

ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

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A Personal Responsibility For Safety

Every soldier must assume personal responsibility for safety and take action accordingly. The reward will be the satisfaction that you have done everything you could to prevent your fellow soldiers from being hurt or killed. We must take care of our soldiers and their family members--It is everyone's responsibility.

ARMY GROUND RISK-MANAGEMENT PUBLICATION
COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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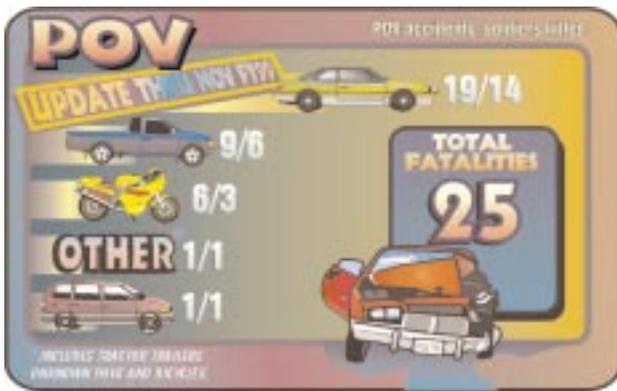
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Charles M. Burke
 Charles M. Burke
 Brigadier General, U.S. Army
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From the Editor

Happy New Year to all. Now is the time to make a New Year's resolution that's important to everyone. Let's make an effort to have a strong safety program this year. This should be an easy task compared to the other ones about eating less, exercising more, or quitting smoking that we try each year! And it can mean so much more to our soldiers and loved ones.

There are no special secrets to achieving a good safety program. The most important commitment that each one of us can focus on is to look after one another at all times. Many accidents and injuries could be prevented if each member of the chain of command--from the team leader right on up--took his safety responsibilities more seriously.

Through a combination of three key factors--**proactive leadership, accountability, and risk management**--we can stop killing our soldiers and destroying national resources.

Proactive leadership saves soldiers. We need to continue to choose the right leaders who will invest the required time, energy, and personal leadership in training and mentoring our individual soldiers and ensure that every soldier sets and maintains high standards, both on and off duty.

Accountability. Each soldier must take on a personal responsibility for the safety of himself and constantly stress risk management to others. Supervisors play a vital role in risk management and need to really get to know their people, understand their working conditions, their part in the overall mission, and stress the safety aspects of day-to-day actions at all times.

Risk management. We need to be constantly alert to unsafe practices, and stop them when we see them. We should stop and explain to the soldier, civilian, or contractor the dangers involved and stress the safe way to perform the act. Our soldiers need to understand risk management. What better way to train than to lead by example.

We can achieve a good safety program. It is everyone's responsibility. With everyone's personal commitment to safety--we can save precious lives. Have a safe 1999!

SAFETY FIRST!

Paula Allman

Suicide Awareness

The key to suicide prevention is positive leadership, careful listening, and deep concern for soldiers. As leaders, we have a duty to care deeply and sincerely for our subordinates and their families, and we must assure that assistance is provided when needed. The Army loses too many soldiers each year to suicide. So far in calendar year 1998 (through 24 November), there have been 57 suicides. At this pace, the Army's active duty suicide rate is projected to be 12.91 per 100,000 soldiers for CY 1998. Many suicides are preventable, and as leaders, we must be aware of the warning signs and corrective actions available to prevent these tragic losses.

There are a number of powerful, negative events that go on in a soldier's life that may lead to suicide. Those problems include: damaged relationships, depression, loneliness, job stress (change of mission, deployments, people rotating out of a unit, and working conditions), substance abuse (predominantly alcohol), civilian or military legal problems, and financial problems. When several of these occur in a soldier's life at one time, the stress can seem overwhelming.

Suicide warning signs

In many cases, there are warning signs present that indicate someone's potential to take their own life. Not all suicidal people show these signs, and not all people who display one or more are suicidal. These signs include:

Talking about suicide. Over half of the suicide cases studied showed that the victim told someone of the possibility of suicide. This can include a friend, spouse, co-worker, or a social service agency. If someone talks about suicide, take it seriously! Never assume they won't act on their thoughts.

Statements of hopelessness, helplessness, or worthlessness. Many victims that have these feelings suffer from depression.

Loss of interest in things one cares about. Sudden changes in interests or personality may indicate an impending suicide. The potential victim may also start giving away prized or valuable possessions, and may make arrangements to set their affairs in order.

A history of suicide attempts. A pattern of attempts may eventually end up in a completed suicide. A history of suicides in the family should also be considered a warning sign. Depression may have a genetic component, and statistics show that suicides tend to run in families.

Preventive measures

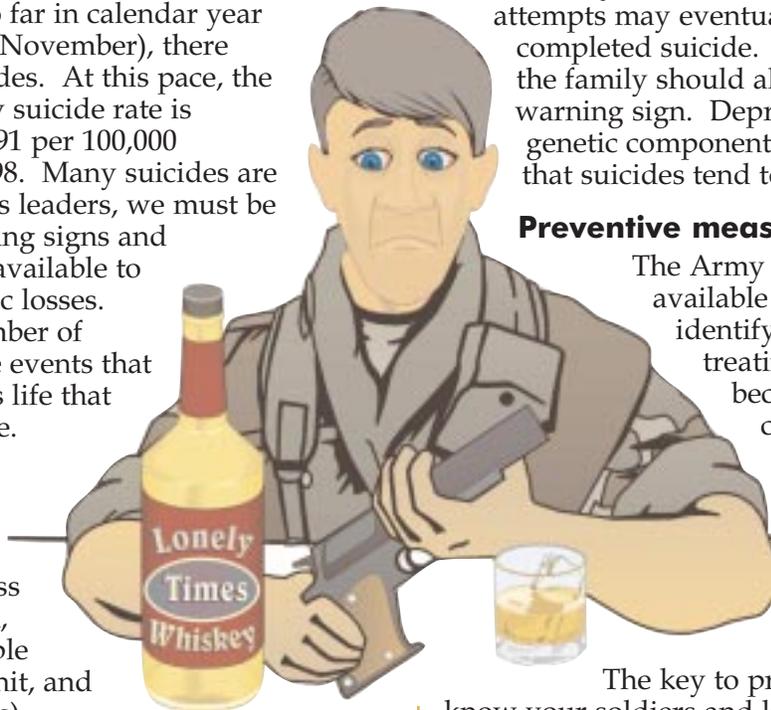
The Army has several resources available to assist leaders in identifying at-risk soldiers and treating them before they become victims. Unit chaplains are trained in this area and can provide valuable advice, counseling, and spiritual guidance to soldiers and family members.

The key to preventing suicides is to know your soldiers and know the warning signs of suicide. Listen to them when they talk about problems, and know if their personal lives include any of the risk elements described above. Take any threats seriously, and follow up on conversations or referrals to treatment. Let your soldiers know that depression is an illness, not a weakness, and that medical treatment can help. Encourage soldiers to let the chain of command know immediately if another soldier displays the warning signs, and emphasize that they're doing a huge favor that may save their buddy's life.

Don't keep it a secret. A soldier's buddy remains the most effective first-line of defense for detecting and preventing a suicide from occurring. ♦

Your concern and involvement can help save lives!

—Written by MAJ Monroe B. Harden, USASC Ground Systems Division, with LTC Mark Roupas of the Office of the Deputy Chief of Staff of Personnel contributing. Information can be found at http://www.odcsper.army.mil/info/hr/hr_pr



Accident Review

Curiosity Killed The... Airman

Curiosity. It can make the world an exciting and interesting adventure, or it can end that adventure.

Explosive devices are used around all military operations and many civilian construction projects. Too often, when curiosity meets an explosive device, death or injury results.

What happened.

The unit deployed to a testing range to collect air samples as part of a larger test. Their mission was to set up several mobile sample collection sites. Once set up, each two-person team would then change sample collectors and filters according to a time schedule, and would ensure that their equipment operated properly throughout the collection period.

Between filter and sample changes, there wasn't much for the team to do. Some participants brought correspondence course materials to read; others brought paperback novels or magazines. One team, however, decided to explore the local area during their down time.

The team set up near a main road. A large white trailer and two dummy bomb casings on trailers were in the field just east of their position. To their south, several hundred meters

away, was a large fenced-in area. After changing their samples, the team members decided to walk around the site. The NCOIC walked across the road to examine the trailer and bomb casings, while his assistant walked south. About 150 meters from the collection site, the assistant saw a cylindrical yellow object on the ground. He picked it up to examine it, and then tossed it back to the ground. The object, an unexploded cluster bomb submunition, detonated as it hit the ground, killing him.

Why it happened.

There were two primary causes of this accident. First, the victim's chain of command did not train him on the hazards of unexploded ordnance (UXO). He had graduated from initial entry training a few months prior to this mission. He was also a last minute addition to the mission and missed most of the pre-deployment training. The make-up training that he received did not include anything about the hazards of UXO and the proper actions to take if UXO was discovered.

Also, the organization sponsoring the test did not require the participants to receive any training on UXO hazards. They did require them to receive training on the weather, animal,

and equipment hazards peculiar to the test site. This particular installation had been frequently used in the past to conduct testing of explosives and munitions, and the post's Explosive Ordnance Disposal (EOD) team had a thorough briefing on UXO hazards available to anyone who requested it. But in this case, the sponsoring



DON'T TOUCH! This is an actual BLU-77 found in the vicinity of the accident scene.

agency did not request the class.

Corrective actions.

Leaders, you are responsible for your troops! Be sure to include the risks associated with UXO when conducting your risk assessments. If your training or testing site has been used for live munitions or demolitions firing in the past, consider the possibility of UXO in the area. If you are operating near a known impact area, expect UXO in the area. If an area has been used before, or has received a surface sweep for UXO, do not automatically assume it is completely free of dangerous objects. Erosion or shifting sands can uncover previously buried items, or someone could throw an item acquired elsewhere into your area.

Control measures available include training and site reconnaissance. FM 21-16 (UXO Procedures) and the Soldiers Manual for Common Tasks (STP-21-1-SMCT) contain procedures and training materials for identifying and reacting to UXO hazards. If you are operating at an unfamiliar location, ask range control, local EOD, or your sponsoring agency if

there is any UXO orientation training available specific to this location or installation.

Prior to occupying a training or mission location, be sure to check it for UXO hazards. Quarters party SOPs usually require a sweep of the area to ensure its suitability for occupation. If you are in a known high-risk area, use your available detection equipment before declaring an area safe to move through or occupy. If you are conducting a real-world mission, be sure to get the latest intelligence on the area and its land mine and UXO status from your S-2 and any previous users of the site.

And finally, emphasize to your soldiers during safety briefings not to touch, kick, or otherwise disturb objects found in their environment.

This isn't just a cliché--curiosity killed our sample operator because his leaders did not emphasize UXO hazards to him. Our soldiers deserve better than this. ♦

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Attaboy!

Soldier Receives The Army Safety Guardian Award

PV2 Jeremy L. Huffman, 66th Military Police Company, Fort Lewis, Washington, risked his life to save CMS William C. Lomas (AF, Retired) from a fatal train accident.

In January 1998, PV2 Huffman was surveying an area of Fort Lewis when he found CMS Lomas' unoccupied vehicle in a wooded area. A detailed search of the area was made and CMS Lomas was found walking his wounded Labrador Retriever along the rail right-of-way. Both were exhausted. Prior to this, he had spent 4 hours trying to rescue his dog from the waters of Puget Sound. Without warning, a train approached and the dog collapsed on the tracks. CMS Lomas stood on the tracks in the path of the train and attempted to pick up the tired, wet, 132-pound animal.

PV2 Huffman was present at the scene and gave verbal warnings to CMS

Lomas; however, he did not respond. Instinctively and with total disregard for his own safety, PV2 Huffman grabbed him and extracted him from the path of the train. The elapsed time from seeing the train and saving CMS Lomas was less than 20 seconds. Through quick action, PV2 Huffman prevented a catastrophic incident. Unfortunately, the dog was struck by the train and killed. ♦



Take No Unnecessary Risk of Life

During his tenure as Chief of Staff of the Army, General John A. Wickham, Jr., was dedicated to safety and accident prevention. General Wickham's commitment to safety was reflected in his Five Point Safety Philosophy. These points are listed below.

- Nothing we do in peacetime warrants unnecessary risk of life or equipment.
- Commanders are safety officers.
- Teach soldiers and leaders a sixth sense of safety.
- Fix accountability for accidents.
- Safety officials must be proactive and aggressive.

These five points are very basic, simple, easy to remember, and quite effective. The key point in his philosophy is the first one--"Nothing we do in peacetime warrants unnecessary risk of life or equipment." The total disregard for this first, and foremost, point of his philosophy is illustrated only too well in the following accident scenario.

The infantry battalion's scout platoon had occupied a range in the local training area in preparation for numerous training events that were to take place over a period of several days. Training on the first day consisted of day and night, dry and blank firing, as well as live-fire operations in preparation for the next day's training. The training was conducted without incident. The second day's training consisted of a hand grenade range and a fast rope live-fire exercise.

Early in the morning of the second day, the lieutenant platoon leader, who was also the range OIC, was informed that another unit was also scheduled to use the same range that day. In an attempt to expedite the training, the lieutenant picked up four M67 fragmentation grenades from the ammo supply point on his way to conduct his leader's recon for the fast rope live-fire exercise. From there, he would go directly to the grenade range. As he headed towards the recon area, he attempted to secure the grenades in the four grenade pouches located on his two ammo pouches. He properly secured three of the four. The fourth was only secured to the pouch by the grenade pouch strap that he had placed through the grenade pin. Upon

completion of the recon, he noticed one of the grenades was missing. The grenade pin was still hanging on the grenade pouch strap.

The lieutenant immediately went to find the grenade. He searched for the grenade for two hours without success. He notified his platoon sergeant, also the range safety officer (RSO), and told him of the missing grenade. He instructed the platoon sergeant to continue training. The battalion command sergeant major, who was inspecting training on the range, was informed of the missing grenade and called a cease fire halting all training. He notified range control and the chain of command.

Early that afternoon, Explosive Ordnance Disposal (EOD) personnel arrived on the scene. After viewing the terrain and vegetation where the grenade had been lost, and knowing that the grenade had no safety pin, EOD personnel assessed the risk of searching for the grenade as "extremely high." The EOD detachment commander would not allow his people to search for the grenade or assist the unit in searching for the grenade.

The local range regulation stated that the unit was to cordon off the area, mark it as an impact area, and the area would be burned in the fall. These actions had been completed under the supervision of range control when the word came from the division commander that the unit was to find the grenade. The division commander had not been informed that the grenade was missing the safety pin.

The following day (day 2), the unit initially attempted to find the grenade by cordoning off the area where it was suspected that the lieutenant had lost it. The area was then divided into lanes wide enough for eight soldiers. Standing side by side, the soldiers would slowly walk down the lane, carefully moving each branch and twig, looking for the grenade. This proved to be unsuccessful. Later that day, word came from division headquarters—the general had been informed the grenade had no pin and had told the unit chain of command not to use soldiers to find the grenade, but to use the engineers and EOD to locate the grenade.

The following morning (day 3), an engineer unit attempted to find the grenade using mine

sweepers. The mine sweeper (basically a metal detector) is employed by swinging it back and forth over low-cut or barren terrain. The vegetation where the grenade was lost is over ten feet high and so thick a human can hardly walk through it. Due to the vegetation, the mine sweepers could not be used. In attempt to assist in the employment of the mine sweepers, the infantry soldiers were told to cut down the vegetation. They put on their fragmentation vests and kevlar helmets, were issued axes, machetes, sickles, and scythes, and went back in the area to cut the vegetation. The operation continued uneventfully for the rest of the day.

Early on the morning of the fourth day, the brigade commander arrived at the range and briefed the soldiers. Part of his briefing included how to properly cut the vegetation in order to locate the grenade. After he briefed the soldiers, he departed the range and the soldiers again began cutting the vegetation. Ten minutes after the brigade commander left the range, the grenade exploded.

As the grenade exploded, the battalion commander, the platoon leader, and platoon sergeant were huddled together discussing the situation. A young specialist was walking down the hill towards them with an axe. The specialist did not have his fragmentation vest properly closed and a small grenade fragment pierced his heart killing him instantly. The battalion commander's left foot and lower left leg were so badly injured that his leg had to be amputated below the knee. The lieutenant and staff sergeant received multiple shrapnel wounds and seven other soldiers who were within 12 feet of the blast also received shrapnel injuries.

As you read the accident scenario, I hope you visualized the situation. A lot of questions come to mind but the main question is, "Why were soldiers' lives risked to find a grenade that did not have a pin in it?" They continued the search even after EOD personnel informed them of the risk in searching for the grenade. As you complete your risk assessment for your operations in garrison or the field, keep one thing in mind, "Nothing we do in peacetime warrants unnecessary risk of life or equipment." ♦

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Other Grenade Safety Considerations

- **Treat any thrown grenade that fails to detonate as a dud, regardless of safety pin, safety clip, or safety level status.**
- **Don't tamper with any thrown grenade. Call Explosive Ordnance Disposal (EOD) for assistance.**
- **Observe caution with grenades that have igniting type fuses. These grenades ignite with a flash and should be thrown at least 10 meters from all personnel.**
- **Consider all duds as dangerous. Follow these procedures:**
 - M69 Practice Grenade.** Wait 5 minutes before defusing. Keep bottom of grenade oriented in safe area. Place dud fuse in a sand-filled container and return to issuing facility.
 - Fragmentation Grenade.** Thrower and supervisor should wait in throwing pit for five minutes before returning to covered area. Notify EOD immediately. Do not throw any hand grenades into area until dud is neutralized. If range permits, continue training on adjacent impact areas separated by berms.
- **Know what to do in case of a dropped live hand grenade.**
- **Conduct a risk analysis and put in place every control necessary to conduct training safely.**
- **Use checklist in FM 23-30, Appendix B, Live Hand Grenade Range Operations, to assist in educating leaders and range personnel on how to safely conduct hand grenade training.**
- **If in doubt, consult FM 23-30, Grenades and Pyrotechnic Signals. ♦**

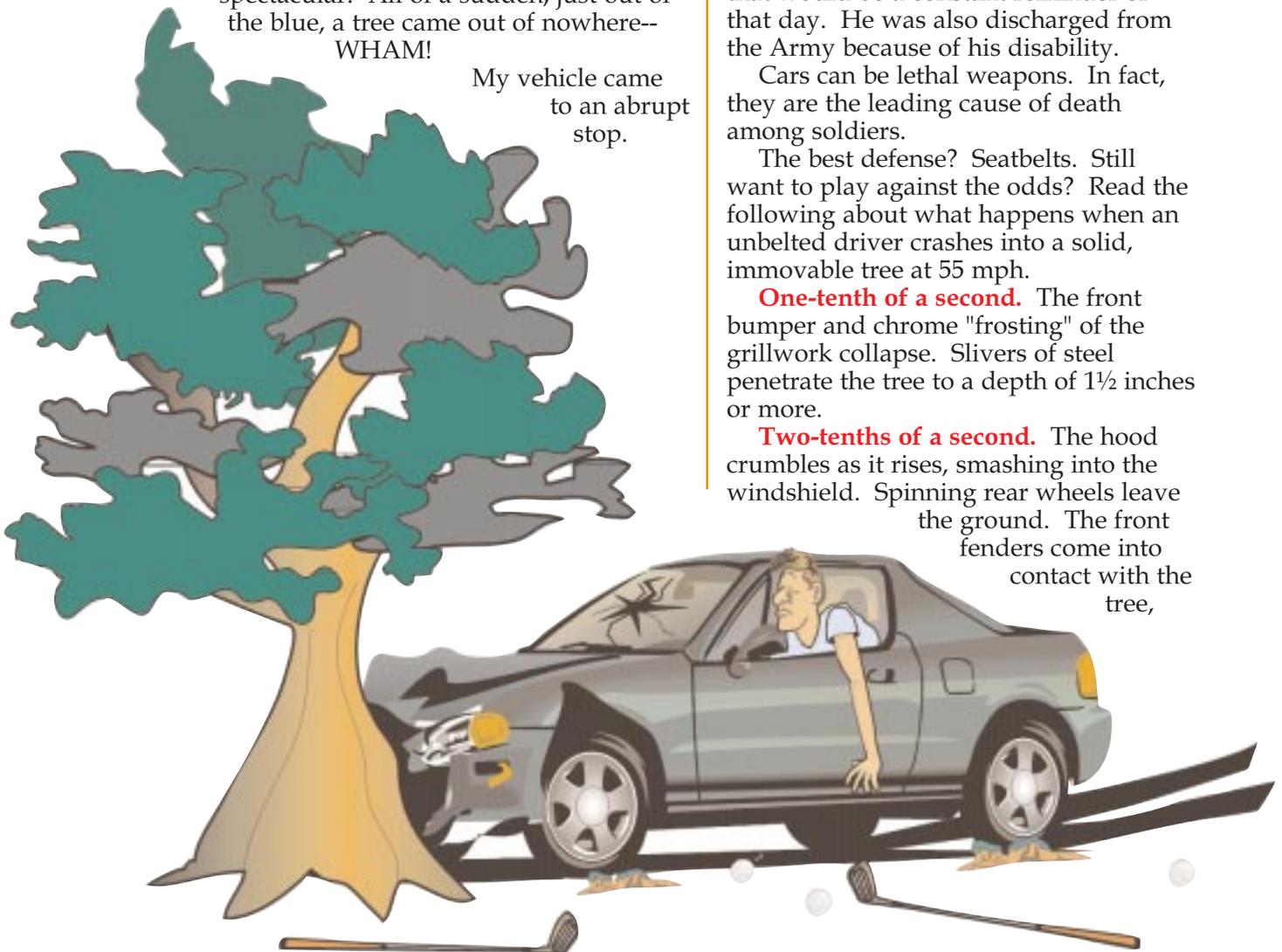
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Crash Course In Seatbelts

My buddy and I left home on a Saturday morning to go play a round of golf. It was finally our day off and it looked like a great day to be outside. We washed and waxed the car to perfection and then hopped in to drive to the post golf course, which was only a few blocks away. It only took a few minutes to get there, so no seatbelts were used. Riding along in my nice clean car, we were engrossed in a conversation about—what else? Golf! That great shot I had made last week on hole number 5 was spectacular! All of a sudden, just out of the blue, a tree came out of nowhere--

WHAM!

