not intended to be a comprehensive review of NVD operations. It’s just a good way to share some of the lessons we’ve learned the hard way: through accidents that hurt—and, in some cases, even killed—soldiers.

Less Is More With NVGs

Light determines what NVG users see—or don’t see. Army NVGs use natural and manmade light. Let’s look at light and the night.

Light levels

Light levels are critical to how well NVGs do their job. Here’s why. NVGs adjust to the amount of light available; if the light level changes quickly—from a flash of lightning or the sudden appearance of an oncoming vehicle’s lights—the NVG adjusts instantly. It no longer has to work as hard to intensify available light because there’s so much of it. Users often describe the situation as the goggles “shutting down.” However, that’s not what usually happens. What does happen is that the bright light drives the goggles’ gain down to the point that everything else in the field-of-view all but disappears. In addition, if the bright light exposure continues for 70 seconds (+30 seconds), the PVS-7s will turn off.

The “temporary blindness” resulting from either of these conditions could be disastrous in many situations. That’s why it’s important that users know to—

■ Keep bright lights out of the NVG’s field-of-view.
■ Cycle the switch from ON to OFF and back to ON if the NVG turns off after exposure to bright light.

Natural illumination

The moon provides the best night
The moon appears to change size, shape, and angle throughout the lunar cycle. It may appear smaller, larger, full, half-full, crescent shaped, higher, or lower in different phases, but one thing doesn’t change during the cycle: the moon always rises in the east and sets in the west at the rate of 15 degrees per hour. Furthermore, the lower the moon’s angle, the less useful illumination it provides. It’s important that leaders keep this in mind when planning night operations.

Movement toward a highly illuminated moon located low on the horizon can be extremely hazardous when NVGs are in use. Not only can the brightness degrade the NVG image, deep shadows cast by the moon may hide hazards that even NVGs can’t see.

Stars provide much of the illumination NVGs see on moonless or low illumination nights. The newer NVGs perform best under these starlit nights. In addition, solar illumination is present for the very short time that the sun is within 12 degrees of the horizon after sunset and before sunrise. Too much solar illumination, however, can also degrade NVG resolution.

Other natural sources such as northern lights and zodiacal lights are also sometimes present, but they’re not reliable illumination sources.

**Manmade sources of illumination**

Illumination from cities, fires, vehicles, and flares can have enormous effects on NVG performance.

City lights can be helpful when the NVG user is outside the city and the sky is overcast. Under these conditions, the clouds reflect the city lights back down and greatly increase illumination. However, it’s extremely important that the user not fixate on the lights; doing so will decrease overall resolution.

Flares can be very helpful in increasing illumination as long as they stay outside the NVG’s field-of-view. Allowing them to drift into view will degrade NVG resolution. Oncoming headlights pose a huge hazard to NVG users. They can instantly degrade resolution to the point that users can no longer see obstacles, equipment, or people. Users must keep headlights and other bright lights out of the NVG’s field-of-view. Drivers using NVGs must also slow down until the oncoming vehicle has passed.

Vehicle instrument lights can also degrade image resolution. Many Army vehicles still use red lights on speedometers and engine instruments. Users need to know that NVGs are very sensitive to red light and can be affected even by reflections off the windshield and glass gauges. Therefore, crewmembers should avoid using red-lens flashlights and turn off console instrument lights if possible.

**WARNING:** Leaders should restrict fully lighted vehicles from operating in NVD operations areas.

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**An M551A1 in the Wrong Hands**

It’s easy for someone to tell you what you should have done differently to prevent an accident after the occurrence. A recent accident illustrates how risk-taking behavior can lead to a tragic chain of events. The result was destroyed equipment, crew injuries, and death.

This was 2LT Jones’ first opportunity to test his skills at a major training center, and he was eagerly looking forward to it. He had received all the required schooling to become a leader and he knew the standards. However, for some reason, he decided to do it his way.

The mission of the motorized rifle platoon was to occupy battle positions (BPs) utilizing the M551A1 Sheridan. On order, 2LT Jones’ platoon was to move from hide positions and occupy prepared fighting positions as part of the operation. Illumination data was briefed as part of that order, and safety considerations...
were addressed. His vehicle had a compass, map, and an AN/PSN-11(v)1, Precision Lightweight Global Positioning System (GPS) Receiver.

On the night of the accident, there was zero illumination. The gunner had been assigned to the training area for 4 years and had gained experience on many rotations. 2LT Jones, the tank commander (TC), was using PVS-7 night vision goggles (NVGs), and his driver was using the VVS-2 driver’s night sight. Unfortunately, no one knew the route to the platoon’s BP, so they roamed around for hours trying to find it.

Consequently, the driver unintentionally drove into their fighting position, resulting in the tank rolling over. Tragically, 2LT Jones was standing in the hatch above nametag defilade and was fatally injured.

Over the years, many people have speculated on what might be the primary contributing factor for tactical vehicle rollovers during night operations. Is it the vehicle? Is there a design flaw? Blaming the equipment is always easy, but in most cases, it is not the cause. We find that the crew’s actions were considered the primary cause 80 percent of the time.

As a leader, the first thing to ask yourself is “Are you and your soldiers following the guidelines (technical manuals and standing operating procedures [SOPs]) when operating tactical vehicles?” If 2LT Jones had read the operation order and unit SOP, he would have known to tell his gunner to dismount and ground guide the vehicle when traveling cross-country during zero illumination.

Secondly, “Should you allow your unit to move across unreconed terrain using VVS-2s and PVS-7s?” Not without applying some controls—ground guides, supplemental lights, mixing PVS-7s and VVS-2s—and ensuring good communication between users. In addition, commanders should plan for the oldest, least effective night vision devices (NVDs) when planning the mission.

What went wrong and why?
- 2LT Jones was specifically told to wait until first light to continue efforts to locate the designated BP; however, he made an improper decision to continue searching after darkness.
- He was given an 8-digit coordinate of the position in the fragmentation order (FRAGO); however, by having exaggerated confidence in his crew’s ability to locate the BP using NVDs, he deviated from the order to halt his movement until daylight.
- He did not utilize available equipment such as the lensatic compass, map, or his GPS Receiver, which were all serviceable.
- He should have been in the nametag defilade position.

What would you have done? Would you have used a ground guide or done the same as 2LT Jones? Sometimes we perceive that mission accomplishment is paramount—no matter what the risk—and that mistakes or failures are not tolerated and will reflect adversely on evaluation reports.

Risk management is the tool to change this perception. It is being taught in both officer and enlisted leadership development courses throughout the Army. Commanders and soldiers alike are gaining an understanding and appreciation of the risk-management process and know that if the risks outweigh the benefits, then the mission should be a no-go.

Editor’s note: 2LT Jones is a real soldier, who was involved in a real accident; we have only changed his name.

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Where Should I Sleep?

“Sleep where I can find you.” That’s what the sergeant told his private before he bedded down. “Yes, Staff Sergeant,” replied the PFC. Unfortunately, those were the last words the sergeant and private would exchange. Here’s why:

During a combined-arms exercise, the bravo section of the tactical operations center (TOC) of an infantry battalion was riding in an armored assault vehicle command (AAVC). It was 2100, and they had been in the attack all day; they were exhausted. Higher authority ordered them to stop and rest. They halted and didn’t waste time getting settled; they knew they would be back in the attack before dawn.

With the next day’s plan set, the group began establishing their bivouac. They positioned their AAVC on the side of a hill to have better communications with alpha section of the TOC and regimental TOC. The senior NCOIC of the group, who was a staff sergeant, set up the security plan for their position and took the first watch. He told the PFC radioman that he would stand post as a sentinel at 2200. The PFC retrieved his gear and bedded down five meters behind the AAVC.

At 2200, the staff sergeant went to post the PFC but couldn’t find him. Instead, he posted another soldier. Three hours later, at 0100, the fuel truck arrived at the group’s position. The AAVC commander, who was a sergeant, got the call over the radio to meet the fuel truck on the road to refuel. With another sergeant, the AAVC commander carefully searched the area around the AAVC with flashlights. After they determined the area was clear, they gave an okay to the driver to move the AAVC 100 meters down the hill to the road. At a crawling pace, while maneuvering around boulders and through brush, the two sergeants guided the driver down the hill.

By 0200, the AAVC had finished refueling and was moved back to its original position. Fifteen minutes later, a soldier climbed out of the AAVC’s rear hatch and was on his way to make a latrine call when he stumbled over something. It was a sleeping bag obscured by brush. A closer look revealed the bag contained the missing PFC. His body was under one of the AAVC’s tracks; he had been crushed.

The group commander, who was a major, and the senior NCOIC never designated a sleeping area, nor did they post a guard to protect sleeping soldiers when tracked vehicles were operating nearby.

When the AAVC commander informed the major that he needed to move the AAVC to refuel it, the major ordered him to use four ground guides: forward, aft, port, and starboard. But the sergeant didn’t follow his orders.

A corporal, who was part of the group, saw the PFC bed down where he was not supposed to be; however, he didn’t say anything to the PFC or his leaders.

The Bravo command group was a hodgepodge of personnel from different units. It was clear to investigators that the chain of command within the group was disorganized.

If you or your soldiers have to work with tracked vehicles, you should follow these steps:

1. First, get familiarity training. Ask the vehicle commander to brief you and your soldiers on the hazards of working in and around tracked vehicles. Ensure all soldiers understand day and night ground guide procedures.

2. Rehearse the basics of mounting and dismounting the vehicle and performing rollover/fire drill procedures. Seasoned soldiers need to revisit the basics as much as a new soldier needs to learn them.

3. Designate and mark troop-sleeping areas. Post a guard to protect the troops. Knowing where your soldiers are is critical when working with tracked vehicles.
4. At a minimum, tracked vehicle crews should use a front and rear ground guide when moving vehicles in restrictive terrain, tactical assembly areas, and when dismounted troops are close by. If visibility is poor, then additional control measures are necessary; e.g., increased supervision, lights, and signal device, to lessen the risks before movement.

5. Keep up your guard around tracked vehicles. Assuming that a tracked vehicle driver can see you and won’t run over you can be a grave mistake. Because of the vehicle’s size, a tracked vehicle driver has blind spots where he can’t see dismounted troops. Operating in conditions of reduced visibility (darkness, dense vegetation, and urban terrain) amplifies the risks. Furthermore, the engine’s noise makes it difficult and sometimes impossible to hear dismounted troops.

Editor’s note: While this article was reprinted from a Marine Corps safety magazine, Army soldiers have also been run over during night operations in recent years.

Adapted from Ground Warrior

The AAVC is a Marine tactical vehicle similar to the Army’s M577. With its many radios, the battalion staff uses the AAVC as a mobile command post.

What You Don’t Know Could Hurt You

A soldier has just looked through night-vision goggles (NVGs) for the first time. He can see—he thinks—and he’d like to put on the goggles and go. What he doesn’t know is that, while NVGs increase night light to incredible levels, they do not turn night into day. Goggles have limitations: reduced field-of-view, reduced visual acuity, reduced depth perception and distance estimation ability, and the need to adapt to the dark when removing the NVGs. The following accidents prove this theory...

...and again...

Several Bradley fighting vehicles (BFVs) were on recon during training in the desert (low contrast area) on an extremely dark night (low illumination). The platoon was expecting enemy fire, so they were driving without any type of lights. The Bradley commanders were using NVGs and the global positioning system for navigation. As they approached their objective, three BFVs traveling abreast went over one small ditch and immediately came upon what appeared to be another. However, rather than a small ditch, it turned out to be a 15-foot cliff. All three Bradleys went over the cliff and tumbled into the wadi below. Two soldiers were killed, and eight others were injured.

In addition to low illumination that night, the desert offered too little contrast for the drivers to see the drop-off. This combination of low light, low contrast, and low definition made a small ditch and a 15-foot deep wadi...
appear to be the same.

...and again...

The HMMWV driver, using AN/PVS-7B NVGs, was following and observing three Bradley fighting vehicles on a counter-reconnaissance training mission. Illumination was zero, and the rough desert terrain included deep wadis. When the Bradleys stopped, the HMMWV driver parked about 30 feet behind the last one. When the Bradley started backing up in the direction of the HMMWV, the driver moved the HMMWV to the right to get out of the way. Then the lead Bradley started turning around, and the HMMWV driver began moving further to the right to clear a path for it. As he did so, the HMMWV edged off a 45-foot cliff that had not been visible in the darkness. The driver and his passenger were both wearing seatbelts and suffered only minor injuries. The HMMWV was totaled.

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R

ecent night vision device (NVD) training and supervisory failures at all levels have led to accidents and the loss of life. Analyses from the Safety Center’s investigations of these accidents reveal that not all units and installations specify the proper use of NVDs.

Army Regulation (AR) 600-55: *The Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing)* is the governing doctrine for all driving operations. Chapter 8 addresses NVDs, in which paragraph 8-2b states: “Commands will establish speed limitations for all modes of driving with NVDs. In addition, commanders at all levels must understand the devices’ limitations to conduct effective risk assessments.”

Appendix I of the AR outlines mandatory academic and driving tasks for NVDs, and the February 1996 issue of *Countermeasure* covers many of those limitations. The October 1997 and February 1999 issues of *Countermeasure* also address NVD safety.

Commanders and safety personnel whose units use NVDs for driving must review and understand the requirements delineated in the AR. In addition, they should use TC 21-305-2: *Training Program for Night Vision Goggle Driving Operations* as the foundation of their NVD driver-training program. The TC provides good baseline training; however, commanders should also identify hazards unique to their location and review their own NVD operations policies and standing operating procedures to mitigate location-specific risks.

Questions that should be addressed include, but are not limited to the following:

- Do roads or tank trails on the installation allow two-way traffic?
- Are trails wide enough to allow two M-1s to pass without one pulling off the road?
- Is mixed traffic allowed (i.e., drivers with NVDs and drivers without NVDs)?
- If so, does the training program address the associated hazards?
- Do civilian and off-duty military hunters use the same roads as tactical vehicles driven by operators using NVDs?
- What steps has the installation taken to mitigate the risks associated with these hazards?

Commanders are key to successful NVD training and operations. Commander/leader involvement and careful mitigation of associated risks will prevent soldier injuries and fatalities.

Gene M. LaCoste
Brigadier General, GS
Director of Army Safety
Subject: CECOM GPM 2001-002, AN/PVS-7B NVG, NSN 5855-01-228-0937, LIN No5482 and AN/PVS-7D NVG, NSN 5855-01-422-5413, LIN N05482.

1. References:
   A. TM 11-5855-262-10
   B. TM 11-5855-262-23&P-2

2. Distribution: This is a GPM and has not been transmitted to your subordinate units. MACOM commanders will retransmit this message to all subordinate units, activities, or elements affected or concerned.

3. Summary of Problem: CECOM has received several category 1 product quality deficiency reports (PQDRs) reporting breakage of internal plastic pins on the AN/PVS-7B NVG eyepiece diopter focus assembly. This breakage occurred while focusing the eyepiece or adjusting the interpupillary distance (IPD). Failure of these plastic pins will prevent users from being able to obtain a clear focus in that eyepiece, even though the diopter focus ring is moving freely. Use of the AN/PVS-7B or AN/PVS-7D NVGs with an out-of-focus eyepiece is considered a safety hazard.

4. User Actions:
   a. Operators—To minimize the possibility of this hazard occurring in the field, users should perform the service checks listed in the “Preventive Maintenance Checks and Services” table of TM 11-5855-262-10-2 dated 1 June 2000. The user should perform the eyepiece diopter focus adjustment and IPD adjustment checks described in the “item 4, rear cover” section of the table prior to deployment. The most likely time for the eyepiece to fail is during initial adjustment, because that is typically when the greatest force is exerted. Use caution when performing these checks; excessive force can cause the diopter pins to fail, even if there is no defect in the material. Provided initial adjustments are made prior to deployment, it is considered unlikely that minor adjustments made during normal operations will cause a failure of the NVG diopter pins during field usage.

   Systems that pass the service checks are considered safe for use. Systems that fail the service checks must be turned in immediately for repair or replacement.

   Do not attempt to repair a rear cover assembly by piecing together components from different, failed rear cover assemblies. There are several configurations of rear cover assemblies, and these configurations may not be compatible with each other.

   b. Maintainers—At this time, some of the eyepiece/systems may be under warranty. If this failure occurs on a system under warranty, follow the warranty procedures given in Chapter 1 of TM 11-5855-262-23&p-2. For systems out of warranty, we request that maintainers document all failures of the AN/PVS-7 eyepiece diopter focus adjustment pins on a PQDR (Standard Form 368) and submit to:

   CDR, CECOM
   ATTN: AMSEL-LC-LEO-D-CS-CFO
   FT MONMOUTH, NJ 07703-5023

   PQDRs may also be e-mailed to cfo@cecom2.monmouth.army.mil. PQDR submission will assist in determining how often this type of failure is occurring. Also, by submitting a PQDR, units may receive credit for these systems, depending on the final disposition of the items.

   c. Disposition of failed items: We request that all rear covers exhibiting the diopter pin failures be sent to the following address: PM NV-RSTA, ATTN: SFAE-I EW&S-NV-CCS-II (Lance Fujita), 10221 Burbeck Road, Bldg 399, Fort Belvoir, VA 22060-5806. The entire rear cover assembly (NSN 5855-01-246-6810) should be sent; not just the failed eyepieces. A copy of the completed PQDR should be included with each shipment of rear cover assemblies.

5. Points of contact: Lance Fujita, PM Night Vision/Reconnaissance, Surveillance & Target Acquisition (NV/RSTA), SFAE-I EW&S-NV, DSN 654-1610, 703-704-1610 or e-mail lance.fujita@nv1.army.mil; David Werner, CECOM Logistics Readiness Center, AMSEL-LC-I EW-NV, DSN 992-8371, 732-532-8371 or e-mail david.werner@mail1.monmouth.army.mil; Jay Hanrahan, CECOM Directorate for Safety, DSN 992-0084, ext. 6406 or 732-532-0084, ext. 6406, or e-mail james.hanrahan@mail1.monmouth.army.mil.

6. This message has been coordinated with PM NV/RSTA, the CECOM Logistics Readiness Center, and CECOM Directorate for Safety.
Weighing the Options

The Transportation Company was hauling live M26 multiple launch rocket system (MLRS) pods from the manufacturing plant to the Army Depot for storage. The unit had M931A2 tractors and M871A2 trailers and used a configuration drawing from Army Materiel Command (AMC) to tactically load the MLRS pods on the trailers. Overall, the unit moved over 800 pods using this AMC guide. The training went well with no unexpected problems, except each day a tractor blew a tire. The only thing unique about this was that all tires were blown on the second axle of the tractor.

Toward the end of the training exercise, the mission had become simple and mundane. Eight round trips had already been accomplished, the last pods were loaded, and the unit was driving to the storage depot for the last time.

The convoy was traveling north and consisted of 8 vehicles in the first serial and 10 in the second serial. They had traveled 66 miles when the truck master decided to pull off the road to change drivers for the next leg of the
trip. Unfortunately, the only place to pull over was a truck stop on the opposite (west) side of the road.

The convoy pulled over and the senior occupant changed position with the junior driver. The junior driver then began his leg of the trip. The first serial began exiting the truck stop area; however, the last three vehicles had to wait until the southbound traffic and the second serial had cleared the intersection, placing them farther behind.

Finally, the last three vehicles were able to move. The first vehicle carried very little; he was hauling “post holes.” The second vehicle was carrying eight M26 MLRS pods and dunnage that weighed 41,318 pounds. The last vehicle was the convoy commander’s vehicle.

The next interchange was 1½ miles away and located at the bottom of a slight hill. The first exit went east while the second exit on the half cloverleaf went west toward the storage depot.

The junior driver had his mind on other things and thought he should have taken the first exit. He suddenly attempted to make a flat 90-degree right-hand turn from the outside lane at 35 mph, while the exit speed limit was 15 mph.

The front end of the M931A2 tractor lifted up and within a microsecond, the 41,318-pound payload flipped the tractor. Four pods on the back of the trailer propelled onto the road; the trailer swung upward and came down on the pods and bounced.

The tractor, with both men buckled in, came to rest on the driver’s door. With help, the driver and the senior occupant were removed from the truck. Luckily, both soldiers survived this accident; however over $1 million in property was damaged!

Lessons learned
■ The M931A2 using the M871A2 trailer has a payload of 15,000 pounds, not the 41,318 pounds that was loaded on it. Know your systems’ configurations and their limitations.
■ The AMC configuration drawing guidance did not evaluate the total weight of the tractor-trailer system; instead, it was based upon the trailer being the complete system. The prime mover was not even considered.
■ The junior driver was driving faster than the TACOM Safety-of-Use Message allowed (Reference: SOUM-00-018; 121604Z Jul 00). The M931A2 is limited to 40 mph until antilock braking system (ABS) and tires are installed.
■ Avoid selecting rest areas that result in crossing over traffic before resuming convoy.
■ Leaders from platoon sergeant to battalion commander need to improve upon their ability to identify hazards. Just because the Army has done it “this way” for years, does not mean there are no hazards and a possible better way.
■ Look for the unusual happenings, analyze them for trends, and determine what can be done to eliminate them from occurring; i.e., tires blowing out on the same axle.

Editor’s note: Look for an upcoming SOUM on overloading soon.
POC: Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)

Can You Identify This Vehicle?

Stay tuned, there’s more to follow next month regarding this accident.
Have you had a safety problem or an incident at your installation that others need to know about? Did you find a solution or resolution for it?

Throughout the Army, creative, dedicated soldiers and civilians are solving problems that are never reported on a DA Form 285 and never get into the Army Safety Center’s information data bank. These people are coming up with prevention programs that could be of real help to others working in the field. Most of the problems are not peculiar to one installation, but often your contemporaries never know you found and solved their problem.

Countermeasure would like to feature some of your problems and their solutions. If you have solved a problem that you think others in the field should know about, tell us so we can publish it in Countermeasure. We will give you a by-line too. Even if you just have a problem, tell us about it. Perhaps someone out there will be able to help.

We are starting a new column called “Risk Management Corner,” but we will need your contributions to keep it going. Incidents do happen that others need to know about, and this column will be a good way to tell them. Write, call, or e-mail us. The address is: Commander, U.S. Army Safety Center, Bldg. 4905, 5th Ave., Fort Rucker, AL 36362; Phone: DSN 558-2688 (334-255-2688); e-mail: countermeasure@safetycenter.army.mil.

Countermeasure Readers

Have you noticed a difference in the way Countermeasure looks? Starting with the November issue, we have made some changes in layout, typefaces, and the way we present information. We want Countermeasure to be user-friendly. Tell us what you think. If you have comments or suggestions, write to: Commander, U.S. Army Safety Center, ATTN: CSSC-OG (Countermeasure), Bldg. 4905, 5th Ave., Fort Rucker, AL 36362-5363 or e-mail countermeasure@safetycenter.army.mil.

Coming Attractions for March

- Oh, My Aching Back
- It Won’t Happen To Me!
- Watch Your Step
- Ergonomics: The Simple Facts
- Wanna Bet That Ignorance Is Bliss
There are as many as 231,000 civilian workers who play a critical role in the civilian-military team effort that supports our operational, baseops, administrative, and technical Army. Now, more than ever, civilians are an important part of the team in preventing accidents.
Civilian Safety Record
This year’s civilian safety record was a record low in the rate of civilian lost-time injuries and occupational illnesses. This is due to the teamwork of every Army soldier and civilian working for one cause—preventing accidents.

Have We Forgotten How to Teach “What RIGHT Looks Like”? If the leader doesn’t know right, he doesn’t know wrong. And if he doesn’t recognize wrong, he can’t make it right. Recent accident investigations clearly indicate that many of our soldiers are not exercising this essential leadership quality.

The ABCs of ABS A common misconception is that ABS-equipped vehicles can stop quicker than cars without the ABS. Read this and find out the real story.

In this issue... A number of people have indicated they would like to see articles on such subjects as confined space; slips, trips, and falls; ergonomics, and occupational health issues. All of these subjects and more are covered in this issue. Although our focus this month is civilian accident prevention, the information applies to soldiers as well, especially for operations covered by OSHA regulations.
During FY00, the Army set a record low in the rate of civilian lost-time injuries and occupational illnesses per 100 civilian employees. While costs have remained about the same, lost-time injury and occupational illnesses decreased by over 10 percent below the 1999 rate.

The major types of job-related injuries to Army civilian employees continue to be physical impact; physical stress; and slips, trips and falls. The number one cause of lost-time injuries and illnesses remains back injuries caused by sprains and strains.

Civilian injuries do not come cheap to the Army. Currently, civilian employee occupational injuries and illnesses cost the Department of the Army over $166 million each year in “direct costs.” This would buy the Army approximately 83 Bradley fighting vehicles. Incidentally, “direct costs” do not include such indirect costs as lost production, disruption in the work area during and after an injury, and costs of recruiting and training replacements.

The chart below of Chargeback Costs (the direct costs to the Army) shows that these costs have stayed about the same over the last 5 years, despite the steady decline in the numbers of civilian employees. In addition, the Office of Workers' Compensation Program (OWCP) chart also shows a steady decline in lost-time injuries over the past 5 years.

Complying with standards mandated by Federal law (such as those contained in OSHA standards, other Federal safety and health requirements, or DOD and Army standards), and applying the 5-step risk management process will go a long way toward preventing the majority of military and civilian accidents.

Additional information on the 5-step risk management process may be found at http://safety.army.mil; select Guidance, and then Sustaining Base Operations. There you will find the risk management process adapted to the garrison environment.

Editor’s note: Civilian lost-time injuries and illnesses are the most accurate method of civilian Army accident reporting. Civilian employees must submit claims to the Office of Workers' Compensation in order to get medical bills paid and to receive compensation for any lost wages as a result of injuries and illnesses.

POC: Truman Taylor, USASC Policy and Programs, DSN 558-2609 (334-255-2609), taylort@safetycenter.army.mil

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You’ve heard this word many times. In fact, in the past few years, you have been inundated with the term. Automobiles, hand tools, furniture, and even pens are now being offered by manufacturers who claim their products are “ergonomically designed.” What do they mean? Just what constitutes an ergonomic design?

The word “ergo” is Greek for work, and “nomics” means the study of, so ergonomics is simply the study of work. The concept of ergonomics is to make the job fit the person instead of the person being forced to fit the job.

If we are referring to equipment or tools that are ergonomically designed, then it simply means that the equipment or tool is designed to fit the human body. In other words, the hand tools that are ergonomically designed have handles or grips that are curved to fit the hand better. These newer designed hand tools are usually lighter weight and have better grips that are padded. The padded handle or grip will help to soften the vibration of the hand tool.

When you order new tools, do you take into consideration the people who will have to use these tools? Is each person’s grasp equal? How large is his/her hand? Is each person’s reach the same? Some hand tools are heavy and require more strength in order to operate them safely. When ordering hand tools, think about these important points.

Too often we order equipment, tools, and machinery without consideration for the person who will operate or utilize that equipment. People come in all different shapes and sizes, but the equipment you order may not. What happens when you have different people who operate the same piece of equipment? Can each person safely reach the controls? Is each person tall enough to see the gauges? What about operating a vehicle? Have you ever driven a vehicle that belongs to someone else? Did you have to adjust the seat or the tilt of the steering wheel?

Dependent upon the individual operator, vehicles, equipment, and machinery can be safely operated only if the operator can adequately (and comfortably) reach and see the controls. If that equipment is not adjustable, oftentimes the operator must work in an awkward, strained position. This can only lead to disaster.

Who is affected?

Everyone is affected by workplace ergonomic hazards. The exposure ranges from clerical workers to maintenance personnel, from male to female, and from civilian to military. From the civilian computer operator to the soldier in the field, ergonomic hazards can greatly hamper the successful completion of the mission.

Ergonomics affects all Army personnel. In the ground arena, the design of the equipment and vehicles (both wheeled and track) affects how safely individuals can operate them. In aviation, the location of the controls and the design of the cockpit affect the ability of the pilot to fly that aircraft safely.

Ergonomics is not an office or a field thing. It is not a civilian or a military thing. It is not a ground or an aviation thing. It is an everything.

The bottom line

Why should the Army be concerned about ergonomic hazards? Poor ergonomic design has a critical effect on Army production, readiness, and resources. While we are only now beginning to understand the true scope of the problem, private industry has been aware of it for some time.

According to the Occupational Safety and Health Administration (OSHA), businesses spend $60 billion per year on workers’ compensation related to Work-Related Musculoskeletal Disorders (WMSDs), or $1 of every $. Yet, according to the Government Accounting Office (GAO), effective ergonomics programs can reduce this cost by 36 to 91 percent.

Approximately 1.8 million workers suffer from ergonomic injuries per year. Healthcare costs for companies have increased 2.5 times faster than any other benefit cost. Preventing just one WMSD saves companies an average of $22,500.
Mandatory program

Effective November 2000, OSHA has a new ergonomic standard, 29 CFR 1910.900. The Army has a requirement for each installation to have an active, effective ergonomics program. If you have not developed an ergonomics program for your site or if you want to be certain your program meets all of the requirements, the Center for Promotion and Preventive Medicine (CHPPM) has a guide that will assist you. Go to http://chppm-www.apgea.army.mil/ergopgm/tools/tools.HTM. At this site, you will find Tech Guide 220, which is a step-by-step guide to setting up and managing an installation ergonomics program. You will also be able to download the Ergonomics Program Evaluation Checklist along with several other valuable ergonomic tools.

POC: Melissa L. Bonds-Wilkins, Safety & Occupational Health Manager, Ergonomics Program, USASC, DSN 558-2947 (334-255-2947), bondsm@safetycenter.army.mil

Confined Space: Dangerous and Deceptive

Joe entered the worksite and looked around. He was apparently the first member of the crew to return from lunch. Knowing they were behind schedule and not wanting to waste any time, Joe got his tools and descended into the pit. Putting down his tools, Joe turned to look at the work they had completed that morning. Suddenly overcome, Joe slumped to the floor, unconscious.

Five minutes later, Dave entered the worksite. Looking around, he saw no one and decided to walk over to the adjacent facility. Walking past the ladder, Dave glanced down and saw Joe lying on the floor of the pit. Without hesitation, Dave rushed down the ladder for Joe’s rescue. Kneeling beside Joe, Dave started to shake him and try to revive him. Before Dave could even stand up, he lost consciousness and fell to the floor.

Ten minutes passed and the two remaining crew members returned to the worksite. Bill and Jack were buddies and had worked together for years. Looking around, they saw no one until Bill walked over to the ladder and looked into the hole. There he saw Joe and Dave, lifeless on the floor of the pit. Yelling for Jack to call for help, Bill started down the ladder. Sizing up the situation quickly, Jack stopped Bill from descending and made him come back up to the surface. Jack yelled, “If you enter that pit, you’ll end up like they are.”

Jack immediately dialed 911 for help. Rescue personnel responded, but it was too late. Joe and Dave were dead. Bill and Jack watched in sorrow as their friends’ bodies were raised out of the pit.

The sudden realization of how close he came to being the third casualty hit Bill and he turned to Jack. “Buddy, you saved my life. I owe you.” Shaking his head, Jack responded, “No, you owe me nothing. I just couldn’t let you go into that pit. I remembered what the instructor said in the confined space training—that rescuers often die in confined space accidents because they do not follow the guidelines.”

What is a confined space and how do we know if it is okay to enter it?

According to the Occupational Safety and Health Administration (OSHA), confined space means a space that: (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and (3) Is not designed for continuous employee occupancy.

According to the confined space OSHA standard, 29 CFR 1910.146, there are confined spaces and there are permit-required confined spaces (PRCS). What’s the difference? To be considered a PRCS, a confined space has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

The chart below demonstrates how to determine a PRCS from a confined space.

A hazardous atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is escape unaided from a permit space), injury, or acute illness from one or more of the following causes:
- Flammable gas, vapor or mist in excess of 10 percent of its lower flammable limit (LFL).
- Airborne combustible dust at a concentration that meets or exceeds its LFL.
- Atmospheric oxygen below 19.5 percent or above 23.5 percent.
- Atmospheric concentration of any substance greater than the permissible exposure limit (PEL).
- Any other atmospheric condition that is immediately dangerous to life and health (IDLH).

Therefore, a non-permit confined space means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. According to the OSHA standard, your confined space program must include a written program that includes:
- How the employer will prevent unauthorized entry.
- Identification and evaluation of hazards before entry.
- Procedures for atmospheric testing.
- System for entry permits (issue, use and closing).
- Procedures for responding to emergencies.
- Procedures for evaluation and correction of entry operations hazards and procedures.
- Training for entrant, attendant, and entry supervisor.

**Importance of the permit program**

In order for work to be performed in a PRCS, there must be a permit system in place. If this system is adhered to, it helps ensure the correct procedures are followed and that accidents are prevented. Most confined space accidents are very serious—usually fatal—due to the exposures encountered. The permit for entry into a PRCS must:
- Be completed before entry.
- Identify specific confined space.
- List the purpose of entry.
- Date the duration of the work.
- List all authorized entrants.
- Name the attendant and supervisor.
- Identify the hazards of the permit space.
- State control measures that will be used.
- Indicate acceptable entry conditions.
- List results of atmospheric testing.
- Indicate how to summon rescue and emergency services.
- Display communications method.
- Display additional safety information.
- Display additional permits required (hot work, such as welding).

**Monitoring and ventilation**

Testing and monitoring of the confined space must be accomplished by someone who has specialized training. When the confined space is being tested, the tests must be conducted in the proper order (from outside space). The first test is for oxygen content; second, for flammable gases and vapors; and third, for potential toxic chemicals.

Several locations of the confined space must be tested. Because some contaminants are heavier than others, the air must be tested at the top, middle and bottom of the confined space. Dependent upon the possible exposure and circumstances, continuous air monitoring may be required. If an airborne hazard is found, an air-powered blower is used to ventilate before and during entry. Above all, personnel may not enter until the hazardous atmosphere is eliminated.

**PPE for confined space entry**

Personal protective equipment (PPE) is used only after all other possible controls are used. A full-body or chest harness, lifeline, and retrieval device must be at the site. Dependent upon the circumstances, both air-purifying and air-supplying respirators are required. Other PPE used will be dependent upon the configuration of the confined space and the nature of the work to be performed. The different types of PPE that can be used in confined space work include hard hats, safety goggles, safety shoes and boots, disposable suits, non-sparking flashlights and tools.

**Rescue and emergency**

A recent report showed that 36 percent of confined space deaths are those who attempted to rescue someone in trouble. You must have a trained rescuer available. They can be in-house or from a local fire department—as long as there exists a memorandum of agreement between that department and your installation.

Coordination and practice with the fire department should occur on a regular basis. One should never assume that the local fire department is trained or available for rescue. The non-entry rescue equipment (retrieval system, tripod, winch, etc.) used to lift an unconscious victim out of the space must be available.

**Attendant is most important factor**

One of the most important factors of confined space rescue and emergency is the attendant. An attendant must remain on the outside of the entry of the confined space at all times while work is being performed. This attendant must stay in constant contact with the workers in the confined space. This contact can be visual or verbal. If the worker in the space will not always be visible to the attendant, then some type of communications equipment may be required. The attendant is not allowed to leave his or her post—even for “just a moment.” Nor may he or she enter the space to perform rescue. Instead, the attendant must be well versed in the methods of summoning emergency personnel for a rescue operation.

**Training**

All confined space workers must be trained and certified before beginning duties. Entrants, attendants, supervisors, and rescue personnel must have the required training (based on OSHA standard). The training requires that individuals demonstrate the knowledge and skill necessary to perform assigned duties. Once the training has occurred, it must be documented and the records maintained.

**Safe operation**

The potential for disaster certainly exists when working in a PRCS; however, these operations can be performed safely and with no casualties if you follow the guidelines and be alert to your surroundings. If you see someone in trouble in a confined space, call for help. Don’t attempt the rescue yourself. Remember: A dead hero is still dead.

POCs: Melissa L. Bonds-Wilkins, Safety & Occupational Health Manager, P&P Division, DSN 558-2947, bondsm@safetycenter.army.mil and Dennis Keplinger, CSP, Chief, P&P Division, DSN 558-3367, keplingd@safetycenter.army.mil
The greatest legacy that leaders can leave their subordinates is the ability to know what RIGHT looks like. Experience can certainly be a powerful teacher, but it can also be the most costly in terms of lives and materiel when a mistake is made that clearly could have been prevented if the leader knew what RIGHT looked like. If the leader doesn’t know RIGHT, he doesn’t know WRONG. And if he doesn’t recognize WRONG, he can’t make it RIGHT. Then, he’s doomed to needlessly repeat lessons we fail to learn, sometimes tragically. In the language of risk management: If the leader doesn’t recognize the hazards (know what RIGHT looks like), then he won’t assess the risks and develop appropriate controls (turn WRONG into RIGHT).

Recent accidents indicate that some of our soldiers do not have this leader tool in their backpacks, so the obvious question is: “Why not?”

First, what do I mean by “What does RIGHT

The platoon leader elected to cross this rain-swollen creek, not recognizing it as an impassable hazard. The result was a swamped vehicle.
look like?” I define it as being able to instinctively assess a situation as a right or wrong way to do a task; and if wrong, take the appropriate action to avoid an accident—a sixth sense perhaps, or that feeling of hair rising on the back of your neck. Others might define it simply as common sense applied to a situation.

Whatever your definition, it is based on experience—yours or someone else’s. For example, you wouldn’t consider operating your privately owned vehicle (POV) without using your seatbelt. Someone taught you that. Likewise, you wouldn’t allow anyone to ride in your vehicle without being belted in. Why? Because you know what RIGHT looks like.

Recent accident investigations clearly indicate that many of our soldiers are not exercising this absolutely essential leadership quality. Let me illustrate my argument.

An eager ground cavalry platoon leader took his M3A3 Bradley platoon to the field to conduct much needed training. When the platoon reached a rain-swollen creek, a squad leader, not recognizing it as an impassable hazard, elected to cross. The result was a swamped vehicle and a drowned soldier.

This training experience cost a soldier his life. Specifically, this accident had failures of what RIGHT looks like throughout the chain of command. The leaders responsible for training this platoon leader and his platoon sergeant were nowhere to be found.

This is just the latest example in a very disturbing trend. Young leaders don’t seem to recognize what RIGHT looks like, nor do they identify the hazard and appreciate the associated risk. How do we as leaders correct this trend? What is the mechanism in your unit that allows junior leaders the latitude to learn valuable lessons while still maintaining that necessary oversight to prevent accidents? Without an effective mentoring process, how will the future leaders of our Army build their foundation? In other words, how do you train a leader to know what RIGHT looks like?

Leadership remains an art, not a science. This simple statement means that the answer is not a checklist. The essence of mentoring from every level is that it builds competence and confidence in our leaders. Equally as clear is that mentoring does not occur if leaders are not present when their soldiers are training.

Remember, too, that the bad example is still a lesson learned. For example, who is to blame when the chain of command allows soldiers to use a propane heater in a location that the manufacturer clearly warns that it should not be used? The initial answer is clear, yet the deeper question is how did this chain of command not recognize this as WRONG and make it RIGHT?

This is the essence of knowing what RIGHT looks like. When you walk by a bad practice or overlook a standard not being met, you have taught the Army’s young leaders a lesson. But you have taught what WRONG looks like; you have established a new, lower standard of acceptable performance; you have set young leaders up to repeat history’s mistakes.

I have found nothing more rewarding in my military career than being in command of soldiers. Our soldiers need our very best effort as well as the opportunity to learn. Leaders must create the proper environment and then coach, teach, and mentor leaders at every level. Our Army needs it now more than ever. Pass on your talent and experience. Teach our soldiers to recognize what’s WRONG so they know what RIGHT looks like.

POC: COL Michael N. Riley, USASC Director of Operations, DSN 558-2461 (334-255-2461), rileym@safetycenter.army.mil
Slips, trips, and falls are one of the major types of personnel injury accidents for both soldiers and the civilian workforce. According to the Occupational Safety and Health Administration (OSHA), slips, trips, and falls account for 15 percent of all accidental deaths in the U.S., and are second only to motor vehicles as a cause of fatal injury. Poor housekeeping, inadequate maintenance, improper procedures and inattention contribute to slips, trips, and falls.

**Army examples**

A civilian office worker stepped into the hallway, slipped on the wet, slippery tile floor, and fell. She injured her knee, requiring medical treatment and lost one workday due to her injury. A cleaning crew had just finished waxing the hallway floor and warning signs were not posted.

A soldier was standing in an office chair with roller wheels while taking down office decorations. The chair was a quick shortcut instead of going to supply for a stepladder. The soldier fell and broke his wrist when the chair rolled while he was standing on it. The soldier required surgery, physical therapy, and he was on restricted duty for several months to recover.

A facility maintenance worker was climbing a wooden stepladder when a cracked step broke under his weight, and he fell. As a result of his fall, he strained his back and injured his leg. He failed to inspect the ladder before using it.

