Today’s Army faces tough challenges in the upcoming years. Soldiers are deployed to all corners of the world and executing more missions than ever before. The presence of well-trained, well-led, and well-equipped soldiers conducting real-world missions is a critical challenge that can be overcome by one thing—“proactive leadership.” There is no need to look for magical solutions or a silver bullet. The answer is simple—look to competent and dedicated NCOs and officers. They are the professionals who have the right stuff to keep us mission-focused and who know the safety aspects associated with soldiering in the next millennium. We must continue to employ proper risk management and put safety at the forefront in everything we do. Only then can we reduce accidents and save our soldiers.

You will see in our “FY99 Ground Safety Performance Review” on page 4 that the number of soldiers lost and injured by unsafe acts and conditions is too high. While the figures are essential in measuring accident trends, often their full meaning is missing—all result in the loss of a soldier.

Take note of the article “Radioactive Material...Common, but DEADLY” on page 6. Just thinking about radiation scares people. Visions of mushroom clouds and nuclear power plant meltdowns come to mind. The way to keep installations uncontaminated and soldiers at work is following standing operating procedures. Also in this issue on page 9, “Know Your Simulators!” defines the difference between an M110 and an M115A2. Good information to remember!

On page 3, we have included an article on “Suicide Prevention.” I know there is some debate on covering this topic in a safety publication, but the issue is about leaders taking care of soldiers and keeping them safe. By helping soldiers deal with problems in their lives more effectively, the Army’s readiness improves.

As we move into the 21st century, let’s ensure that the safety and health of our soldiers are paramount... That’s the best way to manage the challenges of the new millennium.

Mission First, Safety Always!

Paula
Suicide is the ninth leading cause of death in the United States, with 31,204 deaths recorded in 1995. Tragically, this approximates to around one death every seventeen minutes. Moreover, there are more suicides than homicides each year in the United States. Two-thirds of all suicides were committed with firearms. The second most common method was hanging, third was poisoning. No one is excluded; people of all ranks, sexes, and races commit suicide.

People usually attempt suicide to block unbearable emotional pain, which is caused by a wide variety of problems. It is often a cry for help. Not everyone shows the common signs of suicide, but almost all suicide victims have experienced some kind of loss, separation, divorce, or financial problems. There is one primary factor that leads to suicide, and that is stress.

Stress may come from loneliness, a heavy workload, finances, or relationship problems. In the military, stress can come from working conditions, deployments, friends rotating out of a unit, or change of mission.

A suicide victim is often so distressed that he is unable to see that he has other options. He often feels terribly isolated and because of his distress, he may not think of anyone that he can turn to, furthering this isolation.

Most suicidal people give warning signs in the hope that they will be rescued, because they are intent on stopping their emotional pain, not on dying. Some warning signs include: appearing depressed (sad or tearful), abusing drugs/alcohol, talking about wanting to die, showing changes in behavior/appearance, or giving away possessions.

A soldier’s buddy is the most effective first-line of defense for detecting and preventing a suicide from occurring. If a soldier sees changes in his buddy, such as not caring anymore, regressing, or risk-taking, he needs to take the time to ask his friend if everything is okay and if he would like to talk. More specifically, ask your friend, “Are you feeling so bad that you’re considering suicide?” or “Have you ever felt like just throwing it all away?”

Unit commanders need to be able to recognize when a soldier is at risk for suicide. A key to suicide prevention is positive leadership, careful listening, and a deep concern for soldiers who are at increased risk. Talking about the feelings surrounding suicide promotes understanding and can greatly reduce the immediate distress of a suicidal person.

Commanders must take every case seriously. Commanders can’t ignore any soldier. If someone tells you that they feel suicidal, above all, listen to them. Then listen some more. Try to make yourself available to hear about how they feel. Refer them to someone equipped to help them most effectively, such as a unit chaplain. They are trained in this area and can provide valuable advice, counseling, and spiritual guidance. If they appear acutely suicidal and won’t talk, you may need to get them to a hospital emergency department.

We must protect our soldiers and their family members. And by helping soldiers deal with problems in their lives more effectively, the Army hopes to improve readiness and quality of life, and protect its most important resource—the Soldier!

POC: CPT(P) Robert M. Wildzunas, Ph.D., USASC Command Psychologist, DSN 558-2477 (334-255-2477)

Editor’s Note: Soldiers need to understand that they will not be punished if they are referred to mental health or if they decide to go on their own merit.
The Army’s Fiscal Year (FY) 1999 safety performance was similar to that of FY98. There were 445 privately owned vehicle (POV) accidents in FY99, down from 455 the previous year. Military vehicle accidents increased from 277 in FY98 to 298 in FY99. We experienced a total of 1396 personnel injury accidents in FY99, compared to 1391 the year before. Army accidents claimed 184 soldiers in FY99, an increase of 15 from FY98.

Privately Owned Vehicle (POV)
Of the 184 fatalities last year, 124 were due to POV accidents. Privately owned vehicles remain the number one killer of soldiers. Excessive speed, driver fatigue, traffic law violations, alcohol, lack of driver skill, or a combination of these factors generally causes POV accidents. Each of these factors demonstrates poor discipline on the driver’s part. Leaders must instill a sense of discipline in their soldiers that extends to their off-duty activities. If vehicle occupants fail to wear their seatbelts (or helmets if on a motorcycle), the risk of severe injury or death is drastically increased. We must enforce off-duty risk management. As leaders, what can we do to reduce the number of POV accidents? We can refer to existing resources such as the POV Toolbox, 2nd Edition (available on the Safety Center web page http://safety.army.mil); require soldiers to attend defensive driving courses; inspect soldiers’ automobiles and motorcycles to ensure they are mechanically sound (a checklist is available in the POV Toolbox); make on-the-spot corrections of obvious traffic offenders; and finally, we can set the example.

Army Military Vehicle (AMV)
There were 222 AMV accidents in FY99, resulting in 6 fatalities. The majority of these accidents occurred in government vehicles, such as sedans, vans, and buses. Light tactical vehicles, such as the HMMWV, HEMTT, and M915 were closely behind this category. Mistakes made with light tactical vehicles are the same mistakes occurring in POV accidents—failure to stay alert, failure to take appropriate precautions for adverse weather conditions, and excessive speed. This indicates that soldiers are practicing the same habits and thought processes in the unit AMV as they do in their own POV.

Army Combat Vehicle (ACV)
There were 76 ACV accidents this past fiscal year, resulting in 11 fatalities. The majority of these accidents occurred in the M2/M3 Bradley, followed closely by the M1 Abrams tank and M113. The most common hazards were excessive speed and failure to stay alert or attentive to what was happening (a loss of situational awareness).

In both wheeled and tracked vehicles, the common fault is leadership failure. Leaders must ensure soldiers are properly trained to operate vehicles. Ensure drivers’ training programs are conducted in accordance with AR 600-55 and the TRADOC standardized tracked and wheeled vehicle driving training programs. Make sure drivers know the proper procedures to execute in the event of a rollover or loss of a track. The difference between life and death in a rollover can be the split-second decision by the driver on what to do when he realizes that something is wrong.

Leaders must supervise drivers. Assistant drivers or vehicle commanders are critical.
during moves. Too often, young drivers are left on their own. Some leaders fail to require crewmen to wear seatbelts. On multiple occasions, we have found accident vehicles with seatbelts taped nicely into tight, out-of-the-way rolls. This might be pretty, but it prevents the crew from actually wearing the belts.

Leaders can prevent many Army vehicle accidents by simply supervising soldiers during preventive maintenance checks and services (PMCS) and vehicle operations. Properly conducted PMCS checks can identify problems before they happen. Supervisors at all levels need to ensure that crews perform these checks by the book, and at the proper times as required by the tech manuals. Don’t settle for a pencil-whipped “no change” PMCS—make sure the soldiers actually use the book, follow the checklists, and report the shortcomings or deficiencies. Don’t let your soldiers use an unsafe vehicle for a mission. By the way, if you don’t ensure the required part is placed on a valid requisition, and then properly tracked until arrival and installation, then a PMCS is a waste of time and effort.

Personnel Injury
Twenty-three soldiers died as a result of personnel injury accidents in FY99. Combat soldiering injuries led in this category, with tactical parachuting one of the top accident producers. Sports injuries ranked second to combat soldiering injuries. These accidents include drowning and off-duty recreational accidents not involving POVs. Leadership failure was a causation factor; however, individual failure to obey applicable rules, laws, or common sense contributed to most of these accidents (in other words—a lack of self discipline).

Leaders need to provide soldiers with a safe environment to perform their missions. This includes supervising them to ensure they perform their jobs correctly, and properly preparing for training missions. Leaders need to use all of the steps of the risk management process to properly identify and mitigate hazards in and around work areas. This includes selection of training areas, use of proper safety equipment during high-risk training events, and adherence to published standards for task execution.

We must also emphasize to our soldiers the need to remain safe during off-duty hours. Rock climbing, skiing, and recreational swimming can be just as dangerous as any military training exercise. Soldiers need to know the hazards associated with these activities to prevent injury or death to themselves or their family members. We can help them make informed off-duty decisions by training them on the risk management process. The steps apply to both on-duty and off-duty events.

In conclusion, we have identified the main reason that led to accidents in FY99—leadership failure. Leadership involvement is imperative, particularly at the squad leader or first-line supervisor level. Small unit leaders with boots on the ground have the most access to soldiers on a daily basis. They must ensure that soldiers do their jobs safely; that means training, supervising, and enforcing standards.

LEADERS SAVE SOLDIERS!

POC: MAJ Monroe B. Harden, USASC Ground Systems and Accident Investigations, DSN 558-3261 (334-255-3261), hardenm@safety-emh1.army.mil

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<th>FY99 Performance at a Glance</th>
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The Army uses many items that contain radioactive material. Examples include the M43 chemical agent detector (Americium-241); lensatic compasses, gunner’s quadrants, aiming post lights, and collimators (tritium); Abrams armor packages (uranium-238, also called “depleted uranium”), lens coatings in thermal optics (Thorium-232), and radiation, detection, indication, and computation (RADIAC) check sources (Krypton-85 among others). It is a long list.

The Army designs these items so that they do not expose soldiers to significant amounts of radiation even under tough conditions. The Army and the Nuclear Regulatory Commission (NRC) have many regulations that keep them under tight control from the time they enter our inventory until they leave it.

It should not be a surprise that some foreign military equipment also contains radioactive material. We could have a problem if we bring back such equipment and do not put it under the same fixed controls that we have for our own equipment. This can happen if the soldier or unit does not know that the equipment contains radioactive material or that Federal and Army regulations take effect the moment the soldier or unit takes custody of any equipment containing radioactive material.

Foreign equipment can come into Army custody as individual or unit war trophies put on display in orderly rooms, in front of Army Reserve Centers or National Guard Armories, or in Army museums. Intelligence units gather foreign equipment and bring it back for exploitation and reverse engineering. Recently, inspectors have found unknown radioactive material in all of these places and more.

Regardless of how the Army gets it, this radioactive material comes under the jurisdiction of Federal, Army, and sometimes State (especially for Army National Guard units) radiation safety regulations. Even if it is classified, the NRC may need to know about it. The NRC has the capability to handle classified radioactive material.

You should suspect that radioactive material is in foreign military equipment in the same places where we use it. This can be gauges and dials in military vehicles and aircraft, markings on
First of all, you cannot allow the public to have access to radioactive material. You must secure it immediately from unauthorized access and use, and in such a manner that radiation exposure is minimized. This means, for example, you must remove radioactive dials and gauges from any vehicles on public display or otherwise prevent access to material.

If there is a chance of radioactive contamination, you must clean it up or prevent access to the area until you can get it cleaned. See AR 11-9, The Army Radiation Safety Program, for radioactive waste disposal regulations.

If you want to get rid of the radioactive material, also refer to AR 11-9. You have only one option—you must use the Department of Defense Executive Agency for Low Level Radioactive Waste Disposal. Call them at (309) 782-2067 or DSN 793-2067 for guidance and assistance. They also may be able to help you with decontamination if the project is small.

If you want to keep the radioactive material, you will probably have to have a NRC license or an Army radiation authorization to assure that everything is legal and that the radioactive material is under proper control. See AR 11-9 for application instructions.

In summary, you have a problem once you discover that the foreign equipment you possess contains radioactive material. What you must do next is keep it from becoming a major problem for you and for the Army. Your installation and MACOM radiation safety officers are there to help you. Be sure to contact them.

POC: COL Robert N. Cherry, Radiation Safety, Army Safety Office, Pentagon, Washington, DC, DSN 329-2413 (703-601-2413), cherryr@safety-emh1.army.mil
REALISM IS A FACTOR THAT UNITS SHOULD BUILD INTO EVERY TRAINING SCENARIO. TO ACHIEVE THIS OBJECTIVE, UNITS MAY EMPLOY THE USE OF PYROTECHNICS TO CREATE AN ENVIRONMENT SIMILAR TO THE ONE EXPECTED IN COMBAT. HOWEVER, SOMETIMES UNITS FORGET THAT PYROTECHNICS USE REQUIRES TRAINED INDIVIDUALS. IN PREPARATION FOR ANY TRAINING, UNITS SHOULD INCORPORATE THE USE OF RISK MANAGEMENT TO HELP CONDUCT OPERATIONS IN A SAFE MANNER. THIS LEVEL OF DETAIL WAS OVERLOOKED BY A LEADER THAT DID NOT KNOW HOW TO EMPLOY A SIMULATOR DEVICE, BUT DECIDED TO ATTEMPT TO MAKE IT WORK ANYWAY, AND IN THE PROCESS SUSTAINED SERIOUS INJURIES.

BACKGROUND
A UNIT WAS IN THE FIELD PREPARING FOR A BATTALION-LEVEL TRAINING EXERCISE. AS PART OF THE SCENARIO, THE BATTALION DECIDED TO INCLUDE AN AGGRESSOR FORCE TO EVALUATE THE VARIOUS SECTIONS REACTING TO AN ATTACK. THE AGGRESSOR OFFICER IN CHARGE (OIC) WAS IDENTIFIED AND HE IN TURN DETAILED VARIOUS SOLDIERS FROM THE UNIT TO BE PART OF THIS GROUP.

IN PREPARATION FOR THE EVENT, THE BATTALION REQUESTED BLANK AMMUNITION AND PYROTECHNICS THAT INCLUDED SIMULATORS TO SUPPORT THE AGGRESSOR FORCE. AS THE EXERCISE WAS ABOUT TO START, THE AGGRESSOR OIC ARRIVED AT THE FIELD AMMUNITION SITE TO PICK UP THE AMMUNITION ASSIGNED TO THE AGGRESSOR FORCE. ONE OF THE ITEMS PROVIDED TO THE OIC WAS A SIMULATOR, FLASH ARTILLERY, M110. THE AGGRESSOR OIC, NOT SURE ON HOW TO USE THE SIMULATOR, DECIDED NOT TO ACCEPT THE SIMULATOR. ANOTHER OIC WAS THEN ASKED IF HE KNEW HOW TO USE THE SIMULATOR, AND HE REPLIED THAT HE DIDN'T.

IT IS SUSPECTED THAT THIS ACTION SPARKED THE Curiosity OF THE OIC WHO DECIDED TO ASK AROUND IF ANYONE KNEW HOW TO EMPLOY THE SIMULATOR. AFTER GETTING VARIOUS RESPONSES FROM “I DON’T KNOW” TO “I THINK IT USES GASOLINE” TO “IT NEEDS A BATTERY,” NONE OF THEM CONCLUSIVE, THE OIC DECIDED TO FIGURE OUT HOW TO EMPLOY THE SIMULATOR.

ACCIDENT
SINCE NO ONE AROUND THE SITE KNEW HOW TO EMPLOY THE SIMULATOR, IT WAS ASSUMED THAT IT WOULD ACT LIKE ANOTHER PYROTECHNIC DEVICE, THE SIMULATOR PROJECTILE GROUND BURST, M115A2. THE M115A2 SIMULATOR HAS A PULL CORD THAT ONCE ACTIVATED PROVIDES A WHISTLE SOUND AND A DELAY EFFECT THAT ALLOWS THE USER TO THROW THE ITEM PRIOR TO ITS DETONATION. SINCE THE OIC HAD HEARD FROM OTHER SOLDIERS THAT A BATTERY WAS NEEDED TO ACTIVATE THE SIMULATOR, HE BORROWED ONE FROM THE PLATOON SERGEANT TO MAKE THE DEVICE WORK. WHEN THE OIC CONNECTED THE LEAD WIRES TO THE SIMULATOR, IT INSTANTLY DETONATED AT A SHORT DISTANCE FROM HIS BODY CAUSING SERIOUS INJURIES TO HIS FACE AND LACERATIONS TO HIS BODY.

CIRCUMSTANCES
THE CIRCUMSTANCES THAT LED TO THIS ACCIDENT WERE A RESULT OF INDIVIDUAL, LEADERSHIP, AND TRAINING FAILURES. THESE FAILURES WERE THE RESULT OF VARIOUS FACTORS—ONE OF THEM OVERCONFIDENCE ON THE PART OF THE OIC.

INDIVIDUAL FAILURE. THE OIC, knowing that he was not trained on the use of this particular simulator, decided to attempt to make it work. Even after having received a negative response from soldiers around him on its use, he was sure he could figure out how to employ the simulator. A reference on how to properly employ the simulator should have been present in case no one was familiar with how to operate this device.

LEADER FAILURE. NO ONE AT THE SITE DECIDED TO MAKE AN ON-THE-SPOT CORRECTION TO PREVENT THIS UNSAFE ACT.
Neither the aggressor OIC nor the platoon sergeant took corrective action to prevent this accident from happening. In fact, all soldiers in the area knew the OIC intended to make the device work and that he did not know how to use it; but no one took any action to prevent it.

Leaders failed to ensure that someone knew how to use the simulator. The battalion had requested the device, but no one present was familiar with how to use it. As per TM 9-1370-207-10, this device requires that gasoline be added to the simulator prior to its employment; that at least a 50-yard safety zone be established; and primarily that it is not intended for use while holding in your hand. Luckily in this case, the simulator did not have any gasoline in it, but the blast and fragment effects caused serious injuries to the platoon leader.

Training Failure. The battalion did not have any trained soldiers to properly employ pyrotechnics. As per DA PAM 385-64, para 2-5, “Munitions and/or explosives will be handled only by trained personnel who understand the hazards and risks involved in the operation.” Leaders did not ensure that all safety precautions for the employment of pyrotechnic devices were followed.

Conclusion
The reason why this accident happened was a result of poor judgement on the part of the OIC. His overconfidence in his abilities allowed him to conduct this unsafe act. Had the leaders and soldiers around him made an on-the-spot correction, this accident would not have happened.

Leaders at all levels must encourage the use of risk management to ensure that all possible hazards are recognized and that control measures are implemented to minimize their risk. Had a risk assessment been done on this operation, it would have been found that no one knew how to employ the simulator and that the improper use of pyrotechnics can cause serious injuries or death.

The result of this tragic event left the OIC with a possible permanent injury. Leaders and soldiers should be reminded of the dangers posed by the improper use of ammunition items. And remember... Simulators are for real.

POC: USASC Ground Systems and Accident Investigations Division, DSN 558-3562 (334-255-3562)
The Army functions as a team. When any member of that team is lost because of an accident, the entire team suffers. Accidents have a human cost—the lives of soldiers, family members, units, and friends are affected by this tragic occurrence. Accidents also have a tangible price—the reduction of unit readiness. And accidents do not stop when we go to war. The record shows that in combat, the Army suffers more losses to accidents than to enemy action. NCOs, as leaders, can have a positive influence on this statistic if they choose to do so.

For instance, in one mishap, a platoon was moving to a firing point in extreme dust and dark conditions. During the movement, an M548A1 ammunition carrier hit an embankment. The sleeping soldier in the right front seat did not have his seatbelt buckled and was thrown from the vehicle when his door flew open. He consequently died from chest injuries.

In this case, the unit chain of command put little emphasis on the AR 385-55 requirement for occupants of all vehicles, including tactical vehicles, to wear seatbelts. The platoon leader also failed to enforce the use of seatbelts in his convoy briefing. In fact, many ammo carriers in the battalion did not have serviceable seatbelts, and some had none at all. As can easily happen when standards are ignored or loosely enforced, the lack of standards became the new lower standard.

What could have been done to prevent the death of this soldier? Principles of leadership are listed in FM 22-100: Military Leadership. It is not a “safety” publication, but officers and NCOs who lead according to the principles in this manual will protect their soldiers from injury and their equipment from being damaged or destroyed through accidents.

A good leader sets the example. Your personal example affects your soldiers more than any amount of instruction or form of discipline. This is where the younger soldiers will learn the importance and payoffs of safe daily operations. If you enforce safety, so will they. A leader who is technically and tactically proficient applies the principles of risk management before the mission to “Murphy-proof” the operation. Always remember that “if it can happen, the probability is high that it will happen.”
The platoons involved in this accident were driving through an area with numerous dry creek beds with steep sides (terrain). The jolt that threw the passenger out of the vehicle happened when the driver drove into an embankment due to degraded visibility. Use of seatbelts (aside from complying with AR 385-55) would have prevented this soldier from losing his life.

The knowledgeable leader knows and adheres to the limitations of equipment, regulations, SOPs, and doctrine; therefore, he ensures that his soldiers do the same. The leader knows his soldiers and looks out for their well being. This means having a thorough knowledge of their level of training and capabilities, as well as weaknesses so he can provide appropriate training where it is necessary and intercede to prevent human-error accidents.

A skilled leader ensures that subordinates understand the task, provides supervision, and is not satisfied until the mission is safely and effectively completed. By developing a sense of responsibility for his soldiers, a unit leader can ensure that his soldiers will follow the standards even when he is not around.

It is also worthwhile reviewing what FM 22-100 says about the ethical decision-making process. Regardless of the source of pressure to act unethically, a leader usually knows in his heart the right thing to do. This is where the leader has to perform accordingly to what he knows is right. In other words, he uses his gut feeling to identify something that doesn’t appear to be right. The simpler, faster way of doing things is not necessarily the safest.

In making risk decisions, leaders need to apply the rules of risk management. The risk management cycle revolves around processes that are already in place such as the decision-making and problem-solving processes. Once risk management has been integrated into all facets of an operation, all unnecessary risk has been eliminated, and steps have been taken to ensure risk decisions are made at the proper level. The benefits of conducting the operation still have to be weighed against the potential costs. Some costs can be put into numbers: I have a 0.0001 percent chance of losing a vehicle that cost the Army $60,000. But it is impossible to quantify the life of the soldier in that vehicle. When calculating risk, we should also be weighing the human costs.

NOTE: The term “leader” refers to commanders, personnel in the chain of command (team, squad, section, platoon leader), and staff members having personnel supervisory responsibility.

POC: MSG Terry Smart, USASC Ground Systems and Accident Investigations Division, DSN 558-1243 (334-255-1243), smartt@safety-emh1.army.mil
You Make the Call

“You Make the Call” is a regular feature in Countermeasure. The purpose is to educate, stimulate thought, and exchange information that will expand understanding and application of risk management in training and operational environments. All you have to do is read the synopsis below and write down what you consider to be the best way to handle the situation. Send your answers to U.S. Army Safety Center, Bldg. 4905, 5th Ave., ATTN: Countermeasure, Fort Rucker, AL 36362-5363, e-mail countermeasure@safety-emh1.army.mil or fax 334-255-9528. We’ll select the best answer from those submitted and the winner will receive a Safety Center coin and a letter of congratulations from the Director of Army Safety. All winning entries will be published in a future issue.

You are in a light infantry unit conducting an exfiltration exercise on foot. It is dark and your squad may have to cross a stream approximately 30 meters wide and 15 feet deep to reach the tactical assembly area (TAA). The exercise scenario calls for an exfiltration back to the TAA by foot and over heavily wooded terrain. However, there is a time constraint. If the squad does not make it to the objective prior to 2300, the return to the TAA will be delayed and the squad will have to cross the stream to make it back on time for the prearranged helicopter exfiltration. If the squad does not return to the TAA at the prearranged time, the squad will have to remain on site until the next day and walk to friendly lines a distance of approximately 15 miles.

The squad leader knows that every operation in the exercise was late in reaching the objective. It appears that to be on the safe side, the crossing of the stream will ensure that the squad is at the TAA on time. Walking through the heavily wooded terrain could be difficult and time-consuming at night. The squad leader must now decide how to approach the very likely event that the squad will have to cross the stream at night to meet their designated exfiltration time.

What will you do?
As a squad leader, identify the hazards associated with this mission based on the information provided. How would you minimize the risks associated with these hazards? Identify control measures that you would implement to ensure a safe mission completion.

POC: CW3 Juan M. Convers, USASC Ground Systems and Accident Investigations Division, DSN 558-2966 (334-255-2966), Fax X3003, conversj@safety-emh1.army.mil

Fort Leonard Wood Civilian Submits Best Answer

Thank you for responding to the October issue of “You Make the Call.” As you recall in the October issue, a mechanized field artillery battalion received a FRAGO to displace from point A to point B at night with very little crew rest and you had to decide what was the best way to handle the situation. All answers were excellent; however Mr. Ed Pyatt submitted the best response. Congratulations, Mr. Pyatt! You will receive a Safety Center coin and a letter of congratulations from the Director of Army Safety for the following answer.

A ny sleep is better than no sleep and the move will be made in the dark either way, so answer #2 is the most reasonable solution. If the 3 hours estimated by the XO includes the hot refuel and the set up for firing, depart at 0300 for the new location. If not, attempt a refuel in place with one man per vehicle performing the refueling who is not a driver or TC. He can rest during the move. Conduct a leader’s briefing, feed, and bed them down. ♦

POC: Mr. Ed Pyatt, Military Research Analyst, MANSCEN DCD MP, Fort Leonard Wood, MO; (573) 596-0131 ext. 37110, pyatte@wood.army.mil
Rollover accidents leave crewmembers and missions . . .

DEAD in Their Tracks!

PLUS: SPECIAL PULL-OUT POSTERS INSIDE
Bradley Has New Rollover Procedures

A vehicle rollover can be a tragic occurrence resulting in equipment damage, personnel injury, or even death. Until this point, the Bradley Fighting Vehicle Systems did not have a standard Armywide rollover procedure to guard soldiers from being injured or killed. In the past, Bradley master gunners, as well as other leaders, formulated their own set of rollover procedures and trained their units to rehearse and abide by them. This is what we refer to as initiative and proactive thinking in the best interest of our soldiers. There is no question as to whether or not these procedures saved lives, because we all know they did.

The development of Armywide procedures will provide Bradley leaders a set standard by which to train their soldiers. These procedures limit what each soldier is required to do. During recent accident investigations, it was found that soldiers were trying to do too much at the wrong times while the rollover was occurring. Many times, this led to confusion and inconsistencies within units across the Army. Ideally, our intent is to keep the procedures simple—this will save lives and reduce the injuries of our soldiers.

It is also important to maintain and safeguard our equipment. As you review the rollover procedures chart on the opposite page, you will notice that they are in a chronological and prioritized sequence to accommodate an actual vehicle rollover, should one occur. They will also be published in upcoming manual revisions.

BRADLEY ROLLOVER DRILL

The procedures outlined in the chart will assist in training crewmembers in the safe and timely exit from the vehicle.

The senior crewmember will determine if it is safe to exit the overturned vehicle. If practical, soldiers will carry all personal weapons and protective equipment from the vehicle. Proper stowage of equipment will reduce unnecessary injuries caused from flying objects. All equipment should be stowed in accordance with published manuals and unit SOPs.

If a vehicle rolls over, there is a chance that a
A fire can start. In the squad area, automatic fire extinguishers are designed to extinguish the fire without the vehicle personnel having to manually set them off. If the automatic system has failed, crewmembers will have to extinguish the fire manually only to the extent that will allow the safe evacuation of the crew.

If there is a fire in the engine compartment, the driver has two options to activate the engine compartment fire extinguisher. He can reach under the driver’s control panel and open the valve to the extinguisher or pull the external handle on the left side of the vehicle when out of the vehicle if it is accessible and not damaged.

Editor’s Note: For more information, review GPM, TACOM-WRN Control No. GPM-00-005, Implementation of Crew Drill, Bradley Rollover Procedures by contacting your local safety office.

POC: MSG Terry D. Smart, USASC Ground Systems and Accident Investigations Division, DSN 558-1243 (334-255-1243), smartt@safety-emh1.army.mil

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**Risk Management Pointer**

Personnel are required to wear seatbelts; equipment is required to be stowed properly and secured; passage from driver’s station to crew compartment (Hell hole) will be kept clear. First crew or squad member to notice vehicle beginning to rollover should shout “ROLLOVER!”

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**ROLLOVER PROCEDURES**

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<th>SQUAD</th>
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**BFV HAS ROLLED OVER**

- Begins crew checks to ensure no fires; checks accountability of personnel.
- Ensures weapon system is on safe and engages travel lock, if possible.
- Pulls fuel shut off and turns accessories off. If a fire is present, sets off engine compartment fire suppression system.
- Leader checks squad for injuries and reports to Bradley commander.

**SENIOR CREWMEMBER DETERMINES IF IT IS SAFE TO EXIT THE VEHICLE AND BEGINS EVACUATION**

- Checks for injured personnel; reports incident.
- Assists the Bradley commander in evacuating vehicle.
- Exits vehicle through driver’s hatch or through crew compartment if driver’s hatch is blocked.
- Exits vehicle through unobstructed hatch. If fire is present, extinguishes fire.

**IF SENIOR CREWMEMBER DETERMINES THAT IT IS UNSAFE TO EXIT THE VEHICLE, PERSONNEL WILL WAIT FOR RECOVERY AND ATTEMPT TO CONTACT WINGMAN OR HIGHER.**

**WARNING**

During a rollover, gas from batteries can explode and cause serious injuries. If the driver must exit through the crew compartment, precaution must be taken to prevent contact with battery acid that could spill and cause serious burns or blindness.

**REPRODUCTION OF THIS CHART IS AUTHORIZED AND ENCOURAGED**

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FEBRUARY 2000 COUNTERMEASURE
vehicle began to swerve forcefully toward the left. After spinning nearly 130 degrees to the left, the vehicle left the road and flipped onto its right side. It slid on the right side for approximately 8 feet before coming to rest inverted on the shoulder of the road. The vehicle commander and two passengers in the back were tossed about the vehicle, but did not suffer major injuries. The driver was not so lucky...he was pinned beneath the driver’s hatch and suffered fatal injuries.

What Went Wrong?
The accident occurred as the vehicle traveled along a tank trail during normal operations. A track shoe on the right-side track of the vehicle tore apart due to the track pin tearing through the track shoe shore. Inspection of the broken track shoe revealed that the track shoe bushing was worn away, producing metal-on-metal contact. Because of this metal-on-metal contact, a friction-producing movement was applied to the track pin against the track shoe shore, causing the shore to wear down and the track to separate at that location.

The complete separation occurred on the inside portion of the track shore, followed by a fracture failure on the outside portion of the track shore with a noticeable bend in the track pin. In addition, the track shoes on both the right- and left-side track were non-mission capable (NMC) due to worn bushings and bent track pins; thus, the vehicle should have been deadlined. Further, there were three other NMC deficiencies found on this vehicle, but there was no evidence of a pre-mission preventive maintenance checks and services (PMCS) conducted to identify these deficiencies.

The vehicle was also traveling at a high rate of speed. Excess speed increases risk in several ways: it decreases the reaction time of the vehicle crew, increases the momentum of the vehicle, and adds to the stress exerted against the track. When the track separated, the high speed added to the uncontrollable left turn that forced
the vehicle to slide off the tank trail onto a soft shoulder, landing on its top. Although the vehicle is equipped with restraint devices in both the driver’s position and the rear crew compartment, no one was wearing a seatbelt. The use of a seatbelt could have prevented the driver’s death. The injuries sustained by the other passengers also could have been avoided with the proper use of seatbelts. Reasons for not wearing the seatbelts varied, but indications were that leaders did not enforce the existing policies for their use.

**Lessons Learned**

- As part of PMCS, the crew should have identified the worn track shoes as well as the other deficiencies. The vehicle operator’s manual contains a checklist to identify potentially bad track shoes. It states in DA Pam 738-750 that the commander can “Circle X” a deficiency and impose control measures to allow the unit to continue the mission. However, the commander must first be told of the deficiency and its potential impact on the safe use of the vehicle. For example, restricting the maximum allowable speed of the vehicle or requiring the crew to conduct frequent maintenance halts to check the track could be a couple of control measures that could be used to mitigate the risk posed by the faulty track.

- The vehicle’s crew failed to observe the speed limit mandated by their division for driving in the training area. The M113 was traveling between 30-35 miles per hour near the point it rolled off the tank trail, however the maximum allowed speed was 25 miles per hour. The vehicle commander did not tell his driver to slow down, nor did the section sergeant who was traveling in the trailing vehicle. A slower speed would have reduced the severity of the turn and possibly allowed the driver to react quicker and ensure he was completely inside the vehicle during the rollover.

- The driver failed to wear the required restraint system and was fatally trapped beneath the vehicle. The TC and two passengers were also injured. The passengers in the troop compartment also failed to use the restraint system provided. In fact, the seatbelts in the troop seats were taped in a rolled configuration, indicating they had not been used recently.

**Summary**

While this accident was caused by a materiel failure, it was preventable. Leader involvement at several points of the accident sequence could have prevented the accident. From the supervision of PMCS procedures to the enforcement of standards (seatbelt usage and speed limits), leader involvement was lacking. Even more alarming is that this accident is a mirror image of a previous M113A3 accident. The similarities between these two accidents are startling: worn track block, excess speed, and failure to wear restraint devices—all leadership issues. While the facts and circumstances of the first accident were understood in the original unit’s chain of command, this critical information had not been disseminated to the unit that suffered the second accident. Hopefully, by getting this critical information to those who use the equipment, these lessons learned will help prevent another such accident. By failing to ensure soldiers know and understand the causes of accidents, leaders may doom their subordinates to repeat the same mistakes that have previously contributed to a soldier’s death.

The bottom line is that leaders must enforce standards to keep soldiers safe. Leaders at all levels must apply the risk management principles to identify hazards and then plan for control measures to decrease these hazards. Finally, these leaders must supervise their soldiers as they apply these control measures for all missions. Soldier safety is a leader responsibility...we owe it to our soldiers to do it right!

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**Scout Training Area...BEFORE It’s Too Late**

A section of Bradley Fighting Vehicles (BFV) was conducting a tactical movement to a reconnaissance objective in the local training area. The scenario required them to move at night from home station to this location in order to ensure its suitability for an inbound artillery unit. The artillery unit was also traveling from home station, but was using a different route. There were several bridges near the recon objective. They were not strong enough to carry all of the vehicles using this route, so the unit chose to drive along a streambed instead of risking the collapse of the bridges. The stream was only a few inches deep, so there was no problem using this route.

There were several bridges near the recon objective. They were not strong enough to carry all of the vehicles using this route, so the unit chose to drive along a streambed instead of risking the collapse of the bridges. The stream was only a few inches deep, so there was no problem using this route.

Since this deployment took place at night, the BFV drivers were using their AN/VVS-2 Driver’s Night Viewers, and the Bradley commanders (BCs) used AN/PVS-7 goggles during the tactical phase of the movement. The initial road march,
over civilian roads, was done using white lights and rotating amber warning lights.

As the BFV section entered the stream, the artillery unit approached from the opposite direction. They were still using their headlights and warning lights, which washed out the BFV section’s night vision devices. The driver of one of the BFVs asked for permission to pop his hatch so he could see better. His BC approved the request.

To enter the reconnaissance objective, the section had to negotiate a small, steep dirt road out of the streambed. The BFV negotiated the left turn out of the stream and headed up the hill. As they neared the crest, the vehicle began to tip to its right. The crew realized that the Bradley might roll over and therefore took immediate action to attempt to recover. But it was too late. The BFV rolled into a 6-foot deep, water-filled hole, coming to rest on its top. The driver, gunner, and scouts were able to extract themselves from the inverted vehicle, but the BC was trapped. He drowned in the water, which filled the inverted turret almost completely.

What Went Wrong?
The hole beside the path was recently excavated by a civilian earthmover. The training area is not physically secured against civilian intrusion, so a construction crew had brought their scoop loader here to obtain fill dirt for some ongoing project. The hole was immediately adjacent to the path and should have been visible to the BC using night vision goggles. But for unknown reasons, the BC did not notice the hole until the vehicle began to roll over. It was also not visible to the driver due to the steep uphill angle of the vehicle and the use of the popped hatch, which removed his night vision viewer from his immediate view.

Members of this unit were familiar with this training area, and many stated that the hole was not there during their previous visit to this location about three months earlier. Nevertheless, there was no pre-exercise reconnaissance of the training area to identify terrain hazards such as this hole.

The command’s risk management worksheet listed a pre-exercise recon as a control measure to mitigate the possible terrain-related risks associated with this mission. But no element or person was tasked to conduct the recon, and no one followed up to ensure that it was done. This hole was so large and so new to the area that even a cursory daylight reconnaissance should have identified it as a hazard to any vehicle moving along the path out of the stream. As a result of this oversight, the crews did not know this hole was there until they physically encountered it.

Lessons Learned
The fourth and fifth steps in the risk management process are to implement and then supervise and evaluate the control measures developed to reduce the risks. These vital steps were not accomplished. As a result, no recon of the training area took place and the soldiers did not know about the new terrain hazards until it was too late.

Vehicle commanders are responsible for ensuring their vehicles are operated in a safe manner. A key part of this is to observe the terrain around the vehicle to make sure there is nothing in the way, such as a hole or a dismounted soldier. This becomes even more important after the driver admits that he is having trouble seeing through his night vision equipment.

The commander must also be sure that the tank trail is safe, and he must be able to give his driver the proper commands to avoid any hazards in or around that path. If necessary, he should dismount a ground guide.

Summary
Proper risk management at the unit level would have prevented this accident. Proper implementation and supervision of control measures would have most likely identified the hole and after dissemination of this information to the crew, soldiers could have made informed driving choices during their tactical movements.

POC: USASC Ground Systems and Accident Investigations Division, DSN 558-3562 (334-255-3562)
Abrams Fires

The lives lost and the resources spent on accidents involving modern Army weapon systems are staggering. Accidents in the Armor Force are no exception. Although Abrams tank fires typically do not result in soldier injuries or fatalities, the potential is always there. A very small fire on these vehicles can quickly cost thousands of dollars in just a couple of minutes.

The fire history of the Abrams fleet provides many concrete lessons learned and examples of how serious maintenance and training pay off. Let’s look closely at CY 1999 as an example of how quickly accidents and fires can mount up when we relax.

Calendar year 1999 was not a banner year for Abrams tank fires. Team Abrams continues to investigate all reported fires and pursue possible corrective actions. In the course of investigating reported fires, Team Abrams performed failure analysis on specific hardware, visited units, randomly inspected numerous tanks across the fleet, and reviewed many historical records of tank fires in the fire data base. This effort provided some very definitive facts that Abrams users must be aware of:

- Investigations revealed NO systematic materiel cause(s) associated with the recent increase in Abrams fires.
- There are several possible contributing factors that are being further investigated and addressed. Fleet aging, high mileage, and lack of preventive maintenance checks and services (PMCS) continue to top the list. These factors are not new and the best corrective action to mitigate these factors is user awareness.
- There are random failures and isolated quality issues that have caused a very small number of fires. This category tends to be the exception rather than the norm, and these situations have been corrected.
- There are tanks operating in the fleet today that have serious maintenance shortcomings, which could potentially cause a fire. Units MUST adhere to their PMCS inspections and their non-mission capable criteria. This addresses fire sensors; grounding wires; nuclear, biological, and chemical (NBC) system components; reentry test vehicles (RTVs); and unauthorized modifications, just to list a few.
- The fire causes are strictly random and have been throughout the life of the Abrams tank. There is not one fire category that stands out as the
With these facts in mind, it is essential that every user:
- Assist us in reporting abnormal operations or conditions with their tanks.
- Adhere to Safety-of-Use, Ground Precautionary, Maintenance Advisory Messages and Operator and Maintenance manuals.
- Rehearse emergency procedures and evacuation procedures regularly.
- Take action regarding other prominent safety hazards besides fires; i.e., use of travel locks, hatch condition, bolt accountability, warning light bulb color and condition, and hose sizes and condition.