My vehicle came to an abrupt stop.



My beautiful car! My buddy. My family. My future. My life--gone in less than a second.

I remember coming to with people all around me. I was in the hospital. My mother was holding my hand and calling my name. Other people were there also—people dressed in white that I didn't know. My head felt heavy and I just wanted everyone to go away so I could go to sleep. My eyes finally found the darkness.

I became a statistic that day. My buddy lived, but he had a severe limp that would be a constant reminder of that day. He was also discharged from the Army because of his disability.

Cars can be lethal weapons. In fact, they are the leading cause of death among soldiers.

The best defense? Seatbelts. Still want to play against the odds? Read the following about what happens when an unbelted driver crashes into a solid, immovable tree at 55 mph.

One-tenth of a second. The front bumper and chrome "frosting" of the grillwork collapse. Slivers of steel penetrate the tree to a depth of 1½ inches or more.

Two-tenths of a second. The hood crumbles as it rises, smashing into the windshield. Spinning rear wheels leave the ground. The front fenders come into contact with the tree,

forcing the rear parts out over the front door. The heavy structural members of the car begin to act as a brake on the terrific forward momentum of the 2½-ton car. But the driver's body continues to move forward at the vehicle's original speed – 20 times the normal force of gravity; his body now weighs approximately 3,200 pounds. His legs, ramrod straight, snap at the knee joints.

Three-tenths of a second. The driver's body is now off the seat, torso upright, broken knees pressing against the dashboard. The plastic and steel frame of the steering wheel begins to bend under his terrible death grip. His head is now near the sun visor, his chest above the steering column.

Four-tenths of a second. The car's front 24 inches has been demolished, but the rear end is still traveling at an estimated speed of 35 mph. The body of the driver is still traveling 55 mph. The rear end of the car, like a bucking horse, rises high enough to scrape bark off low branches.

Five-tenths of a second. The driver's near-frozen hands bend the steering column into an almost vertical position. The force of gravity crushes his chest against the steering wheel, rupturing arteries. Blood spurts into his lungs.

Six-tenths of a second. The driver's feet are ripped from his shoes. The brake pedal shears off at the floor board. The chassis bends in the middle, shearing body bolts. The driver's head smashes into the windshield. The rear of the car begins its downward fall, spinning wheels digging into the ground.

Seven-tenths of a second. The entire writhing body of the car is forced out of shape. Hinges tear, doors spring open. In one last convulsion, the seat rams forward, pinning the driver against the cruel steel of the steering shaft. Blood leaps from his mouth; shock has frozen his heart. The driver is now dead.

Elapsed time: only seven-tenths of a second.

Wearing seatbelts and encouraging others to wear them shows you care. Fastening your seatbelt should be as automatic as turning on the ignition. Take the time to develop the seatbelt habit. Sure, buckling in takes a few seconds...but the one time that

you don't – could be the one time you wish you had. ♦

PLEASE BUCKLE UP, IF NOT FOR YOURSELF, FOR YOUR LOVED ONES.

Remember it's the law! Soldiers are required to use seatbelts anytime they are driving or riding in a military vehicle or POV. The regulation applies even in the absence of a state law to wear seatbelts. It includes both on and off military installations. Nearly 45 percent of all fatalities involving vehicles could have been prevented if seatbelts were worn. Army Regulation 385-55 sets the standard; first-line leaders must enforce it.

Editor's note: Has your seatbelt saved your life or the life of a friend or loved one? If so, please tell us about it. We'd like to publish your stories. Send them to: U.S. Army Safety Center, ATTN: CSSC-OG (Countermeasure), Fort Rucker, AL 36363-5363 or email countermeasure@ safety-emh1.army.mil

From The Troops

Risk Management of Washrack Operations

Note from the editor: Risk management was first introduced to the Army safety community 11 years ago and has evolved into the Army's doctrinal force-protection process for preserving combat power and increasing combat readiness. Risk management is not complicated. We as safety professionals need to do a better job of getting the word out when we hear of effective safety programs in the field. Countermeasure wants to share this proactive safety information with the rest of the Army. Here is how one installation risk-managed a significant problem by implementing a strong prevention program.

Cold weather was a primary concern throughout Operation Joint Endeavor. The high levels of snow, cold temperatures, freezing rain, and prolonged exposure to weather put the soldiers at a higher risk for cold-weather injuries. To control this risk, a strong cold-weather injury prevention program was in place during the deployment and sustainment phases of the operation. Next, the concern focused on the redeployment.

Risk management was used extensively throughout the deployment and sustainment. The use of risk management was also well integrated and was being adapted for specific situations. As the preparation for redeployment began, the need for risk management was apparent.

Redeploying units went through a seven-day process at the Intermediate Staging Base (ISB) in Taszar, Hungary. One phase of the process was to wash and clean all vehicles and containers for shipment to Germany, and for some units through customs inspection for return to the United States. The soldiers and leadership of the redeploying unit were required to properly operate the equipment in the washrack and follow all risk management control measures as they washed their vehicles and equipment. Due to the time constraints, washrack operations needed to be conducted day and night in all types of weather. With this in mind, the hazards of cold-weather injuries and the potential for accidents on icy surfaces had to be identified and controlled.

There were a number of key players in the operation of the washrack. They included the Commander of the 7th Combat Support Group, Commander of the 71st Combat Support Battalion who ran the base operations, Commander of the 345th RAOC who ran the washrack, 7th Combat Support Group safety representatives and unit safety personnel,

preventive medicine personnel, personnel from the 27th Transportation Battalion who provided container movement, and the Brown and Root Contractor who operated the washrack operation. These key players came together to form a cohesive team that focused on improving the hazard control program and reduce risks. The 7th Combat Support Group commander ensured all actions were coordinated and hazard information went through the chain of command to the user.

The S-3 for the 7th Combat Support Group used the traditional risk-management process to develop the mission of washing vehicles so that it included controlling cold-weather injuries and accidents. First, a mission statement was developed and a diagram of the washrack operation was completed. Through risk management, hazards were identified, a risk assessment checklist was developed, and precautionary measures to reduce the risk were identified. This information was used to educate personnel who worked in the washrack daily, as well as transient personnel of deploying units on the hazards and control measures to prevent cold-weather injuries and accidents.

Two particular products were developed as a result of this risk-management process that applies to washrack operations conducted in cold weather. The first is the Cold Weather Exposure Guide (see top chart on page 11). This is basically a hazard control matrix that compares the temperature with cold-weather equipment and clothing. By looking down the left side of the chart, one can locate the temperature during which the washrack operation will take place. This is after wind chill is figured in. By moving right from the approximate or forecast temperature at the washrack, one can identify the specific items of clothing required and the maximum amount of time a person should be exposed to the cold weather by operating a hose

or steam cleaner. This is a quick and easy guide that anyone can use. To reduce the risk of cold-weather injuries, soldiers are required to wear the appropriate clothing items and not work for more than the time indicated to keep the risk at a low level.

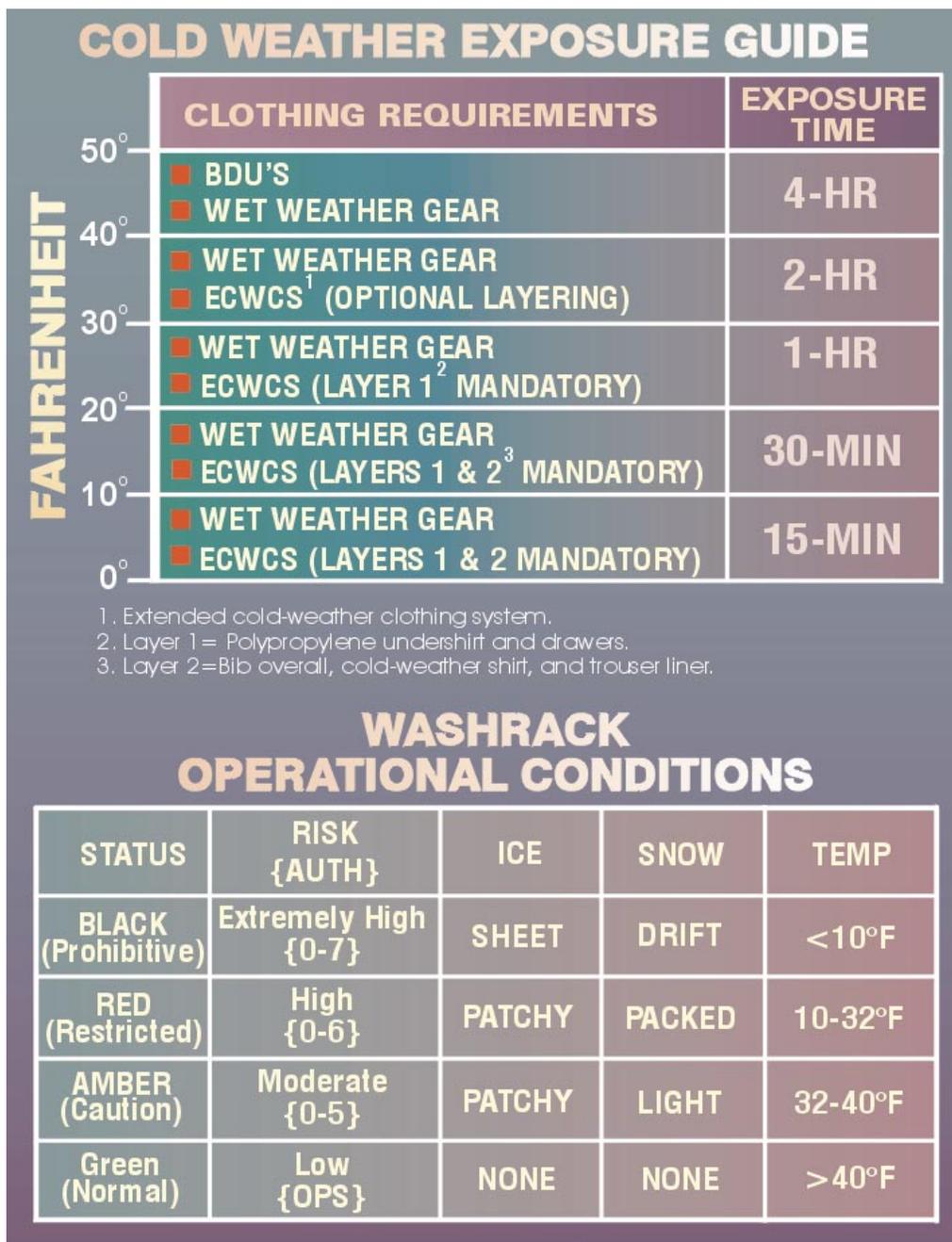
The second product is a washrack authorization chart (see bottom chart). This matrix takes the risk associated with the ice, snow, and temperature and identifies the approval authority that must accept the risk and authorize the washrack to operate. By identifying the weather conditions in the right three columns that resemble those present or that will be present at the time, one can move left to column one and determine the overall risk for the operation. Green is low, amber is moderate, red is high and black is extremely high. The leader in charge of the washrack must then obtain the authorization of an individual in the chain of command in the grade of column two to operate the washrack. If weather conditions degrade and the risk increases, the officer in charge of the washrack must stop operation until a leader of the appropriate grade in column two accepts the risk and authorizes the operation to start again.

This is one example of a risk-management application that was developed by leaders to control and eliminate hazards and allow an operation to be conducted with the minimum risk possible. The fact that this was done during a real-world mission during times

of high stress should not come as a surprise. This is how risk management is supposed to work and exactly how today's leaders can reduce risks while accomplishing difficult and dangerous missions. Protecting the force is every leader's responsibility. ♦

This article was authored by MAJ Doug Evans, 7th Corps Support Group, DSN 314-469-7134, 7csgdepctr@7csg.bamburg.army.mil and Fred Fanning, CSP, Maneuver Support Center and Fort Leonard Wood, DSN 581-1275, fanningf@wood.army.mil

The contents of this article are the expressed opinions and views of the authors and do not necessarily represent those of the U.S. Army Safety Center or the U.S. Army.

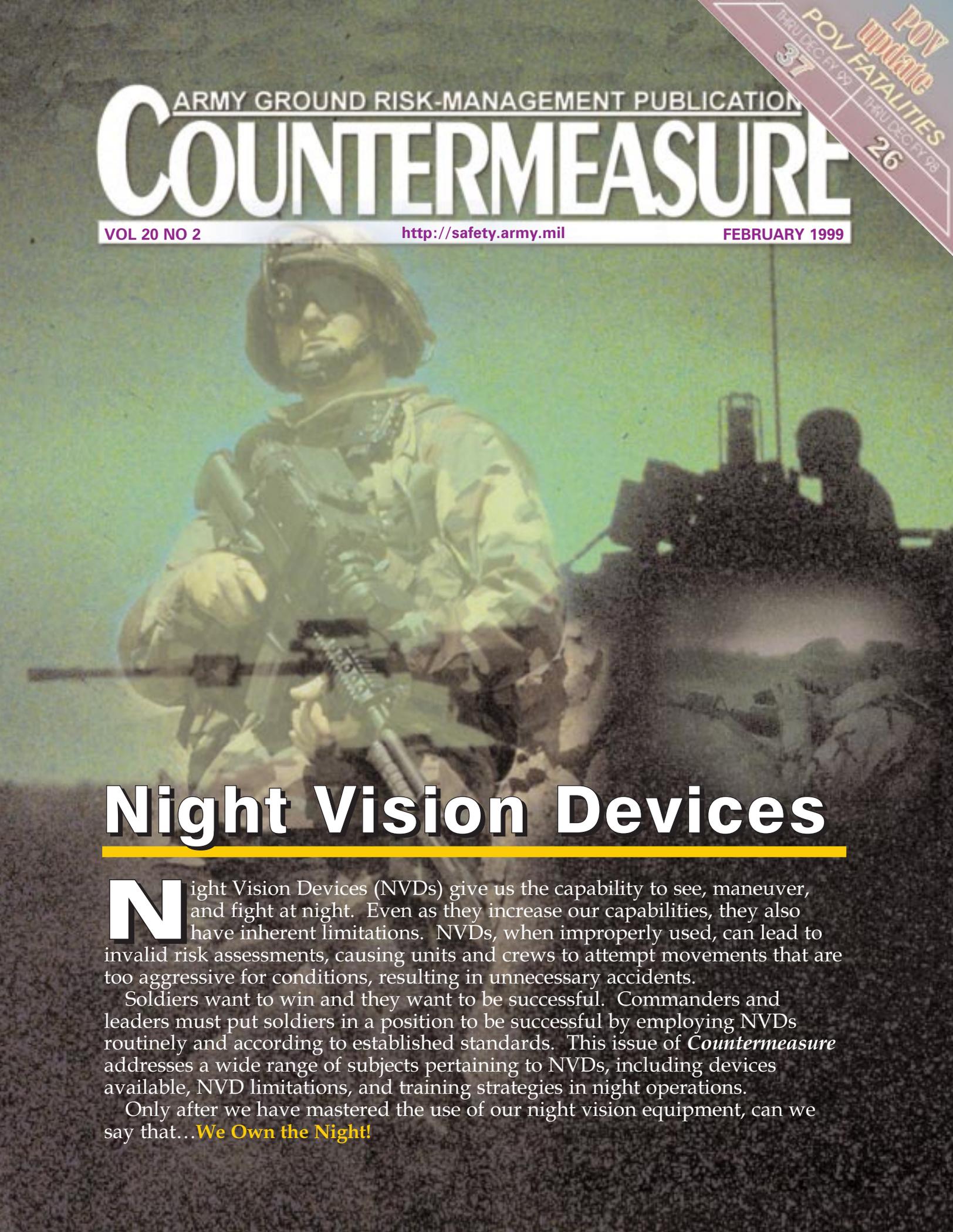




Take No Unnecessary Risk

What about trying a little risk management in your everyday life? Any time you're tempted to try something out of the ordinary, ask yourself this simple question: "What is the worst thing that can happen to me if I do this?" If the answer is "maimed, destroyed, ruined, broken, wasted, drowned, wrecked, burned, infected, or dead—

PLEASE DO SOMETHING ELSE!"

A soldier in full combat gear, including a helmet and night vision goggles, is shown in a desert environment. The soldier is holding a rifle and looking towards the left. In the background, another soldier is visible, and there are some structures or equipment. The overall scene is dimly lit, suggesting a night or low-light operation.

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POV update
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THRU DEC FY 98

Night Vision Devices

Night Vision Devices (NVDs) give us the capability to see, maneuver, and fight at night. Even as they increase our capabilities, they also have inherent limitations. NVDs, when improperly used, can lead to invalid risk assessments, causing units and crews to attempt movements that are too aggressive for conditions, resulting in unnecessary accidents.

Soldiers want to win and they want to be successful. Commanders and leaders must put soldiers in a position to be successful by employing NVDs routinely and according to established standards. This issue of *Countermeasure* addresses a wide range of subjects pertaining to NVDs, including devices available, NVD limitations, and training strategies in night operations.

Only after we have mastered the use of our night vision equipment, can we say that...**We Own the Night!**

The Official Safety Magazine for Army Ground Risk-Management

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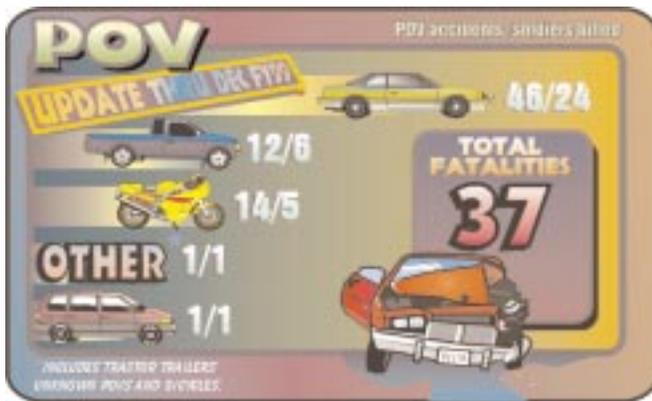
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From the Editor

Have you ever driven your car at night in a heavy rainstorm, wanting to get home, but feeling a little uneasy because of reduced visibility? The windshield wipers just couldn't keep up with the rain. There you were, zipping along at 55 mph, hoping that the road was clear ahead and rationalizing that you could see "well enough" to get to the next exit, or that the rain would stop soon, or that if you kept up your speed, you would "drive out of it."

Well, driving your car in a heavy rainstorm when the windshield wipers are not capable of keeping the windshield clear could be compared to driving with night vision devices (NVDs) in low ambient light or adverse weather conditions – the equipment capabilities can be exceeded by the prevailing conditions.

Night vision devices greatly enhance our ability to see at night, but they're not perfect. Therefore, we must understand the inherent limitations in the NVDs, in our equipment, and in ourselves.

Before I started my research, I thought NVDs were magic. They could work in any conditions without aid from outside sources. **WRONG!** We need to understand that NVDs do not turn night into day. Although they greatly enhance our ability to use the night to our advantage, there are limits as you will see in CW5 Bill Altman's articles, "Things That Go Bump In The Dark" and "NVG Limitations."

I'd like to thank CW5 Altman, Safety Center NVD Systems Manager; Bob Brooks, Safety Center contractor; CECOM's Jay Hanrahan and Susan Weir, and NV/RSTA program managers Glen Nowak and J. Brian Gillespie for their guidance and expertise in creating this issue. ♦

SAFETY FIRST!

Paula Allman

NVD Types and Uses

For our ground forces to be effective on today's battlefield, it is necessary for us to be able to fight and maneuver at night. Night vision devices (NVDs) make this possible by providing our night fighters the ability to see, maneuver, and shoot at night or during periods of reduced visibility, thus increasing our combat effectiveness.

The Army uses two types of NVDs: Image Intensifiers and Thermals

■ **Image-Intensification Devices** are based on light amplification. Image-intensifier systems must have some light to function; they amplify available light 2,000 to 5,000 times.

● **AN/PVS-4 and AN/TVS-5 Weapon Sights.** Both are lightweight, second/third-generation night-vision scopes. Each can be mounted on a variety of weapons or handheld for surveillance purposes.

● **AN/PVS-5** is one of the original NVDs used by individual soldiers. It uses a second-generation image-intensifier tube for combat, combat support, and combat service support operations.

● **AN/PVS-7D** is a lightweight goggle used by individual soldiers. It uses a single, third-generation image-intensifier tube. Its performance is significantly greater than the AN/PVS-5 and is used in combat, combat support, and combat service support operations.

● **AN/PVS-10 Sniper Night Sight (SNS)** is an integrated day/night sight for the M24 sniper rifle. It gives the sniper the capability to acquire and engage targets during low and high ambient light conditions. The system mounts on the M24 and uses the same mil-dot reticle as the existing Leopold day scope. The magnification for day and night operation is 8.5X, and the

system's maximum weight is 4.9 pounds.

● **AN/PVS-14 Monocular Night Vision Device (MNVD)** provides leaders of combat infantry units with a small, lightweight, night-vision device for use in observation and command and control. It interfaces with the AN/PVS-7D head and helmet mount, and the 3X magnifier. It can also be mounted to a small arms rail using a rail grabber.

● **AN/VVS-2 Driver's Night Vision Viewer** is a second/third-generation night-vision scope and provides a closed-hatch night-vision capability in combat vehicles.

● **AN/AVS-6 Aviator's Night-Vision Imaging System (ANVIS)** provides image intensification for helicopter crew members to conduct night missions under minimal ambient light conditions. It is powered using existing aircraft power or a helmet-mounted battery pack.