A soldier was wearing shower shoes while walking down stairs. He was hurrying down the stairs when he slipped and fell down the stairs resulting in a broken arm and leg.

Do these accidents sound familiar? Injuries from slips, trips and falls are common; therefore, let’s look at some of the causes.

- **Inattention.** Distractions like reading the paper while walking, or not paying attention to the walking/working surface can lead to a fall. Many fall victims fail to look for hazards directly in the path of travel. Most tripping hazards can be avoided by paying attention to the path of travel.

- **Slippery and uneven work surfaces.** Slippery floors are often a result of inadequate housekeeping. Wax, water, spilled coffee, leaking oil from equipment, or ice outside a building entrance can all set the stage for a fall. Loose stair treads, broken floor tiles, and other uneven work surfaces can trip up the unwary. Develop an ice removal plan prior to the start of winter. The OSHA standards require that walking/working surfaces be maintained and kept in a clean and dry condition to prevent tripping hazards. Aisles and passageways must be kept clear and in good repair.

- **Improper footwear.** Proper footwear can greatly reduce your potential for slips and falls. Traction is all about the contact between the walking surface and the boot or shoe sole. Slickness of soles and the types of heels need to be evaluated based on the work environment, tasks performed, and walking surfaces. Choose footwear based on function, not fashion. Investigate accidents involving slips and falls to determine if the type of footwear contributed to the accident.

- **Tripping hazards.** Most tripping hazards are related to housekeeping standards. Electrical cords across office aisles, water hoses across sidewalks, boxes of supplies in hallways are all tripping hazards that must be fixed immediately. It is easy to become complacent about tripping hazards that you see every day.

- **Falls from elevation.** To prevent falls from elevation, OSHA general industry standards require platforms and work surfaces that are 4 feet or more above the adjacent floor or ground be protected by standard guard railings. Use covers or guard rails to protect
maintenance pits and other floor holes when not in use to prevent personnel from falling into them. Work above 6 feet may require use of fall protection equipment.

- Improper use or non-use of ladders. Chairs, furniture, and milk crates are not substitutes for a ladder. Use the right length ladder. A ladder should extend 3 feet above the roof, so you have handholds for getting on and off the ladder. Use a stepladder correctly; don’t stand above the recommended safety limit. Portable ladders must be inspected, maintained, and used properly to avoid serious injury from falls. Tag and remove damaged or unserviceable ladders from the work area to prevent their continued use. Failing to secure the ladder or extending beyond safe reach limits are common unsafe behaviors leading to accidents.


**Risk management tips**

- **Identify hazards.** Walking should not be a hazardous activity, yet many of our soldier and civilian employee injuries are a result of slips, trips, and falls. Unsafe behavior, equipment, and workplace conditions can all create hazards that may be stepped over every day (no pun intended). It is easy to become complacent about water or oil spills on the floor, cluttered aisles, inadequate lighting, and inadequately maintained ladders and work surfaces.

- **Assess hazards.** Probability—A large portion of injuries occur from same-level falls and ascending and descending stairs. Severity—Slips, trips, and falls from any level may result in head injuries, back injuries, lacerations, fractures, and pulled muscles. Working from ladders and any elevated work above 6 feet increases the potential for serious injury from a fall. Additional safety measures are necessary for elevated work.

**Develop risk controls and make risk decisions.** Provide a safe work environment. Basic requirements for walking/working surfaces are found in OSHA Standard 1910.22. Use non-slip mats or apply anti-slip coatings to areas that are routinely exposed to water or other liquid spills to improve traction. Use catch pans under vehicles during maintenance and liquid absorbing mats where necessary to control the spread of liquid spills. Provide spill control materials near potential spill sources. Wear proper footwear for the environment and work performed. Replace worn tiles and stair treads, curling mats, and missing drain covers. Improve lighting where necessary. Establish and enforce standards for housekeeping to prevent cluttered aisles and work areas. Finally, train personnel in hazard prevention, recognition, and control. Controlling the causes for slips, trips, and falls requires everyone’s participation.

**Implement controls.** Management must commit to actions that apply required engineering controls and improve work procedures. Supervisors discuss safe work practices during job assignments. Employees must use their training to recognize and avoid hazardous conditions.

**Supervise and evaluate.** Supervisors maintain standards by monitoring work practices to correct unsafe behavior and conditions. Follow-up on facilities maintenance problems to ensure that proper work orders are submitted and funding is available. Involve employees in the hazard control process by encouraging immediate reporting of workplace hazards.

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If someone else trips over an object lying on the floor, he is clumsy. But if we trip over it, we blame the thoughtless fool who left it there. If we pass an overturned car on the highway, it is clear that some idiot was going too fast. If we have a wreck, we point our fingers at the jerk who ran us off the road. If we hear of somebody cutting off his finger in a circular saw, it is plain that the silly person didn’t know how to work safely. But, if we cut off a finger, we blame the manufacturer for not having enough safeguards.

**How do accidents like these happen?**

The injured person in each case may give his version of the story. The foreman or employer may give another version.

The man whose finger is severed says he tried to work safely, but he could not watch everything at once, and in any case, the saw should have been properly guarded.

The employer may say that it is impossible to guard careless employees.

**The simple facts**

Employers are legally and morally responsible for protecting their employees from both the circumstances that may cause accidents and from their workers’ ignorance or lack of care that actually causes those injuries.

It is easy to blame others when something goes wrong, but it is necessary for each of us to realize our own contribution to the accident, and not to rationalize.

When we start throwing stones of blame, we may shatter our own glass houses.

*Editor’s note: We found this bit of wisdom in a newsletter produced by Kemper Insurance.*

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A temporary employee was filling a small container with acid from a large drum. The caustic chemical splashed in the bottom of the container and into the worker’s eyes. After flushing his eyes at the worksite, he was treated at the emergency room and lost several days of work. He received permanent damage to vision in one eye. He was not wearing eye protection as required by signs posted at the worksite. The supervisor did not enforce the standard.

A forklift operator drove too close to a warehouse worker and ran over his foot with the forklift wheel. The warehouse worker received emergency treatment for his broken foot, lost several days of work, and was on light duty for nearly 2 months. He was wearing tennis shoes instead of steel-toe footwear because tennis shoes were more comfortable.

A supervisor once told me that he couldn’t get his employees to wear their personal protective equipment (PPE). Common excuses were that their PPE didn’t fit right, it was uncomfortable, safety goggles were dirty, employees were in a hurry, or (here’s a good one) it wouldn’t happen to them.

My response to him was that if you can get them to come to work on time, then you can enforce the wearing of PPE.

The supervisor has responsibility to enforce the standard. When employees understand the hazards, have the correct protective equipment that fits, and are adequately trained how to use it, they are more likely to perform to the standard.

When PPE is required to provide protection against a hazard, its use is not optional, it’s a part of job performance. The Occupational Safety and Health Administration (OSHA) General Industry standards 1910.132 provides general requirements for PPE such as eye/face protection, hearing protection, respiratory protection, gloves, and safety shoes and boots.

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Protect Yourself, Why Take the Chance?
When is PPE needed?

Personal protective equipment is used as the last line of defense between the worker and a hazard. Engineering controls or administrative controls are used to eliminate or reduce the hazard where it is feasible to do so.

Operations requiring PPE / protective clothing and equipment (PPE/PCE) may include grinding, chipping, welding, handling or dispensing chemicals, painting, or other tasks where workers may be exposed to chemicals, dust, fumes, or other hazards with a potential for injury or occupational illness.

PPE program

Leaders and managers are required to identify PPE requirements, issue and maintain protective equipment, train users, and ensure personnel use PPE correctly.

Identify hazards. Personal protective equipment is provided to protect against specific workplace hazards based on a hazard assessment. The hazard assessment normally includes a walk-through survey of the workplace to identify sources of hazards to workers, co-workers and visitors. The hazard assessment should consider the basic hazard categories:

- Sources of motion (moving machinery or parts)
- Impact (falling/flying particles)
- Penetration (sharp objects, tool blades, sharp edges)
- Compression (rolling or pinching objects)
- Chemical exposure
- Heat or cold
- Harmful dust
- Light (optical) radiation
- Electrical hazards

The possibility of exposure to several hazards simultaneously should also be considered.

Note: Maintain written documentation of the hazard assessment and re-assess workplace hazards as necessary to address new equipment or processes and to correct accident causes.

PPE selection

Protective equipment is selected based on the hazard(s) and the work environment to provide protection against the highest level of each hazard. For example, acid and chemical handling may require use of chemical protective goggles and a face shield to protect eyes and face, as well as protective apron or chemical protective coveralls and gloves. Protective devices do not provide unlimited protection. Barriers, shields, guards, and other engineering controls must be installed and maintained. Consult with safety and industrial hygiene professionals, as necessary, to determine the hazards and appropriate protective equipment. The latter is critical, using the wrong PPE for a job can lead to disaster; for example, using a particulate respirator while spraying paint containing isocyanates instead of using an organic vapor respirator can lead to incapacitation or death.

Fitting and training

Once the correct protective equipment is selected, each user must be fitted with the equipment and given instruction on proper care and use of the PPE including warning labels and limitations. OSHA standards require that PPE users demonstrate an understanding of the instruction and an ability to use the PPE. Maintain training rosters or other documentation of training and provide update or re-training as necessary to maintain competency.

Maintenance

Instructions for maintaining PPE are provided with the product packaging. If goggles or face shields are dirty, cloudy or so scratched that vision is impaired, employees are unlikely to use the equipment. No one wants to share a respirator that was worn by someone else and left covered with grunge. Follow the manufacturer’s instructions for cleaning and keep equipment clean so it is available immediately when needed.

Using PPE properly is essential to job performance and injury prevention. The habits learned on the job should also carry over to your life off the job. Protect yourself—wear your PPE.

POC: Dennis Keplinger, CSP, Chief, Policy & Programs Division, USASC, DSN 558-3367 (334-255-3367), keplingd@safetycenter.army.mil
Industrial Truck Operator Training

The Occupational Safety and Health Administration (OSHA) revised powered industrial truck operator instruction (commonly known as forklift training) to improve training and reduce workplace injuries and fatalities. OSHA now requires that operators of powered industrial trucks be trained in the operation of such vehicles before they are allowed to operate them independently.

Training must consist of instruction (both classroom-type and practical training) in proper vehicle operation, the hazards of operating the vehicle in the workplace, and the requirements of the OSHA standard for powered industrial trucks.

Operators who have completed training must then be evaluated while they operate the vehicle in the workplace. Operators must also be periodically evaluated (at least once every 3 years) to ensure that their skills remain intact at a high level, and they must receive refresher training whenever there is a demonstrated need for it.

The revised standard now mandates a training program that bases the amount and type of training required on the following:

- Operator’s prior knowledge and skill.
- Types of powered industrial trucks the operator will operate in the workplace.
- Operator’s demonstrated ability to operate a powered industrial truck safely.

Refresher training is required if:

- Operator is involved in an accident or a near-miss incident;
- Operator has been observed operating the vehicle in an unsafe manner;
- Operator has been determined during an evaluation to need additional training;
- There are changes in the workplace that could affect safe operations of the truck; or
- Operator is assigned to operate a different type of truck.

Training must be completed before the employee is assigned to operate a powered industrial truck.

According to OSHA, the rule will prevent 11 deaths and more than 9,400 injuries per year, as well as save employers $135 million. Of this, $83 million will be saved in reduced direct costs such as medical savings, administrating workers’ compensation, and the value of lost productivity. Another $52 million will be saved in reducing accident-related property damage. The agency estimates the total annual cost of compliance at $16.9 million.

Powered industrial truck operator training requirements apply to both military and civilian operators.

For more information on the revised powered industrial truck operator training rule, visit OSHA at http://www.osha-slc.gov/OshStd_toc/OSHA_Std_toc_1910.html Part 178(l).

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The ABCs of ABS

When used properly, the antilock braking system (ABS) featured on most motor vehicles manufactured today can ultimately save lives. The ABS allows the driver to maintain directional stability, control oversteering, and in some situations, reduce the stopping distances during emergency braking situations, particularly on wet or slippery road surfaces. To gain this safety advantage, drivers must learn how to operate their antilock brake systems correctly.

The ABS works in consonance with the vehicle’s regular brake system. It automatically changes the pressure in the vehicle’s brake lines to maintain maximum brake performance just short of locking up the wheels. On vehicles not equipped with ABS, the driver can manually pump the brakes to prevent wheel lockup. On vehicles equipped with ABS, the driver’s foot must remain firmly on the brake pedal, allowing the system to automatically pump the brakes using a series of electronically induced pulsations that can be felt through the brake pedal. Remember, maintain firm pressure on the pedal and do not pump the brakes on an ABS-equipped vehicle.

The ABS is important because when the brakes lock up on wet or slippery surfaces or during a panic stop, the ability to control the vehicle by means of steering is lost; therefore, erratic vehicle motion results. Rear-wheel-only ABS (normally found on pickup trucks and sport utility vehicles) prevents wheel lockup so that the vehicle stays in a straight line, but steering is lost if the front wheels lockup. If the vehicle is equipped with four-wheel ABS (normally found on passenger cars and minivans), steering control is maintained. With this system, it is possible to avoid an accident by steering around hazards if a complete stop cannot be accomplished in time.

A common misconception is that ABS-equipped vehicles can stop quicker than cars without the ABS. The ABS is designed to help the driver maintain control of the vehicle during emergency braking situations, not to make the vehicle stop quicker. The ABS may shorten stopping distances on wet or slippery surfaces, and many systems may shorten stopping distances on dry surfaces. On very soft surfaces such as loose gravel or unpacked snow, an ABS system may actually lengthen stopping distances. In wet or slippery conditions, you should still make sure you drive carefully. Always keep a safe distance behind the vehicle in front of you, and maintain a safe speed consistent with the road conditions.

Most new vehicles offer ABS as either standard or optional equipment. There are several ways to find out whether your vehicle has antilock brakes.

- Read your vehicle owner’s manual.
- Check your instrument panel for an amber ABS indicator light after you turn on the ignition.
- When you buy, lease or rent, ask your dealer or rental car company.

It is also important to know that in most vehicles equipped with ABS, it is speed activated. In other words, the ABS will not function at speeds below the manufacturer’s indicated activation speed. You must reach a certain speed (in many cases 10-15 mph) to enable your system.

Remember that there is no substitute for safe driving practices, no matter if your vehicle has ABS or not.

Safe and attentive driving saves lives.

POC: Al Brown, Ground Systems and Accident Investigation Division, USASC, DSN 558-3421 (334-255-3421), brownj@safetycenter.army.mil
Safety Alert Notice

In the past month, the Army has suffered two serious accidents that resulted in the death of soldiers. One of these accidents occurred while performing scheduled maintenance on a tracked vehicle, and the other occurred while moving a convoy of large wheeled vehicles. While these two accidents are non-related, they share similarities that warrant discussion. During both accidents, soldiers were performing day-to-day tasks that they had not been properly trained to perform. Unit leadership failed to ensure critical tasks were properly trained and that soldiers executed these tasks to standard.

In the tracked vehicle accident, a mechanic was performing required maintenance that he had not been trained on. No one in his chain of command checked to ensure he was properly qualified to perform the task or that he was following the procedures prescribed in the vehicle technical manual (TM). Soldiers cannot be expected to identify and control hazards that they do not know exist. This failure resulted in his death. The soldier was struck by a piece of equipment that ruptured due to nitrogen pressure not being released prior to disassembly. Effective leadership could have prevented or mitigated the severity of the accident. Instead, a leader joked with the soldier that he was taking longer than usual to complete the task.

In the other accident, a driver of a large wheeled vehicle was moving in close proximity to other vehicles and personnel. Unfortunately, he failed to ensure he had sufficient clearance to move his vehicle and struck a dismounted soldier. The dismounted soldier suffered fatal injuries. A review of the driver’s records revealed that he had been recertified to drive this vehicle in the past year; however, the records did not indicate that he had received adequate training on this vehicle to safely conduct his mission. Further, the vehicle he was driving had numerous deadline deficiencies that the driver had not identified or corrected. No one in his chain of command had ensured that a preventive maintenance checks and services (PMCS) was completed on the vehicle.

Ensuring soldiers are properly prepared to perform their duties is a leader responsibility. Recent accident investigations indicate that some leaders have become complacent in ensuring that all critical tasks, regardless of how mundane, repetitive, or seemingly insignificant they appear, are trained to standard. This complacency contributed to the death of these two soldiers.

We can prevent these types of accidents by establishing unit leader development programs in accordance with (IAW) AR 350-41 and FMs 25-100/101, conducting effective risk management for all operations IAW AR 385-10, and providing the requisite oversight of all operations within the unit. Leadership at all levels is needed to prevent accidents. When we fail to train to and enforce established standards, we place our soldiers and mission success at risk. Keeping our soldiers safe is a leadership issue and effective training is one way for leaders to ensure soldier safety.

Gene M. LaCoste
Brigadier General, GS
Director of Army Safety
Build a Better Mousetrap
Understanding Heat Injuries
How Much is Too Much?
Are You Ready for the Road?
Investigators’ Forum
Paratroopers have a "can-do" attitude, a spirit, and a way of life that make them unique. Unfortunately, that attitude can get them needlessly hurt as one Master Rigger found out when he had a rig modified.
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Remember When
The author shares his story of when he failed to report an accident to his chain of command.
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Understanding Heat Injuries
Hot weather is just around the corner. Before it gets here, you need to know how to prevent heat injuries, how to recognize signs and symptoms if they do occur, and the proper treatment.
Page 11

How Much Is Too Much?
Most people know that dehydration can cause serious health consequences. What most don’t realize is that too much of a good thing—water—can also be dangerous, even deadly.
Page 14

Get the New Video—“Driver’s Dozen”
Find out how to order the new POV video starring SGT Safety. This flick targets 12 key areas of traffic safety.
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Gene M. LaCoste
Brigadier General, U.S. Army
Commanding Officer
A division command sponsored parachute demonstration team (PDT) was conducting training jumps. They were wearing non-standard rigs designed to enhance their ability to conduct various parachute maneuvers. One such maneuver was a cutaway.

What happened?
A jumper with a United States Parachute Association (USPA) D License-Master, a USPA Professional Exhibition rating (PRO), and a Federal Aviation Administration (FAA) Master Rigger rating, exited a UH-60L aircraft at approximately 7,000 feet above ground level (AGL) to perform an intentional malfunction and parachute cutaway.

At approximately 5,500 feet AGL, the jumper deployed the main chute. At approximately 4,500 feet AGL, he successfully induced a malfunction by releasing the right side riser. At this point, he was suspended under the parachute attached by the left side riser only. He rode the malfunction for approximately 1,000 feet, and then began attempting to cutaway the left side riser to complete the release of the malfunctioning canopy.

From approximately 3,500 feet AGL to impact with the airport tarmac, the jumper attempted to release the left side riser numerous times—first with one hand, and then with both hands by pulling on the cutaway handle. When the left side riser failed to release, he deployed his reserve parachute. The reserve parachute bridal and free-bag became entangled with the malfunctioning parachute. He attempted, but was unsuccessful, in pulling/throwing the reserve parachute out and away from the malfunctioning parachute until he collided with the ground.

The PDT members initiated first-aid within seconds of impact, 911-assistance was requested, and vital signs were checked. A backboard was not an item within the PDT medical equipment; however, civilian emergency medical services personnel onsite provided a backboard to ensure spinal immobilization throughout treatment and evacuation.

Why did it happen?
The original Tridem rig was designed for a single point release system that releases both risers simultaneously. The modified rig used in this jump was a onetime rig manufactured to this jumper’s specifications. He was the first to jump with this rig. His intent with this modification was to gain the ability to release one riser at a time through the use of two primary cutaway handles. It is important to note that there are non-standard, unmodified rigs available that are specifically designed to allow a jumper to perform this maneuver.

The result was that during the jump, when the jumper released the first riser with the cutaway handle, the second riser twisted due to the oscillating parachute. The cutaway cable then became bound in the twisted second riser. This made it impossible to successfully pull the second cutaway handle and release the second riser.

When the jumper requested the alteration of the main parachute from a single point release system to that of a dual point release system, he failed to properly take into account the possible hazards associated with this change. By changing the original configuration of the rig, the function of the rig was altered and...
this had specific hazards associated with the change.

The jumper failed to take into consideration the additional time required to perform dual point cutaway procedures with the altered rig. He exited the aircraft at 7,000 feet, the manufacturer’s recommended altitude for deployment of the canopy for the unaltered rig. This caused him to have less time to conduct emergency procedures for the unintentional malfunction of the cutaway parachute. He failed to assess and develop reasonable altitude standards of canopy deployment for the altered rig.

The jumper did not properly develop and/or rehearse emergency procedures for this situation, and he was subsequently unprepared to react.

In addition, he did not use a hook knife on the rig, which would have allowed him to cutaway the malfunctioning parachute. In this case, he deployed his reserve parachute; however, the reserve was unable to successfully deploy because of insufficient wind velocity due to the malfunctioning parachute over his head. Also, the emergency procedures in the PDT Airborne Standard Operating Procedures (ASOPs) were not specified for this particular maneuver with this modified rig.

The chain of command was unfamiliar with the conduct of training, to include regulations, ASOPs, programs of instruction, and equipment and parachuting maneuvers. This ineffective process impeded the ability of the PDT and chain of command to identify hazards, take appropriate measures to mitigate risks, and make informed decisions. Additionally, the chain of command was overconfident in the parachute demonstration team’s capabilities, and as a result, they received inadequate supervision.

The tragic result of this accident is that this soldier will likely have to undergo months and possibly years of physical rehabilitation.

**Countermeasures**

The chain of command should:

1. Evaluate existing non-standard equipment in PDTs to ensure adequacy of design, and ensure that effective training plans and procedures are in place.
2. Integrate tasks, conditions, standards, to include emergency procedures and applicable guidance, into the use of all PDT equipment.
3. Ensure the procurement of non-standard equipment is formalized and closely supervised.
4. Be familiar with applicable regulations, SOPs, equipment and maneuvers in order to make informed PDT risk management decisions.
5. Integrate each parachuting location/task/equipment/ maneuver into risk management order to mitigate hazards based on informed decisions.
6. Ensure PDT pre-accident plans are reviewed, disseminated, and rehearsed.
7. Make sure risk management is conducted IAW FM 100-14, and take into consideration FAA regulations and USPA guidelines.

Remember: Risk management is part of taking care of our soldiers!

**POC:** Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
SAFETY ALERT NOTICE—SOLDIER CREW TENT

The Army recently lost two soldiers as a result of carbon monoxide poisoning. While on a field training exercise, two soldiers returned to their soldier crew tent and started a commercial off-the-shelf (COTS) heater to warm up. The soldiers then closed the tent while the heater was on. Because the tent was essentially airtight, a lethal environment was created, not only by the carbon monoxide from the heater, but also from oxygen depletion from combustion and the soldiers’ own breathing.

A factor in this accident was the use of an unvented COTS heater. Warnings specified in ground precautionary messages indicate that the use of unvented heaters is inherently dangerous because they vent exhaust containing carbon monoxide into living spaces. Similar warnings, as well as risk-mitigation steps, to include following manufacturer’s instructions, leaving tent doors and roof flaps open to allow air circulation, and using carbon monoxide detectors appear in safety-of-use messages as well as on the heater itself. Despite these warnings, the chain of command failed to inform or train subordinates of the dangers involved when using unvented heaters.

The soldier crew tent also poses a hazard in that its fabric does not breathe. As noted in the operator's manual, all windows and flaps must be open to provide adequate ventilation. If windows and flaps are closed, it is possible to use all oxygen contained in the tent, especially during sleeping hours, resulting in death. The tent, in combination with an unvented heater, creates a high-risk hazard of possible suffocation and carbon monoxide poisoning. These dangers must be carefully risk-managed with control measures that ensure the safe use of the tent during sleeping periods.

Another contributing factor in this accident was the implied approval by the chain of command of unvented propane heater use. Soldiers continually observed their use in the field, so they assumed it was a normal procedure. Both the chain of command and the users became complacent in its use, and these actions subsequently led to the accident. Supervisors at all levels must use risk management to identify potential hazards and establish controls to ensure the safety of subordinates. Leaders must enforce standards and continually be aware of possible hazards. In this case, the chain of command tacitly allowed the risk to exist and failed to follow their established procedures. Enforce the standards—don’t let this silent killer get to you or your subordinates.

—BG Gene M. LaCoste, Director of Army Safety
In the past 18 months, I have had the unfortunate task of investigating accidents that resulted in the deaths of 14 soldiers. Without exception, these soldiers were performing their duties in an outstanding manner; giving their all; working hard to carry out their missions for their units, the Army, and the nation. They made the ultimate sacrifice in the service of their country.

I will never forget what these soldiers have done. I will also never forget that during many of these investigations, I was told that others knew of the dangers these soldiers and their comrades faced while performing their duties. That’s right...in many cases, someone had already identified that something wasn’t right. They had identified the hazard. Unfortunately, they did not fully appreciate the likelihood that an accident would occur because of this hazard or the severity of the consequences. They ignored the critical Step 2 of the risk management process.

Last month, we discussed the first step in the Army’s 5-step risk management process—Identify hazards—in an article titled “Have We Forgotten How to Teach What Right Looks Like?” Now, we’ll look at Step 2:

Assess the hazards. We’ll discuss the importance of truthfully assessing risks associated with those hazards we identified. And, we’ll also discuss gambling with the consequences of performing tasks and executing missions with hazards inadequately assessed.

Field Manual 100-14, Risk Management, states that step two takes place after you have identified a hazard. To assess the hazard, first determine the probability of a hazardous event occurring, and then address the potential severity resulting from this hazardous event. In other words, once you know that something doesn’t look right, make an assessment of how likely it is that this hazard will cause harm to you, your unit, your equipment, or your mission. Then determine that IF an accident occurs as a result of the hazard, how MUCH harm will it cause?

Conducting an effective assessment requires broad understanding of the task/mission at hand. The person making the assessment uses his knowledge of applicable regulations, procedures, and SOPs. He also uses his experience in performing this or similar tasks. In fact, experience can sometimes be the most valuable tool for leaders to use. This experience is based upon what he has observed, read, or what he’s been told. Let me give an example.

During a deployment to a desert training area, a support platoon was driving many miles during both daylight and darkness in support of their tank battalion. During these movements, the dust from the vehicles could be seen for miles. The platoon sergeant, who had deployed to the desert numerous times throughout his career, informed his platoon leader of the problems associated with driving in the desert. The platoon leader did not think it was a major problem, so he did not take it into consideration while completing his daily risk assessment.

One day at the evening convoy briefing, the platoon leader instructed the drivers to maintain only 50 meters distance between vehicles during that night’s movement to avoid separation among the vehicles. When several of the drivers expressed concern about this requirement, the platoon leader stated that it was unlikely that following so close would cause any problems, and that the drivers would just need to stay alert during the mission.

As you’ve probably already guessed, this platoon leader failed to properly...
gauge the impact of his decision. At one point during the night move, the platoon leader stopped his vehicle abruptly. The 5-ton truck that was following him had to brake hard to avoid a collision. The next two vehicles were also able to avoid a collision. However, the last three vehicles in the convoy were not as fortunate. The collision resulted in two injured drivers and three heavily damaged vehicles. All because the platoon leader failed to properly assess the hazards his unit faced. Regrettably, he did not learn from the experience of the platoon sergeant; neither did he recognize that hair stood up on the back of his men’s necks when he described the plan of operation; nor did he appreciate the courage it took for his platoon sergeant and his unit to raise concerns for their personal safety and the success of their mission.

No, the platoon leader didn’t have the personal experience to adequately assess the hazard. But he had plenty of clues and opportunities to get to the truth about the risk and consider the consequences. One of the Army’s great strengths is learning from the successes and failures of each other, and growing stronger on that foundation.

The next time you see something that just doesn’t look right, take a moment and ask yourself how this might impact you, or the soldier next to you, or your unit, or the family of four who might be driving down the road as your convoy approaches. Safety is not a sometimes thing, and your actions don’t just affect you. Exercise the courage to tell the truth about the hazards, and to face the potential consequences. That way, you and your unit can avoid those consequences.

This information gives you as an individual, your unit, and the Army an advantage: Armed with knowledge that the hazards in your task or mission are identified (Step 1); and the hazards are assessed (Step 2); now, controls can be developed and selected (Step 3). Stay tuned for more on Step 3 next month here in Countermeasure.

POC: LTC Andrew Atcher, Ground Systems and Accident Investigation Division, DSN 558-9525 (334-255-9525), atcherd@safetycenter.army.mil
Safety Messages

The following is a list of selected safety of use messages (SOUMs) and ground precautionary messages (GPMs) issued by Army Tank-Automotive Command (TACOM).

Complete copies are available on the Army Electronic Product Support Bulletin Board via the Internet web site at http://aeps.ria.army.mil/.

- **M240B, M240D, and M240G Machine Guns**, 151914Z Jan 01, subject: GPM 01-006. The M240B, NSN 1005-01-412-3129, M240D, NSN 1005-01-418-6995 and the M240G, NSN 1005-01-359-2714. The safety on the M240B, M240D and M240G machine guns can be forced on or actuated by manipulation of the bolt/op rod assembly. Application of the safety without locking the bolt all the way to the rear can cause the gun to jam during efforts to fully charge the weapon or, if done during loading procedures, can cause an inadvertent firing of one round when the cover is slammed closed or during efforts to clear the weapon. POC: Craig L. Haas, DSN 798-0023, haasc@ria.army.mil.

- **Bradley Fighting Vehicle Variants**, 310020Z Jan 01, subject: TACOM SOUM 01-007: M2A2, NSN 2350-01-248-7619, LIN F40375; M2A2-ODS, NSN 2350-01-405-9886, LIN F40375; M2A3, NSN 2350-01-436-0005, LIN F60564; M3A2, NSN 2350-01-248-7620, LIN F60530; M3A2-ODS, NSN 2350-01-405-9887, LIN F60530; M3A3, NSN 2350-01-436-0007, LIN F90796, M6 Linebacker, NSN 2350-01-448-0368, LIN C00384; M7 BFIST, NSN 2350-01-432-1526, LIN F86571. We have discovered that some Bradley brake connecting rods were not manufactured according to specifications and may fail, breaking in two. There has been one known failure since 1993. POC: Gary Oswald, AMSTA-LC-CLB, DSN 786-7524 (810-574-7524), oswaldg@tacom.army.mil.

- **M939-Series Trucks**, 252325Z Jan 01, subject: TACOM SOUM 01-006. Effective immediately, any M939-series truck speedometer that appears to be stuck, jerks, or does not move will be considered not fully mission capable. This is to ensure the truck is not operated at speeds over 40 MPH. This only applies to trucks without the ABS braking system. POC is Floyd Burns, DSN 786-5703 (810-574-5703), burnsf@tacom.army.mil.

- **Heavy Equipment Recovery Combat Utility List and Evacuation System (HERCULES)**, 161438Z Feb 01, subject: SOUM-01-009, Technical Inspection of the HERCULES, NSN 2350-01-390-4683, Model M88A2, LIN R50885. The HERCULES has experienced a catastrophic failure of one stayline arm. Should this type of failure occur during lifting operations, the boom could collapse and drop the load resulting in damage to equipment and possible injury or death to personnel. Based upon metallurgical and engineering analysis, the root cause of the failure is a high order side impact coupled with casting discontinuity. The HERCULES crews are instructed not to operate the boom for lifting any load and leave it in the stowed position. POC: David Boster, DSN 786-5310 (810-574-5310), bosterd@tacom.army.mil.
How many times have you expressed this thought to yourself or to a friend? I know I have said it at least a million times. Recently while sitting in a restaurant, I noticed a soldier who I had served with 12 years ago. He didn’t notice me, so I went to him and asked if he has had any more shocking experiences. He had a puzzled look on his face. I said, "Remember when we were in the Tactical Operation Center (TOC) during that miserable lightning storm?"

"Oh yeah, my ears are still ringing!" he replied. Lightning had somehow energized the landline, and then traveled through the SB-22 switchboard to the headset he was wearing while sitting on a metal folding chair at a field table. The shock launched him 3 feet from the chair. He was okay—just a little shook-up. Of course at the time, we were all concerned about him. After reassuring him and ourselves that all was well, we chuckled and everyone returned to work.

Now, years later, I realize the error I made in this potentially deadly situation—I failed to report this incident to my chain of command. Reporting near-misses is critical in reducing accidents and keeping events like this from happening again.

The Army Safety Center looks very closely at all incidents that are submitted to them. These reports are reviewed and acted upon by subject matter experts. These experts interface with design engineers and other safety engineers to correct deficiencies. The problem may not lie in the design, but in human error with respect to how we utilize the equipment. The Safety Center makes that determination and ensures the correct information is relayed to the field. They may even develop a training program to ensure we use the equipment correctly.

So, how do we report near-misses? Near-misses should be reported to your unit Safety NCO or Officer. They will make sure it is submitted through appropriate channels to the Safety Center. It is important to report these near-misses so that you won’t ever use the expression, “Remember when the lightning killed SGT Williams?”

Editor’s note: This is the type story we look forward to receiving. Don’t be afraid to admit that you made a mistake. We all make mistakes, no one is perfect. By learning from other people’s experiences/mistakes, we hopefully don’t have to learn the hard way. Thank God, this soldier lived to tell us!

Remember that you don’t have to be in the middle of a fully loaded munitions storage area surrounded by a raging fire to have a valid story to tell. Many times, we have an emergency situation or a problem; and although nothing exciting happens, a lesson is learned. These first-hand experiences are extremely effective in teaching, proving a point, or supporting your way of doing things—and everyone can identify with them. And by the way, no one has ever gotten into trouble by writing an article for us.

POC: Don Ferrier, CP-12 Intern, U.S. Army Safety Center, DSN 558-3262, ferried@safetycenter.army.mil
It’s a beautiful spring morning and the bikes are out on the road—motorcycles of all shapes and sizes, and riders of varying experience levels. It’s hard to beat the joy of rolling down the open road on a motorcycle. However, before you hit the road (hopefully, not literally), it is important to be prepared.

I have been riding motorcycles for over 20 years—dirt bikes, touring bikes, and everything in between. I would like to share with you a few things I’ve learned over the years.

A few years ago, I attended an advanced skills riding course in the spring. I was somewhat surprised to see how much I had forgotten over the winter. I recommend finding some type of refresher course, advanced skills riding course, or some other motorcycle safety course before taking to the streets this year.

Like many other skills, riding skills are perishable. Due to the climate in many parts of the country, the motorcycle-riding season can be relatively short. And your riding skills may not be as sharp in April as they were in November when you last rode your bike. Another point to consider is that automobile drivers have not dealt with motorcycles for a while either. Remember that it is the rider’s responsibility to keep mentally alert.

Don’t forget to consider roadworthiness of your bike. Just because it was “okay” when you put it up last fall doesn’t mean it’s road ready now. A good initial inspection and routine maintenance will go far in ensuring a safe and enjoyable riding season. I like to thoroughly inspect my motorcycle prior to taking it on my first ride of the new season. For example:

- Inspect your tires for dry rot/damage and proper tread depth. If the tires are serviceable, inflate to the proper operating level.
- Inspect your braking system to include brake pads, discs, and fluid levels. Always service your braking system IAW manufacturer’s instructions.
  - Ensure all fuses, lights, and horns are in good working order. Replace bad fuses and burned-out bulbs as required.
  - Service all fluids and check for any leaks. Also, do a bolt check and tighten up anything that may be loose.
  - Check the charge on your battery and service if necessary. If servicing is required, always follow the correct safety procedures and wear the appropriate personal protective equipment (PPE).
- Inspect your riding PPE to make sure it is serviceable.

These components can affect the safe operation of your motorcycle. This certainly is not a comprehensive checklist. You should tailor your inspection to the type of motorcycle you ride and the manufacturer’s recommendations.

Before you start riding this year, take some time to prepare yourself and your motorcycle for a safe, enjoyable year of riding. You’ll be glad you did. See you on the streets!

Throughout the ages, militaries have faced and, in many cases, been defeated not by a superior invading force, but by various elements of our environment—one major element being heat. In 24 B.C., an entire Roman army was decimated by extremely hot conditions. During the 1967 War between Israel and Egypt, the Egyptians sustained over 20,000 heat casualties while heat casualties among Israeli forces were minimal. More recently, in 1982 during the peacekeeping operation in the Sinai, one U.S. Army company sustained 30 percent heat casualties. All individuals had to be treated with IV fluids.

The fact that heat is such an important environmental factor affecting us has to do with our physiology. Human beings are homeothermic, which simply means that we are able to maintain a constant body temperature regardless of our surrounding conditions—up to a point. Human body temperature is regulated in a very narrow range. In order to maintain a constant body temperature, sweating begins, which evaporates thereby cooling the body. Another way the body cools itself, but to a lesser extent, is by diverting blood flow from muscle tissues and deep sites of heat production to the surface of the skin. Have you ever noticed how the veins of your hands seem to "pop out" when you’re really hot? Also, a very small amount of cooling takes place through the lungs; but for the most part, this is negligible.

As environmental temperature rises, the body’s main way of regulating body temperature is by the evaporation of sweat. Obviously as you sweat, your body is losing moisture, which means it must be regularly replaced. You cannot train your body to perform with less water.

A remark was made a number of years ago by a young individual about to participate in summer training at the National Training Center. During the conversation, he remarked that soldiers just have to learn to deal with less water. The response was that unless he was a desert rat, his best option would be to drink plenty of water. Desert rodents have adapted to their environment, and many rely only on metabolic water generated by the foods they eat. Humans, on the other hand, do not have this adaptation and must drink water. We can, however, adjust to changes in our environment through a process called acclimatization. As the body acclimatizes to a hotter climate, a number of physiological modifications occur. Among these is an increase in sweating by approximately 10 percent. Acclimatization, however, does not occur immediately. It usually takes an individual approximately 7 days to acclimatize. This is an important point to remember when a unit deploys from a cooler climate to a much hotter one and especially when dealing with new recruits.

During WWII, it was found that the soldier most vulnerable to heat injury was an overweight recruit from the northern part of the U.S. undergoing summer training in a southern state. (Those of us who have been in Alabama, Georgia, and the other southern states during August completely understand this statement.) This leads to another point regarding heat injuries—physical condition.

Heat injury is not only influenced by the
amount of heat to which an individual is exposed, but also by the general condition of the individual. Infections, fever, sunburn, fatigue/lack of sleep or food, older age, being unfit, and being overweight make an individual more susceptible to heat injuries. Certain medications such as cold medicines reduce an individual’s ability to regulate heat.

Once the body loses its ability to regulate heat, a heat injury ranging in severity from heat cramps to heat stroke will occur. With any type of heat injury, if the victim is not getting better quickly or you just are not sure—don’t waste time, find medical help immediately—no one should ever fault you for getting extra expert help. If they do, they are wrong.

**Warning Signs**

- **Heat cramps** are painful cramps of muscles, usually in the stomach, legs, and/or arms. They are caused by excessive amounts of salt loss. Body temperature is normal.

  First-aid for heat cramps involves moving the individual to a cooler area and loosening his clothing. Have the individual drink a 0.5 percent salt solution of water (one canteen of water with ¼ teaspoon salt). If the cramps continue after drinking the salt solution, call for medical assistance.

- **Heat exhaustion** is the most common form of heat injury. Symptoms include dizziness, rapid pulse, nausea, headache, profuse sweating, pale face, weakness, or collapse. Body temperature is normal or slightly elevated. Heat exhaustion and heat cramps may occur simultaneously.

  First-aid is the same as one would administer for heat cramps, except that attempts should be made to cool the individual by pouring water over him, and then fanning to assist in evaporation. Also, have the individual drink plain water when he has muscle cramps. Elevating his legs also helps. If he does not respond to first-aid, call for medical assistance.

- **Heat stroke or sunstroke** is the most serious heat injury, and it is a life-threatening situation requiring immediate medical attention. During a heat stroke, the body has completely lost its ability to regulate heat, and the individual’s body temperature rises quickly to dangerous levels. An individual suffering a heat stroke may vomit, collapse, be confused, delirious or argumentative, or have headaches. The skin may be hot and dry, indicating that sweating has stopped, and the body can no longer cool itself by evaporation. There is an important difference between heat exhaustion and heat stroke, but it is not always seen. With heat stroke, the body temperature is 104 degrees or higher. **If you are not sure if it is heat exhaustion or heat stroke, assume it is the latter.**

  Evacuate to a medical facility as soon as possible! Administer first-aid while help is on the way. It is extremely important to cool the body as rapidly as possible—soak or douse the victim with water; if you have ice packs, use them, and fan to cool. Start IVs if a combat lifesaver or medic is available. Have the individual drink only if he is conscious; never try to force water on an unconscious person. The fatality rate of heat stroke is high. Also, an individual who has experienced a heat stroke before is more prone to a recurrent attack. This is an important point for leaders at all levels.