The Abrams Team is committed to the fact that this tank is the best in the world and it must be totally accepted by you, the users, in every aspect of its operation and sustainment. We will continue to address the trends and inform you of efforts to maximize the tank’s capabilities and superiority.

POC: Gregory M. Skaff, Deputy TRADOC System Manager for Abrams Tank, DSN 464-2390 (270-624-2390), skaffg@ftknox5-emh3.army.mil

prominent area of concern; however, NBC system fires still present users with some significant risk and require our serious attention. Besides applying very thorough PMCS, there are no indicators that can alert crews to the fact that they will have a fire. (See Cause of Fire chart.)

- The modification block applications currently being applied or previously applied are not directly linked to any fire occurring to date.
- With these facts in mind, it is essential that every user:
  - Assist us in reporting abnormal operations or conditions with their tanks.
  - Adhere to Safety-of-Use, Ground Precautionary, Maintenance Advisory Messages and Operator and Maintenance manuals.

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Wrong Way Down!

Within the last 90 days, the U.S. Army Safety Center has investigated three airborne incidents, two of which have resulted in fatalities and one a permanent partial disability. Improper/weak exits contributed to all three of these accidents.

Weak exits induce tumbling, rolling, and spinning immediately outside the paratroop door. This can cause increased static line surface contact (friction) with the trail edge of the paratroop door, which increases the chance of becoming entangled with equipment. Additionally, weak exits adversely affect static line serviceability and attrition rates.

Jumpmasters must ruthlessly enforce standards during performance-oriented training and ensure that all jumpers are briefed concerning the importance of proper exits from any aircraft.

Jumpers exiting a C-130/141 should exit across the center of the jump platform, placing the trail foot as near to the outer edge of the platform as possible before exiting and becoming airborne. They must maintain their momentum after making the pivot to turn towards the door and execute their first point of performance rapidly, and in accordance with the current standard for static line parachuting. Proper execution of the current exit standards supports safe operations.

Finally, commanders should examine the individual loads that soldiers are carrying and make sound risk management decisions on the benefits and hazards associated with airborne operations.

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When Intense Summer Training Heats Up... So Do ACCIDENTS!
Each annual training (AT) cycle, Guardsmen and Reservists lose the equivalent of an entire battery of soldiers due to accidental injury. Moving tens of thousands of soldiers, military equipment, and supplies downrange and back is a complex and expensive operation. Leaders should expect that some skills will have declined since the last AT; therefore, soldiers need to be reminded that they are accountable for their actions and that self-disciplined performance to standard can have the greatest impact on accident prevention. The Reserve Components have long recognized the inherent dangers of their trade and have developed safety practices to minimize the number of accidents.

An analysis of Class A-C FY99 and FY00 Reserve Component (USAR and USANG) accidents revealed that there was a total of 196 accidents. Most fell into four categories: Army motor vehicles (AMV), Army combat vehicles (ACV), personnel injuries (PI), and privately-owned vehicles (POV).

Of those 196 accidents, personnel injuries topped the list with 130; 2 of those were fatally injured. Privately-owned vehicles claimed the lives of 11 of the 31 Guardsmen and Reservists last year.

Thus far this fiscal year, there have been 12 accidents (POV leading) with 4 fatalities (all POV). So, what can commanders do to prevent these accidents while continuing to train realistically? Read on!

Command Climate
The first step is to develop a command climate that permeates safety throughout the organization. Train personnel to standard, demand performance to standard, and take quick and effective action when standards are violated. Encourage personnel to develop a sense of responsibility for each other’s well-being. This philosophy has to clearly come from the top. The old adage says it best: “The
command is a reflection of the commander’s personality.” If safety isn’t important to the commander, it won’t be important to the soldiers who follow.

**Supervision**

Statistics show that 80 percent of all accidents are caused by human error, and supervision is the key to preventing human error. Simply put, leaders can reduce human error by consistently enforcing standards in training and discipline. Failure to enforce a standard serves to establish a new, lower standard that may one day result in an accident. If, for example, a leader sits in the passenger seat and allows a driver to operate a vehicle too fast for conditions, he has failed in his leadership responsibility. He has increased the chances for an accident on that trip as well as future trips. Leaders set the example.

**Buddy System**

Establish a buddy system and provide guidance on the issues buddies should help each other with. Examples include drinking and driving; swimming; enforcement of water consumption, eating, and personal hygiene; watching for fatigue, sickness, heat stress, and cold injuries.

**Plan by Managing Risk**

Risk management is the process of making operations safer without compromising the mission. Accident experience shows that mission-stopper accidents occur when victims are ignorant of hazards and countermeasures, or when directed countermeasures are not implemented. The following principles provide leaders guidance on integrating the risk management approach into unit operations.

- **Make risk decisions at the proper level.** The leader who has the authority to accept the risk of a mission has the responsibility to protect his soldiers from the hazards that make up that level of risk. He should make risk decisions at a level consistent with the commander’s guidance.

- **Accept no unnecessary risk.** Leaders must take necessary risks to accomplish the mission. They must also understand that risk-taking requires a decision-making process that balances mission benefits with costs. Accept risks only when benefits outweigh the costs. Our soldiers should not be exposed to any unnecessary risks.

It is important to note that there is an increased potential for accidents when soldiers are returning home from AT. Leaders should monitor their personnel for “get-home-itis” (hurrying to unload equipment, speeding to get home, fatigue, alcohol consumption). Ideally, successful AT starts and ends at home, and includes getting to AT, performing the mission, and returning home safely. Leadership and each individual soldier making good common-sense decisions are the keys to success in every training event.

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**Risk-Management Transfers to Off-duty**

**FY99 Reserve Component Class A-C Accidents**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PI*</th>
<th>POV</th>
<th>AMV</th>
<th>ACV</th>
<th>Other</th>
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<td>31</td>
<td>24</td>
<td>4</td>
<td>7</td>
<td>196</td>
</tr>
</tbody>
</table>

*Includes combat soldiering, sports, and human movement.
In today’s hectic operational environment, deployment is commonplace. Deployments can range from support missions in the Balkans, to field training gunnery exercises, to annual training for the Reserve Components, and all sorts of things in-between.

Whether you are stationed overseas or in CONUS, belong to an Active or Reserve Component unit, move as a unit or an individual—there are numerous hazards associated with deployment. In this article, we offer some tips for ensuring you have a safe deployment.

**TIP 1. Identify early in the process what has to move.**

Establish a deployment equipment list (DEL) and try not to vary from it if possible. A DEL provides a systematic way to identify the hazards associated with different types of equipment during the planning process and helps you address these hazards as part of your mission analysis. For example: moving a HMMWV is different from moving an M1 tank. Both of these vehicles pose unique hazards that must be addressed individually. Knowing early in the process what you are moving allows you to identify potential hazards and plan methods to mitigate the risks associated with those hazards.

**TIP 2. Make risk assessment an integral part of the mission analysis process.**

Just as you identify danger areas and enemy strengths and capabilities during your mission analysis, you must address safety hazards and plan for ways to control these hazards. A sample of the things you need to consider during your risk assessment includes:

- **Road movement/convoy operations.**
  - Night movement.
  - Weather/road conditions.
- Traffic patterns/high traffic times.
- Driver training/capabilities.
- Vehicle maintenance.
- Civilian road restrictions/requirements.

**Rail movement**
- Railhead operations (steel-toed shoes/hard hats/reflective vests/etc.).
- Day/night operations (lighting required?).
- Security of equipment during transit (guards/escorts required?).
- Host nation rules.
- Supporting railroad company’s requirements.

**Sea movement.**
- Seaport operations.
- Day/night operations.
- What does the port authority provide/require?
- Who is allowed aboard ship?

**Air movement.**
- Aerial port operations.
- Who controls movement in the vicinity of the aircraft?
- Day/night operations.
- U.S. Air Force requirements/rules?

**TIP 3.** Establish a rest/sleep plan and stick to it.
It is especially important for leaders and their soldiers to get enough sleep. Make sure soldiers understand the importance of sufficient sleep when conducting any type of vehicular movement, especially convoy operations. You should also review the regulatory requirements outlined in AR 600-55 concerning responsibilities during vehicular movement.

**TIP 4.** Soldiers’ health is also a safety concern, so plan ahead for the weather.

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Seaports and airstrips can be cold and dreary places. Without sufficient protection from the elements, deployed soldiers may find themselves under the weather when they get to their destination. Coordinate with the agencies responsible for running the locations and find out what types of facilities are available.

**TIP 5. Get with your local movement office for support in planning your movement.**
These professionals can help identify potential hazards in your deployment. Furthermore, they work every day with the agencies that run the sites you will deploy from. For example, in Europe the movement control battalions coordinate all types of movements with the host nation(s), the local Area Support Groups (who manage and control railheads), the U.S. Air Force, and the European port authorities. Ask these movement officers what types of hazards were encountered during previous deployments and let them help you develop ways to mitigate these hazards before your deployment begins.

**TIP 6. Finally, remember that before you can start your mission, you have to GET THERE SAFELY!**
Safe deployments don’t just happen; they are planned and executed by caring, proactive leaders. When given the mission to deploy, use all the assets available to ensure you do it safely. Soldier safety is a leader responsibility and must be a priority in all that we do. ♦

**POC:** LTC Andrew Atcher, Ground Systems and Accident Investigation Division, USASC, DSN 558-9525 (334-255-9525), atcherd@safety-emh1.army.mil
Leaders, Prepare Your Convoys Before Departing

The company was deploying from home station to a remote training area about 300 miles away. Since they were equipped with wheeled vehicles, they deployed via convoy. The commander broke the unit down into four march units, each with about 20 vehicles. He was the overall convoy commander and designated a lieutenant to lead each of the march units. They planned for three rest halts along the route.

Before departing, the march unit commanders gave their soldiers a safety brief. This briefing included the designated road speeds, catch-up speeds, breakdown procedures, and uniform requirements. The leaders also accompanied representatives from the installation movement control team, who verified the presence of the required convoy signs, flags, and hazardous cargo releases.

The convoy left at the designated start time. Each march unit left 30 minutes after the one in front of it. They arrived at the first rest halt without incident, and after conducting some during-operations maintenance, the march units continued. They stopped again at the second rest halt. The company commander, traveling with the first march unit, noticed that the road conditions just beyond the second rest halt were deteriorating. The roadway was two lanes wide with narrow shoulders and no guardrails. The route itself included several switchbacks and grades as it passed through and around some mountains. Although the mission took place before the first winter weather began, there was already snow and ice on the road ahead, so the commander decided that his vehicles needed tire chains to
Information on road conditions was available from the highway patrol via their Internet web site or a toll-free telephone number. But no one took advantage of these resources before starting the movement.

Neither trailer involved in the accident had functioning brakes. One had no air lines, and the other had no brake fluid. Both conditions should have been identified during pre-operations PMCS. The drivers failed to identify these deficiencies, and their leaders failed to check or inspect these trailers. A simple visual inspection before departing would have shown the absence of the air lines. Leaders at all levels need to conduct pre-mission inspections to ensure that their vehicles are capable of accomplishing their mission.

Three of the soldiers involved in the accident received only minor injuries. Their seatbelts and Kevlar helmets did their jobs in protecting them during the multiple rollovers.

Summary
Leaders need to ensure that their soldiers and equipment are properly prepared before embarking on a mission. They must require that their soldiers are trained to the appropriate standards before executing a task. If this training cannot occur, then commanders need to apply the risk management process to identify the right people to drive, select a safer route, or otherwise mitigate the hazards associated with this lack of training or experience. Leaders also must check their equipment for serviceability prior to using it.

Hand Brakes Are There For a Reason

The field artillery unit had moved into the assembly area at the beginning of the exercise. Their 5-ton trucks and M198 towed howitzers were lined up by battery in the unit area. In preparation for the next day’s mission, the unit leadership directed that the trucks move to the refueling point. In

continue. He contacted the march unit commanders and told them to find a safe place to pull off the road and put the chains on.

The commander from march unit three got the word to put on the tire chains shortly after leaving the second rest stop. He found an apparently suitable location, so he pulled the march unit over. He quickly realized that the roadway wasn’t quite wide enough to safely have soldiers moving around their vehicles, so he decided to find a better place. After a few more miles, he saw the vehicles of march unit two along the side of the road. He decided that this was a good place for his element too, so he directed his vehicles to pull over.

What went wrong?
As the truck drivers applied their brakes and downshifted to slow down, they all began to slide. A layer of black ice had formed on this portion of the roadway. Several trucks with trailers jackknifed and others spun completely around. Two M35A2 2½-ton trucks, each towing a trailer, slid to the left side of the road. The drivers could not correct the slide and the trucks went off the highway. They slid down a 30-foot sloped embankment, rolling over several times. The driver of one of these trucks became pinned beneath the partially collapsed cab of the truck and was seriously injured. The other crewmen sustained minor injuries.

Lessons learned
Since this was the first winter weather experienced by this unit this year, they had not yet had the opportunity to conduct any hands-on winter drivers’ training. Conditions at home station were not yet cold enough to allow them to practice handling their vehicles on ice. Many of the unit’s drivers had arrived during the preceding summer and had never driven in these unique winter conditions. As a result, the drivers were not trained to know how to handle unexpected black ice.

Prior to departing from home station, the convoy participants did not receive any information on the road conditions along their route. They did receive a weather report from the training site, but that did not cover the march route.
order to do this, the howitzers first had to be unhooked.

One howitzer in this unit did not have an assigned crew. The howitzer was taken to the field to fire and exercise its systems. One of the other gun crews used this particular weapon after qualifying on their assigned howitzer. The truck driver parked the vehicle in a small draw with the wheels of the howitzer slightly higher than the end of the trails. Since there was no assigned crew to unhook this gun from the truck, several soldiers in the area took the initiative to unhook it and get the truck to the refueling point. Six soldiers, plus an NCOIC, took up positions on the trails of the gun and prepared to lift it.

Three soldiers took positions on the gun trails on the driver’s side. Three others manned the opposite side. The NCOIC stood behind the group to give the commands to lift and then place the gun’s trails on the ground. The crew agreed that they would lift the lunette off of the towing pintle and then place it on the ground on the driver’s side. The NCOIC made sure that everyone was ready before he gave the order to prepare to lift. Then he gave the order to lift the gun.

As they lifted the trails off of the pintle, the gun began to roll down the incline toward the rear of the truck. Five of the crewmen jumped out of the way, but the sixth did not. He became caught between the gun’s travel lock cradle and the tow pintle and was crushed by the force of the rolling howitzer.

What went wrong?
The howitzer rolled down the slope because the parking brakes were not set. No one had set the brakes, and the NCOIC had not ensured that they were set. The M198 howitzer operators’ manual (TM 9-1025-211-10) states clearly that the hand brakes must be set prior to lifting the gun.

In addition, the injured soldier was not wearing a Kevlar helmet. The unit left some of the soldiers’ helmets in the main post motor pool, and this particular soldier’s was among those left behind. Although not able to prevent the crushing head injury, the protection afforded by the helmet may have pushed his head out of the way upon impact and his injuries might have been less severe.

Lessons learned
Leadership at all levels is needed to prevent accidents. Standards are established to ensure safe and efficient mission execution. By failing to train and enforce standards, we put our soldiers and mission success at risk.

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

Tire Cage Injury

While inflating a tire, the soldier stuck his head between the bars of the tire cage to see if the tire was sealed. The tire 0-ring blew off and hit him in the head and fractured his skull.

Hazard. This mishap was caused by the soldier’s failure to follow correct procedures for the equipment he was using.

Controls. Remind your mechanics that the purpose of using a tire cage in the first place is to protect them in case something goes wrong. Sticking one’s head inside the cage defeats this purpose in a hurry. Point out that it’s easy to become careless when doing the same job over and over. Stress to your mechanics that they need to be safety-conscious while doing everyday tasks. ♦

Mechanic Run Over

Two mechanics were repairing a 2½-ton truck. One was working on the voltage regulator and the other was underneath the truck working on the emergency brakes. The first mechanic needed to check the voltage regulator, so he hit the starter. He found out that the truck was in gear when it lurched forward and rolled over the other mechanic’s legs, breaking one of them.

Hazard. Maintenance was not being done by the book. The truck should not have been started while someone was under it.

Controls. The importance of by-the-book maintenance cannot be stressed too strongly or too often. Routine tasks such as these often result in accidents simply because people become complacent. This leads to carelessness. The truck should have been out of gear and the wheels should have been chocked to prevent movement. Insist that your people do every job, no matter how routine, by the book every time, no matter how often. ♦

Lost Finger

The mechanic was standing on the right tail guard of a 1½-ton trailer putting canvas on the trailer. His foot slipped and, as he was falling, his ring got caught on a bolt. His body weight and forward motion pulled his finger off.

Hazard. The mechanic lost his finger because he didn’t realize the danger of wearing his ring while working in the motor pool.

Controls. Stress to your mechanics that any kind of jewelry is dangerous if worn in shops, the motor pool, or around machines. Also, remind your people that rings, watches, chains, bracelets, and earrings should never be worn while working on or near battery terminals. A short circuit could cause an arc and result in a severe burn. ♦

Editor’s Note: All three of these accidents might not have happened if there was a leader present to enforce maintenance and safety standards.

In this section, we highlight accidents in the motor pool that demonstrate the need for leaders to remain alert and manage the risks associated with complacency.
Ne of the most controversial issues associated with Army combat readiness concerns realistic training and safety. Does safety impede realistic combat training? Or does safety, blended into hard, tough training, increase the Army’s fighting ability and combat readiness? Answers to these questions vary. On one hand, noncommissioned officers (NCOs) are urged to train their personnel as they will fight; on the other, we all know and stress that safety is paramount.

The controversy over the issue stems from a commonly held view that realistic training and safety are incompatible partners—that one must be sacrificed at the expense of the other. This assumption, however, ignores the fact that safety is essential in combat as well as in training.

Having said that, safety measures are justified and have a definite place in combat and realistic combat training. The NCO must train the way he plans to fight. But at the same time, he must conserve Army resources and reduce risks. Combat training involves not only the correct operation of equipment and procedures, but also risk management.

Combat training can be conducted both realistically and safely. The key is leaders—the unit commander and his NCOs. They must carefully plan and examine missions, operations, and training exercises and take safety precautions that will reduce the chances of accidents, and at the same time allow full training benefit.

Too Much Enthusiasm—Too Little Safety

The cause of many training accidents lies in a failure to integrate safety into the mission. Over ambitious leaders sometimes become so involved with the tactical scenario that they subject their soldiers to unnecessary hazards that often have no training benefit. Here’s an example:

During a night training exercise, the friendly force’s mission was to ambush an “enemy” force. While performing a recon of the area, an enemy soldier was captured.

During interrogation, the POW revealed the location of the enemy force. The friendly force leader suggested two options. They could go through the woods, or they could swim across the lake. Although the unit commander had ordered that training was to be conducted

"Overzealous leaders can at times expose their soldiers to unnecessary risks during combat training."
only along the road, the squad leader sent the five strongest swimmers across the lake to come in behind the ambush site for a surprise attack. Four other soldiers were to approach the site on foot and create a diversion. The swimmers, fully clothed and with boots on, entered the extremely cold water at about 2230. Fifteen minutes later, a 19-year old infantryman drowned. Overzealous leaders can at times expose their soldiers to unnecessary risks during combat training. They get so caught up in the “war game” that it ceases to be training at all.

The commander, along with his NCOs, must make sure that troops do not use tactical training exercises as an excuse to ignore regulations and safety. They must not let soldiers become so involved in the tactical scenario that they forget that the purpose of realistic training is to produce combat-ready soldiers and equipment. Dead soldiers and wrecked equipment produce neither.

Leaders are the key to safe, realistic training. Do not allow the desire to ensure training realism to eliminate the requirement for detailed risk management. You don’t need to choose between safety and realism in training. You must have both. ♦

STOP, Look, and Listen!

USASC personnel recently investigated an accident involving a collision between a military vehicle and a civilian freight train at an unguarded railroad crossing near a major CONUS military installation. An article on this accident will appear in a future edition of Countermeasure.

Leaders at all levels need to know NOW that railroad crossings are hazardous locations. Many are not guarded by lights or barriers, even though traffic may justify such measures. In addition, train horns may not be audible inside of vehicles with the windows rolled up and heaters or fans on, so crews need to know that they should actually LOOK for approaching trains before crossing ANY railroad tracks. FM 21-305 requires crews to “slow down, look, and listen” at all railroad crossings. We recommend that commanders consider requiring drivers to STOP, instead of just slowing down, at all unguarded crossings.

Leaders also need to include railroad crossings as part of their risk management process for unit movements. They need to identify these and other hazardous points along the route of march and develop control measures to mitigate the risks involved in crossing them. For example, a leader can position himself at the head of the group so that he can personally look for trains and make sure the way is clear before continuing across the tracks. The presence of railroad crossings should also be included as part of the pre-movement safety briefing.

Installation safety officials should, in concert with local law enforcement authorities, evaluate each railroad crossing on post, as well as the ones off post that may be frequented by military vehicles. Road and rail traffic should be evaluated at these crossings to ensure that the appropriate signs and barriers are in place, as required by local, state, and federal laws. ♦

Oops, we goofed!

In the January issue of Countermeasure, the headline, “Radioactive Material...Common, but DEADLY!” was a little overzealous. The title was misleading and totally out of line with the tone of the article. According to COL Robert N. Cherry, the article’s author, the potential hazard to health, safety, and the environment due to any radioactive material in captured enemy equipment is very small in all normal circumstances and most certainly is NOT “deadly.” We apologize for the mistake. ♦
Soldiers are entitled to outstanding leadership. Accidents happen when there’s confusion in regards to roles and responsibilities. Before conducting any task, leaders need to ensure their soldiers are aware of who’s in charge. It shouldn’t be a guessing game! Soldiers depend on leaders to do their job... so they can do theirs.
Water Safety... A Risk-Management Approach

Plus: Battling Summer’s Heat with Fluid Replacement Guidelines
When winter starts shedding its frost coat, many soldiers begin planning warm-weather, water-related weekends and vacations. Last summer, four soldiers died in off-duty water-related accidents. Most of these accidents could have been prevented had soldiers included risk management with their maps, guidebooks, and ice chests. The 5-step risk-management process works the same way off-duty as it does at work.

1. **Identify the hazards.** The hazards are the potential sources of danger: unfamiliar water, unknown water depth and current, fatigue, debris, and changing weather conditions. These hazards can be affected by swimming ability, boating skills, and the condition of the boat.

2. **Assess the hazards.** Each hazard is analyzed to determine both the probability of its causing a problem and the severity of the consequences should such a problem occur. For example: How fast is the current and what type of underwater debris is present? Is the boat appropriate and seaworthy enough to travel a long distance in this kind of water? Should an accident occur, can the passengers swim and get to safety quickly? Do all passengers have flotation devices, and what can happen to those who don’t? Answers to such questions provide a description of the impact of the combined hazards. The result is a statement that quantifies the risk associated with the operation: extremely high, high, medium, or low.

3. **Make a risk decision.** Weigh the risk against the benefits. Is the trip worth taking if the boat sinks and you haven’t enough flotation devices?

4. **Implement controls.** Controls function to reduce or eliminate hazards. Have flotation devices for everyone on board, and make sure they wear them. Other simple controls could come in the form of a short safety briefing and guidance on emergency procedures.

5. **Supervise.** Supervision goes beyond ensuring that people do what is expected of them. It includes following up during and after activities to see if all went according to plan and to bring up areas that are red flags in your brain. This also helps anticipate and prepare for unforeseen issues. Lessons learned can be used when planning the next trip.
Tips For Safe Boating

Before summer’s prime time—those hot and hazy days between Memorial Day and Labor Day—commanders and other leaders should brief soldiers on safe boating. Soldiers should be cautioned about renting or buying a boat with the idea that anyone who can drive a car can operate a boat.

Soldiers who are planning to spend a lot of time on the water should take a boating safety course. Your local Power Squadron, Coast Guard Auxiliary, Red Cross, or MWR office offers these courses, and many are free of charge. There are also some short courses that are available on the World Wide Web.

Leaders should brief soldiers on the following controls:

- Know the limit of passengers and weight load for your boat. Don’t exceed it.
- A safe boat is a well-equipped boat. Keep all the required and necessary safety gear on board, keep it in good condition, and know how to use it.
- Know how to swim. It just makes good sense. If you don’t know how, LEARN. Know the dangers of hypothermia; even good swimmers don’t always survive the shock or panic of sudden immersion in cold water.
- Wear life jackets and never make someone feel uncomfortable if they choose to wear one. Remember, it is the law for all children to wear them.

- Learn “the rules of the road” and obey them! Don’t drink while boating, for the obvious reasons.
- Remember, practice risk management when boating. Read the above tips again. They are, in fact, the risk management process being implemented.

Each tip has identified unwritten common hazard(s) that could impact boating fun. The hazards are assessed and the controls are developed and implemented to reduce the associated risk. Making the risk management process an integral part of your planning before and during your boating adventures will pay off in safer fun.

POC: George K. Greenauer, Risk Management Integration, USASC, DSN 558-2913 (334-255-2913), greenaug@safety-emh1.army.mil

The boat must contain one life jacket for each person on board, plus a throwable ring or cushion. You should also carry a fire extinguisher, flares, a foghorn or whistle, a strong flashlight, a first-aid kit, and a bailing bucket.
A unit was conducting a squad-sized tactical mission at an off-post location as part of a battalion-level evaluation exercise. The mission plan called for surveillance and reconnaissance (S&R) of a fixed facility along a riverbank and would include both ground and water movement. The battalion planned on controlling the exercise with observer controllers (OCs) and using opposing forces (OPFORs) to test the unit’s actions on contact.

The squad leader’s plan called for the unit to conduct a water infiltration to the mission support site and then conduct a dismounted movement to their final destination. After gathering the required data, the team would move back to their mission support site and conduct a water exfiltration. The squad was issued life preservers for use throughout the mission.

The team began the mission at approximately 2330 on Day 1 and successfully conducted their water infiltration, via inflatable assault boat, to their mission support site. The team used ground movement to their S&R locations and began reconnaissance operations into the morning of Day 2. The team was split into two 2-person reconnaissance teams and a 2-person team at the mission support site. Following a day of operations, the squad leader decided to consolidate the teams in order to implement a sleep plan and provide security.

At approximately 2300, OPFOR soldiers detected the team. A firefight between the squad and the OPFOR ensued. As part of the scenario for the event, the OCs assessed one member of the squad as a casualty. The squad now had to evacuate this member from the site. After evaluating the tactical situation, the squad leader decided to evacuate by having the team float downstream in the dark until they met up with the other members of the squad. The team...
constructed an improvised flotation device from their rucksacks, snap links, and nylon tubing to evacuate the casualty. They then placed the simulated casualty on it and inflated their life preservers.

As the squad moved into the river, one of the OCs waded into the river approximately 3-5 feet behind the team. The OC was not wearing a life preserver.

At approximately 30-35 feet from shore, the squad, followed by the OC, got into the current of the river and started to move downstream. The team attempted to swim around some barges and boats that were docked, but was unsuccessful. They struck the floating dock. The squad members attempted to hang on to the front edge, but due to the force of the water and the slope of the floating dock, they were immediately pulled under the surface of the water and under the dock.

Three members of the squad were pulled under the floating dock and surfaced downstream. They were able to pull themselves from the water and onto another dock. The simulated casualty and the OC were pulled under the dock and never resurfaced. The simulated casualty’s body was recovered approximately 12 hours later. His body was entangled in the nylon tubing connecting the rucksacks forming the flotation device. The flotation device had snagged on a sunken log. The OC’s body was recovered the following day. Both had drowned.

**Lessons Learned**

- The squad conducted a water exfiltration that had not been properly rehearsed prior to the mission. The squad leader did not conduct a risk assessment of his change in plans although he had previously identified the river as a possible escape route. Further, no one in the battalion staff identified the hazards associated with conducting a water exfiltration during the hours of limited visibility, in unfamiliar surroundings, and with a hastily-constructed improvised flotation device.

- As a result, possible control measures for these hazards were not in place. The battalion staff should have incorporated risk management into the planning process and updated their assessments as situational changes occurred. Effective risk management procedures take into account all aspects of an operation to include branches and sequels, thereby setting the unit’s soldiers up for success. We must view risk management as a complementary tool for the staff to use during the mission analysis phase of the decision-making process as outlined in FM 101-5.

- The OC did not wear a life preserver even though the local regulations clearly required the use of one. Compounding this problem was the fact that no member of the OC team stopped this individual from entering the water without a life vest. Finally, none of the members of the squad questioned the OC’s decision even though the use of life vests had been briefed in the mission order. Some members of the unit were not aware of the regulatory requirements. Leaders have a responsibility to ensure they incorporate regulatory guidelines into their operational planning process.

- The OCs were placed in a position not only to “observe” the squad, but also to “control” the scenario the squad was performing. With this control comes the responsibility to ensure the squad conducts its mission safely. There were several occasions during the accident sequence where the OCs could have intervened to prohibit the squad from entering the river. Further, the OCs had a responsibility to ensure that the proper support equipment was on-site (i.e., rescue boats, lights, emergency equipment). Commanders must ensure that personnel selected to act as OCs understand their responsibilities and are capable of exercising control over the evaluated unit to ensure the safe completion of the exercise.

**Summary**

This accident was tragic, not only because of the loss of two outstanding soldiers, but because it was preventable. Leader involvement at several points of the accident sequence could have prevented the accident. Leaders at all levels must ensure their soldiers follow regulatory guidelines and unit SOPs. Further, leaders must apply the principles of the risk management process throughout the planning cycle. Finally, we must ensure that effective control measures are in place to safeguard soldiers and equipment.

These soldiers were training to do a difficult and dangerous mission. They lost their lives during that training. It is our responsibility as leaders to ensure that another such tragedy does not happen. Leaders learn from mistakes. Leaders plan for the future. Leaders know and enforce standards. Leaders take care of their soldiers. Be a leader...ensure your soldiers accomplish their mission SAFELY.

**POC:** USASC Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
Battling Summer’s Heat

Summer heat can kill! Heat stress can strike while a soldier is pulling maintenance in the motor pool, while a civilian desperately fans herself in an office with no air-conditioning, or while a family member mows the yard. The symptoms of heat cramps, exhaustion, and ultimately heat stroke can set in with little warning.

Battling heat takes awareness. Knowing the warning signs of heat-related illnesses could prove to be lifesaving.

- **Sunburn.** Many people do not think of sunburn as a heat injury, but it is a frequent cause of injury to soldiers, and repeated exposures can lead to skin cancers later. Anyone can become sunburned, even on cloudy days. Fortunately, it is totally preventable, either through use of sunscreen, or simply by keeping body parts covered.

  - **First-Aid:** Cover the body part that is being burned. If there is pain with the burn, seek medical attention.

- **Heat cramps** are painful cramps of the muscles caused by a heavy loss of salt through sweating.

  - **First-Aid:** Move the victim to shade and loosen clothing. Treatment includes frequent intake of water, a cup (8 oz) every 15-20 minutes, not to exceed 1½ quarts per hour. Thirst is not an adequate indicator of dehydration. If cramps persist, dissolve ¼-teaspoon table salt in one quart of water, and have the victim slowly drink at least one quart of the salt solution.

- **Heat exhaustion** is caused by excessive salt depletion and dehydration and characterized by symptoms of profuse sweating, headache, tingling sensation in the extremities, weakness, loss of appetite, dizziness, nausea, cramps, chills, and rapid breathing.

  - **First-Aid:** Lay victim flat in a cool, shady spot. Elevate feet and loosen clothing. Pour water on victim and fan to cool. If conscious, have the victim drink at least one canteen full of cool water with the salt solution. If soldiers do not recover after an hour, evacuate to the nearest aid station or other facility.

- **Heat stroke can cause death or permanent disability if emergency treatment is not given.** Heat stroke occurs when the body becomes unable to control its temperature: the body’s temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. **Lack of sweating in the heat is an important symptom of imminent heat stroke.** Other symptoms of heat stroke are mental confusion, disorientation or coma, throbbing headache, flushed dry skin, nausea, and elevated body temperature.

  - **First-Aid:** **THIS IS A MEDICAL EMERGENCY—SEEK IMMEDIATE MEDICAL ATTENTION.** Move the victim to shade and cool with ice packs. If packs are not available, soak or douse victim with cool water. Fan body and elevate feet. Do not immerse in ice water. Do not try to give water to an unconscious victim. If medics or combat lifesavers are present, start intravenous (IV) fluids. Ensure cooling...
process is continued during transport to medical facility.

Common Sense Approach to Battle the Heat

- **Acclimatization.** It takes up to two weeks to become acclimatized. When deployed, leaders must take this process into account when planning missions.
- **Fluid intake.** Soldiers should drink adequate fluids before and during the operation or training exercise (see chart below).
- **Physical conditioning.** Infections, fever, recent illness, overweight, fatigue, drugs (cold medication), and previous heat injuries may increase the risk of heat stress.
- **Work schedules.** If the tactical situation allows, heavy work and activities that require strenuous physical exertion (marches/calisthenics) should be scheduled for early morning or late evening. Avoid working in the direct sun, whenever possible.
- **Loose-fitting clothing.** Wear lightweight clothing that allows circulation of air and enhances the cooling evaporation of sweat. If the tactical situation allows, commanders need to consider permitting unbaying of boots, unbuttoning of BDU jackets, or other measures. Removal of BDU jackets should be done with caution, as this may increase the risk of sunburn.

**Wet bulb globe temperature (WBGT).** The WBGT index is the best means of evaluating environmental heat. Commanders and NCOs must monitor the heat index, and if tactically possible, modify activities and soldier monitoring accordingly.

Remember to be alert to early signs of dehydration and heat illness. They forewarn of more severe casualties to come without intervention. Virtually all heat injuries are preventable; successful prevention of heat casualties is more important to the unit than their treatment. ♦

POC: LTC Robert Noback, Command Surgeon, DSN 558-2763 (334-255-2763), nobackr@safety-emh1.army.mil

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**Fluid Replacement Guidelines for Warm-Weather Training**

*Average Acclimated Soldier Wearing BDU, Hot-Weather*

<table>
<thead>
<tr>
<th>Heat Category</th>
<th>WBGT Index °F</th>
<th>Work/Rest*</th>
<th>Water Per Hour</th>
<th>Work/Rest*</th>
<th>Water Per Hour</th>
<th>Work/Rest*</th>
<th>Water Per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy Work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>78-81.9</td>
<td>No limit</td>
<td>½ qt</td>
<td>No limit</td>
<td>½ qt</td>
<td>40/20 min</td>
<td>⅛ qt</td>
</tr>
<tr>
<td>2 (Green)</td>
<td>82-84.9</td>
<td>No limit</td>
<td>½ qt</td>
<td>50/10 min</td>
<td>¾ qt</td>
<td>30/30 min</td>
<td>⅛ qt</td>
</tr>
<tr>
<td>3 (Yellow)</td>
<td>85-87.9</td>
<td>No limit</td>
<td>¾ qt</td>
<td>40/20 min</td>
<td>¾ qt</td>
<td>30/30 min</td>
<td>⅛ qt</td>
</tr>
<tr>
<td>4 (Red)</td>
<td>88-89.9</td>
<td>No limit</td>
<td>¾ qt</td>
<td>30/30 min</td>
<td>¾ qt</td>
<td>20/40 min</td>
<td>⅛ qt</td>
</tr>
<tr>
<td>5 (Black)</td>
<td>&gt;90</td>
<td>50/10 min</td>
<td>1 qt</td>
<td>20/40 min</td>
<td>1 qt</td>
<td>10/50 min</td>
<td>1 qt</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 ± ¼ quart per hour.

**Note 2:** CAUTION: Hourly fluid intake should not exceed 1½ quarts. Daily fluid intake should not exceed 12 quarts.

**Note 3:** Wearing MOPP gear or body armor adds 10°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, &lt;30-pound load</td>
<td>Walking hard surface at 3.5 mph, &lt;40-pound load</td>
<td>Walking hard surface at 3.5 mph, &gt;40-pound load</td>
</tr>
<tr>
<td>Weapon maintenance</td>
<td>Walking loose sand at 2.5 mph, no lead</td>
<td>Walking loose sand at 2.5 mph with load</td>
</tr>
<tr>
<td>Manual of arms</td>
<td>Calisthenics</td>
<td></td>
</tr>
<tr>
<td>Marksmanship training</td>
<td>Patrolling</td>
<td></td>
</tr>
<tr>
<td>Drill and ceremony</td>
<td>Individual movement techniques; i.e., low crawl, high crawl</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Defensive position construction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field assaults</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.
As soldiers, we are repeatedly cautioned against the dangers and the serious problems that can develop from dehydration. The main defense against dehydration is, of course, water; but too much water can be just as deadly. The common term for this problem is water intoxication, technically known as hyponatremia.

Long known to be a problem in triathletes and marathon runners, the Army’s first known death that attributed to hyponatremia occurred in 1997. Still, two years later, the problem remains neither widely recognized nor understood by most troops and trainees.

It was a hot July afternoon and a soldier was in his fourth week of basic training. Unit training was moved to the rifle range where the heat category rose to level 5 (WBGT > 90º). The soldier complained of headache, nausea, dizziness, and feeling overheated. Weather and symptoms suggested heat stress, so he was moved to the shade, his clothing was loosened, and he was given water. Over the next 1½ hours, he drank approximately four quarts of water and vomited repeatedly. The soldier required assistance in walking and was again placed in the shade and instructed to drink more water. Over the next two hours, he drank an estimated 10-14 canteens of water and continued vomiting. By mid-afternoon, he was physically incapacitated and transported to the hospital. Despite intensive medical care, the soldier never regained consciousness and died of hyponatremia.

How does this happen?
Hyponatremia is defined as not having enough sodium in the blood. Although there are some medical conditions that can cause this, the main cause is simply drinking too much water while not taking in enough sodium. Basically, sweat consists of water and salt. This salt is essentially the same as table salt—simple sodium chloride—this is why your eyes sting when sweat gets in them. Most soldiers have at one time or another, either from a road march or a deployment to someplace like JRTC or NTC, had a chance to become drenched in sweat, and later seen the white deposit on uniforms or load-bearing equipment (LBE). This white deposit is salt. Sweat contains between 2 and 3 grams of salt per liter; therefore, under the right conditions, the body can lose one liter (about a quart) of sweat an hour. As you can see, if the soldier is just replacing water and not salt, the conditions are perfect for developing hyponatremia.

What are the symptoms of hyponatremia?
Unfortunately, they are similar to dehydration: nausea, muscle cramps, disorientation, and a lack of coordination. Ultimately, what can happen is there can be swelling of the brain, which can lead to seizures or death. Telling the difference between dehydration and hyponatremia can be difficult, even for trained medics. Key items to tell the two apart are that the soldier with hyponatremia is more likely to be vomiting and usually is known to have been drinking large amounts of water.

What do you do with a suspected case?
Get medical help. If the soldier is conscious, dissolve ¼-teaspoon salt in a quart of water and have the soldier slowly drink the solution. Remember, the body can only absorb about 1½ quarts of water per hour by mouth. If a medic or combat lifesaver starts intravenous (IV) fluids and the soldier vomits more than once and isn’t
improving in an hour, evacuate the soldier immediately to the nearest aid station, troop medical clinic, or hospital.

**How can hyponatremia be prevented?**
The average person, with an average job and with no problems like high-blood pressure, should take in about 2.4 grams of sodium a day. Daily sodium intake is usually from food or salt put on the food.

If you are in garrison, working indoors at a desk, obviously this is more than enough. However, as mentioned earlier, that 2.4 grams can be gone in an hour during a road march or even performing heavy maintenance outdoors, if the weather is right. If you know that you are going to be in a position where losing salt is a problem, you need to increase your salt intake. This can be done by using the salt packet in MREs, adding ¼-teaspoon salt (this is about 1½ grams) per quart of water, or simply eating salty snack foods, such as pretzels.

Sports drinks are also useful, but must be used carefully. On average, to get one gram of salt, you would have to drink about a half gallon. Another important tip to remember is NOT to use salt tablets! First, they are absorbed more slowly by the body, and secondly, it is easy to take too many.

**What else can be done?**
Water discipline. Some people think water discipline means restricting water, whereas this used to be true, it isn’t today. Water discipline is the most successful, proven means of preventing all heat-related injuries, either in training or actual operations. In practice, what it means is the monitoring of all members of a unit—commanders and senior NCOs are not immune—to detect symptoms early and to ensure that the right amount of water is being consumed. The Office of the Surgeon General has recently issued revised fluid intake and work/rest guidelines for soldiers and should serve as the basis of a water discipline SOP. See the chart on page 7.