■ Thermal Programs.

Thermal/forward-looking infrared (FLIR) detectors (sometimes called "sensors") work by sensing the temperature difference between an object and its environment. Thermal/FLIR-detector systems are installed on certain combat vehicles and helicopters.

● **AN/VAS-5 Drivers Vision Enhancer (DVE)** provides drivers of combat and tactical wheeled vehicles unparalleled flexibility to continue day or night operations during most periods of degraded visual conditions caused by smoke, fog, dust, or similar conditions.

● **AN/PAS-13 Thermal Weapon Sight (TWS)** allows soldiers to see deep into the battlefield, increases surveillance and target acquisition range, and penetrates obscurants, day or night. The TWS is a second-generation FLIR system. The TWS family provides a substantial improvement over the image-intensifier night sights currently in use for small arms. ♦

NOTE: To avoid confusion, when we discuss "NVGs," we're referring only to image-intensifier devices; when we use the term "NVDs," we're referring to all devices, including thermals.

Things That Go Bump In The Dark

The improper use of night vision devices (NVDs) has been listed as a contributing factor in seven Class A vehicle accidents over the past 5 years. These accidents have resulted in seven fatalities and eleven injuries, along with millions of dollars in equipment loss and damage.

After careful review of these accident reports, certain key factors surface. Inadequate driver's training is constantly one of the major causal factors noted. We expect our young soldiers to perform at 100 percent proficiency no matter how demanding the environment. All too often, these soldiers have very little training prior to participating in a major training event such as an NTC rotation.

The adage, "Once you learn to ride a bicycle, you never forget," doesn't hold true for driving with NVDs. **Driving with NVDs is a highly perishable skill.** Just because you have all your drivers "qualified," doesn't mean they are mission ready. There is never an assurance that your drivers will not have an accident. Getting them trained and keeping them proficient is the key. The more often you train, the more confidence they will build; thus, the easier and safer it will be to accomplish your mission (not to mention, more efficiently!).

The basic requirements to qualify drivers in NVDs are listed in chapter 8 of AR 600-55, *The Army and Operator Standardization Program (Selection, Training, Testing, and Licensing)*. Prior to conducting night driving training operations, commanders must understand the limitations of each device in order to manage their associated risks. Commanders must develop their driver's training to suit the unit mission essential task list (METL).

FM 21-305, *Manual for the Wheeled Vehicle Driver*, provides useful information/guidelines for night vision goggle (NVG) driving operations.

TC 21-305-2, *Training Program for NVG Operations*, was revised on 4 Sep 98 and contains information that can assist you in establishing an effective training program. TC 21-306 contains procedures for tracked vehicle operators.

Drivers must be qualified and current for each specific type of NVD they are to operate. This must be annotated on the individual's DA Form 348 driver's license and OF 346. Drivers who have not participated in an NVD driving mission during the past 6 months must undergo refresher training in order to maintain or regain proficiency.

Another area that shows up time and again as an accident cause factor is the lack of understanding of the NVD capabilities and limitations.

Let's review some limitations of the most commonly used NVDs. (Also see "NVG Limitations" on page 7.)

The AN/VVS-2 Driver's Night Vision Viewer for track vehicles is a night-vision imaging device. The AN/VVS-2 has significant limitations for detailing differences in terrain, especially depth perception. This may not seem all that important while conducting driver's training at Fort Riley, but what a difference when you get to the NTC for that training rotation.

The limited field of view (FOV) of the AN/VVS-2 is another concern. The normal FOV for a person is about 188 degrees. However, when looking through NVGs, it is reduced to approximately 40 degrees or less. Drivers have to realize this and work with the limited FOV to become comfortable and proficient. Whenever possible, the vehicle commander should use the AN/PVS-7 to assist the driver in clearing obstacles. Driver proficiency can be accomplished by placing command emphasis to ensure repeated usage on a regular training basis.

The last area of concern is operator preventive maintenance checks and

services (PMCS) and operating procedures listed in the TM 11-5855-249-10, *Drivers Night Vision Viewer Operator's Manual*. A clean viewer window and eyepiece are essential for optimum effectiveness. Users must always evaluate the performance of their NVD. If any faults are found that interfere with your ability to perform your mission, the device should not be used and must be turned in for maintenance.

The AN/PVS-7 also has limitations that need to be addressed for successful mission accomplishment. This piece of equipment is used by track vehicle commanders and by wheeled vehicle drivers and commanders, as well as dismounted soldiers.

Like the AN/VVS-2, the AN/PVS-7 has a 40-degree FOV. Using scanning techniques (free viewing) may be best suited for the individual driver and vehicle commander. Done properly, the risk posed by the FOV limitation can be mitigated to a minimum.

A reduction in visual acuity (sharpness of vision) is another problem posed by NVGs. Normal daytime vision is 20/20; average night unaided is worse than 20/200. Subsequently, the best you can expect from NVGs is 20/25 to 20/40. This visual acuity is only possible with a high contrast scene and optimum illumination. The lower the illumination, the more your sharpness of vision will drop. Drivers and vehicle commanders have to take this knowledge

and apply it as needed in order to complete the mission safely.

Although the AN/PVS-7 has better resolution (how well you can see) than the AN/VVS-2, it won't do you much good if they aren't in focus. All users must perform the focusing procedures that are listed in the operator's manual. If these procedures are not used, operators are starting the mission with one strike against them and compromising the safety of everyone in the vehicle, and/or in their path.

Unfortunately, too often there is never enough time to train right the first time, but always enough time to train over again. That, of course, is provided that you are lucky enough not to become just another accident statistic. With proper training and a thorough understanding of your equipment, NVDs become one of the commanders' aces in the hole when it comes to combat multipliers. We must embrace that way of doing business to ensure **THINGS DON'T GO BUMP IN THE DARK!** ♦

Editor's note: For a good review of other areas of concern and consideration with NVDs, refer to February 1996 and October 1997 issues of Countermeasure.

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- Three M3A2 Bradley fighting vehicles drove over a 15-foot cliff and landed upside down. Result: Two soldiers killed and eight injured.
- An M1A1 tank rolled over after embankment gave way during night tactical convoy training. Result: One soldier killed.
- An M977 Cargo HEMMT drove over a gate guard at class IV/V yard. Result: One soldier killed.
- An M966 HMWWV rolled over twice after sliding off narrow road. Result: Two soldiers injured.
- An M1A1 tank main gun struck an M113 APC while conducting a night convoy. Result: One soldier killed and one injured.
- An M35A3 2½-ton truck drove over a dismounted soldier while conducting night convoy operations. Result: One soldier killed.
- An M3A2 Bradley fighting vehicle drove into a 14-foot deep arroyo and overturned. Result: One soldier killed.

NVD Resources

People Sources

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Publication Sources

- **FM 21-305:** Manual for the Wheeled Vehicle Driver, 27 Aug 93
- **STP 11-39E13-SM-TG:** Soldier's Manual/Training Guide, 9 Feb 93
- **TC 21-305-2:** Training Program for NVG Driving Operations, 14 Nov 90
- **TM 11-5855-213-23&P:** Unit and Direct Support Maintenance Manual for Night Vision Sight, Individual Served Weapon, AN/PVS-4, 1 Jun 93
- **TM 11-5855-214-10:** Operator's Manual, Night Vision Sight, Crew Served Weapon, AN/TVS-5, 15 Feb 89
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- **TM 11-5855-262-10-1:** Operator's Manual, NVGs, AN/PVS-7A, 15 Feb 89
- **TM 11-5855-262-10-2:** Operator's Manual, NVGs, AN/PVS-7B, 15 Jul 94
- **TM 11-5855-262-23P-1:** Unit and Direct Support Maintenance Manual, NVGs, AN/PVS-7A, 15 Mar 93
- **TM 11-5855-262-23P-2:** Unit and Direct Support Maintenance Manual, NVGs, AN/PVS-7B, 15 Mar 93
- **TM 11-5855-264-14:** Operator's, Aviation Unit, Direct Support, and General Support Maintenance Manual, Test Set, Electronics System, 15 Mar 93
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TS-3895/UV and TS-3895A/UV,
15 May 92

■ **TM 11-5855-297-12&P:** Operator's and Unit Manual, Aiming Light, Infrared, AN/PAQ-4A, 15 Sep 90

■ **TM 11-5855-299-12&P:** Operator's and Unit Maintenance Manual, Test Set, Electronic Systems, TS-4348/UV, 15 Nov 92

■ **TM 11-5855-302-12&P:** Operator's and Unit Maintenance Manual, AN/PAS-13

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■ **TM 11-5855-304-12&P:** Operator's and Unit Maintenance Manual, AN/VAS-5 Driver's Vision Enhancer, 15 Aug 96

■ **TM 11-5855-306-10:** Operator's Manual, Monocular NVD, AN/PVS-14, 30 Dec 97 (advance copies only)

■ **TM 11-5855-306-23&P:** Unit and Direct Support Maintenance Manual, Monocular NVD, AN/PVS-14, 25 Sep 98 ♦

NVG Limitations

The key to training and operating safely and efficiently with night vision goggles (NVGs) is understanding their limitations. The NVGs discussed here work on ambient light amplification (they need some light to function). Their limitations include the following:

■ **Limitation: Reduced field-of-view (FOV).** NVGs cut the normal daytime FOV of approximately 188 degrees to about 40 degrees FOV—a loss of 148 degrees of visual field. **Control:** The user must use individual scanning techniques to make up for this limitation.

■ **Limitation: Reduced visual acuity (sharpness of vision).** The very best vision NVGs can provide is not as good as daytime vision. Normal vision is 20/20; the very best NVGs can provide is 20/25 to 20/40—and even this is possible only with optimum high illumination, correct goggle adjustment, and a high-contrast target. As either illumination or contrast decreases, visual acuity also drops.

Control: Leaders should require crews to slow down in low light and poor visibility. Additionally, provide a solid training program that requires consistent usage in all light and contrast conditions to become and remain proficient.

■ **Limitation: Reduced depth perception and distance estimation ability.** We normally use both monocular (one eye) and binocular (two eyes) vision to pick up cues that enable us to estimate distance and perceive depth. With NVGs, we primarily use monocular cues. For example, when we view side-by-side objects of different sizes through an NVG, the larger one appears to be closer than the smaller.

When we view overlapping objects through an NVG, the one that overlaps—that is, the one in front—seems to be closer. In addition, some objects viewed through NVGs may appear to be further away than they actually are. The principal reason is that we tend to associate loss of detail sharpness with distance. On the other hand, light sources that are not associated with a terrain feature (for example, a light atop a tower) appear to be closer than they actually are. **Control:** Users must be aware of these cues and also that they may tend to overestimate distance and underestimate depth, particularly in low light.

■ **Limitation: Dark adaptation.** The human eye requires time to adapt from day to night vision. That's why people can barely see when they first enter a dark movie theater during the daytime; their eyes need time to adjust—or adapt—to the darkness. So it is with NVGs. Users are basically seeing a dim-day view, so when they take off the NVGs, their eyes need time to adapt to darkness.

Control: The amount of time they need depends on how long the NVGs were used, but most people achieve about 75 percent dark adaptation within 30 seconds of removing the goggles. This is especially important to know in situations where soldiers use NVGs as binoculars by holding them up to their eyes and then taking them down.

To overcome NVG limitations, it is important to train soldiers on those limitations, train them on what will and can be seen through the NVG, and provide them ample opportunities to use this skill. ♦

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Accident Review

Tragedy In The Trenches

A Bradley platoon was participating in a night live-fire exercise as part of a Limited User Test (LUT) when a dismounted soldier positioned in the trench was struck and fatally injured by two 5.56mm rounds.

The LUT was being conducted to evaluate the new M2A3 Bradley Fighting Vehicle (BFV) and reconfiguration of the platoon's dismounted soldiers to a 3-squad, 9-man-per-squad configuration (3x9). Prior training was conducted for the mounted Bradley crews, to include conduct of fire and reticle aim proficiency, as well as new equipment training and advanced trainer proficiency. The dismounted training included individual weapons qualification, squad/dismounted platoon maneuver training, and live-fire exercises. Evaluation had been ongoing for several weeks. The BFV firing tables were used as a baseline for the testing. The platoon had progressed to Bradley

Table XIIB, Platoon Night Qualification, and prepared for the night live-fire exercise. A day, dry rehearsal for the night live fire, to include the troop dismount and occupation of the trench line, was conducted and a night range safety briefing was given.

At the onset of the night live-fire portion of the LUT, the platoon proceeded down range to conduct Bradley Firing Table XIIB live fire. The BFVs made several engagements before reaching the battle position. Once there, the three squads of nine personnel dismounted the BFVs and moved to a tree line to the north. They then moved west along the tree line to a position adjacent to the intended trench, which faced west, down range. The three squads entered the trench with the accident squad entering last and occupied a defensive position. The squad was armed with three M249 squad automatic weapons (SAWs) and six M16A2/203 rifles. Two of the SAW

gunners were equipped with AN/PVS-4 night vision devices (NVDs) and the third was unaided. The rest of the squad was equipped with AN/PVS-7B night vision goggles (NVGs).

The squad leader tactically positioned the dismounts according to the threat, as practiced during the rehearsal.



Mission: Conduct Night Live Fire (From Trench Line)

Hazards

- ❑ Soldiers not having confidence in NVDs
- ❑ Not identifying targets before engaging
- ❑ Sectors of fire not visible
- ❑ Range fan markers not visible

Results

- ❑ 1 Fatality

Controls

- ❑ Train soldiers on NVD use and limitations
- ❑ Positive ID of targets prior to engagement
- ❑ Establish specific individual sectors of fire in compliance with range SOPs and STPs
- ❑ Adequately illuminate range fan limits

Each dismount was told his sector of fire would be 12 o'clock down range. Because of the varying depth of the trench, seven of the nine squad members had to assume semi-prone positions lying on the berm on the forward edge of the trench. The linear design of the trench was slightly jagged, resulting in some dismount positions being slightly forward of others.

While waiting on the targets to be raised, the soldiers were having difficulty focusing their night vision equipment. They also were not able to identify the right range fan marker that was approximately 50 meters to the right front because it was not illuminated. Some squad members had even removed their goggles from their head mounts and used them in the "binocular" mode.

When the first set of targets was raised, they were not seen by the dismounts, so were not fired upon. The targets intended for dismounted fire could be seen by the BFV crews with the aid of their night sights; thus, the BFV crew prompted the dismounted platoon via radio that targets would be appearing. When the second iteration of targets was raised, the BFV crew fired on the targets with their coaxial gun. The dismounted soldiers, observing the BFV's coax tracers, also engaged. During the third firing engagement, the squad safety officer who had been patrolling/observing the engagement from behind the trench, observed tracers firing to the right of the range fan marker. He immediately called a cease-fire, entered the trench, and seized the weapon that appeared to be the source of the tracers.

Results. A dismounted soldier had shifted his body while in the prone position and subsequently became disoriented, and fired several rounds outside of his sector of fire, past the right

range fan marker. Another squad member who had been positioned slightly forward in the trench was struck and fatally injured by the rounds.

Hazards Identified.

- **Soldiers did not have confidence in NVDs.**
- **Targets were not identified before engaging.**
- **Sectors of fire were not visible.**

■ **Range fan markers were not visible.**

Controls.

- **Adequate training for use of NVDs.**

Training and additional exposure to NVDs minimize soldier's discomfort in their use as well as increase confidence.

■ **Positive identification of targets prior to engagement.** The range safety brief and SOP cited this as a requirement, but many squad members elected to follow tracers as a

method of target orientation.

■ **Establish specific individual sectors of fire.** Official Army soldiering guidance, STP 7-11BCHM14.SM-TG, cites the importance of marking the left and right limits of individual sectors of fire. Sector stakes can provide limits for movement, especially during limited visibility. Field expedient methods such as use of rocks, sticks, tent pegs, or ammo magazines provide for good tactical coverage as well as serving as a control measure for the risk of fratricide.

- **Adequately illuminate range fan limits during training exercises.**

Although the range safety SOP cites illumination as a requirement, live-fire training was scheduled and conducted without proper illumination of the trench's right range fan marker. ♦

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NVD proficiency is a "use it or lose it" skill. Don't assume your soldiers are proficient unless they have trained with NVDs recently.

From The Troops

Driving With NVGs

What is the concern?

An analysis of 1986-1996 ground vehicle accidents involving night vision devices reveals that the inability to detect a hazard or obstacle was a factor in 43 percent of these accidents.

Over two-thirds of the accidents were attributable to three categories of terrain and roadway hazards/obstacles: drop-offs - 34 percent, ditches - 23 percent, and rear-end collisions with another vehicle - 11 percent.

Environmental conditions often cited as contributing factors were: dust - 24 percent, blooming due to light sources - 9 percent, and smoke - 8 percent.

Nearly two-thirds (63 percent) of the accidents involving drop-offs (sudden changes in elevation greater than 3 feet in depth) were due to detection errors. The drivers either did not detect the obstacle or detected it directly prior to impact.

Illumination levels also played a role in these accidents. The majority (85.1 percent) of these accidents occurred under low illumination conditions. Clearly, good risk management would involve awareness and consideration of the expected illumination levels.

In an effort to determine why and how these accidents occur, a series of studies addressed the hazards associated with night vision goggle (NVG) use when driving. In one study, it was shown that NVGs have a definite disadvantage when operating in a smoke environment. Some soldiers in the study had difficulty in locating obstacles (objects in roadway), detecting potential hazards (ditches with elevation changes 3 feet or less in depth), and properly navigating the test courses when using AN/PVS-7B NVGs in a smoke environment. Nearly a third of the soldiers reported they were unable to see and felt they could not safely navigate due to thick smoke coverage.

In another study, the ability of drivers to detect drop-offs using AN/PVS-7B NVGs was evaluated. It was concluded that some drivers using NVGs would have been unable to detect the drop-offs in time to stop a Bradley Fighting Vehicle moving at 20 mph, even though the lighting conditions were good and the drivers were aware of and familiar with the drop-offs.

Further, the distance at which a drop-off could be detected was found to depend on the surrounding environment. Drop-offs occurring in natural surroundings (those typical of cross-country missions) had shorter detection distances than those occurring near man-made surroundings (those containing bridge abutments, buildings, paved roads, etc.). Shorter detection distances give the driver less time to identify and respond to the hazard. This indicates that drivers and commanders need to exercise greater caution and enhanced awareness when driving in natural surroundings.

What to do about it

It has been found that NVG skills are highly perishable. Soldiers need continuous NVG training, especially in perceptual and decision skills. The proper emphasis on training and key elements of driving with NVGs will allow the commander to practice risk management and enhance the safety and readiness of the troops.

To manage risks associated with NVG driving—

Drivers should:

- Have adequate training and recent experience using NVGs while driving.
- Understand the adjustments to and functions of the NVGs (focusing and interpupillary adjustment).
- Know the NVGs' capabilities and limitations (performance under smoke or zero moon conditions).
- Be aware of potential terrain hazards

(drop-offs, ditches, personnel, etc.). Either perform a daytime reconnaissance of the area, or review terrain hazards on a map of the area during the planning stages of the mission.

- Realize which visual cues indicate terrain hazards.
- Use ground guides when in unfamiliar territory.
- Know how to respond to emergency situations.

Unit leaders should:

- Assess risks realistically and plan controls to reduce the hazards.
- Train drivers on night vision techniques, sensory illusions at night, and the capabilities and limitations of NVDs.
- Ensure that drivers are fully trained and qualified on their vehicles.
- Ensure that NVDs have been properly serviced and are in good working order.
- Emphasize the terrain hazards and the impact of low light levels on the equipment and personnel.

- Stress the dangers of overconfidence in either equipment or personnel ability to operate under adverse conditions.

Closing thoughts

Successful management of the risks associated with using NVGs for night driving can be accomplished through the combination of a thorough assessment of those risks, effective training, and involvement of unit leaders. This will in turn result in the increased safety of soldiers during night operations. ♦

Editor's note: The contents of this article are the expressed opinions and views of the author and do not necessarily represent those of the U.S. Army Safety Center or the U.S. Army.

This article was authored by **Scot Best, Engineering Psychologist, Naval Air Warfare Center-Aircraft Division, Human Engineering Applications Branch, Patuxent River, MD, (301) 342-9270, bestps@navair.navy.mil**

Safety of Use Messages

The following is a list of selected safety of use messages (SOUMs) issued by Army TACOM-Warren for 4QFY98 and 1QFY99. Complete copies are available from the Army Electronic Product Support Bulletin Board website at www-aeps.ria.army.mil

- AMSTA-IM-O, 211154Z Aug 98, subject: SOUM, TACOM-WRN No. 98-13, Spreader, lifting, front cont, 20 ft., LIN U12203, Linefast Corp., NSNs 3990-00-296-9398 and 3990-01-128-0089, and isometrics, NSN 3990-01-258-2010. Summary: Units are reminded that the maximum rated lift capacity for the subject spreader bars remains 44,800 pounds, as marked on the frames. POC: Wayne Kraenzlein, DSN 786-8201 (810-574-8021), kraenzlw@cc.tacom.army.mil
- AMSTA-IM-O, 101227Z Aug 98, subject: SOUM, TACOM-WRN No. 98-12, "Technical" Deadlining of the lifting capability for the Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES), NSN 2350-01-390-4683, model M88A2, LIN: R50885. Summary: Due to the discovery of

- casting cracks in the shoe tree, HERCULES crew members will not use the boom for lifting any load under any circumstances. POC: Ricky Mitchell, DSN 786-7571 (810-574-7571), mitchelr@cc.tacom.army.mil
- AMSTA-IM-O, 191400Z Oct 98, subject: SOUM, TACOM-WRN No. 99-01, "Operational" M1000 Heavy Equipment Transporter System (HETS) Semitrailer, NSN 2330-01-303-8832, LIN S70859. Summary: Users are not authorized to load/haul any Abrams tank with the mine-clearing blade, attached or unattached, on the M1000 HET semitrailer. The mine-clearing blade must be removed from the tank and transported separately. POC: Casey Pardo, DSN 786-5795 (810-574-5795), pardoc@tacom.army.mil ♦

Info Tech Corner

Info of Special Interest To All Safety Officers

Year 2000 compliant accident data system almost ready

Over the past 18 months, we at the Safety Center have been working hard to replace the accident database with a new system that is year-2000 (Y2K) compliant. Our primary focus is to improve your ability to get the information you need. The new system is expected to be operational by 2 February 1999. However, this will involve taking the old Safety Center database server (Army Safety Management Information System [ASMIS]) off-line and bringing the new database server on-line. The result is

that, as of 2 February 1999, you will no longer have access to the Safety Center database using the ASMIS Retrieval and Processing System (ARPS).