  Although the results of heat injuries can be severe, fortunately they are preventable. The four major ways of prevention are (1) fluid replacement (drinking water), (2) wet bulb globe temperature (WBGT) monitoring, (3) work/rest cycles (based on the WBGT), and (4) acclimatization. Commanders can also allow modification to the uniform, like unblousing boots or unbuttoning BDU jackets. Remember that removing BDU jackets may increase the chance of sunburn, so take this step only with caution.

  **DRINKING WATER** regularly is critical. In a hot environment and during periods of heavy work, thirst is no indicator. Sport drinks are also helpful in replacing fluids and nutrients lost during times of heavy work activity, but they are no substitute for water. Use the fluid replacement guidelines in the chart on page 13.

  Everyone in the military is familiar with the WBGT Index. It was originally designed over 40 years ago to assist in reducing heat casualties among military trainees. Today, it is considered by many organizations to be the best indicator of heat stress on the body. It works by incorporating the effects of air velocity and humidity (wet bulb), air temperature (dry bulb), and radiation (globe temperature). It is a helpful tool when determining work/rest cycles.
### Fluid Replacement Guidelines for Warm-Weather Training
(Applies to Average Acclimated Soldier Wearing BDU, Hot-Weather)

<table>
<thead>
<tr>
<th>Heat Category</th>
<th>WBGT Index °F</th>
<th>Easy Work</th>
<th>Moderate Work</th>
<th>Hard Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>78-81.9</td>
<td>No limit</td>
<td>¥ qt</td>
<td>¥ qt</td>
</tr>
<tr>
<td>(Green)</td>
<td>82-84.9</td>
<td>No limit</td>
<td>¥ qt</td>
<td>¥ qt</td>
</tr>
<tr>
<td>(Yellow)</td>
<td>85-87.9</td>
<td>No limit</td>
<td>¥ qt</td>
<td>¥ qt</td>
</tr>
<tr>
<td>(Red)</td>
<td>88-89.9</td>
<td>No limit</td>
<td>¥ qt</td>
<td>¥ qt</td>
</tr>
<tr>
<td>(Black)</td>
<td>&gt;90</td>
<td>50/10 min</td>
<td>1 qt</td>
<td>20/40 min</td>
</tr>
</tbody>
</table>

*Rest means minimal physical activity (sitting or standing) and should be accomplished in the shade if possible.

**Note 1:** The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Individual water needs will vary ± ¥ quart per hour.

**Note 2:** CAUTION: Hourly fluid intake should not exceed 1¥ quart. Daily fluid intake should not exceed 12 quarts.

**Note 3:** Wearing MOPP gear adds 10°F to WBGT Index.

**Note 4:** Wearing body armor adds 5°F to WBGT Index.

**Examples:**

<table>
<thead>
<tr>
<th>Easy Work</th>
<th>Moderate Work</th>
<th>Hard Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Walking hard surface at 2.5 mph, ≤30-pound load</td>
<td>○ Walking hard surface at 3.5 mph, ≤40-pound load</td>
<td>○ Walking hard surface at 3.5 mph, ≥40-pound load</td>
</tr>
<tr>
<td>○ Weapon maintenance</td>
<td>○ Walking loose sand at 2.5 mph, no load</td>
<td>○ Walking loose sand at 2.5 mph with load</td>
</tr>
<tr>
<td>○ Guard duty</td>
<td>○ Calisthenics</td>
<td>○ Field assaults</td>
</tr>
<tr>
<td>○ Marksmanship training</td>
<td>○ Patrolling</td>
<td>○ Individual movement techniques; i.e., low crawl, high crawl</td>
</tr>
<tr>
<td>○ Drill and ceremony</td>
<td>○ Defensive position construction</td>
<td></td>
</tr>
</tbody>
</table>

Note: Soldiers who are overweight, dieting, or past heat casualties are more prone to heat injuries. As a result, their activities must be closely monitored.
Leaders must ensure that the WBGT index is taken in a location that closely approximates the area where soldiers are training or working. In other words, if the environmental conditions at your training site are different from the conditions found at the preventive medicine activity where the WBGT index is being monitored, it is best to measure the WBGT index at your location. The Weksler kit, which is designed for field use, is a small WBGT kit with a slide rule that is used to determine the WBGT index. Preventive Medicine Activities can assist in training soldiers how to use this kit.

When mission requirements do not allow time for adequate acclimatization, both leaders and soldiers must ensure soldiers drink adequate water, and they must remain alert for the signs and symptoms of heat injury.

The guidelines on the previous page from FM 21-10 can greatly assist in reducing heat injuries.

Heat injuries can be deadly, and they can leave a military force virtually combat ineffective. The fact that the Israelis had minimal heat casualties in 1967 compared to the numerous heat causalities among the Egyptians isn’t because of luck. Leaders of the Israeli Army place intense emphasis on the prevention of heat injuries. To prevent heat injuries, leaders must enforce heat injury prevention programs, and soldiers must ensure they practice individual protective measures.

More information on heat injuries and heat injury prevention can be found in:
- FM 4-02.17, Preventive Medicine Services, 28 Aug 00
- FM 21-10, Field Hygiene and Sanitation, 21 Jun 00
- FM 21-10-1, Unit Field Sanitation Team, 11 Oct 89
- GTA 5-8-12, Individual Safety Card, 25 Feb 99
- TB Med 507, Prevention, Treatment and Control of Heat Injury, 25 Jul 80 (under revision)

POC: LTC Heidi Overstreet, USASC Industrial Hygienist, DSN 558-2477 (334-255-2477), overstrh@safetycenter.army.mil

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How Much Is Too Much?

The flip side of dehydration is overhydration—or simply, drinking too much water too quickly. When sodium is lost through sweating and water is drunk as the replacement fluid over a period of hours, the sodium left in the blood can become diluted. This can cause a condition called “hyponatremia,” which can lead to damage in certain kinds of tissues in the body. Changes are most noticeable in the nervous system where seizures, coma, and even death can occur.

Recognizing overhydration or hyponatremia is challenging because the symptoms may resemble those of heat stroke or heat exhaustion. Early symptoms can include confusion, nausea, fatigue, muscle cramps, and weakness. More serious symptoms include vomiting, muscle twitching, delirium, seizures and coma. The main difference between heat stroke and heat exhaustion, when compared to overhydration, is that overhydration doesn’t cause the victim’s temperature to rise. Because overhydration can be deadly, the final diagnosis must be made at a medical facility where the victim can be properly treated.

If all this talk about hydration and sodium balance sounds intimidating, relax. Most soldiers are taught to drink one canteen (one quart) of water per hour when working in the heat.
Cold-Water Warning
May Save Lives

The extreme danger of cold water—water that is below 70°F—can lead to hypothermia...even in warm weather. The chart below shows the effects of hypothermia in water. Loss of body heat to the water is a major cause of deaths in swimming and boating accidents. Often the cause of death is listed as drowning; but time and again, the primary cause is hypothermia. Leaders should train soldiers to watch for the following symptoms in themselves and each other:

- Shivering, which signals a drop in body temperature.
- Bluing or darkening of lips, earlobes, fingers, or toes.
- Unusual or uncontrollable breathing, such as sudden gasping or rapid breathing.
- Slight cramps.
- Difficulty using hands.

Soldiers having these symptoms should be removed from the water as fast as possible and warmed.

Personal flotation devices (PFDs), or better known as life jackets, can increase survival time because of the insulating value they provide. In water less than 50 degrees, you should wear a wetsuit or dry suit to protect more of the body.

Some points to remember to increase your chance of survival:

- While in the water, do not attempt to swim unless to reach nearby safety.

Unnecessary swimming increases the rate of body heat loss. Even treading water chills the body faster than remaining still while wearing a life jacket.

- Keep your head out of the water—this will increase your survival time.
- Keep a positive attitude about your rescue.
- If there is more than one person in the water, huddling is recommended.
- Always wear your life jacket. It won’t help if you don’t have it on.

Editor’s note: It should also be noted that alcohol lowers the body temperature around 2-3 degrees by dilating the blood vessels. Do not drink alcohol around cold water.

### Hypothermia Chart

<table>
<thead>
<tr>
<th>Water Temperature(°F)</th>
<th>Exhaustion or Unconsciousness</th>
<th>Expected Survival Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.5</td>
<td>Under 15 min</td>
<td>Under 15 - 45 min</td>
</tr>
<tr>
<td>32.5 - 40.0</td>
<td>15 - 30 min</td>
<td>30 - 90 min</td>
</tr>
<tr>
<td>40 - 50</td>
<td>30 - 60 min</td>
<td>1 - 3 hrs</td>
</tr>
<tr>
<td>50 - 60</td>
<td>1 - 2 hrs</td>
<td>1 - 6 hrs</td>
</tr>
<tr>
<td>60 - 70</td>
<td>2 - 7 hrs</td>
<td>2 - 40 hrs</td>
</tr>
<tr>
<td>70 - 80</td>
<td>3 - 12 hrs</td>
<td>3 hrs - Indefinitely</td>
</tr>
<tr>
<td>Over 80</td>
<td>Indefinitely</td>
<td></td>
</tr>
</tbody>
</table>
Get the New Video—
It's about a young soldier who encounters Sergeant Safety during inprocessing at his first duty station. Sergeant Safety takes the young soldier around the installation and focuses on the 12 key areas of traffic safety. In the process, the soldier begins to understand that traffic safety is more than just rules.

Attention Commanders and First Sergeants!
The Safety Center has a new video ready for you to use as part of your POV traffic safety program. It’s a remarkably brief (15 minutes), lively and entertaining show in which SGT Safety targets 12 traffic safety points and shows the consequences of bad driving decisions. Every soldier, family member, and new civilian employee should see it. Driver’s Dozen is available now:

- Go to our website: [http://safety.army.mil](http://safety.army.mil)
- Click on MEDIA-VIDEOS-POV VIDEOS-Driver’s Dozen

A Facilitator’s guide is available for download, as well as ordering instructions.

DRIVER’S DOZEN
1. **Seatbelts**—Cut your chance of being killed or seriously injured.
2. **Airbags**—Allow 10 inches between steering wheel and driver, in case it inflates.
3. **Child safety**—Use the correct child safety seat; 12 years and under—“Back is where it’s at.”
4. **Motorcycle safety**—It won’t be pretty to see what’s left after the G-forces perform experiments on your body. Wear the following protective equipment—
   - DOT-approved helmet
   - Eye protection
   - Long-sleeved shirt or jacket
   - Long trousers
   - Brightly colored top during day
   - Reflective during night
   - Full-fingered gloves
   - Sturdy footwear (leather boots or over-the-ankle shoes)
5. **Bicycle safety**—
   - Use marked paths when possible.
   - See and be seen; wear proper clothes and reflectors.
   - “Go with the flow” when riding on the street (in the same direction as vehicle traffic), and use hand signals when turning.
   - Wear a helmet.
6. **Pedestrian safety**—
   - Use marked paths when possible.
   - See and be seen; wear proper clothes and reflectors.
   - “Go with the flow” when skateboarding on the street (in the same direction as vehicle traffic), and use hand signals when turning.
   - Wear protective equipment—helmet, wrist guards, and knee/elbow pads.
   - Make sure your equipment fits and is properly adjusted.
   - Especially watch for children walking to and from school, loading and unloading school buses, and playing in housing areas.
7. **Headphone use**—The ONLY place you can listen to tunes is on a track.
   - Safety belts
   - Lights
   - Window tint
   - Exhaust system
   - Brake systems
   - Wipers
   - Horns
   - Suspension
   - Steering systems
   - Wheel assemblies
   - Tires
9. No laser or radar detectors are allowed on post.
10. **Alcohol**—No open containers in passenger compartment.
11. **Post-specific rules**—Ask your first-line supervisor.
12. **Driver’s training**—4 hours of training for age 26 and under.

POC: James “Al” Brown, USASC Traffic Safety Manager, DSN 558-3421, brownj@safetycenter.army.mil
We can do better...

Stop the BLEEDING!
Features

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Proper Use of HMMWV 2-Point Seatbelts

A HMMWV is a lethal weapon if the lap belt is not adjusted properly.

Page 6

When Things Start Going Wrong

The author explains the mass confusion surrounding this live-fire training exercise. The result was an injured soldier.

Page 7

Investigators’ Forum

This unit learned a tragic lesson when they failed to check relevant safety messages when they received new equipment.

Page 12

Tire Cages Are a Must!

You better believe there’s danger if a split rim separates and it’s not in a tire cage.

Page 13
Halfway through this fiscal year, the Army has some good news. During the first two quarters of FY01, the Army reduced the number of Class A ground accidents from 81 to 70 in comparison to the first two quarters of FY00.

The most notable improvement is evident in the reduction of Army motor vehicle (AMV) Class A accidents from 10 to 4 during this timeframe. This is a 60-percent reduction from the previous year and 42 percent below the 3-year average.

POV Class A accidents also declined from 55 to 40 during this timeframe. This reduction of nearly 30 percent over the previous year is a great improvement. However, we still have room to improve, as POV accidents remain the biggest killer of soldiers as well as the leading cause of severe injury.

Unfortunately, the significant reduction in AMV and POV accidents is offset by the increase in Class A Army combat vehicle (ACV) accidents, personal injuries, and "other" accidents. Army combat vehicle accidents increased from 1 in FY00 to 2 in FY01. Personal injury accidents increased from 12 in FY00 to 17 in FY01. Four of these accidents involved mishandling weapons that resulted in fatalities. Carbon monoxide poisoning was the next leading cause of death claiming the lives of three soldiers. "Other" accidents increased from 3 in FY00 to 7 in FY01, of which 5 were fire fatalities.

In summary, the Army has improved in reducing the number of Class A ground accidents in the first half of FY01. Commanders and leaders are achieving these gains in a challenging environment of expanding missions, variety in areas of operation, equipment modernization, and changing force structures. However, we can do better. As we move into the second half of FY01, make a renewed commitment to practice risk management in all operations.

POC: MAJ Dave Hudak, Operations Research /Systems Analysis Division, DSN 558-2075 (334-255-2075) hudakd@safetycenter.army.mil

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On-duty Class A Ground Accidents for Mid-year Performance FY00 vs FY01

<table>
<thead>
<tr>
<th></th>
<th>FY2000</th>
<th>FY2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMV</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>ACV</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>PIA</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>POV</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>81</td>
<td>70</td>
</tr>
</tbody>
</table>

As of 31 March 2001
Haste—Top Accident Producer in Tracked Vehicles

The Army Safety Center did a review of all tracked vehicle Class A-C accidents over the past 18 months. Of the 57 accidents reviewed, 20 of them occurred due to soldiers being in a hurry.

Being in a hurry is nothing new to Army soldiers. However, driving a 70-ton combat vehicle faster than conditions permit places yourself and others in serious risk.

During a coalition-training event, an M1A2 tank in a wedge formation went up a hill and dropped down the other side. Unfortunately, the other side was much steeper and deeper than expected. The driver’s head was thrown forward and backward from the impact, resulting in minor whiplash. Damage to the tank consisted of one shattered road wheel, two cracked road wheels, one damaged hub, and replacement of both idler arms. If the tank commander (TC) had directed the driver to slow down as he drove over the crest, this accident would not have happened.

When we are in a hurry, sometimes things get overlooked. Failure to conduct or improperly conducting preventive maintenance checks and services (PMCS) can have drastic consequences.

While preparing for a mounted movement, an M113 driver failed to conduct a proper PMCS. If he had, he would have found numerous worn track shoe bushings and metal-on-metal wear on track shoes, placing the vehicle in a not-mission-capable (NMC) status. Although the condition was not corrected, the driver drove the M113 faster than the authorized speed limit; the track shoe abruptly separated and the vehicle overturned, fatally injuring the driver. The TC and the two passengers received minor injuries.

Even though the driver is tasked to conduct and document the PMCS, the entire platoon leadership is responsible for ensuring the required maintenance is completed and documented. The TC and section sergeant did not ensure that the PMCS was conducted and reported to standard. Were they in a hurry as well?

In too much of a hurry for seatbelts? A soldier in an M2A2 Bradley felt that way. During a movement to contact, the Bradley hit a bump, causing everyone in the rear to come up off their seats. The soldier without his seatbelt hit his head on the top of the crew compartment and was knocked unconscious. He was evacuated to the hospital and diagnosed with a mild concussion. When asked why he wasn’t wearing his seatbelt, he stated that it took too long to buckle when getting in the vehicle and too long to unbuckle when departing the vehicle. Remember, whether you are in a privately owned vehicle (POV) or a combat vehicle, it is an Army requirement to wear seatbelts.

These are merely three examples of numerous case studies reviewed in the Safety Center. This “hurry-up” attitude is not specific to any certain location; it seems to be throughout the Army. Hurrying increases the chance for human error and therefore, the risk of an accident. Leaders must ensure that subordinates understand that the mission must be completed to standard and not just to time. We all need to raise the flag when time allotted will not permit us to accomplish our tasks to standard. Shortcuts can lead to damage, injury, and death. There is no need to be in a hurry for an accident.

POC: MAJ Dave Hudak, Operations Research/Systems Analysis Division, DSN 558-2075 (334-255-2075) hudakd@safetycenter.army.mil
SAFETY ALERT NOTICE—
2-POINT SEATBELTS

Recently the Army experienced a tragic accident involving a variant of the High-Mobility Multipurpose Wheeled Vehicle (HMMWV) family of vehicles. This vehicle utilized a 2-point seatbelt restraint system common to older versions of the HMMWV. What makes this accident especially tragic is that the driver of the vehicle was wearing his seatbelt during the course of the accident. Unfortunately, he was not wearing it correctly.

The Army recognized a significant hazard associated with the standard 2-point seatbelt restraint system in the HMMWV. While the seatbelt is retractable, it does not contain an inertial stopping device that most civilian vehicles have as standard equipment. This means that the user must remove all slack from the retractor and tighten the seatbelt snug across the body. Failure to do so prevents the seatbelt from performing as designed and endangers the user. Instructions on proper wear of the seatbelt and warnings about the hazards associated with this seatbelt are posted in TM 9-2320-280-10.

The 2-point seatbelt system is currently being phased out. Modification Work Order 9-2320-280-35-2, dated 1 Jun 96, outlines the procedures for installation of the 3-point seatbelt restraint system for basic versions of the HMMWV. Until the completion of these modifications, commanders should do the following:

■ Warn personnel of the hazards associated with the 2-point seatbelt restraint system.

■ Train personnel on the correct procedures for use of the 2-point seatbelt restraint system.

■ Rigidly enforce the requirements of AR 385-55 for mandatory seatbelt use in all vehicles so equipped.

Additionally, commanders should review maintenance and inspection procedures for all vehicles containing the 2-point seatbelt restraint system. Ensure all warnings are posted (on the vehicle and in applicable TMs) and adhered to during all types of operations.

—BG Gene M. LaCoste, Director of Army Safety
Proper Use of HMMWV
2-Point Seatbelts

The high mobility multi-purpose wheeled vehicle (HMMWV) was initially fielded over 15 years ago as a replacement for the M151 Jeep. Although it is a rugged vehicle and has many significant safety improvements over the M151, it is not invincible.

In fact, over 30 soldiers have been killed while riding in the HMMWV over the past 15 years. Almost half of these fatal injuries resulted during rollover accidents. In approximately half of the rollover fatal accidents, the person killed was either not wearing the available restraint system or not wearing it properly. Others were killed in frontal collisions where passenger restraints were not worn. Despite what you may think about restraint use, statistics prove that this is your best defense against injuries when involved in a moving vehicle accident.

Unlike a sport utility vehicle (SUV), the HMMWV is not designed with padded dashboards and soft interior surfaces. In fact, because of the HMMWV’s mission, it is usually equipped with numerous radios, electronic gear, weapons, ammo cans, and numerous other hard surfaces. These items can cause severe injuries if the vehicle occupants are thrown into them during an accident. HMMWVs are also operated in much more severe terrain than the typical commercial SUV. As a result, wearing passenger restraints in the HMMWV is extremely important to your personal safety.

Early HMMWVs were only equipped with lap belts. While it is common to see lap/shoulder belts with pretensioner and multiple air bags in today’s commercial vehicles, lap belts were the type of restraints used in this class of vehicles during the early 1980s.

Although lap belts have been replaced by lap/shoulder restraints in newer HMMWVs, the lap belts in older vehicles provide significant benefits in crash situations. In order for the lap belts to work properly, however, they must be properly adjusted. In our POVs, we simply pull out the restraint far enough to allow the connection of the buckle latching mechanism. During a crash, the belt retractor will lock and restrain us from further movement. The HMMWV lap belts do not have this locking feature. The lap belts on the HMMWVs must be fully extended from the retractor and adjusted for size by pulling the loose webbing tab to secure the belt. If this procedure is not followed, the person will not be properly restrained in a crash. A soldier recently received fatal injuries in a rollover accident due to the lap belt not being properly pulled out and adjusted from the retractor. As the HMMWV rolled over, the belt unwound and the soldier slipped out of the loosened belt.

Older HMMWVs will eventually be equipped with lap and shoulder restraint systems. A maintenance work order exists to make structural modifications and install shoulder restraints in the older vehicles. Until then, you can be protected by the lap belts by following three easy steps: (1) fully extend the webbing, (2) secure the latch, and (3) pull the loose webbing end to remove the slack. You must ensure the restraint fits snugly across your hips each time the restraint is used.

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When Things Start Going Wrong...

This accident happened almost a year ago, and it nearly cost a soldier his life. This was one of those needless accidents caused by leaders not properly planning and preparing for training in accordance with FM 25-101 and FM 25-100. Sometimes when one thing starts going wrong, other things start going wrong too....

What happened?

It was going to be a simple training exercise for weapons familiarization, prior to the unit conducting an upcoming live fire exercise. The commander developed a training plan; however, he failed to incorporate the 3 phases of marksmanship instruction outlined in FM 23-65.

The big day for the familiarization live-fire exercise finally arrived, and we started moving the unit to the range. Initially, little things started to go wrong: First, there was confusion about the range OIC; after that, some of the ammo was late getting to the range—and some ammo never made it at all; and then, a rainstorm hit.

After the rain, the unit began firing their weapons. One of the weapons, an M-2HB .50 caliber machine gun immediately started to malfunction; it would only fire one round and then stop. The commander had to send the unit armorer back to pick up more M-16 magazines, and unfortunately, he had taken all the manuals and tools for the M-2HB machine gun weapon with him.

The commander told his soldiers to keep working through the problem. After a while, the primary gunner got tired of charging the weapon, so he had his assistant take over.

The assistant gunner also had problems firing. He attempted to fire the M-2HB, but it was doing the same thing for him, firing one or two rounds, and then stopping. On his third attempt, a shell case ruptured outside of the chamber, sending a small piece of shell casing into his leg.

Why?

As I started looking into the accident, a lot of information became apparent. The weapon failed to fire properly on two previous occasions, and the unit failed to properly troubleshoot and repair the malfunctions on the machine gun.

The unit also failed to provide trained instructors on the range for the M-2HB machine gun. The unit was not familiar with the weapon, nor did they go outside the unit to find someone to assist them in the training. Regrettably, no one noticed that the bolt switch was set for a right hand feed and the rest of the weapon was set for a left hand feed. Failure to properly set headspace and timing in accordance with TM 9-1005-213-10 resulted in a case rupture that caused the accident.

Headspace and timing checks are critical to firing the M-2HB machine gun. The armorer set the headspace and...
Chain of Circumstances

Some of us have developed the attitude that accidents happen only in untrained, undisciplined units. Well, I have news for you. While well-trained, disciplined units have shown lower accident rates, there is a chain of circumstances that—like the full moon—can affect even the best of the best. And we must be aware of it in order to combat it.

Highly trained units—those that have been trained to standard—are aware of the dangers of their particular missions because they’ve done a risk analysis and been safety briefed. They know the variables.

However, the chain of circumstances is ever ready to deliver its special knockout punch. It comes in links of fatigue, haste, weather, errors, personal problems, lack of supervision, command pressure, and plain old Murphy’s Law. The links are self-perpetuating, always adding on. The chain continues to grow. Just as we think we are squared away, another link in the chain will appear, wrapping around the unit, tying up our ability to accomplish our mission safely.

For example, an NCO and a private were working the Tactical Operations Center (TOC) radio watch in the command track extension of their M577. The private noticed the track extension was starting to get cold because the stove had run out of fuel. The private hooked up another can of fuel to the stove; however, he didn’t know that he had used a can of MOGAS, and an air lock had formed in the fuel line.

The NCO, who had been sleeping, awoke and began to give the private a hand. The NCO disconnected the fuel line and blew the line clear. When he reconnected the line, fuel splashed on the floor near the hot stove. The fuel ignited, catching the NCO on fire. He dropped the fuel line and grabbed his field jacket to smother the fire. The canvas floor of the TOC was in flames, and the fire was spreading to the walls. No fire point had been established and no fire extinguisher was immediately available.

The private ran to find a fire extinguisher, and in his haste, he fell and dropped it. He couldn’t find it in the smoke-filled TOC. The M577 could not be moved quickly because it had been parked between large trees. The NCO was burned and the vehicle was destroyed.

This accident happened several years ago, but brings to mind the words of a former commander of mine. He said, “Hope is not a plan.” You can’t hope that nothing goes wrong because you haven’t planned for it. The chain of circumstances isn’t affected by hope; it’s forged in lack of planning.

As leaders, we can combat this chain only

Inadequate and incomplete training can increase risk if not controlled. You had better know what to do when things suddenly start going wrong.

Lessons learned

There are many lessons to be learned from this accident:  
- For low-density weapons training, get assistance from outside subject matter experts.
- Ensure adequate contingency plans are made; i.e., technical manuals/tools are on-site and weather reports are monitored.
- Properly plan, prepare and resource training in accordance with FM 25-101.
- Provide trained and qualified instructors from preliminary marksmanship instruction (PMI) for qualification of soldiers.
- Conduct a thorough range-safety brief.

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NCO Corner
by continuing to train, supervise, and create awareness in our soldiers concerning the chain. As we recognize the potential for an accident—near the end of a long FTX, for example—we should gather our soldiers together and explain in real terms the real hazards they face and why. Then we must eliminate the hazards, so that we can take our soldiers and equipment home at the end of the FTX. Managing risks is a continuous process, not a one-time thing.

Every time you return from an exercise with all your soldiers and equipment, you’ve broken the chain of circumstances. Evaluate how you did it, spread the word, and continue to build on the excellent foundation you have established.

**Soldier safety: NCOs make it happen!**

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Looking Beyond Identifying and Asssessing Hazards

This article, the third in a series on the risk management process, focuses on Step 3: “Developing controls and making risk decisions.”

When Safety Center personnel conduct accident investigations, they look for the root cause of the accident. One that often stands out is that leaders are not fully applying the 5-step risk management process. The commanders and NCOs of accident units can usually show that they penciled a worksheet. They identified likely hazards. They assigned at least a personal impression of the degree of risk. Then the process broke down. The leaders didn’t really carry out Step 3, developing controls and making risk decisions at the appropriate level. Thus, there was no countermeasure to execute, nothing to follow-up.

Too often, risk-reduction controls are never developed, and when they are, they aren't adequate or they aren't implemented. Without that central risk-management step, the first two steps are almost useless and the last two are not properly targeted!

Actually, there are two related phases to this step. Leaders must obviously develop hazard controls before they can make any decisions about them, so I’m concentrating on that aspect in this article. Next month, we’ll discuss the second part of Step 3 “Making risk decisions.”

Control development hasn’t changed since people started thinking about safety in an organized method—most controls can fit into three methods.

- **Engineering.** Leaders can engineer-out some hazards. Engineering is the most positive and proactive way to control hazards. When the soldiers’ equipment, environment, or tasks are permanently changed to remove the hazard, troops can operate more freely without losses.

  Ideally, engineering begins before the drawing board—when the acquisition folks first design requirements and materiel solutions. In the real world, engineering continues long after equipment is fielded.

  Engineering doesn’t end when good equipment gets in the soldier’s hands. The state of maintenance and facility upkeep is constantly monitored through the command inspection and work order effort. The Armywide equivalent is the Modification Work Order (MWO). Even MWOs ultimately rely on user-unit leaders to make sure their equipment gets the right priority and doesn’t fall through the cracks.

  Reengineering a mission doesn’t mean abandoning it. Reengineering means finding and maximizing every available advantage—time, equipment, illumination, rest, troop talent, support—all the METT-T factors and more.

- **Training.** Soldiers can be trained to safely operate around hazards. When hazards can be physically eliminated, they should be. But, much of the time, the Army...
operates in situations where engineered controls aren’t feasible. This means that when the environment can’t be fixed, or the fix is slow in coming, commanders fall back on training.

Soldiers who trigger human-error accidents sometimes don’t know how to perform the operation safely. Those soldiers are candidates for more training. If a soldier knows his job, but he chooses to take shortcuts, that’s a different problem and requires a different solution (see Enforcement below).

Training is best used to teach soldiers how to operate around risk that can’t be further reduced without compromising the mission. Instead, unit commanders sometimes are forced to use training to compensate for hazards inherited from a flawed system or facility. For example, training to improve driving behavior is a good control for the high-risk traffic environment. It’s a bad control for a lousy vehicle suspension or defective tires and brakes.

**Enforcement.** Leaders must enforce safe standards of unit performance and individual discipline. Just as there are missions and environments that are not safe for any soldier, we get accident reports on soldiers who would not be safe in any environment, no matter how well-engineered. Erratic behavior can make any mission a high-risk mission. The most extreme cases are rare, but all units will experience human-error accidents if soldiers are not given effective standards and held to them. If standards aren’t enforced, there are no standards.

The standards themselves must be appropriate to the operation. They must be current, they must be suitable, and they must be understood. Standards are not risk controls when they are out-of-date, or when they call for unavailable resources (such as equipment and the time to use it).

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**Standards are not controls when they’re in a book back at the head-shed.** Army regulations, technical manuals, and SOPs become real standards when leaders communicate them to their soldiers in a way that consistently produces the desired performance.

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That’s not always easy, and it’s never a one-shot effort.

We’ve looked at soldiers who don’t know or don’t understand the standard for safe performance—they are uninformed. Sometimes they don’t trust the standard—they are unconvinced. Sometimes they know and understand the rules, but choose another course of action—those soldiers are undisciplined.

Effective leaders make soldiers internalize the rules for safe behavior, and act to the standard. They consistently acknowledge and reward soldiers who are doing the right thing the right way, not those who gamble for short-term results by “making it up as they go along.”

Internalized discipline, which becomes habitual self-discipline, is essential for on-duty performance to standard. It’s even more important off-duty, away from a controlled situation and leadership oversight. Most Army fatalities are caused by off-duty accidents, primarily in POVs. It’s the attitudes learned in the unit that protect young soldiers out on the highways.

The unit commander can’t reengineer the car or the highway; however, he can have some influence on the timing and conditions of his soldier’s trip. Constantly building self-discipline is the way commanders and NCOs reach into the cab of the soldier’s pickup.

In planning real-world missions, risk managers will mix and match these control methods. However, none of the methods will have any impact on fatal accidents unless the risk management cycle is completed. The developed controls must be executed and monitored. **Somebody has to do it!**

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The Rest of the Story

During the conduct of a centralized accident investigation, the accident board and the unit suffering the accident learned a valuable lesson in keeping up with changes, especially safety messages.

The wheeled vehicle accident occurred on a public highway as the unit was traveling to a remote training location. This was the unit’s first opportunity to conduct military occupational specialty (MOS) training in quite some time and unit personnel were enthusiastic as they inspected their vehicles.

The day was clear and dry; road conditions were good. The convoy brief specified the route and convoy speed of 50 miles per hour (mph). Just under an hour after the start, an M939A2 began to descend a steep hill. The driver was cautious and made sure the vehicle was traveling at the convoy speed limit.

Things began to go wrong when the trailer that the truck was towing began to fishtail. Then one of the trailer tires blew. The driver fought for control. At the bottom of the hill, the truck went off the road and rolled. Thankfully, the driver and the other occupant received only minor injuries, but the truck was badly damaged.

The board members knew from their training that the two primary causes of tire failure are under-inflation and excess speed. The tires on the truck were serviceable. Five of them still held air and were at, or very near, the proper inflation pressure. The tires on the trailer were new. X-ray examination of the tire carcass showed no defects.

The board next considered excess speed. They interviewed the vehicle occupants regarding their speed. The driver and the vehicle commander insisted that they were doing no more than 50 mph. The State Patrol used a certified traffic accident reconstruction expert to investigate the accident. When contacted by the board, he verified that the vehicle was, in fact, traveling at approximately 50 mph. The board was puzzled by what had caused the loss of control, if not excess speed.

Finally, the board’s maintenance subject matter expert asked if the unit was aware of any Safety-of-Use-Messages (SOUMs) or Ground Precautionary Messages (GPMs) on the vehicle. At first, unit personnel said no. They had just gotten their first two M939A2 trucks recently as replacements for older model trucks.

At that point, the board checked the Army Electronic Product Support Bulletin Board via the Internet website http://aeps.ria.army.mil/ and discovered that there are two safety messages (GPM 96-04, 131807Z and SOUM 96-04, 131808Z) for the M939A2.
98-07, 081917Z) restricting the maximum allowable speed for M939A2 trucks to 45 mph until antilock brakes and radial tires are retrofitted.

Further interviews with unit maintenance personnel determined that they had seen the messages when they came out. However, since the unit did not, at that time, have any M939A2 trucks, they did not inform the chain of command.

The lesson here is whenever your unit receives new equipment; it is good practice to check all relevant SOUMs and GPMs to ensure that you and your personnel operate the equipment safely. Maybe that is what FM 22-100 means when it says, “Be, KNOW, and do.”

You can check current SOUMs and GPMs at http://aeps.ria.army.mil/ or by calling (404) 464-6204/6293.

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Almost all of us have heard of tire cages, and most of us think we use them correctly. Being a Maintenance NCO for 18 years, I have made more on-the-spot corrections than you could imagine due to soldiers not using tire cages, or using them incorrectly. It is not because soldiers don’t want to do the right thing. They do. However, most of the time, the cage isn’t available, or soldiers have not been informed of the danger, so they don’t use it.

One thing we all can agree on is that a soldier is going to get the job done. To a soldier’s credit, it may not always be the correct way, but they will get the job done the best way—and sometimes the only way—they know how.

Is there danger? You better believe there’s danger! There is a good chance of losing your life if that split rim separates and it is not in a cage. Not only is the mechanic repairing the tire at risk, anyone in the trajectory zone is at risk. Just this past year, we have had one fatality, numerous injuries, and a lot of close calls.

In September 2000, TM 9-2610-200-14 was released. This manual covers the care, maintenance, repair and inspection of pneumatic tires and inner tubes. One significant change in this TM is that tire cages will no longer be permanently mounted. Page 2-2, paragraph 2-3a(2) states the following: “Tire safety inflation cages should be freestanding and a minimum of 3 feet away from any object. Never permanently mount a safety cage to the floor or near a wall. Mounting an inflation cage to the floor or near a wall prohibits expected deformation of the bottom plate and equal dissipation of energy released in the event of tire explosion. Permanently mounting an inflation cage to the floor or near a wall could result in failure of one or more of the bars, release of rim components, or shrapnel and/or an unwanted concentration of energy.”
A few other common mistakes include the following—

- Not using a 10-foot extension air hose with a snap-on chuck. I have actually seen soldiers use the extension, but not stand 10 feet away when using it or stand in the trajectory zone. Obviously doing either of these makes using the extension useless.

- Attempting to reseat the tire bead or toy with it in some other way while the tire is being inflated. If you are inflating a tire and the bead doesn’t seat after 40 psi, STOP and deflate the tire, and then reinspect the tire and rim assembly.

There are more warnings and steps you must take to prevent injury or death. I just mentioned a few common ones that I have seen or heard about. Leaders and soldiers at all levels need to ensure that proper precautions are followed when servicing split-rim tires—it’s a MUST, not an option.

In addition, OSHA regulations found in 29 CFR 1910: General Industry Occupational Safety and Health Standards cover split-rim tire servicing. The above requirements are also found in 29 CFR 1910.177: Servicing Multi-Piece and Single-Piece Rim Wheels.

Remember that cages involved in split-rim blowouts must be removed from service and inspected by the manufacturer or a registered professional engineer before being reused. Several other defects listed in this reg require the cage to be removed from service. (OSHA regulations do govern some nonmilitary-specific operations such as tire servicing.)

Editor’s note: You can obtain free training material from ACCURIDE Corporation, P.O. Box 40, Henderson, KY 42420; 1-800-626-7096 or e-mail mawilliam@accuridecorp.com.

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Risk Management Pointer:
Leaders must ensure soldiers are trained to standard, and that they do not overinflate tires as a way of seating the bead. This unauthorized method can cause explosions.

**Guidance on HEMTT Wheel Assembly & Inspection Procedures**

The Army has issued two Ground Precautionary Messages (GPMs) that deal with heavy expanded mobility tactical truck (HEMTT) wheel assembly: GPM-00-002, R 211626Z Oct 99, subject: Tire inflation/deflation procedures, wheel assembly inspection procedures, serviceability criteria, and new pressures for the HEMTT wheel assembly, TM9 2320-279-10-1(C5), page 2-57 and TM9-2320-279-20-2(C2), page 12-28 and GPM-00-003, R 211645Z Oct 99, subject: Mechanics inflation/deflation procedures, wheel assembly inspection procedures, serviceability criteria, for the HEMTT wheel assembly, TM9-2320-279-20-2(C2), page 12-28. These messages provide detailed procedures to properly inspect, maintain, and determine serviceability of the HEMTT wheel assembly.

Also in Change 5 of the HEMTT –10, it states that an organizational-level mechanic repair and assemble/disassemble split rim tires.
If Daddy Had Only Known

It was 8 p.m. on 10 July 1996. I had just gotten home from a psychology class at Coker College, at the Fort Jackson, South Carolina education center.

What a great day it had been! It was my oldest son’s birthday, and I just received an A on my test.

I picked up the phone to call my son and wish him a happy birthday. I noticed the light was blinking, so I decided to check my messages first. When the message came on, I heard my mother’s crying voice say, “Your daddy’s in intensive care and we don’t know if he’ll live or not, come home.” ‘Click,’ she hung up. No explanation.

At that moment, I stood frozen—my brain would not function, my prayers were frozen on my lips. A second seemed like eternity. All I knew was that I had to get home.

I called the hospital in my hometown and asked to speak to any family member. My niece came to the phone. She said my dad had been burned in a gasoline fire that afternoon on the farm. He was currently in intensive care, and if he lived through the night, they would transfer him to the Vanderbilt Burn Center in Nashville, Tennessee the next day.

I called my first sergeant at midnight and informed him of the situation. He told me to get some rest, then go home first thing in the morning, and he would fax me my emergency leave papers the next day.

I didn’t get much rest that night. The next morning, I drove the longest trip of my life, not knowing if my dad would be alive when I got there.

When I arrived at the hospital, my family told me what happened. My dad, who was 73 years old at the time, was planning to burn a wild rosebush that was touching his electric fence. He was afraid the cows would try to eat on the rosebush and break the fence. He took gasoline that was stored in a plastic milk jug and poured it on the rosebush, and then made a trail of gasoline 6 feet away.

He then set the plastic jug, which had a third of the gasoline left in it, beside him. Gasoline has a flash point of –40 degrees and higher. It was about 92 degrees that day. The gasoline vapors, being heavier than air, were encircling my dad without him knowing. When Dad bent over to ignite the trail of gasoline, he went up in flames. The milk jug then exploded at his feet and knocked him backwards about 6 feet into a stack of cedar posts he had cut earlier.

Dad received second and third degree burns over 40 percent of his body. He received skin grafts from his groin area all the way down to the bottom of his feet. Today, his legs look like the skin of a copperhead snake. The doctors said he really needed to have skin grafts on both his arms and chest, but they were afraid he couldn’t survive any more surgery. For that reason, those areas are very scarred.

This accident happened 5 years ago this coming July. The lives of so many were changed forever in just a moment of poor judgment. My entire family saw a giant of a man broken down to a shell of the man he once was. We have all been humbled. As for my dad, he has not had a single healthy moment since the accident, and never will. Not only was he burned and scarred, his respiratory tract is so damaged that he has to take many medications. In addition, he has to take five breathing treatments a day.

However, now working in the safety field, I have learned many lessons about fuel that I wish my dad had known.

The fuel should have been stored in an approved container for flammables.

When using flammables, you need to understand that there are more vapors when the temperature is hot.

Have proper firefighting items readily available.

Don’t forget to notify someone where you’re going, what you will be doing, and when you’re planning to return.

Use the right equipment for the job; i.e., hedge trimmer and shovel, or if the bush is larger, a chainsaw and axe should have been used.

We are around common things, such as fuel, every day and unfortunately, we take it for granted and fail to realize its real danger. Remember to THINK before you strike a match. Just maybe—this will keep a tragedy like this from happening again.

—Courtesy of Orillia (Ria) Martinez, CP-12 Intern, Fort Rucker, AL
Hit the Road, Jack!