Remember, we are NOT saying you should not drink water; the bottom line is that you should consume water at regular, planned intervals.

**POC:** LTC Robert Noback, Command Surgeon, DSN 558-2763 (334-255-2763), nobackr@safety-emh1.army.mil

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**Fort Drum Safety Office Submits Best Answer**

Thank you for responding to the January issue of “You Make the Call.” As you recall in the January issue, a light infantry unit was conducting an exfiltration exercise on foot. The exercise was to be conducted at night and it involved crossing a stream 30 meters wide and 15 feet deep to reach a tactical assembly area. You had to decide what was the safest way to conduct this exercise. All answers were excellent; however, Mr. Ernest Caltenback submitted the best response. Congratulations, Mr. Caltenback! You will receive a Safety Center coin and a letter of congratulations from the Director of Army Safety for the following answer.

The platoon leader must recognize the hazards of conducting water operations at night. Limited visibility, water crossing, water exposure, water depth, running water (speed), and personnel training are but a few of the dangers involved in crossing rivers or streams at night.

The use of night vision devices, waterproof rucksacks, water survival training, ropes, and safety personnel downstream to include a Zodiac boat (if a big waterway) are some control measures needed to safely perform this training exercise. A review of water survival manuals to include TC 21-305-2, TC 21-21, and FM 21-305 is at hand. Lastly, conduct a leader’s exercise safety brief and supervise, supervise, supervise.

**POC:** Mr. Ernest Caltenback, Command Safety Office, Fort Drum, NY.
Motorcycle Safety
Roadmap to a Good Ride

S

ummertime. It’s almost here. When the sun comes out, so do the motorcycles. Motorcycles provide an economical means of transportation to and from work, and provide off-duty transportation and recreation as well.

When controlled by careless or inexperienced drivers, motorcycles can be lethal. In fact, the Army experienced 79 recordable motorcycle accidents involving soldiers in FY99. Of these 79 accidents, 21 Army personnel lost their lives.

These accidents and deaths should provide the impetus for leaders to stop and ask themselves three important questions:

Am I providing enough training for my soldiers?
To answer this question, it is first necessary to reiterate the regulatory requirements for motorcycle riders. Paragraph 3-2a(2) of AR 385-55, Prevention of Motor Vehicle Accidents, states the following: “Each driver of a military or privately owned motorcycle or moped who is authorized to operate on an Army installation will be required to complete an Army-approved motorcycle safety course. The course will consist of classroom instruction, hands-on training, and successful completion of a written evaluation.”

Many installations experience problems regarding training simply because they are unsure what constitutes “Army-approved.”

According to the U.S. Army Safety Center (USA SC), the best motorcycle safety training program available today has been developed by the Motorcycle Safety Foundation (MSF), which is a nationally recognized organization and is Army-approved.

In fact, 31 state licensing agencies use one of four different MSF skill tests, 41 states use the MSF motorcycle operator’s manual, and 29 states incorporate the supporting knowledge test. For more information on the Motorcycle Safety Foundation, check out their web site: http://msf-usa.org/pages/MAIN1.html or for the nearest rider course location, call (800) 446-9227.

Am I relaying POV accident data to my soldiers?
As all of us within the safety community know, the primary purpose of accident investigation and reporting is to develop countermeasures to prevent similar accidents from occurring. Besides ensuring that soldiers understand and adhere to regulatory guidance regarding motorcycle safety requirements, leaders must also make every effort to share both Armywide and local POV accident experience with their soldiers. This can be done through safety council meetings, stand down days, safety alerts, unit formations, long holiday weekend briefings, and articles published in the installation newspaper. Armywide POV accident data can be obtained from the USA SC web site at http://safety.army.mil. Local accident data is available to leaders from their installation safety office.

Am I enforcing AR 385-55 and local SOPs?
Providing education to soldiers regarding proper equipment and safe riding techniques is extremely important; however, enforcement of the regulatory requirements may be the most critical element in reducing motorcycle accidents. Many installations ensure these requirements are met by integrating them into the local motor vehicle operator regulations that are enforced by the installation provost marshal. Enforcement of these requirements by installation military police and chain of command sends a clear message to soldiers that leadership will not tolerate
violations and is concerned about the well-being of their soldiers.

In addition to the training requirements we have discussed, Appendix B of AR 385-55 specifies additional requirements for motorcyclists. These consist of the following:

- Operators must be currently licensed to operate a motorcycle.
- Motorcycles and mopeds must have headlights turned on at all times except where prohibited.
- Soldiers must wear properly fastened DOT-approved helmets when operating a motorcycle or riding as a passenger.
- Soldiers will wear eye protection (clear goggles/face shield).
- Soldiers will wear appropriate clothing including long-sleeved shirt or jacket, long trousers, full-fingered gloves, leather boots or over-the-ankle shoes, and high-visibility garments (bright colored for day and retro reflective for night).

POC: Frank L. McClanahan, Senior Safety and Occupational Health Specialist, Aviation Branch Safety Office, Fort Rucker, AL, DSN 558-1027 (334-255-1027), mcclanahanf@rucker.army.mil

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**Accident Briefs**

**Flip Breaks Neck**
A soldier was on the beach talking to fellow soldiers when a female soldier walked by. In an attempt to impress her, the soldier ran towards the water at full speed and when he got to about ankle-deep water, he attempted a somersault. Unfortunately, he did not get enough lift to complete the flip and landed on his neck, resulting in a broken vertebrae and paralysis. The soldier died on the way to the hospital.

**Diving Into Trouble**
The temperature was hot (over 100ºF) and a soldier was swimming with friends in a river. The group had just arrived and decided to dive from an overhang. One youth dove from the ledge and came up to tell the others that there was a pipe submerged. As he was beginning to tell this to the others, another soldier was already in mid-air. The soldier dove with both arms above his head and landed directly over the pipe. The soldier was paralyzed from the neck down.

**Ocean Takes Life**
Two soldiers unfamiliar with the ocean were enjoying the surf late in the afternoon. The tide was changing and the undertow carried the soldiers down the beach and out over their heads. One of the soldiers, a poor swimmer, panicked and cried for help. His friend tried to save him and nearly drowned himself because the panicking soldier could not follow orders. One soldier drowned because he panicked—his friend could not save him. Neither was wearing a life jacket!

**Sometimes Size Does Matter!**
The Coast Guard HH-65 was returning from a MEDEVAC mission when it was diverted for a search and rescue mission—a boat had radioed that they were out of gas. After a search of about 30 minutes in the approximate area, the boat was located. The boat was basically a shallow hull bass-fishing boat with a small motor. The question was: What was it doing 20 miles offshore?

All boats are not made for all waters. Fortunately, the seas and winds that day were calm. With more than 3-5 foot seas, the boat would have foundered, especially without a working (or powerful enough) motor to maintain heading and steerageway.

After the helicopter orbited for 30 minutes, a Coast Guard cutter arrived on station to give fuel and escort the boat to shore. Because these “sailors” had the wrong boat in the wrong water, and didn’t bother to do any trip planning or take emergency supplies or fuel, they tied up a Coast Guard helicopter for over an hour, and a Coast Guard cutter even longer.

Before anyone flies anywhere, a flight plan is made. Do the same for your boat trip—give it to someone reliable who can report if you don’t return or check in on time. Nobody knew where these guys were. By dumb luck, they had a CB radio and were able to relay a distress call. These guys were lucky; don’t repeat their mistakes. Make sure your boat is appropriate for where you want to take it, do your preventive maintenance checks and services (PMCS) on all equipment, and plan your trip!
Wherever the road takes you . . .

buckle up!

Don't drink and drive.

Drive posted speed limits; slower in bad weather.

Drive no more than 6 hours. Stop for the night when tired.
Mid-Year Safety Performance Review
here's good news from the Safety Center operations research systems analysts. A mid-year review of the Army Safety Program showed that the Fiscal Year (FY) 2000 accident rates are lower than FY 99 and the previous 3 years.

Relative to this time last year, we are seeing reductions in the number of accidents in nearly every category: total aviation/ground accidents, military fatalities, ground off-duty accidents, and privately owned vehicle (POV) accidents. These numbers are direct results of leaders integrating risk management into training and battlefield operations, as well as off-duty safety.

As of 31 March 2000, total aviation and ground Class A accidents are 10.1 percent lower than FY 99 and equal to the 3-year average. Total military fatalities are also reduced 7.5 percent from last year, but still 1.4 percent higher than the 3-year average.

In the total ground accident category, we have a 7.4 percent reduction in the accident rate from last year. The biggest reduction came in Class A POV accidents.

Leadership involvement is making a positive impact on off-duty safety. Fiscal Year 2000 POV accidents are down 22.1 percent from the previous year and 4.6 percent down from the 3-year average. Military fatalities from POV accidents are down 19 percent from FY 99 and down 1.9 percent when compared to the 3-year average.

Despite this progress, some trends remain constant. The profile of our most at-risk soldiers remains the 19- to 24-year-old males, E2 through E5. These young soldiers have yet to realize their mortality; they consistently underestimate their personal risk and are overconfident in their personal ability.

Individual discipline remains a factor in the severity of POV accidents. Twenty-three percent of soldiers killed in off-duty POV accidents during FY 99 were not wearing seatbelts or motorcycle helmets. Unfortunately, this trend continues.

The Chief of Staff, Army, has directed that every soldier be trained on risk management by 1 July 2000. The Safety Center has developed an excellent chain-teaching packet on compact disk that is available now for commanders and small unit leaders.
As we move into the “101 Days of Summer,” the critical time of year when we normally suffer the greatest number of accidents, what can we do to ensure this positive mid-year trend continues?

As evidenced by the lower accident rates in FY 00, leadership is making a difference and we must continue to emphasize leadership, standards, and discipline. Leaders at all levels must be on the front lines to look for ways to break the chain of events that leads to an accident.

Our focus on discipline (seatbelt use, drinking and driving, complacency, violation of rules/standards) must continue and complement our emphasis on the proper application of risk management techniques.

Most accidents are due to identifiable and predictable causes, not from uncontrollable circumstances. Let’s continue to meet this year’s challenge head-on by remembering that risk management is everyone’s responsibility. So far, it shows and it’s saving lives. And that’s good news!

**NOTE:** The statistical data reflects cumulative information beginning on 1 October through 31 March of each fiscal year.

For questions concerning statistical data, contact Mr. Ed Heffernan, Safety and Occupational Health Manager, DSN 558-2970 (334-255-2970), hefferne@safety-emh1.army.mil

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**Army Military Fatalities**

- 2nd Qtr FY00
- (Total= 72)
- Privately Owned Vehicle 69% (50)
- Army Vehicles 8% (6)
- Aviation (3) 4%
- Other (2) 3%
- Personnel Injury (11) 16%
- Army Vehicles + POV = 78% of all Fatalities

**Army POV Class A Accidents**

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MAY 2000 COUNTERMEASURE
n NCO’s most important responsibility as a leader is to take care of his soldiers. That’s just as true during peacetime as during combat. Sure, NCOs have to accomplish the mission, but if they try to do it regardless of the risks, eventually they won’t be able to do it at all.

Before a soldier climbs behind the wheel of a vehicle, somebody had better have assessed the risks: Has the driver been trained? Is he qualified on the equipment? How much experience does he have? Are there weather or road hazards, or other special hazards that may require more experience or supervision? It’s the NCO’s responsibility to know the answers. If the answers to these and other questions indicate the risks are too high, the NCO is the one who needs to do something about it. If he can reduce the risks so the benefits of performing the mission outweigh the risks, then the mission is executed. But the NCO still has to supervise to be sure the controls are put in place and implemented.

Not only must NCOs ensure that their soldiers are trained to standard, they must hold soldiers responsible for having the necessary technical and tactical competence to do the job. NCOs have to ensure that soldiers know the standard for the tasks they are to perform and that they have the self-discipline to perform to standard. If the NCO fails in any one of these areas, soldiers can get hurt or killed. It’s a tough job, but as any NCO will tell you—it’s tougher to lose a soldier in an accident.

The next time you are tasked to put someone behind the wheel of an Army vehicle, begin with a risk assessment to see how safe the task or mission is. We owe it to our soldiers to give them the best driver training that’s possible and to put the best driver behind the wheel of Army vehicles.

POC: MSG Timothy Sprucebank, Senior Wheel Vehicle SME, USASC Ground Systems and Accident Investigation Division, DSN 558-3774 (334-255-3774), sprucebt@safety-emh1.army.mil

Driver’s Training. . .More Important Than Ever

If you want well-trained truck drivers behind the wheel, you’ve got to put the best information between their ears. Get that information for your unit in the form of training circulars (TCs), television tapes (TVTs), and computer-based instruction programs distributed on compact discs (CDs).

Here’s what is available through your publication person:

**TRAINING CIRCULARS**

21-305 Wheeled Vehicle Accident Avoidance
21-305-1 Heavy Expanded Mobility Tactical Truck (HEMTT)
21-305-2 Night Vision Goggle Driving Operations
21-305-3 M939-series 5-ton Cargo Truck
21-305-4 High Mobility Multipurpose Wheeled Vehicle (HMMWV)
21-305-5 Equipment Transporters (Heavy, Medium and Light)
21-305-6 Tractor and Semitrailer (M915, M931 and M932)
21-305-7 Light Vehicles
21-305-8 Medium Vehicles
21-305-9 Heavy Equipment Transporter System
21-305-10 Palletized Loading System (PLS)
21-305-11 Family of Medium Tactical Vehicles
1-305-100 Military Commercial Driver’s License Driver’s Manual

All these TCs are available on the Internet in the Army Doctrine and Training Digital Library (ADTDL) at http://www.adtdl.army.mil
The following items were distributed to local TASC, USAR MACOMs, USAR training centers, and state adjutants general.

**TELEVISION TAPES**

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These TVTs and CDs can also be ordered over the Internet from the Defense Instructional Technology Information System (DAVIS/ DITIS). The web site is [http://dodimagery.afis.osd.mil/](http://dodimagery.afis.osd.mil/). Once there, click on Search DAVIS/ DITIS and follow the ordering info.

You can also order by e-mail, fax or mail:

E-mail: vibuddy@hq.afis.osd.mil; Fax: DSN 795-6106 (570) 895-6106; Mail: Joint Visual Information Services, Warehouse 3/ Bay 3, 11 Hap Arnold Blvd., Tobyhanna, PA 18466-5102

Include your name, full military mailing address, title and PIN number of the film, format (VHS, for example), and the quantity of films you need.

**POC:** John Ritter, U.S. Army Transportation School, Ft. Eustis, VA, ritterj@eustis.army.mil
Too Fast For Conditions

On just about every evening’s newscast, there is a report of an accident where a vehicle was “going too fast for conditions.” The question that always comes to mind is “How fast is too fast?” Maybe the problem is not just the speed, but the equipment and the environment.

When we hear that phrase used, it usually refers to an Army truck accident. So, let’s take a look at the equipment.

- Was the equipment properly maintained?
- Was the system properly set-up and equipped to meet the conditions expected to be encountered?
- Was the system designed to be “forgiving” of driver error?
- Were all the hazards of the vehicle identified and ways to reduce the risks developed and implemented (controls)?
- Was the driver properly trained to operate the equipment?

Not all Army vehicles are alike. There are many differences in vehicles of the same model series as well as in vehicles of different series.

Fifth wheel
The cross-country fifth wheel differs from the highway fifth wheel in that it allows the trailer to oscillate side-to-side between 4.5 to 7 degrees (approximately 3 to 5 inches). In some series, some of the tractors will have cross-country fifth wheels and others will have highway fifth wheels. For example, the M915 and M915A1 have the highway fifth wheel, but the M915A2 has the cross-country fifth wheel.

Hauling liquid cargo
A hazard that has recently been identified in accidents is liquid haulers, fuel or water. The hazards involved in pulling a low-bed trailer are different from those of liquid haulers. The reason is liquids react differently to the road
Drivers with many hours (even years) of experience in driving a tractor hauling solid cargo may not be qualified for hauling liquid cargo. It takes experience hauling liquid cargo before a driver acquires the feel of the tractor and the additional pushing and shifting of the weight on the rear axle so that he can safely operate this equipment.

What to do:

- **Leaders.** Select and train your best soldiers as operators and look for drivers with many hours of experience in the vehicles you have in your TO&E. Instill a sense of discipline in implementing controls for hazards. Impose cross-country speed limits.

- **Master drivers.** Review your training plans for cross-country and highway fifth wheels. Study the test routes to determine if you can add the standardized test for cross-country fifth-wheel operation. Obtain and implement TC 21-305-100, dated 19 Aug 96, which requires drivers to be licensed in the operation of tanker trailers.

- **Drivers.** Review the operator’s manual for your tractor as well as the operator’s manual of the trailer for warnings and limitations of the trailers. Remember that the stricter controls, whether they are for the tractor or for the trailer, take precedence. If a tractor maximum speed is 40 mph and the trailer is 35 mph, then 35 mph is the maximum speed for the system. Review the operator’s manual to ensure that you have the proper truck/trailer combination.

- **Installations.** Review curves, intersections, or sites where accidents are occurring to determine if the actual speed limits are “too fast for the conditions.”

- **Individual.** Consider reducing speed for varying road or weather conditions. Don’t tailgate. Always maintain a safe following distance. Stopping can be adversely affected by poor road and weather conditions.

**POC:** Donald Wren, Safety Engineer, USASC Ground Systems and Accident Investigation Division, DSN 558-1122 (334-255-1122), wrend@safety-emh1.army.mil

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**Environment**

The environment also presents conditions that can cause good drivers to “commit an error” and have accidents. Although weather, in itself, is a hazardous environmental condition, in this article, we will focus on substandard road construction. These include interstate highways, state and county roads, dirt and gravel roads, and off-road cross-country. We all would like to think that the roads we travel have been constructed to the finest standards, but some have not.

Several years ago, a major interstate highway was constructed that included a tunnel under a river. The speed planned for the tunnel approach was 65 mph. During the first year, this stretch of interstate had five fatal accidents at the tunnel approach. Each time, the cause was listed as “going too fast for conditions.” It wasn’t until a million-miler trucker (a driver who has driven more than a million miles without an accident or even a speeding ticket) had a wreck there that people began to ask questions. When they started looking into how the highway had been constructed, they found it was not built to design. Several changes had occurred after the roadway was planned and some drivers lost their lives because of this design flaw. Incidentally, the safe speed for the approach to this tunnel is now 40 mph.

**What it all means**

When the equipment hazard (cross-country fifth wheel) is combined with the hazards associated with hauling a liquid tanker, experience with this particular type of equipment is everything.
A light infantry unit was deploying to the field for a tactical training exercise. They received transportation support from the division support command in the form of M923A2 5-ton trucks with drivers to move their soldiers to the training site. Since they received fewer trucks than requested, the commander decided to move his unit in multiple lifts.

The first lift took elements of two platoons to the site without incident. The two trucks returned to the unit area in garrison to pick up the second group of soldiers. The unit commander sent a sergeant back with the lead truck to provide leadership to the drivers. The second lift consisted of 19 soldiers in the back of each truck, along with their duffle bags and rucksacks. Since the drivers’ duffle bags were in the vehicle commander’s seat of the second truck, the platoon leader chose to ride in the back with his other 18 soldiers.

**What went wrong?**
The second lift departed the company area and headed for the training site. The route included a gravel tank trail. As they rounded a corner at about 10 mph over the posted speed limit, the second truck began to fish tail. It swerved to the left side of the road and then returned to the right. At this point, one of the rear wheels left the road and entered a small water-filled ditch. The driver steered to the left to pull the truck out of the ditch. When he did this, the truck overturned. It came to rest on its top, perpendicular to the roadway. The 19 soldiers in the back were injured, some seriously. The driver, who was not wearing his seatbelt, was pinned under the windshield frame and later died from his injuries.

**Lessons learned**
This accident was caused by excessive speed and an improper reaction to an emergency situation. The vehicles were moving too fast on the tank trail. This led to the driver’s improper reaction.

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**Mission: Transport Soldiers to Field Training Exercise**

**Hazard**
- Excessive speed
- Vehicle can rollover if improperly controlled

**Results**
- 1 fatality
- 19 injuries

**Controls**
- Senior occupant performs duties as required by AR 600-55
- Maintain proper speeds
- Properly react to emergency situations
loss of control coming out of the curve. He improperly reacted to the departure of his vehicle’s right side into the ditch. By oversteering, the vehicle’s momentum led to the rollover.

Proper leadership on the part of the platoon leader could have prevented this accident. The senior occupant failed to assume his duties as required by AR 600-55 and other regulations. As a result, no one was in the cab to tell the driver to slow down or to wear his seatbelt.

The vehicles were overloaded. TB 9-369 defines the maximum passenger load in this type of truck is 16. These trucks each had 19 in the rear, with 3 soldiers riding on the baggage between the side rails. These three soldiers were not injured as a result of not being in a seat, but they could have been had the circumstances been different.

Summary
Small unit leadership could have prevented this accident. The senior occupant of any vehicle needs to know and comply with the requirements in AR 600-55 in order to ensure that the vehicle is operated safely. Most unit SOPs require vehicle commanders in any vehicle—leaders need to ensure that these directives are enforced. Compliance with these simple rules could have saved the life of one soldier and prevented the injuries to 19 others.

What Does Right Look Like?

The unit was participating in a combat training center rotation. The battalion headquarters, along with support elements, deployed for the exercise to provide a tactical operations center (TOC) in support of the brigade combat team. With the exception of the headquarters company, the remainder of the battalion stayed at home station.

A security element, comprised of soldiers from other companies in the battalion, was designated to provide security for the TOC. The security force was responsible for establishing and maintaining the perimeter, which included constructing a two-man fighting position with overhead cover.

On day zero of the rotation, the unit conducted the initial movement into the maneuver area. After conducting a convoy brief and a safety brief, they moved out of the staging area and closed on their assembly area just after 1200. While the TOC was being established, the security force secured the perimeter as planned. After confirming the location with the Sergeant of the Guard (SOG), three soldiers began constructing a two-man fighting position along the access road into the assembly area. While their intent was to build a fighting position, it would more accurately be described as a bunker.

The position was dug lengthwise on a four-degree slope. There was a layer of soft sand several inches in depth with hard-packed sand beneath it. After digging the hole, they built sandbag walls on the left and right sides. The left wall was a row of four sandbags (laid end-to-end) and stacked four high. To compensate for the downslope, the right wall was stacked five sandbags high, again with four sandbags laid end-to-end. A single row of five sandbags was placed on the front edge of the position with two additional sandbags placed on the right side to provide a level platform for the weapon. The rear wall consisted of a row of four sandbags, stacked two high, which extended from the left wall to the entry hole. Neither the front nor the back row provided any structural support to the position.

When the sandbag walls were completed, the soldiers laid three 4”x4”x8’ stringers across the length of the position from the left wall to the right wall. They were spaced approximately 21 inches apart, center-to-center. No lateral supports were used. The stringers were laid directly on the sandbag walls with the ends of the beams reaching approximately three quarters of the way across the sandbags. Two sheets of 4’x4’x¾” plywood were laid on the stringers. They covered the plywood with sandbags for overhead cover. There were five rows of five sandbags on the plywood and five leftover sandbags were placed on top for a total of 30 sandbags comprising the overhead cover.

One of the soldiers checked the stability of the position by grabbing and
shaking the roof from the right side. It was deemed to be sturdy and a soldier occupied the position to pull the first guard shift.

A few minutes later, the SOG checked on the position. He recommended that the soldiers place a tarp over the back of the position to block the high winds that were blowing from the rear. The soldier pulling guard in the position was sitting on a 5.56mm ammunition crate when they began to place the tarp on the roof. He was wearing his Kevlar helmet and LBE. After unrolling the tarp and placing it across the back of the position, one of the soldiers lifted a sandbag off the roof to secure the tarp. When he placed the sandbag back on the tarp, directly above where the guard was sitting, the roof collapsed. The left side of the roof struck the soldier on the head and back, pinning him underneath. The soldier suffered a fractured vertebrae resulting in permanent paralysis from the waist down.

What went wrong?
The position collapsed because it was not built to standard. Specifically, the stringers were improperly placed across the length of the position, spaced approximately 21” apart, and laid directly on the sandbags. No lateral supports were used. Thirty sandbags comprised the overhead cover. With an average weight of 38.5 pounds, it was estimated that the total weight on the roof was approximately 1,200 pounds.

The correct way to build overhead cover is to place supports lengthwise along the hole. They must be no closer than 12” from the edge of the hole and may need to be further away based on the depth of the hole. The supports should also be braced and dug in approximately one-half their height to provide additional stability. Once the supports are set in position, the stringers should be placed on top of the supports, across the position. While the maximum distance between stringers differs depending on the type of materials used, in this case they should have been placed no further than 10 inches apart (center-to-center). After placing the stringers securely on the lateral supports, the sheeting or 1” plywood can then be placed on top. This provides a stable platform to construct your 18” of overhead cover.

Lessons learned
The question is why it was not built to standard. First, it was not because of a lack of materials. Sufficient class IV was available. Nor was it for lack of time. The unit was under no pressure to get it done quickly. It certainly wasn’t for lack of an
established standard. Numerous references are available that define the standard for fighting positions and the unit had two of them on hand. The reason it collapsed was because the soldiers didn’t know the standard. The soldiers built the position as they had been trained. The design was similar to many they had built in the past. Their immediate supervisor didn’t know the standard and therefore couldn’t enforce the standard. The preconditions were met—training failure and leader failure.

![Training Failure:](image)

No fewer than three training opportunities were missed that might have prevented the accident. First, although every soldier receives instruction on this task during Basic Training, hands-on performance is not a requirement. Most commanders assume soldiers are proficient in this skill level-one task. These soldiers weren’t and we missed an opportunity to prevent this accident.

Secondly, the task, “Construct Individual Fighting Positions” was a required event in both the FY97 and FY98 Notice for Common Task Testing. The skill level-two task, “Supervise Construction of a Fighting Position” was also included in the FY97 Notice. We missed multiple opportunities to prevent this accident by not ensuring that required training and performance testing was conducted to standard.

Finally, prior to the rotation, the unit identified the task as a weakness and programmed home station training to fix it. However, the train-up exercise was not properly planned, resourced, or executed. Another opportunity missed. The end result was that the soldiers didn’t know what “right” looked like.

![Leader Failure:](image)

The soldiers’ supervisor checked on the position numerous times as it was being built. He failed to correct the deficiency because he was not trained to standard. He had at least two references readily available that showed the correct method of constructing overhead cover. He didn’t use them...and yet another opportunity missed to prevent this accident.

### Summary

Unfortunately, this was not a new accident. Since 1990, the Army has experienced no fewer than 14 serious accidents relating to fighting positions and bunkers. During Operation Desert Storm, three soldiers were killed and three more were injured when the bunkers they were in collapsed. Virtually all of these accidents were a direct result of improperly constructed positions. Training and leadership should have ensured that the soldier didn’t leave that fighting position on a stretcher.

The standards for building fighting positions with overhead cover are well defined. Field Manuals 5-34 and 5-103, and Graphic Training Aid 5-8-1 define the standards for constructing fighting positions and protective positions (bunkers). Does your unit build them to standard? Ensure your soldiers and leaders know what “right” looks like—the consequences can be severe.

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

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**Commander’s Responsibilities (GTA 5-8-1)**

- Protect troops.
- Plan and select location of survivability positions.
- Improve and maintain unit survivability.
- Provide materials.
- Supervise construction.
- Inspect survivability position.
- Obtain technical advice from engineers, as required.
27 MAY thru 5 SEPTEMBER

101 DAYS OF SUMMER

PLAN TO WORK AND PLAY SAFELY!

U.S. ARMY SAFETY CENTER
Ammunition and Explosives . . .
What We Don’t Know CAN Hurt Us!
Fuel and Water Can Safety
Information to help you distinguish between the two cans.
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I shot myself in the leg!
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Ammunition and Explosives Safety on Ranges

The following is reprinted from a message to the field from General John M. Keane, Vice Chief of Staff

Over the past 5 years, 169 serious accidents involving ammunition or explosives occurred on Army ranges, resulting in the deaths of 10 soldiers and 1 civilian, and injuring 210 soldiers and civilians. Although some of these accidents resulted from ammunition malfunctions, analysis by the Army Safety Center and the U.S. Army Technical Center for Explosives Safety revealed that almost all were directly attributable to inadequate training, inadequate supervision, failure to follow procedures, improper handling of ammunition and explosives, or picking up unexploded ordnance. Far too many range injuries were caused by soldiers carelessly handling ammunition and explosives or simply failing to clear their weapons properly.

During a recent explosives safety assistance and evaluation visit at Fort Knox, KY, it was noted that after having experienced 15 explosives incidents on its ranges from 1988 to 1994, Fort Knox established an aggressive, proactive range explosives safety management program. Since establishing this program, Fort Knox has not experienced one reportable incident. The following is what we learned from the Knox experience, and therefore we pass it on to you:

- A strong, visible commitment to explosives safety from the commander to all levels involved in range activities.
- A close-working relationship between range control and the installation safety office.
- An investment in qualified range and explosives safety personnel, and adequate equipment and facilities.
- Integration of safety into initial planning and all subsequent phases of range operations.
- Regular monitoring of units during training by range control, safety, and quality assurance specialist (ammunition surveillance) personnel.
- Development and strict enforcement of safety and operating requirements. All unit officers-in-charge and range safety officers must be weapons qualified on the ranges where they train and attend safety briefings. Units should demonstrate a knowledge of required explosives safety distance fans and be able to determine fans for their operations before they are permitted on the range. Units that operate in an unsafe manner are removed from the range.

Commanders and leaders at range activities must periodically review their range safety programs to ensure that appropriate standards and procedures are developed, clearly communicated, and followed. We expect commanders and supervisors to set the example for safety on ranges. We ask you for your personal attention to this matter.

“Soldiers on Point for the Nation”
Bad Ammo Poses a Hazard

A safety specialist was conducting a courtesy inspection of a unit arms room and found 9mm, 5.56mm, and 12-gauge ammunition in poor condition. Some projectiles turned in their casings; some were moldy and corroded. Records showed that all the ammunition had been issued more than 3 years earlier. Further inspection revealed that ammunition was not being inspected before issue or during turn-in. The need for such inspections was not mentioned in the unit’s SOP. Lack of inspection guidelines created a dangerous situation for these soldiers.

Use of ammunition was immediately suspended locally when it was found to be in poor condition per Military Standard 636: Visual Inspection Standards for Small Arms Ammunition.

Operational loads include 9mm, 5.56mm, 12-gauge shotgun shells, 40mm grenades, riot-control agents, and other types of ammo up to 0.50 caliber. Use of local quality assurance specialist, ammunition surveillance (QASAS) is advised for ammunition inspections. If you don’t know the QASAS that services your unit, ask your local safety office for a courtesy inspection of your arms room.

MIL STD 636 can be used by safety personnel and armorers. It comes with pictures and should be a part of the publications file kept in the arms room. To get a copy, call the Defense Printing Service Detachment at DSN 442-2179 or visit their web site at http://dodssp.daps.mil. Once there, press “Assist Quick Search” and enter the publication you want. You do not have to have an account or password to retrieve this information, and it’s free of charge.

The following are tips that will help ensure you have a good operational load:

- Rotate operational load ammunition once a year. Use your old ammo for training.
- Check with your local ammunition people before using training ammunition for operational load. It may not be acceptable.
- Check your suspended ammunition pub, TB 9-1300-385, and messages to see if any lot numbers match. If your unit is not on the
Storage and Care of Explosives

Additional guidelines for storing ammunition follow. Check your local SOPs and other applicable regulations to assure you’re using the most current information.

- Handle explosives and ammunition carefully.
- Remove dirt, grit, and foreign materials from containers and ammunition before storing.
- Do not store explosives and ammunition in damaged containers.
- Keep all containers in magazine closed so that contents cannot be handled, examined, or removed.
- Do not open, repair, pack, or repack containers in or within 75 feet of magazine, except as permitted by applicable regulations.
- Do not keep empty containers, tools, or other materials in magazine.
- Maintain absolute cleanliness and order.
- Never mix ammo. Store each lot separately. Make stacks stable. Provide for circulation of air to all parts of the stack. Raise containers and ammunition off the floor.
- Use only approved electric lights, lanterns, or flashlights in magazines.
- Do not smoke or bring matches into magazine.
- Do not allow unauthorized persons in or near magazine.
- Keep magazine spark proof with ventilators well screened and no openings around doors or foundations.
- Keep doors locked when magazine is unattended. Close doors when vehicle is approaching platform unless vehicle is equipped with spark arrestor on exhaust.
- Keep a 50-foot cleared space around and above ground magazines free from combustible material.
- Open two or more doors when personnel are working in a magazine containing explosives or ammunition.
- Post one or more copies of these rules in the magazine.

Guidelines for handling ammunition include the following:
- Keep ammunition dry.
- Don’t wipe oil on ammunition.
- Never play with ammunition.
- Once it is determined that ammunition is unserviceable, treat it with respect.

POC: CW3 Juan Convers, USASC Ground Systems and Accident Investigation Division, DSN 558-2966 (334-255-2966), conversj@safetycenter.army.mil

- Never mix lots—not even one round.
- Soldiers being issued ammo should take an active part in inspection. Inspect ammunition during issue and turn-in, just like you inspect the serial number of the weapons. Inform the armorer and the chain of command if you see something wrong. Remember, you will be the firer of that ammunition. Does it look serviceable?
A soldier was killed when another soldier passed him a machinegun through the tank turret and the machinegun fired. It had not been cleared.

Weapons meant for the enemy can take out fellow soldiers unless cleared in sequence and by the book. Controls are found in Army regulations and technical manuals.

TM 9-2350-255-10-1 states that the first step upon completion of firing is to clear the commander’s weapon. Make sure no round is in the chamber, T-slot, or receiver assembly.

FM 17-12-1-2 provides TM reference and tasks, conditions, and standards for the function check and loading of the M2 50-caliber machinegun with M10 charger. FM 23-65 provides instructions and cautions for unloading and clearing the Browning 50-caliber machinegun.

In addition, according to AR 385-63:

- After firing, the officer-in-charge (OIC) will ensure that all weapons are cleared. Tank commanders and section chiefs will ensure that their weapons are cleared on completion of firing.
- The range safety officer (RSO) will, on completion of firing, verify to the OIC that weapons are clear. The RSO will also control and record duds and mark their approximate locations.
- Tank commanders are responsible for the safe firing and operation of their tanks.

POC: SFC Johnny Torres, USASC Ground Systems and Accident Investigation Division, DSN 558-2381 (334-255-2381), torresj@safetycenter.army.mil

M2 HB Caliber .50 Machinegun with M10 Charger Clearing Procedures:

- Set safety switch to “S” (SAFE) position.
- Open cover.
- Lift extractor and remove ammunition belt from feedway.
- Move the locking selector on M10 charger to the rear (LOCKED) position.
- Pull back on the charging handle and lock the bolt to the rear.
- Open the cover.
- Look into both the chamber and T-slot for ammunition.
- Move locking selector on the M10 charger to the forward (RELEASE) position.
- Pull back on the charging handle and ease bolt forward.
- Close cover.
- Set safety to “F” (FIRE) position.
- Press trigger to fire weapon.

NOTE: Do not close cover with bolt locked to the rear.

SAFETY ALERT: M2 Machinegun Maintainers

NCO Corner

Lightning

Lightning will strike what it wants, where it wants, when it wants. But by applying a few commonsense procedures, we can reduce the risk and still accomplish our mission.

- A soldier was in the process of turning in his weapon. He leaned his M-60 machinegun against a tree. A bolt of lightning hit the tree, traveled down the tree trunk, deflected from the tree to the M-60, and struck the soldier in the chest, knocking him to the ground immediately. The soldier died later.
- The soldiers went to their bivouac sites to sleep after conducting field training. Before dawn, it started raining heavily and the downpour was accompanied by thunder and lightning. A lightning bolt struck a tree near the tents and dispersed its energy throughout the tents, injuring five soldiers and killing one. All were sleeping on the ground as water was pooled around the tents.
- A soldier and fellow unit members ran into their tent during a storm. While reaching outside the tent to secure the radio, he was struck by lightning.
- A tank driver sitting in the driver’s compartment of his tank was shocked by a nearby lightning strike.
- An engineer unit was cleaning up a job site when a severe storm blew in. One soldier was killed when he was struck by lightning.

Since October 1989, approximately 124 soldiers have been injured by lightning strikes; 7 of those died. Most of these strikes occurred while soldiers were operating electrical equipment such as computers, field phones, switchboards, and radios. Leaders should take precautions to lessen the likelihood of losing troops to lightning strikes.

The Weather Eye
Leaders must always be alert to changing weather conditions, and they should teach their soldiers to do likewise. Whether they’re working in an office, on the way to an FTX, or going to the golf course, soldiers should constantly be aware of what’s going on weather-wise. Of course, leaders will check the weather forecast before taking soldiers to the field during times that storms are likely, such as preceding a cold front or in the spring or summer.

The best place to be during a storm is indoors. However, a soldier’s environment can’t be limited to large buildings and vehicles with rubber tires. When caught in the field, soldiers should be led into a densely wooded area or a depression in the ground. Soldiers should drop to their knees and bend forward, putting hands on knees. Do not allow soldiers to lie flat on the ground or place their hands on the ground.

NCOs can take precautions to keep soldiers safe. Soldiers should be trained on the following controls to reduce the risks when they are caught in electrical storms—
- Ground or drop metal tools or equipment.
- Avoid hilltops, isolated trees, and watery areas.
- Look for shelter in low places.
- Do not allow soldiers to use electrical equipment of any kind—especially phones (this means cell phones too!).
- Ensure soldiers are trained in correct emergency posture.
- Indoors, avoid using appliances, power tools, telephones, electric typewriters, and computers. In addition, avoid baths, open porches, and balconies.
- Ensure soldiers are trained in correct emergency first-aid procedures, especially CPR. Even mild exposure can knock a soldier unconscious or sear the skin and cause painful burns. Soldiers who are struck should be given immediate medical attention.

Leaders, plan emergency actions for lightning strikes/electrical shock. Implement these plans into your OPORD, brief and train personnel, and then conduct rehearsals to complement your team’s lifesaving skills.

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

7 JUNE 2000 COUNTERMEASURE
The Multiple Launch Rocket System (MLRS) battery was conducting live fire missions as part of its crew certification program. They were firing a series of M28A1 reduced range practice rockets. Each crew was to upload a loaded pod and fire their missions from a doctrinal hide position in accordance with commands from their fire direction center.

The day before the accident, the assigned crew of one launcher fired one rocket from the pod’s number 3 tube before experiencing communications problems that required them to return to the unit area for maintenance. They had to download the partially expended rocket pod at the ammunition holding area en route to the maintenance point. They did this without incident.

The following day, a second crew needed to fire. Their vehicle was inoperative, so they had to use the same launcher as the first crew. After performing pre-mission maintenance checks, they went to the ammunition holding area to upload the partially expended rocket pod from the day before. Again, this was done without incident, and the crew moved their launcher to the hide position to await fire missions.

At about 1600, they received their first mission. They laid the launcher, verified the lay, verified the safety data, and pressurized the crew compartment. They then launched the rocket from the number 4 tube, which landed in the impact area as intended.

At approximately 1652, they received another mission and fired the rocket from the number 1 position in the pod. Again, the rocket hit the intended impact point and the crew returned to the hide position. At this time, there were 3 rockets remaining in the pod—in the number 2, 5, and 6 positions.

At approximately 1715, the crew received its third fire mission. Again, they moved to the firing point and

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**Mission: Conduct Crew Certification Live Fire on M270 MLRS**

**Hazards**
- Defective rocket motor
- No fire detection system in LLM

**Controls**
- Validate rocket motor quality control procedures
- Develop crew drills for this type of accident
- Risk manage the hazard of no fire detection system in LLM

**Results**
- 1 M270 MLRS destroyed

---
conducted their firing procedures. After firing the number 5 rocket, the crew noted a larger than normal recoil effect inside the cab. Observers outside the vehicle reported to them that the rocket appeared to have exploded as it came out of the launcher. The driver looked out his rearview mirror and saw that the launcher appeared to be on fire. The section chief opened the roof hatch to assess the situation; when he did this, one of the remaining rockets exploded, knocking him into the cab and filling it with smoke. He then ordered the crew to don their protective masks and ordered the evacuation of the vehicle. The crewmen left the burning vehicle and ran to an adjacent firing point where they were secured and checked for injury. Fortunately, all three soldiers were unhurt.