You will be able to access the new accident database through a series of user tools placed on the Risk Management Information System (RMIS) at <http://rmis.army.mil>. These tools, which functionally represent known information requests to the Safety Center, will be located under a button called "Database." We realize that there will be additional information requirements not currently covered by this initial set of tools. As a result, your feedback is now more important than ever.

If you have a good idea, or have a problem with our web sites or can't find what you need, or you're just totally confused—all you have to do is e-mail us at helpdesk@safety.army.mil or call DSN 558-1390 (334-255-1390) and let us know what you need. Ms. Reta Dyson or Mr. Junior Kelley will try to find a solution to your problem. If you have problems getting an RMIS password, contact Ms. Jewnita Clark at DSN 558-3889.

If it has been a while since you visited us—or if you never have—it's time to take a look for yourself. The user tools should be completed by the time you read this, so pay us a visit at <http://rmis.army.mil> or <http://safety.army.mil> and keep up to date on what's happening in Army safety. ♦

Keep in touch. We're constantly updating our site so we can meet your needs and expectations.



You Can Reach Us At

<http://safety.army.mil> or <http://rmis.army.mil>
For Help Desk, Call DSN 558-1390 or 334-255-1390

ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

VOL 20 NO 3

<http://safety.army.mil>

MARCH 1999

POV update
THRU JAN FY 99 45
POV FATALITIES
THRU JAN FY 98 40



Keeping Safety on Track

Safety must be paramount in every soldier's mind when working on or around tracked vehicles. Most accidents happen when the equipment is operated improperly or procedures are violated. Your best protection from accidents is solid training and good crew discipline. At all times, practice exactly what you were taught. Safety--First and Foremost!

ARMY GROUND RISK-MANAGEMENT PUBLICATION
COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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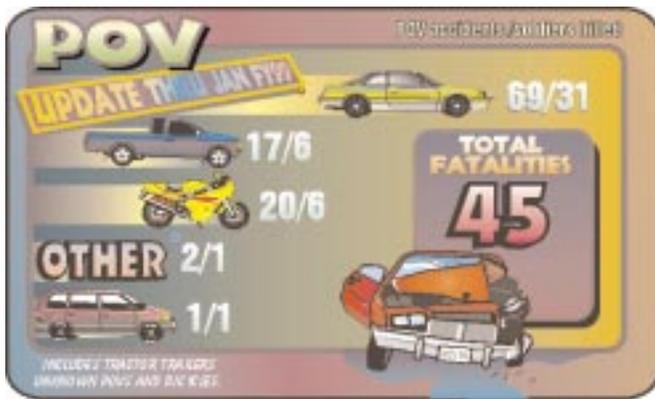
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Charles M. Burke
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 Brigadier General, U.S. Army
 Commanding Officer

Tracked Vehicle Safety Performance

Tracked vehicle accidents continue to be a concern throughout the Army. This issue addresses the Army's tracked vehicle accident record for FYs 97, 98, and thus far in 99, as well as the significant accident trends identified over that period.

Accident data shows that driving into other vehicles, roadside objects (such as trees, power poles, etc.), or into obstacles while maneuvering cross-country (such as ditches or rocks) comprise the largest type of tracked vehicle accidents.

Driving. There are several common causes for accidents related to driving tracked vehicles. These include driving too fast for the road conditions, improper use of (or failure to use) night vision devices (NVDs), and failure to identify other vehicles or personnel in the vicinity before moving.

Tracked vehicles can be hard to control on slippery road surfaces. Roads can become slick after rains and when covered by snow, sand, or mud. By driving too quickly, the vehicle can skid out of control, striking whatever is in its path. Leaders need to consider these hazards when defining movement speeds as part of their risk management process. Drivers and vehicle commanders need to be familiar with their particular vehicle's performance on slippery roads and must adjust their speed to prevent trouble.

During night operations, some crews fail to use their NVDs. They can then run into other vehicles or even dismounted soldiers that they cannot see. Leaders must enforce the proper use of NVDs during night operations. They must also ensure that NVDs are maintained in accordance with technical manuals, and that their soldiers are well trained in the proper way to use them.

Tracked vehicles are often much larger than other vehicles. Drivers and commanders often have limited visibility from their stations. Before moving the vehicle, they must be sure to positively look around to make sure nothing is in the way of their intended path. In congested

areas such as motor pools, assembly areas, or wash racks, ground guides must be used.

Hand and finger injuries. Another common type of tracked vehicle injury involves hand and finger injuries. These include situations where hands and fingers become caught in moving parts of the vehicle or are crushed when something falls on them. Rings and other jewelry can also cause injury.

Soldiers must be sure to keep their hands and fingers away from moving parts in and around a vehicle. These parts include engine fans, fan belts, winches, cables, and turrets. Fingers can be severed if they get caught on a fan belt while working on an engine. Be sure to follow the procedures in the technical manuals when working near moving parts. Shortcuts can cost fingers!

Fingers and hands can be crushed when heavy items fall on them. Examples include ammunition dropping during loading, machine gun mounts moving against turret walls or roofs, and engine power packs moving, dropping, or slipping during maintenance. Crews and mechanics must be aware of what is happening around them. Take precaution. Do not place hands near large movable objects.

Finally, too many soldiers lose fingers every year because of rings catching on some piece of the vehicle. This happens when jumping off of vehicles or near moving cables or ropes. The technical manuals require all rings to be removed before working on a vehicle. This

includes wedding rings. If you catch it on something as you leap from the vehicle, the ring WILL come off...along with a good portion of the finger. So take it off before you get on the vehicle and save yourself this crippling injury.

Hatches. Soldiers can be injured by falling hatches. Most hatch-related injuries are caused by a failure to properly secure the hatch before moving the vehicle. If the hatch is not properly pinned in position, it may fall on the crewman when the vehicle hits a bump or makes a sudden stop. These hatches can be very heavy and being struck by one can cause serious head injuries if no helmet is worn. The weight of the hatch can also push your head down, causing neck or facial injuries as your head is pushed into some other object on the vehicle. Soldiers must know what pins or locks are necessary to secure their hatches, and these items must be checked in accordance with the vehicle technical manuals. ♦

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

FY97-99 Army Tracked Vehicle Accidents

	FY97	FY98	Thus Far FY99
Class A	4	5	1
Class B	3	6	4
Class C	53	55	9
Total	60	66	14
	FY97	FY98	Thus Far FY99
Driving	24	25	7
Hand/finger inj	5	8	2
Falling hatch inj	4	7	1

Accident Review

Routine Mission Turns Tragic

It was supposed to be a routine mission – administrative redeployment of an infantry company and its attachments. The unit had completed its mission and was preparing to road march back to home station at night using white lights. The convoy consisted of twelve M2A2s, two M998s, four M106s, three M35s, three M113A3s, an M981, and an M577.

The mission seemed simple; after all, it was the same route used to deploy to the training exercise. The route consisted of dirt roads, paved roads, and the crossing of a 1200-foot bridge.

The mission turned tragic when one of the vehicles drove off the bridge and fell into the water. Five soldiers drowned. Only the driver and track commander

escaped without serious injuries.

The company commander knew exactly what the mission was and how he was going to accomplish it. He took several positive steps in preparing the unit for movement. The company had a good night's rest and also was able to rest a couple of hours prior to movement. The commander ensured that the preventive maintenance checks and services were performed prior to departure. He conducted a safety briefing, which included convoy speed, catch-up speed, and what to do in case of a breakdown.

Vehicle commanders were provided strip maps for the route as well. The vehicles were lined up according to the order of march and checked to ensure that their service lights were operational since it was a night move through civilian areas as well as the training area.

The M998 was the lead vehicle, followed by the M2A2s, one of the M113s (medic), M981 (FISTV, accident vehicle),

M106s, M577, the remaining M113s, M35s, and finally the other M998.

The convoy proceeded on the road march with a 15-mph convoy speed and a catch-up speed of 20 mph. As the commander came upon the 1200-foot bridge, he made a net radio call instructing all vehicle

Mission: Redeployment to Home Station

Hazards

- ❑ Inexperienced driver
- ❑ Unlicensed driver
- ❑ TC inexperienced
- ❑ Risk management didn't include barriers on bridge

Results

- ❑ 5 Fatalities
- ❑ 2 Injuries

Controls

- ❑ Implement aggressive drivers training program
- ❑ Enforce licensing procedures
- ❑ Avoid two inexperienced personnel (driver / tc)
- ❑ Include all possible hazards in pre-mission risk management process

Travel →

Height bridge to water: 64 feet

Accident site

commanders to cross the bridge one at a time. Vehicles were required to wait at the entrance until the vehicle ahead had cleared the bridge.

The lead vehicle, M2A2s, and an M113A3 negotiated the bridge without any difficulty, which included going around a barrier that was set up in their lane of traffic to slow civilian traffic.

The M981 was next in line to cross the bridge. It proceeded partway across, but upon encountering the barrier, the track commander told the driver to go hard left to avoid the barrier. The driver avoided the barrier, but was unable to bring the vehicle back into his lane of traffic.

Consequently, the M981 went off the bridge and plunged 64 feet to the water below, trapping five soldiers in the back who drowned. The driver and track commander extracted themselves and swam to a nearby intermediate bridge support where they were later rescued.

Lessons learned:

- The company commander's risk assessment did not identify the barriers on the bridge as a hazard. He assumed that these barriers were of no great significance to the convoy. They had, after all, gone across the same bridge en route to the training exercise with no problems and the barriers had been in place at that time.
- The commander did not realize that the driver was not the same person who had previously driven to the training area. Therefore, this soldier was not familiar with the bridge crossing or the barriers on the bridge.
- The commander did not know that the driver of the M981 had not received proper licensing or training on driving an M981 outside the training environment. ♦

POC: LTC Pete Simmons, Chief, Ground Systems Division, USASC, DSN 558-2926 (334-255-2926), simmonsp@safety-emh1.army.mil

The Jury Was Out . . .

As part of an Annual External Evaluation (AEE), a two-man Multiple Launch Rocket System (MLRS) maintenance support team (MST) was attached to a firing battery for purposes of launcher loader module (LLM) maintenance support. Their duties were to troubleshoot and repair deficiencies found in the LLMs. The vehicle supported was the Loader, Rocket, Armored Vehicle Mounted or M270.

The AEE began normally with the first four days of the exercise being characterized as busy by the MST. Several launchers were deadlined and a sense of urgency was omnipresent. A few days later, the MST fell behind on several launchers and had not completed work on any of them, rotating around to each one in an attempt to diagnose and correct the faults associated with each launcher.

That evening, a Self-Propelled Launcher Loader (the MLRS accident vehicle) was diagnosed by other mechanics to have a bad track adjuster, thereby requiring maintenance. A replacement track adjuster was not available in the field. Therefore, the decision was made by the battery commander to drive the vehicle back to the cantonment area for repair. The vehicle was driven back to the cantonment area and because of limited availability, it was parked in a maintenance bay belonging to another unit. This bay was typically used for wheeled vehicles or track chassis work only. The section chief of this vehicle and the driver were to stay with their vehicle until it was repaired.

The following morning, the MST continued to work on several launchers, one of which was diagnosed as having a bad elevation transmission. They were told by the battery commander to go to the rear and take the elevation transmission off the vehicle that was taken to the cantonment area and bring it out to the field to service another vehicle. The battery commander also authorized the controlled substitution of several other parts of this vehicle in an effort to repair other launchers.

Each 27M (MLRS Repair MOS) section has a set of "jury struts" and each MLRS platoon has one set. These struts are used during maintenance to support the LLM when it is in the erected configuration (see photo on page 6). This particular MST left their jury struts behind for use on their vehicles in the field.

They arrived at the maintenance bay and began work on the accident vehicle without the jury struts to support the LLM. The vehicle was located in a bay without sufficient overhead clearance to allow the LLM to be raised high enough for struts to be emplaced. They erected the LLM to a point where it was as high as the bay would permit. Instead of pulling the vehicle outside where they could fully erect the LLM, they put a 7-ton jackstand between the cage and the base of the LLM (63" from pivot point of LLM) as a precautionary measure, in lieu of the jury struts. They then proceeded to remove the elevation transmission. Just as the transmission

was pulled from the right-angle drive (differential), the LLM (with pods installed) abruptly fell, trapping the Private in the turret hole of the LLM and crushing the NCO between the loaded cage and the base of the LLM.

Immediately, soldiers and NCOs nearby reacted by determining the best method for erecting the LLM and calling 911. A nearby forklift was utilized to try and lift the LLM. Due to the first forklift's limited capacity, a second forklift was needed to lift the LLM. As soon as the LLM was lifted, the NCO slid out of the launcher and the Private was able to crawl out.

The NCO was taken to the installation emergency room. After approximately 40 minutes of emergency treatment, he was pronounced dead. The Private was transported to the emergency room via POV and treated for minor injuries and released.

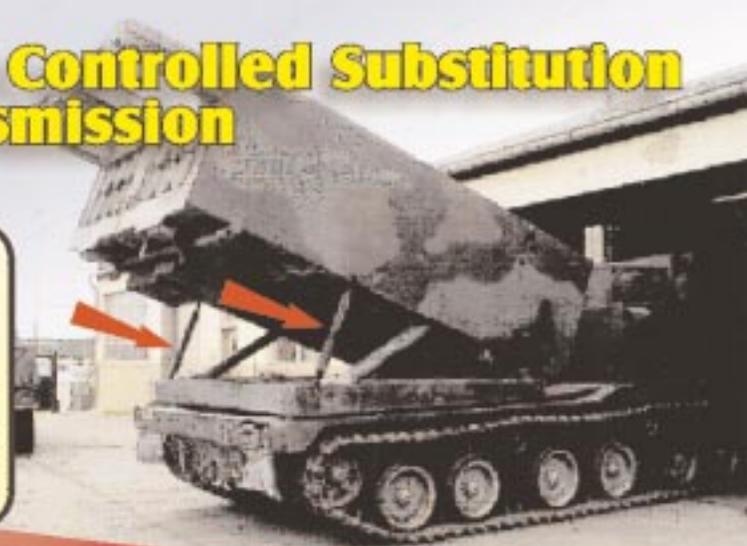
The most disturbing part of this accident, however, was the situation that led up to it. The battery motor sergeant was present at the time of the accident. He had come out of the field with an MLRS section chief to pick up jury struts and return them to the field. As they approached the maintenance bay where the accident vehicle was being worked on, they noticed that the MST had the launcher partially

erected and was not using jury struts. The motor sergeant asked them if they wanted to use the jury struts they had in their possession. The MST stated that there was not enough clearance and tried to elevate the launcher further in order to install the jury struts. However, the overhead trusses and support beams would not allow the required height needed to emplace struts. So they left it in the bay as is.

Furthermore, an adjacent battery motor sergeant had walked past several times and was sitting at his desk which was no more than fifteen feet from the LLM. His door was open and his chair was located in the path of the doorway. The motor sergeant contended, however, that he did not see or say anything.

Subsequently, the MST NCO continued the task of removing the elevation transmission with the LLM only partially elevated. Several NCOs and soldiers were in the immediate area and not one of them stopped what they knew was an unsafe procedure. This accident was extremely unfortunate and very much preventable. In this case, the lack of a jury resulted in a death penalty. ♦

POC: MAJ Gary Kotouch, Ground Systems Division, USASC, DSN 558-2933 (334-255-2933), kotouchg@safety-emh1.army.mil



Mission: Perform Controlled Substitution of Elevation Transmission on M270 MLRS

Hazards

- ❑ Unsafe act- Failure to follow procedure in technical manual
- ❑ Unsafe supervisor practice - NCOs present failed to correct known problem

Results

- ❑ 1 Fatality
- ❑ 1 Minor injury

Controls

- ❑ Follow all procedures and warnings written in technical manuals
- ❑ Make on-the-spot corrections when needed
- ❑ Conduct structured training in lieu of relying solely on OJT

MLP29-01

Fire Down Below

These few words can cause concern, fear, and apprehension to any armor crewmember. Let's look at what the Army and the program managers have done to alleviate your concerns.

The Bradley Fighting Vehicles (BFVs) have two separate fire suppression systems installed in each vehicle. This does not include the portable handheld fire extinguishers. These installed systems are designed to provide the right amount of fire suppression agent to the engine or squad areas to extinguish the blazes. How the Halon 1301 disrupts the fire cycle would take more time and "Ph.D. from MIT" to understand. Just remember that it works.

First of all, the crewmembers of the BFV are responsible for ensuring that the system is properly installed. When the crew performs PMCS, they need to ensure that the systems (the bottles) are properly installed and operational, and the gauge is reading in the green zone. An area not covered by the PMCS is the wire race for the external handle. This is the sleeve for the wire that runs from the exterior handle to the valve. In older systems, the wire races can get brittle, crimped, or lose supports. It is important that the external handle wire is right for the valve to be actuated. If the complete system looks bad, have the local maintenance personnel check it out. "Better safe than sorry."

Crews need to understand that the engine compartment fire suppression system is not automatic. The crew, repeat THE CREW, has to detect the fire and stop the engine before operating the fire suppression system. Operating the engine fire suppression system before stopping the engine will only allow the Halon to be sucked out of the engine

compartment and there will not be enough Halon to stop the fire.

Now, let's talk about the squad area automatic-fire suppression system. This system has two purposes. The first purpose is to provide the BFV with a countermeasure to a round that penetrates the hull. The valve is designed to activate within 250 milliseconds – that's 250 thousandth of a second. It is very important that the system is in automatic mode for this to happen.

The second purpose for this system is to provide fire protection for the crew from the grease, fuel, or electrical fires that will occasionally occur.

If a fire does occur in either the engine or squad areas, the vehicle must be stopped and the engine shut down. The crew exiting the vehicle should move upwind of the vehicle and assemble. Moving upwind will prevent the crew from being exposed to toxic gases which are always generated when fire breaks out. For those crews that do not notice the fire in the squad area until after the automated fire suppression goes off, do not be too worried about inhaling the Halon gas. Halon is not harmful in the amount of time required to safely exit the vehicle.

The most important element in the BFV fire suppression system is YOU, the crewmember. Be calm and don't let fear overtake rational thought and emergency training. Ensure the equipment is up to the Dash 20 standards and understand what each system is capable of doing and when to use it. ♦

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

Are You Too “HOOAH” For Earplugs?

Some noises are desirable—when they are controlled. We welcome the noise of a fire alarm when it informs us of the hazard in time to escape, and we use the noise of an alarm clock to awaken us every morning. Similarly, we welcome the sound of a barking dog when it warns us of a prowler. But if we had to listen to these all day, we would soon become prime candidates for the psychiatrist’s couch.

Consider noise emissions from tanks firing, weapons firing, roar of aircraft engines, clamor of combat vehicles, or even loud music. M16s, cannons,

howitzers, and recoilless rifles all exceed the decibel level that’s known to damage hearing. The turret of a Bradley Fighting Vehicle is one of the noisiest places in the Army. All of these present a safety hazard and are just a few examples of equipment and weapons that decrease your hearing ability.

The Army has long recognized that repeated exposure to high-intensity noise can cause permanent loss of hearing. And permanent loss of hearing can affect combat efficiency. Noise-induced hearing loss cannot be repaired, but it can be prevented.

If noise made ears bleed, soldiers would be more careful about protecting their hearing.

Unfortunately, hearing damage is painless and usually happens over a period of time. Soldiers must be

cautioned about the damage that noise can do to their hearing.

While frequent exposure to noise does not



Always wear hearing protection. Once damage is done, it is permanent. Noise-induced hearing loss cannot be repaired, however it can be prevented. Save it today for tomorrow!

immediately cause irreparable damage—but after repeated exposure, it will. It is important for soldiers to know that once this damage is done, it is permanent. It cannot be repaired, ever.

Noise levels that are damaging may not seem very loud to some soldiers. They may say that the noise doesn't bother them, that they're used to it. But they must be made to realize that whether noise "bothers" them or not, it can and will damage their hearing.

According to an interview in *Soldiers Magazine*, SGM Kevin Skelly stated that he wasn't exactly sure when the ringing in his ear began. He said that it might have been early in his career when he went to the rifle range without earplugs. He was young and figured it would be okay just this one time. And besides, his leaders weren't checking anyway. Or maybe it was all the times he was around artillery fire, and he figured he could get his fingers in his ears quick enough.

Later in his career, SGM Skelly left the field artillery, went airborne, and joined the Special Forces. Many times, he would climb aboard a helicopter or airplane thinking the ride was too short to bother with earplugs. He stated, "I was too "Hooah" for earplugs. We all were."

During the time of the interview, SGM Skelly was only 38 years old and the owner of a pair of Army-issued hearing aids. The ringing in his ear is permanent and something he must live with every minute of every day, because he didn't wear hearing protection when he should have.

Personnel who work in noisy areas must be told the effects of noise on hearing and how to avoid overexposure. Hearing protection must be worn when steady noise levels are 85 dB or greater and when impulse noise levels exceed 140 dB, especially during combat. Exposure to impulse noise in excess of 165 dB requires the use of earplugs and either earmuffs or a noise-attenuating helmet. All small arms used by the Army produce impulse noise levels above 140 dB.