Recently a safety officer from the field requested assistance from the Safety Center on what he thought was a 7-ton jack stand problem. The safety officer contacted the manufacturer and found that his soldiers were using the stand incorrectly. He informed us so we could disseminate this information Armywide.

We contacted TACOM-RI Safety Office who researched this issue further and found that the unit was using 10-ton jack stands that were not approved for use by the Army. Leaders must ensure that all tools and equipment being used and locally purchased meet Army standards.

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The Official Safety Magazine for Army Ground Risk-Management

In this issue...
The summer vacation season, particularly the time between Memorial Day weekend and Labor Day weekend, brings about a myriad of hazards that require attention to ensure accident prevention plans are in place. During this “101 Days of Summer,” soldiers and their family members will be exposed to heat injuries, drowning, boating and swimming accidents, as well as privately owned vehicle accidents. These summer accidents present a challenge that deserves the utmost care and preparation. Read the articles, make copies, and pass them on to your soldiers and family members. Put copies in familygrams or have your base newspaper reprint them. Spread the word—it could help save someone’s life.

Getting Your Vehicle Ready For Summer
Before traveling to your vacation destination this summer, make sure your vehicle is road worthy. Follow these tips for a smooth drive down the highway.

Boating Rules of the Road
Many soldiers and their dependents are killed or seriously injured in boating accidents every year. The majority of accidents would not have happened if the victims had taken the time to follow the rules.

Investigators’ Forum
Live ammo is introduced into a force-on-force MILES exercise, resulting in a soldier’s death. Read how this force-on-force exercise suddenly turned into disaster.

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POV UPDATE
Includes various articles and advertisements.

U.S. ARMY SAFETY CENTER

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Gene M. LaCoste
Brigadier General, U.S. Army
Commanding Officer

JUNE 2001 COUNTERMEASURE 2
Summer Safety

Summer is finally here. With extended daylight hours and warmer temperatures, we will spend more time traveling and participating in outdoor activities. Whether we’re driving cross-country, traveling to the beach, or visiting friends locally, take a few minutes to plan ahead. Remember there will be more vehicles on the road than normal. If you add fast-changing weather conditions, congested roadways, fatigue, impatience, and drunk and/or speeding drivers—you have a recipe for an accident waiting to happen.

Did you know that more people are killed in accidents during the period of June through August than in any other quarter of the year? Statistics also show an increased likelihood that some soldiers will be injured or killed in auto accidents, heat stress injuries, burned from fireworks or barbecuing, or drowned while boating and swimming.

These accidents are preventable. Prevention starts with a strong safety program—one with assertive leadership and command intervention. Supervisors must maintain an effective safety campaign throughout the summer and brief the following information as many times as necessary.

- **Traveling.** Soldiers must be counseled on safe driving procedures. Those who plan to travel should ensure vehicles are prepared for the trip. Before 4-day weekends, recommend the chain of command perform safety checks on soldiers’ vehicles. These checks are vital to the safety of our soldiers. Don’t just go through the motions—really look those vehicles over.
  - Fatigue is the number one killer of our soldiers. Instruct soldiers to get plenty of rest before a trip. Stop for rest breaks every 2 hours.
  - Speed kills. Plan ahead and don’t rush. Observe the posted speed limits. Decrease/adjust speed based on conditions (weather/traffic).
  - Seatbelts save lives. Why is it that there appears to be a stubborn resistance to the wearing of seatbelts? It is a factor in most of our fatalities, on- and off-duty.
  - Do not drive under the influence of alcohol. Supervisors should ensure all soldiers are aware of the consequences of drinking and driving, such as Article 15 or possible court martial and possible discharge action—not to mention the risk of injuring or killing oneself, loved ones or others. Instruct soldiers to plan ahead and provide a designated driver. Establish and maintain a list of designated drivers and taxi phone numbers. Keep the list handy and use it!

- **Heat stress** injuries can range from painful heat cramps to a deadly heat stroke. Know the early signs of heat stress, such as dizziness, weakness, and profuse perspiration. To prevent heat stress injuries, drink plenty of water before, during, and after activity. Go to the nearest shaded or cool place and sit or lie down. If symptoms are not relieved in a few minutes, seek medical attention immediately. (See April 2001 issue of Countermeasure for more information on heat stress).

- **Water activities.** Whether it is a dip in the backyard pool or a swim in the ocean, always follow the rules on water safety (see boating and swimming articles in this issue).

- **Fireworks.** Play it safe and let the experts at a public display set off the fireworks.

- **Barbecuing.** Keep the barbecue grill a safe distance from the house or flammable materials. Always have a fire extinguisher or a water hose ready in case the fire gets out of control. Keep children and pets away from grill. Never start the grill with gasoline. Never leave the fire unattended.

Be prepared for the hazards of summer. Don’t let safety be an afterthought when planning a vacation or that weekend getaway. Take a few minutes to consider your safety as well as your family’s. Commit to making this summer free of injuries and needless tragedies. It can mean the difference between life and death. Have a safe summer.

Mission First, Safety Always!

Paula Allman
Driving Tips to Arrive Alive

In the first half of FY01, the number of Class A privately owned vehicle (POV) accidents within the Army was reduced nearly 30 percent from the previous year. At the mid-point of last year, the Army reported 57 Class A POV accidents compared to 42 reported this year. The reduction in these accidents is good news; however, we are still having too many preventable POV accidents.

The Safety Center analyzed all Class A POV accidents occurring this year and found no surprises in the types of accidents. Driving while fatigued was the number one cause of accidents, followed by excessive speed. Both have historically been two of the top reasons for POV accidents.

Fatigue

One soldier planned on riding his motorcycle throughout the night to his next duty station. What he did not plan on was falling asleep while riding. Unfortunately, that is exactly what happened. At approximately 0500, he completely missed a curve in the road, went through a guardrail, and struck a concrete pole. The soldier was killed instantly.

Countermeasures

- Get sufficient sleep prior to a long drive. Adequate sleep is more effective in keeping a driver alert than any other measure. Don’t plan a long trip immediately following a full workday.
- Limit your driving between midnight and 0600. Your body is normally asleep during this time period, not driving.
- Plan for rest stops. At a minimum, plan for 15 minutes of rest for every 2 hours of driving. If you are even slightly tired, plan for a break every hour.
- Stop driving when you are tired; find a hotel or place to rest, or let someone else drive who is rested.
- If another driver is unavailable to take over—
  - Take a break for a short nap. A 15-20 minute nap has been shown to improve alertness even among sleep-deprived test subjects.

- Don’t rely on caffeine to get you to your destination. Caffeine only has a short-term effect on alertness. If you are relying on caffeine to finish a trip, you are raising your risk factors to unacceptable levels.

Speed

Driving too fast can lead to equally disastrous results. One soldier was going too fast on an expressway off-ramp. The vehicle began to slide until it struck the guardrail, causing the vehicle to rollover several times. During this sequence, the driver was ejected from the vehicle and killed. The driver was not wearing his seatbelt. Driving too fast caused the accident; not wearing a seatbelt cost him his life.

Countermeasures

- Slow down. Don’t be in a hurry to be the next Army accidental fatality.
- Use your seatbelt. This is your last line of defense to save your life if you have an accident. AR 385-55, Prevention of Motor Vehicle Accidents, requires seatbelt use whenever operating a motor vehicle, both on- and off-post.
- When driving a motorcycle, wear all the required safety equipment, particularly the helmet. Although some states do not have helmet laws, AR 385-55 requires Army personnel to wear a Department of Transportation-approved helmet whenever operating or riding a motorcycle.

Historically, the summer months are the worst months for POV accidents. Soldiers will be taking leave and driving home or to vacation spots with the family. Warm weather and longer days increase the number of motorcycles on the roads. While you are driving this summer, keep in mind the lessons learned by others driving the first half of this year. Don’t drive when you are tired, and slow down so that you arrive safely. We still have a long way to go until the end of FY01. Make a commitment to drive and ride safely every time you get in a vehicle.

POC: MAJ Dave Hudak, Operations Research/Systems Analysis Division, DSN 558-2075 (334-255-2075) hudakd@safetycenter.army.mil
Getting Your Vehicle Ready For Summer

Summer’s heat, dust, and stop-and-go traffic will take its toll on your car or truck. You can lessen the odds of mechanical failure through periodic maintenance. Your vehicle will last longer, have a higher resale value, and you can survive summer trips unscathed—physically and financially.

Some of the following tips are easy to do; others require an auto mechanic.

■ Cooling system. The greatest cause of summer breakdowns is overheating. Completely flush the cooling system and refill it every 2 years. Periodically check the level, condition, and concentration of the coolant. (Mechanics usually recommend a 50/50 mix of antifreeze and water.) Never remove the radiator cap until the engine has thoroughly cooled.

■ Air conditioning. Have the system examined by a qualified technician. A marginally operating system will fail in hot weather.

■ Hoses and belts. Inspect radiator hoses for cracks, wear, and leaks. Replace any that show wear. Do the same for belts.

■ Oil. Change your oil and oil filter as specified in your owner’s manual—more often (every 3,000 miles) if you make frequent short jaunts, extended trips with lots of luggage, or tow a trailer.

■ Engine performance. Replace other filters (air, fuel, etc.) as your manual recommends—more often in dusty conditions. Correct drive problems (hard starts, rough idling, stalling, diminished power) at a reputable shop.

■ Windshield wipers. A dirty windshield causes eye fatigue and can pose a safety hazard. Replace worn blades and keep your windshield-solvent tank filled.

■ Lights. Inspect all lights and bulbs. Replace burned-out bulbs, and periodically clean dirt and insects from all lenses. To prevent scratching the lens, use a soft, dry rag.

■ Tires. Check tire pressure at least once a month. Do it while the tires are “cool,” not right after pulling into a gas station or your driveway. Don’t forget your spare tire, and be sure the jack is in good condition. Examine tires for tread life and uneven wearing. Check the sidewalls for cuts and nicks. If you have uneven tread wear or your car pulls to one side, you need an alignment. Rotate tires about every 5,000 miles.

■ Brakes. Inspect brakes as recommended in your owner’s manual, or sooner if you notice pulsations, grabbing, noises, or longer stopping distances. Brake problems should be corrected promptly.

■ Battery. Check battery fluid level monthly. For routine maintenance: Scrape away corrosion from posts and cable connections, clean all surfaces, and retighten all connections. Avoid contact with corrosive deposits and battery acid. Wear proper eye and skin protection while servicing or cleaning battery. If batteries are sealed or “maintenance-free,” take it to an authorized battery service center.

■ Emergencies. Always have the following items on hand for safety and comfort: a windshield shade for reducing heat build-up inside the vehicle, a basic automotive tool kit, a gallon of water, a gallon of antifreeze, and an emergency kit containing a first-aid kit, flashlight with extra batteries, warning devices such as flares or reflective triangles, and jumper cables. Consider buying a cellular phone or citizens band radio for summoning help, but please pull off the road before using it.

POC: James “Al” Brown, USASC Traffic Safety Manager, DSN 558-3421 (334-255-3421), brownj@safetycenter.army.mil
Ten Commandments of Preventing Heat Injury

1. Provide adequate water and ensure water breaks are taken every 15 to 20 minutes. Do not exceed 1¼ quarts per hour. Daily fluid intake should not exceed 12 quarts. Thirst is not an adequate indicator of dehydration. Alcohol, coffee, and soft drinks are not good substitutes for water. Do not use salt tablets!

2. Ensure soldiers gradually adjust to working in the heat. Acclimatization is essential in preventing heat injuries.

3. Schedule work/rest periods. Schedule heavy work for the cooler part of the day (morning or late afternoon). The body generates more heat when heavy work is being performed.

4. Avoid overexertion. Use mechanical aids whenever possible. Assign tasks between several soldiers to reduce the stress on individuals.

5. Use shaded areas: trees, buildings, and tents to reduce radiant heating. The temperature in the sun and under the canopy of a tree can vary from 8° to 20°F.

6. Encourage use of sunscreens to protect exposed skin.

7. Wear loose-fitting, lightweight, light-colored clothing. Do not layer clothing; more clothing increases the risk of heat injury. Consider the additional heat load from protective equipment—such as MOPP gear—when planning and scheduling activities.

8. Monitor WBGT so the heat-stress index can be evaluated. Environmental conditions such as direct sunlight, humidity, and exposure to toxic agents add to heat stress. The wind reduces the amount of heat stress by increasing the evaporation of sweat.

9. Train soldiers to recognize and treat heat injuries and encourage them to monitor each other for signs of heat stress.

10. Conduct safety meetings to emphasize special heat injury prevention procedures. Be prepared to provide medical assistance.

NOTE TO LEADERS: Reduce and laminate this heat prevention plan and keep for easy reference.
There are numerous hazards associated with recreational boating. If they are not reduced, the risks involved can be catastrophic. The most serious and common risk is drowning. Read on to learn ways to manage some of these risks.

1. Hazard: Falling overboard. For example, if you stand too close to the side of a boat in rough water without a life jacket.
   Risk: Drowning. Nationwide statistics reveal 53 percent of boating accident victims drowned, 39 percent suffered trauma, and the remaining 9 percent died of other causes.
   Controls: Wear your life jacket, be seated in rough water, and require others to do so.

2. Hazard: Operating a boat under the influence of alcohol/drugs.
   Risks: Collision, swamping, or falling overboard resulting in sinking, injuries, or drowning. Also consider the result of arrest and punishment for boating under the influence (BUI). Nationwide, one-third of boating fatalities are alcohol related. It is illegal in all 50 states to operate a boat, or permit others to do so, while under the influence of alcohol, narcotics, or barbiturates. Penalties are severe for those caught, even more so if an impaired operator kills or seriously injures someone.
   Controls: Use non-alcoholic beverages. Operating a boat doesn’t need an artificial stimulus to make it fun. Remember that intoxicated passengers can fall overboard too. A sober designated driver is the absolute minimum control for safe boat operation.

3. Hazard: Operating a boat during stormy weather.
   Risks: Swamping, falling overboard, lightning strike, or other events resulting in injuries, sinking, or drowning. By its very nature, weather is dynamic and constantly changing. The possibility of a thunderstorm during a boat outing is a serious hazard that absolutely needs your consideration.
   Controls: Check current weather and the forecast before launching and heading out onto the water. Know before you go! If you’re out on the water, at first sign of lightning or stormy weather, head for shore!

POC: George K. Greenauer, USASC Risk Management Integration Division, DSN 558-2913 (334-255-2913), greenaug@safetycenter.army.mil

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Risk Management Pointers:

- Wear your life jacket.
- Don’t boat and drink.
- Keep an eye on the weather and for traffic and obstacles.
- Consider taking a safe boating course to increase your boating knowledge, skills and abilities (and reduce your boat insurance premiums).
Boating Rules of the Road

Boats are no longer toys for only the rich and famous—many people can now afford them. And for those who can’t or don’t want to buy these toys for the water, they can rent them. Boaters share our lakes, bays, and rivers with other boaters, fishermen, swimmers, surfers, and skiers.

When you operate any boat or watercraft, you are the captain. You are legally in command and bound by the boating rules of the road, as well as the laws and traditions of safe boating.

Alcohol and boating

Research has shown that as little as 4 hours of exposure to sun, wind, glare, vibration, and other motion on the water produces “boater’s hypnosis,” a kind of fatigue that slows reaction time almost as much as if you were legally drunk.

For instance, a boater is just finishing his second beer. His BAC is only one-third of what would make him legally drunk. But he has boater’s hypnosis, and by drinking only two beers during the last hour, he increases his chances of having an accident.

Alcohol can affect your judgment, motor skills, peripheral vision, depth perception, night vision, and balance. A “tipsy” person on an unstable, moving platform like a boat runs the risk of slipping on deck, stumbling down a gangway, or falling overboard. In the event of a fall overboard, alcohol may increase risk of cardiac arrest and will certainly reduce your body’s ability to stay warm in cold water. Within minutes, you may not be able to call for help, swim to a float, or reach the boat or shore.

Waterskiing

Many skiers and boaters are not aware of the potential hazards of waterskiing and as a result, are hurt or even killed pursuing this recreational sport.

Each boat should be able to maintain a 200-foot-wide ski corridor (100 feet on either side of the boat). The entire skiing course should be at least 2,000 to 3,000 feet long to avoid constant turning and risky maneuvering. A minimum depth of 5 to 6 feet of obstacle-free water is necessary to keep the skis from dragging bottom during starts or hitting submerged obstacles, such as docks, pilings or stumps, during a fall.

Always have an observer in the boat. This is a legal requirement in many states. The boat driver cannot watch the skier and operate the boat safely.
Jet skis
The Coast Guard classifies jet skis as Class A inboard boats. That means they are subject to most of the same rules and regulations as any other powerboats. You must register them and have identification numbers. Each person on board is required to wear a PFD. Coast Guard and state rules also require you to have a fire extinguisher on board. Since these craft have no lights, their operation is limited to between sunrise and sunset.

Many jet skis have a lanyard connected to the start-stop switch. If your craft is equipped with such a switch, it won’t start unless the lanyard is attached to it. Never start your engine without attaching the lanyard to your wrist or your PFD. If you fall off, the engine automatically stops so your craft won’t travel far from you, and you can swim to it easily.

For more information on boating, the Coast Guard has a Boating Safety Hotline, 800-368-5647, Monday through Friday, 8 a.m. to 4 p.m. Eastern time. Hotline operators give callers information on boating recalls and take consumer complaints about possible defects. You can also get safety information and pamphlets about recreational boating. Visit their web site at http://www.uscgboating.org/.

at the same time. Use hand signals to communicate between the skier and observer.

Always wear a Coast Guard-approved personal flotation device (PFD) designed for waterskiing. The Coast Guard does not recommend ski belts—they are not approved flotation devices and won’t hold you upright.

Never ski in rough water. High waves or choppy seas will prevent the towboat from keeping a steady course and speed, to say nothing of the impact on the skis themselves.

Never ski after dark. Not only is it dangerous, it is illegal. Any boat traveling fast enough to tow a skier is traveling too fast to navigate safely at night.
Food for Thought!

W arm weather means cookouts, picnics, and barbecues. If conditions are right, bacteria will rapidly multiply within food. Consumption of contaminated food causes a spectrum of symptoms ranging from a mild upset stomach, to “Montezuma’s Revenge,” to occasionally even death.

It was a beautiful Saturday afternoon in June. SGT Smith took his family out for a picnic in the countryside. They packed fried chicken, potato salad, baked beans, coleslaw, and homemade chocolate cake. The Smith family enjoyed a wonderful picnic and came home around 1800. That evening, SGT Smith felt fine when he went to bed, falling asleep almost instantly.

About 1 hour later, he was awakened by a feeling of discomfort in the pit of his stomach. Things were moving around inside his stomach with a definite feeling of unease! He lay absolutely still and unmoving, thinking to himself that if he didn’t move, perhaps it would go away. WRONG ANSWER! Twenty minutes later, SGT Smith took a mad dash to the bathroom. Between vomiting and diarrhea, he hugged and caressed the porcelain throne for over an hour!

This event is fictional, but similar ones occur countless times each year as people fall victim to what is commonly called food poisoning, and more properly called foodborne disease. Food poisonings usually are caused by bacteria, which live in and on most of our food. Proper preparation and serving practices kill these bacteria or make them harmless. But if food isn’t handled properly, the bacteria survive, multiply, and end up causing anything from stomach cramps to death in rare cases.

Stomach cramps, diarrhea, and nausea are classic symptoms of staphylococcal food poisoning and can develop a few hours to a few weeks after eating contaminated food. According to the U.S. Army Center for Health Promotion and Preventive Medicine, approximately six million cases of foodborne diseases are diagnosed each year, and many more cases go unreported.

Who is at risk?

Everyone is at risk for food poisoning. Most cases occur in healthy individuals. Symptoms may be mild or severe, depending upon the degree of contamination and your body’s natural immunity. People with chronic illnesses and a weakened immune system are at higher risk for foodborne diseases. Although food poisoning cases are seen all year round, the summer months are the prime time because bacteria multiply faster in warmer temperatures.
Picnic safety

Keep these rules in mind whenever you plan a picnic—

■ Keep foods such as chicken or potato salad in a cooler until you’re ready to serve them to avoid spoilage.

■ Use one cooler for beverages, and another for perishable foods (use cold packs and keep the cooler closed).

■ Keep leftovers only if there is enough ice in your cooler to keep them cold for the ride home. Immediately put leftovers into the refrigerator when you get home. Before you serve them, make sure you reheat them thoroughly (minimum internal temperature of 165 degrees Fahrenheit (°F) to kill any bacteria that have grown).

Food safety tips

As a general rule: Keep food clean, cold, and covered. Food poisoning can be avoided on the hottest or coldest days of the year by taking these basic precautions.

■ Wash your hands repeatedly. Before preparing food and before handling a different food, wash your hands thoroughly with hot, soapy water and dry them with a clean paper towel. Keep hands away from your mouth, nose, and hair. If you have a cut or skin infection, wear rubber gloves. Wash your hands immediately after using the restroom or handling raw food.

■ Keep all kitchen surfaces and utensils clean. Clean the area where you will be preparing foods with hot water and antibacterial soap. It’s best to use separate cutting boards for raw meats, vegetables, and fruit. Plastic cutting boards are generally easier to keep clean and sanitized.

■ Avoid contact between raw foods and cooked foods. After cooking meats, don’t use the same serving tray or unwashed plate that held raw meat or poultry.

■ Defrost and marinate raw meat and poultry in the refrigerator, not on the counter. Set your refrigerator at 35-40°F, and your freezer at 0°F or lower.

■ Cook foods thoroughly. Cook red meat to 160°F and poultry to 180°F. Avoid eating raw eggs, raw shellfish, unpasteurized milk products and juices, and rare or undercooked meats. Never partially cook meats or casseroles one day and finish cooking them later.

■ Do not take chances! If you suspect there is a problem, throw the food out. Contaminated foods may contain some bacteria that produce toxins that are resistant to destruction even when the food is properly cooked or reheated.
Investigators’ Forum

Written by accident investigators to provide major lessons learned from recent centralized accident investigations.

“No Brass/No Ammo, Sergeant!”

A mechanized infantry company deployed to a local training area to conduct a live-fire exercise (LFX). Following the exercise, the company (BLUFOR) conducted a situational training exercise (STX) supposedly using blank ammunition. Instead, a BLUFOR rifleman mistakenly loaded a magazine of live ammo, accidentally killing an opposing force (OPFOR) soldier.

What happened?

The company conducted several live-fire exercises culminating in a company LFX. Upon completion, the company commander instructed his platoons to clear all weapons and then move to the live fire tactical assembly area (TAA).

One infantry squad leader directed his squad to clear their weapons, and then he performed a brass and ammo check of the soldiers’ trouser cargo pockets, load-bearing vests (LBVs), and ammo pouches. The squad then intentionally placed their magazines still containing live ammo back into their ammo pouches or LBVs for movement back to the TAA.

The platoon leader conducted a second check of the squad’s weapons to ensure they were clear. After clearing all weapons systems, the company moved to the TAA.

At the TAA, the unit completed download and turn-in of live ammunition. The squad leader then conducted a visual inspection of the squad’s magazines. This was only a cursory check, where the soldiers merely showed the squad leader their empty magazines. Neither the platoon sergeant nor the squad leader checked the soldiers or their ammo pouches/LBVs for brass and ammo. Consequently, one of the soldiers still had a 30-round magazine loaded with live ammo.

The next morning, the infantry squad was task-organized with another company to conduct an STX with MILES and blank ammunition against OPFOR. For approximately 72 hours, the company conducted STX lanes.

At the end of the 72-hour period, the platoon received a fragmentary order (FRAGO), directing the platoon to cross the line of departure at 2100 and destroy OPFOR in sector. During movement, the platoon encountered an OPFOR anti-armor ambush, and the infantry squad dismounted the Bradley Fighting Vehicle (BFV) to engage. After remounting the BFV, a soldier, who had exhausted his blank ammunition, requested and received a magazine from another squad member.

When the platoon encountered a second anti-armor ambush, they again dismounted the infantry squad to engage the OPFOR. Shortly after dismounting, the infantry squad encountered a lone OPFOR soldier. The soldier who received the magazine in the back of the BFV fired two rounds at the OPFOR soldier; at which time, the OPFOR soldier fell backward. Believing that the OPFOR soldier was “playing MILES games,” the squad continued their mission.

After a moment, members of the OPFOR found the fellow OPFOR soldier lying on his back. Initially, the soldiers thought a tracked vehicle had driven over him because he was unresponsive with no apparent vital signs. The soldiers on the scene notified the chain of command, and in turn requested a MEDEVAC helicopter. The MEDEVAC transported the soldier to the hospital, where doctors pronounced him dead.

After the MEDEVAC helicopter departed the accident site, the soldier who had fired two rounds cleared his weapon; at that time, he realized his weapon was loaded with live ammunition.

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two rounds cleared his weapon; at that time, he realized his weapon was loaded with live ammunition. The soldier immediately notified his chain of command.

**Why did it happen?**

The company commander directed subordinate leaders to conduct thorough brass and ammunition checks at the live fire TAA. However, the squad leader was not thorough in his inspection, and the platoon sergeant failed to ensure that the squad leader complied with the commander’s directive. Therefore, due to a lack of supervision, a member of the infantry squad mistakenly carried a magazine loaded with live ammunition from the live fire TAA to the STX.

During the approximately 72-hour period between the end of the LFX and the time of the accident, the platoon failed to conduct proper pre-combat checks (PCCs), which includes thoroughly checking magazines and other equipment.

The soldier in the infantry squad had received the magazine in the back of the BFV while moving under blackout conditions. Therefore, neither he nor the soldier that gave him the magazine was able to see that the magazine was loaded with live ammunition. He inserted the magazine into his weapon, and when his squad encountered the OPFOR soldier, he unknowingly fired two rounds of the live ammunition at the OPFOR soldier, fatally injuring him.

**Countermeasures**

- After completing an exercise using live ammunition, ensure leaders conduct thorough brass and ammunition checks after all ammunition has been turned in.
- Conduct proper PCCs during all phases of tactical operations.
- Check, check, and recheck.

Now, go take care of your soldiers!

POC: Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
Physical training, whether by troops in formation or by individuals, is a staple of Army life. It can also be a dangerous part of Army life on the roadway if traffic can’t see you.

There are many hazards to consider as you risk manage physical training: for example, shoes, pack weight, route, weather, traffic, your physical condition, and visibility. Let’s put the spotlight on visibility—

Consider visibility hazards carefully during application of the risk management process in planning troop marches and runs. AR 385-55, Prevention of Motor Vehicle Accidents, requires the following:

- Reduced speed limits that are enforced.
- Road guards with reflective equipment.
- Lights during periods of reduced visibility.

The regulation also requires appropriate fluorescent or reflective personal protective equipment for personnel exposed to traffic hazards whether or not in formation.

Similar to the Army’s former physical fitness uniform (PFU), the new improved physical fitness uniform (IPFU) doesn’t meet the high-visibility apparel requirements alone. Both uniforms require the additional reflective vest or belt to ensure visibility by traffic. Additional safeguards may be needed in hours of darkness or in times of low visibility from weather or from other environmental conditions such as smoke from controlled burning or accidental fires.

The IPFU was announced by message DTG 051837Z Jul 00 to replace the PFU as a clothing bag item beginning in August 2000. It becomes mandatory 1 October 2003, the wear-out date for the PFU. The IPFU may be authorized by the commander for wear on- and off-duty, on and off the installation. Authorized accessories include reflective belts or vests.

Whether doing your PT alone, in formation, or in small groups, spotlight visibility—weather, time of day, season of the year, traffic conditions—is a hazard you can risk manage by wearing the right high-visibility apparel for the circumstances. Be seen. Be safe.

POC: MSG Kittie Messman, DSN 225-6361, kitty.messman@hqda.army.mil
A Ground Precautionary Message (GPM-01-012) was just released by TACOM on the new requirements for the M9 Armored Combat Earthmover (ACE). What’s the problem? First, the TM doesn’t address seatbelts during the preventive maintenance checks and services (PMCS). What? A faulty seatbelt can deadline my vehicle? The answer is YES. Secondly, do your operators understand rollover procedures or how to identify potential hazards like blind spots? Be sure to read the GPM, train your soldiers, and aggressively enforce the latest standards. **Editor's note:** Complete copies of safety messages are available on the Army Electronic Product Support Bulletin Board via the Internet web site at [http://aeps.ria.army.mil/](http://aeps.ria.army.mil/).

### Hot Off the Press

Engineers, want a good reference to stay abreast of the latest concerns with cranes? Try the Navy Crane Center’s website, [http://ncc.navfac.navy.mil](http://ncc.navfac.navy.mil), for the latest "boom" in the crane world. Several issues have recently surfaced with the wide variety of cranes that are in the field. This site has it all—from tires to turntables, and it also provides a resource for accident prevention videos.

The Navy Crane Center also produces "The Crane Corner," a monthly publication that covers lessons learned from the most recent accidents, safe operation and training. You can keep up-to-date with the latest technology, share this information with your leadership, and continue to provide a safe environment for our soldiers to train in.

You can also check out the following website: [http://www.tacom.army.mil/dsa/pmtaws/cbt_spt/m9ace/m9news23.doc](http://www.tacom.army.mil/dsa/pmtaws/cbt_spt/m9ace/m9news23.doc), for the April 2001 issue of "News-N-Views." ACE operators need to reference this often for the latest information on modifications to their vehicles that are in progress now.

**POC:** SFC Alan Schrader, Ground Systems and Accident Investigation Division, DSN 558-2644 (334-255-2644), schradea@safetycenter.army.mil

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**Recent changes in the ACE manuals**

- **TM 5-2350-262-10** Operator's Manual
  - Change 5, March 2000
  - Revision, March 2000
- **TM 5-2350-262-10HR** Hand Receipt
  - Discontinued
- **LO 5-2350-262-12** Lubrication Order
  - Change 3, March 2000
  - Discontinued
- **TM 5-2350-262-20-1 & -2** Organizational Maint Manual
  - Change 3, March 2000
- **TM 5-2350-262-20-3** Hydraulic Troubleshooting
  - Change 2, March 2000
- **TM 5-2350-262-34** Direct Support Maint Manual
  - Change 2, March 2000
- **TM 5-2350-262-24P** RPSTL
  - Change 2, March 2000
- **TM 5-2815-240-34&P** Eng Maint Manual and RPSTL
  - Change 3, March 2000
25 MAY thru 3 SEPTEMBER

101 DAYS OF SUMMER

PLAN TO WORK AND PLAY SAFELY!
Jack's Story
Improper PLF High on Error List
Missing Something?
Jack's Story

Jack, a 16-year-old young man, started his summer off by diving headfirst into unfamiliar waters. He returned within a half-hour, even more agitated and overheated, still without the wallet.

After a few choice (but unprintable) words aimed in our direction, he ran to the river and dove into the muddy water. Jack disappeared for about a minute before floating to the surface, face down, his head covered in mud.

We just laughed and left him there! It’s not that we didn’t care, because we did. But this was Jack, the class clown, the guy who was always cracking jokes and pulling stunts designed to “get your goat.” At the time, we thought this was just another stunt to get attention.

After maybe another minute, I went over to Jack and lifted his head out of the water. He gasped for breath and said he couldn’t move.

As I held his limp body, I expected him to jump up at any minute and say, “Gotcha!” Still not sure that anything had really happened and not anxious to be made out the fool, I called to the others for help. We half-dragged, half-carried Jack to the car, where we put him in the back seat. This was no easy feat since this was a two-door vehicle and Jack wasn’t a lightweight.

I asked Jack what to do, and he said that I should drive him home—200 miles away! I should drive him home—200 miles away!

I didn’t come with him. Jack’s impatience and frustration got the better of him, and he dove off to search for his billfold while the three of us stayed in the water. He returned within a half-hour, even

We headed to the town of Palo Verde at the Colorado River, on the border between California and Arizona. Of course, we didn’t inform our parents since to ask permission would have brought an instantaneous “You’re too young to go out that far!”

After enduring the long, hot drive, we arrived in Palo Verde in the early afternoon. Deciding to do some exploring, we drove the dirt roads looking for a place to access the river. Along one of these back roads where the dust was 6 inches deep and the consistency of talcum powder, a nail punctured one of our tires.

Imagine for a moment what it’s like to change a tire in ankle-deep dust at 105 degrees. Needless to say, when we finished, we made a mad dash for the river.

The road we were on eventually ended at the riverbank, and the four of us jumped out and floated to the surface, face down, his head covered in mud.

As I held his limp body, I expected him to jump up at any minute and say, “Gotcha!” Still not sure that anything had really happened and not anxious to be made out the fool, I called to the others for help. We half-dragged, half-carried Jack to the car, where we put him in the back seat. This was no easy feat since this was a two-door vehicle and Jack wasn’t a lightweight.

I asked Jack what to do, and he said that I should drive him home—200 miles away! Now Jack’s car was a ’53 Mercury with a Thunderbird engine, and the envy of us all. But, I can tell you, this wasn’t a ride I was going to enjoy.

At this point, I still was convinced that once we got off the dirt and reached the main road

July 2001 COUNTERMEASURE
that Jack would bolt upright and spring his trap. I'd feel like a fool, and we'd all have a good laugh.

When we reached the highway, Jack said, "Hurry!" With the fear in his voice, it finally sunk into my thick skull that something was terribly wrong. I floored the gas pedal and sped towards Los Angeles with the speedometer resting on 95 mph. Shortly after we hit the pavement, the sun went down. We roared on into the darkness, getting more scared with each passing mile. Ten miles short of Indio, California, and almost 90 miles from our starting point, red lights started flashing behind the vehicle. I pulled over. The California highway patrolman approached the car and asked for my driver’s license. I told him that I didn’t have one and that our friend was in the back seat and couldn’t move. The officer had us exit the vehicle while he talked to Jack. Then he took his keys and scraped them across the bottom of Jack’s bare foot.

The cop turned to us and said, "Follow me!" With his lights flashing, the officer led us on an 85-mph race to the hospital in Indio.

While the rest of us waited outside, the emergency room crew took Jack inside. It must have been after midnight when Dennis’ parents (with my mother) arrived at the hospital in Indio. Jack’s mom and dad arrived shortly after us. The doctors informed us that Jack had broken his neck. He was paralyzed, and they weren’t sure he’d be able to walk again. Just before our parents took us home, we were allowed to go in and visit Jack. I’ll never forget the sight that greeted us. There was our muscular friend, helplessly lying on a frame and his ankles tethered and a traction device screwed into his skull in four places. The ride home wasn’t a pleasant experience; although, I must say we didn’t get lectured for the entire trip like I’d expected. Perhaps our parents decided we’d learned a lesson, or perhaps they were as much in shock as we were.

Later, when Jack was referred to specialists in Los Angeles, we learned that he had not actually broken his neck. Even though Jack had made a somewhat shallow dive, his head had hit the mud and bent his neck forward. That caused two vertebrae to separate, and then pinch his spinal cord when they came back together. The damage was irreparable. I’d like to be able to tell you that this story has a happy ending, but it doesn’t. Jack spent a year in hospitals specializing in spinal injuries, but didn’t regain the ability to walk or completely use his hands. I took care of Jack the first summer he was allowed to come home. But a year and a half later, I joined the Air Force and saw him only occasionally when home on leave.

Although Jack maintained hope for a while, eventually the reality of what had happened overwhelmed him. Lacking the support groups now available or maybe unwilling to make the best of what he had left, he spiraled downhill. He chose alcohol to deaden his emotional pain. In his mid-30’s, Jack died a broken man.

I tell this painful story for the first time in the hopes that some of you may stop and think about my friend. Maybe you’ll stop just long enough to prevent this type of misfortune from happening to you or someone close to you. Diving into unknown waters or making snap, and often foolish, decisions can have disastrous results—even in a place as gentle as a muddy riverbank on the first day of summer vacation.

Editor’s note: With the 101 Days of Summer upon us, take the time to stop just long enough to think about the hazards, assess the risks, and plan ahead a little before diving headfirst into trouble.

Courtesy of Gary L. Johnson, Ground Safety Manager with the 319th Air Refueling Wing at Grand Forks AFB, N.D., gary.johnson@grandforks.af.mil

**Improper PLF High on Error List**

During FY 2000, there were thousands of tactical parachute jumps made across the Army. Of those, there were 199 accidents reported to the Army Safety Center—6 resulted in fatalities. Two fatalities were a result of broken static lines, two were military freefall, one was a Modified Improved Reserve Parachute System (MIRPS) extraction, and the last one was a paratrooper who fell from a 34-foot tower while training exit procedures.

However, the majority of accident causes were from paratroopers failing to perform proper parachute landing falls (PLFs). In one particular case, the paratrooper was an Assistant Jumpmaster for a night mass tactical airborne mission. During the paratrooper’s decent, he kept looking over his left shoulder to gauge the correct altitude that he was to lower his Alice pack. He became so engrossed in judging his altitude that he failed to assume a good “prepare to land” attitude. Consequently, he landed without lowering his Alice pack and had his feet apart.

The paratrooper’s improper PLF caused a spiral fracture to his right ankle.

Jumpers are courting trouble if they don’t get into the proper “prepare to land” position for every parachute landing, and maintain it until the balls of their feet strike the ground. Remember, the T-10C series parachute requires the jumper to slip into the wind in the opposite direction of drift. This is done by pulling two risers in the opposite direction of drift. On the other hand, the MCI-1C parachute requires the jumper to pull either the left or right toggle control to face the parachute into the wind.

Failing to do this will increase the chances of injury due to excessive drift /ground speed during landing.

With both types of parachute, the jumper should turn the lower portion of the body to a 45-degree angle, exposing that portion that will come into contact with the ground instead of turning the entire body, as some jumpers do.
This procedure cannot be done in pre-jump training without a fixed apparatus to prevent the upper body from twisting. During pre-jump, jumpmasters should have soldiers execute PLFs without twisting in the air. Twisting in the air allows soldiers to avoid rear PLFs by rotating the body into a side PLF configuration.

The following chart shows common PLF problems and countermeasures. The jumpmaster should identify soldiers having difficulties in pre-jump training and require them to practice until they can meet the standard.

Other injury cause factors include improper exits, tree landings, drop zone hazards, lost/stolen air, and static-line injuries. We'll cover those in another issue. AIRBORNE!

POC: SFC John Darlington, Ground Systems and Accident Investigation Division, DSN 598-2744 (334-255-2744), darlingj@safetycenter.army.mil

In the past 12 months, the Army has experienced numerous fatal accidents involving equipment that was manned by a single soldier. These pieces of equipment are designed to be operated by one soldier and are typically used for specific purposes. Although these accidents involved vastly different types of equipment, they all share several common themes: unique vehicle design, specialized operator training requirements, and uncommon utilization.

Vehicle design
Due to the design of the equipment, the operators were alone at the time of the accidents. Unlike most vehicles in the Army inventory, these vehicles do not facilitate the supervision of the operator during use. In many of these accidents, the first-line supervisor wasn't in a position to make an on-the-spot correction of mistakes made by the operator. Due to these design characteristics, the operator of the vehicle inherits many of the duties that the vehicle commander performs in other vehicles. Along with completing the task at hand, the operator has to monitor vehicle clearance and ensure the safe operation of the vehicle at all times.

A young soldier was operating his M9 Armored Combat Earthmover (ACE) as part of his unit's night, non-tactical road march. His vehicle was the last in the six-vehicle convoy. At some point during this road march, the operator maneuvered too close to the edge of the road and the vehicle flipped into a ravine. Because he was in the last vehicle in the convoy, no one witnessed the accident; therefore, no one was around to assist this operator during or after the accident. You see, the M9 ACE is one of those Army vehicles that is manned by only one soldier.

Operator training requirements
Along with design differences with "traditional" Army equipment, these items usually require specialized training for operation. This training is in addition to standard training programs associated with more common wheeled or tracked vehicles.

Parachute Landing Fall Problems

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feet apart</td>
<td>Anticipation of landing.</td>
<td>Moderate tension in the legs. Press the legs together.</td>
</tr>
<tr>
<td>Dropping the legs up before the burblecks</td>
<td>Anticipation of landing.</td>
<td>Moderate tension in the legs. Point the bottom of the feet toward the ground. Proper landing attitude.</td>
</tr>
<tr>
<td>Missing contact with calf and thigh</td>
<td>Hesitation on balls of the feet. Straightening legs after absorbing impact. Failure to twist and bend sharply when balls of feet contact the ground.</td>
<td></td>
</tr>
<tr>
<td>Elbows hit the ground.</td>
<td>Leaning forward. Failure to twist torso. Breaking fall with elbows.</td>
<td></td>
</tr>
<tr>
<td>Heel strikes ground.</td>
<td>Reloading the neck or raising the head. Missing points of contact.</td>
<td></td>
</tr>
</tbody>
</table>

For example, one recent accident involved the use of a commercially purchased 16-foot aluminum, flat-bottomed boat. Witnesses state that the operator was alone in the boat when he entered the main channel of a wide river. He was last seen in the water, attempting to swim to the shore when he went under the water for a final time. His body was recovered later that day. The accident investigation revealed that this soldier had not received any formal training for the operation of this piece of equipment. In fact, the investigation revealed that this soldier (and others in the unit) were to transport a group of students in these boats later that day. None of these operators had undergone any formal training for this operation or this piece of equipment.