About 45 minutes later, the final rocket in the pod exploded. This explosion tore the roof from the launcher module and created a larger fire that consumed the rear portion of the vehicle and the adjacent wooded terrain.

What went wrong?
The rocket exploded shortly after it began to move down the launch tube. The front portion of the rocket containing ballast weight and a smoke charge (to mark the impact point) landed on the road about 150 meters in front of the launcher. The physical remains of the rocket motor and nature and timing of the explosion indicate a flaw in the rocket motor grain. This flaw could be a crack or void in the propellant, which can dramatically increase the pressure inside the motor case. If this pressure gets too high, the case ruptures and the motor explodes.

There are several possible causes of this sort of flaw. It could have been introduced during the manufacturing process or it could have come later as a result of damage while in storage or transit.

Lessons learned
The first lesson learned is a success story. The cab of the MLRS vehicle completely protected the crew from harm during the three explosions. When the crew evacuated the vehicle, they left the cab doors open. The doors remained open throughout the third explosion and the fire consumed most of the vehicle. But the contents of the cab, to include grease pencils and Styrofoam, did not show any damage at all from heat, flame or smoke. The crew was completely protected during the first two explosions. This accident also highlighted the fact that there is no way to tell if a rocket or pod has been damaged in shipment or storage other than by a visual examination of the exterior of the pod. This pod might have been dropped, subjecting the contents to shock or acceleration damage without showing any external signs of damage. Crews and ammunition handlers must take care when handling pods to ensure that the rockets inside them are not damaged. If they drop a pod, they must report it, even if there is no outward sign of damage. ♦

POC: USASC Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
Fuel and Water Can Safety

A Risk Management Approach

A soldier, up early to prepare breakfast for his fellow troops, is tired from yesterday's activities. He reaches for the 5-gallon water can to make hot cereal on the M-2A burner. As he pours water into the pot, the burner's flame intensifies, burning the soldier and destroying the mobile kitchen. He had mistakenly grabbed the fuel can instead of the water can.

Another soldier uses a 5-gallon fuel can to refuel his vehicle with diesel fuel. Unbeknownst to him, this fuel can is full of MOGAS and is not properly labeled. This error causes serious engine problems and a maintenance nightmare.

Several soldiers are refilling their canteens from a water can. They don’t know it yet, but this water can is full of antifreeze. This oversight causes grave health problems.

Mistaking a 5-gallon fuel can for a 5-gallon water can causes serious problems, including burns and fires. These 5-gallon fuel cans can also be used to store a variety of fuels. To avoid potential problems, cans need to be labeled correctly.

To give you an example, the Safety Center noted at one facility, 30 cans were identified as either containing the wrong liquid or being mislabeled. These mistakes will lead to maintenance and safety problems. Use the following information to help distinguish between the two cans.
Fuel and water cans have the same dimensions (see photos on page 10). Both cans are labeled with an “X” on each side. The “X” has a circle in the middle that surrounds the identity of the liquid in the can: “WATER” for the water can and “FUEL” for the fuel can. Fuel and water cans can be the same color (tan or black), so it is not possible to identify the liquid in the can by its color. Fuel and water can differences are listed in the chart below.

Fuel cans could also be labeled with different colors according to which fuel they store. To prevent confusion with improperly marked cans in the field, adhere to the following directions:

- Mark each container with either the standard or short nomenclature identification on the side ends of the can. The short nomenclatures authorized for field use are MOGAS (for motor gasoline), DF (for diesel fuel), or JP (for turbine fuel/jet propulsion). When labeling turbine fuel, make sure to mark the appropriate number: JP-4, JP-5, or JP-8. Additional information that may be placed on the can is the NATO code number, the filling date, the weight or volume of contents, and safety markings. All markings on 5-gallon cans should be in ¾” letters.
- When coloring the cans, paint the upper third of the can the appropriate color. Use an oil base enamel such as automotive spray paint and prepare the surface by first washing off with isopropyl alcohol (rubbing alcohol) and roughen lightly with sand paper. Cans containing MOGAS should be painted red in the upper third of the can. Cans containing diesel fuel should be painted yellow in the upper third of the can. Do not paint cans containing turbine fuel (JP-4, JP-5, or JP-8), but mark them instead. Remember to get your CO’s approval before painting and stenciling your can.


<table>
<thead>
<tr>
<th>FUEL AND WATER CAN DIFFERENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cap Assemblies</strong></td>
</tr>
<tr>
<td>Smooth on top (minus the retaining strap)</td>
</tr>
<tr>
<td><strong>Number of Handles</strong></td>
</tr>
<tr>
<td><strong>Marking</strong></td>
</tr>
<tr>
<td><strong>Odor</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHICH CAN AM I USING?</th>
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</thead>
<tbody>
<tr>
<td><strong>Fuel Can</strong></td>
</tr>
<tr>
<td><strong>Sight</strong></td>
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<tr>
<td><strong>Touch</strong></td>
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<tr>
<td><strong>Smell</strong></td>
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<tr>
<td><strong>Hear</strong></td>
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<tr>
<td><strong>Taste</strong></td>
</tr>
</tbody>
</table>
Oops, I didn’t know it was loaded!
The soldier put his loaded 10mm Colt Delta Elite handgun on the coffee table before retiring to bed. The next morning, he got up, turned on the television, and started cleaning his weapon. He held the weapon in front of his body pointing to the left wall. While still watching TV, the soldier brought his left hand in front of the 10mm muzzle with the intention of pushing the slide back to eject the round that was chambered. Before his left hand touched the slide, his right index finger accidentally pulled the trigger. The round went through his left hand, ricocheted off the coffee table, and hit a picture hanging on the wall. He spent a week in the hospital, 10 days on quarters, and another 60 days on restricted duty.

Machinegun accident
The gunner and an instructor fired a 100-round belt on a .50-caliber machinegun. It took about 2 minutes for them to empty the weapon and then open the feed tray to recharge. When the gunner pulled the charging handle to the rear, both soldiers saw a round stuck in the bolt. Although they immediately began to close the bolt, the round chambered and cooked-off in the barrel. Fragments from the brass casing caused cuts and lacerations to both soldiers, who also received powder burns.

I shot myself in the leg!
The soldier was given his supervisor’s M9 pistol to store in the arms room until he returned from TDY. The soldier turned the weapon into the arms room. On the day that his supervisor was to return, the soldier checked out the weapon to give back to him, but his supervisor failed to return with the convoy. Therefore, the soldier kept the weapon and went back to his room. A fellow soldier observed him inserting a magazine into the M9 and pulling the slide back to chamber a round. The fellow soldier warned him that he had a round chambered. However, the soldier ignored him and attempted to ride the hammer forward, resulting in the round being fired into his left thigh and exiting the back of his left leg. The injured soldier was transported to a nearby hospital, but unfortunately his condition deteriorated and his leg had to be amputated.

Action Photos Wanted
Get your photos published in Countermeasure
Here are tips on what we’re looking for:
- Color photos of soldiers, NCOs, and officers working hard (versus looking posed or smiling for the camera), with names and credits for photography. We also need photos of off-duty activities, particularly people performing home/auto repairs, playing winter and summer sports, riding motorcycles or ATVs, and operating powerboats, sail boats or other watercraft.
- Digital images of professional quality may be submitted, using at least 200 dpi, but 300 dpi is preferred. Submit image files in JPEG (RGB) format, either on 3.5” diskette, Zip disk, or e-mail to wilkinsm@safetycenter.army.mil.

POC: Mike Wilkins, Countermeasure Illustrator, USASC Media & Marketing Division, DSN 558-9867 (334-255-9867)
Spotlighting The NCO

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Countermeasure is published monthly by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident prevention purposes only and is specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. Address questions about content to DSN 558-2688 (334-255-2688). To submit information for publication, use Fax 334-255-9528 (Ms. Paula Allman) or e-mail countermeasure@safetycenter.army.mil. Address questions about distribution to DSN 558-2062 (334-255-2062). Visit our website at http://safety.army.mil

Gene M. LaCoste
Brigadier General, U.S. Army
Commanding Officer
It’s an NCO’s Job!

YOU! That’s right. You, me, us! We are the NCO Corps. Soldiers work for us. Soldiers listen to us. Why? Because we’ve been where they are.

Too many of our soldiers are killed and injured each year in preventable accidents. What can we do about it? As the primary leaders of our soldiers, each of us must take a personal and active role in accident prevention. We must set the standards and ensure our soldiers follow those standards. We must ensure risk management is being used in every cab and every turret. With our help, the Army can save lives, prevent injuries, and reduce equipment losses; plus improve training.

Sometimes people forget just how influential the NCO Corps is. If we take on a mission, you can bet it will get done right, and safe! The only way for the Army to stop its upward trend in on- and off-duty accidents is for the NCO Corps to get smart on the policies and procedures within their organizations. We can do this by enforcing standards at the worksite and by letting our soldiers know we are concerned about their safety. But none of us will save a soldier’s life or prevent a soldier’s injury unless YOU, the drill sergeant, squad leader, section sergeant, or platoon sergeant set the example and demand that safety be part of the everyday life of our soldiers.

When you have your daily squad or platoon meeting, let your soldiers know the hazards associated with the tasks they will be doing that day and what safety precautions they need to take. Inspect your soldiers before they start a task to ensure they’re wearing all required equipment needed for that job. Make sure you personally know that a soldier knows how to safely operate equipment or motor vehicle before tasking the soldier to use it. Above all, ensure your soldiers are fully trained to perform the job you are tasking them to do, and supervise them.

While walking around the unit in garrison or at field sites, take the time to make on-the-spot corrections. Tell soldiers why you are correcting them. If they know why you are correcting them and that you care about them, then they will care enough to remember.

Remember, soldier safety depends on you. The Army Safety Program depends on you. It’s your job, and that young soldier will do whatever you emphasize.

POC: SFC Johnny Torres, USASC Ground Systems and Accident Investigation Division, DSN 558-2381 (334-255-2381), torresj@safetycenter.army.mil
A J umpmaster’s Perspective

“I wanna be an airborne ranger; I wanna live a life of danger...”

Airborne operations are inherently dangerous. From the early days of flight, man has relied extensively on a small deceleration device known as the parachute. It was originally designed to save a pilot as he jumped from his disabled aircraft, but through modern aviation technology, the parachute has become the premiere means of rapid tactical infiltration.

Where does it all begin? Airborne training begins at Fort Benning, Georgia, by a select cadre of highly professional NCOs known as the “Black Hats.” These NCOs turn the non-airborne qualified soldier into a paratrooper in less than 3 weeks. This, by no means, is an easy task. They teach everything from the wear and fit of equipment to the actual jumping out of a perfectly good aircraft.

During training, supervision is paramount. If an airborne student performs a certain task wrong and is not corrected and retrained on the spot, he will assume he is doing things correctly...and sooner or later, it will come back to “bite” him.

As we all know, the more we perform a certain task, the more comfortable we become doing it. I don’t know how many times I have been on airborne operations and have seen young paratroopers with all-purpose lightweight individual carry equipment (ALICE) packs so heavy that it took two troopers to carry it. Who inspected these troopers’ ALICE packs?!

In accordance with FM 57-220, Basic Parachuting Techniques and Training, Table 12-2, the maximum load-bearing capacity of a T-10/MC-1 parachute is 360 pounds to achieve a 22-foot per second or less descent rate. If we add a lot of extra weight to the ALICE pack and load-bearing equipment (LBE), we’re tipping the scale well over 360 pounds.

Time and again, a jumper has come to the aircraft door ready to jump and the ALICE pack is dragging on the floor or is so heavy that he tumbles or falls out the door. ALICE packs are heavy enough without adding things we don’t really need. It is up to first-line supervisors and the chain of command to ensure that these young troopers do not carry unnecessary items. We can control this by using packing lists and inspections at the unit area prior to the airborne timeline starting. It is too late to repack a bulky ALICE pack or LBE when the jumpmaster team starts to inspect equipment.

Further, overloading the soldier can contribute to a weak exit which induces tumbling, rolling, and spinning immediately outside the paratroop door. The potential exists for increased static line friction with the trail edge of the paratroop door, thereby increasing the chance of becoming entangled with equipment. However, by enforcing soldier load limits and sustained airborne training in the mock-up aircraft, we can reduce the risks that are already inherent to airborne operations.

4 JULY 2000 COUNTERMEASURE
We, as leaders, can change this. During sustained airborne operations, every paratrooper needs to take training seriously. We have heard the sayings "Train as you fight" or "What you do here, you'll do in war." It is paramount that not only the jumpmaster team takes charge, but also all leaders involved with this training. It is a leadership responsibility to ensure their soldiers are trained to standard. Of course, once a paratrooper leaves the aircraft, he is on his own and will rely on his equipment and training to get to the ground safely.

Let's look back at the trooper's training. Was it thorough? Was it performance oriented? Was it to standard? Properly trained soldiers have a decisive edge under even the most hazardous conditions. Failure to plan properly, however, takes away that edge.

There isn't a lot of time once he exits the aircraft until he hits the ground. All actions have to be instinctive. The five points of performance should be muscle memory actions. The time he takes to think about it may be the rest of his life. The sky, even more than the sea, is unforgiving to the slightest error.

Think about the parachute landing fall (PLF) platform during sustained airborne training. Did we rush through it? Were there too many people on the platform? Did we send the trooper back through the line if he didn't do the correct PLF?

We need to stress this training as much as activating a reserve parachute for a malfunction. More so than not, a jumper gets injured upon contact with the ground. A properly executed PLF can reduce or eliminate injuries associated with landing; that means all five points of contact—balls of feet, calf, thigh, buttocks, and push-up muscles. We can't control the inevitable hole in the ground or rock that throws us off balance; however, we can change the needless injuries from landing.

If on the drop zone, we see a standing landing or an improperly executed PLF, we must make an on-the-spot correction. A PLF must be a natural act, not something that is forced. Chances are that if you correctly do a PLF, you won't get hurt.

Naturally, airborne operations don't end with PLF. We must do other things such as turn in equipment. Do we look for equipment falling or jumpers landing on subsequent passes while we are assembling on the drop zone? The drop zone is an area that must have our total attention. Front, back, up and down must be stressed. Think back... Do you remember seeing an ALICE pack that was jettisoned from altitude? Just imagine what that would do to a person on the ground. Ouch!

Clearly, airborne operations are dangerous and mistakes can happen anytime human factors are involved. However, it's incumbent upon each leader and every soldier to pass along those hard-learned lessons, so we don't memorialize those lessons with “Taps,” tears, and folded flags.

Keep your feet and knees together...Airborne, All the Way!

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Jumpers are still being overloaded during jumps. FM 57-220 provides guidelines for combat jumps and recommended weights. Overloaded jumpers continue to tumble out of aircraft and experience weak exits. Commanders should plan resupply missions and the use of bundles to eliminate excess weight on jumpers. Plan for the immediate mission and then bring in the equipment needed for sustained operations. You will save lives and injuries, and provide a faster reacting force.
Survival of the Fittest

The letters “PT” don’t look like much, but they can spell pain and torment to the unwary as well as the unfit and out-of-shape. Physical fitness is one of the pillars of a strong military force. One of the most important aspects of being a soldier is being in top physical condition. The Army emphasizes physical training (PT) and requires soldiers to pass an Army Physical Fitness Test every 6 months. In some cases, the score on the test is good toward promotion points. However, getting fit and staying fit is not without cost.

Statistics show that more than 295 soldiers were injured in the last 3 years in some sort of physical training, of which running/jogging, road marches, and obstacle course activities were the major causes of injury. Not only did the Army lose productive work time, these injuries cost nearly $4.2 million.

Every soldier knows that the 2-mile run is a part of the PT test, and formation runs are part of training. However, this activity that keeps soldiers in shape for combat has fast become a prime injury producer. The most common accidents result from missteps and slips, being hit by a vehicle, heat injury, poor physical condition, and wearing the wrong shoes. However, there are things leaders and individual runners can do to lessen the chance of an accident and the severity of injuries.

Stopping the missteps, slips, trips, and falls
Inattention and running on poor surfaces injure more soldiers than any other cause. In one incident, a runner was jogging on a leaf-strewn path in his subdivision and stepped into a hole and broke his ankle. Runners need to beware of concealed surfaces even in familiar surroundings. They must be aware of their surroundings at all times and look ahead, scanning for potential problems.

When planning a run, leaders should walk the route to identify irregular surfaces, holes, and other hazards. Before the run, leaders should brief the lead runners on obstacles and instruct them to call out a warning to the other runners, especially if the run will take place after dark.

Slips and falls are usually caused by one primary factor—running too fast for conditions. One soldier was running on a wet, grassy field and slipped as he rounded a turn and broke his ankle.

Whether running in formation or alone, runners must watch for and avoid wet grass, ice, slopes, and other areas not suitable for running. The best precaution against slips and falls is for runners to slow down and shorten their strides on wet surfaces and wear good shoes. Running in worn-out shoes is like driving a car on bald tires. Also like tires, the soles of running shoes can clog up with mud and grass, making them heavy and slippery. Leaders should remind soldiers to check their soles before and after running on wet grass or muddy surfaces; it may save their legs.

Running in the heat
Running in hot weather is dangerous for everyone, especially those not acclimatized. In one such incident, a soldier participated in a 5-mile run 2 days after PCSing into his
The pace was the 8-minute mile. The soldier collapsed after finishing the run and had to be hospitalized.

Leaders should identify newly assigned soldiers and provide separate training until the soldiers are acclimated. Per FM 21-20, an 8 to 14-day acclimatization period should be the standard before newly assigned soldiers are allowed to participate in runs exceeding 3 miles. Increased fluid intake, as well as adequate rest and abstaining from alcohol the night before a long run, will help prevent heat injuries.

**Staying fit while keeping fit**

Unit runs provide leaders a prime opportunity to educate soldiers on staying healthy and injury free during their personal training programs. Leaders must allow time for stretching and emphasize its importance both before and after running. All runs should begin at a slow pace for the first mile, then increase speed. During PT tests, the 10 minutes between events should be used to stretch and prepare; soldiers shouldn’t be allowed to just stand or sit around. And after sit-ups, runners should walk or run a quarter to a half-mile. Loose legs and warm muscles will help eliminate pulled hamstrings, popped knees, and stiff hips during the run. Soldiers reporting to Ranger, Airborne, and other schools requiring daily physical training should start preparing weeks in advance of the school start date.

**Choosing the right shoes**

Wearing the wrong shoes causes many running injuries. Since not all feet are alike, manufacturers design their shoes to lessen the effects of differences in movement. Promotional literature is available at most sporting goods and runners’ supply stores, and knowledgeable salespeople who are runners themselves can be a big help in choosing the right shoe.

Finally, running shoes are just that—running shoes. They’re not made with enough lateral support to prevent twisted ankles during basketball, racquetball, or handball games or with enough durability to standup to an obstacle course, grass drill, or other strenuous activity. Cross-training shoes or combat boots are better suited to activities where running is not the major concern. Master fitness trainers and other leaders can help soldiers choose the proper footwear by specifying on the training schedule the type of training to be conducted.

Leaders who follow these guidelines and educate their soldiers to train safely will increase their soldiers’ performance and decrease their trips to sick call, which will result in increased unit fitness.

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**Road Rules For Runners**

- Adjust speed and route to avoid contact with traffic, cyclists, and pedestrians.
- Do not try to outrun dogs; rather, slow to a walk and stop.
- Do not run on heavily traveled roads. Not only are you subject to being struck by a vehicle, you may also cause motorists to swerve or take actions that cause them to have an accident.
- When running alone, always face traffic. It’s easier to monitor oncoming traffic and avoid being struck by turning vehicles.
- During formation runs, run with the traffic. Road guards should scout for uneven ground, holes, and other obstacles. Lead runners should announce obstacles, warning runners to avoid them. In particularly rough areas, slow to a walk, then resume run when clear.
- If you must run at night, wear light-colored clothing and a reflective vest, and carry a small flashlight.
- When running alone, do not run in areas where you might not be found by a passing runner or motorist if you are injured. If you run in such areas, run with a buddy.
- Ensure that someone knows your planned route and estimated return time.
- Don’t wear headphones.
- Dress appropriately to avoid heat stress or hypothermia in extreme temperatures.
- Schedule PT activities in the early morning or late evening.
- Wear gloves and caps, as needed, in cold weather.
- Postpone running if thunderstorms or other severe weather conditions are anticipated.
- Other key elements for risk reduction include: proper rest, hydration, and balanced diet.
The basic training company was conducting a confidence obstacle course early in their training cycle. This obstacle course was set up as defined in Chapter 8 of FM 21-20, Physical Fitness Training. It consisted of climbing, jumping, and strength events designed to challenge the soldiers to accomplish difficult tasks individually and as part of a group.

The company began the training day by marching to the obstacle course site. After arriving, the drill sergeants broke the unit into platoons and conducted stretching and warm-up exercises. They also conducted a demonstration of each obstacle so that the soldiers would know how to accomplish each task.

Each platoon was then taken to the start point of each obstacle group, identified by color. One platoon would start at the red group, move to the blue group, and then end with the white group.

One of the white group obstacles was the inverted rope descent. This particular obstacle included a tower made up of three large poles tied together at the top to form a pyramid-shaped tripod about 35 feet high. Two 2.5-inch diameter ropes were tied near the top of the pyramid on one end and the other end was anchored to smaller poles away from the tower. Soldiers were required to climb the tower using eight horizontal beams and then grasp one of the two ropes. After grabbing the rope below the knot, the soldier would then swing his legs forward, hook them over the rope with his feet facing away from the tower. The soldier then descends the rope using a hand-under-hand motion until reaching a designated dismount point near the ground.

The first half of the platoon negotiated the obstacle without any problem. The drill sergeant was standing near the base of the tower encouraging the soldiers to accomplish the task. One soldier, however, had problems and was hesitant to climb the tower. His fellow trainees cheered him on, and the
drill sergeant climbed partway to talk to him personally and convince him to continue. After a few moments, the soldier continued up the tower. He reached the top and began to mount the rope.

He initially grabbed the rope above the large knot. The other platoon members told him to grab it below the knot, so he leaned out to do so. He then swung his legs out to hook them over the rope; however, he was unable to get his legs over the top of the rope, leaving him hanging from the rope only by his hands. After a few seconds, he slid a few feet down the rope. He nervously looked down and then fell from the rope. He consequently struck one of the support beams on the way down with his leg and landed on his abdomen on the lower beam. He was taken to the local hospital and later died from his injuries.

**What went wrong?**
The inverted rope descent obstacle on this course was not safely constructed.
The board discovered that there are conflicting standards for the design and construction of this tower. FM 21-20 directs that the actual obstacles be built to the standards of Corps of Engineers drawing number 28-13-95 from Folio 1, “Training Facilities.” This drawing shows the tower and requires two 1.5-inch ropes. The drawing does not show any safety nets or platforms on the tower.

**Lessons learned**
The obstacle was improperly constructed due to conflicting standards. The unit did not reference the engineer drawing in FM 21-20, so they did not notice that the obstacle did not match the sketch and narrative description. Their risk management process failed in that no one identified the lack of a platform and a net, in contravention to the requirements in FM 21-20.

Units at all levels failed to take action based on inspection results. The local safety office noted that the ropes were not the right size and higher headquarters noted that there was no net; therefore, this obstacle was not safe to use. No one took action to correct these deficiencies, and the inspecting agencies took no action to ensure that their reports were followed up.

Drill sergeants in this unit were not confident in their ability to report unsafe activities to higher authorities and to stop perceived unsafe acts. Several said that they talked among themselves about how unsafe this event seemed to them, but due to peer pressure to not look “weak,” they took no action.

**Summary**
This accident was caused by the failure of unit leaders to correct known deficiencies and to properly manage the risks associated with the event. Leaders at brigade and installation levels knew that this obstacle had problems, but no one corrected them, nor did they restrict the obstacle from use. Leaders at the company level did not ensure that this training was conducted in accordance with the FM and their own SOP and POI.

Leaders onsite did not take action to stop the event after they noted that it was not safe. As a result, a trainee found himself in a position he could not recover from, and he fell to his death. Leaders at all levels are responsible for safely training their soldiers. Don’t just observe—LEAD!

**POC:** USASC Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
I imagine this... It’s early morning, approximately 0200, at the National Training Center (NTC), Fort Irwin, CA. My driver and I are posting guards in our sector of responsibility. We’re traveling under blackout drive conditions and we cannot see anything even with our night vision goggles (NVGs) because there is no illumination. My driver is a first-rate Specialist and an excellent driver who will do most anything to complete the mission. On this night, he has his head out the window claiming he can see the road. In addition, there are two guards in back who are totally unaware of the danger they’re in.

I was somewhat aware of our situation as we drove uphill toward the first guard point. There was a large wadi on both sides of the narrow, rocky road. I tried frantically to identify where we were in relation to those waddies with no success. My heart was racing, and I’m thinking more and more that something bad is about to happen. I realize a decision has to be made, and quickly.

So, what should I do? Do I order the vehicle to stop and run the risk of being late posting the guards or do I allow the mission to continue and just take my chances?

What would you do? Would you remind yourself that there are lives at stake and those lives depend on the decision that you are about to make? Would you take in consideration that family members are depending on you to get their husbands, wives, sons and daughters home safely from training? Training? Hmmmmmmm...

It’s shocking to note the number of times leaders find themselves in potentially dangerous situations during training. Not war, training. Oftentimes, leaders make the wrong decision that doesn’t immediately result in an accident or injury, but may result in what is called a near miss.

Now, some would call a near miss “a lucky break.” But is it really luck? There is a relationship between near misses and catastrophic injury. Statistics indicate that for every serious incident, there are 59 minor incidents and 600 near misses.

Now, some would call a near miss “a lucky break.” But is it really luck? There is a relationship between near misses and catastrophic injury. Statistics indicate that for every serious incident, there are 59 minor incidents and 600 near misses.
What this says to me is that the elements necessary to produce serious injury are present more than we think.

**So how can NCOs influence other NCOs?**

Just for a moment, let’s compare the elements that must be present to have an accident with elements necessary to have a thunderstorm or a fire. There are certain elements that must come together to produce that thunderstorm—a cold front and a warm front. When these come together, severe weather is probable.

We can use the same analogy for a fire. In order to have a fire, there are certain elements that must be present—fuel, heat, and oxygen. So removal of any one element makes it highly unlikely that the said result can happen, either for the thunderstorm or the fire.

Now, let’s apply this principle to accident prevention. What elements must be present to increase the probability of an accident? Man, machine, and environment. Obviously, these three have a need to be together, so we won’t even entertain removing one.

So what can we remove? The answer is complacency, inattention, carelessness, the sense of invincibility, and a bad decision-making process. Removal of these unwanted areas would significantly reduce the probability and the severity of an accident. Hazards and risks will never completely be eliminated, but they can be reduced.

So, how is this done? The answer is training, training, and more training. Our soldiers need training on risk management in order to more effectively identify and control hazards. We have all heard the phrase, “Train to standard.” If we can ensure our soldiers are effectively trained on each and every piece of equipment and procedure, that will make the difference between failure and success. You see, the standards are there—we just have to enforce them.

So what decision did I make back there in the desert? Was there any doubt? I ordered the driver to stop; I got out of the vehicle and looked around. I identified the hazard, assessed the situation, made a decision based on awareness, and continued with the mission.

We had a successful mission that night, but what made it successful was that it was accomplished without accident or injury. ♦

**POC:** MSG Earnest Childs, USASC Risk Management Integration Division, DSN 558-3034 (334-255-3034), childse@safetycenter.army.mil

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### Accident Briefs

**Combat Soldiering**
- A SSG was negotiating an obstacle course when he struck his rib cage on a horizontal pipe while jumping to a second level in one of the obstacle course stations. The soldier suffered a fractured rib and bruised chest. Because of his injuries, he was dropped from the Special Forces qualification course and sidelined from his unit for 16 days.

**Physical Training**
- A 1SG was running in a battalion run when he collapsed. Medical personnel determined that he had suffered a heat stroke. The soldier had been taking an antihistamine for a sinus infection, resulting in dehydration. The 1SG was hospitalized for 3 days and diagnosed with internal damage to his kidneys, liver, and muscle tissue.
- A CPT was participating in a confidence course as part of the day’s physical training. As he was descending the rappelling tower, he jumped out from the wall to facilitate a smooth descent. Upon swinging back into the wall, he landed with his right leg at an awkward angle. The impact and angle of the movement caused the soldier to suffer a muscle injury in his right leg. Consequently, due to this injury, the CPT was dropped from the qualification course and was unable to join his unit for nine days. ♦
The most deadly threat soldiers face in peacetime is traffic accidents. Privately owned vehicle (POV) accidents kill more soldiers than all other Army accidents combined. Army accident records reveal the grim truth: soldiers continue to ignore speed limits, shrug off the ‘zzz-monster’ of fatigue, travel too fast for weather and road conditions, leave seatbelts unbuckled, and yes—continue to mix alcohol with car keys.

General Eric K. Shinseki, Chief of Staff, Army, (CSA) has made clear his determination to end these tragic and needless POV fatalities and the adverse impact it has on readiness.

General Shinseki has directed that commanders and leaders use the following Army Six-Point Model POV Accident Prevention Program in every unit as a minimum standard to reduce the risk of POV accidents.

1. **Command Emphasis.** Emphasize positive leadership at all levels. Junior officers and noncommissioned officers should get to know their soldiers. Assert positive, hands-on leadership on how, when, and where soldiers operate their POVs.

2. **Discipline.** Negative behavior such as traffic offenses, alcohol abuse, misconduct, and poor performance often are indicators of potential POV accident victims. Leader intervention by identifying “at risk” soldiers, counseling them, and taking proactive measures to modify their risky behavior has been effective in units successfully combating POV accidents.


4. **Standards.** Leaders should set high standards for the safe operation of POVs and motorcycles, and enforce them. Educate soldiers on the risks of speed, fatigue, and use of alcohol. Leaders can conduct mandatory POV safety inspections, random roadside checks, and emphasize the use of designated drivers.

5. **Provide Alternatives.** Leaders can provide soldiers alternatives rather than driving POVs: schedule activities on post to keep soldiers off the road; keep gyms, recreation centers, and other places that soldiers use off-duty open later; encourage use of public transportation; use morale, welfare, and recreation services to provide buses or vans to transport soldiers to the places they go when off-duty; explore arranging reduced hotel rates in nearby communities to encourage soldiers to remain overnight on weekends and stay off the highways late at night.

6. **Commander’s Assessment.** Assess every POV fatality and serious injury accident with the involved soldier’s chain of command to determine why the accident occurred and how it could have been prevented. Implement corrective and preventive measures. Publicize lessons learned.

The key to having a successful POV accident prevention program and stopping this tragic loss of life is proactive leader involvement, particularly at the squad leader or first-line supervisor level.

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Aggressive Driving
Are You Part of the Problem?

You have seen it a thousand times. You’re driving the speed limit in the slow lane, when someone comes up right behind you and hugs your rear bumper? What do you do?

A recent American Automobile Association (AAA)/Gallup poll shows we fear aggressive drivers more than drunken drivers. The aggressive driver is typified by behavior such as cutting people off, tailgating, speeding, and careless weaving in and out of lanes. All common descriptions of what we see in our daily commute to work. Unfortunately, these actions put the rest of us at risk.

Driving is complex and no one is perfect. Law enforcement agencies do their part to control our crowded roads, but there may not be any easy solutions to the cultural driving patterns, which are increasingly leaning towards aggressive driving. Statistics show more and more that aggressive driving causes accidents.

How can we avoid being victims of aggressive drivers? The AAA Foundation provides three guiding principles:

- **Don’t offend.** Be courteous to other drivers by using turn signals and not cutting off the other driver. If you are driving slower than other traffic, use the right lane. Avoid making gestures that may anger other drivers. Avoid the urge to tailgate other vehicles.

- **Don’t engage.** Stay clear of angry drivers. Control the urge to retaliate from what may appear to you to be the other driver’s lack of courtesy. Avoid eye contact, which may encourage the aggressive driver.

- **Adjust your attitude.** Avoid viewing the driving activity as a contest that requires you to win. Allowing more time can remove the sense of urgency. Listen to soothing music and practice relaxation techniques.

Violent and aggressive driving is increasingly on the rise. You can avoid becoming a victim by using these tips. You can also play a major role in making our roadways safer by reporting aggressive driving incidents to the appropriate law enforcement authorities.


Editor’s Note: Road rage differs from aggressive driving in that road rage involves a violent traffic dispute (physical assault or vehicle contact). Aggressive drivers operate their vehicle in a bold or pushy manner often violating traffic codes like speeding, following too close, and making improper lane changes.
The Sailor had just bought the used sport utility vehicle (SUV) in June. Even though his driver’s license had been suspended for the past two years for multiple traffic offenses, he still planned to drive his family from Norfolk, VA, to their hometown in Alabama to visit relatives.

His leave started on 7 July. The next day, he took his SUV to the dealership to have it checked by mechanics. They made minor adjustments. The car wasn’t ready until 1730 on 9 July. With two days of his leave eaten up, the Sailor was in a hurry to leave.

As soon as he brought the car home, he and his family left for the trip. His family included his wife, 7-year-old twins, a 5-year-old son, and his mother-in-law.

The next morning at 0630, passersby in Alabama found the SUV on the side of the road in flames. The Sailor was dead. So were two of his children and his mother-in-law, who were riding in the rear seat. These four weren’t wearing seatbelts. His wife, sitting in the front passenger seat, was wearing a seatbelt. She was holding the 5-year-old, within the same belt, in her lap. The passersby cut the mother and son out of the wreck. They were taken to a hospital. The mother had multiple broken bones, internal injuries, and second-degree burns. Even though she is now disabled, she survived. The 5-year-old died from internal injuries.

The Sailor was found in the driver’s seat with his shoes off and tucked under his seat, which was reclined. Does this indicate he was tired? We don’t know, but investigators believe he fell asleep while driving. The car crossed a grass median where it hit a tree stump; then, it crossed an oncoming traffic lane, slammed into a tree on the shoulder of the road, and burst into flames.

The Alabama police estimate the speed of the SUV was 70 mph when it hit the tree. Tire marks on the median and skid marks on the road indicate the Sailor woke up when he hit the tree stump and jammed on the brakes.

However, there wasn’t enough distance between that point and the tree to stop the car.

This trip didn’t have to end in tragedy...and wouldn’t have if the people involved had looked at the hazards and assessed each hazard in terms of probability, weighed the possibilities of tragedy, and considered the consequences.

If the driver had 20/20 hindsight, here’s how he could have done his own risk management exercise before the trip:

“I’ve already burned up two days of my leave waiting for this car to be looked at. Now, it’s finally ready. It’s already 1730 and I’ve been up all day, but I’m really anxious to get on the road. Let’s see, I’ve got myself, the wife, the kids, and my mother-in-law...that’s six people in a car that...
has only five seatbelts. I sure wish my license hadn’t been suspended because of all the traffic violations I’ve had.”

If he had carefully assessed the hazards, the driver could have taken action to ensure his family’s safety. He never would have driven the car in the first place. He had two other adults with valid driver’s licenses who could have taken turns. Also, since his vehicle wasn’t equipped to carry all those people, he could have left someone behind, gotten a larger vehicle, or bought a bus ticket. Even if he was going to drive, he could have given a good night’s sleep and started out the next morning.

Not all the responsibility is on the driver to look at hazards and risks. There were two other adults in the car.

They could have insisted that they not start the trip until the next morning. The mother-in-law could have volunteered to stay behind to give everyone a chance to be buckled up. The mother could have insisted that all her children be safely secured. Also, both adults knew the husband had a suspended license. They had the responsibility to not let him drive and refuse to ride with him.

Think about this family the next time you go on leave. The possibility of tragedy exists every time you drive a car, either on a vacation or just around town. Look at the risks you may be taking and do your best to lessen them.

This article was written by Virginia Rae Mack, Editor, Ashore Magazine, the Naval Safety Center’s official shore safety publication.

Quickbits

New E-mail Address

The Safety Center is changing its e-mail address to safetycenter.army.mil. An example of our new e-mail address is: user-id@safetycenter.army.mil. All users will also be able to receive mail to the old address (safety-emh1.army.mil) until 1 Oct 00.

Oops, We Goofed!

One of the painful parts of my job is seeing an error get printed. It’s like the old saying goes, “Doctors can bury their mistakes,” but we print ours in 35,000 copies! In the May 2000 Countermeasure article, “Too Fast for Conditions,” we incorrectly described an M915A2 as having a cross-country 5th wheel. It is the M916A2 that has a cross-country 5th wheel. Thanks, Dan Korbel, for bringing this to our attention.

Update!

Change 1 to AR 385-10, The Army Safety Program, dated 29 February 2000, is now available in electronic format. The updated regulation provides risk management policy and definitions, and provides authorization for collateral duty safety personnel to perform standard Army safety occupational health inspections (SASOH). Other pertinent changes include revising all Army safety organizational structures (para 2-1); integrating water safety (para 2-2n), thereby rescinding AR 385-15, Water Safety; and adding an Appendix B, Management Control Evaluation Checklist, to help commanders evaluate key management controls.

This change replaces the 23 May 1988 edition and is available only in electronic format through the Army Publishing Agency web site. You can also download a copy by going to our web site http://safety.army.mil/, and then go to Guidance/Safety/Army/AR 385-10.

Editor’s note: Please discard any copies of change 1 to AR 385-10 downloaded prior to 17 May 2000. For more info, contact Mr. Truman Taylor, USASC Policy, Plans, and Programs Branch, DSN 558-2609 (334-255-2609), taylort@safetycenter.army.mil.
Life, Liberty, and the pursuit of happiness... 

CELEBRATE SAFELY!

JULY 2000 COUNTERMEASURE
Risk Management Special Issue

Protect The Force Through Risk Management!
Summer’s Still Here
Summer continues and so does the possibility of accidents and injuries.
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Summer’s Still Here

It’s been a long, hot summer. We’ve cleared the Memorial Day weekend and the Fourth of July, and the Labor Day weekend is now in sight.

Everyone knows how traditionally dangerous this period is; therefore, we must not cut back on our safety emphasis. Over the next month, many of us will continue to enjoy summer picnics, water sports, and long drives to the beach. Unfortunately, many will be exposed to a much greater level of risk, as they will try to cram too many activities into what’s left of summer vacation.

Leaders must ensure all risk management tools are available and used in this effort. Re-energize the 101 Days of Summer Prevention Program. Reinforce it with briefings, handouts, and discussions on what risk management is and how it can help prevent needless accidents. If you need assistance in getting a risk management program started or obtaining training in identifying hazards and implementing controls, check out the “Risk Management Information System” article on page 4.

Another outstanding initiative the Safety Center has developed is the on-site Assistance Visit Program and the NCO Professional Development Mobile Training Team. Find out more about these programs on pages 6-8.

We are enthusiastic about the risk-reduction potential of these tools. As with any program, solid command support, with emphasis up and down the chain of command, is the key to success.

It is everyone’s responsibility to keep risk management in the forefront of every activity we do. Take the time to recognize the hazards and assess the risks involved in whatever we do, whether on- or off-duty. By identifying the risks associated with the activity, we can take the appropriate actions to reduce or eliminate the risks.

Have fun during the last days of summer and enjoy family and friends, but don’t let the fun get in the way of common sense and good judgment. Remember we are still in the 101 Days of Summer, but the real safety campaign is never over—our work is important all year long. You are an important part of our Army family. Take responsibility for your safety and the safety of those who depend on you.

Mission First, Safety Always!
Paula
The safety successes achieved by the Army demonstrate the commitment and dedication of its leadership to protecting the force and multiplying combat effectiveness. The Army Risk Management Information System (RMIS) is a powerful risk-management tool aimed at helping meet Department of Defense and Army goals for accident prevention.

RMIS is a worldwide Internet-based risk-management tool designed to help leaders and their staffs make informed decisions to do tough missions safely. It is available in both a public and a restricted version. RMIS is also a centralized, one-stop shopping source of near real-time information on hazards, risks, and controls. It’s designed to help people get and share important information. Things like “lessons learned” are critical and can keep people from “reinventing the wheel” or making the same mistakes that someone else has already made.