Preventing noise-induced hearing loss requires the coordinated

application of developing control measures, such as: noise level surveys, posting of warning signs in noise hazardous areas and on associated equipment, the mandatory use of hearing protective devices, and annual audiometric monitoring, supplemented by health education, supervision, and discipline of personnel.

For a hearing conservation program to work, the dedicated efforts of the individual soldier, commander, first-line supervisor, and medical personnel are required. The first and foremost line of defense is the individual act of the soldier to wear appropriate hearing protection that the Army has made available. Hearing protection is available for all soldiers, and all soldiers must recognize the need to protect their own hearing.

Commanders and first-line supervisors can do the following to prevent hearing loss in their units:

- Ensure hazardous noise areas are marked with caution signs in accordance with AR 385-30.

- Ensure all personnel are aware of the damage that noise can do to their hearing.

- Ensure personal hearing protection is available for all personnel.

- Enforce the requirement of AR 40-5 that states hearing protection will be worn during exposure to hazardous noise levels.

- Ensure that all soldiers and civilians who are exposed to noise receive periodic hearing evaluations.

- Set a good example.

Part of being battle-ready is being able to communicate. The ability not only to speak, but also to hear and understand is basic to soldier survival and mission accomplishment.

*Editor's note: Noise hazards are not only limited to on duty. Off-duty noise hazards include rock concerts, car and personal stereos, firearms, power tools, and recreational vehicles. Wear hearing protection. It is **your** responsibility. ♦*

POC: SFC Erwin Bailey, Armor System Manager, Ground Systems and Accident Investigations Division, USASC, DSN 558-9525 (334-255-9525), bailey@safety-emh1.army.mil

How Many Times

There is no doubt that military operations are becoming more complex, more difficult, and more dangerous. We are challenged daily to make our limited resources stretch to support increased mission taskings. Training dollars are shrinking, equipment is getting older, and experience levels seem to be tapering off. Yet, it seems our mission load continues to increase. We hit the ground running and don't let up. Unfortunately, we frequently make mistakes.

How often have we seen that live-fire range with the misplaced round that finds its way to the wrong place and creates absolute havoc? How many soldiers have been hurt in military vehicle accidents in the field? How many soldiers have we lost to privately owned vehicle accidents? How many times have we seen accidents that involved supervisory errors, lack of experience, complacency,

overconfidence, and failure of self-discipline to simply follow established procedures?

It seems there are no new accidents, only repeats of previous unfortunate events. We are seeing very similar accidents in totally different locations, by both active duty and reserve units. Although some do have new variations, we seem to invariably follow in the footsteps of those before us, making the same costly mistakes, tragically resulting in injuries, lost lives, lost equipment, and ultimately mission failure. We make mistakes as maintainers, as operators, as supervisors, and as commanders, either actively or through omission. We frequently overlook the obvious or fail to maintain or enforce standards. Through ignorance, arrogance, or conscious decision, we might even take shortcuts, or bypass established procedures – procedures established for good reason. Even in the case of materiel failure, there

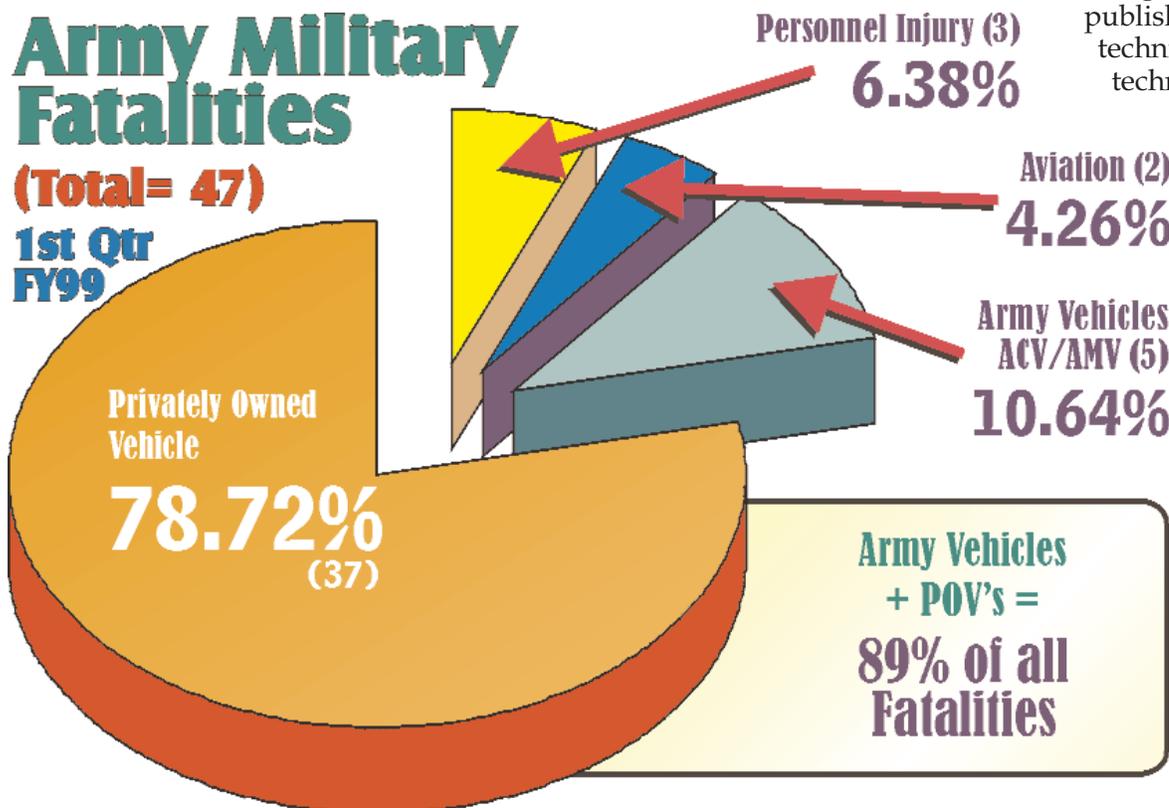
is usually an oversight.

Regulations, SOPs, published orders, technical manuals, technical bulletins, and field manuals all lay the foundation of rules governing our operating environment. We apply these rules to our given circumstances to accomplish our mission. These rules come through intelligent, expert thought, and evolve through lessons learned from past mistakes. To

Army Military Fatalities

(Total= 47)

1st Qtr
FY99



circumvent these rules, for whatever reason, courts disaster.

All accidents, with the "Act of God" exceptions, are preventable. It is a matter of breaking the usually long and complex chain of events at some point in the sequence. That chain is inevitably exacerbated by the numerous contributing factors which now days seem to continually invade our domain, drive our motivation, and affect our inherently dangerous operating environment. The OPTEMPO, level of soldier training, weather, weapon condition, ammunition, lack of time, sense of urgency, individual personal problems, and other pressures further complicate our ability to manage this risk.

The margin for error is indeed becoming slim. Our environment is becoming increasingly more technical and correspondingly more lethal. Mistakes are more costly. Each and every soldier has the ultimate and immediate responsibility to be actively involved and break the accident chain at the earliest point possible. Awareness is the key. Risk management is the mechanism that facilitates awareness and provides us methods to combat these factors.

Risk management is a process. It is not complicated, though the details may become complex. It should not be something to which we merely pay lip service. It is a tool for the command to help identify and deal with safety concerns in a logical and sensible manner. It is not a mystery. Field Manual 100-14 provides all the details and instructions to apply and implement risk management techniques to your particular operating environment. Additional information is available on the web at <http://safety.army.mil>

The first step of risk management is to identify hazards through all aspects of our situation, environment, and mission, considering previously identified and historical problem areas. Then we assess those hazards to determine probability, severity, and potential costs. Next, we consider possible steps or control measures that could reduce or eliminate those risks. It seems only logical that we should make the most informed risk decisions based on a residual risk level.

Ask yourself, "Do the benefits outweigh potential costs?"

Once the decision is made to accept a given risk level, we must ensure control measures are effectively implemented. These measures are deliberate and absolutely essential to keep risk at a manageable level. Finally, we must supervise and evaluate the situation, including enforcement of standards and procedures.

These simple steps seem like common sense, and indeed they are exactly that. But haste, overconfidence, complacency, and a lack of situational awareness, exacerbated by a high OPTEMPO may invite shortcuts, poor decisions, or reduced planning.

The risk-management process is designed to facilitate time-constrained planning, much in a sense that we use checklists and battle drills. It recognizes historical hazards and jogs the thinking process to include as many potential problems as possible, develop control measures, and heighten awareness.

The process further considers unit, crew, and individual training levels, standardization, weather conditions, known hazards, and pertinent factors about the mission profile. Implementing control measures, the commander then balances risk against the mission, using his best judgment. He must match the right soldier to the right job, in the right environment, with the right support.

In today's complicated world, this is becoming a significant challenge. Our plates are full. We have fewer and fewer personnel available to accomplish an increasing myriad of missions, in less and less time. The present OPTEMO should spark increased hazard awareness, not shortcuts. It mandates that leaders at all levels manage risk appropriately. Identify the hazards, know the hazards, reduce the hazards, and maintain a vigil against complacency, shortcuts, and improper procedures. We cannot afford to continue to make the same mistakes. ♦

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From The Troops

Fording—Anything But A Normal Operation

A chemical unit was preparing to train an officer advanced course on smoke generator systems. An instructor decided to pre-position an M1059A2, Armored Personnel Carrier (APC), with mounted smoke generators and drive it on ahead to a local range for the next day's training. The instructor was driving the APC alone without a track commander.

The weather condition was overcast with rain. A ford site used by tracked vehicles had a stream with a normal water depth of two feet with a slight current. The constant rain however, from the previous days, had increased the

stream's water depth and changed the current to a rapid flow. The maximum ford depth referenced in the technical manual for the APC was 40 inches.

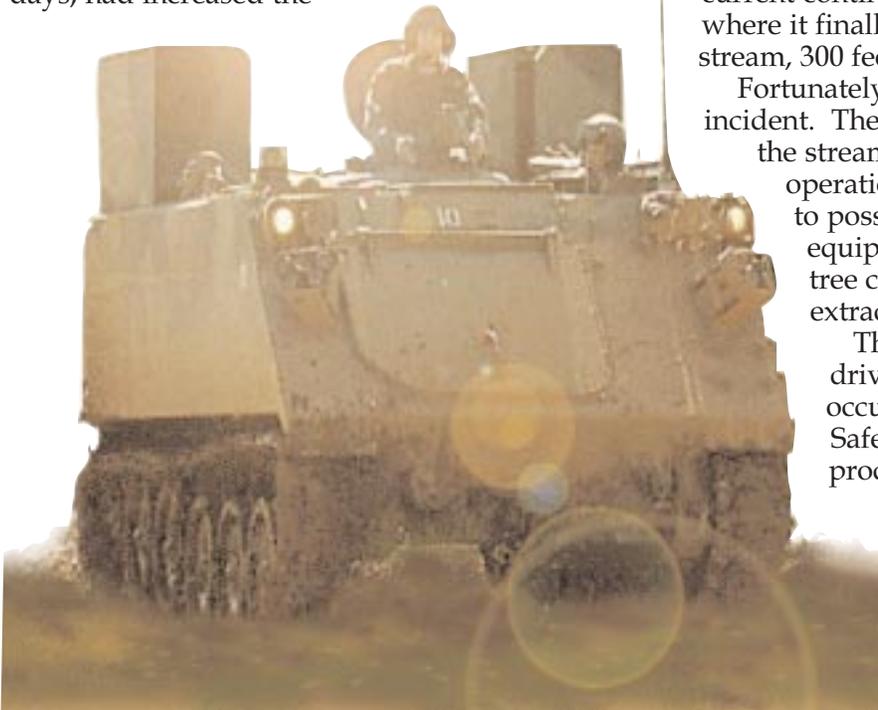
Approaching the ford site, the instructor stated later that he misjudged the swift current and rising water level. He drove the APC into the stream and attempted to cross over to the opposite bank. In mid-stream, the track's engine stalled. The instructor successfully restarted the engine, but the APC was being moved downstream by the current.

The instructor exited the APC and safely made it out of the water to the opposite bank. The current continued to move the APC downstream where it finally sank in a deeper portion of the stream, 300 feet from the initial entry point.

Fortunately, no one was injured in this incident. The sunken APC was extracted from the stream after an extensive recovery operation. This exposed more personnel to possible injuries due to heavy equipment and metal cabling use and tree cutting to clear a path for the extraction.

The instructor was an experienced driver and knew better. Accidents occur when safety rules are ignored. Safety guidance and risk management procedures do protect soldiers and equipment . . . **Our task is to follow them.** ♦

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Correction

Reference February 1999 Countermeasure article, "Driving with NVGs," we failed to mention the co-authors supporting the article. The by-line should have read: This article was authored by Scot Best, Dennis Collins, and Dino

Piccione, Human Factors Engineers, DCS Corporation, Alexandria, VA (703-683-8430). Please accept our apologies. We will work harder to ensure we don't make the same mistake in the future. ♦

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POV update
53 THRU FEB FY 99

POV update
51 THRU FEB FY 98



Chart Your Course— Safely

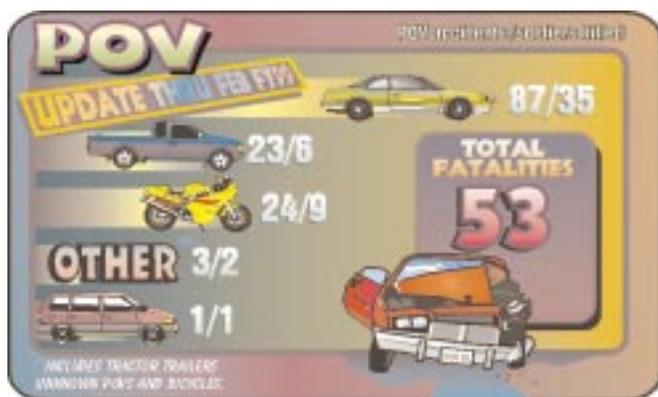
Now is the time, before the thermometer climbs into the nineties, to prepare for the hazards that accompany the summer season. In this edition, *Countermeasure* addresses safety precautions for the more common summer activities that historically account for numerous injuries or deaths; namely heat stress, boating, and swimming accidents. With a little forethought and preparation, your summer experiences can be free of pain and injury.

The Official Safety Magazine for Army Ground Risk-Management

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Hot Weather Hazards

The icicles have melted and the snow has finally disappeared. No more preheating engines or scraping windshields. No more chopping firewood or fueling furnaces. Spring is here and summer is not too far away!

While it is true that with the passing of winter, cold weather problems have temporarily vanished; it is equally true that a new set is about to take their place. And these heat-related illnesses can be just as dreadful as any found in winter.

The effects of excessive heat and humidity on an individual can range from simple discomfort and reduced physical and mental efficiency to heat cramps, heat exhaustion, heatstroke, and even death.

■ **Heat cramps** are painful cramps of the muscles caused by excessive loss of salt from the body. Since water and salt losses cause dehydration and reduced efficiency long before any obvious sign of heat illness, ensuring an adequate intake of water is essential. The amount of water required depends on the amount of sweating that occurs and varies from one individual to another. Since thirst is not a dependable indicator, drink water frequently (a cup every 15-20 minutes – not to exceed 1½ quarts per hour). **Do not use salt tablets!** If cramps persist, dissolve ¼-teaspoon table salt in one quart of water, and have the victim drink it slowly.

■ **Heat exhaustion** is caused by excessive salt depletion and dehydration and is characterized by symptoms of profuse sweating, headache, tingling sensation in the extremities, weakness, loss of appetite, dizziness, nausea, cramps, chills, and rapid breathing. It is important to rehydrate the individual. Lay the victim in a cool, shady spot and elevate the legs. Pour water on him and fan to cool. If conscious, have him slowly drink at least one full canteen of cool water with salt solution.

■ **Heat stroke** is the most dangerous of the heat-related illnesses and can be fatal. Symptoms include mental status changes, psychotic behavior and confusion, disorientation or coma, throbbing headache, flushed dry skin, nausea, and elevated body temperature. The key differentiating feature between heat stroke and

heat exhaustion is mental status changes. **Immediate treatment and transport is required.** Cooling must begin immediately. 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. Ensure cooling process is continued during transport to medical facility.

Preventive measures

■ **Fluid intake.** Adherence of work/rest/hydration guidelines is essential (see chart below). The practice of sustained “water discipline” ensures water consumption at regular planned intervals, and must be enforced regardless of individual preference or thirst. Avoid alcohol, coffee, soft drinks, and commercial sports drinks. These may increase an individual’s water requirements.

■ **Acclimatization.** We can become accustomed to heat, but it takes time. Approximately 10 to 14 days are required. It is especially important to be particularly careful during the first few days of hot weather or the first few days after moving into a hot geographical area.

■ **Physical condition.** Infections, fever, recent illness or injury, overweight, dehydration, older age, fatigue, drugs such as antihistamines and cold medicines, alcohol, and previous heat injuries are conditions which may increase the risk of heat stress and cause heat injury.

■ **Work/rest schedules.** Physical exertion increases the amount of heat produced inside the body. Heavy work and activities that require a lot of physical exertion (marches/calisthenics) should be scheduled for early morning or late evening. Alternating work and rest periods helps. Avoid working in the direct sun and stay in the shade whenever possible.

■ **Clothing.** Proper clothing prevents radiant heat from the sun to be absorbed by the body. Consider wearing light-colored clothing because it reflects the sun’s rays. Wear loose-fitting clothing to allow circulation of air and it also enhances the cooling evaporation of sweat.

Yes, winter has gone, and we can look forward to summer. But let’s keep in mind the hazards associated with hot weather operations—and make certain this summer will be heat-injury free. **Safety First!** ♦

—Paula Allman, USASC, DSN 558-2688, (334-255-2688), allmanp@safety-emh1.army.mil

Fluid Replacement Guidelines for Warm-Weather Training (Average Acclimated Soldier Wearing BDU, Hot-Weather)

Heat Category	WBGT Index °F	Easy Work		Moderate Work		Hard Work	
		Work/Rest*	Water Per Hour	Work/Rest*	Water Per Hour	Work/Rest*	Water Per Hour
1	78-81.9	No limit	½ qt	No limit	¾ qt	40/20 min	¾ qt
2 (Green)	82-84.9	No limit	½ qt	50/10 min	¾ qt	30/30 min	1 qt
3 (Yellow)	85-87.9	No limit	¾ qt	40/20 min	¾ qt	30/30 min	1 qt
4 (Red)	88-89.9	No limit	¾ qt	30/30 min	¾ qt	20/40 min	1 qt
5 (Black)	> 90	50/10 min	1 qt	20/40 min	1 qt	10/50 min	1 qt

*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 body armor adds 5°F to WBGT Index.

Note 4: MOPP gear adds 10°F to WBGT Index.

Examples:

Easy Work	Moderate Work	Hard Work
<ul style="list-style-type: none"> ● Walking hard surface at 2.5 mph, < 30-pound load ● Weapon maintenance ● Manual of arms ● Marksmanship training ● Drill and ceremony 	<ul style="list-style-type: none"> ● Walking hard surface at 3.5 mph, < 40-pound load ● Walking loose sand at 2.5 mph, no load ● Calisthenics ● Patrolling ● Individual movement techniques; i.e., low crawl, high crawl ● Defensive position construction ● Field assaults 	<ul style="list-style-type: none"> ● Walking hard surface at 3.5 mph, ≥ 40-pound load ● Walking loose sand at 2.5 mph with load

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. POC: MAJ Don Lundy, USASC Industrial Hygienist, DSN 558-2443 (334-255-2443), lundyd@safety-emh1.army.mil

Nautical Rules of the Road

The following tragedy is a lesson in boating safety

Two soldiers were having fun and enjoying the beautiful summer day when suddenly the 19-foot jet boat they were cruising in struck the wake of another boat. The boat launched into the air and hit the water with such massive force that it was totally demolished. One soldier was thrown from the boat and received minor injuries. The other soldier drowned, but wasn't found until 6 days later. Neither soldier was wearing a lifejacket.

Boating is great fun, but safety **must** be part of the plan to guarantee a good day on the water. Waterways are second only to highways as scenes of accidental deaths in the country.

According to the U.S. Coast Guard Station, Fort Pierce, FL, collisions between boats are one of the most dangerous and frequent mishaps on our nation's waters. In 1997, 2,581 boat collisions occurred nationwide—1,309 resulted in serious personal injuries and 80 resulted in fatalities. There were 827 collisions with fixed or floating objects—409 were serious personal injuries and 69 were fatal.