Uncommon Utilization
Another similarity among these pieces of equipment is the uncommon ways they are utilized. This equipment is designed to perform a particular function that typically is not performed by other vehicles in the Army inventory. The M878, which is commonly referred to as the "Yard Dog" is a classic example of this.

A soldier was killed recently when a Yard Dog ran into him during a night operation near a warehouse. The M878's sole mission is to shuttle trailers around in confined parking areas.
areas. As in this case, the Yard Dog was beginning one such mission when the soldier was fatally injured. The operator of the Yard Dog did not see the soldier because he was looking at a different part of his vehicle at the time of impact.


Lessons learned

The lesson commanders should learn from these accidents is that these vehicles require special attention that focuses on their unique design and function. Commanders must ensure proper training (as outlined in AR 600-55) is provided for all the types of equipment in the unit. Commanders should also understand these vehicles call for operators who do not require as much supervision and who are capable of performing a myriad of tasks.


Missing Something?

Over 10 years ago, after finishing the unloading of some office chairs from a 5-ton truck, I elected to jump off the back. That jump altered my life. You see, the 5-ton truck had a hydraulic lift attached on the back-end, and some stamped steel rails ran along the side of the flatbed. My comrade and I were using the hydraulic lift to lower chairs to the ground. I had just finished unloading the chairs and my comrade was rolling them inside the building. I was left with a decision to either jump the 4½ feet to the tarmac or wait for my buddy.

I figured I was wasting time waiting around, so I put my hand on the truck’s side rail and jumped, feeling a slight tug. Thinking I had cut my hand on something, I was slightly amazed to find my left ring finger missing. Not only gone, but ripped from my body. The skin was missing from the area around the top of my hand, showing the muscle, while blood was flowing from the opening. A small piece of bone (the middle part of my finger) was jutting from the mess, and broken off about halfway down.

Well, there’s nothing like the irrational fear of bleeding to death! Quickly grabbing my hand, and not even looking around for my missing finger, I ran inside the hanger to summon help. The rest of this story wouldn’t even be worth telling, but for one aspect. I was normally assigned the assistant driver/vehicle commander. Finally, commanders must ensure the risk management principles are fully applied to the use of these one-operator vehicles/equipment.

In closing, in the Army, we are trained that we function best as an integrated crew or team; this is almost always true. However, certain missions and requirements put young soldiers in a position where they must operate alone. Leaders must ensure these soldiers are set up for success. The risks associated with this equipment and these missions must be managed by the chain of command to ensure operators are protected from danger and the mission is completed safely.

POC: USASC Ground Systems and Accident Investigation Division, DSN 558-3562 (334-295-3562)

During the next month in the hospital plus 30 days of convalescent leave, the center doctors all tried their best to reattach my finger, but with the blood and nerve endings so torn and distorted, all efforts failed. Even with the best medical response possible, the hope of keeping my finger was fruitless.

Am I alone? No way. In 1995, according to Department of Labor statistics, 11,308 people had the misfortune of experiencing this type of injury. A full 90 percent of these people were male, and ranged in jobs from machine operators to laborers to truck drivers. While my accident was caused by a very small piece of protruding metal catching on my wedding ring and tugging the finger off as I jumped to the ground, most amputations don’t happen this way. Over ¾ of the cases involve a worker getting their finger(s) caught between or crushed in a piece of machinery. Don’t conjure up in your head a huge machine press at the local manufacturing plant back home. This machinery can be a pulley and belt on a HMMWV electrical system, a hatch on an M1A1, or the rotating drive shaft of a rotor or auxiliary drive system on any modern helicopter. I don’t have an Army TM or any earth-shattering advice to quote here, but before you do any manual task, please keep the following simple points in mind:

- **Don’t wear jewelry.** On the job and off, remove all jewelry that could catch on equipment or pose an electrical hazard. As the popular, but somewhat gross, Army poster states “Take off the ring, not the finger.” I’ve been wearing my recovered wedding ring on my dog tags for the last several years. Which reminds me, don’t wear dog tags if you’re working around live electrical components. If your spouse wants to know where your wedding ring is, show her the poster in the March 2000 issue of Countermasure.

- **Don’t put any part of your body between hard objects.** Most soldiers have put themselves in some compromising positions while backing up vehicles to docks, trailers, or fences. Think! Use proper ground guide procedures. Use a two-person lift when required, and never stick your hands where you can’t see them.

- **Use LOCKOUT/TAGOUT.** If that term makes no sense to you, you need to find your unit safety officer or NCO and ask him to explain it to you. Since 1989, OSHA has mandated that all equipment being serviced must be physically “locked out” of operation, energy removed from the item, and properly tagged. With extremely few exceptions (and only under a written policy), you cannot work on a piece of equipment while it has the possibility of being inadvertently turned on.

My accident doesn’t need to be yours. After a painful skin graft that hurt more than the amputation, a waiver and several weeks on “hold” status, I was granted the privilege of going to flight school. Now, as an instructor pilot, I am grateful to show-and-tell my lessons learned to my student pilots.

Additionally, I have met other soldiers (retired and active duty) that have had similar accidents. Make sure you develop a work ethic that integrates safety into the many tasks you perform. It just may save a soldier’s finger.

Courtesy of CW3 Mike Cronrath. Mr. Cronrath wrote this article while attending the CP-12 Safety and Occupational Health Course here at Fort Rucker. He is now stationed at Fort Campbell, KY, 334-718-5902, cronrath@earthlink.net
Risk Management Integration: Key to Army's Success

The Army achieved steady gains in safety from the late 1980s through the mid-1990s by implementing the 5-step risk-management process as its principal risk-reduction tool. From 1996 through mid-year 2001, there have been several short-term up and down trends, but basically accident rates in most categories have leveled out. To achieve and sustain additional gains in safety, we must close the gap that still exists in the full integration of risk management into Army culture.

Analysis of both aviation and ground data shows that accidents are occurring because of indiscipline. This is demonstrated in three major areas: (1) a lack of leader involvement, (2) failure to maintain rigorous training standards, and (3) failure to maintain and enforce discipline. All three areas are well within our ability as an Army and as individuals to affect.

Army wide initiatives to further embed risk management into all missions:
- Identify opportunities to integrate risk management into the Army through Army Transformation and align the Army Safety Strategic Plan with the Transformation Campaign Plan.
- Continue aggressive efforts to institutionalize risk management into all aspects of doctrine, training, leader development, materiel development, organizations, and soldier systems.
- Partner with industry organizations recognized for their world-class safety programs.
- Ensure that soldiers from initial entry through division commanders receive initial and continued risk management training.
- Initiate a Department of the Army Inspector General (DAIG) review of risk management integration in units across the Army.

Safety Center initiatives to help leaders become more proficient in making risk decisions:
- Enhance the Safety Center’s Web-based Risk Management Information System to offer a medium for sharing lessons learned and provide commanders with near real-time access to hazards, risks, and controls information.
- Increase the number of Safety Center NCO professional development mobile training teams to teach risk management to NCOs and junior officers. To date, some 1,900 Active, Reserve, and National Guard soldiers have received risk-management training through this program.
- Field Safety Center assistance visit teams to help commanders assess their safety programs and help them see where they need to focus resources to best control unit hazards.
- Enhance cradle-to-grave system safety initiatives in our weapon systems.
- Support the DAIG in reviewing risk management integration in units across the Army.
- Assist the Army Aviation Center in integrating risk management into simulation-based aviation training exercises, Army Training and Evaluation Program mission training plans, and the captain’s career course.

Individual initiatives that each of us can undertake to ensure that risks are managed effectively in our units and organizations:
- Emphasize to soldiers the importance of executing each mission to the risk management standard—an informed decision at the appropriate level.
- Provide constant reminders to soldiers that a risk assessment is not an end state; it is only the first two steps of risk management. Controls must be developed and put in place, and hazards must be identified and assessed—and reassessed as missions and conditions change.
- Make sure that you and your key personnel are at the right places at the right times to make risk decisions.
- Mentor junior leaders, teaching them what right looks like, and helping them gain the experience and wisdom to effectively manage risks.

Unresolved Issues

Many questions are typically left unanswered after an accident occurs in which materiel factors are suspected. One of the ways questions can be answered is by completing an SF 368, Product Quality Deficiency Report (PQDR).

When equipment or components are thought to have failed or malfunctioned and caused/contributed to an accident, be sure to enter the correct code number in Block 22 of the PQDR (Reference DA Pam 738-750 for codes). This ensures appropriate equipment disposition instructions are provided for teardown analysis to determine the source of failure.

Let’s do our part to see that the materiel failure causes are identified and corrective actions are initiated to prevent future accidents.

POC: Jane D. Wise, USASC Public Affairs Office, DSN 558-1128 (334-255-1129), wisej@safetycenter.army.mil

POC: Peggy Adams, Technical Quality Control, DSN 558-2256 (334-255-2256), adamsp@safetycenter.army.mil
Correction

Thanks to all the sharp-eyed readers who noticed that we published the incorrect maximum allowable speed for the M939A2 trucks in last month’s Countermeasure. In the article “The Rest of the Story” on page 12, the correct sentence should read, “…the board checked the Army Electronic Product Support Bulletin Board via the Internet website http://aeps.ria.army.mil/ and discovered that there are two safety messages (GPM 96-04, 131807Z and SOUM 98-07, 081917Z) restricting the maximum allowable speed for M939A2 trucks to 40 mph (not 45 mph as previously stated) until antilock brakes and radial tires are retrofitted.”

We’re sorry for this error.

Coming Next Month in Countermeasure

Next month’s issue of Countermeasure is a quantum leap forward in our history. Since October 1979, we’ve been the official ground safety publication for the Army, bringing you stories and facts to help keep soldiers out of harm’s way.

Every month, we land in mailboxes and day rooms at Army installations around the globe. Over 29,000 copies are distributed and read by soldiers in the field (we’ve even heard tales that we are standard reading material in latrines). We hear from readers who access our publication on the safety center website at http://safety.army.mil, as well as those who read the traditional paper version.

We hope that you’ve found Countermeasure to be a helpful and readable tool for the past 21-plus years. Now we come to the end of our black and white era. In August 2001, we’ll be coming to you in vivid full-color. We hope this makes Countermeasure livelier, more readable, and more interesting for you. But the bottom line, as always, is to send you the lessons learned about the principles of risk management, and to keep soldiers alive.
The Role of the NCO in Accident Prevention
An NCO shares his thoughts on NCO responsibilities for accident prevention.

Indiscipline Can Kill
Indiscipline has been a factor in 66 percent of our ground accidents this year. Read how leader involvement is key in stopping these accidents.

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4 The Role of the NCO in Accident Prevention
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A Final Note On Change

Sometimes change is subtle, sometimes bold. The Army has seen a lot of it, with a lot more to come. It doesn't take a keen eye to spot the bold change in the look of Countermeasure. I hope you'll tell us if you like it—and if you don't. More importantly, I hope you'll notice the more subtle changes in content and sections we've added, such as this one. The redesign is intended to provide you, NCOs and front-line trainers with more relevant ground hazards, risks, and controls information in a timely manner and with insights on some 50-meter targets where your limited time and resources can impact most.

One thing has not changed. Accidents are still a major threat to soldiers. As we entered the fourth quarter of this fiscal year, our fatality rate was about 9 percent above where we were last year at the same time. While we are not achieving the overall 20-percent reduction in total military fatalities goal established for this fiscal year, command involvement is succeeding in reducing our privately owned vehicle (POV) accidents, notoriously the number one killer of soldiers. Currently, we are on target with nearly a 20-percent reduction in POV fatalities. However, fatalities from motorcycle accidents are on the rise. We must ensure that soldiers who choose to ride motorcycles receive the Motorcycle Safety Foundation Course at no cost to the individual soldier. There are still a lot of the 101 days of summer left, so we must keep the emphasis on POV, motorcycle, and water safety so that our success does not slip away.

Our ground on-duty fatality rates are up. Indiscipline—knowing the standard and electing to ignore it—is a factor in 66 percent of our ground accidents. I specifically ask for your help in focusing on the hazards associated with failure to enforce items such as the nametag defilade standard and brass and ammo checks, as well as all other pre-combat checks. Two soldiers have died in tank / Bradley accidents and two have died in live fire accidents this fiscal year as a result of their command’s failure to enforce the appropriate standards and checks.

A final note on change. As I write the first Commander’s Corner commentary for this inaugural color issue of Countermeasure, I realize it is also my last. I’m passing the responsibilities of the Director of Army Safety to Brigadier General James E. Simmons. BG Simmons will now spearhead the Army’s continuing efforts to affect a cultural change where risk management is not just another safety requirement, but is fully integrated into all Army operations. I personally thank each of you for the great work you’re doing in embracing risk management as a sound investment in readiness. An informed risk decision at the appropriate level is the standard we must meet because soldiers’ lives are at stake.

(BG (P) LaCoste became the Assistant Deputy Chief of Staff for Personnel on 9 July 2001.)
“No one is more professional than I—the Noncommissioned Officer, leader of soldiers.”

An ammunition platoon received a FRAGO to move quickly to another position. In their haste, they decided to forego a safety briefing. The NCOs failed to brief the convoy route, catch-up speed, and the hazards of night movement. They also failed to ensure their soldiers were using seatbelts. In the confusion of the hasty departure, one vehicle lost sight of the vehicle in the front, hit a guardrail, and overturned. Three passengers received neck injuries. Is this an example of a “leader of soldiers?”

“I am proud of the NCO Corps and will at all times conduct myself so as to bring credit upon the Corps.”

The speeding automobile ran off the road and slid sideways almost 200 feet. The car flipped twice and hit a tree, killing both occupants who were not wearing seatbelts. The drunk driver was an off-duty NCO. Is this an example of bringing credit upon the NCO Corps?

Soldiers who wear the noncommissioned officer chevron-shaped stripes on their sleeves represent a unique Army strength. Today’s NCO is the front-line trainer and role model for our soldiers and the motivating force for driving down accident losses. The dedication of our NCOs was a key factor in this past year’s success in accident prevention. In the following article, one NCO shares his thoughts on NCO responsibility and calls for even more vigilance so soldiers will be safer than ever.

 COVER STORY

The Role of the NCO in Accident Prevention

“No one is more professional than I—the Noncommissioned Officer, leader of soldiers.”

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“Competence is my watchword. My two basic responsibilities will always be uppermost in my mind—accomplishment of my mission and the welfare of my soldiers.”

As the number one cannoneer knelt in front of the breech of his howitzer to close the firing lock, the howitzer fired, striking him in the face. Is competence the watchword of the gun chief on this howitzer? soldier failed to wear his seatbelt? Caring for soldiers requires us to take the hard right over the easy wrong, especially once the duty day is over. Let’s be role models for our young soldiers—they are entitled to nothing less.

Is the NCO creed our standard, or is it just another group of words? I prefer to think that our NCO Corps takes the creed seriously, possessing a keen desire to make a positive contribution to their unit and the Army as a whole. Each hour of each day, an NCO somewhere in the world enforces a standard, provides leadership, and instills discipline in a soldier that may prevent a future accident. These NCOs exemplify our creed and keep our soldiers safe. Let’s all remember when it comes to safety: “I will not forget, nor will I allow my comrades to forget that we are professionals, Noncommissioned Officers, leaders!”

NCOs Lead the Way...Safely!

POC: MSG Michael Barksdale, Ground Systems and Accident Investigation Division, DSN 558-2959 (334-255-2959), barksdam@safetycenter.army.mil
There is an underlying trend that is becoming more and more prevalent in Army accident causes. As leaders, we should be appalled at the fact that indiscipline is the underlying trend in several recent fatal accidents. The hard question is what is behind this trend? The hard answer is willful disobedience or disregard of a known standard.

Sadly, it appears the biggest violators are not even inexperienced soldiers, but leaders. The most common violators that we see from accident investigations are sergeants, staff sergeants, and young officers.

In one accident, a staff sergeant was in charge of a cadre-training event. This NCO gave guidance to the other cadre members to wear the required personal protective equipment (PPE) while operating watercraft (which is also a known/written standard). After reinforcing this directive several times, he totally disregarded his own instruction by not donning the appropriate PPE and not properly checking specific equipment on the boat. The NCO drowned in the river.

Another sergeant was performing maintenance on a weapon system while instructing a subordinate through the performance steps. The NCO was using the appropriate technical manual (TM) onsite; however, he wasn’t following the TM’s sequence. He also failed to read and adhere to the warnings found in the TM pertaining to this maintenance task. Consequently, a sudden release of pressurized nitrogen sent a piston into the sergeant’s chest, killing him. It is very clear that the young sergeant was not setting a very good standard for his subordinate.

Failure in leadership doesn’t stop there. The supervising team chief of this young sergeant also failed to provide his leadership at a critical point. He failed to check on his sergeant’s progress when what should have been a 15-minute job had already taken him 4 hours. This fatality reeks of indiscipline, from the sergeant’s failure to heed the warnings in the TM to his team chief’s failure to supervise the job.

As we pointed out earlier, young officers are not immune to acts of indiscipline. One young lieutenant paid the ultimate price when acts of indiscipline resulted in a tank rollover accident.
During tank gunnery, the lieutenant allowed his driver to drive the tank in an unsafe manner, “power-sliding” around a concrete turn pad. The NCOIC of the range spoke with the lieutenant about the driver’s recklessness and the fact that the lieutenant needed to keep himself at nametag defilade while acting as a tank commander.

The following day, the lieutenant failed to heed the warning of the NCOIC, and his driver once again attempted to power-slide around the turn pad. Unfortunately, the tank slid on some loose gravel, left the road, and rolled 360 degrees. The lieutenant was not at nametag defilade and the tank crushed him as it rolled. Certainly, we can see the effect of indiscipline in this accident.

How do we prevent indiscipline? The solution may be as simple as supervisors being in the right place at the right time, enforcing standards, and making informed risk decisions at the appropriate level. Will this stop all accidents? No, but if there is more LEADER INVOLVEMENT in the critical/hazardous points of certain operations, the accident rate will be reduced.

This is an emotional topic for all leaders. This article is meant to make you more aware of your actions and the actions of leaders around you. Indiscipline appears to be a current trend; we don’t imply that all sergeants, staff sergeants, and lieutenants are undisciplined. Unfortunately, in our duties as accident investigators, we see mostly the failures of leadership.

We understand that there are disciplined leaders throughout the Army. In the every increasing OPTEMPO/PERSTEMPO environment, leader presence and diligence in maintaining discipline in both their soldiers and themselves are key in preventing accidents.

POC: MSG John Darlington, Ground Systems and Accident Investigation Division, DSN 558-2744 (334-255-2744), darlingj@safetycenter.army.mil
The Army Safety Center reviewed all reported FY 2001 Army wheeled vehicle Class A-C accidents as of 14 June. We found the majority of accidents contained a combination of mistakes. Excessive speed was the most frequent mistake identified in the accident reports. Additionally, many accidents were caused by failure to take precautions for adverse environmental conditions and failure to stay alert to what was happening. Below are a few selected accidents that will illustrate these problems.

A soldier was driving an M998 HMMWV on a state highway. The vehicle’s approximate speed was 65 mph when it drifted into the adjacent lane. The maximum speed authorized for this type vehicle is 55 mph in accordance with TM 9-2320-280-10. The driver of the vehicle overcorrected to stay in his lane, but instead the vehicle crossed the lane to the shoulder of the highway. At this point, the vehicle left the highway and became airborne for approximately 20 feet before striking the ground. The HMMWV flipped end-over-end two times before landing in an upright position. The vehicle commander remained inside the vehicle and received superficial injuries. The driver was ejected from the vehicle during the accident sequence. He was evacuated to the nearest hospital, but his injuries were so severe that he died the following day. (Note: The accident investigation board was unable to determine if the driver was wearing his seatbelt as the M998 was completely destroyed in the post-crash fire.)

Failure to stay alert to what is happening combined with excessive speed is a recipe for failure. The driver of an M998 returning from a LOGPAC mission misjudged his speed and the danger of the wet road conditions. This consequently led to the driver attempting to take a turn in the road too fast for the road conditions. This accident caused injuries to the driver and vehicle commander resulting in lost workdays. Damage to the overturned HMMWV was estimated at over $2,300.

Excessive speed reduces driver reaction time and can increase the severity of an accident. However, accidents can happen even when vehicles are going slowly if drivers and vehicle commanders don’t take into account road conditions. For example, an LMTV was going 15 mph on an icy road and lost traction. The driver released the accelerator, applied brakes, and attempted to counter-steer. This effort did not stop the vehicle from sliding off the road and dropping 4 feet into a rice paddy and overturning. The driver and two passengers in the cab were not injured due to their use of seatbelts. The eight passengers on troop seats without seatbelts in the rear of the LMTV received various injuries. Damage to the vehicle was estimated at over $24,000.

These are just a few examples of the many wheeled vehicle accidents that have occurred throughout the Army this year. To prevent the next accident, drivers should not exceed the speed limit. This could be the posted limit for the road, or limits listed in the TM for on- or off-road use. When roads are wet or icy, drivers need to decrease their speed accordingly. Vehicle commanders must enforce the standard for speed limits. Learn from these accidents by slowing down and staying alert to what is happening around you, so you are not the next Army accident. Knowing these truths can keep you alive.

POC: MAJ Dave Hudak, Operations Research/Systems Analysis Division, DSN 558-2075 (334-255-2075), hudakd@safetycenter.army.mil
Anyone can Drive a Truck, Right?

Some leaders think this is true. However, this is far from the truth. Up to 33 percent of soldiers entering the Army today do not have a civilian driver’s license. And if they do have one, you could probably make a fair assessment that before they entered the service, half of them were driving either a compact car or maybe a sport utility vehicle at best. So, let me ask you that question again—anyone can drive a truck, right?

How many commanders have their driver instructor inspect soldiers’ Department of Motor Vehicle driving records? Typically, we give a soldier 40 hours of driver’s training, call him trained, and put him behind the wheel of a truck. Unfortunately, some soldiers never receive realistic driving challenges, such as driving on snow, ice, or mud.

I have inspected driver’s training programs at divisions and below. I have seen some of the best driver training programs and I have seen some of the worst.

Upfront, let me say that managing an effective drivers’ training program is not an easy task. First off, there is not an MOS or an authorized slot for a full-time driver’s training position; but as you may already know, it is a full-time job.

I want to outline some of the requirements for an effective drivers’ training program. While some people might think that it can’t be that difficult, others might be surprised at just how much effort is required.

Your program is only as good as the command and NCO support channels make it. If commanders, command sergeants major, and first sergeants are not involved and supporting their drivers' training programs, more times than not, the program is marginal at best.

AR 600-55 governs the Army Driver’s Training Program. There is a draft AR 350-XX scheduled to replace this AR 600-55, but it has not been released yet. First and foremost, AR 600-55 states that the program will be consolidated at the battalion level. Para 4-2 states “Skilled noncommissioned officers, experienced drivers or operators, and qualified maintenance personnel do not necessarily make good driving instructors without special training. Selecting the best instructors available to conduct “hands-on” performance oriented training is essential.”

Instructors will be certified and the commander will appoint them. Unless otherwise stated, this applies to both civilian and military operators driving tactical and non-tactical vehicles and equipment. A license will be maintained on every person who operates a vehicle or equipment owned or leased by the Army.

To get a license, a driver must go through 17 different blocks of instruction in AR 600-55, Appendix E, Para E-3. Some of the blocks include: State and local traffic rules, accident avoidance, military convoy operations, off-road operations, written exam (vehicle specific), and response to emergency situation/vehicle malfunction, just to mention a few.

Sustainment training is required annually and focuses on individual weaknesses or other topics identified by the commander. In addition, if a driver has had an accident or a traffic violation and was at fault, he must receive remedial training.

The list doesn't stop there. I am highlighting only a few areas where I have seen problems. If by now you are not convinced that the Army Drivers' Training Program is demanding, look in AR 600-55. This program does not get the attention that is needed. So many of our soldiers are at risk because they are not properly trained or licensed. Leaders, let's get involved and make a difference.

POC: MSG Timothy Sprucebank, Senior Wheel Vehicle SME, Ground Systems and Accident Investigation Division, DSN 558-3774 (334-255-3774), sprucebt@safetycenter.army.mil
Dear Commander,

I am well aware that you are an exceptionally busy leader burdened with important tasks. I also know your time is extremely valuable. However, I am compelled to write you this letter concerning the safety of my son. I am doing this in the hope that I will never have to receive a letter of condolence from you stating my son was killed in an unfortunate accident (especially if it could have been prevented).

My son is one of your soldiers. He is a private and an airborne military policeman who loves both his occupation and his country. His father and I are retired from the Army; therefore, the military is all he has ever known.

It is my understanding that 60 to 80 percent of Army accidents are caused by human factors. I also believe the Army has taken an extremely proactive approach to safety in the implementation of the philosophy of risk management. My concern is the soldiers at the lowest levels are not really brought into the loop as much as necessary. For example, recent statistics show the majority of vehicle accidents continue to occur in the 18-23 year old bracket, E1 through E4 ranks.

It seems the soldiers who are most vulnerable are the least trained in safety. Soldiers don't know what they don't know. Only by training soldiers can we truly prepare them to be successful and to survive in combat. When I say “training,” I mean conducting safety briefings at the lowest first-line supervisor level, and allowing him to discuss with his soldiers the hazards they may encounter, whether it is field training exercises or simply an upcoming weekend or holiday. It is my belief that a proactive safety program is preferred verses a reactive one, especially when the stakes are so high.

I pray you do not equate my writings to just the ramblings of an old woman. I only want you to understand that no letter of condolence, posthumous award, or any amount of life insurance you would give me could ever replace my most priceless possession—my son.

My son is one of the nation’s sons and daughters serving in harm’s way. Risk management chain teaching is an excellent tool to familiarize and indoctrinate soldiers to accomplishing the tough missions safely.

I request that you and the chain of command consider teaching soldiers about safety, risk management, and risk assessments from the day they walk into basic training and continue throughout their career. Create an atmosphere where they can empower one another in the art of preventing fatigue, stress, and other human factors that result in success and survival in our inherently dangerous Army culture.

The majority of the time, soldiers want to do the right thing. Soldiers want to learn. They just need someone who cares and will take the time to teach them! Allow soldiers to feel comfortable enough to relate a problem to the chain of command once they identify it. Influence them to be responsible and accountable for their actions. Teach them proactive risk management now, so soldiers—like my son—won’t have to wonder what to do when the time comes. There is an old saying in my family, “Soldiers don’t rise to the occasion, they rise to the level of training afforded them.”

Thanking you in advance for keeping all your soldiers safe—and alive.
Respectfully,
A Soldier’s Mom

Courtesy of Orillia (Ria) Martinez. Ms. Martiniz wrote this article while attending the CP-12 Occupational Safety and Health Course here at Fort Rucker. She is currently assigned to 1st Armor Division, Weisbaden, Germany.
Have you thought about how difficult it would be to tell a family member that a soldier in your unit died because an identified control simply was not implemented? While leaders are good at identifying hazards, they often fail to implement controls needed to eliminate the hazards or decrease their risks. Once the commander or leader has selected controls, they must be effectively implemented or the entire risk management process breaks down.

Communication is key to implementation—
Ensure controls are communicated and understood down to the lowest level. This can be accomplished by integrating them into standing operating procedures (SOPs), written and verbal orders, demonstrations, rehearsals, battle drills, during mission or safety briefings, and back-briefs.

During orders production, the staff implements accident risk controls by coordinating across the staff and integrating them into the appropriate paragraphs and graphics of the operation order (OPORD). The controls selected, regardless of whether they already existed or are newly developed, should minimize the chance of accidents, and maximize the chance of mission accomplishment.

It is important to coordinate with adjacent units to ensure they understand the hazards identified and the controls to be implemented, especially if they will encounter the same hazards or play a role in implementing the controls.

Where the rubber meets the road—
The most important aspect of implementing controls is clearly communicating how the controls will be put into effect, who will implement them, how they will fit into the overall operation, and how the commander expects them to be enforced.

Staff sergeants and sergeants are leaders/first-line supervisors and as such, are key to implementing the controls specified in the operations order. For example, a control for convoy operations in adverse conditions is implemented that specifies maximum speeds and spacing between vehicles in the convoy. It is the squad or section leader’s responsibility to make sure his soldiers are briefed on the controls, that they understand them, and comply with them in order to minimize the risk of an accident. The Army has entrusted its leaders with the responsibility to effectively train soldiers on their battle tasks and make sure those tasks are performed to standard. Implementing controls and making sure they are performed to standard is no different.

By applying all of the risk management steps, we can reduce the risk that we face daily—during mission performance and at home.

It is one thing to identify the controls; it is another to take action. Don’t just think about it—communicate! Your life and your soldiers’ lives may depend on it.

POC: Dr. Brenda Miller, Ch, Training and Education Division, DSN 558-3553 (334-255-3553), millerb@safetycenter.army.mil
What happened?

After a long night pulling security for an aviation battalion, the mech infantry platoon returned to their unit assembly area to conduct maintenance, eat, and prepare for combat. As they were in the middle of pulling maintenance and reconfiguring load plans, the opposing force (OPFOR) probed the company, making contact with the unit’s listening post/observation post (LP/OP).

One of the infantry squads from the company actioned against the OPFOR, but soon started to take casualties. The commander initially ordered the mech platoon to send a section of Bradley Fighting Vehicles (BFVs) to support the infantry, but subsequently decided to withdraw the infantry and let the BFVs fight the OPFOR alone.

The mech platoon section quickly closed up their engine access panels, threw gear in the back, and attacked toward the sound of the small arms fire. In their haste, the section became separated, as one of the BFVs was not immediately ready to move. Several radio calls followed as the second Bradley commander (BC) attempted to link-up with the BFV in contact with the enemy.

Motivated and hard charging, the second BC quickly grew frustrated when he could not find the first BFV or the enemy. As the second BFV came to a road junction, the driver asked for directions from his BC, but did not get a response. The gunner looked toward the BC’s side of the turret and saw blood pouring into the turret. A 22-inch limb had struck the BC in the face, killing him instantly.

Why did it happen?

This unit normally trains at a post with terrain significantly different from that encountered at this training site. While attending the leader-training program and in conducting the train-up for this heavy-light rotation, the unit chain of command never identified hazards involved with conducting mounted operations in wooded terrain. The train-up focused primarily on 911 missions (quick reaction calls for assistance by light units or on battle drills).

The unit also knew about the chest (nametag) defilade standard in TC 21-306, but selectively enforced the standard. The BC routinely rode high in the turret back at home station because the terrain favored it and nobody made an issue of it.

Nama tag defilade is a requirement for the exercise rules of engagement at all training centers. There was no indication that anyone identified operating in restrictive/unfamiliar terrain as a hazard; therefore, no one developed ways to reduce those hazards. The safety briefings consisted of telling soldiers to be aware of snakes, insects, to game play safety while in the maneuver box—"Be careful out there," and to use common sense. Common sense is a product of our life experiences. Many soldiers in the unit had never operated armored vehicles in restrictive wooded terrain before.

The platoon also failed to execute the appropriate battle drill correctly when going on the hasty attack mission. The accident investigation board determined that the
platoon was knowledgeable on the battle drills in FM 7-7J; however, in charging off separately on this 911 mission, the command and control of the section was made more complicated as it attempted to execute the mission.

**What to do about it?**

Leaders at all levels must consistently enforce standards. Chest (nametag) defilade does more than just protect you in the event of a rollover. While the armored community focuses on rollovers, a Bradley commander (or tank commander) exposes himself to any number of hazards when he fails to maintain a proper body position in the commander’s hatch. We must all train to and enforce known standards.

Train and execute battle drills. Battle drills allow leaders to execute complex or unplanned missions by using them as basic building blocks in the planning and execution of those missions. Battle drills are a form of risk management because they can enhance command and control, reduce uncertainty, and insert risk management into the military decision-making process during the planning and rehearsal stage of an operation.

Think about risk management in all that you do. You do not need a written product to conduct risk management. When you are sitting in your assembly area, take a moment to think about the types of missions that you could receive.

You already know immediate action battle drills that you may need to execute. Take time to consider the effects of the environment (weather, terrain, time of day, amount of sleep you have had, etc.) on the execution of those missions. Then, identify and assess the reasonably expected hazards of your operation, and possible ways to reduce the effects of those hazards as you execute the mission.

A glaring example of identifying reasonably expected hazards while operating in wooded areas is the high probability that you will encounter low-hanging branches and limbs. Discuss this hazard with your leaders, subordinates, and peers. Identify ways of reducing the hazards and then execute this mitigation plan when the time comes. Leaders must supervise this plan and enforce known standards in order to tie it all together.

The Army needs hard-charging, motivated soldiers. Enforcing standards, executing battle drills, and incorporating risk management into everything we do will help us keep our hard-charging and motivated soldiers safe and alive.

POC: Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
The National Highway Traffic Safety Administration (NHTSA) is issuing a cautionary warning to users of 15-passenger vans because of an increased rollover risk under certain conditions.

The results of a recent analysis by NHTSA revealed that 15-passenger vans have a rollover risk that is similar to other light trucks and vans when carrying a few passengers. However, the risk of rollover increases dramatically as the number of occupants increases from fewer than 5 passengers to over 10.

In fact, 15-passenger vans (with 10 or more occupants) had a rollover rate in single vehicle crashes that is nearly three times the rate of those that were lightly loaded.

NHTSA’s analysis revealed that loading the 15-passenger van causes the center of gravity to shift rearward and upward increasing the likelihood of rollover. The shift in the center of gravity will also increase the potential for loss of control in panic maneuvers.

Because of these risks, it is important that experienced drivers operate these vans. A person transporting 16 or more people for commercial purposes is required to have a Commercial Driver’s License (CDL), which requires certain specialized knowledge and driving skills. Although the drivers of these vans are not required to possess a CDL, they should still understand and be familiar with the handling characteristics of their vans, especially when the van is fully loaded.

NHTSA’s analysis reinforces the value of seatbelts. Nationwide, 80 percent of those who died last year in single vehicle rollovers were not buckled up. Wearing seatbelts dramatically increases the chances of survival during a rollover. NHTSA urges that institutions using 15-passenger vans require seatbelt use at all times.

NHTSA is making this information available because of these findings and because of several highly publicized rollover accidents involving 15-passenger vans loaded with college students (often driven by a fellow student rather than a professional driver).

While federal law prohibits the sale of 15-passenger vans for the school-related transport of high school age and younger students, no such prohibition exists for vehicles to transport college students or other passengers.


Media Calls: Rae Tyson (202) 366-9550; Consumer Calls: Auto Safety Hotline (888) 327-4236; USASC POC: James “Al” Brown, DSN 558-3421 (334-255-3421)
Want to be a famous writer? The following tips will help you be the next best thing: a contributor to Countermeasure.

Perhaps you’ve never written an article before. Don’t let that scare you. It can be surprisingly easy, and the results are rewarding. By sharing your knowledge, you can make a valuable contribution to those who need your information to do their jobs safely. Whether your story becomes a long feature or a simple tip, it may just save someone’s life or an expensive piece of equipment.

Writing tips

First thing you need to do is decide what you want to say. Countermeasure is geared toward soldiers serving in ground combat and support units. It provides vital information in all areas of Army operations, from tracked and wheeled vehicles to tactical parachuting, and from explosive ordnance disposal to the rifle range. We print “There I Was” stories by soldiers about close calls or lessons learned the hard way.

Countermeasure also keeps you safe while you are off-duty. Some popular topics include POV safety, motorcycles, and seasonal issues.

Here are some ways to make your article come to life:

- Write about your own personal experiences. The tone should be conversational as if you are talking to a friend (because that’s what you’re doing).
- Keep it simple, direct, and easy to understand. Avoid language, jargon, or acronyms that may be unfamiliar to your reader. If you have to use technical terms or acronyms, include a brief definition.
- Articles should be typed in Microsoft Word format and double-spaced. Stories are restricted to four pages in length.
- Remember each issue of Countermeasure is planned 3 months in advance, so make sure your article is still relevant and will still interest readers several months down the road.
- Your article will be more effective if you help us find supporting photos or cartoons (see Graphics guidance below).

Submissions must include a printed manuscript, text on 3.5-inch disk, a cover letter, and complete photo captions. Mail your complete publication package to: U.S. Army Safety Center, ATTN: Countermeasure, Bldg. 4905, 5th Ave., Fort Rucker, AL 36362-5363. The most efficient way to get your story to us is by e-mailing it to countermeasure@safetycenter.army.mil. Along with your article, remember to include your rank, name, unit, address, and office phone number (commercial and DSN). You may want to add a brief biographical sketch for your by-line.

Graphics

Appropriate graphics enhance the reader’s understanding and are important in clarifying most articles. Clear, sharp photographs are important. Photographs in JPEG or TIF files of at least 300 resolution are preferred; however, 5 x 7 color prints, negatives, and 35mm slides are acceptable.

Action shots are better than a lone piece of gear. Photograph soldiers or equipment doing something. Avoid boring static, posed photos. Photograph soldiers performing their mission, not just pretending to do it. (Be sure your photos do not show any violations; i.e., soldier performing maintenance wearing watch or ring, or soldiers outdoor without proper headgear.)

Help us make Countermeasure a hard-hitting magazine. Good photos don’t need a story; we can use them for a poster or the cover.

For more information, contact Paula Allman, DSN 558-2688 (334-255-2688), countermeasure@safetycenter.army.mil.
Nametag Defilade
Right vs. Wrong

RIGHT
To Standard

WRONG
Not To Standard

THINK SMART
THINK SAFETY
The Cold Hard Facts of Winter
Cold Weather-Know the Threat
Cold weather injuries are always a threat in cold environments; however, they are also preventable. To ensure mission success, proper planning and training is essential.

Investigators’ Forum
Two soldiers returned from a field training exercise to their soldier crew tent and started a commercial off-the-shelf heater to warm up. The soldiers then closed the tent while the heater was on and fell asleep. The soldiers never woke up.

Risk Management Procedures For Tactical Low-Water Crossing Sites
Unsuspecting soldiers crossing a dry creek bed can be caught completely off guard by a wall of water rumbling down the channel. Read how the III Corps and Fort Hood Commander implemented a tactical low-water crossing policy to enhance a safer training environment for soldiers.

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Leaders Out Front Save Lives!

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Leaders Out Front Save Lives!

I'm Jim Simmons. For the past 27 years, I have sat where you are—in the field executing tough missions. I now wear the dual hats of Director of Army Safety and Commander, U.S. Army Safety Center. I can sum up my safety philosophy in simple terms: *Units that participate in tough, well-disciplined training with technically and tactically competent leaders present have significantly fewer accidents.*

Safety is discipline. It is doing things right—every time! It’s competent leaders being at the right place, at the right time to make sound decisions. And it’s leaders who enforce discipline and standards. Flapping canvas, not wearing Kevlars and chin straps, inattention to uniforms—these are small items that clearly indicate indiscipline in the unit. Fail to do these things right, then pre-combat checks, pre-combat inspections and checklists are next.

Leaders must be technically qualified to lead their unit. The first guy going downrange for gunnery qualification should be the commander. One method of demonstrating your technical proficiency is to put your gunnery score up for others to emulate. It isn’t enough to be technically proficient; you must also be tactically proficient. Your tactical competence must be reflected in two areas: your complete understanding of the unit’s mission essential tasks list (METL) and how to do each of them correctly and proficiently, and of the battle space in which you will operate. Understand whom you are working with and how your support affects them. Does your fire support plan effectively support the scheme of maneuver?

Commanders and leaders must be on the front lines in the accident prevention battle. We have to be actively involved before the unit crosses the line of departure en route to the first objective, and our most state-of-the-art safety weapon is risk management. It’s up to each of us to set the standard in our units. I will tell you that normally, generally and almost always—no one accomplishes the risk management standard (that is, an informed decision at the appropriate level) while sitting behind a desk doing e-mail. As leaders, our presence must be on the front lines. While there are a lot of folks to help integrate safety and risk management into operations—leaders guide the boat.

At the same time, we must also be skilled in using the talents and assets in our own organizations. If you cannot physically be present, make sure the Command Sergeant Major, S3, XO, or another principal staff member is out there to observe the training.

My message to you is *don’t stop training.* Tough, realistic, disciplined training lessens casualties in combat. Effectively applying the 5-step risk management process and ensuring risk decisions are being made by leaders at the appropriate level will help us do the right training—and do it safely.

James E. Simmons
Brigadier General, U.S. Army
Commanding Officer
If you don't know the threat, you really can't fight a battle well. The threat of cold weather is no exception; many generals have lost the battle of the cold. Napoleon learned this in 1812 when, during his retreat from Russia, he lost 250,000 soldiers as a result of the cold. In the Crimean War (1852-1856), 5,215 French soldiers succumbed to the cold—1,178 died. During the same war at the battle of Sevastopol, 2,800 British soldiers suffered horrible cold weather injuries—900 died.