As evidenced by its heavy use—127,911 requests from 28,605 users during the month of June 2000—RMIS continues to grow more robust as the functional areas are expanded and new sections are populated with data. Following is a recap of major additions and improvements as this powerful “intelligence” system continues to grow:

- **Weapon Systems.** This section now contains direct links to the Army accident database and information on the Army’s primary systems (tracked vehicles, wheeled vehicles, and aircraft). Also included are other safety links to risk management assessment tools, prioritized system hazards, and accident profiles.

- **Privately owned vehicles (POVs).** This section was designed by a process action team to help Army agencies address POV accidents, the largest source of soldier losses. Included is the latest Six-Point Accident Prevention Program directed for use by the Chief of Staff Army. The POV Risk Management Toolbox inculcates proactive risk control measures and provides training and guidance tips to leaders and safety personnel. This section also contains a library of attention-getting accident photos that can be used for safety briefings.

- **Training.** Significant improvements include 5-minute safety briefings on a variety of subjects, ranging from hazardous materiel handling to electrical systems, the latest “hot news,” and listings of available professional safety training.

- **Safety messages.** Ensuring everyone “gets the word” has always been an Armywide problem. Aviation safety messages are now available (SOFs, ASAMs, night vision, and life support equipment) as well as ground safety messages (GPMs, SOUMS, and MAMs are linked to the Army Materiel Command’s restrictive web site, http://aeps.ria.army.mil). In addition, the Director of Army Safety notifies the field, via safety alert messages, of accident trends identified through the centralized accident investigation process and through detailed analysis of accident data reported to the Safety Center.

- **Help link.** The Safety Center’s help desk is readily accessible via this system to answer any technical or non-technical questions regarding risk management of systems and operations.

- **RMIS training.** Information on the availability of RMIS training is provided at every civilian and military professional course taught by the U.S. Army Safety Center. Also, training to MACOMs and field agencies is available on request. RMIS is also briefed as a primary risk-reduction tool to all division commanders, students at the Pre-Command Courses, the Warrant Officer Staff Course, students attending the Air War College, and a brief overview of RMIS is provided to students attending the Inspector General School.

Further information on RMIS or to schedule training on the system, contact Mr. Dwight Lindsey, RMIS Program Manager. User notification and password access can be obtained through Ms. Wanda Thornton at DSN 558-2920 (334-255-2920) or thorntonw@safetycenter.army.mil.

POC: Dwight Lindsey, USASC Risk Management Integration System Program Manager, DSN 558-1373 (334-255-1373), lindseyd@safetycenter.army.mil
Risk Management on the Highway

Preventive Maintenance Can Stop Breakdowns

When traveling the highways and back roads, a motorist can unfortunately suffer mechanical breakdowns. You see stranded motorists every day on the side of the road. You may think it won’t happen to you, but the odds aren’t in your favor.

Even well-maintained cars can sometime break down. The most common breakdowns are from flat tires, dead batteries, broken fan belts, and running out of gas. You should routinely check these items or have someone check them for you. If you don’t, you may end up on the side of the road too.

However, if it does happen to you—

- Immediately pull off the roadway to the extreme right as far from traffic as possible. If that’s not possible, pull over to the median.
- Place flares or reflective triangles at least 50 meters in front and behind your vehicle so other motorists can see you.
- Turn on your hazard flashers.
- Raise your hood or tie a white cloth to the antenna to signal that you need assistance.
- If you are repairing a vehicle at night, NEVER stand or work so as to obscure your taillights.
- If a flat occurs, the most immediate concern is to maintain control of the vehicle. Use both hands on the steering wheel and don’t slam on the brakes; apply the brakes gradually and pull completely off the roadway away from moving traffic. Never try changing a flat tire in or on the edge of a traffic lane. Leaving a parked car in or partially in a traffic lane sets up a death trap for other motorists.
- Cellular phone users can help by reporting broken-down vehicles to the police.

Preventive maintenance is the key to staying on the road

- Inspect radiator hoses for cracks, wear, and leaks. Never remove the radiator cap until the engine has thoroughly cooled!
- Flush and refill the cooling system every 24 months.
- Check tire pressure at least once a month. Don’t forget your spare tire, and be sure the jack is in good condition. Examine tires for tread life and uneven wearing. Rotate tires about every 5,000 miles.
- Check fluid levels regularly.
- Clean windshield. A dirty windshield causes eye fatigue and can pose a safety hazard. Replace worn blades and get plenty of windshield washer solvent.
- Inspect all lights and bulbs; replace burned-out bulbs.
- Inspect brakes as recommended in your manual, or sooner if you notice pulsations, grabbing, noises, or longer stopping distance. Minor brake problems should be corrected promptly.
- Check battery fluid level monthly. Check for corrosion. 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.

- Always have these items on hand for safety and comfort: drinking water, a windshield shade for reducing heat build-up inside the vehicle, a cellular telephone or citizens band radio for summoning help, an automotive tool kit, a gallon of water, a gallon of antifreeze, and an emergency kit containing a flashlight with extra batteries, warning devices such as flares or reflective triangles, jumper cables, and a first-aid kit.

Remember to plan ahead, take care of your car by performing preventive maintenance, and it will take care of you. ♦

POC: Al Brown, Traffic Safety, Risk Management Integration Division, DSN 558-2046 (334-255-2046), brownj@safetycenter.army.mil
Today’s commander is challenged on every front. He must continually find innovative ways to operate efficiently, effectively, and safely. Let me emphasize this last point. With everyone’s plate full because of taskers, upcoming major events, and competing interests and concerns, the one thing that will stop a unit dead in its tracks is a training fatality. Everything else becomes suddenly insignificant. All the dedicated work, planning, and execution are no longer important.

The time to think about safety is now. The risk management process begins at the initial training meeting and continues through the entire operation, including the AAR and retraining. The commander must therefore use every available tool to attack safety concerns.

The Safety Center offers such a tool...and it’s free of charge. That’s right—Foxtrot, Romeo, Echo, Echo—FREE! It costs only a little bit of time. This valuable tool is the Assistance Visit Program, conducted by experienced USASC personnel trained in risk management techniques. We offer the commander an outside look at his unit and an information package to provide the latest and greatest in dealing with command safety issues. This is not an inspection, but an independent look at hazard identification and ways to mitigate or eliminate hazards for your soldiers.

**What we do**

The first thing we do is to make a contract with the commander that everything found in his unit stays with him! No one else gets the information. The exception is when an issue beyond the commander’s control can be resolved.

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at higher levels through our intervention. We typically look at brigade-size units, offering a standard menu of events for the command to pick and choose the agenda. We provide information on recent accidents, risk management integration tips and techniques, driver’s training program updates, and privately owned vehicle (POV) toolbox training.

We also look at trends and provide the commander direct feedback as to how effective his safety program is, how to improve the safety environment, and how to integrate risk management into all unit operations. This ensures risk management is an integral part of planning and execution, not just an afterthought, a checked block, or a paperwork drill.

The old adage “You don’t know what you don’t know” is true. We are one mechanism to provide what you don’t know. To date, we’ve conducted 10 visits. Some interesting indicators have emerged from these visits. The following indicate a few unhealthy safety trends:

- **Communication bottlenecks erode unit safety climate.** Lower level units in particular must know and feel the command presence, especially with emphasis on safe operations. The command safety team sets the safety climate in an organization! If the chain of command doesn’t pass information about all operations in detail, the unit safety climate suffers. Informed soldiers are safer soldiers.

- **Hazards generally known at lower levels are not communicated up the chain.** We talk to soldiers at all levels. We often find that the chain of command is entirely unaware of complaints about many safety issues. We use a tool called the Next Accident Survey, [http://safety.army.mil](http://safety.army.mil) (click Risk Management/Overview/Tools). We ask the soldiers what will cause the next accident in their unit. In one case, soldiers identified an overcrowded hangar that could result in damage to an aircraft being ground handled. Within minutes, that very accident occurred. Oftentimes, soldiers know what is not right, but they may not know how to resolve the problem.

- **The unit safety officer greatly influences the command safety climate.** If the safety officer or NCO is not aggressive, outspoken and energetic, the unit safety program can become reactive rather than proactive. He must be trained, involved, and active in all operations. He must understand the risk management process, [http://safety.army.mil](http://safety.army.mil) (click Training tab).

  - **Exceptionally high OPTEMPO may translate into hazard-producing shortcuts.** Today’s mission load can be taxing. As the plate fills up and the train moves on, time becomes both critical and scarce. Sometimes there isn’t enough time in the day to get everything done. We attack the most imminent threat first, and worry about the next event later. Sometimes we don’t give adequate weight to proper planning and risk management techniques. That’s when the shortcuts begin. “We know this isn’t the way we’re supposed to do this, but next time we’ll do it right.” The translation is that we have just set a new lower standard. Most accidents involve ignored standards.

  - **Unit SOPs are generally not used, not understood, or ignored due to time constraints.** This is an alarming fact. Ask your soldiers what the SOP says about accomplishing a given task. Ask your junior leaders the same question. They may have an understanding of the basic task, but will likely be unaware of what the SOP describes. SOPs are developed from lessons learned—the hard way. It is a tragedy to allow soldiers to pay with blood for something already known. Enforce the SOP and make certain soldiers know and understand its contents.

  The unit safety officer greatly influences the command safety climate. We have outstanding troops. They will always find a way to get the job done. If they know and understand the standard, they will follow it, given adequate time and resources. It is the command’s responsibility to ensure they have the knowledge, time, and resources necessary. Our Assistance Visit team can help leaders do just that.

  For more information check out the Safety Center web site at [http://safety.army.mil](http://safety.army.mil).

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How About Those Junior Officers?

Do you think junior officers and warrant officers need risk management training? Trends show that junior leaders often fail to execute their responsibilities to manage risk and enforce standards, either due to ignorance or time constraints. A vast majority of critiques from soldiers attending our NCO Professional Development (NCOPD) course strongly recommended that their supervisors get some risk management training.

We listened and developed a special program just for the young lieutenant, captain, or warrant officer in a leadership position. The Junior Officer Professional Development (JOPD) course is based on risk management training conducted in the NCOPD course, tailored to the junior officer level of responsibility.

The 3-day, 24-hour JOPD course is focused on hazards identification, risk management, the Army Safety Program, and leader responsibilities. The target audience is the young company grade officer or warrant officer technician charged to integrate risk management into both the planning and execution phases of training and operational missions. An additional benefit of this training is that the officers can transfer this knowledge and become better off-duty risk managers.

This is a great course to integrate into your local pre-command course or company XO course. Here's how it works... Units provide up to 30 junior officers for 3 days of training. The only cost to the unit is the commitment of time and personnel. We pay for everything else! In return, the course produces officers better prepared to identify and control hazards in motor pools, convoys, ranges, wherever high-risk operations may occur.

The course consists of classroom instruction and practical exercises in understanding risk management, risk management integration, and hazard identification. Lessons learned from actual accidents are then integrated into the training. Student officers are provided tools to assist them in managing risks for their soldiers, both on- and off-duty. Finally, they will have an opportunity to apply what they have learned at an on-site safety visit to an operational facility, typically a motor pool.

Risk management is the Army process for enhancing combat readiness and reducing losses. The JOPD training will make a significant impact by providing hands-on risk management training to the junior officer leadership of the Army.

Additional information and scheduling may be obtained by checking the U.S. Army Safety Center homepage at http://safety.army.mil or calling (334) 255-2906.
Survival of the Fittest

More Is Not Always Better

This is the second in a series of articles on physical training and their accident causes. This issue is dedicated to weight training. Future issues will cover warning signs of heart attack, sports injuries, and exercising in cold environments.

The world is getting into shape! It seems everyone is getting on the exercise bandwagon. What a wonderful way to make us look and feel better. There are two kinds of exercise to get in shape and stay in shape: aerobic (which makes your heart and lungs more efficient) and anaerobic (which builds muscle, burns fat, and helps you control your weight). An excellent anaerobic workout is weight lifting.

Before you start pumping iron, be aware of the hazards. If your body isn’t used to the exertion, you’ll be sore; at worst, you’ll strain muscles and tear ligaments. You can also injure your back and neck—painful injuries that may often never permanently heal.

Here are a few pointers to make steady progress and never miss a workout.

- **Start slowly.** After work, soldiers rush to the gym, hustling to get into shape before returning home. They have good intentions, but the risk of injury is high. Stretch before and after every workout. It will increase your flexibility. Don’t be afraid to ask questions. Most people in the gym will be more than happy to share their knowledge with you.

- **Have a spotter.** When lifting free weights, always have a spotter with you to help in case of overexertion.

- **Proper form.** The familiar adage, “if a little is good, more is better,” should not be followed. The danger with that is some will take that expression too far and the chance of sustaining an injury is greater. Proper technique will produce better results with less weight than if you incorrectly lift more weight. Don’t be embarrassed if you cannot lift as much as others can; work your way up gradually. Bend your knees, not your back. A weightlifting belt worn properly may help you maintain proper form, but it does not provide absolute protection from injury.

- **Wear the right clothes.** Tight clothing restricts movement and loose clothing may get caught in exercise machinery. Rubber-soled shoes will keep you from slipping. Gloves will keep your hands from becoming calloused and will also keep weights from slipping out of your hands.

Novice weight lifters have been hurt by free weights that fall off the bar. To keep the weights from falling off while you lift them, fasten a collar on each side of the bar. Return the weights to the rack when you finish your exercise, because free weights lying on the floor can trip other lifters.

Remember these tips; lifting weights is hard enough without learning the hard way.

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Behavioral Safety

In a previous issue of Countermeasure, we discussed organizational safety culture and its implications for commanders. Here, we explore two other important issues: first, the question of why so many soldiers engage in poor safety behaviors, and secondly, strategies for changing such behaviors. The more we can translate our knowledge of the behavioral causes of accidents into effective strategies for changing these harmful behaviors, the further we will advance our safety campaign.

“Organizational Safety Culture: Implications For Commanders” (October 1999 Countermeasure) outlined how distributed concern for safety needs to be representative of all unit soldiers. This is nothing new. Indeed, most soldiers are at least somewhat aware that inadequate safety practices have the potential for disaster. Nevertheless, these behaviors are widespread—even epidemic—in the Army. So, why do soldiers ignore the evidence and continue to behave in unsafe manners? Why are these habits so deeply ingrained?

Why are poor safety behaviors so widespread?
Unsafe habits can often be traced to leaders and first-line supervisors who have modeled unsafe behaviors. The Army is a constant learning environment, and the NCO is typically a soldier’s most influential role model. Research reveals a strong relationship between unsafe habits in leaders and their soldiers. While other factors also contribute to this relationship, observational learning certainly plays an important causative role.

Soldiers also tend to be overly optimistic about their immunity to major safety problems. Unfortunately, unrealistic optimism undermines legitimate worry about risk; it may reduce the likelihood that soldiers will engage in accepted safety behaviors or accept safety interventions. Curiously, while soldiers are inclined to underestimate the risks associated with their own unsafe habits, they tend to have a much clearer impression of the potential catastrophic effects of such behaviors in others.

Another reason why poor safety habits are so widespread is that soldiers often have little reason or incentive to practice safe behaviors. In fact, many are recognized for their ability to “get more done with less” and for finding “innovative” solutions to such problems.

Rewards and recognition from superiors are highly reinforcing. Behaviors that are reinforced tend to be repeated. The adverse effects of these safety shortcuts may have little or no noticeable impact on safety and routine operations for many years. Yet, as these practices get repeated, the association between the unsafe behavior and risk loses focus—until it’s too late.

Thus, we see that several factors work together to establish and maintain unsafe behaviors. So, how can we develop strategies to modify and change these behaviors?

Changing safety-damaging behaviors
As you can imagine, it is not an easy task to change behavior. All of us know of soldiers who, in spite of clear evidence that they are endangering themselves or others, continue to engage in unsafe behaviors; e.g., driving over the speed limit. An important step in getting soldiers to modify or eliminate their unsafe habits is to provide sufficient motivation to fuel such positive change.

Fear for safety
Fear appeals have often played a major role in efforts to motivate people to change their behavior by changing their attitudes toward safety. All of us have been exposed to fear campaigns to stop smoking, eat healthier, drink less, and other health promotion media efforts. Persuasive safety-promotion messages with moderate fear appeal can also be effective in changing safety attitudes and behaviors. Fear of high-risk behaviors,
together with knowledge about effective preventive practices, will result in both significant increases in safer behavior and substantial reductions in the rate of accidents.

Research has shown that informational campaigns may be most effective when they—

- Are colorful and related to real life; e.g., use case histories.
- Avoid statistics and jargon.
- Are short, clear, and direct.
- Present strong messages at the beginning and end of the message.
- State conclusions explicitly rather than merely implying them.
- Are delivered by a prestigious and trustworthy individual.

No short-term solutions

History shows that change will not occur overnight. Such efforts are generally more effective in changing attitudes than behaviors. However, such campaigns have some important benefits that are likely to show up in the long run. First, they will acquaint soldiers with the risks that they might not have been aware of associated with their behavior. Such messages can and do have a cumulative effect over time in modifying both the Army’s collective attitude about safety and eventually the safety behavior of soldiers. For example, it is now clear that Army attitudes toward smoking in government buildings, illegal drug use, and driving under the influence of alcohol have changed appreciably in recent years due to hard-line, negative, zero-tolerance campaigns.

Because poor safety habits are so deeply ingrained and widespread, it is understandable that efforts to change safety-impairing behaviors by changing people’s attitudes are often not sufficient. To push safety in a positive direction, hard-line policies and procedures can provide the incentive or motivation to behave in a safe manner. Toward this end, leaders and safety professionals must focus on safety-impairing habits and modify the conditions that cause and support these harmful behaviors.

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Accidents Are As Close As Your Own Backyard

Any soldiers doing yard work have found that their own back yard can be almost as dangerous as the field environment. Lawnmowers, hedge trimmers, and heat take their toll year after year.

Lawnmowers cannot only chew up grass; they can chew up hands and feet. One soldier who was cutting grass noticed the mower was stopped up. Grass clippings were not being pushed out the side as they should have been. Leaving the mower running, he reached to clear a wad of grass that was blocking the discharge chute, and the spinning blade nearly cut off his finger. Operators should be sure the mower is off and the blade stopped before clearing chute or reaching underneath.

Ear protection is also a good idea; even low horsepower mowers are loud enough to damage hearing. And a little maintenance on those burned-out mufflers would help the noise, as well.

Power edgers and weed trimmers, as well as mowers, can throw sticks, stones, and other objects that can injure the eyes of operators and those nearby. Safety glasses or goggles will protect the eyes. Long sleeves, long pants, gloves, and appropriate footwear make trimming and edging much less hazardous.

Most of this type work is done in the intense heat of summer. Individuals need to take precautions against heat injury and make sure their fluid intake is adequate.

Soldiers need to remember safety precautions are not just for field exercises; they’re also necessary in your own back (and front) yard.
Three vehicles and their crews were heading from main post to an external training area to conduct systems validation tests in preparation for an upcoming external evaluation. These tests were conducted over several days, so the elements participating in the exercise had to make the trip to and from the training area every day. The route consisted of two straight, paved roads, and included an unguarded railroad crossing. The railroad tracks run parallel to the roadway.

The unit departed for the training area a few minutes late due to maintenance problems with the platoon’s fourth truck, which was left behind in the motor pool. They left the staging area in the march order defined by the unit SOP, with a HEMMT tractor-trailer combination in the lead, a cargo HEMMT in the middle, and a 5-ton command and control truck at the end. The platoon leader was assigned to the 5-ton truck, so he rode in this vehicle. None of the trucks had any radio equipment in their cabs, so their crews could not communicate during the march except by hand and arm signals.

The group moved along the roadway at the posted speed limit of 35 miles per hour. As they approached the intersection to turn left to cross the railroad tracks, they slowed to about 15 miles per hour. The lead truck crossed the tracks without incident, but the second vehicle was struck on the driver’s side of the cab by the lead locomotive of a large freight train moving at about 60 miles per hour. The HEMMT was completely destroyed, and both occupants were killed.

What went wrong?
Although the train had its lights on and was plainly visible as it approached the crossing, no one looked to see if one was coming. At a speed of 60 miles per hour, the lead locomotive was about one quarter mile away when the trucks began the left turn, and it was only seconds away when the first truck crossed the tracks. Neither crew looked to see if a train was...
coming. As a result, they did not see it until it was too late.

**Lessons learned**

Vehicle crews need to STOP, LOOK, and LISTEN when they approach railroad crossings. The crews in this case did not look, and therefore, did not see the train. FM 21-305 tells crews to slow down at crossings. These crews had driven this exact route on numerous occasions and may have become complacent in the perception that no trains would be traveling at that crossing.

During a re-creation of the events surrounding this accident, the investigation board discovered that a train’s horn could not be heard from inside a HEMMT cab until the train was about 3 seconds away. This is not enough time to identify the sound, react to it, and stop the vehicle in time to avoid a collision. Crews need to know that they cannot rely solely on the horn as their first warning of an oncoming train. Vehicle cabs are inherently noisy, with fans, heaters, engine noise, and radio traffic all potentially contributing to drown out external sounds.

The senior person present in a motor vehicle movement is responsible for the safe conduct of its mission. In this case, the senior soldier was the platoon leader. His vehicles did not have radios in their cabs, so there was no way to inform them of any dangers during the march. He could have ridden in the lead vehicle so that he could physically stop the group if he identified a problem. But in this case, he chose to ride in his assigned vehicle, which per unit SOP, travels toward the rear of the platoon. As a result, he was unable to do anything more than watch this accident happen, therefore he was not “in charge” of the convoy.

March element leaders are also responsible for managing the risks associated with the movement. In this case, the unit’s leaders knew of the presence of the unguarded railroad crossing; however, it was not briefed as a hazard during the pre-mission safety briefing. Therefore, no control measures were taken to minimize the risks associated with the crossing. Examples of prudent control measures include requiring vehicles to stop before crossing the tracks, placing the platoon leader at the head of the movement to personally make sure the route is clear, and briefing it explicitly to all personnel to remind them of the need to stop, look, and listen before crossing the tracks. A last minute reminder may have helped the crewmen remember to look for a train as they approached the crossing.

The occupants of the accident vehicle were ejected during the collision. They were not wearing their seatbelts. This accident may not have been survivable, but leaders need to ensure that their soldiers wear their installed seatbelts whenever the vehicle is moving. They can do this by emphasizing seatbelt use during safety briefings, roadside checks, and sanctions against crewmen caught not wearing them.

**Summary**

This accident was caused by complacency on the crew’s part and poor command and control of the march element. The crew became complacent in their belief that the crossing did not pose a hazard, and the leaders of the unit did nothing to ensure that the crew safely crossed this hazardous area. If the leader had placed himself in a lead position to control the group’s movement and properly managed the risks associated with this railroad crossing, this tragic accident might not have happened. ♦

POC: USASC Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
Risk Management for Joint Level Exercises

Exercise Bright Star is the largest overseas deployment exercise in which the U.S. Army participates. The last Bright Star conducted in Egypt (1999/2000) was a success by many accounts. The implementation of risk management during an exercise of this magnitude is a challenge for any safety officer.

Bright Star was primarily focused in Mubarak Military City (MMC) and located approximately 130 miles west of Cairo during the period 20 September through 20 November.

**Pre-deployment phase.**
The most critical element of risk management is to imbed risk mitigation principles in the initial planning stages of the deployment. A review of the Joint Uniformed Lessons Learned System (JULLS) provided a good basis for identifying risks from previous deployments such as Desert Storm, Desert Thunder, Desert Fox, and Bright Star. A risk management plan was developed from this statistical information. A number of pre-deployment safety initiatives were written, among them:

- **Commander’s safety philosophy.** The commanders’ safety philosophy was that no unnecessary risk would be taken in the training environment and that all units would implement risk management as a tool for their operations.
- **Safety briefings.** A PowerPoint safety briefing was developed and disseminated on web sites and e-mailed to deploying units.
- **Safety officers.** Coordination was effected to provide Reserve Component units, such as the 377th Theater Support Group, with professional and fully-qualified safety officers from the FORSCOM Army Safety Augmentee Detachment (ASAD) Program.
- **Safety publications.** Safety publications such as the Warfighter’s Safety Guide, Leader’s Safety Guide, Middle East Driver’s Safety Pamphlet, and an assortment of safety posters were published beforehand.
- **Operations plan.** The safety annex to the OPLAN was published.
Central to the OPLAN was the requirement to conduct risk assessments applicable to the mission, location, and the diverse number of units that fell under the auspices of Third U.S. Army’s Coalition Force Land Component Command (CFLCC) organizational structure.

**Site survey.** A safety site survey of the MMC was conducted primarily to assess the future challenges in the area of safety, but also to establish a common-sense approach to the parking plan for the 10 rotary-wing assets. Knowing that dust can potentially cause tremendous damage to turbine engines as well as pose a higher risk to aircraft browning out during landing, the decision was made to park helicopters on existing vehicle parking areas. MEDEVAC pads were established in close proximity to the field hospital.

**Deployment phase.** Risk management was briefed to the command daily to keep safety in the forefront during the entire exercise. The focal points throughout the operation were areas that create “catastrophic” and “critical” levels of accident severity: ammunition, vehicle, petroleum, oils, and lubricants (POL), and aviation safety. Once risk mitigation was implemented in these areas, the focus shifted to those areas with higher accident probability factors.

The safety officer worked as an integral part of the commanders’ special staff and worked directly for the commander through the chief of staff. During the deployment phase, daily accident information was retrieved from several sources: the field hospital provided a record of the daily injuries, military police (MP) provided information on vehicle accidents, range control provided information on significant events at the range, and CFLCC C-3 aviation provided aviation-related incidences.

On the first day of deployment, the safety office produced an Emergency Contact Sheet that provided all the important safety-related telephone numbers and frequencies. As the base camp communications architecture evolved, the safety office kept abreast of changes and we inevitably published six editions of this document. This sheet included phone numbers for the field hospital, MPs, Egyptian Fire Department, MEDEVAC, and range control, to name a few. This eventually became an annex to the MMC and Base Camp Pre-Accident Plan.

**Range safety.** The CFLCC safety officer, in conjunction with range control, observed all range activities. Daily range meetings became a critical platform to brief accident prevention to coalition forces that were not keenly familiar with risk management. Briefings included graphic pictures to highlight the dangers of unexploded ordnance (UXO) and careless or accidental discharge of weapons systems.

The U.S. Marine Corps element drafted a range SOP and executed a superb range operation. They provided liaison officers (LNOs) to most coalition partners. The challenge was ensuring that 15 separate coalition forces utilized a single common procedure for range operation.

**Vehicle safety.** As with most deployments, vehicle safety proves to be the greatest danger to the warfighter. LTG Tommy R. Franks’ philosophy was stressed to the command, “A parked vehicle has never killed anybody.” Stringent vehicle dispatch policies were implemented. Additionally, the CFLCC adhered to the U.S. Embassy policy to not conduct any vehicle nighttime operation outside of the operations area due to problems inherent with in-country vehicle hazards; i.e., many Egyptian roads do not have lights, road markings are often non-existent, and many civilian vehicles operate without headlights.

The MP battalion became a critical element in vehicle safety. The MPs were very proactive in their efforts which included, but were not limited to, establishing, posting and enforcing speed limits, creating speed bumps to slow down traffic, establishing traffic control points for convoys, and providing convoy escorts to check convoy speeds.

**Aviation safety.** The CFLCC safety office was also located with the CFLCC C-3 aviation section. A safety council was established and met weekly as the CFLCC developed into a more robust operation. Aviation safety issues were addressed and resolved in this forum. The most significant issue that remained unresolved was the absence of a fully-integrated primary crash alarm system.

An Internet link with the U.S. Army Safety Center ASOLIST provided a current source of Safety-of-Flight and Safety-of-Use messages. We created the Bright Star Aircrew Information Manual, which served as a guide to aircrews in the effort to deconflict airspace and ensure a common operating procedure among all the coalition aircrews.

**Ammunition/weapon safety.** Ammunition and weapons safety is a challenge for any deployment and this challenge is increased when coalition forces are involved. The primary control for weapons safety was implementing a policy allowing only those personnel involved in the force protection security mission to carry
small arms ammunition. Small arms ammunition was only issued at the ranges in conjunction with range activities.

**Electrical safety.** Approximately 40,000 meters of electrical wire were laid by the Prime Power crew by either elevating above the standard height of cargo vehicles and whip antennas or buried underground. The major concern was electrical wiring to civilian bazaars and the contract tents erected by local nationals, which may not have met the electrical codes. Coordination and much effort were expended preventing these areas from becoming an electrical hazard.

**POL safety.** The 110th Quartermaster Company established the bulk fuel point. The layout of the fuel points was by the book and went above and beyond the required standards.

**Base camp safety.** Elements of safety were made part of the newcomer’s briefing to highlight those safety issues that could not be mitigated. There were many existing hazards at MMC that could never have been mitigated such as electrical and trip hazards. Safety awareness was further enhanced through the use of safety mini-posters that were disseminated to the subordinate commands. Twenty pages of “safety one-liners” were provided to the FM radio station, “Bright Star Radio” and were effectively used to promote safety awareness to our radio audience.

The biggest concern was tent fires, which always exists in a tent city. Safety awareness remained the key and the no-smoking policy in tent areas was emphasized and enforced during all phases of Bright Star.

**Warfighter endurance.** Mental and physical preparation of soldiers was a primary focus and there were a small number of incidences of dehydration. Health hazards were present and the preventive medicine teams were active in treating areas requiring mitigation of airborne pathogen hazards.

**Post-deployment phase.** Capturing lessons learned is essential in ensuring future Bright Star exercises are safe. Bright Star 1999/2000 statistics show that the CFLCC dispensed almost half a million gallons of fuel, drove over 3,000 vehicles, flew around 50 assorted rotary-wing aircraft, laid approximately 50 miles of electrical wire, and expended over 300 short tons of ammunition.

For a period of 4 to 8 weeks, over 17,000-coalition land force warfighters conducted high OPTEMPO training, accomplishing this goal safely without any major incidents or fatalities. Credit goes to the leadership and warfighters that embodied the principles of risk management and protected the force while conducting the mission.

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**Quickbits**

In the June 2000 Countermeasure article, “Weapons Clearing—A Loaded Issue,” we inadvertently left out an important step in the clearing procedures for the Caliber .50 w/ M10 charger. We regret this error.

**IAW FM 17-12-1-2 dated May 98 (Page A-18)**

- Move safety switch to “S” (SAFE) position.
- Open cover.
- Lift extractor and remove ammunition belt from feedway.
- **Lower extractor and close cover.**
- Move locking selector on M10 charger to the rear (LOCKED) position.
- Pull back on charging handle and lock bolt to the rear.
- Open cover.
- Look into both the chamber and T-slot for ammunition.
- Move locking selector on M10 charger to the forward (RELEASE) position.
- Pull back on charging handle and ease bolt forward.
- Close cover.
- Move safety switch to “F” (FIRE) position.
- Press trigger to fire weapon.

**POC:** SFC Johnny Torres, USASC Ground Systems and Accident Investigation Division, DSN 558-2381, torresj@safetycenter.army.mil
Head’em up, Roll’em out... Safely!

Protect The Force Through Risk Management!
The Official Safety Magazine for Army Ground Risk-Management

Head’em Up, Roll’em Out...Safely!
Tips on how to reduce convoy accidents for leaders and drivers.
Page 3

Survival of the Fittest
You don’t have to be old or in rotten shape to have a heart attack—check out the warning signs.
Page 14

Saved By The Belt
SGT Barrera now has a deep appreciation for the power of seatbelts. Find out why.
Page 16

POV UPDATE
October - July FY00
Total fatalities: 87
Includes theater, trailing, unknown POVs and bicycles.

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Head’em Up, Roll’em Out...Safely!

“Ten-four, good buddy. I’m puttin’ the pedal to the metal. I believe we’ve got ourselves a convoy.”

Taken from an old movie, those words reflect the Hollywood image of a bunch of good ol’ boys driving big trucks and hauling the goods. Of course, when they have an accident in the movies, it’s well planned and staged for maximum effect with minimum real damage and no real injuries. In the Army, accidents are not only unplanned and unstaged, they’re costly in both damage and injuries. So, what’s it going to take to reduce convoy accidents? Read on!

Take control and manage risk

The best course to take is to first manage the risks. Risk management gets people thinking about what can go wrong and what they can do about it. “Hmmmm...What can go wrong in this leg of the convoy? Let’s see...rain’s rolling in and I’m under goggles. It’s worse out here than I figured. What are my options?”

Anticipate problems! If you anticipate the hazard and it develops, you’re ready to deal with it. You can take a different route; you can put out ground guides; you can stop and wait for hazardous weather conditions to clear; or if driving with night vision devices (NVDs), you can take off your goggles and turn on the lights. But, do something to reduce the risk.

That means before every convoy operation, leaders at all levels should brief drivers, assistant drivers, and senior occupants on the mission, route, type of vehicles they’re driving, proper speed, safe following distances, rest periods, signals, and hazardous areas or conditions that might be encountered. They should always pair inexperienced drivers with more experienced assistant drivers or senior occupants. In addition, leaders should ensure that drivers—

♦ Have a valid drivers’ license.
♦ Are trained to drive in adverse conditions, over difficult terrain, in blackout drive, and under NVDs.
♦ Know the meaning of traffic-control signs, signals, devices, and markings.
Are provided at least 8 consecutive hours of rest for each 10 hours of driving an Army motor vehicle (AMV) within a 24-hour period.

- Know emergency procedures.
- Take at least a 15-minute rest break every 2-3 hours or every 100-150 miles, whichever occurs first.
- Take at least a 1-hour meal break.
- Can communicate with convoy commander.

Individual responsibilities
You know, we hold leaders responsible and accountable for everything the unit does or fails to do. But in the end, to be a soldier is to exercise self-discipline. Discipline is doing the right thing without supervision. It is up to drivers to ensure that—
- They walk to the rear of their vehicle before starting and secure the tailgate and safety strap.
- All passengers are seated.
- Baggage and other loads are secured and are not in the way of passengers.
- No personnel ride outside of wheeled and tracked vehicles.
- All occupants use installed restraint systems.
- Ground guides are used when backing (guides should never be located between moving vehicle and fixed object).
- Proper distances are kept between vehicles (see pages 8-9 for AMV safe following distances. Environmental conditions and vehicle weight will greatly impact following distances.)
- They slow down during reduced visibility and adverse weather.
- They perform before-, during-, and after-operation preventive maintenance checks and services (PMCS).

In summary, to keep the Army rolling, leaders need to train qualified soldiers to standard and supervise to enforce performance to that standard. Drivers need to maintain the self-discipline it takes to perform to standard.

For further guidance on convoy operations, see AR 385-55, AR 600-55, FM 21-305, and FM 55-30.

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

Risk Management Pointer:
Leaders should ensure that battalion-level driver training programs follow guidelines in AR 600-55. In addition, leaders should also establish an SOP for disseminating safety-of-use messages.

What’s the Difference?

Have you ever wondered why leaders use risk management procedures when they “convoy” a large group of vehicles, but not when they “move” a multi-vehicle group? So, what’s the difference?

According to FM 55-30, a convoy consists of six or more vehicles. Depending on the unit’s SOP, it could be different. Preparing vehicles and soldiers for a movement is the responsibility of all leaders—regardless of the number of vehicles.

Recently, there has been an increase in accidents with multi-vehicle movements (2-5 vehicles). To ensure the safe execution of the convoy movements, leaders must ensure that convoy commanders are aware of their responsibilities and they use the risk management procedures outlined in FM 100-14. Unit SOPs should address duties and responsibilities of drivers, assistant drivers, and senior occupants during movements of any number of vehicles.

POC: MSG Timothy Sprucebank, USASC Senior Wheel Vehicle SME, Ground Systems and Accident Investigation Division, DSN 558-3774 (334-255-3774), sprucebt@safetycenter.army.mil
The Army Safety Center has noted 22 convoy accidents since FY 98 caused by leaders failing to properly perform their duties as the commander of a vehicle movement as required in FM 55-30, Army Motor Transport Units and Operations. This includes failure to control the group’s movement, failure to ensure that vehicles maintain a proper march speed, and failure to properly mark the unit’s vehicles.

The convoy commander is responsible for the safe movement of the convoy. He must be capable of positively controlling the convoy movement through the use of communications equipment among the vehicles, by ensuring each vehicle has a properly trained, equipped and supervised crew, and by leading from the front. He must control the group’s movement by enforcing speed limits, march intervals, crew uniform, and seatbelt usage. He must be required to stop the march if an unexpected hazard is encountered along the route.

Preparing vehicles and soldiers for movement is a leader responsibility. Indications are that inexperienced soldiers, personnel turbulence, and ever increasing training requirements have caused some units to become complacent in managing the risks associated with vehicle movements. In accordance with the risk management process, as outlined in FM 100-14, leaders must identify the hazards associated with the mission, then develop, implement, assess and supervise control measures to mitigate those risks. These control measures include marking the vehicles IAW local SOPs, briefing crews on hazardous conditions expected along the route, pre-convoy checks of personnel and equipment, and developing pre-accident emergency contingency plans.

Unit SOPs should address leader responsibilities during movements of any number of vehicles and identify means to implement common control measures such as those defined in this message. Commanders must ensure that assigned leaders of any size military convoy are aware of their responsibilities and perform their duties to ensure the safe execution of the unit’s mission. ♦

Leadership saves lives!
— BG Gene M. LaCoste, Director of Army Safety
**Accident Briefs**

**Driver Rolls 5-Ton**

A passenger was killed and the driver injured when their 5-ton truck went out of control and ran into a utility pole. The vehicle was part of a unit convoy that was en route to a training site when the driver overcorrected his steering while swerving to avoid hitting a civilian vehicle to his immediate front. The civilian vehicle had swerved to avoid a pedestrian who was near the road. The 5-ton driver was following too close to the civilian vehicle for the conditions on the road.

**Hazards.** The driver failed to maintain sufficient separation between his vehicle and the civilian vehicle. His speed was between 20-25 miles per hour with only 25 feet separation.

**Controls.** Convoy commanders must ensure all drivers are briefed on convoy intervals and speeds. Further, they must brief all members of the convoy on local traffic laws and customs. Finally, leaders must enforce standards for safe driving among all their subordinates.

**Inexperience Kills!**

A passenger was killed and the driver injured when their high-mobility multipurpose-wheeled vehicle (HMMWV) went out of control and rolled over. The two soldiers were in a vehicle equipped with only lap belts, not the full safety belt harness.

**Hazards.** The driver had only recently been licensed on the vehicle. He had little actual driving experience, and his license had been issued without the required hands-on tests. The driver was also unfamiliar with the route, which covered curvy, bumpy, hazardous terrain. In addition, the speedometer on the vehicle was broken. As a result, the driver was driving too fast for the adverse road conditions and failed to slow for a curve.

**Controls.** Driver training programs and certification should conform to the standards. Leaders should ensure that inexperienced drivers are given opportunities to gain experience under controlled conditions in familiar territory. Further, maintenance must be performed not just as scheduled, but also as needed.
Motor Pool Hazards/Controls

A good maintenance safety program is critical in motor pool operations because of the high potential for accidents and injuries. This increase in accident risks demands an equal increase in safety measures. Therefore, in order to protect the Army’s soldiers and equipment, we must integrate safety into all maintenance activities. The time is now to improve your unit maintenance safety program—talk to your soldiers and discuss maintenance activities with emphasis on proper procedures, required personal protective equipment, and avoidance of potential hazards.

Hazard. Exposure to asbestos from brake linings and clutch facings.

Controls. Brushes or air pressure hoses should never be used to clean clutch facings, brake linings, or wheel drums. This could cause asbestos fibers to become airborne. This cleaning should be done using wet or vacuum methods because it can cause lung disease when inhaled. When exposed to asbestos, mechanics should wear a respirator NIOSH-approved for asbestos protection, such as Respirator, Lightweight, Particulate Removing, NSN 4240-00-084-9394. Contact your Preventive Medicine Activity for further guidance.

Hazard. Welding operations include vision and breathing hazards, especially welding on metals covered with paint that contains lead, chromates, or other toxins.

Controls. If you weld, cut, or braze in your motor pool, contact your Preventive Medicine Activity to have your operations evaluated for adequate ventilation and eye protection. If your facility has less than 10,000 cubic feet of space, if its ceiling is less than 16 feet high, or if welding is taking place in enclosed areas, you must provide local exhaust ventilation of 100 feet per minute (fpm) away from the breathing zone into the welding exhaust hood. Respirator, Air Filtering for Metal Fumes, NSN 4240-00-099-6939, must be provided in all extensive welding operations both indoors and out. In some cases, airline respirators must be provided.