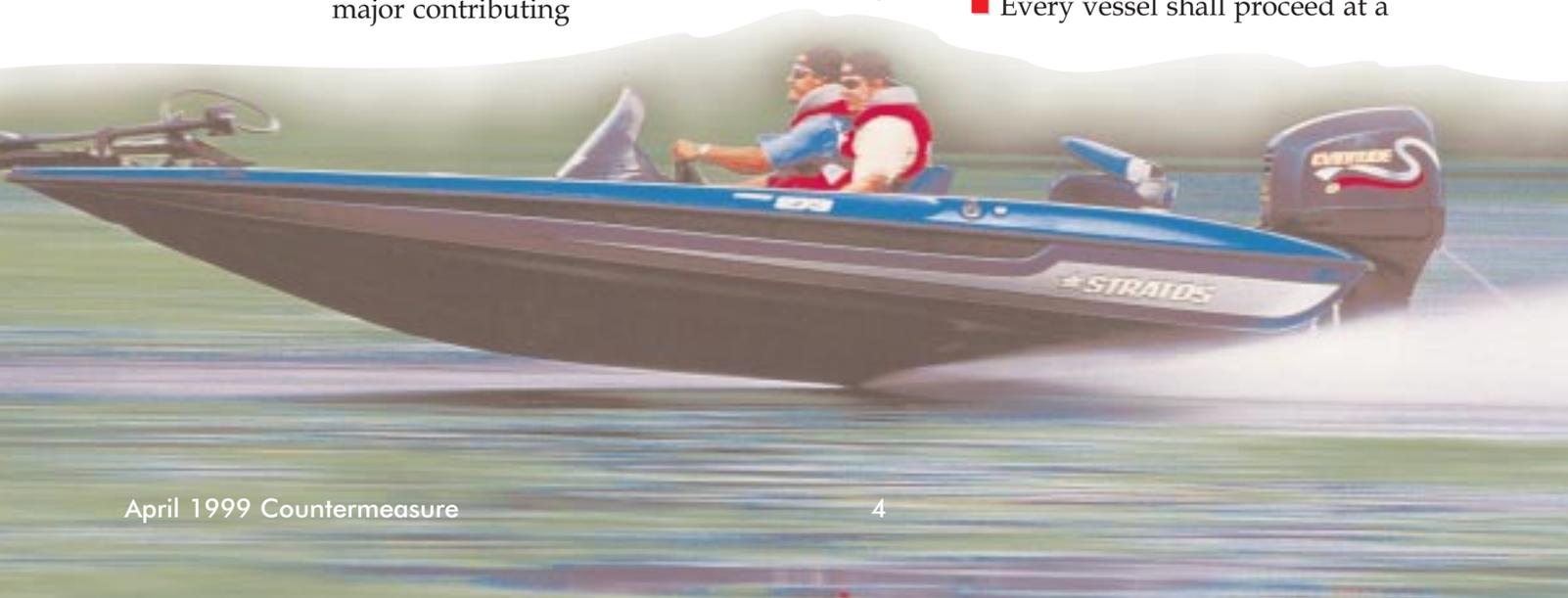
What is the problem? The major contributing

factor, which is the same for boats and automobiles, is speed. It has been statistically proven that the number of collisions between vehicles (watercraft or wheeled) are reduced as speed is reduced.

Although the newer high-powered boats can reach speeds comparable to those of an automobile, there are no seatbelts or brakes on boats. To avoid collision, boats must either change their course or reverse their engines. Similar to rules used to prevent collisions on our nation's highways, there are navigation rules which are used to prevent collisions on our nation's and the world's waterways.

The 36 U.S. Coast Guard's Navigation Rules are specifically designed to help you prevent watercraft collisions. All mariners are required to know and responsibly apply these navigation rules when operating watercraft. A few of the most important are listed below.

- It is the mariner's responsibility to take the necessary actions to avoid a collision.
- Every vessel shall maintain a proper lookout using sight and hearing at all times.
- Every vessel shall proceed at a



safe speed in order for one to take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

■ Vessels that are approaching head-on shall alter course to starboard (right) so each will pass port (left) to port.

Wear Your Life Jacket—It's a Life Saver

The vast majority of boating accidents are caused by human error and not by the boat, equipment, or environmental factors. More than 60 percent of boating fatalities result from capsizing, falling overboard, or flooding/swamping. It is the sudden and unexpected in-water experience that turns into a fatal situation. Be prepared, a life jacket could be a life saver.

A vital part of boating safety is the personal flotation device (PFD) or life jacket. There are different types of devices and it is important to know the difference.

■ **Type I (off-shore life jacket)** provides the most buoyancy. It is effective for all waters, especially open, rough, or remote waters where rescue may be delayed. It is designed to turn

most unconscious wearers face-up in the water.

■ **Type II (near-shore buoyancy vest)** is intended for calm inland water or where there is a good chance of a quick rescue. This type will turn some unconscious wearers face-up in the water. The turning action is not as pronounced as Type I.

■ **Type III (flotation aid)** is good for calm, inland water, or where there is a good chance for quick rescue. It is designed so the wearer can place himself in a face-up position. One may have to tilt the head backwards to avoid turning face-down.

■ **Type IV (throwable device)** is intended for calm, inland water with heavy boat traffic, where help is always present. It is designed to be thrown to an overboard victim and not to be worn. This type includes cushions and ring buoys. The law requires each vessel be equipped with a throwable flotation device in addition to required PFDs.

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The Do's and Don'ts of Boating Safety

Following these simple do's and don'ts of boating safety will help you chart a safe course toward enjoyable boating.

- DO wear a life jacket. They float, you don't.
- DO know the water and environment you will be boating on.
- DO keep a good lookout while underway.
- DO shut your engines off when people are in the water near your boat.
- DO observe the nautical "rules-of-the-road."
- DO check the weather forecast before getting underway.
- DO keep a balanced load and a trim boat.
- DON'T overload your boat.
- DON'T stand up in a small boat.
- DON'T ride on the gunwale, bow, seat backs, or anyplace that is not designed for sitting.
- DON'T drink alcohol and boat.

These reminders all carry a consistent theme...use common sense when on the water! If you feel something is dangerous—it probably is. Accidents result from a chain of circumstances or behavior. Remember...Boat Smart from the Start! Wear Your Life Jacket! For more information and to access an on-line boating certification course, go to <http://www.safeboatingcouncil.org>

***Editor's note:** Alcohol is prominent in recreational boating accidents. Operating a boat while intoxicated is illegal and dangerous. Many states have operating under the influence (OUI) laws. Depending on the state, blood intoxication levels range from .08% to .10% BAC to be consistent with their motor vehicle law. Violations of these laws could be detrimental to your career. Commanders' options range from a simple counseling to punishment under the UCMJ. Some personnel could lose their MOS or licenses necessary to perform their job.*

Personal Watercraft Safety

One of the increasingly popular ways to make waves across the water is the personal watercraft (PWC) or Jet Ski. The vessel's maneuverability, speed, and limited protection can be a dangerous combination. It is imperative that all PWC operators familiarize themselves with waterway rules. The following are laws and regulations with which all PWC operators must comply:

- Federal regulations require that all PWC be registered and display a registration number in accordance with state and federal guidelines.
- All operators and passengers must wear a personal flotation device (PFD) at all times during operation.
- Unless a PWC has the self-

circling feature, it must have an emergency cut-off switch (kill switch) with the lanyard attached to the operator. This will automatically disengage the motor if an operator is displaced from the craft or if the craft is not upright.

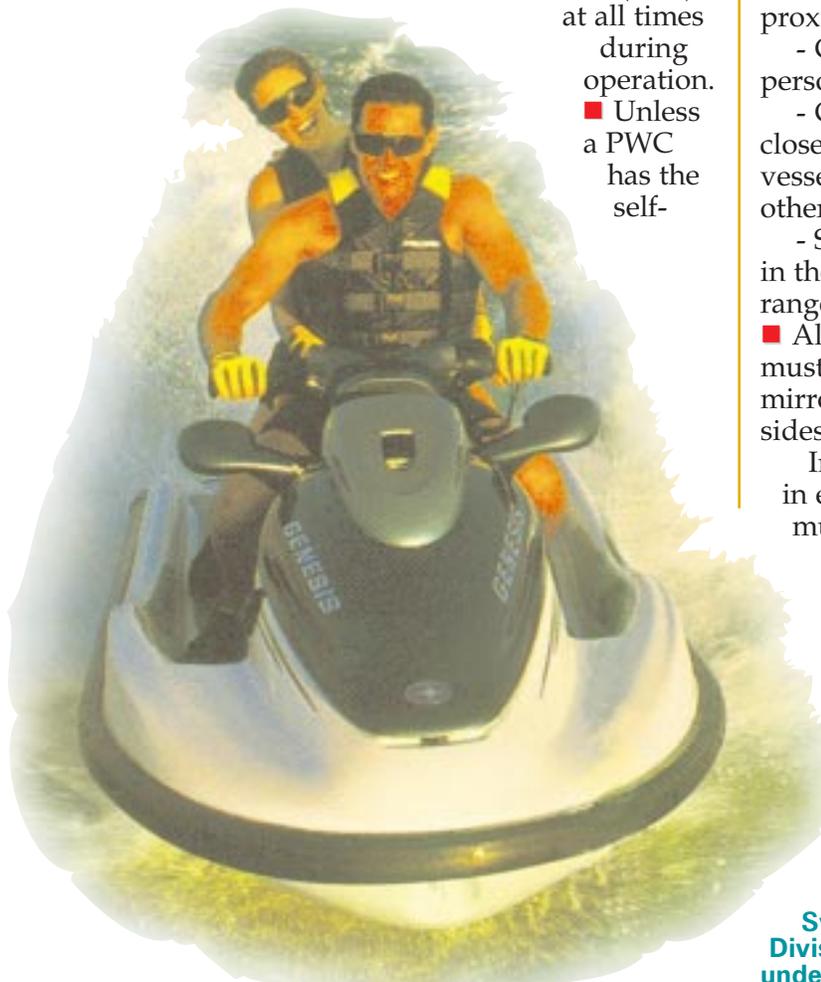
■ No person shall maneuver a PWC in a manner that endangers life, limb or property. Examples include:

- Weaving through congested vessel traffic at high speeds.
 - Following closely behind or within the wake of a vessel towing a person(s) on water skis, a surfboard, or another water-sport device.
 - Jumping the wake of another vessel traveling in the same direction in close proximity.
 - Cutting between a boat and a person(s) being towed by the boat.
 - Crossing at right angles when in close proximity to the stern of another vessel or when visibility around the other vessel is obstructed.
 - Steering toward any object or person in the water and turning sharply at close range to spray the object or person.
- All PWCs used for towing a person must be equipped with rear-view mirrors mounted on the right and left sides of the PWC.

In addition to the general regulations in effect for motorboats, PWC owners must also be aware that there are state and local laws and ordinances around the country that further restrict PWC operations. Make certain you know the laws that apply to you in your area of operation.

Let's have a great summer and remember that safety should be your top priority!

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Swimming Tips

Drowning is the leading cause of fatalities involving water and boating sports. With the start of the summer season upon us, it's more important than ever to think about water safety. Don't think it can't happen to you. In fiscal year 1998, 13 soldiers were involved in boating and swimming accidents. Four were fatal.

■ Three soldiers departed the unit area for an evening of fishing and swimming. They launched the boat and cruised around the lake when they decided to beach the boat and swim for awhile. Suddenly one of the soldiers disappeared. It is believed he walked into a drop-off. Due to his poor swimming skills, he drowned.

■ A soldier consumed a heavy meal and then entered the pool. Soldier misjudged his

swimming ability and moved to the deep end. The soldier was later pulled from the pool unconscious.

There are a few basic rules to always remember before jumping into the water.

- Rule number 1 is: Always swim with a buddy. Even the most experienced swimmer can be struck by a muscle cramp and need assistance.
- Swim close to shore and avoid areas where boating is heavy.
- Swim only in designated swimming areas.
- Check the area for stumps and debris before swimming or diving.
- Know the depth of the water and realize your limitations as a swimmer and do not exceed them.
- Avoid alcohol when swimming or boating. Alcohol impairs your ability to operate anything including your own body. ♦

Field The Heat

In the past year, there have been two high-intensity training incidents in which several soldiers suffered significant heat injuries. In one incident, 27 soldiers became heat casualties with 3 requiring hospitalization, and in another incident—one soldier died. Both incidents occurred during a road march testing event.

To successfully complete this voluntary training, the soldier is required to perform at a level that may exceed his level of conditioning for work in the heat. Prior physical conditioning training is essential and provides the soldier the best opportunity to successfully complete the 12-mile road march within the 3-hour requirement.

Commanders should require soldiers participating in high-exertional events, such as EIB and EFMB road march testing, to undergo preconditioning training as outlined in FM 21-18. Field Manual 21-18 states that with the proper 30-day preparatory training, soldiers can march 12 miles combat-loaded with 60 pounds of equipment in less than 3 hours. This FM also gives specific recommendations for aerobic conditioning, progressive load-

bearing marches, a physical training program, and mandatory elements of any physical fitness program to achieve this level of conditioning. In other high-exertional training events where explicit preconditioning training is not addressed, the current work/rest cycle should be used (see chart on page 3).

Commanders must also ensure that soldiers receive the proper hydration, nutrition, and rest during any preconditioning training for high-intensity events. It is poor prior planning if hydration, nutrition, and rest become considerations the day of or the day prior to a high-intensity event. Poor prior planning can result in poor performance, unnecessary heat injuries and fatalities.

The Office of the Surgeon General is currently directing an effort to prevent heat injuries during high-exertional training. Until the results from this effort materialize, commanders must rely on the preconditioning guidelines in FM 21-18 and existing work/rest/hydration guidelines. ♦

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You Want To Be Like Superman?

Actors often portray quadriplegics, who are paralyzed from the neck down, and paraplegics, who have the entire lower half of their body paralyzed. Except for having to sit in wheel chairs until the show ends, they look normal and have well-toned bodies. That's because they're actors and are playing parts. But one actor isn't playing a part. He is Christopher Reeve, perhaps the most famous quadriplegic in the world. Reeve, who brought Superman to life on the screen, is still broad-shouldered and handsome, still has muscular thighs and a full chest, and seeing him in a tuxedo sitting in his industrial-strength wheelchair, you may think that life for him is not so bad after all.

Think again.

Reeve has written a book titled, *Still Me*, that tells how his life has changed drastically since May 27, 1995, when he fell from a horse during a jumping competition. For reasons he will never know, his horse, Buck, stopped suddenly in midjump. The actor was thrown headfirst into the top rail of the jump, breaking his neck and leaving him unable to move or breathe.

Reeve was taken to the University of Virginia Hospital in Charlottesville, where doctors devised a never-before-performed operation to reattach his skull to his spinal column. He had what is called a hangman's injury – the same trauma produced by being dropped through a gallows trapdoor with a noose around your neck. This kind of injury can also happen if you dive in shallow water, get knocked down in waves, fall off a motorcycle, slam into the roof or windows of a car during a wreck, or get ejected during a collision.

Despite having the best available medical care since his mishap,



Reeve has been in shaky health since his fall. Eleven times he has returned to the hospital, often with life-threatening trouble: pneumonia, a collapsed lung, two blood clots, and an infection that nearly forced doctors to amputate part of his leg.

In his book, Reeve describes what his life is like as a quadriplegic. There are days when the ritual of getting up in the morning and getting in bed at night takes five hours.

A nurse and her aide appear at 8 a.m. and serve him 20 pills—vitamins plus drugs to control spasms, keep his bladder from shrinking, and maintain bowel function.

He sleeps in arm and foot splints, and after being in one position all night, his joints and muscles are frozen. His arms and legs go into wild spasms when the splints come off, and it takes the full power of the nurse and the aide to hold them down.

Then follows the morning hello from his 5-year-old son and an hour or so of “ranging” — the slow manipulation of his limbs by the nurse. This prevents atrophy, for as Reeve notes, you can’t stand or walk with atrophied leg muscles. *[Reeve has vowed to walk again by the time he turns 50. That will happen in September 2002 – Ed.]* After that, he’s ready to be dressed. “When two people have to roll you back and forth in order to put on your underpants at age 45, it’s a difficult lesson in acceptance,” he writes.

“I used to have to control my anger with myself for having ended up in this situation. Often I listen to music or watch TV so I don’t have to think about being taken care of like a baby.”

Frequently through the day, he blows into a little tube that’s placed before his face. This causes the chair to shift his weight, helping prevent the ulcers that are a constant worry.

The nighttime ranging is almost

pleasant after so many hours in the chair, but it is followed by perhaps the hardest part of the day: the “bowel” program.

“I’m turned on my side, and the aide pushes on my stomach with his fist to force stool down through the intestines and out onto plastic sheets placed under me. Sometimes it can take nearly an hour...It seems like an eternity.”

Reeve takes a sedative to control nighttime spasms and finally drifts off to sleep.

That’s how a privileged person with the resources to pay for round-the-clock nursing care at \$40 an hour spends his

days. That care costs him \$960 a day or \$350,400 a year. He has three medical-insurance policies, one of which has run out. And his exercise equipment cost him more than \$100,000.

Most people don’t have these resources. Neither do most of the soldiers and civilian employees of the Army. In the past 5 years, 51 soldiers have suffered hangman’s injuries (also known as permanent total disability to the Army) and are

quadriplegics or paraplegics. A few of those accidents include:

- Specialist received a spinal injury from diving off a pier and struck an object in the water.
- Captain broke his back and compressed his spinal cord when he flipped over the handlebars riding his mountain bike.
- PFC broke his neck while diving into shallow water of a swimming pool.
- PV2 suffered a spine fracture when he lost control of his motorcycle and struck a guardrail.

How would you fare if you were in the same situation as Christopher Reeve? Think about this before you dive into shallow water, before you drive around without being buckled up, or before you ride that ornery bull at an amateur’s rodeo.

It could change your life faster than a speeding bullet.

—Adapted from *Ashore Safety Magazine*

**Think first before
you dive into
shallow water,
before you drive
without a
seatbelt, or
before you ride a
bike without PPE.**

Water, Water Everywhere

There is a certain charm to a misty, rainy day. It provides an excuse to stay inside and putter or just laze around and do nothing. However, the charm ends the minute you leave your home and turn on the ignition to your automobile. Roadways made slick by water or obscured by mist and fog present a serious threat to safe motoring. We can never eliminate the hazards of rainy weather driving, but the dangers can be minimized by observing the following safety procedures.

Rain-slicked roads. Some of the most dangerous moments occur in the first half-hour of rain. Water mixed with dust, road oils, and grease can create a surface as slick as ice. In a light rain, it may take several hours to wash away this slick surface.

When driving in rainy weather:

- Drive cautiously. Accelerate and slow down gradually.
- Allow extra following distance. The normal "2-second rule" employed in good weather driving should be increased to a more cautious "4-second rule." When the vehicle in front of you passes a landmark, it should take you 4 seconds to reach the same spot.
- If you encounter a large puddle at slow speeds, place your left foot lightly on the brake pedal while you accelerate slowly with your right foot. This procedure helps keep water from the brake linings. If the brakes become wet and less effective, apply light pressure to the brake pedal. The friction creates heat that dries the brake linings.
- Slow down before you get to wet leaves.
- Turn on your headlights. You'll see better, and others will see you. NOTE: In some states, it's the law!
- Use your defroster to keep the inside of your windshield clear.
- Be sure your windshield wipers are clean and smooth. Change them annually in the fall to avoid streaking during bad weather.
- Make sure you have washer solvent in your container.
- Be especially alert for harried pedestrians.

Hydroplaning. Hydroplaning occurs when the tires on your car lose contact with the road

surface and ride on a wedge of water between the tires and the road. At that point, you may lose your ability to steer or brake. Lighter cars are more likely to hydroplane.

To avoid hydroplaning:

- Replace worn or balding tires.
- Slow down. Hydroplaning rarely occurs at speeds under 30 mph.
- Avoid puddles, especially on curves.
- Try to drive in the tracks of the car in front of you (but don't tailgate).



- If your car does hydroplane, do not apply the brake. Take your foot off the gas, and turn your wheels in the direction you want to go until you have regained control. If your car is equipped with an antilock brake system (ABS), keep your foot firmly pressed on the brake pedal while braking. This will allow you to maintain steering control and avoid skidding.

Fog. On 11 December 1990, a fog bank on a Tennessee highway resulted in a 99-vehicle pileup that killed 12 people and injured 42 others. According to the National Transportation and Safety Board, there are about 700 fog-related highway fatalities each year.

The best advice in fog:

- If you drive into a patch of fog, slow down gradually so the car behind you has time to slow down as well.
- To heighten your awareness in murky surroundings, open your window part way and turn off the radio.
- Turn on your windshield wipers and the defroster.
- Stay patient. Do not pass.
- Don't hunch forward over your steering wheel. You'll see better in your normal driving position.
- Use the right side of the road for guidance.
- If the fog gets too dense, pull off the road, leave your headlights on, start the flashers, turn on your interior lights, and sound your horn occasionally.
- Stay home until the fog has lifted.

—Adapted from **Safety Times**

Prepare To Take Cover!

Thunderstorms and their offspring – hurricanes, floods, and tornadoes – are not as consistently lethal as those high-charged bolts from heaven known as lightning.

Now that summer is tumbling the weather fronts around, the chance of thunderstorms with cloud-to-ground lightning increases. The most dangerous period is from March through August, when air masses are unstable – the same period when soldiers are doing increased field training.

In the last ten years, 15 soldiers have been killed and over 250 injured by lightning strikes. Most of these strikes occurred in an open field environment. Frequently, victims have been under large trees, in water, on or near hilltops, in unprotected fields, and often operating electrical equipment.