Things didn't get much better early in the 20th century. During World War I, the British had 115,000 cases of all types of cold injuries. During the Dardanelles campaign, the British had 14,500 cold weather casualties. In World War II, the Germans failed to learn from Napoleon. On the Eastern Front between December 1941 and January 1942, 100,000 soldiers suffered frostbite—15,000 of those required amputations.

The U.S. Army has not been immune. During World War II, records show 46,000 cold injuries in the European theater from autumn 1944 to spring 1945. In the Korean War, it is estimated that nearly 10 percent of all wounds were cold injuries.

The good news is that we learned valuable lessons from those incidents. Today we have better equipment and training; cold injuries, even during initial deployment to places like Bosnia and Kosovo, are rare indeed. However, they will stay rare only if you know the threat.

That's when a leader's job of protecting soldiers gets tougher. Leaders must watch for early signs of cold stress in their soldiers. The most dangerous of these threats are shown in the chart on page 6.

Plan for the cold

The most important thing is planning for the cold. Make sure you have accurate weather information for the area and time of the mission. Be particularly aware of rain, snow, and winds (wet conditions and windchill greatly increase chance of injury). Ensure soldiers have appropriate cold weather clothing. If the tactical situation permits, use covered vehicles for troop transport. Have warming tents or areas available if possible. Have warm food and drinks on hand.

Wear the right clothes the right way

The most important individual preventive measure is the proper wearing of cold weather clothing and boots. Some soldiers think wearing every article of cold weather clothing issued is the way to go. Wrong! This can cause overheating and dehydration, or restrict circulation in the extremities which can increase the risk of frostbite. All cold weather clothing should be worn loose and in layers. This allows for insulation by air trapped between the layers. Socks should be changed frequently and boots rotated.

Proper wear of boots is important. You don't wear jungle boots in the snow, and you shouldn't wear intermediate cold weather boots (Gore-Tex™ lined, like Matterhorn™ boots) indoors and out, year round. Wet or damp boots need to be dried with warm air
whenever possible. If boots are removed at night and moisture in them freezes, it can be just like sticking your feet in ice cubes the next day—a perfect set-up for a cold injury.

It is important to keep clothing clean and dry. Dirt, oil, or water can increase the rate of heat loss by reducing the insulation ability of the clothes. It is also important to keep the clothing repaired—a broken zipper cannot keep the cold out. Headgear is extremely important; the body can lose large amounts of heat through the head.

It is important to protect the hands and fingers by wearing proper gloves. Nomex™ aviator gloves may be light and flexible and look cool, but they are designed to protect from fires, not extreme cold, and will do little to protect your hands when they are wet. Unless specifically authorized, they should not be worn.

Alcohol & caffeine. These can lead to increased urination, and subsequent dehydration.

Meals. If you skip meals, the first thing the body does is to slow the metabolism. Slower metabolism means less heat production and increased chance of cold injury.

Activity. Huddling up and not moving is the wrong thing to do. The more you move, the more heat you produce. Decreased activity decreases the time it takes to get an injury.

Buddy system. The buddy system is a great way to help prevent injuries if soldiers are trained to know what to look for.

Self-checks. A simple self-check is to pinch the fingernail and watch how fast the blood returns to your finger. The slower the return, the higher the potential for a cold injury to the fingers or toes.

Other information. More information on cold injuries can be found in FM 21-10 and FM 21-11; GTA 5-8-12 (this is a good pocket guide for soldiers); Technical Note NO. 92-2, Sustaining Health and Performance in the Cold: Environmental Medicine Guidance for Cold-Weather Operations, published by the U.S. Army Research Institute of Environmental Medicine; and FM 21-76, Survival.

Prevention is key

All cold weather injuries are preventable! Prevention is the responsibility of leaders at all levels, as well as the individual soldier. We have learned the lessons of unpreparedness from soldiers who have gone before us. Cold injuries are always a threat in cold environments; however, only by proper planning and training for cold weather operations can we beat it.

POC: LTC Robert Noback, USASC Command Surgeon, DSN 558-2763 (334-255-2763), nobackr@safetycenter.army.mil
# Cold Weather Injuries Chart

## Dehydration
- **Cause**: Depletion of body fluids.
- **Symptoms**: Dizziness, weakness, blurred vision.
- **First Aid**: Replace lost water. Water should be sipped, not gulped. Get medical treatment.

## Chilblain
- **Cause**: Repeated exposure of bare skin for prolonged periods to temperatures from 20° to 60°F (for those not acclimated to cold weather).
- **Symptoms**: Swollen, red skin (or darkening of the skin in dark-skinned soldiers). Tender, hot skin, usually accompanied by itching.
- **First Aid**: Warm affected area with direct body heat. Do not massage or rub affected areas. Do not wet the area or rub it with snow or ice. Do not expose affected area to open fire, stove, or any other intense heat source.

## Frostbite
- **Cause**: Freezing of tissue, normally due to exposure below 32°F. Parts most often affected include fingers, toes, ears, and other facial parts.
- **Symptoms**: Exposure to bare skin on metal, extremely cool POL, wind chill, and tight clothing—particularly boots—can make the problem worse.
- **First Aid**: Numbness in affected area. Tingling, blistered, swollen, or tender areas. Pale, yellowish, waxy-looking skin (grayish in dark-skinned soldiers). Frozen tissue that feels wooden to the touch.
- **Frostbite is a medical emergency!** Consult medical personnel immediately and evacuate the victim as soon as possible. If not treated properly, frostbite can lead to gangrene and amputation.
- **First Aid**: Start first-aid immediately. Warm affected area with direct body heat. Do not thaw frozen areas if treatment will be delayed. Do not massage or rub affected areas. Do not wet the area or rub it with snow or ice. Do not expose affected area to open fire, stove, or any other intense heat source.

## Immersion Foot (Trench Foot)
- **Cause**: Prolonged exposure of feet to wet conditions at temperatures between 32° and 60°F. Inactivity and damp socks and boots (or tightly laced boots that impair circulation) speed onset and severity.
- **Symptoms**: Cold, numb feet may progress to hot with shooting pains. Swelling, redness, and bleeding.
- **First Aid**: If you suspect trench foot, get medical help immediately. Rewarm feet by exposing them to warm air. Evacuate victim to a medical facility. Do not massage, rub, moisten, or expose affected area to extreme heat.

## Hypothermia
- **Cause**: Prolonged cold exposure and body-heat loss. May occur at temperatures well above freezing, especially when a person is immersed in water.
- **Symptoms**: Lack of shivering. Drowsiness, mental slowness, lack of coordination. Can progress to unconsciousness, irregular heartbeat and death.
- **First Aid**: This is the most serious cold exposure medical emergency and can lead to death! Get the soldier to a medical facility as soon as possible. Never assume someone is dead; victims with temperatures as low as 82°F have been revived. In extreme cases, the pulse and breathing can be so low as to be nearly undetectable. Strip off wet clothing and wrap victim in blankets or a sleeping bag. Place another person in sleeping bag as an additional heat source.
As leaders, you should expect intuitively that your younger, less experienced soldiers would be most susceptible to cold-weather injuries. The hard numbers, however, are startling. A soldier in the rank of private through specialist is more than two-and-a-half times as likely as a noncommissioned officer and eight times as likely as an officer or warrant officer to get hurt by the cold. What do you do to reduce the risk of your junior soldiers being sidelined by frostbite or other cold injuries?

First, and most important: Train them to standard in prevention, recognition, and first-aid for frostbite, hypothermia, chilblain, and trench foot. As leaders, we must then enforce the standards. Make sure your soldiers have the proper clothing and equipment suitable for the environmental conditions.

The extended cold weather clothing system (ECWCS) is for soldiers who must operate in extreme cold. While most soldiers may never experience such extreme conditions, combat arms troops soon learn that the cold is a relentless enemy.

When properly worn, the ECWCS provides excellent cold-weather protection. But field soldiers must wear the full system. Each layer works together to form the whole system. The clothing is made of light, thin fabrics that are waterproof, yet breathe, while keeping heat in and wind out. The layering sequence for extreme conditions is as follows: polypropylene undershirt and long johns, polyester fiberpile shirt and bib overalls (buffalo shirt and bibs), Gore-Tex™ parka and pants, vapor barrier boots, and leather palm mittens.

Avoid wearing the battle dress uniform (BDU) between the ECWCS’s jacket, pants, and long underwear. While layering is important, BDUs trap moisture that is wicked away, from the body by the polypropylene underwear, instead of letting it escape through the breathable Gore-Tex™ material in the jacket and pants.

Secondly, don’t defeat that protection by wearing clothing the wrong way. The long underwear is intended for wear next to the skin. Standard cotton underwear and wool long johns keep sweat in contact with the skin, and shouldn’t be worn with the ECWCS.

Wearing their BDUs between their polypropylene and Gore-Tex™ is a common mistake that soldiers make. The polypro wicks moisture away, but it is then trapped by the BDUs, making the Gore-Tex™ less effective.

Finally, the vapor-barrier “VB” boots will keep your feet warm—sometimes too warm. Because perspiration will build up in the boots and leave you vulnerable to cold injury when you become inactive for a time, you must change your socks often. Be sure to wear the Army-issue wool socks because cotton socks retain moisture.

One of the biggest mistakes junior soldiers make, however, is overdressing for high activity. Depending on the temperature, soldiers should wear as little cold-weather gear as possible before heavy activity.

Inspect your soldiers’ equipment regularly for serviceability and cleanliness. Monitor soldiers for signs of cold-weather injury, and use the buddy system to have soldiers check each other. Insist that soldiers remain hydrated and report signs of injury immediately. Make it clear to them that “toughing it out” is foolish and far from being heroic.

The extra time you take preparing your junior soldiers for the cold will reduce injuries and pay off in increased unit readiness.

**NCOs Lead the Way... Safely!**

POC: SFC Clarence Welch, Ground Systems and Accident Investigation Division, DSN 558-2933 (334-255-2933), welchc@safetycenter.army.mil
A two-man fuel handler team deployed to the field in support of maneuver units in preparation for an upcoming force-on-force exercise. Although the plan called for the team to support from the main unit area in garrison, the participants decided to stay in the field to avoid traveling back and forth from the rear. Little did they know that it would be the last time they would see the garrison area. Regrettably, during the night both soldiers from the team died when they were overcome by carbon monoxide.

What happened?
The fuel handler team was to support the refueling mission for the three-day field exercise. The daily mission consisted of traveling to different locations to refuel the maneuver forces’ vehicles. They had conducted these refueling operations since the exercise had started. The team decided to stay at the unit maintenance collection point (UMCP) where the majority of assets to support the operation were located. They set up their soldier crew tent (SCT) in the area and prepared for their upcoming missions.

On the day prior to the accident, the team had supported maneuver units throughout the morning, which allowed them to get some rest during the afternoon. As part of their set-up, they used a commercial off-the-shelf space heater to warm-up since temperatures during the day and night were below 40 degrees.

The afternoon continued without incident and included a visit from the platoon leader to inform them of their upcoming mission that evening. The platoon leader noticed the heater and commented on its use. The UMCP officer in charge (OIC) and a senior non-commissioned officer (NCO) were both aware that the team was operating an off-the-shelf space heater.

The team departed during the afternoon to support the maneuver units, and because of various missions did not return back to the UMCP until early in the morning.

The next morning, members of the UMCP required fuel for their vehicles. After some unsuccessful attempts to wake up the soldiers, the UMCP members decided to fuel the vehicles on their own. One of the soldiers noticed a peculiar smell while he was around the tent and later commented to his supervisor about it.

The supervisor recognized that the smell coming out of the tent was indicative of propane gas and decided to go back and check on the soldiers. When they entered the tent, they noticed that the two soldiers were unresponsive. It is suspected that the soldiers entered their tent and started their space heater to warm up from the chilling temperatures, and then closed their tent completely to include the vent flaps. The soldiers fell asleep with the heater on and the carbon monoxide buildup from the heater caused the soldiers’ death.

Why did it happen?
Although not approved for use by Soldier Support Command, there were many of these commercial off-the-shelf heaters that were purchased by the unit for their soldiers to use. It was a generally accepted practice to take these heaters to the field to warm up. During various field exercises, the heaters had been used to warm up the headquarters.
tents. Because the headquarters tents had these heaters available, it was believed by the unit personnel that these heaters were authorized for use in the field.

The lack of a training plan on the safe operation, maintenance, and hazards posed by these heaters contributed significantly to this tragic event. Additionally, the requirement to license soldiers on the use of space heaters was not enforced.

One of the fatalities was an NCO and a senior member of the team. Although he had been warned by his immediate supervisor of the dangers involved in the use of propane heaters, he did not follow the warnings on the heater, as well as on the tent. The heater specifically warns that it is not intended for use inside tents and that when in use, it must have adequate ventilation. Also, the SCT has a warning requiring the vent flaps to be open when heaters are in use. Because a heater was in operation inside the tent, the local SOP required the appointment of a fireguard, something that did not take place.

The investigation revealed a failure by the UMCP leadership to ensure that all personnel in their area of responsibility were following the unit’s tactical SOP. The OIC and senior NCO of the UMCP were both aware that the team had set up in their area and that they were operating a commercial off-the-shelf heater. The UMCP leadership neither enforced the standards as specified in the tactical SOP in reference to the use of heaters, nor controlled personnel in their area.

Finally, the unit leadership did not ensure an adequate risk assessment was made. There were indicators that a dangerous situation—carbon monoxide poisoning—could occur with the use of off-the-shelf heaters in small spaces like the SCT; however, these dangers were not identified.

Alternative heaters were not proposed to warm up soldiers, although they were available. The failure to identify the risks involved in this operation, to establish control measures, and to monitor the implementation of these controls—by all levels of the unit leadership—allowed the silent killer, carbon monoxide, to take two soldiers’ lives.

Countermeasures
- Train and license soldiers on the use of space heaters. Ensure soldiers understand the hazards involved in the use of heaters, specifically carbon monoxide poisoning.
- Make use of the risk management process at all levels of command. Establish control measures and ensure they are enforced.
- Supervise your soldiers.

POC: Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
Soldiers at Fort Hood, Texas, have heard the old saying “If you don’t like the weather, wait a half hour and it’ll change.” In fact, through personal experiences, many Fort Hood soldiers have become firm believers in that saying. The frequently changing climatic conditions in central Texas require a constant eye to the sky and an ear to the weather alerts being transmitted to the units.

Rapidly changing conditions can kick up roaring high winds, where only minutes earlier there were calm winds or drastically lower warm temperatures. This can cause sweating soldiers to become cold, or turn dry-as-a-bone creek beds into raging streams within minutes of a flash flood’s arrival. All these weather-related challenges dictate that leaders and soldiers apply standard Army risk management procedures to ensure mission success—despite the weather.

The unique phenomenon at Fort Hood is that it does not have to rain in the immediate local area for the many creeks and streams to rise and flood. It can rain away from the installation, 15 miles or more upstream from the local creeks and streams, and cause flash flooding on the installation. This phenomenon presents a false sense of security regarding weather conditions to units training on the installation. Unsuspecting soldiers crossing a dry creek bed can be caught completely by surprise by a wall of water rumbling down the channel.

Following several incidents in late fall at flooded tactical low-water crossings, the III Corps and Fort Hood Commander implemented an updated tactical low water crossing policy to enhance the safety of soldiers. A hardworking team consisting of III Corps G3, Training, Range Control, Safety Office, Corps Engineer, and a construction unit from the 62d Engineer Battalion (13th COSCOM) worked together on the project. Once the team developed the concept, design, and plans, the soldiers from the engineer unit went to work to construct numerous barriers at designated tactical low-water crossing sites.

The engineers surveyed 110 tactical low-water crossing sites on the Fort Hood reservation. Each site was risk assessed to categorize it as either an “authorized,” “seasonal,” or “unauthorized” site. The construction phase took approximately three months to complete.

After emplacing thousands of tons of rocks and concrete, and expending thousands of man-hours, Fort Hood now has 18 “authorized” and 6 “seasonal” tactical crossing sites. These sites have movable barriers in place that are used to positively control access to the crossing sites. Additionally, the engineers constructed permanent barriers at almost 50 “unauthorized” crossing sites. These unauthorized crossing sites are closed and blocked to prevent unit crossings at any time. Over 100 jersey barriers and dragon teeth barriers were constructed and emplaced to control access to the 110 crossing sites.

The updated Fort Hood command policy identifies the 18 authorized and 6 seasonal tactical low-water crossings that units can use. The command policy provides specific procedures for closing the authorized tactical low-water crossing sites when adverse weather is forecasted.

The Fort Hood operations center notifies every major subordinate command (MSC) on post daily of the current Fort Hood Stream and Creek Condition Status, whether status is red, amber, or green. Definitions of
red, amber, and green are outlined in the policy. The notification contains the status of each crossing site by grid coordinate and site number. Units training in the field can also receive crossing site update status by contacting range control.

The great work of the team and the resulting Fort Hood policy exemplifies the Army’s standard five-step risk management process outlined in FM 100-14, Risk Management:

- **Identify the hazards.** In the event of a severe weather warning (severe thunderstorm, flash flood, or heavy rain warnings), the operations center immediately notifies the MSCs, who in turn must notify the units training in the Fort Hood training area. Range control and the provost marshal (PM) will also be notified. Range control notifies units on the ranges.

- **Assess the hazard.** Range control and PM dispatch teams to tactical low-water crossings to assess fordability or the need to close the sites.

- **Develop controls and make risk decision.** Specific controls for closing tactical crossing sites are predetermined and outlined in the policy. Range control makes the recommendation to the Assistant Chief of Staff, G3, to close the sites and/or how many tactical crossing sites should be closed based on weather and safety conditions. The G3 makes the final decision to close crossing sites based on input from range control and PM.

- **Implement controls.** The operations center will contact all MSCs and inform them of the closures. MSCs will inform their subordinate units of the closures, and then report back to the operations center when all their units have been notified. Notices of closures are also announced on Fort Hood television and disseminated through public affairs channels.

Upon closure decision, the PM dispatches MPs to physically close and block all identified crossing sites. Official numbered crossing sites are equipped with gates, water level markers with instructions, and “Stream Crossing Closed” signs. PM reports completion of crossing site closures to the operations center.

When crossing sites are closed, units requiring to cross creeks and streams can use a number of identified hard stand low-water crossing sites/bridges. Units are authorized to close crossing sites which are unsafe to ford based on weather and safety conditions; however, they are not authorized to re-open them. Units must notify range control whenever they close crossing sites. When weather clears, only the MPs are authorized to re-open crossing sites that were closed.

- **Supervise and evaluate.** MPs and leaders are charged with ensuring that soldiers do not open or make an end run around closed/blocked crossing sites. Fort Hood weather station continuously updates weather reports in case changing weather conditions require additional crossing sites to be closed, upgraded controls are needed, or crossing sites can be reopened to support realistic tactical training.

In order for soldiers/units to become familiar with the provisions of the updated policy, the III Corps Safety Office prepared a safety briefing that covers local low-water crossing operations. The briefing is being presented to every soldier who trains on Fort Hood, as directed by the installation commander. The end result is a safer training environment for soldiers, without diminishing the necessary value of realistic training.

POC: Ted Farina, Senior Safety Specialist, III Corps and Fort Hood, Texas 76544, DSN 737-3459 (254-287-3459), farinat@hoodemh3.army.mil
Supervision is nothing more than monitoring and enforcing the execution of control actions. There are a number of monitoring methods including commander and leader presence, pre-combat inspections and checks, situation reports, spot checks, and back briefs. Effective monitoring should answer the following questions:

- Are the right people/units performing the actions?
- Are they doing it at the right time and place?
- Are they using the right procedures/equipment?
- Are their actions properly coordinated with the people/units providing support and/or being supported?

If, at any time, the answer to any of the above questions is “no,” enforce the control by taking action that will get things back on track.

Evaluation should be done while the mission is being executed, as well as after the action is complete. During execution, unforeseen hazards will be encountered. Commanders and leaders are paid to recognize changing conditions and the hazards associated with them—then do something about them. They should share information about these hazards by monitoring actions and cross talking. They can mutually decide on changes to controls or develop new ones, and execute them if they are consistent with the higher commander’s intent and guidance. If not, they can at least paint the picture for a decision by the higher commander.

In preparation for the after action review (AAR), the effectiveness of each control in reducing the risk of the targeted hazard should be determined. If a control was not effective, determine why and what to do the next time this hazard is identified. For example: change the control, change how the control is implemented or supervised, or develop a different control. This information, as well as an overall assessment of the unit’s risk management performance, should be presented during the AAR. A chart for providing this feedback is presented below.

Taking action on the results of the AAR is the beginning of the next mission. It is also the beginning of the risk management process. Since both end with a beginning, they are continuous processes. Commanders and leaders cannot simply check a block and assume risk management is complete when the order is issued: the process never stops.

POC: CPT Wayne Gilstrap, USASC Aide de Camp, DSN 558-3819 (334-255-3819), gilstraw@safetycenter.army.mil
Effective 1 Oct 01, Army accident classifications, as defined in AR 385-40 (Dec 94), paragraph 2-2, will be changed as follows:

- **Class A:** No change.
- **Class B:** No change to property damage. For personal injury, the number of persons hospitalized in the same accident is reduced from five personnel to three or more.
- **Class C:** No change to personal injury. Property damage changes to $20K to less than $200K (increases the lower threshold from $10K to $20K).
- **Class D:** No change to personal injury. Property damage changes to $2K to less than $20K (increases the upper threshold from $10K to $20K).

All other requirements of AR 385-40 remain in effect until a revised document is published in late FY02.

Contact your local safety office or your Major Army Command (MACOM) safety office for supplementary requirements in your organization. POC: Fran Weaver, Policy and Programs Division, DSN 558-1141 (334-255-1141), weaverf@safetycenter.army.mil

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We have received several inquiries regarding the article, “No Brass, No Ammo, Sergeant” from our June issue. Although not mentioned in the article, the weapon involved did have a blank adapter affixed. Contrary to what many of us might believe, the design of the M-16 blank adapter causes it to break apart when a soldier inadvertently fires live ammo with the blank adapter mounted on the weapon. This design prevents injury to the soldier and damage to the weapon. The blank adapter in this accident worked as designed, the first round fired blew it off the weapon. Consequently, the second round fired killed the soldier.

POC: MSG Michael Barksdale, DSN 558-2959 (334-255-2959)
Research shows there is less chance of death and injury to the occupants of a car involved in an accident if: (1) the occupants remain in the car (a person is 25 times more likely to be killed if thrown out of the car), and (2) they are kept from bouncing around inside the car. The restraint system—a seatbelt and shoulder harness—is designed to do both of these. Restraint systems do their job so well that they save thousands of lives and injuries each year. And even more deaths could be prevented if every person would just use them!
Although some people are thrown clear in a crash and luckily walk away with little more than a few scratches, these are exceptional cases. Accident statistics show that thousands of deaths and serious injuries occur because unrestrained occupants are thrown out of their vehicles. Some of these people are killed or injured on impact with the ground or some other obstacle. Others are dragged or run over by another vehicle. Some are run over or crushed by their own car. In all but extreme cases, restraint systems could prevent these injuries.

Other facts point out the need to use the restraint system when driving locally, as well as on the highway. Statistics show that about 75 percent of all vehicle accidents happen within 25 miles of the occupants’ homes. Of course, this does not mean you are safer driving along a highway than when driving locally. What these statistics point out is that most daily driving is done near one’s home; so, three times as many accidents occur locally as in remote areas. In 80 percent of those local accidents that produce deaths or injuries, the impact speeds are less than 40 mph. This means high speeds are not needed for deaths and injuries to occur. Since accidents are more likely near the driver’s home, it is just as important to use the restraint system when driving around town as it is on the highway. The only way to gain full benefit from restraint systems is to make a habit of using them on every trip.

Now we come to a common argument against using restraint systems: “I don’t like the idea of being buckled up and trapped if the car should catch fire or go into water.”

In only about 1 percent of all accidents does either of these conditions occur. But even if the car catches fire or goes into water, the first requirement for escape is to be conscious. Any impact that produces fire or dumps a car into water is going to be a severe one. Without the use of restraint systems, occupants are going to be thrown around inside the vehicle. The chance of being knocked unconscious is a real one.

Over a lifetime, a person has more than a 50/50 chance of being injured in a car accident. There are many things that can be done to reduce that risk. Driving defensively and cautiously, not driving while under the influence of alcohol and drugs, and keeping your car in peak condition are three important steps. None of these, however, will guarantee that a person will not have an accident.

Good drivers have accidents too. Sometimes they are hit by poor drivers or those under the influence of drugs and/or alcohol, and sometimes because they make a mistake. Nobody is immune to accidents and no one can control all of the factors involved in a traffic accident. But there is a simple and effective way of cutting the risk of being injured by more than half—Wear Seatbelts! What’s holding you back?
A Stealthy Enemy...
One that you can't see, smell, or taste.
It can kill before you know it's there.

Carbon Monoxide
Undetectable to your senses... until it's too late.

Think Smart
Think Safety
**M1s in Flames**
M1A1 tank fires are on the rise. Accident investigations reveal that most crews received some type of warning of a problem. Find out why PMCS is important and why leaders should enforce standards.

**Where's the Fire?**
When was the last time you checked the fire suppression system on your BFV? With good PMCS, it will work when you need it.

**Investigators' Forum**
The squad leader had a reputation with the chain of command as “squared away.” The company commander trusted him to do the tough jobs without a lot of supervision. After reading this article, I’m sure you’ll agree that even “squared away” leaders can make fatal mistakes.

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http://safety.army.mil
Another fiscal year has begun, and if our past is any indication of our future, accidents will still be a major threat to soldiers in FY02. The Army has downsized even as our missions have grown; consequently, every accident has become more expensive, not only in terms of manpower and money, but also in terms of readiness.

A prime example of how these accidents cost money and hurt readiness can be found in the Armor community. Within the last 46 months, 14 M1 tanks have experienced reportable fires. Fortunately, no injuries were reported associated with these tank fires. Nevertheless, most of these fires could have been avoided. Maintaining situational awareness and performing proper preventive maintenance checks and services (PMCS) would have stopped many of these fires before they started, or at least before they became critical.

How do these fires happen? It often starts with soldiers just “trying to get the job done.” Soldiers know that commanders want all their tanks in the fight. No one likes to have a tank sitting in the unit maintenance collection point (UMCP), while mechanics try to track down a leak in the engine. Determined to complete the mission, many crews fail to report leaks or give commanders the proper information to make informed decisions. As a result, many crews operate tanks with potentially hazardous leaks.

For instance, the driver of an M1A1 was traveling approximately 15 mph when the transmission oil temperature high light on the driver’s instrument panel illuminated. The driver alerted the tank commander (TC) of the warning light. The TC made the decision to disregard the warning light, contrary to the guidance in the operator’s manual, and directed the driver to continue with the operation. As a result of this action, a fire developed in the engine compartment. The fire became greater than the on-board fire suppression system could extinguish, and the tank was extensively damaged.

Proper, by-the-book, daily PMCS is the best prevention for fires of this type. Identifying and correcting leaks would prevent almost all tank fires. Another critical point of prevention is during quarterly annual services. You cannot properly perform a quarterly service without pulling the pack. Tank crews must ensure that they clean all debris from the bottom of the hull. A buildup of dirt can keep leaking oils from seeping out of the hull and increase the potential for an engine fire.

We know the fix. It’s in the standards. The Army standard is to train and maintain to the published standards in the technical manuals (TMs). The same standards must be enforced on every task, whether it is performed individually or as part of a larger operation. Maintenance is a continuous process, and to be effective, units must integrate maintenance into all phases of an operation. This requires leaders to enforce maintenance standards, and at times make the difficult decision to deadline vehicles, temporarily taking America’s most lethal combat vehicle out of the fight. Failure to do so not only destroys tanks, it can also kill soldiers.

— BG James E. Simmons
There have been an increasing number of fires in the M1A1 Abrams tank community. Within the last 46 months, there have been 14 M1 tank fires. Luckily, no injuries were reported, but most of these tank fires could have been avoided. Sixty-five percent of the fires were directly related to maintenance shortfalls and failure to follow and enforce standards.
The Armor community understands that the M1A1 has a turbine engine that puts out significant heat, but many may not know just how hot that engine really gets. The Abrams AGT 1500 engine will reach temperatures of 1200 to 1350 degrees Fahrenheit. Combine that with 30W oil, turbo-shaft oil, and fire-resistant hydraulic fluid (FRH), all with flashpoints around 450 degrees Fahrenheit, and it becomes obvious how a tank engine can catch on fire. Add 504.4 gallons of JP8 and one starts to wonder why there aren’t more fires.

According to TM 9-2350-264-10-1, any class III leak renders the vehicle “NOT FULLY MISSION CAPABLE.” The rationale should be obvious, but it still seems to elude some leaders and soldiers. Class III leak(s) in the engine compartment can damage equipment, start a fire, and result in injury, costly repairs, or death.

Accident investigations reveal that most crews received some type of warning of a problem. Warnings included a transmission or engine oil temp high light, finding the engine or transmission oil unusually low, or seeing smoke come from the engine compartment while running or after shutdown. Even a small amount of smoke can indicate a leak of some kind.

One of the most critical points of prevention is during semi-annual services. Units must adhere to their preventive maintenance checks and services (PMCS) inspections and their non-mission capable criteria. During maintenance, leaders must take the extra time to ensure that all steps are performed properly and no fire hazard exists.

Tank crews must clean all the sludge and gunk from the bottom of the hull. A buildup of dirt can keep leaking oils from seeping out of the hull and increase the potential for an engine fire.

While the power pack is out, the crew and the maintenance team must ensure they inspect the fire shields that protect the fuel cells from the tremendous heat produced by the engine. Any bent, broken, or otherwise defective fire shield must be replaced before the power pack is set back into the hull of the tank.

A close inspection of the transmission oil crossover hose, the transmission oil cooler grill door seals, and the main hydraulic pump and lines is time well spent in fire prevention. Look closely for fuel leaks, and if identified, immediately contact unit level maintenance. Never operate the tank until maintenance identifies and repairs the leak.

In addition, there is a Ground Precautionary Message (GPM-01-020) in reference to the hydraulic case drain quick disconnect. This GPM outlines the hazards of abnormally high pressures and temperature in the main hydraulic pump when someone fails to properly connect the quick disconnect. If the quick disconnect is not properly fitted and the hydraulic pump leaks, there is a high probability of an engine fire.

The GPM further directs replacement of the quick disconnects during the next semi-annual service, or when the power pack is pulled for non-scheduled maintenance. Be a proactive tanker and ask your maintenance team if this has occurred on your tank.

When operating in severely dusty or sandy terrain, the buildup of debris increases in the hull compartment and should be cleaned out as soon as possible. If a power pack is removed in a field environment, the crew should be disciplined enough to take the time to remove debris and any excess fluids before returning the power pack to the engine compartment.

Don’t let your M1 series tank become the next victim of fire! Listen when your tank tells you that something is wrong, and take the time when performing maintenance to identify all leaks and get them fixed. Your Abrams tank is the finest main battle tank in the world—let’s keep it that way!

POC: SFC Bennie Cagle, Ground Systems and Accident Investigation Division, DSN 558-2381 (334-255-2381), cagleb@safetycenter.army.mil
How ready is your crew for a fire on your Bradley Fighting Vehicle (BFV)? What actions must the driver take? The Bradley commander? What about the guys in the back? C’mon, that’s all commonsense stuff; we did all of that fire evacuation stuff in new equipment training 3 years ago. Unfortunately, common sense is not so common. If we fail to rehearse these basic drills, we are leaving the safety of our personnel and equipment to chance. So let’s take a few minutes and review some of the basics.

First, let’s discuss how the BFV fire suppression system works. The BFV has two separate fire suppression systems: one system for the squad compartment, and a separate system for the engine compartment. Each system has separate fire bottles. The fire bottles for the crew compartment are next to the turret, and the one for the engine compartment is underneath the instrument panel. It is important to remember that the two systems are totally independent; if one of the systems activates, it will not activate the other system.

The squad system (the one in the back) will work in the automatic or manual mode depending on how the switch is set. In the automatic mode, once the sensors in the vehicle detect a fire, the system activates and discharges the Halon from the two rear fire bottles into the squad compartment. You can manually activate the system by pulling the fire extinguisher handle in the right rear by the ramp or the exterior handle at right rear of the BFV. Don’t panic, the horror stories about Halon sucking the oxygen from your lungs are just not true; you have plenty of time to get out. A good load plan and rehearsals of Crew Drill 3 are located in FM 7-7J, and are an important part of the evacuation process. (This crew drill can be used or modified for any of the turreted BFV variants.)

The engine fire suppression system is not automatic, the crew must manually activate the system. After shutting down the engine, the driver needs to reach under the instrument panel and turn the knob to the left. Pulling the exterior handle by the driver’s hatch will activate the engine.
system as well. Keep in mind that the exterior fire extinguisher handles operate only one system—right rear for the crew compartment and left front for the engine compartment.

When was the last time you checked the fire suppression system? How about that bottle under the instrument panel? We all know it’s a pain to check, but with good preventive maintenance checks and services (PMCS), it will work when we need it. Make sure you check the cables that run from the handles on the outside to the valves on the bottles. These cables deteriorate, lose support, and develop kinks after time. If the cables look bad, write it up and have the mechanics check them.

Okay, so now we know what to do if we have a fire, but how can we keep a fire from starting in the first place? First, there is a Ground Precautionary Message (GPM 00-016) that addresses a problem with cracked fuel fittings on the engine. The GPM directs your mechanics to replace the brass fittings with steel fittings the next time they pull the pack. Do yourself a favor and make sure the mechanics replace the fuel fittings on your BFV.

Secondly, there is a problem with the power cable for the driver’s night viewer getting pinched in the driver’s hatch. Once the cable gets pinched, it can short out and cause a fire in the vehicle. There is a new cable and routing to fix this problem. Check out the “Bradley Bits” article regarding the fix for the 1W300 cable on the PM Bradley web site http://www.pmbradley.org/.

Lastly, do your best to keep the hull clean. If possible, pull the pack in a place where you can washout the hull. (I know, easier said than done, but a rag will help.) If you have a large amount of POL in the bilge, it can quickly become a fire hazard.

Don’t let your BFV become another fire statistic in the Safety Center database. Follow your -10 PMCS, and take a minute to educate yourself on the fire suppression system. If you know what to do, your training will overcome fear, saving your life and preserving a critical piece of equipment.

POC: MSG Michael H. Barksdale, Mechanized Infantry System Manager, Ground Systems and Accident Investigation Division, DSN 558-2959 (334-255-2959), barksdam@safetycenter.army.mil

Don’t panic, the horror stories about Halon sucking the oxygen from your lungs are just not true; you have plenty of time to get out.
Mixing the Nomex™ and the combat vehicle crewman (CVC) uniform with synthetic underwear, such as the issue-type polypropylene, is an invitation for pain! Nomex™ will withstand temperatures up to 700 degrees Fahrenheit, whereas synthetic materials can melt at about 300 degrees Fahrenheit. It is possible for Nomex™ to transfer enough heat to melt the polypro against your skin! Doesn’t sound like a very comfortable way to survive a vehicle fire to me.

Okay, if I can’t wear my polypro, what can I do? Combat vehicles are just like a refrigerator in the winter! First, your only choice is to wear the aramid or 100 percent cotton underwear. The table on the right contains national stock numbers for both types. Tell your supply folks to use an advice code of 2b. This code will ensure that you don’t get a substitute made of synthetic materials.

Secondly, there are some “CVC look-alike” gloves available at clothing sales and other stores. These gloves are black in color; however, based on a recent test, they are not fire-resistant. Check your NSNs to make sure you have the proper glove.

Lastly, keep your CVC uniform clean. Oil, grease, or household starch will cause the fabric to burn. Cleaning the CVC uniform to remove these contaminates will restore its fire-retardant properties.

Don’t be the soldier who survives a vehicle fire only to find yourself with melted polypro stuck to your skin, and third degree burns on your hands because of gloves that were not made from Nomex™. Worn properly, the CVC uniform will protect you from burns, should the unexpected happen in your combat vehicle.

POCs: MSG Michael H. Barksdale, Mechanized Infantry System Manager, Ground Systems and Accident Investigation Division, DSN 558-2959 (334-255-2959), barksdam@safetycenter.army.mil and Mr. Larry Hasty, Directorate of Force Development, Fort Knox, KY, DSN 464-3662
I was making good time this past weekend traveling from New Orleans, when suddenly, traffic slowed down to a snail’s pace. I thought to myself that there must be a wreck ahead. When I finally reached the accident site, flames were shooting out from beneath the hood of a vehicle that was now on the right shoulder of the road. The driver of the burning car was standing on the shoulder, not far from his vehicle. I yelled to him that he needed to get away from the car, that the car’s gas tank might explode. It seemed strange that the other drivers were not aware of the dangers of a car fire either; some were stopping, and others were rubbernecking to see the burning car. In my rearview mirror, I saw a fire truck and ambulance arrive. I eagerly left the scene.

According to the U.S. Fire Administration, 600 people are killed in car fires each year and 3,800 people are injured—1,200 of those are firefighters.

Fires in motor vehicles can produce toxic gases. Automobiles, trucks, and other motor vehicles are made of many synthetic materials that emit harmful, if not deadly, gases when they burn. A main by-product of fires is carbon monoxide—an odorless, colorless, and tasteless gas that kills when present in high concentration.

A vehicle fire can generate heat upwards of 1500 degrees Fahrenheit. Keep in mind that water boils at 212 degrees Fahrenheit, and that most foods are cooked at temperatures less than 500 degrees Fahrenheit. Flames from burning vehicles can often shoot out distances of 10 feet or more.

Parts of the vehicle can rupture because of heat, shooting debris great distances. Bumpers and hatchback-door struts, two-piece tire rims, magnesium rims, drive shafts, grease seals, axles, and engine parts can all become lethal projectiles.

Although a relatively rare happening, gas tanks of motor vehicles can burst and spray flammable fuel, causing a serious hazard. In more catastrophic instances, gas tanks have been known to explode. Hazardous materials, such as battery acid, can injure without even burning.

Vehicle fires are so dangerous that firefighters wear full protective fire-resistant equipment and self-contained breathing apparatus. Firefighters also have the ability to quickly put out vehicle fires with large amounts of water or other extinguishing agents. You don’t have these advantages, so use risk management when deciding to fight a motor vehicle fire.

Here are some tips to help you should your vehicle catch fire:

- Signal your intentions and move to the shoulder or breakdown lane.
- Stop immediately and shut off the engine.
- Get yourself and your passengers out of the vehicle. Remain at least 50 feet away from the vehicle. Keep others away as well.
- Do not try to go back into a burning vehicle to retrieve belongings.
- Warn oncoming traffic. Ensure you are located in a safe position away from fire and traffic hazards.
- Call 911 or notify the fire department and report the location and type of fire.

POC: James “Al” Brown, Ground Systems and Accident Investigation Division, DSN 558-3421, (334-255-3421), brownj@safetycenter.army.mil
A unit recently lost a soldier in a rollover accident. The soldier was the gunner in an M1114 Up-armored HMMWV and was exposed through the turret of the vehicle. Riding exposed already bares certain increased risks. In this accident, three significant factors become apparent when analyzing this tragic event: minimal leadership involvement, no risk management planning, and no rollover drills conducted. These three factors overlap in many ways producing this fatal accident.

Background
The unit deployed after an intense train-up that included training at home station, followed by training at one of the national training centers. This train-up also included transitioning from normal corps operations with three vehicles to division operations with two. The training did not, however, include the M1114 Up-armored HMMWV. The unit got that experience in a one-day training event.

The unit arrived in-country and conducted a relief in place, which included “right seat/left seat” rides in the Up-armored M1114. They were then on their own to conduct route security and detainee escort duty. The route they were operating on was the route they had been over numerous times in the last couple of weeks.

The gunner for the squad leader’s vehicle had an unexpected medical emergency and was redeployed back to home station days prior to the accident. The team leader’s gunner was moved to the squad leader’s vehicle. There were now five soldiers assigned to the two vehicles.

What happened?
The night prior to the accident, the squad leader went to sleep at 2200. He had established a wake-up at 0300. The next mission had a departure time of 0530. The remainder of the squad was enjoying personal time playing cards and getting in precious phone calls to loved ones back home. The team leader finally went to sleep at 2400. Another squad member was the last one to go to sleep minutes later.

The squad leader had a reputation with the chain of command as “squared away.” The company commander trusted him to do the tough jobs without a lot of supervision.

During this deployment, the company commander decided to run this operation much like they would have in a garrison environment. This meant the squad leader would receive his mission from the operations sergeant and conduct his briefs through the operations center. The platoon chain of command was “not needed” for this type operation. The company commander required only the squad leader to conduct risk assessments of the operation and turn them in prior to departure. Besides, this was basically the same mission conducted at home station.