Hazard. Exposure to exhaust fumes. Primary exposures in motor pools are carbon monoxide and other toxic gases. The amount of exposure depends on engine size, number of engines in operation, duration of engine operation, and size and construction characteristics of the motor pool.

Controls. Whenever possible, test and tune engines outdoors to avoid buildup of toxic gases in the motor pool. If engine work must be done indoors, use extension hoses, preferably powered local exhaust hoses, to vent exhaust fumes outside. Ensure tight connections and good natural and dilution ventilation.

Hazard. Exposure to noise from engines, air compressors, and generators.

Controls. If you have to raise your voice above normal conversation levels in the motor pool, contact your Preventive Medicine Activity for a noise hazard evaluation. Identify all machinery, vehicles, and shop areas where noise levels exceed 85 decibels and label them with warning stickers, NSN 9905-00-198-2728. Provide hearing protectors, earplugs, or earmuffs and ensure a medical fit. Enforce their use in your motor pool.

POCs: MSG Timothy Sprucebank, Ground Systems and Accident Investigation Division, DSN 558-3774 (334-255-3774), or LTC Robert Noback, Command Surgeon, DSN 558-2763 (334-255-2763)
Written by accident investigators to provide major lessons learned from recent centralized accident investigations.

Investigators’ Forum

Driver Dies in Night Operation Accident

The battalion was conducting tank gunnery. The operations order called for the tank companies to bivouac in the field. Support was from garrison with twice daily supply runs to the field site via a light medium tactical vehicle (LMTV). The assistant supply sergeant was the assigned driver that morning and his first-line supervisor rode in the right seat as the TC. The mission that day was to deliver breakfast chow and return three soldiers to the field site. Two of the soldiers climbed in the cargo compartment for the ride to the field site, while the other passenger, the senior occupant, rode in the middle seat.

Meanwhile, that same morning, an armor convoy of four vehicles started moving from their unit assembly area to the Table XII range. The convoy consisted of two M1A1 tanks, an M113 medic track, and a HMMWV moving in that order. The two tanks in the lead were using infrared (IR) drive lights with no visible markings on the tanks. The drivers were using their AN/VVS-2 driver night viewer.

The accident occurred as the vehicles traveled along a tank trail during normal operations. In the predawn darkness, the LMTV moved at approximately 22 miles per hour northwest along the range road using blackout drive lights. The speed limit during hours of reduced visibility is 15 miles per hour. The driver, the vehicle commander, and the senior occupant had night vision devices (NVDs) for use, but they had left them in the cantonment area. The driver and the TC were awake and talking, while the senior occupant dozed in the middle seat.

The tank convoy, moving southeast along the same road, saw the LMTV approximately 200 meters away driving in their...
direction. The TC of the lead tank instructed his driver to guide to the right side of the road to enable the LMTV to pass. The LMTV continued to approach with no change in speed or movement to the right side of the road to pass safely. The TC of the tank realized that the LMTV was going to hit the tank, so he ordered his driver to stop.

The LMTV struck the stationary tank. The forward-pointing gun tube of the lead tank penetrated the crew cab of the LMTV and struck the driver, fatally injuring him. Other personnel in the LMTV suffered minor injuries. No one in the tank was injured.

What went wrong?
The TC of the lead M1A1 did not operate his vehicle in accordance with command directives. He did not operate his vehicle with blackout drive lights and other illumination requirements.

In addition, the armor company commander failed to properly perform his duties as the commander of a vehicle movement as required in FM 55-30, Army Motor Transport Units and Operations. This includes failure to control the group’s movement, failure to ensure that vehicles maintain a proper march speed, and failure to properly mark the unit’s vehicles.

The LMTV senior occupant did not execute his responsibilities to ensure safe vehicle operations. He failed to ensure the driver or the truck commander had and used NVDs for the night movement. Consequently, the unaided LMTV driver could not see the unmarked, unlit lead M1A1 tank and ran into it head-on.

Lessons learned
The installation range regulation deals specifically with convoys using IR drive lights. It requires both the lead vehicle and the trail vehicle to use blackout drive lights and that vehicles using IR illumination be also illuminated with an additional light source such as a chemical light. Personnel in the front and trail vehicles are to warn approaching vehicles of IR vehicle operations.

The LMTV TC did not identify the hazards associated with conducting a vehicle movement during the hours of limited visibility. Although both the TC and his driver signed out NVDs, neither used them. Further, there was no division standard requiring the use of NVDs while operating a vehicle in the training area. The battalion operations order required all vehicle movements be conducted at night. The order included a risk assessment, but it did not mention any hazards associated with night vehicle movement or convoy procedures. As such, it listed no control measures to reduce those hazards.

Both the TC and the senior occupant allowed the driver to speed. The range road speed limit during hours of darkness was 15 miles per hour. The LMTV was going approximately 22 miles per hour...too fast for blackout drive lights. It is unknown if or when the driver saw the tank, but it is unlikely because there were no indications that the driver used the brakes or attempted an avoidance maneuver. If he had been going slower, the driver or the TC might have had time to see the tank and avoid the collision. As it was, the TC did not see the tank until the instant before impact, and the senior occupant never saw it because he was asleep.

At the installation where this accident occurred, the range regulation requires all personnel in the grade of E5 and above be range safety certified. Certification includes a class at range control and a written examination. Neither the program of instruction nor the examination mentions the IR convoy lighting requirements specifically. Consequently, the lighting requirements were not well known. In fact, witnesses said tanks often moved with IR lights only, unmarked by chemical lights and unescorted by lead and trail vehicles.

Summary
This accident could have been prevented by leader actions to manage risk in accordance with FM 100-14. They must identify hazards, develop and control risks in the planning.
through execution stages of the operation. Leaders must properly supervise their soldiers to ensure that all operations are conducted to standard. By enforcing standards, leaders can improve the capabilities of their units and help protect soldiers.

Wrong Leader for the Job

The Support Platoon had been running continuous operations for several weeks in support of a deployed force. The mission for the day consisted of pulling an empty bulk liquid cargo trailer to an off-post location, filling it with water, and then returning it to the installation to refill several water points. The mission would be complete when they dropped the water trailer at the unit motor pool.

The driver awoke at 0430 and attended a 0515 accountability formation with other members of the platoon. The platoon was released to eat breakfast and then return at 0615 for a mandatory safety briefing. The safety briefing was conducted for all drivers who were on mission that day and was given by the unit driver trainer.

After the safety briefing, the drivers were released to conduct pre-operations preventive maintenance checks and services (PMCS) on their assigned vehicles. While the driver filled out the PMCS checklist for the vehicle, the truck commander (TC) completed a risk assessment worksheet that was required for dispatch. Upon completing these two forms, the driver turned them in and was given a dispatch for the vehicle.

At approximately 0700, the driver and TC departed the motor pool, signed out of the unit, and proceeded to the off-post water point. After getting their water, the driver and TC returned to the installation to proceed with their mission.

After re-entering the installation, the vehicle turned onto a secondary road, a narrow, hard surface road running parallel to the installation boundary. At approximately 0845, the vehicle passed several soldiers working along the road approximately 200 meters from the accident site and entered a 90-degree right curve. These soldiers noticed that the vehicle was moving at a high rate of speed.

What went wrong?
The vehicle was traveling between 55 and 65 mph as it entered the curve. The driver lost control of the vehicle midway through the curve. The tractor and trailer rolled 270 degrees to the left (driver’s side), ultimately...
coming to rest on the passenger’s side. The driver was rendered unconscious. The TC sustained fatal injuries.

**Lessons learned**
The TC for this mission failed to maintain control over the driver’s actions and did not perform his duties as outlined in AR 600-55. Witness statements and analysis of the accident site indicate that the vehicle was traveling at a high rate of speed for the conditions.

The TC had a history of not enforcing driving standards over the past ten months. He had, in fact, had his license suspended for a short period of time for two speeding violations and two minor traffic accidents while he was either the driver or the senior occupant of a vehicle. While he was on the promotion list to Sergeant (E-5), he had received little training that would qualify him for duties as the truck commander. In addition, his unit had not conducted any training for vehicle commander responsibilities/duties.

The unit’s leaders did not enforce regulatory standards or their own unit SOP. The investigation revealed that leader involvement in unit motor pool operations was insufficient and that leader participation in the risk management system was substandard. Individual drivers were allowed to conduct a risk assessment of their upcoming missions with no NCO supervision or quality control. Further, there was no system in place to notify each driver of hazards associated with the terrain they would be operating on during their mission. Finally, there was little officer involvement in reducing the hazards identified by the drivers in developing control measures for these hazards.

While the driver was trained and licensed on the family of vehicles he was operating, he was not trained on the specific variation of the vehicle. The accident vehicle was put into service with the unit only three weeks prior to the accident. This new variant of the vehicle had several subtle differences from other vehicles in the fleet.

The investigation revealed that the driver did not fully understand these differences or their impact on driving the vehicle. Further, the unit failed to properly train any of the drivers on the correct procedures involved in transporting bulk liquid cargo. The unit failed to ensure the driver had the Tanker Endorsements as required by AR 600-55, Appendix C.

**Summary**
While the immediate cause of the vehicle rollover was excessive speed for the road conditions, the foundation for this accident was laid weeks, even months, before. Failure on the part of unit leadership to properly manage and oversee the unit’s day-to-day operations in the motor pool created an environment where soldiers who were clearly not qualified for specific duties (i.e., vehicle senior occupant) were allowed to perform these duties with little or no supervision by the chain of command.

Further, some junior leaders within the unit were not involved in their subordinate’s daily mission preparation or performance. Daily maintenance practices and risk assessment procedures had no actual leader oversight and few of the leaders exhibited an understanding of the process. Interviews revealed that some of the key leaders in the unit were seldom even in the motor pool, and had little insight into the road network that their subordinates were using.

Our soldiers expect and deserve effective leadership and mentoring. Positive leader involvement in the organization’s mission could have prevented this accident from occurring. Leaders, ask yourselves this: “What am I doing today to prevent tomorrow’s accident?” Your soldier’s lives depend on you getting the answer right.

**POC:** USASC Ground Systems and Accident Investigation Division, DSN 558-3562 (334-255-3562)
The soldier was 40ish, kept himself fit, enjoyed running, always did well on PT tests, and had just passed a physical a couple of months before. Going to the gym was a regular routine as well. One day in the gym, while doing upper bodywork, he started having some pain in his upper chest, just a dull ache, kind of like a muscle pull. Because he was almost finished with his workout, he decided to “work through it.” He finished his workout, cleaned up, and walked out of the gym. He then experienced an extremely sharp pain in his chest and collapsed. The next thing he remembers is waking up in a hospital and being prepped for a coronary artery bypass operation. Come to find out, this soldier had a heart attack!

Every year there are cases of active-duty soldiers who die from sudden cardiac arrest. While the exact circumstances and causes may not be known, indications are that physical exercise and strenuous exertion may be contributing factors because they increase the heart’s need for oxygen. You don’t always have to be old or in rotten shape to have a heart attack—there have been soldiers in their 20s who have had them.

It is important to know the warning signs of a heart attack. According to the American Heart Association, these are the most common signs:

- Uncomfortable pressure, fullness, squeezing or pain in the center of the chest lasting more than a few minutes.
- Pain spreading to the shoulder, neck and arm.
- Chest discomfort with lightheadedness, fainting, sweating, nausea or shortness of breath.

Other less common warning signs include:

- Unusual chest pain, stomach or abdominal pain.
- Nausea or dizziness.
- Shortness of breath or difficulty breathing.
- Unexplained anxiety, weakness or fatigue.
- Pounding or irregular heartbeats, cold sweats, or paleness.

A lot of these signs are easy to mistake for minor muscle injuries, dehydration, or over exertion—typical symptoms of soldiers soldiering. It is one thing to be Hooah; it is another to have a heart attack. If you have these symptoms, especially if they persist, get them checked out!

POC: LTC Robert Noback, Command Surgeon, DSN 558-2763 (334-255-2763), nobackr@safetycenter.army.mil
Safety Messages

Recap of selected 3Q FY00 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) and Communications and Electronics Command (CECOM). Complete copies are available on the Army Electronic Product Support Bulletin Board via the internet web site at http://aeps.ria.army.mil.

- **R051000Z Apr 00**, subject: SOUM-00-011, Technical, M109A5 (NSN 2350-01-281-1719, LIN K57667) and M109A6 (NSN 2350-01-305-0028, LIN: H57642) Self-Propelled Howitzers (SPH). There have been two carbon monoxide (CO) incidents during live firings of M109A6 SPH, resulting in injuries to crew. Exposure to air contaminated with CO may produce one or more of these symptoms: nausea, headache, dizziness, apparent drowsiness, loss of muscular control, and coma. Permanent brain damage and death can result from severe exposure. POC: Gary Rogers, DSN 793-0030 (309-782-0030), rogersg@ria.army.mil.

- **R061228Z Apr 00**, subject: SOUM-00-012, Operational, M1000 Heavy Equipment Transporter Semitrailer (HETS), NSN 2330-01-303-8832, LIN S70859. This SOUM rescinds SOUM-99-01 and allows the user to transport the M1, IPM1, M1A1, and M1A2 Abrams tanks with the MCB. POC: Mike Decker, DSN 786-5548 (810-574-5548), deckerm@tacom.army.mil.

- **R061157Z Apr 00**, subject: SOUM-00-013, Technical, Inspection of the Heavy Equipment Recovery, Combat Utility Lift and Evacuation System (HERCULES), NSN 2350-01-390-4683, Model M88A2, LIN: R50885. The M88A2 (HERCULES) has experienced three engine compartment fires since Dec 99. It was determined that the spilling or leaking of engine oil was the cause of the fires. POC: Keith Powell, DSN 786-5310 (810-574-5310), powellk@tacom.army.mil

- **R061128Z Apr 00**, subject: SOUM-00-014, Technical, Combination Pressure Washer and Steam Cleaner (NSN 4940-00-186-0027, LIN E32466; NSN 4940-00-473-6218, LIN E32535; NSN 4940-01-017-7835, LIN E32535), and all locally procured combination pressure washer and steam cleaners. These machines lack ground fault circuit interrupter (GFCI) protection features. POC: Irvin Eyre, DSN 793-8149, eyrei@ria.army.mil.

- **R121509Z Jun 00**, subject: SOUM-00-015, Technical, Geared Hub Lock Washer, NSN 5310-01-213-4185, for all M998 series HMMWVs. POC: Jody McNerney, DSN 786-6277 (810-574-6277), mcinernj@tacom.army.mil.

- **R121509Z Jun 00**, subject: SOUM-00-017, Update to SOUM 00-014, Technical, Geared Hub Lock Washer, NSN 5310-01-213-4185, for all M998 series HMMWVs. POC: Jody McNerney, DSN 786-6277 (810-574-6277), mcinernj@tacom.army.mil.

- **R161720Z May 00**, subject: GPM-00-007, Cab Lift Cylinder, NSN 3040-01-372-4179, and Cylinder Mounting Bracket, NSN 2590-01-374-3851, on FMTV. FMTV PM failures occur when the pin breaks off of the mounting bracket. Corrosion builds up between the cab tilt cylinder collar and the lower mounting pin, causing the pin to fail during cab tilt operations. POC: John Kandrot, DSN 786-8083 (810-574-8083), kandrotj@tacom.army.mil.
The day was 21 June 1998, Father’s Day. SGT Barrera had just finished the Sergeant’s Course and was traveling with his family from Arizona to Camp Pendleton, CA. He was driving the family van with his wife who was 7 months pregnant, and their 2-year-old daughter. Everything was going well, but something would happen in the next half hour that would leave an unforgettable mark on SGT Barrera and how he viewed life.

SGT Barrera rarely wore his seatbelt and he felt no particular urge to wear it this time either. His wife and daughter were both secured in their car seats.

It was hot outside, but the air-conditioning inside the van made the long trip bearable. The family had been on the road for 10 hours when they reached the Arizona/California border. At the border, the elderly checkpoint worker cautioned SGT Barrera to fasten his seatbelt.

Without much thought, SGT Barrera fastened his belt. His wife and daughter were asleep, and they would soon be in Pendleton in 2½ hours. Less than 30 minutes later, SGT Barrera also fell asleep...at the wheel.

He was suddenly awakened by the sound of the highway rumble strip and the van rocking as it began to leave the road. Instinctively, he turned the wheel in the other direction and the van lurched to the left.

The speed and quick direction change caused the van to roll over two times, landing on its roof 20 yards off the highway. All of the cargo inside the van, with the exception of one suitcase, was violently thrown clear of the van.

Luggage, a huge ice chest, and other belongings were scattered all over the crash scene. All of the windows were shattered and the van was totaled. SGT Barrera’s wife was knocked unconscious and his daughter was unhurt, but was frightened and crying. Fortunately, SGT Barrera had fastened his seatbelt and remained behind the wheel during the violent rollover and only received a minor cut to his face.

Three cars arrived on the scene within minutes. Shortly, a California Highway Patrol unit and an air ambulance arrived. Due to the fact that Mrs. Barrera was 7 months pregnant, they airlifted her first in order to monitor the condition of the fetus. She was released after overnight observation, while SGT Barrera and his 2 year-old daughter required no special medical attention. One month later, Mrs. Barrera gave birth to a healthy 9-pound baby boy.

The trauma of this crash left SGT Barrera with a deep appreciation for the power of seatbelts and for a family that he could have lost. He certainly isn’t shy about wearing seatbelts now and insists all passengers do the same. He is also a firm believer in getting proper rest before taking a trip.

Courtesy of Jerry Hollenback, Safety Specialist, Marine Corps Air Station, Iwakuni, Japan, DSN 253-5487, hollenback@iwakuni.usmc.mil. Mr. Hollenback was told this story while teaching the AAA Driver Improvement Course on base. SGT Barrera is currently stationed at the Marine Corps Air Station, Iwakuni, Japan.
Be prepared for cold weather, know the hazards and plan accordingly!

PLUS: Hot Tips for Tent Heaters!
Cold Weather—Are You Prepared?  
Plan for the cold. Cold weather injuries are preventable through planning and training.  

Survival of the Fittest  
Everyone is aware of dehydration in hot weather, but it doesn’t get a lot of attention on cool days. Read what happened to one runner.  

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Investigators’ Forum  
Soldier killed, another injured while changing tire.  

Into the Flames  
With the car and the woman on fire, the Captain took a deep breath and thrust his hands and arms into the flames and pulled her out!  

Running On Empty  

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Cold Weather—Are You Prepared?

The good news is that all the satellite and weather balloon measurements of temperature agree that the surface temperature measurements are all lower than the models and that global warming isn’t really happening. The bad news is this means winter will be cold as usual. Cold weather brings cold injuries, at least for those who are not prepared. This has been true from Hannibal crossing the Alps, to the soldier wearing jungle boots on guard duty in Bosnia in January.

How do you prepare? The first thing in any battle is to know the threat.

■ Dehydration: In the cold, dehydration is a problem because it is unexpected. Most of us think that dehydration is only found with heat injuries—this isn’t true. In the heat, you sweat, and it’s easy to think of drinking water to replace the sweat. Working in the cold, you still sweat; but because you are not hot, you might not think you need fluids. Symptoms of dehydration include dizziness, weakness, headaches, and nausea. A good rule of thumb is that if your urine is dark yellow, you’re not drinking enough water. (Note: Diarrhea and vomiting can also promote dehydration or make it worse.)

  + First Aid: DRINK WATER! Have the soldier replace lost fluids. Water is best; however, sports drinks are also acceptable if available. Fluids should be sipped, not gulped. Sodas, coffee, tea, or other caffeine drinks won’t help. If the soldier isn’t improving quickly with fluids and rest (preferably in a warm location), seek medical help.

■ Immersion Foot: This is also called trench foot after the first descriptions of the condition when it occurred in World War I soldiers. The cause is continued exposure to wet, cold conditions. The surprising factor is that it doesn’t have to be freezing cold, trench foot can occur at temperatures up to 60 degrees Fahrenheit if the exposure is around 12 hours. Of course, if the temperature is lower, it can occur sooner. Symptoms include cold, numb feet that may have shooting pains, as well as redness, swelling, and bleeding particularly involving the toes.

  + First Aid: The most important step is to re-warm and dry the feet. Expose the feet to warm air and/or gently wrap in dry blankets or towels. Do NOT massage, rub, or use salves or ointments on the feet. Do not expose the feet to extreme heat; if the feet are numb, the victim may get burned and not realize it. If you suspect trench
foot, get medical help immediately.

- **Chilblain:** This is a condition caused by exposure of bare skin to continued temperatures ranging from 20-60 degrees, depending on an individual’s acclimatization. Symptoms of chilblain include tender, hot-feeling, red and itching skin, mainly on exposed areas like the cheeks, ears, and fingers. Feet, however, may be affected also.

  + **First Aid:** Warm the soldier’s affected body part with direct body heat, or move the soldier to a warm area. Do NOT massage the area, rub with snow or ice, or apply salves or ointments. Do NOT expose the area to any intense heat. If the soldier does not improve, seek medical help.

- **Frostbite:** This is a very common and potentially dangerous injury. The body is mainly water and water freezes at 32 degrees. Frostbite occurs when the body cannot maintain sufficient internal heat in certain parts, and the water in cells freezes. Areas that are most often affected are those areas exposed, or where blood flow can be decreased, such as fingers, toes, ears, and other facial parts. Exposure to bare skin on metal, extremely cool petroleum, oils, and lubricants (POL), wind chill, and tight clothing, particularly boots, can make the problem worse. Symptoms include numbness or tingling in the affected part; blisters, swelling, or tenderness; body parts that feel dull or wooden; and pale, yellowish or waxy looking skin—gray in dark-skinned soldiers.

  + **First Aid:** Frostbite is a medical emergency; the victim should be evacuated as soon as possible. If not treated properly, frostbite can lead to gangrene and amputation. Prior to evacuation, the soldier should be moved to a warm area and warm the part affected with direct body heat or warm air. Do NOT warm with hot water, expose the part to any intense heat, rub or massage the area, rub with snow or ice, or use salves and ointments. Do not allow the part to thaw and then refreeze.

- **Hypothermia:** This is a serious medical emergency. Hypothermia is caused by severe body heat loss due to prolonged cold exposure. Immersion in water can make hypothermia worse or come on more quickly because the water increases heat loss. Symptoms include lack of shivering and what has been described as “the Umbles”—stumbles, mumbles, fumbles, and grumbles—all of which are signs of mental slowing and lack of coordination. Hypothermia can progress to unconsciousness, irregular breathing and heartbeat, and eventually death.

  + **First Aid:** If you find a soldier in the earlier stages of hypothermia—still conscious—start to warm the soldier immediately. If the clothes are wet, remove them. Loosen any restrictive clothes. Wrap the victim in dry blankets or a sleeping bag. Another person can get into the sleeping bag as an additional heat source. Get medical help immediately.

  If the soldier is unconscious, cold to the touch, and appears to have no pulse or breathing, DO NOT assume that the soldier is dead! Normal body temperature is 98.6 degrees. When it gets down to 90 degrees, the body tries to save energy and heat by trying to “hibernate.” Blood flow to the arms and legs is decreased, and pulse and breathing become shallow. A soldier may appear dead, but his heart rate and breathing might be so low that untrained personnel miss it. People with temperatures as low as 82 degrees have been resuscitated. Get the soldier to a medical facility as soon as possible!

### Cold injury prevention

The most important thing is to plan for the cold. Make sure you have accurate weather information for the area and time of the mission (wet conditions and wind chill 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, and if possible, warm food and drinks.

The most important individual preventive measure is wearing the proper cold weather clothing. The Gore-Tex™ parka is designed to keep
you dry, but it is not intended to be the main overgarment in extreme cold. Wearing every article of cold weather clothing issued can be bad, because it may cause overheating or restricted circulation. All cold weather clothing should be worn loose and in layers. This allows air circulation between the layers.

Socks should be changed frequently and boots rotated. Proper wear of boots is important. If you have intermediate cold weather boots (Gore-Tex™ lined, like Matterhorn™ boots), you might think you are safe from trench foot—not so. Many soldiers wear them both indoors and out, some year round. The problem is the Gore-Tex™ lining is designed to keep water out, but it can also keep dampness in. If a soldier’s feet are wet from sweat from being indoors all day, and then he goes out into a cool environment, he has set himself up for the conditions that can lead to trench foot. Also, if the boots are off at night and not allowed to dry by a heat source, the sweat can freeze. The next morning, the soldier puts his feet into the iced boots (frozen sweat)—a perfect recipe for a cold injury. (And remember that jungle boots are not appropriate for cold, wet conditions.)

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. Many soldiers like to wear Nomex® aviator gloves because they are light and flexible. These gloves are designed to protect aviators from fires; they are not designed for extreme cold, and will do little to protect your hands when they are wet. Unless specifically authorized, they should not be worn.

Other factors influencing cold injuries:

- Previous cold injuries. Soldiers with previous cold injuries are more susceptible to having another. It is extremely important to identify these soldiers, and for first-line supervisors to monitor them closely.

- Tobacco. Nicotine, regardless if it comes from a cigarette, snuff, pipe, cigar, or patch causes blood vessels to constrict. This is particularly dangerous in the hands and feet, and can lead to, or worsen a cold injury.

- Alcohol & caffeine. These can lead to increased urination and dehydration.

- Meals. If you skip meals, the first thing the body does is to slow the metabolism. Slower metabolism means less heat production and more 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 fingernails and watch how fast they return to red. The slower the return, the higher the potential for an injury to the fingers or toes.

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), and 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.

Conclusion

All cold weather injuries are preventable! Battling the cold is like battling any other enemy—mission success happens only through planning and training.

POC: LTC Robert Noback, Command Surgeon, DSN 558-2763 (334-255-2763), nobackr@safetycenter.army.mil
The Cold Hard Facts of Freezing to Death

Call it luck. Call it fate. Call it a miracle. Rod Chandler’s vehicle slid off a deserted snowy mountain road and slammed into a snowbank. His badly frostbitten feet ached as he trudged through the bitter cold to find help. After only a couple of hours in the freezing snow, his strength was gone, and he believed death was near.

It was Christmas Eve and I was headed home to Georgia to be with family and friends on my winter break from the University of Tennessee. Driving out of town, my defroster roaring, I could barely see the bank thermometer on the town square. Did it say 18 degrees Fahrenheit?!? The radio weather report had warned of a possible snowstorm. I stopped at the local gas station to fill the tank. The gas attendant shook his head and said that he wouldn’t be going anywhere tonight if he were me. I just smiled. A little snow never hurt anybody. Besides, I have my trusty 4-wheel drive jeep, some tunes, and plenty of munchies and hot coffee. There was nothing to worry about.

That’s what I thought until I got about 150 miles out of town on the 2-lane curvy road. The weather had worsened and I couldn’t see the lines on the road. I tried to keep an eye on other terrain features to stay oriented. My head hurt I was concentrating so hard on my driving on the slippery roadway. Suddenly, my peripheral vision picked up a blur at my 3 o’clock position. A brown mass jumped right at me causing me to brake and jerk the steering wheel to the right. My jeep suddenly started spinning out of control off the mountain road and skidded into a snowbank.

Luckily, I wasn’t hurt, but my jeep was stuck in an avalanche of snow. After jamming the gearshift into low, I tried to muscle my way out of the drift. No such luck. Frustrated, I shoved the gear into park and forced my door open with my shoulder. Brrrrr! Cold slapped my naked face and made my eyes tear.

My first thought was that I just dented my bumper. My second was that I failed to bring a shovel. My third was that I’d be late for dinner. My family was expecting me at the house around eight for a Christmas Eve dinner. Nothing could keep me from that.

I looked around the area for lights from a car or house. Nothing! I checked my map for the nearest town—at least 5 miles. I said aloud, “I can punch that out in no time!” My breath rolled from my mouth in short frosted puffs. I didn’t worry about the cold at that time.

My jeep was cocked sideways in the snowbank right beside the deer that had suddenly darted into the roadway and became an unwelcome passenger.

I donned my fleece jacket, gloves and cap, grabbed my flashlight and map, and started my walk. Within a few minutes, I noticed my fingers were getting tingly, and then my toes got numb. After about 10 minutes of hard climbing, my body temperature increased and blood started seeping back into my fingers. Sweat trickled down my sternum and spine.

Treading slowly through deep, soft snow, I felt the 18-degree air bite at my face. I wish I had borrowed my friend’s cell phone. Man, it’s cold!

After an hour, there was still no sign of anyone. I double-checked the map. I flicked on the flashlight, and its cold-weakened batteries threw a yellowish circle in the snow. “It has to be right around here somewhere,” I thought to myself, as the frigid air was pressing against my tired body and sweat-soaked clothes. The exertion that warmed me on the way uphill was now...
working against me. My body temperature began to plummet. Within 17 minutes, it reached the normal 98.6 degrees, and then it slipped below. At 97 degrees, my neck and shoulder muscles tightened (what’s known as pre-shivering muscle tone). My hands and feet ached with cold. Ignoring the pain, I trudged through the snow for another 10 minutes.

Nearly 45 minutes later, my body temperature was 94 degrees and I entered the zone of moderate hypothermia. I was trembling uncontrollably, a natural response to generate additional body heat. All I thought about was that the gas attendant was right—it was a mistake to come out on a night like this. Had I come too far to turn back? I fumbled for the map in my jacket. Would I be able to guide myself back to the warm jeep? I was too cold to even think about eating Christmas dinner. I could only think of the warm jeep that waited for me somewhere at the bottom of the hill.

I managed to turn myself around and walk back toward the jeep. I saw the jeep’s shell as I came over the crest. The wind was picking up and I heard a sudden whistle of wind in my ears as I gained speed. I yelled, “I see the jeep! I see the jeep!” But, unfortunately, I didn’t see the buried log and tripped over it. I lay very still. There was dead silence, except for my heart thumping in my chest. My ankle was throbbing with pain and I had gouged my head on a tree branch. I also felt a draft on my head...I lost my cap!

The snow that got packed down my shirt had started to melt and trickle down my chest and stomach. Realizing that this was not a good situation to be in, I scrambled to rise, but collapsed in pain, my ankle crumpling beneath me. I sank back into the snow, shaken, my heat drained away at an alarming rate—my head alone accounting for 50 percent of the loss. The pain of the cold soon pierced my ears so sharply that I rooted about in the snow until I found my cap and mashed it back onto my head.

Time passed by, I checked my watch: 1152. Surely, someone would come looking for me soon. My head dropped back onto the snow. I heard it softly crunch in my ear. In this 18-degree air, my core temperature would fall about one degree every 30 to 40 minutes—apathy at 90 degrees, stupor at 86.

I had crossed the boundary into profound hypothermia. By the time my core temperature had fallen to 86 degrees, my body abandoned the urge to warm itself by shivering. My blood thickened like crankcase oil in a cold engine. My oxygen consumption fell by more than a quarter. My kidneys, however, worked overtime to process the fluid overload. I felt a powerful urge to urinate, the only thing I felt at all.

At 86 degrees, I lost the ability to recognize a familiar face, should one suddenly appear. My heartbeat became erratic. It now pumped less than two-thirds the normal amount of blood. The lack of oxygen and slowing metabolism of my brain, meanwhile, began to trigger visual and auditory hallucinations. Was I then unconscious?

Suddenly, I heard bells. Jingle bells? I tried to lift my face from my snow pillow, but realized my neck muscles felt rusted shut, unused for years. I acknowledged with a surge of gladness that they were not sleigh bells; they were the sound of welcoming bells hanging from the door of my parents’ house. I was home! I knew someone would find me.

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**RISK MANAGEMENT POINTER**

Plan to stay home during bad weather. If you have to drive and get stuck, stay with your car. Don’t try to walk in a storm.
The Layered Look

The best defense against cold air is layers of...air? That’s right. Your extreme cold-weather protective clothing is designed to trap warm, dry air against your body. The idea is to keep you from losing body heat—to prevent cold injury—without making you too warm.

You’ll stay snug if you remember a few pointers:

- **Wear several layers of clothing.** That way, if you get too warm, you can take off the extra layers. If the clothes next to your skin get wet from perspiration, they can’t trap air. You’ll chill in a hurry, especially if the wind’s blowing.
- **Shake off any snow, ice, or water droplets that get on your outer clothing.**
- **Keep the clothing clean.** Dirt and grease, like water, cut out air space and reduce insulation. Brushing your clothing while you wear it helps keep it clean.

**Keep the clothing clean.** Dirt and grease, like water, cut out air space and reduce insulation. Brushing your clothing while you wear it helps keep it clean.

- **Make sure your clothing fits loosely.** It’s designed so you can leave some parts open—such as the neck and cuffs—to let cold air in if you get too warm.

Read up on your protective clothing in Section II of Chapter 2 of FM 31-70, Basic Cold Weather Manual. Care and repair instructions for some of the gear, including the extreme cold-weather hood and parka and the cold-weather coat, are in TM 10-8400-201-23, General Repair Procedures for Clothing and TM 10-8400-203-23, General Repair Procedures for Individual Equipment.

—Courtesy of PS Magazine

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Tent Heaters Aren’t the Problem, Operators Are

In cold weather, a propane space heater can make the difference between misery and relative comfort. Used incorrectly, though, it can cause a lot of misery by itself. Fire can engulf a tent in less than 10 seconds and destroy it in 60. That gives soldiers very little time to react to save themselves or fellow soldiers.

Recently there have been inquiries to the Safety Center in regards to propane space heaters. Fire safety is a major concern. More than 80 percent of tent fires are caused by human errors. The most common error is leaving a heater unattended. In general, propane heaters do not have tip-over or shut-off protection, and will continue to burn until manually shut off. Canvas tents coated with water repellant chemicals are extremely hazardous and can produce toxic fumes when ignited. Plastic coated canvas can produce the same results.

Contact burns are also a risk. Many of the garments that are issued today keep us warm through the technology of synthetics. However, these synthetic materials burn rapidly and can melt to your skin in an instant. For example, visualize wrapping your arm in plastic food wrap and putting it over an open flame. Get the picture?

Common sense (not to mention risk management) dictates that fuel should...
Operators must be trained and licensed on each particular heater in accordance with AR 600-55, section 7.1, subsection 10, and possess a DA Form 5984-E.

Heaters should be inspected, setup, operated, and maintained in accordance with applicable TMs.

Fuel cans must be marked in the following manner: “DF” for diesel fuel (3/4-inch letters) or paint the upper 1/3 part of the can YELLOW; “MOGAS” for gasoline (3/4-inch letters) or paint the upper 1/3 part of the can RED; Do not paint fuel cans containing turbine fuel, but rather label them JP4, JP5, or JP8 (3/4-inch letters). A new type of gravity feed adapter with a quick disconnect can be ordered with NSN 4520-01-466-0415.

Do not allow bare skin to come in contact with fuel in subzero temperatures. Fuel becomes super cooled when stored in subzero temperatures and can freeze skin instantly upon contact.

Mount fuel cans securely outside at least 8 feet from the tent using a tripod (NSNs 4520-01-465-4430 or 7240-01-318-5222) and at least 3 feet higher than the top of the stove. Fuel lines will be equipped with drip interceptors or loops. Heating stoves with a fuel supply larger than 5 gallons will have a quick shut-off valve.

Store fuel a minimum of 50 feet from tent, structures, or vehicles.

Position the Yukon stove (or similar heater used in a 10-man tent) facing the opening of the tent.

If heater is on anything other than bare earth or a concrete floor, a sheet metal sandbox should be used as a heat shield. This can be constructed by using large aluminum cake pans that extend approximately 8 inches beyond the front, 6 inches from the sides and back of the heater (these dimensions are for a Yukon stove and can be adjusted for any heater).

Locate a serviceable fire extinguisher at the center pole, or at a location known to all in the tent.

Conduct fire drills.

Post fireguards whenever heater is on.

Many soldiers are not aware of the new generation of heaters that have been specifically designed and tested for use with our equipment and field environments. These heaters can be viewed at http://www.sbcicom.army.mil. Remember, commercial heaters have not been manufactured for military use. Be smart and use only military approved heat sources.

POC: MSG Terry Briggs, USASC Aviation Systems and Accident Investigation Division, DSN 558-3703 (334-255-3703), briggst@safetycenter.army.mil
Electricity is an integral part of our everyday work operations. Often, we take it for granted. What you may not know is that 1 in 7 reported electrical shocks kill!

- A soldier was installing an aerial cable link on a utility pole that also held a high-voltage transformer. The conditions were wet and rainy and the soldier slipped and contacted the energized transformer conductors. He was severely shocked and burned as a result of this inadvertent contact.

- The unit was occupying a position when a soldier was given the task to jump the generator off the M577 to supply internal power. Due to bad weather and faulty equipment, the soldier was injured from electrical shock.

Electricity can be dangerous. Severe injury or death can result when any part of the human body comes in contact with live electrical circuits. Because electricity and electrical equipment of all types are so common, the risk of electrical injury is usually underestimated. The severity of injury with electrical shock depends on the amount of current, the frequency of the current measured in Hertz (Hz), the type of current (AC or DC), the duration of the current, and the path through the body that the current travels.

What is interesting is that the amount of electricity needed to cause an injury can be quite small. As little as 1 milliamp (mA) will be felt, 9 mA can cause pain, 23 mA can cause painful muscle contractions, and 30 mA in children and 60-100 mA in adults can cause ventricular fibrillation—a condition where the large chambers of the heart beat rapidly and with insufficient synchronization with the atria (small chambers of the heart) to pump blood effectively. Unless fibrillation is reversed, this can cause death quite quickly.

By way of showing how small these amperages are, a 100-watt light bulb can draw about 0.900 mA, a computer monitor 1500 mA, and a 15-amp circuit breaker will trip at 15,000 mA. Another interesting observation is that common current in the U.S. is 60 Hz, in most of the rest of the world, 50 Hz. These also happen to be the frequencies at which the nerves in the body operate; therefore, electricity at these frequencies is more dangerous than much higher frequencies. In fact, some surgical instruments operate at up to 100,000 Hz, and this electricity passes harmlessly through the body. AC current is more dangerous than DC, and the longer a current is applied, the more likely there is to be an injury.

The path that the current takes is very important. Current that travels through the chest or nerve centers that control breathing can stop the normal breathing cycle and result in suffocation. As has been mentioned, current through the chest or heart can lead to ventricular fibrillation. Current that has passed through the head can lead to visual problems, and any current anywhere can cause severe burns to the skin as well as underlying tissue such as muscle.

Something not always considered is that even mild, non-lethal shocks can lead to potentially lethal secondary accidents such as falling from a ladder.

**Major causes of electrical shock**

- Contact with a bare wire carrying current.
- Working with faulty electrical equipment.
- Electrical equipment that has not been properly grounded.
- Working with electrical equipment on damp surfaces.
- Static electricity discharge.
- Using metal ladders to work on electrical equipment. A metal ladder can provide a direct line from the power source to the ground.
- Working on electrical equipment without shutting off the power.
- Lightning strikes – static charges from clouds following the path of least resistance to the earth, involving very high voltage and current.

**Reducing electrical hazards**

Grounding of electrical equipment is the primary method of reducing electrical hazards. The purpose of grounding is to protect people from electrical shocks, reduce the probability of a fire, and protect the equipment from damage.
Grounding ensures a path to the earth for the flow of excess current. Grounding also eliminates the possibility of a person being shocked by contact with a charged capacitor. Equipment such as communication receivers and transmitters, portable electric tools, electric equipment in damp locations, television antenna towers, electric equipment in flammable storage areas, and electric equipment operated with over 150 volts must be grounded.

Bonding, connecting two pieces of equipment by a conductor, equalizes any potential for static or sparking. Bonding also allows for a low resistance path to the ground. On the other hand, grounding provides a conducting path between the equipment and the earth. Bonding and grounding together are used for electrical systems.