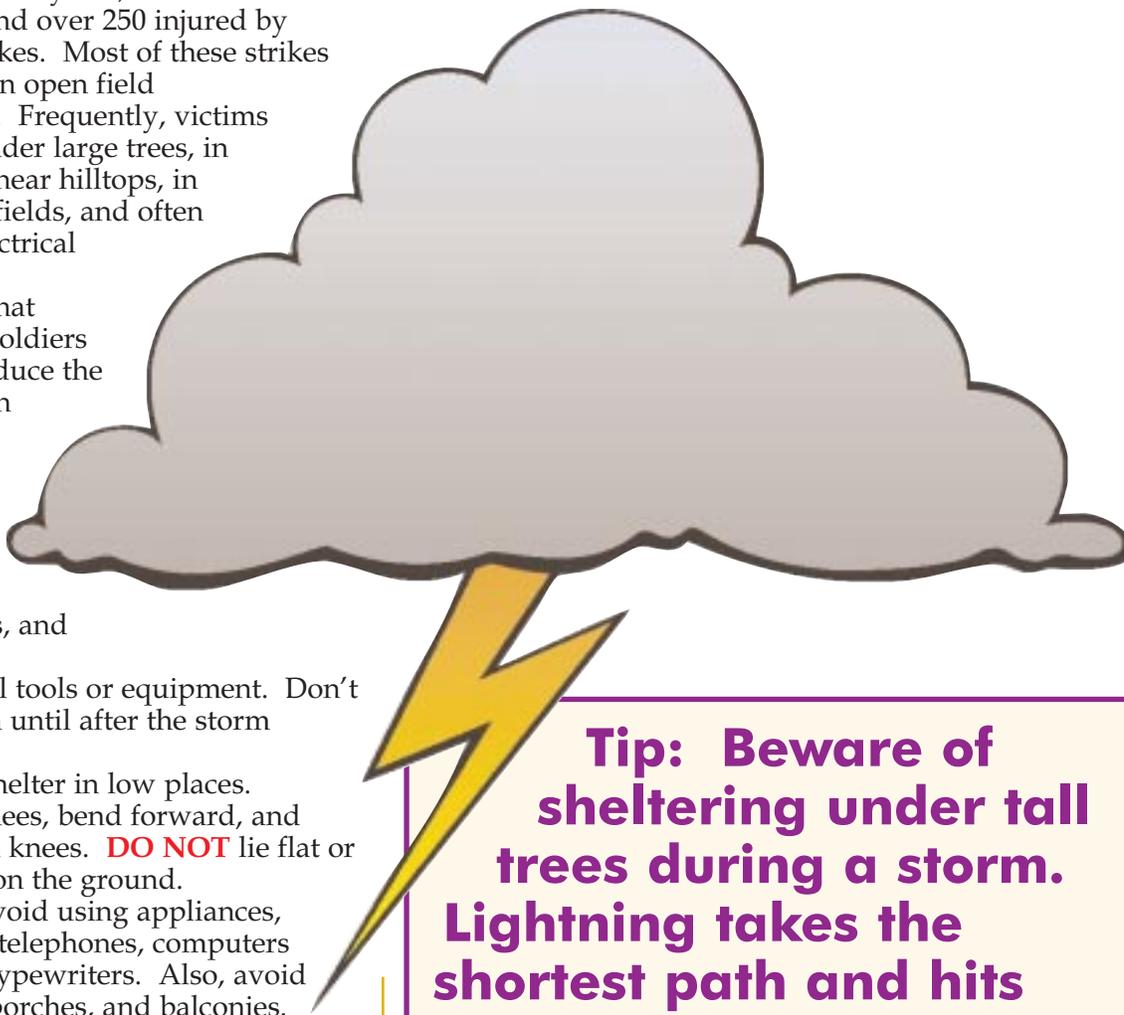
Controls that leaders and soldiers can use to reduce the hazards when caught in electrical storms include the following:

- Avoid hilltops, trees, and watery areas.
- Drop metal tools or equipment. Don't retrieve them until after the storm passes.
- Look for shelter in low places.
- Drop to knees, bend forward, and put hands on knees. **DO NOT** lie flat or place hands on the ground.
- Indoors, avoid using appliances, power tools, telephones, computers and electric typewriters. Also, avoid baths, open porches, and balconies.
- Know first-aid procedures, especially CPR. Even mild exposure can cause unconsciousness or painful burns. Lightning strike victims should be given immediate medical attention.

Some organizations have addressed

adverse environmental conditions; i.e., lightning, tornadoes, snow/ice in their garrison SOP and have incorporated an annex in their tactical SOP. Leaders should communicate these SOPs to the soldiers so everyone is aware and prepared.

Nine out of ten people struck by lightning survive the event. But nearly 25 percent of these survivors suffer long-term psychological or physiological trauma. The best defense against lightning is preparedness. ♦



Tip: Beware of sheltering under tall trees during a storm. Lightning takes the shortest path and hits the highest object.

TAG-YOU'RE IT!

From The Troops

Keep Your Fingers To Yourself

I have been an experienced boater for almost 15 years and love the water. I have the utmost respect for the water. It was put there for us to enjoy.

One evening, my wife and I went out for an evening cruise and came back to the marina around 2000. The sun was just barely going down. I backed my boat alongside the dock, turned my engines off, and my wife stepped off the boat onto the dock. Without warning, she lost her balance and fell into the water.

Now keep in mind that the boat was moving with the current towards my wife. I immediately reacted and jumped off the boat from the stern to save her, but with one small problem. On the back of the boat, I have a fishing rod holder. You guessed it! My left ring finger caught a bolt that was sticking out and pulled my ring, with my finger still attached, right off. All that was left of my finger—from the base to the tip—was the bone. I did not realize this until I came up out of the water with my wife and got her safely in the boat.

If I had thought first before reacting, this

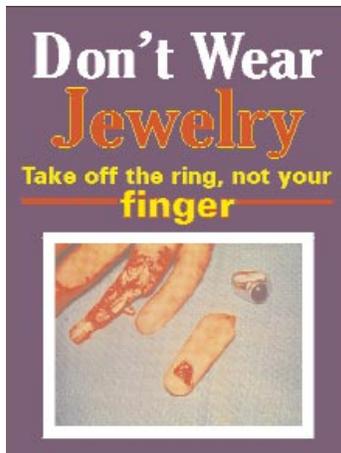
would not have happened. There were six life jackets and one life ring not more than two feet from me. I guess what I'm saying is, "Don't ever say never. It can't happen to me." Because it can. I have said the same thing many times before.

Since the accident, we have taken preventive measures to make sure this never happens again. For example:

- Wear a life jacket. It's the first line of defense.
- Wear light rubber-soled shoes. Ensure shoes have a good grip on the bottom for walking around water and won't weigh you down if you fall in.
- Secure a rope or safety line between the boat and the dock to help keep your balance.
- Always think safety first.

I have truly learned a valuable lesson. I would not want anyone to go through what my family or I have gone through. What started out romantic ended up tragic very quickly. ♦

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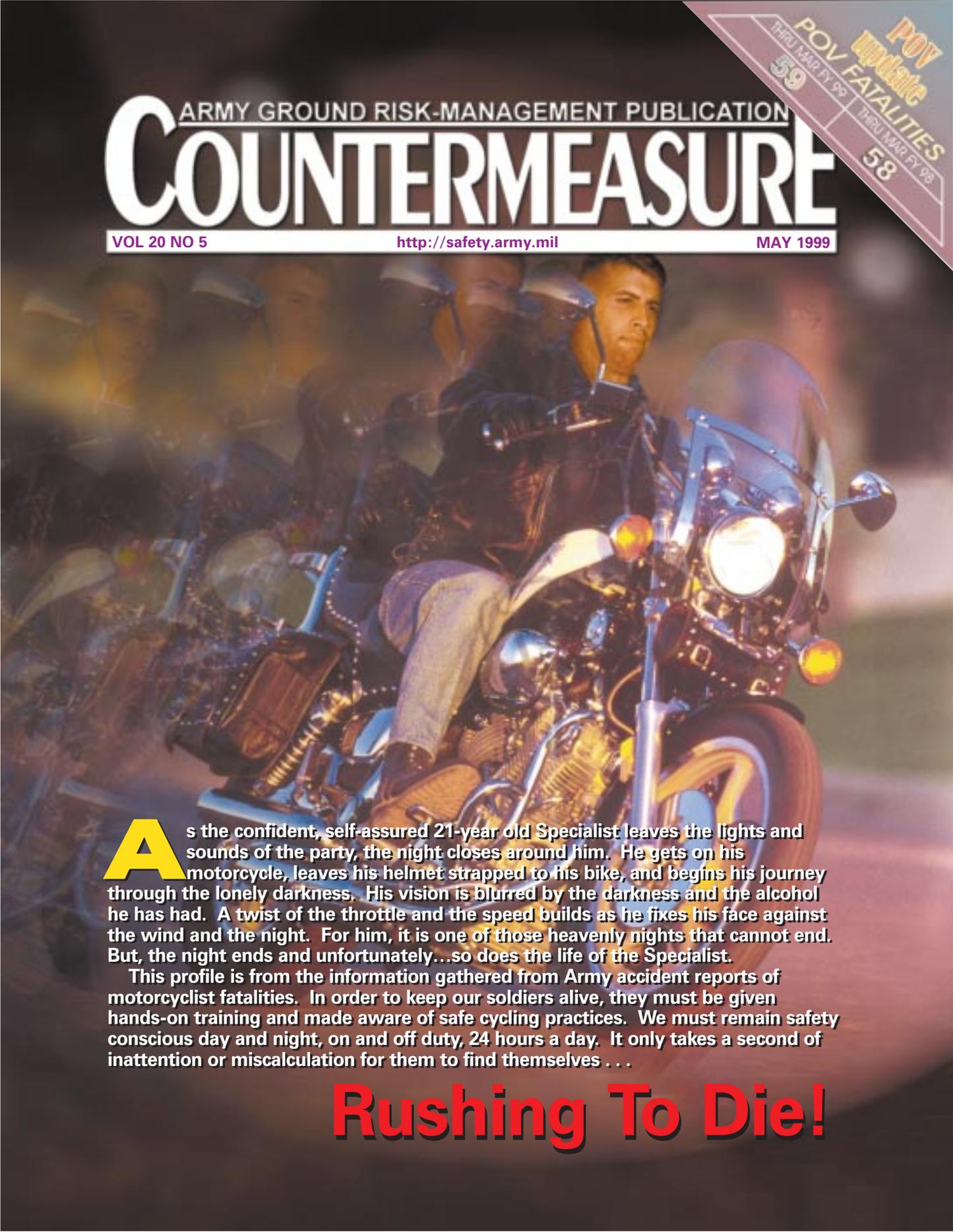
Quickbits

Synthetic Fabrics and Static Electricity

Over the years, concern about electrostatic discharge (ESD) has resulted in various alerts to users of possible static discharge from the camouflage cold weather parka (NSN 8415-01-228-1306 series) and trouser (NSN 8415-01-228-1336 series). These items are worn as the outer garments to the extended cold weather clothing system (ECWCS). Recent research, however, has shown that soldiers wearing ECWCS or other garments made of synthetic fabrics during operations such as conventional

ammunition, munitions, or missile handling should not present a hazard. The one possible exception to this concerns 20mm and 30mm rounds containing the ESD-sensitive M52 electric primer. Users of these items and specialty munitions or explosives should always follow the guidelines in appropriate technical and field manuals.

—Mr. Paul G. Angelis, System Safety Engineer, U.S. Army Soldier, Biological and Chemical Command, Natick, MA, DSN 256-5208 (508-233-5208), pangelis@natick-emh2.army.mil



ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

VOL 20 NO 5

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MAY 1999

POV update
POV FATALITIES
59 THRU MAR FY 99
58 THRU MAR FY 98

As the confident, self-assured 21-year old Specialist leaves the lights and sounds of the party, the night closes around him. He gets on his motorcycle, leaves his helmet strapped to his bike, and begins his journey through the lonely darkness. His vision is blurred by the darkness and the alcohol he has had. A twist of the throttle and the speed builds as he fixes his face against the wind and the night. For him, it is one of those heavenly nights that cannot end. But, the night ends and unfortunately...so does the life of the Specialist.

This profile is from the information gathered from Army accident reports of motorcyclist fatalities. In order to keep our soldiers alive, they must be given hands-on training and made aware of safe cycling practices. We must remain safety conscious day and night, on and off duty, 24 hours a day. It only takes a second of inattention or miscalculation for them to find themselves . . .

Rushing To Die!

ARMY GROUND RISK-MANAGEMENT PUBLICATION
COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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Charles M. Burke
 Charles M. Burke
 Brigadier General, U.S. Army
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From The Editor

A Repeat Story

The number of soldiers killed in motorcycle accidents is following an all too familiar pattern of the past. In FY98, 13 soldiers were killed in motorcycle accidents. That's 7 more than the previous year. Already in FY99, we have 13 fatalities and we are barely past mid-year! We need to get serious! Here are some of the unfortunate motorcycle accidents that keep reoccurring:

- SPC was killed when his motorcycle struck a legally-parked vehicle.

- SPC, an experienced motorcyclist, was killed when his motorcycle slid on a curve that had gravel and sand. He was thrown face first into a rock formation.

- SPC, wearing proper reflective vest and helmet, was killed when a POV failed to yield the right-of-way to his motorcycle. Soldier was thrown 30 feet.

- Cadet suffered fatal head injuries when another vehicle pulled in front of her motorcycle, failing to give her the right-of-way. She attempted to stop, but skidded into the vehicle.

- PFC was riding his motorcycle too fast for the road conditions. While attempting to make a turn, he lost control of his vehicle, dropped it to one side and collided with an approaching truck in the oncoming lane. Soldier and civilian passenger died instantly.

- SGT was driving his motorcycle approximately 100 mph when he lost control and was fatally injured on impact.

- SPC attempted to swerve his motorcycle out of the path of a vehicle making a left-hand turn. He ran off the road into a commercial sign and was thrown into a utility pole.

When a 3,000-pound car and a 400-pound motorcycle and rider meet, the loser is obvious. Steel and asphalt versus skin and bone is an unfair fight. Although motorcycles afford little crash survivability, proper protective gear can contribute to saving lives and reducing injuries.

In some of the accidents, neither drugs nor alcohol can be blamed. The soldiers were either exceeding posted speeds, going too fast for road conditions, or just not paying attention.

Sometimes a motorcycle accident isn't the

rider's fault. A motorcyclist has no guarantee that others will see him. The only eyes he can really count on are his own; he must always be alert.

To operate a motorcycle safely requires skill, dexterity, knowledge, and constant attention. If you're thinking, "It's like riding a bicycle, you never forget how," you're mistaken. Each bike is different, whether it concerns braking, acceleration, stability, grip, or ergonomics. It takes time to get familiar with new equipment. An important point to make is if it has been several weeks or months since you have ridden a motorcycle, practice your skills in an uncongested area before going into heavy traffic. And remember, each motorcycle driver is required to complete a motorcycle safety course.

More and more Army motorcyclists are learning that if they follow regulations, attend training, wear

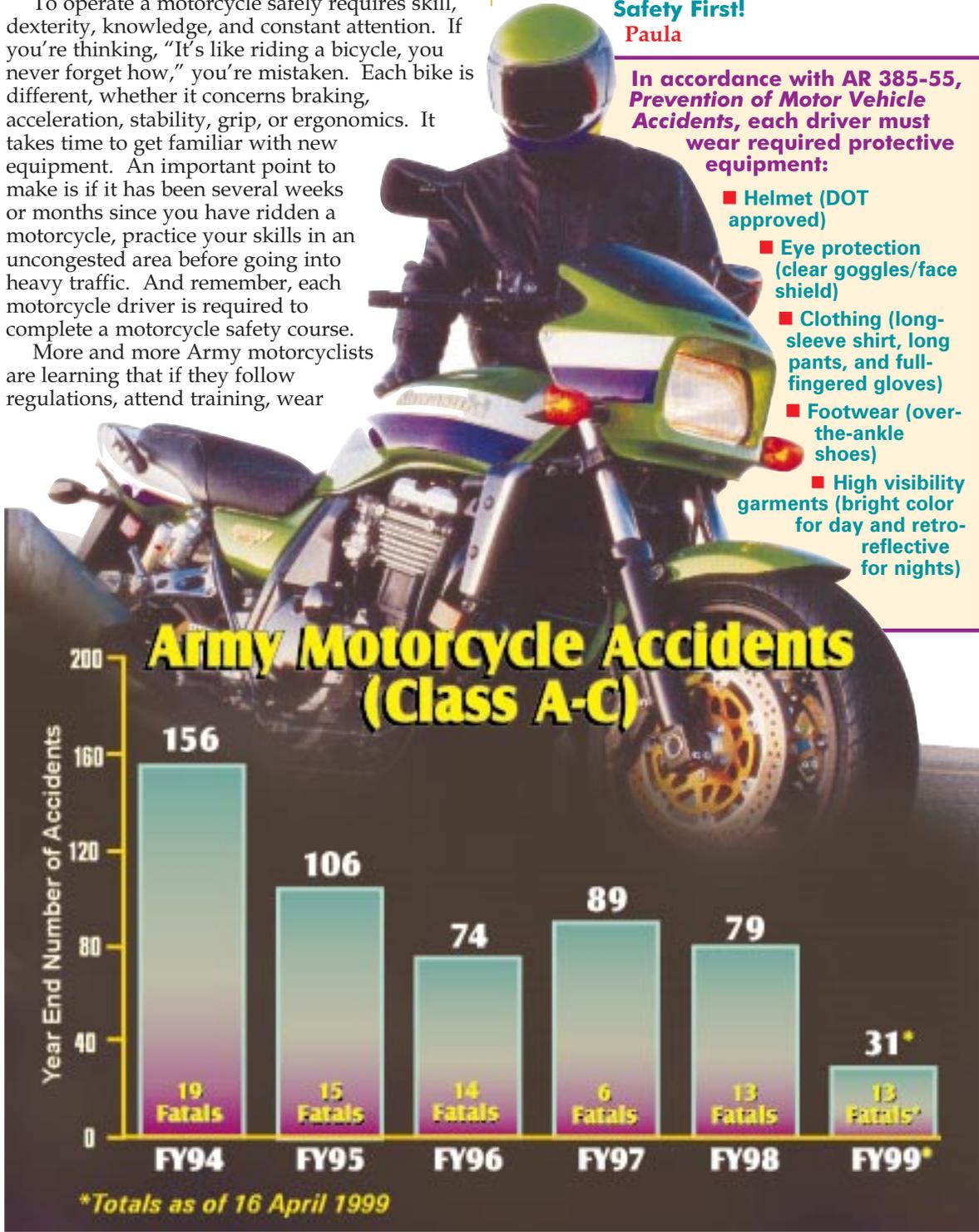
the proper protective equipment and ride defensively, they will be able to enjoy motorcycle riding for a long time...and not keep repeating the same ol' story.

Safety First!

Paula

In accordance with AR 385-55, Prevention of Motor Vehicle Accidents, each driver must wear required protective equipment:

- **Helmet (DOT approved)**
- **Eye protection (clear goggles/face shield)**
- **Clothing (long-sleeve shirt, long pants, and full-fingered gloves)**
- **Footwear (over-the-ankle shoes)**
- **High visibility garments (bright color for day and retro-reflective for nights)**



Everyone Liked Fred

Fred was one of those guys everyone liked. He was always cheerful, active, and motivated on the job. Fred just seemed to enjoy life as it came. He was a sharp soldier and a new husband. He could hardly wait until the weekend so he could drive the two hundred miles to see his bride. She was still living with her parents until she and Fred could save enough money for her to move down.

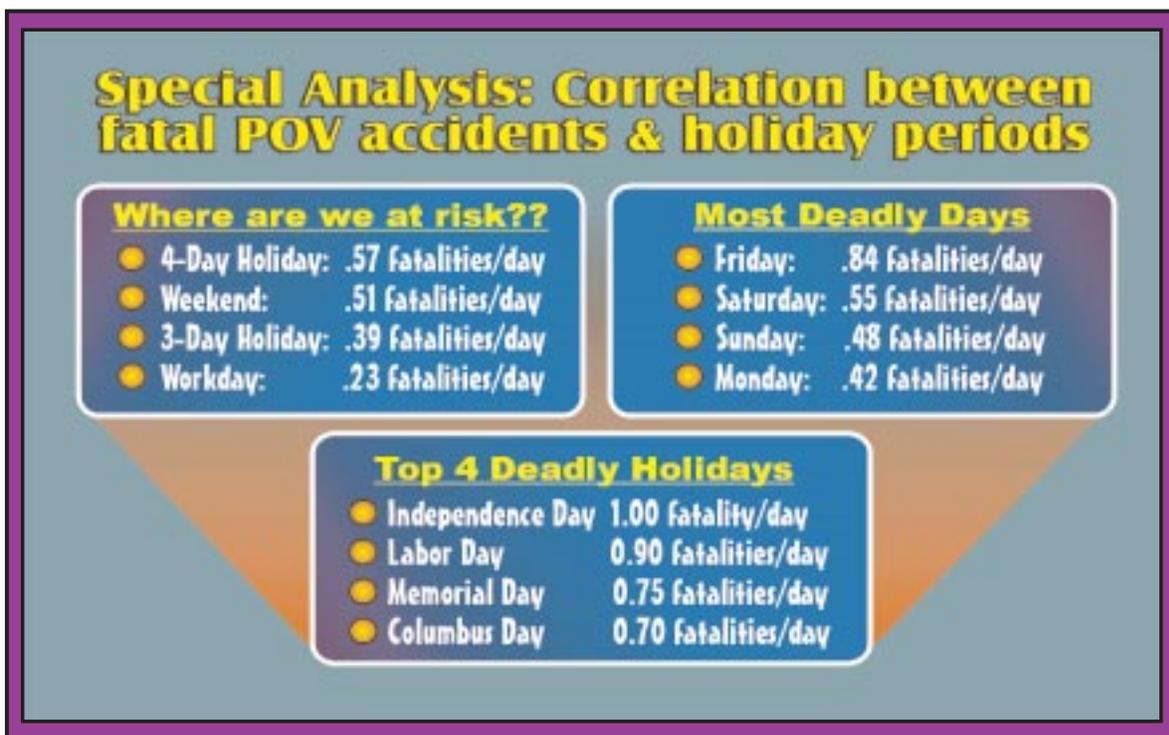
To further save money, Fred bought an older motorcycle, which made the most of a gallon of gas. It needed some work but it served its purpose. He liked the feeling of freedom when the air rushed across his crew-cut hair. There were no helmet laws in his state, so Fred would discard his as soon as he left the post.

Fred never drove the motorcycle when there was a vehicle safety inspection prior to a long weekend. He knew the broken turn signal, worn front tire, and cracked mirror would not pass.

His buddies all helped cover his transportation needs on such days. After all, everyone liked Fred.

Fred was 21 years old. He had just been promoted to Specialist and had passed the milestone of three years in the Army. He was conscientious, knew his job, and thoroughly enjoyed the adventure of being in the Army. He was doing well. Everyone liked Fred.

Fred, however, did have some problems. His carefree attitude had netted him four speeding tickets during the last three months. His platoon sergeant knew of them and wanted to help Fred. Also, Fred liked a beer or two and had gotten into some trouble while visiting his young wife at home. It seems he was picked up for driving under the influence one weekend with a BAC of .08, just over the limit. Since the incident occurred in the next state, it missed the local blotter report, but some of his buddies still knew. The additional strain of the \$1000 fine made the financial



situation that much more difficult.