At 0500 on the morning of the accident, the squad leader awoke and realized he had overslept. He quickly woke up the squad. The operations NCO called the squad room asking where the squad leader was for his mission brief. The squad leader replied that he would be right there, as they were running a little late.

The team leader took the other three squad members to the motor pool to ready the vehicles. At 0515, the squad leader arrived at the TOC and departed at 0525 to link up with the squad. The squad departed the camp at 0534. There were no other leaders involved in this morning’s mission.

The squad immediately went to eat breakfast at a nearby location, since their early departure preceded the dining facility opening. Once there, they ate and collected their thoughts. The driver of the team leader’s vehicle told him he was too tired to drive, so the team leader took over from there.
Once the squad had eaten, they departed on the mission. As the squad moved along its route, nothing seemed out of the ordinary. That is, until they entered a small village where the road dropped off on the right side and was supported by a 12-foot retaining wall.

The squad leader’s gunner was alerted by a loud bang and turned to see the team leader’s vehicle skidding along the top of the retaining wall and the gunner flailing inside the turret. Then, he saw the vehicle go over the edge and overturn out of sight. He alerted the squad leader of what had just happened and they returned to the site. They immediately called for a medical evacuation aircraft and began lifesaving measures. It would be too late for the gunner.

Now, let’s go back and review the three factors identified earlier.

● **Leadership.** The company leaders trusted this squad, which evolved into no leader involvement in mission preparation and execution. The platoon leadership was not present or engaged in the squad’s actions. The squad leader trusted his team leader and squad to get the necessary rest for the next day’s mission. None of the leaders identified any risks associated with this mission. Leaders must be involved in their unit’s actions, especially in the planning and preparation phases.

● **Risk management.** The chain of command did not do risk management. This mission was like the mission they did at home. Besides, the squad leader was “squared away.” The squad leader did a risk assessment prior to departing on his mission. He identified leader rest as very adequate; however, no leaders reviewed the completed risk assessment.

The chain of command must identify and manage risks for all missions. Considering all the factors involved in this mission, the appropriate-level of authority should have made the decision on this mission. Had the chain of command done this, they may have identified the risks associated with not having all mission-essential personnel for a real-world mission, and taken the appropriate actions to mitigate these risks. If you combine leader involvement with risk management, the leaders should have awakened the squad on time to prepare for the mission and supervised their preparation.

● **Rollover drills.** Rollover drills were never conducted. They were known, but not conducted. Drills enable us to react in situations or environments that occur quickly and sometimes without warning, thus preventing us from issuing orders and commands. It is imperative that leaders and soldiers take every opportunity to minimize the risks associated with our already risky business. Drills are one way to do that. Rollover drills may have saved a life on this day.

POC: Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
This is the first of two articles that addresses child passenger safety restraint systems and the establishment of an installation Child Passenger Safety Training Program.

Every day, children sustain serious injuries and die in traffic accidents. Many of these tragedies could be avoided with the correct use of child safety seats and seatbelts. Sergeant Smith and her 5-year old daughter found out just how important it is to use seatbelts and child safety seats—

On the morning of 24 August, Sergeant Smith was driving her daughter to the child development center when they were involved in a serious accident. A driver in a pickup truck tried to pass her vehicle, but saw oncoming traffic and suddenly cut back into the right lane. The driver never slowed down and rammed Sergeant Smith’s car in the rear. Sergeant Smith was wearing her seatbelt and suffered only minor injuries from the rear-end impact. Her daughter was startled and crying, but unharmed in her booster seat in the back. Paramedics examined the child and did not find a mark on her.

Many are not so fortunate. According to the National Highway Traffic Safety Administration (NHTSA):
- Between 1990 and 1999, over 90,000 children under the age of 20 died in motor vehicle crashes.
- Over 16,500 of those children were under the age of 10, meaning that 33 children under the age of 10 died every week in motor vehicle crashes.
- During that same time, over 57,500 teens between 16 and 20 died in traffic crashes—about 110 each week.
- In total, over eight million children were injured.

Although 96 percent of parents who do buckle up their children think they are doing it correctly. However, car seat checkups continually show that 4 out of 5 unintentionally make mistakes that could result in their child being injured or killed in a crash. Many are not aware that there are four important steps to keep kids safe in motor vehicles. Skipping even one step can put kids at serious risk of injury or death in an accident.

The child passenger safety seat problem includes: nonuse, misuse, and incompatibility.

Nonuse and misuse

Despite the advancements in technology and education, many children are placed in vehicles unrestrained. When children outgrow their convertible safety seats at around age 4 and/or 40 pounds, many parents stop using child safety seats and move kids directly into seatbelts.

According to a recent NHTSA study, approximately 80 percent of all child safety seats are installed incorrectly or misused. Although most parents do make an attempt to fasten the seatbelt around the child, the correct installation of safety seats can be difficult.

Incompatibility

Compatibility problems often occur due to the variety of seatbelt configurations, vehicle seat designs, and child safety seat designs. Always read both the vehicle owner’s manual and the car seat instructions carefully when deciding which car seat to use and how to properly install it. Check your car manual to determine if you need a locking clip or other equipment to properly secure the child’s safety seat.

Children need special protection

Properly installed child safety seats work to allow the child’s body to stop as the vehicle is slowing. This reduces the force on the child’s body, and prevents contact with hard surfaces, other occupants, the road, or other vehicles.

Highway deaths are the number one killer of children and young adults in our nation. To prevent these losses, Army installations and organizations can implement a Child Passenger Safety Training Program into their Privately Owned Vehicle (POV) Accident Prevention Program. This topic will be discussed in detail next month.

Highlights include:
- Setting up a Child Passenger Safety Training Program for your installation.
- How to become a certified child passenger safety technician.

Children and airbags don’t mix.

REMEMBER ALWAYS BUCKLE UP. EVERY TRIP. EVERY TIME.

POCs: MSG Glenn Davis, NCOIC Maneuver Support Center Installation Safety Branch and Certified Child Passenger Safety Technician, Fort Leonard Wood, MO, 573-596-0116, davisg@wood.army.mil and Fred E. Fanning, CSP, Maneuver Support Center Safety Director, Fort Leonard Wood, MO, fanningf@wood.army.mil

Four steps to keep kids safe:
1. Use rear-facing child seats for children up to at least 20 pounds and 1 year of age.
2. Use forward-facing child seats for children 20-40 pounds (1-4 years old).
3. Use belt-positioning booster seats for children 40-80 pounds or under 4’9” tall.
4. Use seatbelts for older children large enough for the belt to fit correctly: at least 80 pounds and 4’9” tall.
Army Safety doesn’t always leave when an installation shuts down. Fort McClellan, Alabama, officially “closed the gate” in September 1999 under the Base Realignment and Closure Act (BRAC). Since 1917, the fort has successfully supported military training and was home to the U.S. Army Military Police and Chemical Schools. Past training activity included use of various weapon systems from World War I through the Gulf Conflict, along with chemical and radiological operations.

Changing from an active installation to a BRAC site is challenging. This mission is the responsibility of the U.S. Army Transition Force (TF) Fort McClellan. A primary task is ensuring the installation’s land is free of unexploded ordnance (UXO) or environmental contamination. This has to be done before the Army can transfer property for reuse. The TF relies on the risk management processes outlined in FM 100-14 to assess known or expected hazards. Installation range and land areas are being evaluated for initial and residual risks.

The BRAC process has the TF interacting with multiple agencies. Examples include Headquarters, Department of the Army (HQDA); Training and Doctrine Command (TRADOC); National Guard Bureau (NGB); Corps of Engineers (Mobile and Huntsville Districts); Department of Justice (DO); U.S. Fish and Wildlife Service (USFWS); Environmental Protection Agency (EPA); U.S. Army Technical Center for Explosive Safety (USATCES); U.S. Army Technical Escort Unit (TEU); Department of Defense Explosives Safety Board (DDESB); State of Alabama (Departments of Transportation and Environmental); Alabama National Guard (ALARNG); local county Sheriffs’ Department; and local reuse groups.

The cleanup process is complex. Daily work activity at Fort McClellan includes the detection, removal, and destruction of UXO from firing and historical range areas, investigating chemical and radiological training sites, the construction of a state highway bypass through portions of the fort’s property, timber removal along forested right-of-ways, and environmental sampling and analyses of water and soils.

The presence of UXO on BRAC installations has two distinct safety issues. First, is the concern of safely performing environmental investigations in the presence of UXO; the second problem is the Army’s liability from the residual UXO. The TF continues to make risk decisions to protect the public, BRAC contractors, and other agencies working at Fort McClellan. Hazardous areas have been closed to public access, including the shut down of all hunting activity throughout the installation’s 40,000-acre land area. Previously open installation roadways have also been selectively closed. Additional control measures include:

- Providing UXO safety briefs to all contractors, the public, and community agencies.
- Coordinating security patrolling with MP, DOD, and local police departments.
- Installing metal gates with locks to control access along roadways leading into cleanup sites.
- Maintaining liaison with community media through radio, TV, and newspaper updates.
- Weekly meetings with contractors and state agencies to resolve cleanup issues.
- Linking the TF and contractors using a wireless telephone system.
- Installing and upgrading signage to mark UXO, environmental, and logging areas.
- Ensuring utility (gas, water, electric, etc.) companies coordinate all intrusive work with the TF.

We are an Army in transformation. As more base closings occur, the integration of Army safety and risk management can provide reasonable controls to support mission accomplishment. Communicating the risk management process to the lowest organizational level is very important. If effectively done, there is a buy-in by participants with an understanding that maintaining a safe and healthy work environment is not just an idea—it is top priority. This is equally applicable to active-duty units or closed-down installations!

POC: Mike Moore, Transition Force Fort McClellan, ATTN: ATZN-SS-S (Safety), Bldg 215, 291 Jimmy Parks Boulevard, Fort McClellan, AL 36205-5000, (256) 848-5433, mike.moore@mcclellan.army.mil
The safety and occupational health profession (Career Program-12) is at a critical point in its existence. Due to changing regulations and technology, many facilities are challenged just to maintain the standard on a daily basis. Leadership is in need of competent safety professionals with a comprehensive plan to support Army readiness, while staying in compliance with safety and occupational health statutes. Thus, CP-12 formulated a training program to equip safety professionals.

The CP-12 vision is to meet the Army’s force protection requirements, enhance mission accomplishment, and comply with statutory requirements by acquiring, training, developing, referring, and sustaining highly-qualified Army safety and occupational health professionals. This vision is being realized by the career program’s wide-ranged training plan.

The CP-12 training program is tailored for safety and occupational health interns, but is also designed to meet the requirements of safety professionals and military members who need safety training. The course schedule is posted below and on page 15, as well as on the Safety Center website under the CP-12 hyperlink. Also on the website is a course catalog that contains course descriptions of all classes offered.

To enroll, both civilians and military members should call DSN 558-3943 or commercial (334) 255-3943, or e-mail Ms. Jenell Fuller (fullerj@safetycenter.army.mil) to request a slot in a desired course. An original Department of Defense (DD) Form 1556 must be brought to class to obtain required signatures. Successful completion of all course requirements will entitle students to request college credit for most individual classes through the American Council on Education.

A partnership between Texas A&M-Commerce, Texas Engineering Extension Service, the OSHA Education Center, and the Army Safety Center provides an even greater opportunity for safety and occupational health interns and safety professionals. By combining Army professional development courses and academic courses from the Texas A&M University System, interns are afforded the chance to earn a master’s degree during their internship. A Master of Science in Industrial Technology Engineering and Safety Management can be earned through this unprecedented program of education and instruction in the area of safety management.

Career Program-12 provides safety professionals with combined intellectual knowledge and understanding of safety issues, advanced working skills, and credentials leading to rewarding professional opportunities in the Army. For further information, visit the Safety Center website or call Dr. Brenda Miller, Chief, Training and Education Division, and CP-12 Manager at DSN 558-3553 (334-255-3553).

POC: Krystal Hancock, USASC CP-12 Intern, DSN 558-1220 (334-255-1220)

### PHASE I

#### Safety and Occupational Health Course Schedule

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<tbody>
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<td>Orientation*</td>
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<tr>
<td>How the Army Runs</td>
<td>Jan 3-4</td>
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<tr>
<td>Theory &amp; Application of Accident Prevention</td>
<td>Jan 7-8</td>
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<td>Human Factors</td>
<td>Jan 8</td>
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<tr>
<td>Risk Management</td>
<td>Jan 9-11</td>
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<tr>
<td>Industrial Application of Regulatory Initiatives</td>
<td>Jan 14-17</td>
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<tr>
<td>Problem Solving</td>
<td>Jan 18</td>
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<tr>
<td>Holiday</td>
<td>Jan 21</td>
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<tr>
<td>Advanced Machinery Safeguarding</td>
<td>Jan 22-25</td>
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<tr>
<td>Electrical Hazard Control</td>
<td>Jan 28-30</td>
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<tr>
<td>CAPSTONE I - Ft. Benning, GA*</td>
<td>Jan 31-Feb 1</td>
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<tr>
<td>Fire Safety in Building Design</td>
<td>Feb 4-6</td>
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<tr>
<td>Environmental Law</td>
<td>Feb 7-8</td>
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<tr>
<td>Quantitative Methods in Safety Management</td>
<td>Feb 11-13</td>
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<tr>
<td>System Safety</td>
<td>Feb 14-15</td>
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<tr>
<td>Holiday</td>
<td>Feb 18</td>
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<tr>
<td>Contemporary &amp; Army Ergonomics</td>
<td>Feb 19-22</td>
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<tr>
<td>Writing Techniques</td>
<td>Feb 25</td>
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### TRAINING & RISK MANAGEMENT

#### Safety Officers

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<tr>
<td>Legal Aspects of Safety</td>
<td>Feb 26-Mar 1</td>
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<tr>
<td>Safety Program Leadership &amp; Management</td>
<td>Mar 4-6</td>
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<tr>
<td>Briefing Techniques</td>
<td>Mar 7</td>
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<tr>
<td>MACOM Briefings*</td>
<td>Mar 8</td>
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<tr>
<td>Hazardous Material Control &amp; Response Methods</td>
<td>Mar 11-15</td>
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<tr>
<td>Recognition, Evaluation, &amp; Control of the Occ. Enviro.</td>
<td>Mar 18-22</td>
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<td>Motor Vehicle and Transportation Safety</td>
<td>Mar 25-28</td>
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<td>Research Methods</td>
<td>Mar 28-29</td>
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<tr>
<td>Accident Investigation and Analysis Techniques</td>
<td>Apr 1-5</td>
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<tr>
<td>Hazard Recognition in Built Environments</td>
<td>Apr 8-12</td>
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<td>Training Techniques</td>
<td>Apr 15-16</td>
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<td>Health Physics &amp; Radiological Health</td>
<td>Apr 17-18</td>
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<td>Research Project</td>
<td>Apr 19</td>
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<td>CAPSTONE II - Ft. Polk, LA*</td>
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<td>Operational Safety</td>
<td>Apr 25-26</td>
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<td>Range Safety</td>
<td>Apr 29-May 1</td>
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<td>Career Development</td>
<td>May 2</td>
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<tr>
<td>INTERN GRADUATION [Phase I]</td>
<td>May 3</td>
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<td>* CP12 interns only</td>
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#### PHASE II

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<tr>
<td>Aviation Safety</td>
<td>May 13-17</td>
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<tr>
<td>Tactical Safety</td>
<td>May 20-31</td>
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<tr>
<td>Hospital Safety</td>
<td>Jun 3-5</td>
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<td>Modern Safety Issues</td>
<td>Jun 6-7</td>
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<td>Army Safety Program</td>
<td>Jun 10-12</td>
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<td>Resource Management</td>
<td>Jun 13-14</td>
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<td>Explosives Safety Management</td>
<td>Jun 17-21</td>
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<td>Occupational Health Safety Technologist Cert Workshop</td>
<td>Jun 24-26</td>
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<tr>
<td>INTERN GRADUATION [Phase II]</td>
<td>Jun 27</td>
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#### PROFESSIONAL DEVELOPMENT COURSES

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<td>Jun 10-12</td>
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<td>Range Safety</td>
<td>Aug 19-23</td>
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<tr>
<td>Problem Solving Strategies for Safety Professionals</td>
<td>Sep 11-12</td>
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<tr>
<td>Theory and Application of Accident Prevention</td>
<td>Sep 12-13</td>
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<tr>
<td>OSHA 501/600</td>
<td>Sep 16-20</td>
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<tr>
<td>Behavior Based Safety</td>
<td>Sep 17-19</td>
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<tr>
<td>Resource Management</td>
<td>Oct 1-2</td>
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<tr>
<td>Associate Safety Professional Certification Workshop</td>
<td>Oct 16-18</td>
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<tr>
<td>Certified Safety Professional Certification Workshop</td>
<td>Oct 22-24</td>
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<tr>
<td>Army Safety Program Management</td>
<td>Oct 22-24</td>
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<td>Contractor Safety</td>
<td>Oct 28-Nov 1</td>
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<td>Accident Investigation &amp; Analysis</td>
<td>Nov 4-8</td>
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<tr>
<td>Chemical Safety Management</td>
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<td>Advanced Accident Investigation &amp; Analysis</td>
<td>Nov 18-22</td>
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<td>Advanced Safety Management</td>
<td>Dec 10-12</td>
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<tr>
<td>Modern Safety Issues - “What’s New?”</td>
<td>Date TBD</td>
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FYI: 2002 NATIONAL SAFETY CONFERENCE [San Diego]                        | Oct 4-11        |
We will emerge from this attack stronger—with greater resolve to prevail against the forces of hatred and darkness.

— CSA Eric K. Shinseki
SEATBELTS

Protect yourself and your unborn child. Expectant mothers should wear lap/shoulder belts with the lap belt fastened below the baby and the shoulder belt fastened above the baby.

Toddler (20-40 lbs and over 12 months) should ride in the backseat in a front-facing safety seat.

Child (40-80 lbs) should ride in a booster seat secured by a lap/shoulder belt.

Infant (up to 20 lbs and 12 months) should ride in the backseat in rear-facing safety seat.
ROLOVER!

CREW DRILL: ARTEP-19-100-10-DRILL

WEAPONS HANDLING ACCIDENTS still Killing-Injuring Soldiers
Readiness and Safety are Inseparable

As we enter this Thanksgiving season, reflecting upon recent events gives us an even greater appreciation for the fact that we have the opportunity to live in and defend the greatest country in the world. In the midst of our pain and anger, let us not forget the families and friends of our fallen comrades. Let us also pause to give special thanks for those who so willingly serve our nation with a level of devoted service unparalleled in any other profession. We truly are a magnificent Army.

For more than 220 years, the finest men and women in the world have faithfully fulfilled the Army’s non-negotiable contract with the American people: to fight and win our Nation’s wars. Those of us who wear the uniform today will do so again. This time, it is a war of a different kind, on a different front, facing an adversary whose acts of terrorism have left us bloodied in our own homeland—but with an unshakeable resolve that these despicable acts of war will not go unpunished. The United States Army is ready to do its part.

Now more than ever, it’s imperative that leaders and soldiers alike fully understand that readiness and safety are inseparable. We must stay focused on the tasks at hand. We must continue to ensure that safety and risk management are completely integrated into every mission and operation we execute. History tells us that in every major conflict, with the exception of Korea, we lost more soldiers to accidents than to enemy action. We cannot allow that to happen this time. The loss of a single soldier in a preventable accident represents a serious drain on our readiness.

The same 5-step risk management process, that we adopted as our principal risk-reduction tool and integrated into the Army in the 1990s, will continue to serve us well as we answer our Nation’s call. We must diligently guard against reverting to a mindset of “This is war, and accidents are the cost of doing business.” The risk management standard is also non-negotiable: an informed risk decision made at the appropriate level applies in combat as well. I challenge each of you to ensure that we continue to identify hazards to the fullest extent possible, that they are properly assessed, that risks in all missions are reduced to the lowest possible level, and that informed decisions are made at the appropriate level of command when accepting residual risks.

We are now engaged in what our Commander in Chief has declared the first war of the 21st century. Implicit within our warfighting mission is the requirement to do so with minimal losses. We’re trained; we’re ready. Now, let’s find the strength, discipline, wisdom, and the skill to effectively use every available risk management technique and resource, that can help us ensure the safety of all who are answering the call, to avenge what many are labeling as the darkest day in American history.

— BG James E. Simmons
During the last 3 years, 11 soldiers were killed and 112 others were injured because of improper weapons handling or improper misfire procedures. More than half of the accidents involved privately owned weapons, and almost all the rest involved either personally assigned military weapons, the M60 machine gun, or the M2 .50-caliber machine gun.

- A soldier was cleaning a .22-caliber handgun, but he didn't clear it first. During the cleaning process, he dropped the weapon onto the floor. When the weapon hit the floor, the bullet struck the soldier in the shoulder.

- A PFC was running down a wet, grassy slope with his M14A1 rifle locked to the rear and a round in the magazine. He slipped and fell backward, causing the round to chamber and discharge simultaneously. The soldier was shot approximately one-half inch above the middle toe on his left foot, shattering all bones on his second and third toes. He now has permanent nerve damage.

- While target practicing at a civilian range, an SFC attempted to clear a live round lodged in the chamber of his .45-caliber pistol without dropping the magazine. He held the pistol with his right hand, and his left hand was placed on top of the slide just forward of the ejection port. His hand slid forward with the slide of the barrel and continued off the front of the weapon so that the last three fingers of the left hand were past the barrel. The weapon discharged, penetrating three fingertips on the left hand. (Soldier subsequently had three fingers amputated.)

Failure to treat weapons as if they were loaded was a major factor in many weapons accidents. For example:

- A soldier was at a friend's house and began playing with a revolver. The soldier pulled the trigger. The weapon didn't fire because the hammer struck an empty cylinder. The soldier continued playing with the revolver, assuming it was not loaded. The second time the soldier pulled the trigger, the gun fired—killing himself.

Weapons are not toys, and leaders must never allow soldiers to kid around with weapons. Horseplay should not be tolerated. NCOs and other leaders should ensure soldiers know not to ever point a weapon at anyone—even if it's not loaded. A case in point is the following accident that happened a few years ago:

- A soldier was part of a team performing guard duty at an air defense site. During a guard change, the soldier pointed out that the guard he was relieving had a magazine in his weapon and the weapon was not on safe. The guard told him it was all right because there was no bullet in the chamber. The guard then pointed
the rifle at the relief soldier and pulled the trigger. The weapon discharged, and the bullet struck the soldier in the throat. He died the next day.

The Army has strict rules concerning when weapons may be loaded. Soldiers who load weapons without authorization are headed for an accident. Unit leaders, especially NCOs, should routinely check to ensure that weapons are never stored or transported loaded, that magazines are not placed in weapons until just prior to firing, and that weapons are kept on safe until it is time to fire. Most of the rules that apply to military weapons apply to privately owned weapons as well. Leaders should ensure soldiers know the rules apply equally to all weapons.

Even in combat, weapons should remain on safe unless there is an immediate enemy threat. Otherwise, they could become the enemy. For example:

● An infantry unit was conducting a live-fire exercise. Nobody noticed that a sleeping soldier had a magazine in his weapon. He moved just as he woke up, and his weapon discharged, killing a nearby soldier and seriously injuring another. This unit failed to conduct 100 percent accountability of ammo.

Leaders are responsible for machine gun safety, not just individuals

Almost all the accidents involving M60 and .50-caliber machine guns were the result of poor supervision and poor training, both of which are leadership responsibilities. Most .50-caliber machine gun accidents happened because the headspace and timing were not set properly, causing a round to explode in the chamber. Accidents involving the M60 machine gun were almost all caused by failure to follow proper misfire procedures. These accidents are so similar that they read like duplicate reports. Most say: “The soldier opened the feed tray cover too soon after a misfire; the chambered round cooked off, throwing particles into the soldier’s face.”

Leaders need to ensure that soldiers are trained in operating crew-served weapons. The soldiers need to know how to set the headspace and timing on the .50-caliber machine gun and the required waiting times of the M60 machine gun misfires. Finally, leaders need to ensure that time is allowed for these procedures, and that they are performed properly.

All of these accidents could have been prevented if the leaders involved had just ensured that their personnel followed procedures. Soldiers are told repeatedly to always treat weapons as if they are loaded, to properly clear their weapons after firing, and to perform the proper procedures when firing a machine gun. However, it’s up to unit leaders to enforce these standards—anything less is unacceptable!
Okay, look. Let's take a minute and talk about this.

I'm not going to quote a bunch of regulations and throw statistics at you. I'm just going to tell you about some things that have actually happened to some of our guys, and hopefully give you some ideas to help prevent you from making the same mistakes.

It's real easy to blame the folks that had the accident, but you know what? It could happen to us too. About 99 percent of us have done some amazingly stupid things in our careers, and the other 1 percent are liars. As we talk about these things, take a hard look at yourself and at your soldiers. Those who fail to learn from history are doomed to repeat it.

All of the following stories are from actual Army accidents.

- A soldier was loading an M249 squad automatic weapon (SAW). The squad members were in a squad wedge formation. The soldier let his bolt ride forward, which caused his weapon to fire, and the bullet struck him in his foot.

  The root cause of this accident is pretty easy to spot, isn't it? Maybe, maybe not. You would be shocked to find out how many people are unaware that the M249 SAW fires from the open bolt. Many soldiers are only familiar with the M16. If you try to chamber a round in a weapon that fires from the open bolt, the results can get real exciting, real quick.

- While performing guard duty with an M249 Automatic Rifle at a local civilian school, the soldier failed to properly handle his weapon by squeezing the trigger to check if the weapon was on safe. The soldier discharged three rounds, damaging one HMMWV and fatally injuring a 6-year-old boy.

  Come on now! Weapons handling is and should be our No. 1 skill. How can we allow a soldier to develop such bad habits? Don't get all “Holier than Thou.” Someone in your unit has the same bad habits. Find him or her and get it fixed.

- While participating in a blank fire exercise, the soldier inadvertently inserted a magazine left over from a live-fire range that had been conducted approximately two months before. The first round blew off his blank adapter; the next round struck and killed another member of his unit.

  Brass and ammo checks. They must be done. Make it policy in your unit that everyone gets checked. Everybody, even experienced soldiers, can get a case of C.R.S. (can't remember stuff), from time to time. If you get into the habit of checking everybody, to include the commander, you can avoid the misconception that you are treating soldiers like children, or that they cannot be trusted.

  Another piece of this particular puzzle is
weapons familiarization. This soldier did not realize that he had fired live rounds until after the MEDEVAC had departed with the victim, and he cleared his rifle. A properly trained soldier probably would have noticed the different weight/sound/feel of firing live rounds, and most certainly would have noticed his blank adapter getting blown off. The M16 series rifle is the U.S. Army’s primary weapons platform. You should be as familiar with it as you are with your battle-dress uniform (BDU).

Here is something that you may not have considered.

● The unit was conducting Basic Rifle Marksmanship training. The NCO “rodding” the firers onto the range was utilizing a cleaning rod. After completing the first firing order, he realized that he was missing a rod section. Range cadre took action by having all firers tilt their rifles, so that the muzzle was angled downward. No rod sections fell out, so they assumed that it was safe to proceed. The rod section was discovered after the first round was fired. The upper receiver disintegrated, completely destroying the M16; but, fortunately, without causing injury to the firer.

A rifle is called a rifle because it has rifling in the bore. This causes the projectile to spin, thereby stabilizing the trajectory. Think about this for just a moment. If it causes a bullet to spin, what effect is it having on a rod comprised of sections that are screwed together? Get with your installation range control facility and they will provide you with instructions on how to locally manufacture approved clearing rods.

What about privately owned weapons?

● The soldier had recently purchased a new handgun. His previous handgun featured a magazine disconnect, which rendered the weapon unable to fire when the magazine was removed from the weapon. While demonstrating this feature to his spouse, the soldier removed the magazine, placed the muzzle to his head, and pulled the trigger. His new handgun was not equipped with a magazine disconnect. The weapon discharged, killing the soldier.

Never take anything for granted, and treat every weapon as if it were loaded.

And one more.

● The soldier had just purchased a new handgun two days before. While at home and off-duty, he was showing it to his friends. While spinning it on his finger, the pistol discharged, striking one of his friends and killing him.

Let’s work on “positive habit transfer.” If you can get your soldiers trained to be safety conscious on-duty, it will potentially carry over to their off-duty time as well.

Here’s the trap. Since it says U.S. Army on our chest, we automatically know everything about every weapons system ever made. Hardly! You must consider each individual weapon as an entirely separate entity and educate yourself accordingly.

As a general rule of thumb, if you have not qualified in a particular weapons system, and if you cannot satisfactorily perform the basic CTT tasks associated with that system (load, unload, reduce a stoppage, as well as clear, disassemble, reassemble, and perform functions check), then you have no business carrying that weapon. Break out the manuals and talk to your NCOs.

I haven’t covered everything here, but if I accomplished nothing else, I hope I made you think. That’s a step in the right direction.

Get smart on weapons handling and save a life. It may be your own.

POC: MSG Sean M. O’Brien, Infantry LNO, RMI Division, DSN 558-2845 (334-255-2845), obrians@safetycenter.army.mil
He looked in the mirror and saw a young cowboy with dark hair, steely-blue eyes, and a day’s growth of beard covering his face. His Stetson™ was slightly tilted downward to cast a shadow, and he had wide shoulders with a narrow waist. To complete the picture, he wore a black gun belt with a silver buckle and bullets in each loop; the holster was tied down a few inches above his right knee.

The final piece was a Colt .45 with mother-of-pearl handles (no shell under the hammer of the weapon for safety purposes; however, he believed the gun had to be loaded to get the full feel of the weight whenever he would fast-draw). The Nike™ tennis shoes looked way out of place, a thought which brought a smile to his face. If only he could have been born 150 years ago.... Oh, well, 2001 was interesting and exciting too.

He took off the gun belt with the Colt still in the holster, the leather safety latch buttoned down over the hammer of the gun to keep it from slipping out of the holster, and hung the whole thing over his bedpost. He would unload the gun and lock it in his gun cabinet in just a bit. His hat went over the top of the bedpost, making the whole scene look very western.

As he went down the stairs to the living room, he spotted his wife trying to move furniture again.

She looked up, “I bet you were practicing your ‘fast draw’ again. You’re good enough to beat Charlie now, John; you’ll take first place at the rodeo.”

“I hope so, but Charlie is super quick and so accurate. He didn’t miss a single target last year.”

“You missed only one yourself.”

“Yeah, I know, but that was enough. Where’s Johnny? With Kit, right?” John asked as he pushed and lifted the couch to the desired spot, knowing it would probably be moved a few more times before his wife was finished redecorating.

“Yes, he and Kit are out in the woods. For a pair of 7-year-olds, they sure have developed a strong friendship. Charlie sure does love his son, and Kit just thinks the world of his dad—just like you and Johnny.”

In the woods behind the house, the two boys were in a heated discussion.

“He will too, Kit! Just you wait and see! My dad can beat your dad any day, anytime!” shouted a very irate little boy.

“He didn’t last year, did he? And he won’t this year!” shouted Kit right back.

“Oh, yeah? Wanna bet?”

“Sure! Just name it!”

Across the shaded lawn from Johnny’s house stood Kit’s house. The boys’ parents had been friends and neighbors for many years, and the families were very close. Kit’s dad, Charlie, was in his garage doing some “gunslinging” practice of his own. He would stand with his feet a little less than shoulder width apart. As his right hand streaked towards the handle of his Colt .45 six-shooter, he slid his left leg a little further out, which brought the gun into a natural firing position. His shoulders were slightly hunched, and his upper torso was leaning forward.

But drawing the gun was only part of the contest; the more difficult part was shooting targets as quickly and as accurately as they appeared. He dry fired, using his left hand to cup and steady his right hand, then he quickly reloaded from the bullets in his gun belt. There! Ready for the next targets. Maybe a little faster than last year. John-boy better watch out or he will be second best again this year!

Charlie took off his gun belt and hung it from a hook in his garage. He usually kept it under lock and key, but he was practicing so much every day that locking and unlocking the gun cabinet got to be a bit old. Besides, no one ever entered “his garage” unless he was in there.
Still arguing in the small wooded area behind the houses, Kit and Johnny finally decided they were wasting a beautiful play day.

“Let’s quit fighting and have some fun,” said Johnny.

“Okay. Do you want to toss the football or go skating?” In-line skating was one of their favorite things to do.

“Ah, I don’t know; we did that this morning. Let’s see if we can get some cookies at your place and some soda at mine,” said Johnny. The boys went over to Kit’s house first.

In the meantime, Kit’s parents were next door with Johnny’s folks. Of course, the rodeo and the gunslinging contest came up in conversation. Though not as boisterous as the boys, the two men were just as intense within the boundaries of friendly needling. Kit and Johnny happened by just as Charlie was explaining how badly he was going to beat John this year. For young Johnny, this was the last straw. He wasn’t going to listen to this kind of stuff anymore.

“That’s it! I’m going inside, and I’m going to watch TV. Are you coming or not?” he asked Kit. At Kit’s nod, they both went inside.

“Wait here; I want to show you something.”

A few minutes later, Johnny came into the newly arranged living room (which really hadn’t changed too much), wearing his dad’s Stetson™ and gun belt with the Colt .45 still in its holster. The belt, of course, was too big and kept slipping down whenever Johnny didn’t hold it tightly.

“Wow, Johnny, that looks great!” exclaimed an admiring Kit. “But funny, too,” he laughed, as the gun belt hit the floor, “I know, let’s use our gun belts and your dad’s gun!”

“No way! You get your own gun and meet me in the woods in 10 minutes, you dirty sidewinder, you!”

“I’ll be there, and we’ll see who the better man is, you varmint, you!” shouted Kit, fully into the game now. He knew just where his dad had been hanging his gun belt in the garage; it would be a piece of cake to get the Colt.

Ten minutes later in the woods, Johnny and Kit squared off, the Colt .45s just barely staying in their smaller holsters.

“Okay, here’s the rules,” said Johnny. “We get 10 feet apart, and on the count of three, we draw. Did you make sure your gun is unloaded?”

“Yeah, Dad was dry firing, so I know there’re no bullets in his gun. How ’bout you?”

“You gotta be kidding! My dad is always telling me ‘It’s the unloaded gun that kills.’”

Johnny rolled his eyes and grasped his throat to dramatize the point. “He wouldn’t allow a loaded gun in the house. Are you ready?”

Both boys held their arms out to the side, hands above the handles of their guns, just like they had seen their dads do many times.

“Oh, one...two...three...” The sound of the gunshots broke up the good-humored argument between the two old friends. They glanced at each other and began to run toward the woods. Both families would be in mourning that night and for a lifetime of days and nights to come. Many “why’s” would be asked, and each parent would agonize over his carelessness.

Weapons must be treated with respect— which means they must be kept under tight control, locked up in cabinets that little folks can’t get into. They shouldn’t be left hanging from gun belts on top of beds, or anywhere little hands could find them. Ammunition should be separated from the weapon for an extra degree of safety.

There is no excuse for not protecting children who love to emulate their heroes. And you are heroes to your children, whether you know it or not.

—Adapted from Torch Magazine

There is no excuse for not protecting children who love to emulate their heroes. And you are heroes to your children, whether you know it or not.
With the recent terrorist attacks on America, emotions have run high for the Nation's workers. People have experienced a range of uncomfortable feelings during this time. As an occupational health and safety professional, gaining an understanding of the effects of traumatic stress and grief can be an effective tool in providing a work environment that is both supportive to employees and business. This article provides a summary of helpful guidelines and authoritative web links on managing/recovering from traumatic events.

Traumatic-stress symptoms may occur after an individual has experienced a sudden, overwhelming, catastrophic and shocking event, such as a natural disaster, dangerous accident, or terrorist attack. Such events, like those witnessed on September 11, 2001, may cause some, none, or all of the feelings listed below:

- **Feelings of shock and denial** (usually first response after traumatic event).
- **Fear and anxiety** (common responses associated with a dangerous situation).
- **Depression**.
- **Irritability**.
- **Grief and sadness**—feelings of hopelessness and despair, which may result in a loss of interest in normal daily activities.

All these feelings are natural responses to abnormal events. However, people process emotions differently, and the intensity, frequency, and duration of these feelings vary considerably between individuals. Some people may experience intense, prolonged feelings of sadness, while others may have a delayed reaction to the event. Sights, smells and sounds associated with traumatic events may also trigger fear, anxiety, and other feelings on a periodic basis.

After a traumatic event, people may re-experience the trauma through nightmares, flashbacks, and unwanted thoughts. Individuals may also have an increased arousal level, causing jittery and jumpy nerves. A prolonged arousal level can lead to impatience and irritability, and may also interrupt normal sleep patterns. The arousal reaction—our body’s automatic response system that prepares the body to “fight” or “flee” from perceived attack, harm, or threat to our survival.

Other common human reactions caused by traumatic events include:

- **Avoidance of situations that are associated with the trauma**.
- **Anger**.
- **Guilt and shame**—people may blame themselves for actions they took or didn’t take to survive.
- **Increased use of alcohol or other substances**.

In light of the Nation’s unfolding events, we can expect a continued impact on our workforce. Understanding the signs and symptoms that employees may face during these troublesome times will prepare you to go about the business of managing people and projects, while providing a supportive working environment. These additional steps can aid you in this process:

**Provide an environment that fosters open communication**

Especially during chaotic times, employees may feel...
greater sense of comfort if you, as a leader/manager, acknowledge their concerns and listen to them. You do not have to say anything deep. Listening is very powerful and comforting.

Avoid keeping a stiff upper lip
If you feel comfortable, you may wish to share your natural feelings—as this shows employees you care (and are human). If you prefer not to express your feelings, that is okay as well, but be aware that others may feel the need to talk about a traumatic situation repeatedly. Employees should not be discouraged from sharing their thoughts with others, as this may aid in the recovery process.

Recovery rates
There is no standard recovery timeframe. Recognize that people recover from traumatic events at different rates. “Don’t expect employees to snap out of it.”
This advice by the University of Michigan’s Faculty and Staff Assistance Program (http://www.umich.edu/~hraa/griefandloss/managers.html) reminds managers that grieving is a process that takes time.

Employee assistance plan
If you have an employee assistance plan (EAP), inform employees that professional counseling services are available. Let employees know that EAP services are designed to aid employees in their recovery. There are often misperceptions about EAP services. Employees may believe that such services are used by only very ill or mentally disturbed people.

Get involved
People who have not been directly affected by the terrorist attacks may feel a sense of helplessness. Provide employees resources and information on ways to help the victims or assist relief organizations.

Refresh/review disaster policies
It’s a good idea to review your disaster planning procedures with your employees. This step will give you and your employees a greater sense of control by providing realistic expectations and a managed approach to handling a disaster.

Get back to the daily routine
For many people, getting back to a daily routine aids in the recovery process. As a manager, you can set the example. In doing so, proceed with sensitivity, and respect the fact that others may not be ready to dive into their daily activities.
For more information and resources on specific guidelines to manage grief and the symptoms of traumatic stress, visit the following web sites:
http://www.opm.gov/ehs/traugdpg.htm
http://www.ncptsd.org/facts/disasters/fs_phases_disaster.html
http://web.vet.cornell.edu/public/petloss/ekr.htm
http://www.umich.edu/~hraa/griefandloss/managers.html
http://helping.apa.org/index.html

—Courtesy of Peter P. Greaney, MD, Board-Certified Occupational Physician and President, WorkCare and Pactox, Specialists to Occupational Medicine and Industry (http://www.pactox.com/) and Osh.Net E-mail bulletin (29 Sep 01)
According to the National Fire Protection Association (NFPA), arson is the most common cause of fires in office buildings. Follow your building’s security measures and keep unauthorized people out of the building. Keep doors locked after business hours. Alleys and other areas around your building should be well lit. Keep clutter out of halls, lobbies, alleys, and other public areas.
Here are some tips from the NFPA on preventing fires in your office or work place.

**Housekeeping**
Keep waste paper, empty boxes, dirty rags, cleaning supplies, and other combustibles out of exits, storage areas, and stairways.

**Wiring**
Replace cracked, frayed, or damaged electrical cords. Never run extension cords across doorways where people can step on them, or where chairs or other furniture can pinch or run over them. Don’t plug extension cords into each other, and avoid plugging more than one extension cord into an outlet. Don’t use extension cords in place of permanent wiring.

**Equipment and appliances**
Leave space for air to circulate around heaters and other heat-producing equipment, such as copy machines, coffeemakers, and computers. Keep appliances away from anything that might catch fire. Don’t stack books or papers on computer monitors.

### Before a Fire Breaks Out

#### What employees should do—
- Count the doors or desks between your work areas and the nearest exit. During a fire, you may have to find your way out in the dark.
- Learn the location of alternative exits from all work areas.
- Know the location of the nearest fire alarm, and learn how to use it.
- Post the fire department’s emergency phone number on or near all telephones.
- Be sure that someone in authority knows about anyone with a disability that could delay their escape.