**Points to remember...**

**Your life may be at stake!**

- Field Manual 10-67-1, Concepts and Equipment of Petroleum Operations, requires bonding and grounding during aircraft refueling. The field manual also outlines the requirements for POL storage and handling procedures. POL vehicles must be bonded and grounded at field locations.
- Technical Bulletin 385-4, Safety Requirements for Maintenance of Electrical and Electronic Equipment, reminds us that all facilities that are used for charging of batteries must be well-ventilated and equipped with an emergency eye wash and shower that is readily accessible. Furthermore, maintenance areas that have exposed voltages exceeding 500 volts will be posted with red, white and black DANGER signs.
- When working with live electrical circuits, make sure that at least two people are in the area at all times. Before starting work on live circuits, remove all exposed metal objects from your body; i.e., bracelets, rings, watches, dog tags, etc. Also be alert to the position of your hands, feet and body when working on energized circuit boards, power cables, transmitter output terminals, transmission lines, antennas, or any other kind of live circuit. Many electrical shock accidents during maintenance occur when one of the technician's hands contacts a live (hot) circuit while the other hand is touching a grounded conductor, such as chassis.
- Never put your hand on or near a capacitor or capacitor bank or any wire attached to a capacitor unless all capacitors are grounded and a shorting bar or grounding stick is in place.
- When working with live antennas and other sources of energy, avoid contact with surrounding metal objects, such as railings, inactive antennas, equipment shelter walls, vehicles, aircraft, etc. If possible, ground all such objects that have not been grounded.
- Only trained personnel should install electrical wiring and equipment. Circuit breakers and fuses will not be bypassed or replaced with circuit breakers and fuses having higher amperage. The current should be turned off until trained personnel correct faults in electrical wiring [for example, blown fuses, exposed conductors, overheating, repeated tripping of the circuit breaker, short circuits].
- Use tools for their intended purpose. Do not use power tools with frayed electrical cords or without proper grounding.
- Electrical generators and equipment must be grounded and positioned away from sleeping areas and tents. The Surface Wire Grounding System [Grounding Kit, MK-2551A/ U, NSN 5820-01-263-1760] is an alternative grounding system designed for use with systems requiring high mobility and quick installation and teardown operational scenarios.
- If you are working with or around electrical equipment, ensure that you have received first-aid and CPR training. Someone's life may depend on you!

POC: Dr. Brenda Miller, CP-12
Manager/Chief, Training and Education Division, DSN 558-3553 (334-255-3553), millerb@safetycenter.army.mil
We usually do our maintenance by the book, but what happens when the book isn’t current? We have the best technicians in the world, but if we make repairs using outdated manuals that are missing changes, the results can be as bad as doing incorrect maintenance. So, who bears responsibility? Read on!

A unit had recently received a heavy expanded mobility tactical truck (HEMTT) from a rebuild program. The squad leader, after a quick inspection, decided two tires needed to be replaced. Unit maintenance personnel agreed with the decision and the squad leader made plans to change the tires the next day.

The squad members reported to the motor pool and began changing the tires. The rear left tire was disassembled and taken to the tire cage and inflated. The crew then returned the tire to the vehicle and completed the remounting procedure.

While completing the installation of the left tire, members of the squad began the removal and disassemble of the right rear tire. The crew used the old tube, boot and slip ring, but replaced the locking ring because it was warped. After the reassembly of the tire, the squad leader noticed that the lock ring gap was not 180 degrees from the valve stem and directed the lock ring be repositioned. The crew did this, rolled the tire to the cage, inflated the tire, and rolled it back to the vehicle. They lifted the tire about five inches on the first attempt to mount the tire, but the holes would not align with the lugs on the hub. During the second attempt, the tire exploded, propelling the tire away from the chassis of the vehicle, and fatally injuring one soldier.

What went wrong?

The unit did not have Change 5 to TM 9-2320-279-10-1 and had not made the pen and ink changes as directed by TACOM Ground Precautionary Message (GPM) Control Number 00-002, dated R211626Z.

Mission: Change two HEMTT tires

Hazards
- HEMTT multi-piece tires can explode like a bomb during assembly

Controls
- Read and implement instructions IAW Ground Precautionary Messages
- Post all changes to Technical Manuals
- Use technical manuals when conducting maintenance

Results
- 1 fatality

Written by accident investigators to provide major lessons learned from recent centralized accident investigations.
Oct 99, subject: Tire Inflation/Deflation Procedures, Wheel Assembly Inspection Procedures, Serviceability Criteria, and New Pressures for the HEMTT Wheel Assembly. This GPM detailed specific procedures for operators and directed that maintenance personnel conduct the required training for operators.

Additionally, the unit did not receive TACOM GPM Control Number 00-003, dated R211645Z Oct 99, subject: Mechanics Inflation/Deflation Procedures, Wheel Assembly Inspection Procedures, Serviceability Criteria for the HEMTT Wheel Assembly. This message directed that mechanics be trained on the latest procedures noted in the GPM and make pen and ink changes to the -20.

The crew did not have the required technical manuals available while they changed the tires. Incidentally, the TM states that the mechanics are to disassemble and reassemble split rim tires, not the operators.

Bottom Line
Changing any type of multi-piece rim is dangerous business. Leaders must ensure that soldiers have the most current technical manuals and changes on hand; that means they are on site, open, and soldiers are conducting the mission step-by-step.

Leaders must also read all message traffic thoroughly and implement changes as soon as possible. If leaders had taken the prudent steps to ensure manuals were up to date, on hand, and the right people assembled the tire properly, this accident would not have happened. The Army goes to great lengths to ensure maintenance procedures are updated and current technical manuals are available for soldiers to use while performing day-to-day preventive maintenance checks and services (PMCS) and organizational-level maintenance. Let’s do it by the book!

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

If leaders had taken the prudent steps to ensure manuals were up to date, on hand, and the right people assembled the tire properly, this accident would not have happened.

Into the Flames

With the car and the woman on fire, the captain took a deep breath and thrust his hands and arms into the flames and pulled her out!

Ever wonder how well your fire-retardant gloves and flight suit would hold up in flames? One aircrew member recently found out firsthand.

Heroic actions by two Fairchild Air Force Base, WA, airmen helped save the life of a woman trapped in a burning car in Airway Heights recently, and one officer’s uniform helped save him from injury.

CPT Steven Clark, a flight surgeon with the 92nd Aerial Refueling Squadron, and SSG Robert Jones, a 92nd Security Forces Squadron member on Individual Mobilization Augmentee duty, both came to the aid of a woman whose car was in flames after being rear-ended by a pickup truck. The force of the impact sent her car crashing into a school bus carrying students home. The bus driver and students were all uninjured.

“As I was leaving the base, I saw a car on fire next to a school bus in the westbound lane,” Clark said. He stopped his car and asked kids exiting the bus if anyone else was inside. Although the kids said no, he climbed inside and checked to make sure. A passerby told him that there was a lady trapped in the car that had crashed into the bus. “I saw the fire, so I went over to the car,” Clark said. “Sometimes during all this I was putting on my flight gloves on. I always keep my Nomex
gloves in my flight suit. I looked in the car. The driver was lying down with her head on the passenger side of the seat. She wasn’t moving."

The windows were rolled up and the car was almost completely engulfed in flames coming from the trunk forward. I tried to open the door, but it wouldn’t budge. Because he could see that her clothing was on fire, he kicked and shattered the window to reach her. He was given several fire extinguishers to try to put out the blaze.

Meanwhile SSG Jones had left the base and was driving back toward Airway Heights when he saw the scene of the accident.

"The car was completely in flames and I noticed one person there frantically working around the vehicle," Jones said. "So I pulled over, grabbed the first-aid kit that I keep in the car, and ran over to CPT Clark, who was spraying the fire extinguisher. He told me there was someone inside the vehicle, and we got another fire extinguisher, but it didn’t do any good. The flames were too strong."

Jones took the empty fire extinguisher and used it to break the windshield just as the driver regained consciousness. Jones and Clark told her to move toward the windshield.

"I was yelling, ‘Come on, come toward the window!’" Clark said. "She began lifting her head up toward the window. At that time, I grabbed her clothes and started pulling her out of the window."

Jones added that they were able to get a good enough hold on her to pull her out and over the hood, and then onto the ground near the car.

The victim’s legs were still on fire when they got her out of the car. Jones put out the flames while Clark checked her airway, breathing, and circulation. The rescuers got blankets from other people at the scene and set to work reassuring the woman until the ambulance arrived.

Local media outlets later reported the woman sustained burns over 90 percent of her body. Recalling the accident scene, Clark said that the first thing he thought of was a head-on collision with the school bus by the orientation of the vehicles. That’s why he instinctively jumped on the bus first and looked to see if there were any kids hurt.

Clark proudly showed his fire-retardant Nomex gloves. He had no burns on his hands, but there were burn marks on the gloves. "I put my hands into the flames and pulled her out. There’s just no humanly way to get in there and pull her out without these gloves."

Clark said that he had seen results of wearing the gloves in certain types of aircraft accidents, but he was amazed that they did what they did. He also credited having a long-sleeved flight suit, which overlapped the gloves, when he reached into the flames.

The doctor suffered some smoke inhalation from the rescue, and Jones said his new “high and tight” haircut was the result of getting his hair singed from the extreme heat.

Clark said that he doesn’t feel his actions were heroic, and that he did what needed to be done. "You see a car on fire, you see a person lying on the front seat and you don’t really think, except, ‘My God, there’s somebody in there!’"

The only thing that Clark thought about was that he had his Nomex flight suit and gloves, and nobody else was getting near the car. Clark said, “I knew those would protect me to some extent.”

Courtesy of Torch Magazine and the author CPT Lisa Neidinger of the 92nd Air Refueling Wing Public Affairs Office, Fairchild Air Force Base, WA
Survival of the Fittest

Running on Empty

This is the fourth article in a 5-part series of articles on physical training and their accident causes. This issue is dedicated to dehydration. The next issue will cover sports-related injuries.

As I lay on a cot with an IV-tube sticking in my arm, I racked my brain to remember if I had trained enough. I had, hadn’t I? I had put in the weekly miles and the long, lonely runs necessary to successfully complete the 26-mile marathon. So, what went wrong?

I clearly remember my excitement and anticipation at the start of the race. The gun fired, the crowd cheered, the race was on! The weather conditions were mixed; the temperature was a welcome 49 degrees, but the wind was brutal—a 25-knot headwind for 13 of the first 20 miles. These conditions proved to be my downfall.

Water stations were placed every 2 to 3 miles. Trying to save time, I skipped the first water station, and then took a sip at every other one. The strong winds evaporated my perspiration almost immediately. (Late in the race, you could see the white salt caking the black T-shirts worn by other runners.) The wind and the cool temperatures fooled me into thinking I didn’t need much water.

I was wrong! I was becoming dehydrated, but didn’t know it. By mile 12, it was too late. I had drank about 8 ounces of water and was still running my target pace, but it was only a matter of time. I wasn’t replacing the water as fast as I was losing it. By mile 15, I was working too hard to maintain my pace. I thought it was the head wind, but my body was already suffering the effects from lack of fluids. Mile 21 arrived, and I was ready to walk. All the water in the world wasn’t going to help me finish the race at this point. My legs felt like telephone poles, my breathing was labored, and other runners were passing me left and right. This is not the feeling you want in a race (especially a marathon) where the expected fatigue takes on monumental proportions, even when you do everything right.

The few seconds I had saved by skipping water stops turned into precious minutes lost because I was walking instead of running. I was fortunate to finish the race. However, instead of watching the later runners finish, congratulating my training partners, and drinking free beverages, I had to spend an hour in the medical tent. I also incurred the wrath of my wife—who had been patiently waiting at the finish line with an increasingly fussy baby for 4 hours—all because I didn’t drink enough water.

I learned a lot about the necessity of having water during this race. Everyone is aware of dehydration in hot weather, but it doesn’t get a lot of attention on cool days. Since I didn’t feel hot, sweaty, or thirsty, I let conditions override good judgment. I knew in my mind that I needed water, but my body said I didn’t. The effects of dehydration can lead to a serious medical problem, such as heat exhaustion or stroke. If you wait until you’re thirsty, it’s too late.

This article was written by Bryan Davis, a computer systems analyst at the Naval Safety Center. Although it might seem from this story that he is a novice runner, he says he isn’t. This was his fourth marathon, and he runs approximately 40 miles per week for most of the year. Reprinted with permission from Ashore.
Here’s the latest word on JP-8+100 from the Army—don’t use it. The Tank-Automotive Command Research, Development and Engineering Center (TARDEC), Aviation and Missile Command (AMCOM), and the U.S. Army Petroleum Center have completed an evaluation of the Air Force aviation fuel additive +100. The Department of the Army has issued a message maintaining a No Use Policy for the additive.

TARDEC has determined that the use of this additive in ground equipment can lead to a failure of filter/coalesce elements. Moreover, no practical test exists to determine the concentration level of +100 in JP-8. Consequently, all Army activities must protect their fuel from accidental +100 contamination.

While the use of the +100 additive is not detrimental to the performance, reliability or safety of aircraft, the negative consequences of its use in ground equipment necessitates continued adherence to a no-use policy. Many Army activities use JP-8 for both aviation and mobility purposes, and it is nearly impossible to detect the presence of the additive.

In the event of inadvertent JP-8+100 refueling, document and register the incident with the Petroleum Center with quantity of JP-8+100 received. This will allow them to identify and fix systemic problems.

An aircraft can operate with this additive without restriction and will be considered free of the additive after three refuelings with JP-8. If circumstances call for aircraft defueling, transfer the JP-8+100 into another aircraft. If this is not possible, the JP-8+100 must be disposed of in accordance with hazardous waste policies.

For ground equipment, defuel the JP-8+100 and treat it as hazardous waste. After defueling, consume one tank full of JP-8, then immediately replace filter/coalesce elements.

POC: Del Reese, U.S. Army Petroleum Center, DSN 977-8580 (717-770-8580), dleese@usapc-emh1.army.mil

### U.S. Army Safety Center Points of Contact

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Countermeasure

Tomorrow is the best reason for driving safely...

TODAY

SPECIAL POV ISSUE
Why Are Our Buddies Dying in POVs?
This article tells you what our buddies are doing to cause accidents. Throughout the issue, we give you personal accounts of lessons learned to show how accidents can be prevented.
Page 3

A Need for Speed
They were friends to the end. They shared a common bond—free spirits with a need for speed. While that was a romantic notion for two young, inseparable buddies, only one lived long enough to become older and wiser.
Page 6

Unlikely Encounter
As this flight school student neared post, he saw a head light in the grass 10 feet off the road. This was only the beginning of an accident that caused so much chaos; before the evening was over, five vehicles were involved.
Page 8

Death on Sunday
He had two beautiful little girls, he loved sports, and he was one of the most popular people in the squadron. But drinking and driving is a lethal combination that doesn’t play favorites.
Page 10

Countermeasure is published monthly by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident prevention purposes only and is specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. Address questions about content to DSN 558-2688 (334-255-2688). To submit information for publication, use Fax 334-255-9528 (Ms. Paula Allman) or e-mail countermeasure@safetycenter.army.mil. Address questions about distribution to DSN 558-2062 (334-255-2062). Visit our website at http://safety.army.mil
Why Are Our Buddies Dying in POVs?

Why are our buddies dying in off-duty privately owned vehicle (POV) accidents, and what can we do to change this senseless loss?

At times there are unavoidable risks, such as a person rear-ending you while you are stopped at a red traffic light, or an unexpected animal jumping into your path. However, you can mitigate the risk of those hazards by wearing a seatbelt, having small children properly strapped into their appropriate car seats, and even ensuring that you have required insurance on your vehicle just in case the other person doesn’t.

Risk management isn’t meant to eliminate all risk from your life, but to help you control it so you can minimize losses. There are times when you have to take risks, but you need to take those risks with this thought in mind: Are they worth it?

You might think it’s too complicated to go through the 5-step risk management process before you get in your vehicle or on your motorcycle for a short ride to the store; but remember, most accidents happen within a few miles of home. You cannot always stop accidents from happening, but you can mitigate your involvement and subsequent consequences by stopping for a moment and thinking before you act. Do you really want to ride a motorcycle without a helmet and risk cracking your skull? It doesn’t sound like such a tough choice to me.

Let’s take a good look at some of the POV accident causes, and then let’s look at subsequent articles that show how to prevent these tragic accidents.
**Accident Causes**

The greatest contributing factors to POV accidents are speed, fatigue, and alcohol. Surprisingly, on some occasions, seatbelts and motorcycle helmets were not worn.

- **Speed.** Excessive speed remains a persistent major cause of POV accidents. It may be speed in excess of the posted speed limit or it may be speed that is too fast for the weather and existing road conditions. In either case, soldiers are often involved in accidents that stem from speeding. Consider one soldier on leave... He was healthy, well-rested, and sober. While driving at high speeds, his car went off the right side of the pavement, hit the guardrail, and then veered left onto the shoulder. It then rolled for 300 feet, throwing the soldier out. The soldier was killed instantly. When it comes to speeding, is it worth taking large risks for the small benefit of reaching your destination sooner?

- **Fatigue.** Soldiers tend to go too far and wait too late to begin their return trip or they start after a long day at work. Here’s an example... Two soldiers were planning a weekend trip from Dothan, Alabama, to Biloxi, Mississippi. After a long day at work on Friday, they sat up that night planning their trip. At midnight, they decided not to go to bed, but to leave right then. After being on the road about two hours, they stopped for coffee. Less than 10 miles down the road, the driver drifted off the road onto the left shoulder. She overcorrected and swerved to the right shoulder before she regained control again. Her passenger, with a cup of hot coffee in each hand, threw coffee all over them and the car. They pulled off to the side of the road, regained their composure, and drove to the nearest motel for the rest of the night. Risk management late is better than none at all.

- **Alcohol.** Soldiers aged 19-22 are most often involved in DUI accidents. Most of these young people are new at both driving and drinking. Put them together, that makes a deadly combination. The Army is making progress on decreasing incidents of DUI. The word is out that drinking and driving won’t be tolerated. But in spite of the many effective tools available, there are still too many POV accidents where alcohol is a factor.... After a party, a soldier and four of his buddies were driving along a highway at high speeds. As they approached an intersection, the driver picked up speed to cross through before the light changed to red. He didn’t make it. Instead, he hit a car making a left turn. The impact threw one soldier through the windshield. The car then rolled over him, killing him instantly. The blood alcohol content (BAC) of the driver showed him to be legally drunk. At the time of impact, the soldier’s car was estimated to be traveling about 75 mph. The passenger killed was not using a seatbelt.

The Army’s goal is to make risk management part of everything you do, on-duty and off. Leaders at all levels continue to put time and effort into POV accident prevention; however, even after the best efforts of the chain of command, soldiers [who should know better] still make very wrong decisions. It’s up to every individual to consciously think about the risks you may be taking and their consequences, then ask yourself if it’s worth the risk.
Leaders Must Enforce Standards

The day was beautiful. A typical autumn afternoon—the temperature was pleasant with a gentle breeze, and the leaves were already changing colors. I was on my way home from work and noticed that the passenger in the vehicle in front of me was not wearing his seatbelt. The post, of course, requires the wearing of seatbelts, as well as the state. As I was trying to decide if I should stop them, the driver turned into a mess hall parking lot. I followed.

As I approached the vehicle, I was surprised to find that the driver was not wearing a seatbelt either! The driver was a young Sergeant, and his passenger, a Private First Class. This struck me in two important ways. First, they were in the most at-risk statistical category of soldiers most likely to be involved in a fatal POV accident (19-22 year old males, PV2 through SGT). Secondly, the NCO, as a junior leader has a responsibility to set the example for not only his soldiers, but also the occupants of his vehicle.

In a professional manner, I “squared them away.” As leaders, and we are all leaders, we must set the example and make on-the-spot seatbelt corrections. This must be done safely, of course. We cannot accept such excuses as “They are not my soldiers” or “That’s the MP’s job.” You are a leader...and leadership, discipline, and standards save lives.

POC: COL Michael N. Riley, USASC Director of Operations, DSN 558-2461

A Habit You Can Live With

- The soldier was riding in the front seat of a car being driven by a friend. As they drove through an intersection, an oncoming car turned left in front of them. The cars collided head on. The soldier was killed when his head went through the windshield. He was not wearing a seatbelt.

- The soldier was driving north on a 2-lane road. His wife was riding beside him on the front seat. As they topped a hill, a southbound car crossed the double, no-passing lines and collided with their car. The wife was killed instantly. She was not wearing a seatbelt.

Neither of these drivers was at fault, but both were seriously injured and their front-seat passengers were killed in head-on collisions. Seatbelts could have saved their lives.

Drivers must get into the habit of wearing seatbelts EVERY time they get in a car. Make buckling up a habit—a habit you can live with.
When I was 19 years old, I had a need for speed and aspirations of owning a sport bike and becoming the next Scott Russell. I had just enlisted in the Air Force and found myself living in the land of the rising sun (Japan). If there was one place to fulfill the dream, it was here.

In Japan, there were so many motorcycles that I had never seen before. Racing bikes that were street legal? This can’t be! I soon found myself riding a Yamaha FZR 400. It was beautiful with its pearl white and Yamaha blue paint. Now all I had to do was learn how to ride the thing. It was mandatory for every military member to attend the Motorcycle Safety Foundation Rider’s Course offered on base. I signed up for the class.

The day after completing the course, I was confident that I could negotiate the roads of Japan with ease.

After gaining two years of experience and owning about five different motorcycles, an instructor and good friend asked if I would like to become an instructor for the base. I was very excited and, of course, said yes to his offer.

Following my graduation from the instructors’ course, we began teaching students with the help of an assistant. Our assistant was a young man by the name of Hunter. He had never owned a motorcycle and never attended the course to learn to ride. Instead he just helped pick up the cones following each exercise and assisted with the audiovisual portions. I worked beside him as an aircraft mechanic in the Air Force, and we also held off-duty jobs in the same establishment.

One day, Hunter and I, along with one of our students, decided to go for a ride. We stopped at the base of the mountain to give the new rider a safety briefing.

“You are to ride within your limits. Be aware of the large trucks that notoriously come into your lane, and just have fun. Don’t try to keep up with us because we know the roads and tend to be faster getting up the mountain.”

As we carved through the mountains, I began to pull away from the other two. I looked into my mirrors and could only see the others’ headlights in the distance. I continued on until I came to a bit of construction. In Japan, when there’s only one lane open because of construction, a short stoplight signals when you’re cleared through. They also provide you with a timer telling you how long you have to wait. As I came to a stop, I watched the seconds click off: 56, 55, 54, all the way down to the 30s.

I looked back to see where the other two were, but they were nowhere in sight. A chill shot up my spine, because I knew what that meant... Someone was down.

I turned my bike around and headed back,
thinking to myself that the new guy had laid it down around one of the corners. As I came out of a right-hander, I noticed the new rider’s bike on the side of the road on its kickstand. He wasn’t with it. I looked ahead at the next corner and saw the silhouette of a rider and a motorcycle lying on the road. As I arrived at the scene, I noticed it was Hunter. He had struck a car head on. I jumped from my bike, forgetting to put the kickstand down—the bike fell on my leg.

As I freed myself, I pulled my helmet from my head and approached his lifeless body. He lay there facedown with blood beginning to trickle from his helmet onto the pavement. I asked the other guy if Hunter was okay. The other rider couldn’t speak. He just shook his head as tears rolled down his face.

I removed Hunter’s glove and attempted to check his pulse...nothing. I asked the other two to assist me in rolling him over so we could try CPR. We did so, being very careful to keep him as straight as possible to prevent any further neck injury. I had learned not to remove a helmet from someone who has crashed for the same reason.

As we slowly rolled him over, his eyes came into view. They were no longer gleaming with life and happiness. We knew he was dead.

I began to cry and then got angry. I kicked Hunter’s motorcycle, then picked it up and flipped it over. Then I began to pray.

I had to ride my motorcycle home after emergency crews took Hunter away. The padding in my helmet was saturated with my tears. My best friend was gone, and there was nothing that I could do. I wondered what happened? Was it my fault?

The police later said that Hunter had run wide in the turn and struck the car head on. He was killed instantly of a broken neck.

I still have a need for speed, but only on the racetrack. I don’t want Hunter’s death to be in vain. I hope this story will bring to light the dangers of riding motorcycles on the street and what one mistake at the wrong place and time can do to you.

You may be the fastest up the mountain, but are you also the most foolish? Save the really fast stuff for the track.

—Courtesy of TORCH Magazine

Imagine That

Imagine a vaccine that would prevent half of all cancer fatalities in the United States every year. Imagine that millions of Americans would refuse to take advantage of it because it would take a little bit of effort.

Imagine a national epidemic that kills 50,000 Americans and injures millions more. Imagine that a vaccine was available within arm’s reach, free, and at our fingertips. Imagine further that 90 percent of Americans refused to take advantage of it.

Unlikely? Not at all. The epidemic is privately owned vehicle (POV) accidents. The vaccine that could drastically reduce their toll is the seatbelt. Why won’t people use it?

Consider SGT John Fitness. He jogs every day, watches his weight, and recently quit smoking. Yet, his seatbelt is gathering dust, unused. He clearly does not perceive his POV as posing the same health threat as cigarettes, poor diet, or lack of exercise. He does not understand that the force on his body of a 10-mph collision is equivalent to a 200-pound bag of cement dropped from a 9-story window. Would he volunteer to catch that bag?

Even Americans who do recognize the value of wearing seatbelts have developed some powerful excuses for not doing so. They are the ones who permit the epidemic to continue.

Hmmmmm. Imagine that.
In May 1980 I was approximately one month from graduating the Warrant Officer Rotary Wing Qualification Course, otherwise known as “Flight School.” A few weeks prior, I purchased a car—a red 1977 Firebird. A typical hot-looking ‘pilot car’ not uncommon to the parking lots within the various companies at flight school.

One evening, I decided to go to a nearby town for a little fast food. After having dinner, my hot little sports car and I were on our way back to the barracks. The four-lane, undivided road was well known to all stationed at Fort Rucker.

As I neared the post in the right lane of the eastbound lanes, something caught my eye. On the left (westbound) side of the road, I spotted a single light or what appeared to be a headlight in the grass 10 feet from the pavement. As I returned my eyes to the front, less than 100 feet in front of me was a steel cable lying across all four lanes of the road! The wires were lying flat in the middle two lanes and suspended at least a foot or two above the surface of the road in the outer east and west bound lanes. Coincidently, in the lane that I was in!

At 50 mph, I had to immediately swerve to the left lane to cross the wires where they were flat against the pavement. Fortunately, there were no cars behind me, so this maneuver didn’t cause an accident.

After safely crossing the wires, I braked and moved my car a few feet onto the shoulder of the road. I shifted the car into park, applied my emergency brake, turned on the car’s flasher signal, and left my headlights on.

As I got out of my car to figure out a way to warn other motorists, a young lady in a pickup truck hit the wires where they were suspended off the ground. The wires engaged her rear axle like it was the tail-hook of an F-14 Tomcat during a carrier landing and stopped her vehicle from 50 mph within 10 feet and flipped it around 180 degrees right before my eyes! After witnessing this, I knew there was bound to be more trouble.

I rushed to her vehicle to check on her immediate condition. As I opened her door, the first thing I did was turn on her flasher signal and put the transmission in park. She was dazed and had apparently struck a portion of the steering wheel with her head and upper torso. Thank God, she was wearing her seatbelt! It probably saved her life.

Before attempting to move her, I asked how her neck and back were. Her only complaint was a bruised forehead. I told her that the safest place for her was back in the cab of her truck seatbelted.

Then, I ran to check on the headlight lying in the grass that first caught my attention. As I approached, I realized that it was a motorcycle. The driver was lying in the grass next to the bike. At first, I thought the driver had been decapitated, however his neck was so severely broken that his head was tucked almost entirely under his upper torso. Only faint breathing could be detected, so I didn’t move him.

Meanwhile, a van had pulled alongside the road where we were. I quickly ran over to the driver to explain the situation and ask him to summon for help. To my good fortune, the driver of the van was an Army medic and had a CB radio inside his van. He made a quick call and notified authorities of the accident. As he examined the motorcycle driver, I went back toward the pickup truck in an effort to flag down other vehicles that would surely arrive at the scene.

As I neared the pickup truck, I noticed a small fire near an abandoned farmhouse on the north side of the
westbound lanes. Beneath a pile of bricks, that used to be a chimney on the side of the house, was a wrecked Corvette. Suddenly, I heard screeching rubber, closely followed by the sound of a collision near the area of the pickup truck. What now?

The driver of a compact car with at least four people inside became distracted by the pickup truck and didn’t see the debris in the road until it was too late. He locked his brakes and stopped short of hitting parts of a telephone pole lying in the roadway. The car behind him was following too closely and plowed into his rear bumper and pushed the car onto and over one of the poles. Now there were five vehicles involved! Other traffic began to react in time and slow to a halt.

Soon, the welcome glow of flashing lights from emergency vehicles and police cars arrived at the scene. EMT’s arrived and we assisted the victims. Fortunately, the people in the compact car were wearing seatbelts, and as a result, didn’t have more serious injuries.

Meanwhile, a medevac helicopter from Fort Rucker landed in a field. As they began shutting the aircraft down, I ran over to brief the crew on the accident scene and where the victims were located. I proceeded back to the farmhouse where the car lay beneath the bricks of the collapsed chimney. Local firefighters and police officers were surveying the scene and informed me that they were looking for the driver of the ‘vette. After removing some of the brick debris, they discovered no driver or passenger inside.

Flashlights searched the immediate area. A police officer finally spotted the driver. He had not been wearing a seatbelt and was thrown clear of his vehicle. He was found lifelessly impaled on a branch approximately 10 feet up in a tree.

By that time, the motorcycle driver had been rushed from the scene by ambulance only to be pronounced dead on arrival at the hospital. As I spoke with the police regarding what I had witnessed, they soon began to piece together the accident.

**Putting it all together**

The driver of the motorcycle was a flight school student who knew the driver of the Corvette, a young instructor pilot. They met earlier in the afternoon and decided to have an impromptu race into town.

As both vehicles exited post and approached the beginning of the four-lane portion of the highway, they pulled alongside each other and began to accelerate at a high rate of speed. The driver of the ‘vette pulled ahead of the motorcycle and continued to increase his lead at an unsafe speed, and in doing so, lost control of the car. The ‘vette left the roadway and sheared right through a telephone pole supporting some utility lines with a steel cable that crossed from a pole on one side of the road to another pole on the opposite side of the road. As the pole fell to the ground, so did the support cable.

As the motorcycle driver approached, the cable caught him across the forehead of his helmet, broke his neck, and knocked him off the bike.
Nine years ago in March 1991, I was a first sergeant assigned to a medical group overseas. My family and I were cooking out and enjoying our time together. As we sat down to eat, my beeper went off. I looked at the number and immediately recognized it as the law enforcement desk. The security policeman said, “Sergeant Wilford, we just got notified there has been a wreck off base involving one of your squadron members. The witnesses said there are injuries.” I told my wife I had to go; one of my troops had been in an accident.

The location of the accident was about 20 minutes off base, so I had time to think on the way to the scene. I recall praying that my troop wasn’t hurt too badly. I knew the location of the accident that the security policeman had given was notorious for dangerous curves and steep hills. I also found myself trying to recall everything I knew about the noncommissioned officer involved in this wreck.

John was a staff sergeant, recently divorced, with two little girls. He loved sports, and we played together on our squadron softball team. In fact, every Monday he would stop by to discuss our previous week’s games.

As I got close to the scene, I could see emergency lights flashing and policemen trying to keep the vehicles moving. A small crowd had gathered beside the road on a curve. I parked and ran to the crowd yelling, “Where is he?”

Although the experience I just related was tragic, it could have been worse. The one element that prevented more serious injuries or fatalities was the use of seatbelts. The young lady in the pickup could have easily been thrown out of the vehicle with fatal consequences. The occupants of the two vehicles involved in the rear-end collision could have all been injured more seriously than they were. (The occupants in the back seat of the compact car received no injuries at all.)

Another thing to consider is safe following distances. Safe following distance would have prevented that last accident. Don’t just use the rule of thumb regarding 2 seconds or 2 car lengths for every 10 mph you are traveling. Add buffer distances for visibility (i.e., night, fog, heavy rain or snow, etc.) and other circumstances.

What do you carry in your trunk for safety devices and signaling equipment? Flares? Flashlights? A lot of people carry cellular telephones in their vehicles now instead of CB radios. Do you carry a first-aid kit and/or are you trained in basic first-aid or CPR? All of these things should be a consideration not only to help yourself or your passengers, but others who may be involved in an accident.

Looking back on it now, there were probably things I could have done differently. In fact, I probably could have avoided the wires and kept on going. That, however, wasn’t an option my conscience would have accepted. Think about what you would do if you had encountered this. Just thinking about what you would do if faced with similar circumstances will make you better prepared if the situation ever arises. The greatest thing I learned from this experience is: Accidents create chaos. Chaos creates poor decision-making. Therefore, when faced with chaos, keep your wits about you!

This personal experience was sent in by CW4 (Ret) Tom Clarke, Aviation Safety Analyst, Patuxent River Naval Air Station, DSN 757-2248 (301-757-2248)

Death on Sunday

He had two beautiful little girls, he loved sports, and he was one of the most popular people in the squadron. But drinking and driving is a lethal combination that doesn’t play favorites.

Nine years ago in March 1991, I was a first sergeant assigned to a medical group overseas. My family and I were cooking out and enjoying our time together.

As we sat down to eat, my beeper went off. I looked at the number and immediately recognized it as the law enforcement desk. The security policeman said, “Sergeant Wilford, we just got notified there has been a wreck off base involving one of your squadron members. The witnesses said there are injuries.” I told my wife I had to go; one of my troops had been in an accident.

The location of the accident was about 20 minutes off base, so I had time to think on the way to the scene. I recall praying that my troop wasn’t hurt too badly. I knew the location of the accident that the security policeman had given was notorious for dangerous curves and steep hills. I also found myself trying to recall everything I knew about the noncommissioned officer involved in this wreck.

John was a staff sergeant, recently divorced, with two little girls. He loved sports, and we played together on our squadron softball team. In fact, every Monday he would stop by to discuss our previous week’s games.

As I got close to the scene, I could see emergency lights flashing and policemen trying to keep the vehicles moving. A small crowd had gathered beside the road on a curve. I parked and ran to the crowd yelling, “Where is he?”
No one said anything; they just pointed down the hill.

As I turned to head down the incline, I recognized two of our airmen from the medical group standing by one of our ambulances at the scene. One of them said, “It’s John, and it’s bad!” Those words echoed in my mind as I went down the hill.

About 200 feet down, I found John’s car wedged up against a tree. I looked inside. John wasn’t there. He had been thrown from the vehicle. I looked further down the hill, and I could see flashlights and hear voices. “God, let one of those voices be John’s,” I whispered.

I stumbled on down to where the flashlights were, and I could see two figures against the rocks. I could make out one person kneeling beside someone lying in a fetal position on the rocks. I recognized the voice.

“Doc, is that you?” I asked. He responded, “First Sergeant, John’s dead.” I don’t know why, but I leaned over John and started yelling at him, “John why did you do this?” Then I sat on a rock beside John and cried as I waited on our medics to get the equipment into the ravine to get his body out.

It took us a couple of hours to get John out of that ravine. We had to carefully guide the emergency basket as it went up the hill to keep it straight. Around that basket that night were the section commander, the doctor, two medics, an OSI agent from the base and me. All of us knew John, and it would take a long time to come to grips with that night.

Later, as I pulled back into my driveway, I tried to collect myself before I walked into the house. I opened the door, and my wife ran to me with a shocked look on her face. I didn’t realize my shirt was covered in John’s blood from getting him out of the ravine. An investigation revealed that John had been at a beach party all afternoon drinking and then decided to drive. Some friends offered him a ride, but he assured them he was fine. The autopsy revealed that John’s blood alcohol was .21, over twice the legal limit.

That night and the weeks that followed were some of the saddest times of my military career. Our squadron was torn apart because everyone loved John. I found myself trying to be strong for the squadron, while hurting so badly inside. Without a doubt, the hardest thing I have ever had to do was write the condolence letters to his little girls telling them about their father.

Everyone attended his memorial service on our base, and the healing process began slowly. It’s taken me a long time to put this tragedy on paper, but I know Staff Sgt. John Keller would want me to.

Our message needs to be loud and clear: Don’t drink and drive! Call Airmen Against Drunk Driving, call a friend, call a supervisor, or call a taxi. Life is too precious, and it’s not just you that gets hurt, it’s also your family and friends who care about you.

Finally, if you see people drinking and they insist they can still drive, don’t listen to them. Take care of your teammates by taking their keys — you may be saving their lives.

Courtesy of TORCH Magazine

Safer Travel

During a recent Centralized Accident Investigation of a Class A Army Motor Vehicle accident, the accident investigation board discovered that the road on which the accident occurred was well known by the state highway patrol to be dangerous. As a result, state highway patrol officials published a flyer describing the road hazards and outlining countermeasures that the state had taken to improve the road, and actions that motorists should take to avoid an accident.

In fact, concerned citizens established a political action committee to lobby their legislatures for more safety improvements. Check with your local law enforcement, Department of Motor Vehicles, and state highway department to determine which roads in your area have been identified as dangerous and what actions these agencies recommend to mitigate the risk. Then tell your soldiers.

POC: LTC Fred Reynolds, Chief, Ground Systems and Accident Investigation Division, DSN 558-3562
Assessing the level of safety readiness of a unit without being a member of that unit is surely a difficult task. But, negating personal biases that soldiers may have and getting a fresh look at your safety climate, from an outsider’s perspective, can be invaluable to a unit. In order to aid the conduct of external or internal safety assessments, the Army Safety Center has developed a relatively easy survey (on pages 13 and 14) that can quickly highlight some areas of concern within a unit.

Beginning with the Army Command Climate Survey, MAJ Brian Sperling and MAJ Robert Wildzunas tailored this to focus specifically on safety-related topics.

This survey is designed to be given to separate groups of people and the results compared between groups. For instance, the unit may decide to survey the junior officers in one group and NCOs in another. The results will not only point out problems and successes in both areas, it will also identify the level of communication between the groups. Both groups may have a significantly different perception of the safety climate within the unit.

This survey has been validated by a number of units, results have been discussed with individual chains of command, and policy changes have been made based on the results. Below is an example of how one unit was able to modify the survey to meet its specific needs.

Beginning with the Army Safety Center’s Safety Climate Survey, Deb Heise of the Fort McCoy Safety Office retooled the questionnaire, tailoring it to ground units. The finished survey was administered to the soldiers and leaders of two Illinois Army National Guard companies being deployed to guard PATRIOT missile sites in the Middle East. The tabulated survey results were provided to the unit commanders at Fort McCoy’s Unit Readiness Center during mobilization processing. Unit commanders were briefed on unit strengths and key hazards that needed command attention.

The survey indicated that safety leadership was strong in both units. Unit soldiers felt they could approach their commander and NCO leadership about safety problems and expect to be heard. Adherence to operational standards was high in both units. However, the survey indicated that unit soldiers needed additional risk management training.

Since vehicle accidents are a significant hazard in the Middle East, a section of the survey was crafted to focus on driver training and safety of vehicle operations. Even though AR 385-55 requires soldiers pass a written test, a road test, and complete accident avoidance training, an average of 30 percent had not completed accident avoidance training. More than 40 percent of the soldiers in each unit indicated they usually, but not always, wear seatbelts when operating Army vehicles. Many had not operated unit vehicles in more than a year—a significant proficiency and training issue.

Fort McCoy used the survey results to plan for the safety training needed to ensure unit safety readiness. Based on the results, Fort McCoy’s Safety Office was able to provide instruction in the application and use of Army Risk Management, and provide two hours of accident avoidance training to all the soldiers in both units. The survey was only one part of Fort McCoy’s assessment strategy for mobilized units, but it was a tool that helped them identify areas of strength and weakness in order to focus their efforts.

This survey is just another method available to prioritize a unit’s training. When incorporated in the overall safety strategy of a unit, this can be a very powerful tool in developing an effective program.

POCs: MAJ Brian Sperling, Chief, ORSA Division, DSN 558-1496 (334-255-1496), sperlinb@safetycenter.army.mil or Mr. Douglas Blair, Safety Director, Fort McCoy, DSN 280-3403 (608-388-3403), douglas.blair@emh2.mccoy.army.mil
# Safety Climate Survey

(version 3.1)

**Instructions**

Your open, honest responses are needed to provide information for decisions affecting your unit.

- The survey is anonymous.
- Only group statistics will be reported.
- Circle the number to indicate your response for each question.

Thank you for your time and cooperation!