#### What employers should do—
- Post building evacuation plans, and discuss them during new-employee orientation.
- Conduct regular fire drills.
- Include disabled employees in the planning process for fire emergencies.

### What to do when a fire strikes—
- Sound the alarm and call the fire department, no matter how small the fire appears to be.
- Leave the area quickly, closing doors as you go to contain the fire and smoke.
- If you encounter smoke or flames during your escape, use an alternative exit. Heat and smoke rise, leaving cleaner air near the floor. If you must exit through smoke, crawl on your hands and knees, keeping your head 12 to 20 inches above the floor.
- Test doors before opening them. While kneeling or crouching at the door, reach up as high as you can and touch the door, the knob, and the space between the door and its frame with the back of your hand. If the door is warm, use another escape route. If it is cool, open it slowly. Be prepared to close it quickly if you see smoke or flames.
- Follow directions given by fire and security personnel. Once outside, move away from the building, out of the way of firefighters. Remain outside until a firefighter says you can go back in.
- If you work in a high-rise building, check your fire plan. Some require workers in areas not directly involved in the fire to remain in the building until otherwise instructed by firefighters.

### Portable fire extinguishers
Most portable fire extinguishers are good only for fighting small, contained fires, such as a fire in a wastebasket. Be sure someone has called the fire department and that everyone has left the area before fighting a small fire. It is dangerous to fight a grease or electrical fire with an extinguisher that contains water. If you don’t know how to operate a fire extinguisher, learn!

—Adapted from Ashore Magazine and the Naval Safety Center
All forms of tobacco use have ill effects on an individual's health, and smoking remains the leading cause of death and disability in the United States. Most people realize that smoking is associated with cancer, heart disease, stroke, and many respiratory diseases; however, young soldiers think this association involves only older people, and many feel invulnerable to these problems.

Current research on smoking finds interesting associations linking smoking to a wide variety of other unhealthy states. One of these is the relationship between smoking and injuries.

A year 2000 study on basic trainees at Fort Jackson shows that there is an increased likelihood of injury for both male and female soldiers if those soldiers smoked before they came in the Army. Current policy does not allow recruits to smoke in basic training, which makes the association with injury even more surprising. In other words, the liability associated with smoking can still be measured up to eight weeks after cessation of smoking.

In the study at Fort Jackson, men who had been smokers before coming into the Army were more than 3 times as likely to sustain an injury that resulted in time lost from basic training than their non-smoking counterparts. The likelihood of injury among women who had been smokers was twice that of non-smokers. The finding that smoking is an independent risk factor for injury has been reported in at least eight other studies. It has also been found that older smokers in the military have reduced aerobic capacity that impacts their ability to do long-term physical work.

Some people might ask how smoking can be related to injuries. The link between smoking and injury still needs to be determined. One possible explanation is the known effects of tobacco weakens the immune system and decreases the effectiveness of
wound healing, thereby making an individual more susceptible to injury during rigorous activity like basic training.

How far have we come?

Since the Army first published AR 600-63, *Army Health Promotion*, in November 1987, and took an active stand to discourage tobacco use, how far have we come? In 1980, soldiers who smoked made up 54 percent of the Army. In 1998, this number was reduced to 31 percent. Although this represents significant progress, in 1999, only 23 percent of the adult population smoked in the United States. The Army is still higher than the national norm. Currently smoking in the Army is actively discouraged. The research that shows how smoking impacts readiness makes smoking a command issue. All soldiers and their family members should be given support in efforts to stop tobacco use. Most Army posts have active tobacco cessation programs with medications available to assist the smoker in their efforts to quit. Seek assistance at your post health promotion center or call the community health nursing office.

By the time this issue goes to press, the Army will have already released the new clinical practice guidelines for smoking cessation. The guidelines are located on the Army Medical Department (AMEDD) quality management website [http://www.cs.amedd.army.mil/qmo/smoke/tabac/index.htm](http://www.cs.amedd.army.mil/qmo/smoke/tabac/index.htm).

We should all be willing to assist those among us who need encouragement and support in their efforts to stop smoking.

Not surprisingly, research results show that smoking poses short-term, as well as long-term effects on the health of our soldiers throughout their life, thereby having a negative effect on readiness.

POC: LTC Michael Custer, Dr.P.H., USACHPPM, DSN 584-6250 (410-436-6250), michael.custer@apg.amedd.army.mil
A privately owned vehicle (POV) prevention program is normally made up of several prevention programs that are linked to one another. These programs must include more than just conducting POV inspections, or giving safety briefings before leaves or long weekends. They should be tailored to the installation and include awareness of seatbelt usage and child passenger safety seat enforcement.

The child passenger safety seat program must include the effective dissemination of information through education and training. This information should include awareness of child passenger safety. On average, one out of five people do not know what type of restraint system is in their POV, or how these systems protect the occupants in the event of an accident.

An immediate and professionally implemented child safety seat program is necessary at every Army installation. Command leadership is the forerunner of all safety programs, and this includes the child passenger safety program. This program must be a part of the installation’s POV Accident Prevention Program.

The National Highway Traffic Safety Administration (NHTSA) has developed a Child Safety Training Program that provides the basics for an effective installation program. The NHTSA provides a 32-hour course that teaches attendees about the relationship between child safety seats and injuries and deaths, the periodic recall of child care safety seats, and the proper way to install the child safety seat. Attendees that finish the course and receive a passing score on the final examination will complete the requirements for certification as child passenger safety technicians.

Once certified, the technician can conduct check-up events and inspect child safety seats for recall, damage, and/or proper installation. The technician can also provide classes on child passenger safety training, as well as awareness training to others on the installation.

A certified child passenger safety technician can manage the installation’s Child Passenger Safety Training Program from the installation safety office, with direction and oversight from the installation Commander and Command Sergeant Major.

Volunteers who have been selected from organizations on the installation also receive training and certification. The child development services office must be an active player in this program, and ensure that it is integrated with other child protection programs like the family child care program. Coordination should be done with the provost marshal’s office to ensure that it is incorporated into the traffic safety plan, and training is made available to military police personnel. Coordination should also be made with off-post law enforcement agencies and organizations, so that fitting stations can be set-up in areas where our families live and shop. This allows families a convenient way to have their child seat checked and gather updated information.

Initial contact should be made with the state office for highway safety and the state/regional NHTSA offices to coordinate for the training and certification of post personnel. Temporary duty (TDY) for this training can be funded through temporary duty (TDY) for this training can be funded through

**AIRBAGS AND CHILDREN DON’T MIX.**

Accident statistics show that children are safer if they are properly restrained in a rear seat. Another reason to restrain children properly, on every trip, is that air bags are more common in motor vehicles. Air bags have to inflate very quickly, faster than a person can blink an eye, and with great force. Air bags are designed to restrain adults. Serious injury, and even death, can result for children—especially for the young child who is up against, or close to, an air bag when it inflates.
the installation's safety office or the installation Commander’s office. Upon return, the certified technicians work under the direction of the program manager in the installation safety office. A plan is developed that will run the program for approximately one year.

This program must include training, awareness, and fitting of the child safety seat. It is best if an installation can have a certified child passenger safety technician with the installation safety office, child development services, family child care, child development centers, and public safety offices (military police and firefighters).

Training should be conducted for family child care providers, child development center personnel, selected hospital personnel, and new parents. Additional training can be provided for young mothers at the local high schools and the county health departments.

Safety awareness material should be provided to all personnel affiliated with the installation. Check-up events should be held once each quarter and should include on- and off-post locations. The focus should be to educate soldiers, their families, and civilian employees. The program should serve as a resource and be conducted at their convenience.

A key element of this program is the dissemination of updated and accurate information to help change existing behavior patterns. However, even if the correct information is made available, changing an individual’s behavior is a difficult task. Education and message development must include efforts to correct inappropriate actions. Unintentional injuries and accidents are predictable results of specific actions. We can identify their causes and take action to avoid them through injury prevention education and programs.

POCs: MSG Glenn Davis, NCOIC Maneuver Support Center Installation Safety Branch and Certified Child Passenger Safety Technician, Fort Leonard Wood, MO, 573-596-0116, davisg@wood.army.mil and Fred E. Fanning, CSP, Maneuver Support Center Safety Director, Fort Leonard Wood, MO, fanningf@wood.army.mil
Lieutenant General B.B. Bell, Commander of III Corps and Fort Hood, is one leader who is making a difference in ensuring the safety of his soldiers and civilians. In a recent memo reinforcing traffic safety, General Bell outlined aggressive measures to address the disturbing fact that a young soldier was killed as she was walking onto the installation.

This attention by General Bell not only influences his soldiers to maintain high situational awareness, but encourages discipline to follow the law. The key to stopping accidents is proactive leadership. General Bell's brand of caring leadership deserves special recognition. Thank you, Sir.
The following is a list of selected safety of use messages (SOUMs) and ground precautionary messages (GPMs), issued by Army Tank-Automotive Command (TACOM) and Communications and Electronics Command (CECOM). Complete copies are available on the Army Electronic Product Support Bulletin Board via the Internet web site http://aeps.ria.army.mil/.

- MSG, 252030Z Jul01, subject; TACOM No. SOUM-01-017, Operational, Concerning troop seat assembly (reference TM9-2320-307-24P, Sep00, pages 18-30, figure 18-17 (no part number), used on M1 117 Armored Security Vehicle (ASV), NSN 2320-01-437-6957, LIN A93374. Summary: A recent ASV accident investigation indicated that there is a potential problem with the rear seat and restrain installation. The seat is designed to be easily removable with two hinge-type pins at the front of the seat and a latch mechanism at the rear. These mounting provisions may not be able to withstand the forces that will be imposed on the structure when the vehicle is involved in a collision/rollover. The passenger restraint system for this seat location also relies on these mounting provisions to be effective. If the seat does not stay secured during a crash, the occupant will not have an effective restraint system and may not be properly secured to the vehicle. POC: Keith J. Barthlow, DSN 786-8545 (810-574-8545), barthlok@tacom.army.mil.

- MSG, 031500Z Jul01, subject: TACOM No. GPM-01-021, Operational, Concerning vibratory rollers model CS433C, NSN 3895-01-456-2734 and 3895-01-456-2733; and model CS563D, NSN 3895-01-456-2735. Summary: This message corrects the NSNs of the affected vehicles listed in the subject line of GPM 01-021. Caterpillar, the manufacturer of the vibratory roller, has sent TACOM a safety recall notice for the ratchet puller (come-along), NSN 5120-01-275-2286, vendor: Ingersoll-Rand, part numbers: P6-H, P15H and P15D3H. The ratchet puller is contained in the unique tool sets fielded with the vibratory rollers (model Nos: CS433C and CS563D). The swage crimping on the pulling cable may not have a proper pressure. The ratchet pullers could fail and drop the load unexpectedly. POC: Raymond J. Bayma, DSN 786-8019 (810-574-8019), baymar@tacom.army.mil.

- MSG, 131844Z Jul01, subject: TACOM No. GPM 01-023, Item affected: Handheld fire extinguishers, NSN 4210-01-388-7854, Armored Vehicle Launched Bridge (AVLB), M60A1, L43664, NSN 5420-00-889-2020, AVLB, M48A5, L43664, NSN 5420-01-076-6096. Summary: AVLB technical manual procedures require update to address mandatory change from Halon to CO2 extinguishers. A MAM-97-005 required all AVLB vehicles to change from Halon handheld fire extinguishers to the CO2 portable fire extinguishers. The change to CO2 fire extinguishers requires a change to TM5-5420-202-10, M-60A1 Launcher and TM5-5420-226-10, M48A5 Launcher to ensure that the AVLB crew evacuates the vehicle before using the CO2 fire extinguisher. In the event of an AVLB crew area fire, if the CO2 fire extinguisher was used before the crew was evacuated, there is a risk that the crew could become unconscious and result in crew death due to asphyxiation. POC: Ralph Allen, DSN 786-7228 (810-574-7228).

- MSG, 18 Sep01, subject: TACOM No. GPM-01-025, Item affected: 2.5-ton LMTV trailer, NSN 2330-01-449-1775, M1095, 5-ton MTV trailer, NSN 2330-01-449-1776. Users are attempting to use the FMTV trailers outside of what is presently verified as acceptable. The 2.5-ton LMTV and 5-ton MTV trailer can be loaded only with general cargo; i.e., tents, nets, concertina wire, tools, spare tire, spare parts, etc., and/or ammunition until further notice. The only kit that may be applied to the trailers is the tarp and bow kit until further notice. This is necessary until the installation and testing of various kits and the transport of certain payloads are complete. Loading cargo other than general or ammunition and use of kits other than the tarp and bow will generate unknown results that may result in injury to soldiers or damage to equipment since they have not completed testing. POC: Garth Aegerter, DSN 786-6984 (810-574 6984), aegertege@tacom.army.mil.
Protect their safety while they protect yours -

Slow Down to the posted speed limit!

U.S. ARMY SAFETY CENTER
“Let’s Be Careful Out There”

Borrowing from an opening line of a past TV police drama series, I join the Army’s senior leadership in strongly urging all soldiers and other Army team members to be extra vigilant in identifying, assessing, and controlling hazards, on and off duty. The events of 11 September and initiation of the subsequent war against terrorism changed many things. One thing it did not change is the fact that accidents, whether during routine training or preparing for combat, are still a major threat to soldiers. Uncontrolled hazards can lead to serious accidental losses of both people and equipment—losses that, in turn, significantly impact readiness.

Last fiscal year, we lost 169 soldiers in accidents—the equivalent of almost five infantry platoons. For FY01, General Shinseki established an aggressive Armywide safety goal of a 20-percent reduction in total military fatalities. Although we did not achieve the overall accident reduction goal established, command involvement did succeed in reducing fatalities in privately owned vehicle (POV) accidents by 11 percent in FY01. However, of those 169 soldiers killed in FY01, 100 died in POV accidents. That is unacceptable. These numbers and rates are one metric for measuring safety performance, but we must never lose sight of the fact that these numbers represent lives lost. The loss of even one soldier will always be one too many. We can, we must, do better!

General Shinseki is adamant that we redouble our effort in attacking our number one killer of soldiers: POV accidents. He has established a goal to reduce the number of POV fatalities to 80 during this fiscal year and has charged the Sergeant Major of the Army to spearhead a campaign to accomplish this goal. The Six-Point POV Program and POV Toolbox located at http://safety.army.mil/pages/pov/index.html are excellent start points for use in establishing aggressive POV accident prevention programs.

Causes of ground accidents

Indiscipline, leadership, training, and standards are the leading causes of Army ground accidents. Indiscipline—knowing the standard and electing to ignore it—was a cause factor in more than 64 percent of Class A-C accidents from FY99-01. Leadership issues were identified in almost 10 percent of those accidents, while training failures were present in more than 8 percent, and inadequate standards were cause factors in more than 3 percent. Even a momentary lapse in providing effective leadership, enforcing standards, and executing well-rehearsed training plans can have catastrophic results. Eliminating these recurring accident cause factors requires well-disciplined training with technically and tactically competent leaders present.

Lest we forget...

The holiday season—one of the most dangerous periods of the year—is upon us and brings with it a normal range of hazards that require extra caution: alcohol, stress from hurrying to wrap up last-minute details before the Christmas exodus, and fatigue from celebrating with friends and family, plus an array of hazards associated with traveling on the nation’s highways. In addition to these normal holiday hazards, this year we must all be extra vigilant for new types of hazards associated with potential terrorist threats and activities.

I expect leaders at all levels to be involved in soldiers' holiday plans. Know where your soldiers are and what they are doing. Leaders must use every available risk management tool to ensure that soldiers understand the potential hazards and the consequences of failure to control them. The same risk management standard—an informed decision at the appropriate level—applies to holiday preparations and festivities. Do not allow failure to manage risks turn to holiday tragedy.

A special “thanks” to those who serve

More than ever before, the American people and many others around the world realize that freedom and the ways of life we hold so dear are dependent on your sacrifice and service. Thank you for the courage and commitment you are making in defense of our Nation. Wherever you are this holiday season—executing combat missions, training in preparation for combat, or on the nation’s highways—failure to effectively manage risks could result in a price much higher than you are willing to pay. “Let’s be careful out there” and know that you are never far from the hearts of the people you protect.

— BG James E. Simmons
"How Did We Do?"

The Army’s Fiscal Year (FY) 2001 ground safety record improved a good deal from FY00. There were 355 privately owned vehicle (POV) accidents (Class A-D) in FY01, down 22% from FY00. Personnel injury accidents decreased a noticeable 9% from last year, to a total of 1,255 accidents. Army vehicle accidents (including wheeled and tracked vehicles) are up 9% from last FY, with a total of 580 accidents in FY01.

POV “still leading the pack”

Of the 158 ground fatalities in FY01, 100 of those (64%) occurred in POVs. POV mishaps continue to be the most common cause of accidental death in the Army. However, these numbers do constitute a decrease from FY00, in which POV accidents accounted for 72% of all fatalities. The most common cause of these accidents was excessive speed. Causes that were nearly as frequent were driver fatigue and failure to remain alert and attentive at the wheel. This is the same pattern that was seen in FY00.

Each of these factors can be described as an example of indiscipline: a soldier knowingly chooses to violate a military standard or safety rule. It is generally agreed that the best control against indiscipline is command involvement and safety emphasis. Leaders must put forth a caring, but firm, sense of importance toward safety, both on and off-duty. The Safety Center’s POV Toolbox, 2nd Edition, can be downloaded at [http://safety.army.mil](http://safety.army.mil). The toolbox offers many actual, ready-for-use tools for the commander or other leaders who wish to improve POV safety.

Personnel Injury (PI)

Personnel injury accounted for the largest number of Army accidents this fiscal year (Class A-D). In FY01, 1,255 accidents fell into this category, as opposed to 1,368 in FY00, a 9% decrease. Thirty-three soldiers lost their lives this year due to PI mishaps, a slight increase over last year’s 28 fatalities.

The most common PI activities include: 27% involved parachuting, 15% resulted while performing maintenance and/or repair, and 11% while engaging in “human movement”—which includes recreational and physical training activity such as walking, running, climbing, or swimming.

The errors that caused these mishaps vary widely, but almost invariably include failure to follow known, established procedures. For example, the three most common mistakes reported were: “improper body position” (27%), “failure to stay alert and attentive” (13%), and “inadequate planning” (8%).
Army Motor Vehicle (AMV)

There were 542 AMV accidents in FY01, down 26% from FY00. Twelve of these accidents were Class A and produced eight fatalities. This number of fatalities is down a notable 20% from FY00. Nearly half (47%) of the 542 accidents occurred in non-tactical vehicles, such as government sedans. Light-tactical vehicles—the HMMWV, HEMTT, and 2-1/2 ton trucks—accounted for the remaining 53% of the AMV accidents. A very similar distribution among these type of vehicles was seen last year.

The top three causes of AMV accidents were slightly different than those for POV mishaps. The most common cause of these accidents was reported as failure to maintain alertness or attention. Excessive speed was also a top cause once again, and was tied for second place with failure to take precautions for adverse environmental conditions. A close third was taken by failure to adequately judge or ensure proper clearance for the vehicle. This causal pattern is similar to that of FY00, with the exception that excessive speed caused considerably more accidents in FY01 than in FY00.

Army Combat Vehicle (ACV)

There were only 38 ACV accidents in FY01, which is a 33% decrease from FY00. The 38 accidents included five Class A accidents and four fatalities. Unfortunately, this is double the number of ACV fatalities from FY00.

The largest proportion (20%) of ACV accidents occurred in the Bradley Fighting Vehicle (M2A2), with the remainder being spread fairly evenly among the other armored and tracked vehicles. This is a different vehicle pattern than that seen in FY00, in which the Abrams Main Battle Tank (M1A1) produced the largest proportion of accidents.

The cause patterns reported both last year and in FY01 did not show any distinctive pattern. Rather, the errors causing ACV accidents seem to be evenly spread over a large variety of categories, such as failure to secure, abrupt control and steering, improper braking, and excessive speed. As seen with the other types of accidents, most of the ACV mishaps (66%) were basically attributable to some form of indiscipline, such as overconfidence or haste.

Conclusion

Overall, as has been true for many years, POV mishaps comprise the greatest proportion of fatalities (64%), with PI in second place with 20%. The AMV and ACV accidents take up a distant third and fourth place with 5% and 3%, respectively.

Other types of accidents, such as fire and explosives incidents, account for the remaining 8%. This pattern of fatalities over accident types is nearly identical to FY00. The total fatalities for the last two years were nearly identical (158 vs. 157).

The one issue in Army safety that becomes most clear is that soldier indiscipline—the willful choice to break rules or safeguards—is at the heart of many of our accidental injuries, deaths, and damage to property. As safety professionals, we read report after report in which lives are lost, or soldiers are permanently disabled or incapacitated for long periods of time. These occurrences are all the more tragic when they happen for some reason that was entirely avoidable, such as driving too fast or carelessly.

One cannot overemphasize the point that soldiers must “step up to the plate” and take responsibility for this type of behavior. It’s time to say “NO MORE!” No more lives lost because of errors in judgment that could have easily been avoided. No more unnecessary lost work days for soldiers that we need out there in the field. We must say “No” to senseless accidents, both individually and as leaders.

Editor’s note: These statistics are current from the USASC database as of 15 November 2001. Delayed reports may change these figures somewhat in the coming months.

POC: Kecia K. Hall, Engineering Research Psychologist, Operations Research and Analysis, DSN 558-2990 (334-255-2990), hallk@safetycenter.army.mil
These are busy days for all of us. I recently sat through a briefing that made me pause and do some thinking. The briefing was on safety, and I’m again asking for your help.

I’d like to share with you what kept going through my mind as the briefer talked us through the slides and shared stories and statistics.

During FY01, we learned 169 Soldiers died from accidents. In my mind, I could see a company formation—a big, 169-person company. I imagined each of those Soldiers dead. I tried to envision that same number of funerals and headstones...and I wondered how many spouses, children, parents, friends, and loved ones that big of a formation represented. I was saddened.

I was also left determined—determined to put the word out and make a difference. Some Soldiers regard safety as an issue mainly impacting the TO&E Army. They say to themselves, “My unit doesn’t have motor pools,” “We don’t go to the NTC,” or “We don’t deploy.”

However, in reality everyone who works with Soldiers and civilians face safety-related issues. Our Soldiers and civilians face possible injury every day, performing tasks that are required to successfully perform their respective real-world missions. We must remain vigilant in combating the enemy of safety: complacency in enforcement of standards.

Safety, in short, is not just an issue for the go-to-war Army. It’s a Soldier issue, a civilian issue, and it’s an Active Army as well as a Reserve Component issue.

In many of the accidents, it was painfully obvious that the cause was preventable. The dead soldier’s first-line supervisor—a sergeant—should have been the person most able to have prevented the accident.

In more cases than I care to recall, something as simple as a seatbelt, a helmet, a ground guide with $20 worth of flashlights or wearing road guard vests could have saved lives and prevented injuries. In other cases, adequate risk assessments, safety briefings, spot checks, and closer involvement from an experienced leader would have likely been enough.

Anyone doubting this or wanting more specifics, the answer may lie no further than your dayroom’s coffee table or your safety officer’s in-box. Each month, the Army Safety Center puts out its Countermeasure and Flightfax magazines, and they never fail to contain eye-opening examples of how poor discipline, poor planning, poor preparation, and poor leadership all contribute to far too many deaths. The Center also runs an excellent Internet site at http://safety.army.mil.

I’d like for each of us to do all we can to ensure safety gets the visibility it deserves in our training, in our planning, and in the execution of everything we do.

In the past seven-or-so weeks, I’ve sat in a number of church pews near flag-draped coffins that contained the remains of Soldiers and civilians killed in the 11 September attack on the Pentagon.

Sitting at these services and graveside remembrances, I’ve felt the pain of these families and looked into the eyes of parents, spouses and children as they were handed the flag from their Soldier’s coffin.
It will take all of us—from private to sergeant major and lieutenant to general—to make a difference. The upcoming holiday season is a good time to point out that safety impacts more than just what we do on ranges, in our motor pools, and training areas.

Each year, privately owned vehicle (POV) accidents claim far too many lives. Causal factors remain alcohol, speed, carelessness, fatigue, and driving in inclement weather on unsafe road conditions. Going into the holidays, we can impact our soldiers with proper emphasis on behavior and how we conduct ourselves during adverse conditions.

In addition to safety, we should also add suicide prevention to our list of avoidable occurrences. During the briefing I spoke of, I was shocked to learn that a platoon of Soldiers—40 to be precise—had their deaths categorized as either suicides or suspected suicides. Perhaps not all of these could have been prevented, but I’m wondering if a concerned word, a timely counseling, or simply a kind gesture could have been enough to make a difference to some of these Soldiers.

I’m no doubt preaching to the choir, and a great many of you are in units where safety is priority one. But, even a single suicide or accidental death is one too many.

September 11th was a hard day for all of us, but it was prevented from being more tragic by the selfless acts of valor displayed by our fellow Soldiers and civilians. Late in October, Army Secretary White, the Vice Chief of Staff, General Keane, and I saluted our heroes by presenting them with the Soldiers Medal, the Defense of Freedom Medal, and other medals for their courageous actions at the Pentagon.

These brave men and women ignored danger, uncertainty, and pain to come to the aid of their fallen comrades, just as Americans have performed on battlefields for more than 226 years. We should be proud of each of them.

On 9 October, I was proud of the NCO Corps for a different reason. During a funeral for a soldier who died in the 11 September attack on the Pentagon, I witnessed an act that—at least to me—epitomized our role in enforcing standards.

During the graveside portion of the funeral, Old Guard 1st Sgt. Robert Watson was set to receive the freshly folded American flag from the casket when he noticed a flaw. Few people watching would have noticed the flaw, and 1st Sgt. Watson might've been able to cover it with his hand.

But, he didn’t. While the family waited and before a number of VIPs—including the Army Chief of Staff—the first sergeant signaled for the flag to be refolded, a process that took several minutes.

I was deeply impressed by his willingness to enforce standards, no matter how small the infraction or who was watching. Let 1st Sgt. Watson be our example as we strive to never overlook a safety violation, or walk past an opportunity to use our position and experience to ratchet up on safety, to identify hazards and develop procedures to assist those who are in despair.

Together, we can take this on and make a difference. Begin simply by asking yourself, “When can I talk about safety?” as opposed to “When must I talk about safety?”

—Adapted from Sergeant Major of the Army’s Thoughts-n-Concerns, 2 Nov 01
Mr. Claus was having a bad day. Every other unit was running on holiday schedule, and here he was working overtime. Most of the reindeer were down for maintenance and his elves were half-stepping. Just to make a bad day even worse, Mrs. Claus, otherwise known as “Northpole Six,” was jumping up and down wanting to know where the risk assessment was for the next mission.

Although she knew that Santa had executed this mission countless times before, “Northpole Six” wanted to make sure he had thought everything out. She was well aware that the big things jump out at you while the little things bite you in the rear. She was also in no hurry to collect on his SGLI, even though 11 months out of the year, all he was good for was taking up space on the couch and hogging the remote.

Mr. Claus had initially tried to push the mission back some, say June-ish, but after a one-way conversation with “Northpole Six,” he elected to stay with the original timeline.

He had to admit that it’s easy to lose focus during the holiday season, and it’s real tempting to take shortcuts trying to get the mission done faster. Just last year, one of the elves was injured while operating a reindeer without a ground guide. Fortunately, the elf’s injury was not serious, but the reindeer was somewhat traumatized and is still undergoing mental therapy.

Going with the philosophy that it is easier to do something right than it is to explain why you did it wrong, Mr. Claus decided to break out the book and complete his risk management worksheet. Once he had it done, he realized that it hadn’t taken much time at all, and it had forced him to think of some hazards that he had not even considered earlier.

Take the time to identify and assess the hazards that are applicable to your mission. The five-step process is explained in detail in FM 100-14. If you have applied the risk management process properly, then your risk management worksheet will just about write itself, and you will find it easier to implement controls and reduce the risk to you and yours.

—MSG Sean M. O’Brien, Infantry LNO, RMI Division, DSN 558-2845 (334-255-2845),

From all of us here at the U.S. Army Safety Center, we wish you a truly happy and safe holiday season.
As my oldest son was growing up, I wondered many things. Would he excel in school or sports, or both? What interests would he have, and what kind of things should I impress upon him? You can imagine how happy I was to have Matt express an interest in hunting. And happy as I was, I quickly realized that I would play a critical role in shaping Matt’s hunting behavior.

We started slowly. Since the age of 7, Matt had owned a BB gun. The gun was always locked up with my guns, and he was only allowed to take the BB gun out when we were together. This is where Matt’s weapon handling instruction really began.

Soon we progressed to shotguns and rimfire rifles. That’s when we took Matt to a firearms safety course. We constantly talked about safe weapons handling. Matt had to demonstrate carrying techniques, the safe direction a weapon should be pointed, and safe ways to load and unload the gun. Only when he showed that he handled the weapon correctly did we progress to actually loading and firing the gun.

What once seemed like a simple pleasure to go shoot or hunt, quickly turned into several minutes of discussion on another gun handling safety point. If I had to sum up the lessons I tried to teach Matt, they fall into 5 basic hunter safety rules:

1. Treat every firearm as if it were loaded. It’s easy to get lax. Let me give you an example. This was Matt’s first deer season, and we were hunting with his grandfather in northern Pennsylvania. As we were leaving the cabin one morning, my brother grabbed my dad’s gun off the rack and noticed the bolt wasn’t open. He opened it and a cartridge ejected. Even though my father had hunted for 50-plus years, he broke a basic camp rule and forgot to unload the gun prior to bringing it into the house the night before.

2. Always keep the muzzle of your firearm pointed in a safe direction. Think about where the muzzle is pointed as you walk with other hunters. Injuries simply will not occur if the muzzle is under control and pointed away from yourself and others.

3. Be sure of your target and beyond it. If you are not absolutely sure of your target, DON’T SHOOT! Popular center-fire caliber bullets can travel up to 3 miles. I can almost guarantee you that another hunter is in the woods or an area within that distance. Just as alarming is the number of accidents where the victim was mistaken for game. Matt received constant reinforcement that he should not shoot until the game was positively identified, and the area beyond the game was assured.

This is another reason for wearing as much blaze/hunter orange as possible, plus it’s the law.

4. Keep your finger off the trigger until you’re ready to shoot. I stressed to Matt a simple point—guns are mechanical, anything mechanical can fail. Never rely on a safety to work properly.

5. Unload the firearm when not in use or in a vehicle. Last year, Colorado Division of Wildlife officers wrote over 300 citations for carrying a loaded weapon in a vehicle. Why? Because the gun could accidentally fire while traveling on a bumpy road, or while the weapon was being removed from the vehicle.

In addition, I warned Matt to never climb fences or trees, cross slippery areas, or jump ditches or creeks while carrying a loaded gun. I always praised him when he unloaded the firearm first. I’d be forgetting something if I didn’t mention this one last point. I thought I was the instructor for Matt’s hunter education; however, I realized I still had things to learn. As I listened to the other hunting stories and the game warden’s instructions in the hunter education course, I realized that I had violated some basic hunting safety rules. I vowed to do better and set the example. If it’s been more than 10 years since you have attended a hunter safety class, I would challenge any of you to sign up!

As Matt and I stood over that first deer, the emotions that come with a successful hunt were evident on Matt’s face. While some may not understand the challenges involved with hunting, it is a sport that demands patience, knowledge, and a deep appreciation of the game being hunted. Only when the required safety points are fully used can hunting be enjoyed to its utmost. I cannot say that Matt or I will ever be involved in a gun or hunting accident, but I know we will always strive to hunt in a safe manner.

POC: CW3 Michael Cronrath, Fort Campbell, KY, (254) 526-4858, michael.cronrath@us.army.mil
An infantry battalion scheduled individual weapons training and qualification on a variety of weapons in order to meet requirements for a future planned deployment. The unit finished the day’s activities in the late afternoon without incident, and after about a 5-hour rest period, the unit returned to the range for night fire. The commander’s intent was for only fully MOS-trained individuals to fire at night.

A firing order was identified, and then the range safety officer gave a “canned” safety briefing. After receiving their safety brief, the first firing order filed to the ammo point where they received two 15-round magazines. They proceeded up the steps in the middle of the range, onto the range berm where their weapons were rodded and checked for bolts to the rear. The firers were then instructed to take all future commands from the tower.

The plan was for each firer to proceed to their respective numbered lane; once in position, a lane safety assigned to that lane would meet the firers and escort them to the 25-meter engagement position. Once ready on the firing line, they would be instructed by the tower to fire one 15-round magazine at the target. During this engagement, the second firing order of 15 firers was to file past the ammo point, then take up a position on the berm behind the already in-position firing order. This would occur prior to the first group finishing their first 15-round engagement.

The second group was to place their weapon down and remain in place until the lane safety came back to get them after the first group completed firing their two 15-round magazines. Once the first firing order finished firing and were safety checked, the red lights on the range would come on, and the group would file to their left and head back to the clearing point to be “rodded” off the range by safety personnel.

When the first group of firers was clear to the center, the lane safety for those particular lanes would return to the berm and escort his next firer into position on the ready line. This process would repeat itself until all personnel had fired.

What happened?

While the first firing order was finishing up their first engagement, the second group of firers passed through the safety. They were instructed to keep their weapon up and downrange at all times, and reminded to take all commands from the tower. As the second firing order filed down to their respective lanes behind the first group, they heard the tower say, “ Shooters, pick up weapon and load your second magazine into your weapon and commence firing at your targets.”

On one of the lanes was a new member of the unit. He was a prior service member from another Service. This was his second time drilling with this unit, and first time ever on an Army range. He followed the instruction from the tower. He engaged his target, fired a round, and saw it fall. He then moved his sights to the other target. As an illumination flare went off, he saw his target move.

Realizing that he may have shot someone, he placed his weapon on safe and started calling for a “cease fire.” The lights immediately came on, and to his horror he discovered he shot the forward lane safety, who was sitting on the ground with his arms outstretched to the
rear supporting himself upright. In his seated position, the lane safety, under low illumination, had the familiar shape of a pop-up silhouette.

Medical attention arrived immediately and maintained his heartbeat until a helicopter transported him to the hospital. The victim later died of head injuries.

How did this happen?

All soldiers, since day one, have been or will be introduced to range operations. It is standard practice in the Army to conduct these operations at least annually, and some units may fire on a more frequent basis depending on their mission. We sometimes view this as, “Here we go again,” or “Didn’t we just do that?” This routine type of training can make some drop their guard and become complacent thinking that this is just a “check the block” operation.

We humans are creatures of habit. The more routine a task is, the easier it becomes for us to take things for granted. We can inadvertently omit things mentally, creating an environment for us to shortcut approved procedures. Not intentionally, but on the assumption that, “This is common sense,” or “Everybody knows this,” or “We’ve done it this way before with no problems.”

It’s easy to blow the dust off of past events and to carry on thinking that nothing has changed or been added to create a hazard.

This was common practice for this infantry battalion going to the range for the umpteenth time, with the same individuals, doing the same tasks they’ve done countless times before.

Risk management was conducted for this training event; but the planners failed to properly identify all the hazards or implement necessary controls to prevent an accident from occurring. For this battalion qualification exercise, the commander’s intent was for only the MOS-qualified individuals to fire at night; however, this information was never relayed throughout the organization down to range personnel. That night, everybody fired a weapon—to include individuals awaiting a basic training date and individuals who had never set foot on an Army range before. The battalion failed to have the companies identify non-CAT 1 personnel and separate them from the remaining night-firing personnel.

Detailed range briefings never included how the range was to be run, or that another group was firing downrange. There was no control exercised over the second firing order by providing adequate illumination, or assigning safeties with night vision goggles positioned between the firing points to observe the group in low to zero illumination.

Tragedy always seems to hit during easy missions, where detailed planning is deemed unnecessary. Remember, there are no “easy” missions that don’t require a risk assessment. Just like we treat every weapon as if it were loaded, never assume that everyone knows what is going on. Shortcuts and complacency are chances we cannot afford to take, in training or in combat.

POC: Ground Systems and Accident Investigation Division, DSN 558-3562
(334-255-3562)
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Haste-Top Accident Producer in
Countermeasure needs your input. Our goal is to bring you—the soldiers throughout the Army, from the Secretary of the Army to the newest recruit—current information regarding potential safety issues.

The pull-out poster in this issue represents our annual strategic plan of where we think our publication should go in the coming months...but, we need your input. Place the poster on your bulletin board, so everyone can see the upcoming topics for future issues. We need your stories, your experiences, and your insights. You are the ones that see systems for what they are...good and bad. We are all safety officers and if you have a better idea for doing business more safely and productively, we want to hear it.

Countermeasure is your publication, so why not have a voice? Don’t worry about your ability to write, our staff of professionals can polish up any rough edges. If we use your story, not only will you get the credit, but we will also send you a certificate and a specially minted Safety Center coin on behalf of BG James E. Simmons, CG, U.S. Army Safety Center. Send your articles to: countermeasure@safetycenter.army.mil.

(Applications must be received at least 60-days in advance to allow for layout and photography.)
Personnel Injury
- A SPC was fatally injured when his car fell on him while he was performing maintenance. The area where he was working on his car was not suitable for using a car jack because the ground was too soft.

- A SPC was assisting in the installation of an M88A1/2 series engine pack. His thumb was smashed between the engine mount and the chassis when the engine shifted during lowering. Soldier had partial loss of left thumb tip to nail bed/bone amputated.

- A SSG was fatally injured while conducting airborne operations from a USAF C-130. The soldier was performing jumpmaster duties, when he reportedly exited the aircraft during “red light” conditions, short of the intended drop zone. His body was located at daylight with both the main chute and MIRPS activated.

POV
- Soldier received fatal injuries when his POV collided head-on with an 18-wheeler.

- SSG died in a crash when he lost control of his vehicle, ran off the road, and struck several trees. His vehicle exploded into flames.

- A 15-ton cement truck entered soldier’s lane and collided with his motorcycle. The soldier did not survive.

AMV
- The driver of a government Jeep SUV lost control of his vehicle when he made contact with ice on the road. The vehicle rolled once, but he was not injured.

- Two soldiers were returning from a mission downrange, when their M1070 HET suffered an Electronic Control Module failure of the ignition system, which resulted in a fire. They quickly used handheld fire extinguishers to suppress the flames, but the fire was too hot. They decided to retrieve all equipment from the cab and called to the rear to get the fire department involved.

ACV
- An M2A2 and crew were traveling over rough terrain when the vehicle hit some bumpy ground before the driver could slow and stop the vehicle. The gunner was thrown into the gunner’s turret resulting in neck injury.

- While riding over rough terrain, a Howitzer M109A6 lost an end conductor. This resulted in the vehicle throwing a track and coming to a complete stop. The soldier was thrown forward into the front of the TC hatch and down into the seat. Initially, he felt fine, so he helped reconnect the track. However, approximately three hours later, his section chief noticed that he looked pale and had him lie down. The soldier started having trouble breathing and appeared to have seizures. He was evacuated to the Army Hospital Emergency Room. He was diagnosed with bruised ribs and placed on quarters.

- An M1A1 Abrams Tank was proceeding down a tank trail when the crew received indication that the fire suppression system had activated. A fire was reported in the engine compartment. FPS functioned, but reportedly failed to completely extinguish the fire. No injuries with the exception of possible composite/smoke inhalation to the TC.

- An M1117 Armored Security Vehicle (ASV) was being operated as the #2 vehicle in a tactical convoy movement in consonance with driver training, when it was observed to fishtail and proceed off the gravel road after cresting a hill. The vehicle reportedly overturned 3-4 times. The driver and TC sustained minor injuries, were treated and released. The gunner and rear passenger were not wearing seatbelts and sustained head injuries and were hospitalized. Significant vehicle damage resulted.

OTHER
- A PVT was part of a detail tasked with burning dunnage following an M-16 range exercise. It is suspected that a blank round was in the fire and exploded. Soldier’s left eye was struck by a piece of metal, resulting in loss of sight to that eye.
I could have saved a life that day,
But I chose to look the other way.
It wasn’t that I didn’t care,
I had the time, and I was there.

But I didn’t want to seem a fool,
Or argue over a safety rule.
I knew he’d done the job before,
If I called it wrong, he might get sore.

The chances didn’t seem that bad,
I’d done the same, he knew I had.
So I shook my head and walked on by,
He knew the risks as well as I.

He took the chance, I closed an eye,
And with that act, I let him die.
I could have saved a life that day,
But I chose to look the other way.

Now every time I see his wife,
I’ll know, I should have saved his life.
That guilt is something I must bear,
But it isn’t something you need share.

If you see a risk that others take,
That puts their health or life at stake.
The question asked, or thing you say,
Could help them live another day.

If you see a risk and walk away,
Then hope you never have to say,
I could have saved a life that day,
But I chose to look the other way.

—Courtesy of Don Merrell, J.R. Simplot Company, Don Plant Training Center; dmerrell@Simplot.com