How much do you agree or disagree with the following statements?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree = 1</th>
<th>Disagree = 2</th>
<th>Neither agree nor disagree = 3</th>
<th>Agree = 4</th>
<th>Strongly agree = 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Officers in my unit care about the safety of their soldiers.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. NCOs in my unit care about the safety of their soldiers.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Junior enlisted members in my unit care about each other's safety.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. It is easy for soldiers in my unit to see the CO about a safety-related problem.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. It is easy for soldiers in my unit to see the 1SG about a safety-related problem.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Members in my work unit work well together as a team.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. In terms of safe work habits, my immediate supervisor sets the right example by his/her actions.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>8. I have received the school training needed to perform my job safely.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>9. I have received on-the-job counseling and coaching needed to do my job safely.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10. I have all the tools and equipment needed to do my job safely.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I feel that what I am doing is important for accomplishing my unit's mission.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. If I noticed a safety-related problem, I could stop the mission and have the problem corrected.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. If I reported a safety-related problem, the chain of command would stop the mission and have the problem corrected.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I have so much work to do, I cannot do everything well.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I never seem to have enough time to get everything done.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>16. I think my unit would do a better job in combat than most U.S. Army units.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17. I think the level of training in this unit is high.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
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<tr>
<td>18. I have real confidence in my unit's ability to perform its mission.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. If we went to war tomorrow, I would feel good about going with my unit.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. I am making a real contribution to accomplishing my unit's mission.</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
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</tbody>
</table>
Which of the choices following each statement below best describes your experiences in this unit?

21. What level of conflict are you experiencing in your unit?
   6. None
   5. Slight
   4. Moderate
   3. High
   2. Very high
   1. Extremely High

22. Usually, how far in advance do you know your unit’s training schedule; that is, where you will be and what you will be doing?
   5. 14 or more days
   4. 11-13 days
   3. 8-10 days
   2. 4-7 days
   1. 1-3 days

23. To what extent do the personnel in your chain of command treat you with respect?
   5. Very great extent
   4. Great extent
   3. Moderate extent
   2. Slight extent
   1. Not at all

24. Describe how well prepared your unit is to perform its wartime duties/mission?
   5. Very well prepared
   4. Well prepared
   3. Moderately prepared
   2. Not well prepared
   1. Not at all prepared

25. How would you rate your current level of safety readiness?
   5. Very high
   4. High
   3. Moderate
   2. Low
   1. Very low

26. How would you rate the unit’s current level of safety readiness?
   5. Very high
   4. High
   3. Moderate
   2. Low
   1. Very low

27. To what extent do you play a personal role in the safety climate of the unit?
   5. Very great extent
   4. Great extent
   3. Moderate extent
   2. Slight extent
   1. Not at all

Briefly complete the following questions.

28. Please list three safety-related things that most need improvement in your unit.
   1. 
   2. 
   3. 

29. Please list three safety-related things that are going very well in your unit.
   1. 
   2. 
   3. 

30. If you were given 100 points, and each point represented 1 unit of positive impact, how would you distribute the 100 points in the following areas relative to their impact on the safety climate of your unit: Total must equal 100 (higher number means greater positive impact).
   1. ____ The Safety Program (Safety Officer involvement in the administrative oversight of regulatory safety guidance).
   2. ____ Standards (established and uniform procedures that are followed routinely for the performance of safe operations).
   3. ____ Training (instruction on the safe, qualified, and proficient performance of assigned duties).
   4. ____ Discipline (self-control in the adherence to established standards and safe operating procedures).
   5. ____ Leadership (active command authority or influence to adhere to established standards and safe operating procedures).
   6. ____ Maintenance (safe working conditions and upkeep of property and equipment).

THANK YOU FOR COMPLETING THIS SURVEY.
The following demographic is required for data analysis purposes only. Please indicate below which group best describes your current duty position.

_____ Sergeant Major, Commander, or Command Staff
_____ 1st Sergeant, Platoon Leader, or Safety Officer
_____ Standardization Instructor Pilot, Instructor Pilot, or Pilot
_____ NCO
_____ Enlisted Soldier
_____ Other (specify, i.e. civ) ___________________
Safety and Occupational Health Course Schedule

These are the courses that the CP-12 Safety & Occupational Health (SOH) interns must attend in the 2-3 year intern training program. These courses are also open to other safety professionals or military members who may need the training. To enroll, send a DD1556 to Dr. Brenda Miller, CP-12 Manager, U.S. Army Safety Center, Bldg 4905, 5th Ave, Fort Rucker, AL 36362 or fax the form to DSN 558-9527 or CML 334-255-9527. The course schedule will also be posted to our web page: http://safety.army.mil. The CP-12 Professional Development Training Schedule will be posted at a later date.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>DATES</th>
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<tr>
<td>Orientation* (Interns Only)</td>
<td>Jan 2-3</td>
</tr>
<tr>
<td>How the Army Runs</td>
<td>Jan 4-5</td>
</tr>
<tr>
<td>Theory &amp; Application of Accident Prevention</td>
<td>Jan 8-9</td>
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<tr>
<td>Risk Management</td>
<td>Jan 10-12</td>
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<tr>
<td>Industrial Application of Regulatory Initiatives</td>
<td>Jan 15-18</td>
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<tr>
<td>Research Methods</td>
<td>Jan 19</td>
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<tr>
<td>Problem Solving</td>
<td>Jan 26</td>
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<tr>
<td>Electrical Hazard Control</td>
<td>Jan 29-31</td>
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<tr>
<td>CAPSTONE I - Field Trip*</td>
<td>Feb 1-2</td>
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<tr>
<td>Hazard Recognition in Built Environments</td>
<td>Feb 5-9</td>
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<tr>
<td>Accident Investigation and Analysis Techniques</td>
<td>Feb 12-16</td>
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<tr>
<td>Training Techniques</td>
<td>Feb 19-20</td>
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<tr>
<td>Fire Safety in Building Design</td>
<td>Feb 21-23</td>
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<td>Environmental Law</td>
<td>Feb 27-28</td>
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<tr>
<td>Safety Program Leadership &amp; Management</td>
<td>Mar 1-2</td>
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<tr>
<td>Quantitative Methods in Safety Management</td>
<td>Mar 5-7</td>
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<td>Human Factors</td>
<td>Mar 8</td>
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<tr>
<td>MACOM Briefings* (Interns Only)</td>
<td>Mar 9</td>
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<tr>
<td>Legal Aspects of Safety</td>
<td>Mar 12-15</td>
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<tr>
<td>Writing Techniques</td>
<td>Mar 16</td>
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<tr>
<td>Hazardous Material Control &amp; Response Methods</td>
<td>Mar 19-23</td>
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<tr>
<td>Recognition, Evaluation, &amp; Control of the Occ. Enviro. (IH)</td>
<td>Mar 26-30</td>
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<tr>
<td>Motor Vehicle and Transportation Safety</td>
<td>Apr 2-5</td>
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<tr>
<td>Briefing Techniques</td>
<td>Apr 6</td>
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<td>Contemporary &amp; Army Ergonomics</td>
<td>Apr 9-13</td>
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<td>System Safety</td>
<td>Apr 16-17</td>
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<tr>
<td>Health Physics &amp; Radiological Health</td>
<td>Apr 18-19</td>
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<tr>
<td>Research Project* (Interns Only)</td>
<td>Apr 20</td>
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<tr>
<td>CAPSTONE II - Field Trip*</td>
<td>Apr 23-25</td>
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<tr>
<td>Operational Safety</td>
<td>Apr 26-27</td>
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<tr>
<td>Range Safety</td>
<td>Apr 30-May 2</td>
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<tr>
<td>Career Development</td>
<td>May 3</td>
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<td>INTERN PHASE I GRADUATION</td>
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<td>Tactical Safety</td>
<td>May 14-25</td>
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<td>Explosives Safety Management</td>
<td>May 29-June 1</td>
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<td>Army Safety Program Management</td>
<td>Jun 4-5</td>
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<td>Resource Management</td>
<td>Jun 6-8</td>
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<td>Range Safety</td>
<td>Jun 11-15</td>
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<tr>
<td>Aviation Safety</td>
<td>Jun 18-22</td>
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</tbody>
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* CP12 interns only
Fatigue Is Deadly Behind The Wheel
A large number of privately owned vehicle (POV) accidents happen at night and fatigue is often a factor. Soldiers might not understand how easily sleep creeps up on them while driving. Even a momentary lapse is a deadly warning that must be heeded. Soldiers should take the following commonsense precautions while traveling:

- Start out fresh.
- Avoid alcohol—it worsens fatigue.
- Avoid over-the-counter or prescription drugs that may cause drowsiness or impair or slow physical reactions.
- Take a rest break every 2 hours, and don’t drive past normal bedtime.
- On long trips, take someone to help with the driving.
- When fatigue sets in, STOP. No amount of caffeine, fresh air, or loud noise will take the place of rest.

Home for Thanksgiving

The day before...
David D., a junior officer, was on his way home for Thanksgiving. It had been months since he’d seen his mom and dad. He’d never seen his 8-week-old niece. An ice storm was threatening to close the roads before he got home, so he was in a hurry. David was driving too fast on the slick highway when he lost control of his car. It slid sideways across the median and into oncoming traffic, where it was hit by a van. David died before reaching the hospital. He had not worn his seatbelt.

Thanksgiving Day...
Eric L., an NCO had the holiday blues. He was having marriage problems, and he faced a lonely 200-mile drive to his folks’ house for Thanksgiving dinner. He hadn’t been sleeping well and was tired when he got behind the wheel of his car before dawn. Halfway home, he dozed off. His car crossed into oncoming traffic and hit an approaching car head-on. The other driver was killed and his passenger was seriously injured. Eric suffered head injuries and a broken leg. He spent Thanksgiving Day (and several more) in the hospital.

The day after...
Tom S., fresh out of basic training, celebrated at a party with friends, then started home—300 miles away—to spend the weekend after Thanksgiving with his family. He was speeding when he rear-ended another car with such force that its driver was killed. Tom had a BAC of .17 percent. He was charged with involuntary manslaughter.

Thanksgiving should be a time of family fun and celebration, but it turned into a time of mourning for these soldiers, their victims, and their families and friends.

Editor’s note: David, Eric, and Tom were real soldiers, who were involved in real accidents. We have changed their names and certain details concerning the accidents.

From all of us here at the U.S. Army Safety Center, we wish you a truly happy and safe Thanksgiving.
During this season, a lot of soldiers and their families will be on the roads and highways. Plan ahead for your safety and the safety of your family. Apply the same risk-management principles to your off-duty activities as you do on the job—only then can you be sure that you and your family have nothing but happy memories of the holidays this year.
Keeping the Happy in the Holidays
A lot of soldiers, civilians, and families will be traveling to visit family and friends this holiday season. Ensure you have a holiday safety plan in place and that everyone is aware of how to identify and combat the hazards they will encounter on the roads.

Suicide Prevention is Everybody’s Business
Every member of the military community—leaders, peers, subordinates, and family members—can prevent a suicide if they know what signs to look for and what actions to take.

Variety is the Spice of Life.
Leaders and soldiers are always looking for ways to break the boredom of physical training. One way is unit-sporting events. But, be careful. These events can cause serious injuries to our troops without first mitigating the risk.

The Hazards of Hurrying
We’re all familiar with the more common causes of accidental deaths and injuries—such as drinking and driving or contact sports. However, there’s another unseen hazard out there that’s killing folks; it’s known as hurrying.
The holiday season means a time for joy, worship, parties, and good times. For many soldiers, civilian employees, and their family members, the holidays will mean a time of traveling long distances to visit family and friends. Today, with close to 4 million miles of American roads to travel, the likelihood of becoming the victim of an accident greatly increases. Unfortunately, privately owned vehicles (POVs) are traditionally the major cause of these needless losses.

POV accidents are the number one killer of soldiers. Young soldiers, PV2 through SGT, are most likely at risk. At the end of FY00, 70 percent of all Army fatalities were due to POV accidents.

Command involvement, particularly at battery/company level, can reinforce the defensive skills and attitudes necessary for safe holidays. Each leader should place soldier safety as the highest priority. Prepare soldiers for the holiday period by assisting them in developing a safety attitude and an awareness of the hazards they will face.

Units should conduct vehicle safety inspections prior to their personnel departing for the holidays. As you conduct pre-holiday safety briefings, include the hazards generally known to be associated with the Christmas-New Year holiday period.

Give special emphasis to drinking and driving, excessive speed, driver fatigue, failure to yield the right of way, and failure to use seatbelts. At least one or more of these factors is present in virtually every fatal vehicle accident involving soldiers. Get your soldiers involved. Encourage group discussions of personal experiences, which resulted in lessons learned.

The Safety Center has the POV Toolbox (2nd Ed.) that will help leaders incorporate risk management into holiday accident prevention programs and will help in POV accident prevention throughout the year. If you would like to have a copy, call me or download it from our web site: http://safety.army.mil (click TOOLS).

I urge everyone to make safety the number one priority for the holidays and the New Year. Whether you’re traveling, getting together with friends, or staying at home with your family, be smart! Be safe. Be responsible.

POC: Al Brown, USASC Traffic Safety Manager, DSN 558-3421 (334-255-3421), brownj@safetycenter.army.mil

Keeping the Happy in the Holidays
“I love you and the kids, but I just can’t go on living if I can’t have you in my life. I am just overwhelmed with life. I hurt—my head, my throat, my guts. I can’t think straight anymore. I’m snowed under at work. I feel I have become ineffective. I just don’t want to deal with it anymore. I’m sorry, Honey...”

According to recent literature, the Army suicide rate has increased over the past 2 years to one of the highest suicide rates since the 1970s.

In the first 5 days of the new millennium, there were six confirmed suicides in the Army. In 1999, the Army alone confirmed 73 suicides and 5 undetermined deaths, some of which are suspected to be suicides. This translates to 15.23 suicides per 100,000 soldiers (excluding undetermined deaths). According to Robert Burns, a military writer, during the past 10 years in the Army, suicides were the second leading cause of death next to accidents. Also, in the past 10 years, about 10 times more troops died at their own hand as opposed to hostile fire. In fact, during the 1990s, the Army lost an entire battalion worth of soldiers to suicide (803).

Who is responsible for suicide prevention?

Every member of the military community is responsible. Education and proactive intervention are the greatest weapons against suicide. If the military community is well educated in the area of suicide prevention, it is very likely that the number of suicides will decrease. Leaders, peers, subordinates, family members and all military community members can prevent a suicide if they know what signs to look for and what actions to take.

Who is at risk?

In the broadest sense, everyone is—but not in equal measure. Statistics indicate that white males under 25 years of age have the highest suicide rates in the Army. However, the highest proportion of suicides occurs with soldiers 40 and higher. It is common that the individual has suffered a recent breakup of a marriage or other close personal relationship. Frequently, legal and/or financial problems are present. It is also common to have a past history of self-destructive acts or suicide attempts. Suicides are usually a response to overwhelming personal crises often experienced in the context of a preexisting vulnerability to developing a psychiatric disorder (such as depression and/or substance abuse), and is typically characterized by feelings of loneliness, hopelessness, and helplessness.

Suicidal people often believe they have no support system or that there is no one they can talk to. They tend to demonstrate a relative lack of problem-solving or life-coping skills. And as mentioned above, they may also suffer from a depressive or substance abuse disorder.

Suicidal people usually exhibit obvious warning signs. Some signs are more apparent than others. While non-suicidal people can have some of these traits in their lives, the more of these a person has, the more at-risk they are for suicide. But keep in mind, a person doesn’t have to fit the suicide profile to a “T” to be at-risk.

Immediate danger signs:

- Talking or hinting about suicide, to include statement about feeling suicidal.
- Having an organized plan to commit suicide, the means to carry out this plan, and the intent to commit suicide.
- Having the desire to be dead.
- Obsession with death, sad music, or poetry.
- Themes of death in letters or artwork.
- Tying up loose ends (finalizing personal affairs).
- Giving away personal items/possessions.

Common warning signs:

- Dramatic or obvious drop in job performance.
- Unkempt personal appearance.
- Loss of a loved one, job, status, or money.
Feelings of hopelessness and/or helplessness.
- Family history of suicide.
- Made previous suicide attempt.
- Abuse of alcohol or drugs.
- Withdrawal.
- Loss of interest in hobbies.
- Reckless behavior, self-mutilation.
- Physical health complaints, change/loss of appetite.
- Complaints of significant sleep difficulties.

What you can do

Everyone in the military community is qualified to intervene. Who knows a soldier better than his/her family, unit members, superiors, peers, and subordinates? Don’t be afraid to confront or reach out to someone you believe may be depressed or suicidal. You can make a difference. The biggest difference a leader can make is to train all unit members on how to identify suicidal behavior. Leaders can contact their unit chaplains to obtain further education on suicide prevention for their units. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), in conjunction with the American Association of Suicidology has just published a Resource Training Manual for suicide prevention training. The manual contains three lesson plans for individual, leader and formal gatekeeper training. The manual is available on the USACHPPM web site at http://chppm-www.apgea.army.mil/dhpw/default.htm.

If you suspect someone you know is suicidal, the first step is to ask that person if they are suicidal. Listen to the individual and take what he says very seriously. Do not ignore the suicidal person; it is better to offer help early than to regret not helping later. The first step is to offer support, no matter what the problem may be. Don’t leave anyone alone if you think the risk of suicide is imminent. Assist the suicidal person in obtaining help. Contact the unit commander or first sergeant, chaplain, Mental Health Services, or your local hospital emergency room if you believe a person is suicidal. Here’s an example:

Sergeant First Class Smith notices Staff Sergeant Jones has been showing up late to work during the past several weeks. When SFC Smith asks SSG Jones if anything is wrong, he replies that his wife is leaving him and taking custody of his two children. He adds that he has had problems sleeping and concentrating and feels hopeless and trapped in his situation. He mentions that he has contemplated “ending it all” to stop the pain.

SFC Smith finds out SSG Jones owns a handgun and, in fact, has thought of using it to end his life. Because of the situation, SFC Smith alerts his first sergeant and they, together with SSG Jones, decide to call the chaplain and the local mental health office for advice and support.

Remember that a soldier’s buddy remains the most effective first-line of defense for detecting and preventing a suicide from occurring.

Written by Paula Allman with LTC Jerry M. Swanner, Office of the Deputy Chief of Staff for Personnel, and Dr. (COL) David Orman, Psychiatry Consult to the Surgeon General, contributing. Additional information can be obtained by calling LTC Swanner at (703) 697-2448 or e-mail jerry.swanner@hqda.army.mil

Clarification on Propane Space Heaters

In reference to the article “Tent Heaters Aren’t the Problem, Operators Are” (Oct 00), we want to clarify that the Safety Center does not endorse the use of propane space heaters for military use. Proper use of any type of heater is a command responsibility. The decision to use any type of non-standard heater must be made at appropriate command levels after a complete risk assessment has been performed. The command must also ensure that all operators of non-standard heaters are fully trained regarding use, maintenance, and risks.

POC: MSG Terry Briggs, Aviation Systems and Accident Investigation Division, DSN 558-3703, briggs@safetycenter.army.mil
In fiscal year 2000, the Army enjoyed one of its best years ever in terms of safety performance. In aviation, both the number of fatalities and the Class A and B flight accident rates were reduced to all-time lows. In ground accident prevention, FY00 was the second-lowest year ever in terms of the number of ground and privately owned vehicle fatalities.

Each and every one of you can take credit for these safety successes. All of us rolling up our sleeves and working together made a difference. It was an extraordinary effort of—

- Leadership involvement in safety programs.
- Safety professionals—civilians and military—helping commanders make informed risk decisions.
- NCOs enforcing standards and making on-the-spot corrections.
- Individual soldiers exhibiting the self-discipline to follow standards while resisting the temptation to take shortcuts sometimes perceived necessary due to the OPTEMPO.

We all can be, and rightfully should be, proud of the Army’s FY00 safety performance, but there’s a word of caution necessary as well: these achievements will not be easy to sustain. They will be even harder to surpass. Individually and collectively, we will have to seek even better ways of making a difference in our Army.

GEN Shinseki, the Army’s Chief of Staff, is adamant that he is the Safety Officer for The Army. He is equally adamant that each commander with a flag outside his or her unit or organization is the Safety Officer for that unit or organization. At the third quarter safety in-progress review, GEN Shinseki stated that “our business is a dangerous business, and command involvement is the key to our success. When I talk safety and why we are having problems, I talk to commanders.”

His words reinforce to those of us who have accepted command responsibility that it is up to each of us to protect and ensure the safety of the human lives entrusted to our care.

Commanders across the Army are busy people, and they need your help. The success of the safety program depends, in large part, on you understanding your commander’s needs and assisting him or her in making sound risk decisions. If you are relevant to your commander’s goals, he or she will find time to engage your counsel. You can make a difference in your organization’s safety performance, which will ultimately enhance the combat readiness of our Army.

BG Gene M. LaCoste, Director of Army Safety, DSN 558-2029 (334-255-2029)
Survival of the Fittest

Variety is the Spice of Life
This is the final article in a 5-part series of articles on physical training and their accident causes. This issue is dedicated to unit sports-related injuries.

Variety is the spice of life, especially when it breaks the boredom of physical training. Leaders and soldiers are always looking for a change to the “Daily Dozen” and formation running.

One of the ways to break the monotony is with unit sporting events. But let me warn you, if leaders and soldiers do not prepare and control these physical training events, soldiers can get seriously injured and lose time from work—and some may sustain injuries permanently.

During the past year, 150 soldiers have been seriously injured while participating in unit sports. Injuries include broken ribs and legs, dislocated arms, and numerous concussions. These injuries have cost the Army over $400K, not to mention the lingering aches and pains that individual soldiers may have to live with for life.

Basketball was the top accident producer, with football and softball not far behind. The most common injury received while participating in these sporting events was not from physical contact, but from the individual changing direction quickly and slipping on the playing surface; i.e., court, wet grass or loose gravel/sand, resulting in a broken ankle or leg. In one such instance, a soldier was trying to evade the opposing team’s cover and dodged the pursuer and slipped on dew-covered grass, breaking his ankle and wrist. Other less serious injuries occurred from improper warm-ups or the lack of stretching, causing torn leg muscles and injured tendons.

How do we mitigate these risks without removing the esprit de corps? Leaders must plan and inform participants of the proper equipment and rules required to play. Participants should be prepared with the proper equipment, such as wearing shoes designed for the sport—shoes with cleats provide better traction while performing fast starts, stops and changing directions.

Tips to Mitigate Risk:
■ Always stretch and warm up muscles prior to physical activities.
■ Postpone event if thunderstorms or other severe weather conditions are anticipated.
■ Drink plenty of fluids before, during and after vigorous activities. Avoid alcohol (it causes dehydration).
■ Inspect the play area and equipment for hazards.
■ Stay out of high grass to avoid holes and ruts. Don’t run when you can’t see where your feet will land.
■ Use the necessary personal protective equipment.
■ Cool down after intense physical activity. It helps lessen stiffness and soreness felt in muscles.

Remember that PT should enhance your physical fitness and not result in an injury that requires medical treatment or ends your military career.

POC: SFC John Darlington, USASC Ground Systems & Accident Investigation Division, DSN 558-2744 (334-255-2744), darlinj@safetycenter.army.mil
The Hunt Is On...

In looking at the 10 hunting accidents in the Army since FY95, two things are obvious. First, the law of gravity still works—just ask the three hunters who fell out of tree stands or trees. Secondly, firearms still go off unexpectedly—just ask the two hunters who shot themselves instead of their game. Of the 10 accidents, 2 resulted in fatalities and 2 others led to permanent injuries. These were accidents that could have been avoided had the hunters involved practiced safe gun handling and properly used their firearm’s safeties. Let’s look at the narratives from some of these accident reports, then look at how they might have been avoided.

**Accident 1**

A soldier went up the tree with his bow and stood waiting for a deer. When a large buck approached his position, he fired his arrow and suddenly lost his balance and fell off the tree stand.

**Lessons learned.** Excitement is often the reason for missed shots or carelessness. A hunter needs to have his wits about him and be completely alert while carrying a weapon. Be sure your safety belt is on and secure while climbing to the tree stand or standing on one.

**Accident 2**

A soldier was deer hunting when it began to rain. As the soldier was climbing up a rocky hill, he slipped and dropped his shotgun. The shotgun fired upon impact with the ground and struck the soldier in the leg.

**Lessons learned.** Responsible firearms handling is the most important skill for hunters to practice. Whenever negotiating an obstacle, always ensure weapon is unloaded and on “SAFE.” Be prepared to control the muzzle of your gun. To keep from slipping, wear non-slip boots or sturdy shoes.

**Accident 3**

A soldier was hunting ducks on a river in the early morning hours. Apparently, he entered the river to retrieve a duck and became entangled in debris and was unable to swim free. His body was recovered several weeks later.

**Lessons learned.** Never go hunting alone. Always use the buddy system. Whenever hunting near or in water, always wear a personal flotation device (PFD).

**Accident 4**

A soldier and three friends were hunting

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**TEN COMMANDMENTS OF SHOOTING SAFETY**

1. Treat every firearm or bow with the same respect shown for a loaded gun or nocked bow.
2. Always point the muzzle in a safe direction.
3. Be sure of your target and what is in front and beyond your target.
4. Unload firearms when not in use.
5. Handle ammunition and arrows with caution.
6. Know your safe zone-of-fire and stick to it.
7. Control your emotions—don’t get excited and forget to be safe.
8. Wear hearing and eye protection when shooting; wear red/orange clothing at all times in the woods.
9. Don’t drink alcohol and handle firearms; avoid prescription drugs that can dull the senses.
10. Use some risk management before the outing—think of what could go wrong and what you will do to prevent it.
on base when they became separated. Approximately
10 p.m., one of the friends heard a sound and thought it was a bear and shot the soldier in the stomach. The soldier died.

**Lessons learned.** Be sure of your target and what is beyond. Never shoot at a flash of color or a sound. Never shoot at a shape in a tree or bush. Soldiers should be taught to take all proper equipment with them while hunting. This is not limited to the required orange vest, but also a map of the area, compass, whistle, flashlight, and a first-aid kit should be standard. A cell phone wouldn’t be too bad either. Avoid horseplay with a firearm. Plan your hunt so you can return to your car or camp at least 1 hour before dark. Leave your hunt plan with family or friends.

**Accident 5**

A soldier leaned his 12-gauge shotgun against the side of his truck, and then was injured when it fell and discharged.

**Lessons learned.** A responsible hunter thinks about every action and makes every action safe. The soldier should have unloaded his shotgun prior to returning to his vehicle and positioned it to “SAFE.” By placing a loaded weapon against a vehicle is just begging to have it fall over with the slightest jostle.

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**A Day of Hunting**

We saw this humorous chronicle of a day of hunting in a base newspaper. The things that happened to the fictional hunter may seem ridiculous. However, when we looked at some of our reports of hunting accidents, we realized that truth really is sometimes stranger than fiction.

0200 – Alarm clock rang.
0300 – Hunting partner arrived, dragged me out of bed.
0310 – Threw everything except the kitchen sink into pickup.
0330 – Left for deep woods.
0500 – Drove back home to pick up gun.
0530 – Drove like crazy to get to the woods before daylight.
0700 – Set up camp. Forgot the tent.
0730 – Headed for the woods.
0735 – Saw eight deer.
0738 – Loaded gun while watching deer go over the hill.
0930 – Headed back to camp.
1000 – Still looking for camp.
1001 – Realized I didn’t know where camp was.
1200 – Fired gun for help. Ate wild berries.
1205 – Ran out of bullets. Eight deer came back.
1300 – Stomach felt strange.
1310 – Realized berries were poisonous.
1335 – Rescued.
1336 – Rushed to hospital to have stomach pumped.
1530 – Arrived back at camp.
1540 – Left camp to kill deer.
1550 – Returned to camp for bullets.
1600 – Loaded gun. Left camp again.
1630 – Emptied gun on squirrel that was bugging me.
1700 – Arrived at camp. Saw deer grazing near pickup.
1701 – Loaded gun.
1702 – Fired gun.
1703 – Missed deer. Shot pickup.
1735 – Hunting partner arrived in camp dragging dead deer.
1736 – Repressed desire to shoot hunting partner.
1737 – Fell into campfire.
1800 – Changed clothes. Threw burned ones in fire.
1805 – Took pickup. Left hunting partner and his deer in camp.
1815 – Pickup boiled over because of gunshot hole in block.
1816 – Started walking.
1820 – Stumbled and fell. Dropped gun in mud.
1825 – Met bear.
1827 – Fired gun. Barrel plugged with mud and blew up.
1829 – Climbed tree.
2000 – Bear left. Wrapped $%#@&$^#% gun around tree.
2230 – Home at last.

Next day – Watched football game on TV. Slowly tore hunting license into itty-bitty pieces.

—Excerpt from *Safetyline*
Follow these additional hunter tips—
- Familiarize yourself with the hunting area.
- Familiarize yourself with local and post hunting regulations.
- Inspect equipment such as deer stands and ladders for loose parts before each use. Check all stress points.
- Test your tree stand slightly off the ground to make certain it is safe.
- Always carry basic first-aid kit.
- Use the buddy system and never hunt alone. Plan your hunt and hunt your plan. Tell someone where you are going and when you plan to return.
- Expect the unexpected and watch for holes, poisonous critters, and other hazards.
- Take a hunter-education course before going to the woods. Personnel born on or after 1 Aug 77 must satisfactorily complete a state certified hunter education course.

Remember: The only way it’s safe is if there is no round in the chamber and the weapon is on SAFE.

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The Hazards of Hurrying

We’re all familiar with the “big-name” causes of accidental deaths and injuries—things like drinking and driving, tornadoes, hurricanes, contact sports, power lines and drugs. But there’s another killer out there—one that is often not recognized even though it can be equally devastating. Like carbon monoxide, we’re not aware of its dangers until it’s too late. This lurking, unseen hazard is known as hurrying.

Why is hurrying dangerous?

We often associate the dangers of hurrying with reckless driving and speeding. When we’re late or flustered, we become more stressed and tense and tend to lose patience with those who are “in our way.” To make matters worse, we’re more likely to forget things and make bad decisions. Here are a couple of examples of where hurrying caused bad accidents:

- Witnesses to a horrible bus accident in Nashville, TN, stated that the bus driver ran two consecutive red lights before crashing off a bridge over I-40. Two teenagers died when the bus crushed their Volkswagen bug to a height of 18 inches. The driver was trying to make up for lost time on his route.

- A witness to a deadly Amtrak train accident in Illinois confirmed an engineer’s report that a truck driver tried to snake through the crossing gate to beat the train.

Hurrying becomes dangerous when it overcomes your sense of caution, clouds your judgment, and leads you to make mistakes. These mistakes come in two disastrous flavors—doing something wrong, or not doing the right thing.

Doing something wrong

When we’re in a hurry, we tend to make mistakes—such as selecting the wrong switch, using an incorrect tool or spare part, driving too fast, and ignoring warnings. If we’re really rushed, we begin reacting impulsively rather than rationally. Here are two unfortunate
examples of people who reacted without thinking:

- Two young construction workers in Arizona were in a hurry one Christmas Eve. They hadn’t quite finished their holiday shopping and were rushing to take down a 40-foot aluminum ladder. Both were instantly killed when they grabbed the ladder as it toppled onto a 7,200-volt power line.
- An experienced private pilot was in the habit of raising the flaps during landing to “glue the plane to ground.” One day while landing a Beech Bonanza, he reached over and, with a single swift motion, depressed a safety, then lifted the gear switch. The propeller struck the tarmac and the plane “glued itself to the runway” much sooner than expected.

Psychologists call these actions “errors of commission.” Recent studies suggest 60 percent of hurrying mistakes are the result of people doing the wrong thing.

**Not doing the right thing**

When we’re hurrying, we tend to take shortcuts—sometimes failing to do things that we should. Psychologists classify these types of mistakes as “errors of omission.” Organizations as well as individuals can make this type of error as shown in the following example:

In January 1986, NASA was pressured to launch the Challenger space shuttle without delay. The Challenger’s mission was to launch a Haley’s Comet probe just before the Russians launched theirs. NASA also needed to launch the first teacher in space before the President’s State of the Union Address, which focused on education. NASA management chose to launch the Challenger in record cold temperatures (28°F) despite the protests of engineers who voiced concerns about the integrity of the rocket booster O-rings. They pointed out that the lowest previous shuttle launch temperature was 53°F and that the boosters had never been tested below 40°F. Just over one minute into the flight, an O-ring on the right-hand booster failed and the Challenger exploded, killing all seven on board.

**Why do we hurry?**

Understanding why we hurry is important to reducing our tendency to hurry and will help us manage the risks when we are rushed. The following are four basic reasons why we hurry.

**One: High workload**

Obviously, we hurry when we have more tasks, deadlines and responsibilities than we can handle. Unfortunately, the information age has increased the daily workload for nearly everyone. Gone are the days of 2 to 3-week suspense times—now responses are expected soon after the boss’s e-mail is read. What about downsizing and “doing more with less?” Consider how many people were employed at your job 5 years ago compared to today. Have the responsibilities and workload been lessened, or simply absorbed by remaining workers? As workloads push us to the limit of our abilities, we’re continually forced to operate in the hurry-up mode.

**Two: Running late**

Thankfully, reliable transportation is now available for nearly everyone. Unfortunately, the downside of this modern convenience is that we’re expected to be at more places and be at those places on time. We frequently check our watches for fear that we’re running late for our next commitment. It takes only a small delay to put a kink in our schedule and have us rushing to beat the clock.

**Three: Psychological predisposition**

Many of us have a natural disposition toward “Type A” behavior. People with Type A behavior struggle to achieve more in less time. They have trouble relaxing or getting work off their mind and often try to do two things at once—such as eating and working. Type A’s have a strong sense of time urgency and are particularly susceptible to the hazards associated with hurrying.

**Four: Professional pressures**

Many supervisors view employees who work fast to meet deadlines as being especially productive and motivated. This behavior is often reinforced with extra praise or early promotion.

**Remedies for hurrying**

Libraries are filled with books on stress management, mainly because stress poses a danger to our continued health and well-being. By comparison, there are no well-known books or best sellers on the subject of hurry
management. But there is hope. If you are prone to hurry or forced to hurry any activity, the following techniques will help you reduce the chances of making a mistake or causing an accident.

**Slow down**

Obviously, the best method to control hurrying is to slow down. This requires two actions: (1) recognizing when we are hurried, and (2) consciously forcing ourselves to slow down. Simply realizing when our “HURRY” light is on is half the battle. Since rushing almost always causes stress, recognizing the symptoms of stress is essential to knowing when we are too hurried. Those symptoms include tightness in the chest, dizziness, shaking, irritable behavior, and high blood pressure. By watching out for these, we’ll know when it’s time to slow down and exercise caution. And we can slow down by taking a break, concentrating on one task at a time, or finishing one task before going on to another.

**“Wind the clock”**

A tried-and-true pilot technique for handling overwhelming situations is to take a moment to “wind the clock.” Instead of panicking when things become stressful, momentarily step away from the situation, calm down, and then re-attack the problem in a more rational manner.

**B-safe**

Surrounding yourself with people who aren’t prone to rushing—easygoing Type B people—will also help you slow down. Most of us try to fit in by imitating the people around us. Studies suggest when Type A people are exposed to Type B people; the Type A folks tend to slow down.

**Time management**

As mentioned earlier, being late or delayed is a major reason why many people hurry. Managing our time wisely can help us set priorities, making sure we get the most important things done first so we’re not rushed trying to do the remaining tasks. In addition, effective time management helps us to plan enough time to avoid running late or having to cut our travel times too close. It’s a shame insurance companies don’t offer reduced premiums for people who leave early enough to avoid having to rush while driving to work or appointments. We’d have fewer injuries and deaths due to careless and reckless drivers.

**Just say “No!”**

One of my former bosses used to tell me, “No good deed goes unpunished.” In other words, the better you are at your job, the more work you will get. If you find yourself in this category, you need to learn to diplomatically say “no” to additional responsibilities when you’re already tapped out. Otherwise you’ll be stuck trying to do more in less time by hurrying.

**Haste makes waste**

Today, more than ever before, we are expected to do more in less time and to be in more places on time. As a result, we’re even more vulnerable to the hazards of hurrying. Chances are your last brush with death or injury happened because you (or someone else) were in an extreme hurry. Speed limit signs aren’t just limited to our streets and highways—nearly every activity we do has its own invisible speed limits. The more we exceed these “speed limits,” the more we endanger others and ourselves. By recognizing the perils of rushing and being aware of when we are hurrying too much, we can defeat this deadly menace. Otherwise, haste will continue to lay waste to our lives and the lives of others around us.

—Courtesy of Road & Rec Magazine
After a wonderful evening of enjoying a Southeast Texas Crab Festival with my family, we started home to rest up for Sunday morning church services and a relaxing Sunday. In the time it took to blink, our lives could have been forever changed. Let me tell you why my family and I are alive today.

While driving down a rural Texas highway, a gentleman who had just went through a fast food drive-thru was distracted and failed to yield to our vehicle. There was no time to react. Although my wife slammed on the brakes and tried to swerve, we hit the other vehicle causing it to spin around and hit us a second time. At 45 miles per hour, this could have resulted in serious injury or even death.

Fortunately, we are a safety conscious family and live by the 15-second seatbelt check rule. Each time we get into a vehicle, we first strap the children in their car seats and check both the seats and the children to ensure the car seats do not move and the shoulder belts are tight allowing only a one-finger gap. Then we ensure everyone in the car, to include the backseat passenger (in this case, it was me), is securely buckled in. Only after all passengers are buckled in and the car seats are checked will we move the vehicle.

This may sound like a scene from the Brady Bunch, but let me add to the story. About three months ago, the Texas Department of Public Safety hosted a child safety restraint demonstration at a local car dealership. During this demonstration, law enforcement officers offered families important advice and hands-on instruction on the correct use of child safety seats and seatbelts, and supervised participants while they installed the car seats. Attendees were taught how to properly secure the safety seats to the vehicle using the adult seatbelt system and how to secure the child within the restraint.

It was a good thing we attended this class because tragic results could have happened. By Texas law, I was not required to wear a seatbelt in the backseat; however, I would have gone through the windshield if I hadn’t. Additionally, the children could have received great injury or even death had the car seats moved. Moreover, the force of the collision would surely have caused the children to move violently if they were not tight in their car seats. I believe they are alive because I took the time to properly install the car seats and ensure they were correctly secured.

What are my recommendations for my Army family? First, everyone in the car buckles up. It doesn’t matter if we are going one block or 2,000 miles—buckle up! Ensure children age 4 and under or any child under 40 inches or 40 pounds, regardless of age, is in a child safety seat. Have your car seats checked for proper installation and serviceability. Additionally, don’t eat or use a cellular phone while driving. These types of distractions can cause you or another person much pain and injury...or even worse.

Finally, the installation safety officer and Provost Marshal should conduct quarterly seatbelt checkpoints. It may require some extra effort and manpower, but spending one Saturday or payday outside the PX or commissary each quarter to save the lives of our children is well worth it. I welcome all comments and would love to talk with installation officials about implementing my suggestion. Safety is key when it comes to our soldiers and family members.

POC: 1LT(P) Brian L. Smith, 596th Transportation Group (Terminal), Beaumont, TX, DSN 259-3821 (409-784-3821), smithbr@mtmc.army.mil
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**ROLOVER!**

### NEW! ROLLOVER PROCEDURES

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**BFV HAS ROLLED OVER**

- Begins crew checks to ensure no fires; checks accountability of personnel.
- Ensures weapon system is on safe and engages travel lock, if possible.
- Pulls fuel shut off and turns accessories off. If a fire is present, sets off engine compartment fire suppression system.
- Leader checks squad for injuries and reports to Bradley commander.

**SENIOR CREWMEMBER DETERMINES IF IT IS SAFE TO EXIT THE VEHICLE AND BEGINS EVACUATION**

- Checks for injured personnel; reports incident.
- Assists the Bradley commander in evacuating vehicle.
- Exits vehicle through driver’s hatch or through crew compartment if driver’s hatch is blocked.
- Exits vehicle through unobstructed hatch. If fire is present, extinguishes fire.

**IF SENIOR CREWMEMBER DETERMINES THAT IT IS UNSAFE TO EXIT THE VEHICLE, PERSONNEL WILL WAIT FOR RECOVERY AND ATTEMPT TO CONTACT WINGMAN OR HIGHER.**

**WARNING!**

During a rollover, gas from batteries can explode and cause serious injuries. If the driver must exit through the crew compartment, precaution must be taken to prevent contact with battery acid that could spill and cause serious burns or blindness.