The First Sergeant and the Company Commander were safety conscious; attending each safety council meeting, trying to identify hazards, and displaying a genuine concern for the troops' welfare. They had seen the post statistics. They knew that POV accidents were the number one killer of soldiers. They knew that statistically the highest POV mortality rate was at the Specialist level. They also knew that the majority of fatal accidents occurred to 21-year old male service members and that these accidents usually happened over a 4-day holiday. Additionally, the Army statistics showed that POV accident fatalities were more likely to occur to those riding motorcycles and State statistics showed that the likelihood of being killed increased dramatically when the victim was not wearing a helmet.

Well, one Thursday afternoon, beginning a four-day weekend, Fred became one of the statistics. He had a couple of beers with his buddies, ditched his helmet, and was on his way. The sun was going down, Fred was headed West at a high rate of speed, and tried to pass a slow-moving vehicle still accelerating from a stop sign. Fred's signal didn't work, he didn't notice the accelerating car in his broken mirror, and he was clipped as he attempted to dart back into the right lane. His motorcycle went out of control. Fred received massive head injuries after striking the curb. It took him three days to die.

Everyone was shocked. How could this have happened to such a great guy? Everyone liked Fred. He seemed so professional. Why him?

If you add the factors of personal financial problems, a history of aggressive behavior, drinking and driving, plus the desire to get home on the weekends, you realize it doesn't take a rocket scientist to see trouble ahead.

Nobody put it all together.

Risk management is both a science and an art. It applies to much more than just our daily soldier activity, field problems, ranges, and deployments. It is identifying hazards and implementing control measures. In this case, identifying the high-risk driver could have made all the difference. Putting the pieces together to identify the high-risk environment and factors could have possibly prevented this accident. The Safety Center Homepage (<http://safety.army.mil>) offers the unit safety officer or NCO a toolbox for

reducing POV accidents. It is for your use. Build your own program. Be innovative. Be positive. Help the "Fred" in your unit.

The 1st Aviation Brigade at Fort Rucker recently had a successful program that helped to identify the high-risk driver by having each soldier fill out a simple survey. Each soldier completed the survey while processing into the unit. It was updated annually or as required. Age, rank, sex, driving record, and other factors were each given a value. The values were based

on post POV accident statistics. The values then were totaled. The higher the total, the more at risk the soldier. If personal problems came up, they too were added into the equation. Once identified as a high-risk driver, the soldier was subject to a number of control measures, ranging from remedial driver training (which reduced the total) to finding alternate forms of transportation. Direct supervision and an involved chain of command were the main reasons this unit had a successful POV program.

Help identify the Fred in your unit. Help prevent the preventable. ♦

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Risk management is both a science and an art. It is identifying hazards and implementing control measures.

Minimizing The Effects Of Jet Lag

Although this article is written from a combat point of view, the subject matter and conclusions reached are timely for both military and civilian personnel when traveling.

Mission readiness is not an arbitrary concept or a lofty goal of today's Army leaders. It is the cornerstone of our success. The ability to deploy and then operate effectively with purpose and confidence is critical to mission success and the safe return of our forces.

Because soldiers are deploying more frequently, leaders continually are challenged to minimize or eliminate the threats associated with these deployments so that their soldiers can perform optimally when called upon.

Pre-deployment planning is crucial for commanders to identify potential hazards and develop controls. These hazards can range from traversing rough terrain to insufficient pre-deployment rehearsal time. Other hazards not so obvious include fatigue from long hours of preparation, sleep deprivation, and the stress of leaving familiar surroundings. The latter is expected and most commanders hope that the travel time will help to "recharge" weary soldiers before they arrive at their destinations and begin the mission. However, often overlooked is how jet lag may affect the soldier and the continuation of the mission once he arrives at the mission site.

What are the Symptoms of Jet Lag?

After traveling across several time zones, soldiers may experience feelings of malaise, gastrointestinal disturbances, and disrupted sleep schedules. These symptoms may still allow a soldier to function, but studies have shown that a reduction in work efficiency is likely to occur. For some, jet lag may last up to two weeks.

What Can You Do Prior to Deployment?

Prior to deployment, soldiers can adjust their sleep schedule to that of their destination. The shift in sleep-wake cycle depends on such factors as the direction of travel, the amount of advanced notice that they receive, and the number of time zones the unit will cross to reach their destination. For example, adjusting sleep

schedules should begin no earlier than three days prior to departure.

Soldiers involved in this pre-adaptation regimen should have access to finance and personnel services, meals, etc., so that they are more apt to follow prescribed guidelines. Family members and friends also should support this pre-deployment sleep-wake cycle.

Another important factor in adapting to the destination time zone (prior to and upon arrival) is scheduling exposure to daylight and/or artificial light. Daylight exposure influences alertness, body core temperature, and hormone production. Avoiding daylight (or equivalent), either utilizing sleep-wake cycles or by using dark sunglasses, helps to speed up resynchronization and sustain mission readiness.

Where Can You Find More Information?

The *Leader's Guide to Crew Endurance*, a joint publication by the U.S. Army Aeromedical Research Laboratory and the U.S. Army Safety Center, gives guidance that can help minimize risk factors which decrease human performance and mission accomplishment such as jet lag. This publication is available to commanders and unit safety planners at the U.S. Army Safety Center's web site, <http://safety.army.mil/pages/tools/index.html>.

Conclusion

As soldiers are deploying more frequently, the necessity to perform effectively upon arrival is still tantamount to sustaining mission readiness and success. Leaders must utilize all resources available to them to ensure soldier readiness. The requirements for discipline, training, and motivation of soldiers have not changed. But remember, no amount of discipline, training, or motivation can entirely overcome the effects of jet lag and sleep loss. ♦

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Powered Industrial Truck Operator Training Standard

Effective 1 March 1999

The Occupational Safety and Health Administration's (OSHA) final forklift regulation is now in effect. The final rule mandates vehicle and environmental training topics for employees in general industry, construction, shipyards, marine terminals, and longshoring operations.

According to the final rule, training must consist of both classroom instruction and hands-on application. No employee may operate a powered industrial truck without direct supervision until the employer certifies that the operator has passed both classroom and hands-on training. Hands-on training must be on the particular lift the employee will eventually operate.

The following topics must now be included in training:

- Fundamentals of powered industrial trucks
- Operating environment
- Powered industrial truck operation
- Operational training practices
- Testing, retraining and enforcement

The compliance dates by which powered industrial truck operators must be trained are as follows:

- If the employee was hired before December 1, 1999, the initial training and evaluation of that employee must be completed by December 1, 1999.
- If the employee was hired after December

1, 1999, the initial training and evaluation of that employee must be completed before the employee is assigned to operate a powered industrial truck.

The Safety Center has forklift operator training materials available to help you with the required classroom instruction. You can download the MS PowerPoint presentation and MS Word files by going to the Safety Center Home Page:

<http://safety.army.mil>. Once there, select "Training" from the top tool bar. Next, select "Sample Training Material From The Field." Then, under the section "Sample OSHA Compliance Training," select "Forklift Operations" and download these files to your computer. ♦

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Munitions Safety

“Beware, The Buck May Stop With YOU!”

A live 105-millimeter shell exploded and killed a scrap metal worker as he was attempting to dismantle it with a torch.

This unfortunate death occurred as the employee was preparing to separate the steel body from the aluminum portion of the round. It exploded causing his death and serious injuries to three other co-workers. The 105mm live round was sold inadvertently as scrap metal to a local scrap metal yard.

The actions leading to this unfortunate incident provide an important lesson for all personnel—military and civilian—of the consequences of not following regulatory guidance and the liability that may be incurred as a result.

BACKGROUND

The story of how a 105mm live round got to the scrap yard began at the training site more than 20 years ago. Although the round was fired downrange, it did not detonate. Two years later, the unexploded ordnance (UXO) was collected as part of range cleanup operations. A civilian company, hired to perform this mission, deemed the round safe or with no apparent sign of danger and loaded it on a truck along with other items suitable for scrap. It became part of the thousands of pounds of scrap metal located at the installation’s scrap metal yard.

Eventually, the time came to sell and dispose of all scrap at the yard. The bids were presented and the winning bid took the “certified safe material” to their local yard for processing. It was here that the unfortunate accident occurred and the following chain of events resulted:

- The local district attorney’s office charged the supervisor in charge of certifying the material safe and free of any explosive or dangerous

content with second-degree murder.

- The local scrap yard owner was forced to close his business and has now filed civil action against the company employed to cleanup ranges and may file legal action against the Department of Defense (DOD).

- The mother filed legal action for her son’s wrongful death.

- The Army Corps of Engineers conducted an extensive search of the scrap

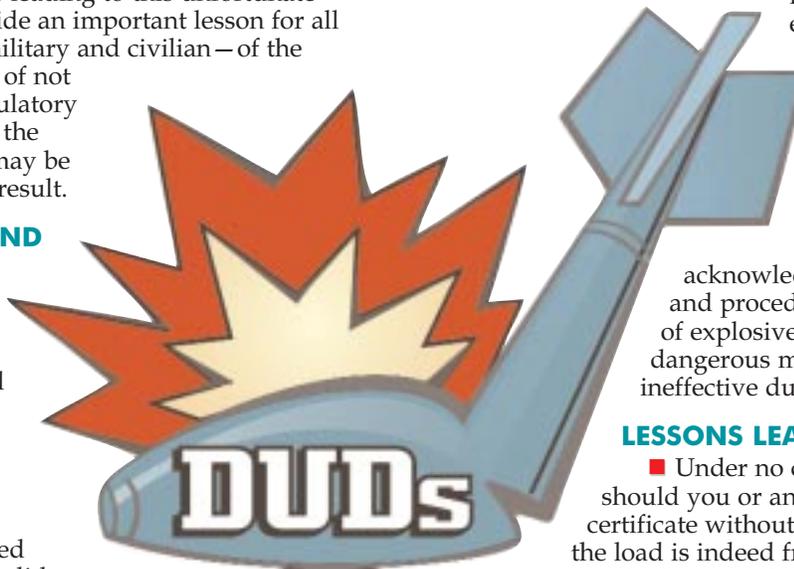
metal yard at an estimated cost of more than one million dollars. During the search, at least 55 other explosive devices were found.

- DOD

acknowledged that policies and procedures for disposal of explosives and other dangerous material were ineffective during this incident.

LESSONS LEARNED

- Under no circumstances should you or anyone sign a certificate without first ensuring that the load is indeed free and clear of any explosive material. To certify that ammunition is in safe condition means exactly that. Understand that you may be civilly (and in rare instances, criminally) liable for the unsafe practices of individuals under your supervision; therefore, enforce the standard. If you are the person responsible for certifying that residue was inspected and that contents do not contain any live rounds, unfired primers, explosives, or other dangerous materials—ensure that it is done. Remember that live ammunition turn-ins also must contain a statement certifying that all ammunition received were either expended or turned in. Additionally, a statement certifying any residue shortages that exceed the allowable losses specified in Appendix L, DA Pam 710-2-1, *Using Unit Supply Manual Procedures*, is signed by the first lieutenant colonel in the chain of command.



■ UXOs are no game. They are deadly and should never be handled by unqualified personnel. Ensure that you follow all safety procedures as described in FM 21-16, *Unexploded Ordnance Procedures*. Military personnel (and certain DOD contractors) risk injury or death from UXO if they fail to follow this manual. Therefore, all personnel need to understand how to identify, report, mark and if necessary, apply protective measures against UXO. All military and contractor personnel involved in range cleanup operations should know and be familiar with this publication.

■ Ensuring that proper procedures are followed is the inherent responsibility of all personnel associated with the handling of munitions. A safety briefing should be conducted in accordance with your unit's standard operational procedure prior to any handling of munitions or explosives. Additionally, TM 9-1300-206, *Ammunition and Explosive Safety Standards*, Chapter 1, Paragraph 1-4e, explains the responsibilities for enforcement of and compliance with safety regulations pertaining to the handling of explosives. All leaders must take appropriate actions using all safety publications and the risk-management process to institute safety requirements for explosives that control potential hazards. Remember that the absence of a safety requirement in the regulations or in the references cited does not necessarily indicate that no safeguards are needed.

■ Explosive ordnance personnel should ensure all material at the ranges are identified properly and certified safe for handling. As a safety precaution, all installation contractors should consult Explosive Ordnance Disposal (EOD) prior to cleanup operations. Additionally, contracting officials should ensure that personnel used by contractors have adequate knowledge of the dangers involved in the handling of unexploded ordnance.

It is evident that our safety procedures in this case failed to prevent an unsuspecting person from becoming a fatality. It is imperative that we understand and put into effect—in all activities—hazard identification and the risk-management process:

- **Identify the hazards** involved in all operations. (As it applies to this case, pay particular attention to explosive safety requirements.)
- **Assess the hazards** once identified.
- **Develop controls and make risk decisions.** Do the benefits outweigh the potential cost?
- **Implement controls** that eliminate or

control the risk.

- **SUPERVISE AND EVALUATE.** There is little to gain if you recognize the potential dangers and you do not do anything to ensure controls are properly implemented and effective. Do not forget to evaluate the measures taken.

CONCLUSION

The causes of this accident revealed the following facts:

- **Individual error.** The worker failed to take appropriate action. If he had identified the hazards, he would have recognized the potential for a UXO to land in the scrap yard.

- **Leader error.** The supervisor did not develop controls to ensure that all scrap metal was free of explosive material. Had the supervisors checked to verify the tasks were accomplished as required, the incident might not have happened. Furthermore, other responsible agencies such as the EOD could have contributed by ensuring contractors understood the seriousness of handling UXOs during cleanup operations.

We, in the Army, are constantly exposed to a multitude of hazards. However, we must ensure that operations involving munitions and explosives receive special attention. Remember to use the risk-management process and when in doubt, consult your installation safety office. Don't become a victim of unsafe practices.

Also, understand that legally you may be liable for the unsafe practices of people whom you supervise or direct. The excuses, "I didn't know" or "That isn't my responsibility" may not suffice if you "could have" or "should have" known about the violation of safety procedures. Know your job, understand your responsibilities, and in the process you'll help integrate the Army's safety objective of force protection into doctrine, training, materiel acquisition, sustainment, and combat.

The supervisor in this particular incident was charged with second-degree murder; but instead, the court ordered that he be tried for involuntary manslaughter in connection with the accident. The assistant district attorney said, "We felt that within the management [of scrap metal removal off base], you had one person who had responsibility, one person who was in control of the yard and who signed the certification that the scrap metal was safe—and the buck stopped with him." **Don't let the buck stop with you!** ♦

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From The Troops

Applying Risk Management In The Field

This section of *Countermeasure* is intended to provide a way for units throughout the Army to share risk-management ideas. Publication in *Countermeasure* does not constitute endorsement by the Safety Center. Our goal is to make it easy to exchange information that will expand understanding and application of risk management in training and operational environments, as well as off duty. The success of this forum for exchange of risk-management information will depend on input from you. Send us your ideas and lessons learned by e-mail: countermeasure@safety-emh1.army.mil, fax: 334-255-9528, or regular mail: Commander, U.S. Army Safety Center, ATTN: CSSC-OG (Countermeasure), Bldg. 4905, 5th Ave., Fort Rucker, AL 36362-5363.

I am a "seatbelt survivor." It was a sunny day last April at Fort Hood, Texas, when a seatbelt saved my life.

The day had begun way too early with an Army Physical Fitness Test (APFT). I had left the house that morning about 5 a.m. to take the APFT with my unit. I had a busy day of staff meetings and office work when I realized that it was time to call it a day.

I took the same monotonous route home that I had taken for the past several months. The traffic was moving swiftly and I was glad to be off work. I was driving my wife's small compact convertible with the top down and the



The soldier that was driving this vehicle is alive today because seatbelts and an airbag saved his life.

radio on. I was traveling in the left hand lane on an undivided four lane road when another car pulled out from a side street, crossed two lanes of traffic, and stopped directly in front of me. I looked in my right-side mirror and saw there was no way out. I immediately laid on the brakes and the car began to skid.

The next thing I remember was hearing my stuck horn blowing and looking at the just-deployed airbag drooping from the steering wheel in front of me. People immediately began rushing to my aid as well as to the aid of the driver in front of me.

Luckily, I was uninjured except for a slightly sprained left wrist. Thank God, I was wearing my seatbelt and my small car was equipped with an airbag. The driver of the other vehicle was not as fortunate. She sustained significant injuries because she was not wearing a seatbelt and her older car was not equipped with an airbag. This unfortunate accident is all too common on today's highways. One moment of inattention or misjudgment can have life-changing consequences.

In a POV accident, your best countermeasure is a seatbelt that is fastened properly. I have stressed this point many times as the unit safety officer and on that day, I am convinced that following my own advice saved my life. ♦

POC: CW3 Mark A. Martin, Squadron Safety Officer, 3rd Squadron, 4th U.S. Cavalry, Wheeler AAF, HI, DSN 456-1147 (808-656-1147), mtccl@aol.com

Asbestos Advisory

Gaskets on the HMMWV-series vehicle 6.2 liter engine can contain up to 75 percent asbestos. Maintenance personnel who mechanically grind off these gaskets can exceed the Occupational Safety and Health Administration (OSHA) standard for airborne asbestos fibers. As an interim control, mechanics must don respiratory protection equipped with high-efficiency particulate air filters (HEPA) when grinding gasket material until appropriate engineering controls and work procedures are instituted.

Recommendations:

After steam cleaning engine parts, remove gasket materials as much as feasible by hand scraping. If gaskets are completely removed by this method, airborne asbestos fibers will be controlled. However, if this is unpractical, the following applies:

- Don respiratory protection equipped with HEPA filters when mechanically removing any gasket material.
- Install a local exhaust ventilation booth and require any mechanical gasket removal to be performed in this booth.
- Institute a training program for all employees who are exposed to airborne concentrations of asbestos at or above the time-weighted average (TWA) and/or excursion limit and ensure their participation in the program (see note).

■ Provide clean protective clothing and equipment at least weekly to each affected employee. Laundering of contaminated clothing shall be done so as to prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits. Contaminated clothing shall be transported in sealed impermeable bags or other closed impermeable containers and labeled.

NOTE: The OSHA Code of Federal Regulation 1910.1001 states the employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an 8-hour TWA. Also, the employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air as averaged over a sampling period of 30 minutes (excursion limit).

- Ensure that employees who work in this area shower at the end of the work shift and do not leave the work place wearing clothing or equipment worn that day.
- Ensure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface asbestos fibers have been removed. ♦

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Branch Reps Have New Phone Numbers

The Safety Center Ground Systems Division has a lot of new folks on board. In our continuing efforts to keep *Countermeasure* relevant to your needs and interests, we ask you to contact our professional staff if you have questions, ideas, or comments. We truly want to know how we can serve you better. DSN is 558-xxxx; commercial is 334-255-xxxx.

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"NOW TELL ME AGAIN WHY YOU'RE SELLING THE MOTORCYCLE?"

ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

VOL 20 NO 6

<http://safety.army.mil>

JUNE 1999

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Choose Safety First!

We have many reasons to celebrate this Fourth of July, but the most important one is our freedom. As American soldiers, we have fought bravely to preserve our right to life, liberty, and the pursuit of happiness for over 200 years. And today, we continue to put our lives on the line for our nation—for our freedom. Because of these sacrifices, we have the freedom to make choices.

As we celebrate our nation's birthday—let's remember to keep our mindset on safety and make it one of our choices. Do whatever it takes to prevent accidents. If we're going to drink, we must not drive. Take a cab or get a ride with a designated driver. If we're on the water, we must wear a personal flotation device or stay out. Have fun this Fourth of July, but think before you act. Yes, we have the freedom to make choices. Which shall we choose? Choose safety first!

Happy Birthday, America!

ARMY GROUND RISK-MANAGEMENT PUBLICATION

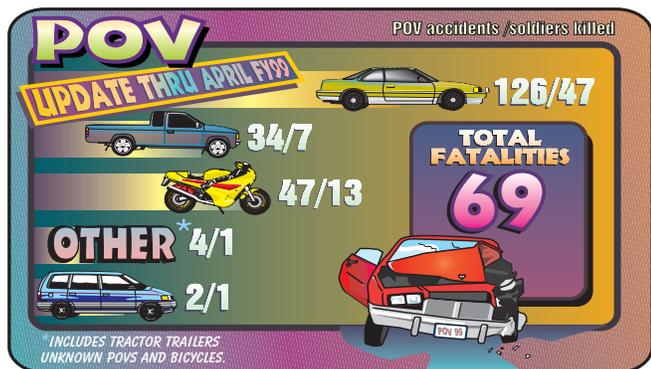
COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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Charles M. Burke

Charles M. Burke
Brigadier General, U.S. Army
Commanding Officer

From The Editor

Summer Safety

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

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

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

Traveling

Soldiers must be counseled on safe driving procedures. Those who plan to travel should ensure vehicles are prepared for the trip. Before 4-day weekends, recommend the chain of command perform safety checks on soldiers' vehicles. These checks are vital to the safety of our soldiers. Don't just go through the motions—really look those vehicles over.

- **Speed.** Observe the posted speed limits. Decrease/adjust speed based on conditions (weather/traffic). Don't rush. Stop at a rest area and call ahead—it's best to arrive alive. Speed is the number one killer of our soldiers.

- **Seatbelts.** Seatbelts save lives. Why is it that there appears to be a stubborn resistance to the wearing of seatbelts? It is a factor in most of our fatalities—on and off duty.

- **Fatigue.** Get plenty of rest before the trip.

Stop for rest breaks every hour or every 100 miles.

- **Alcohol.** Do not drive impaired! Supervisors should ensure all soldiers are aware of the consequences of drinking and driving, such as Article 15 or possible court martial and possible discharge action—not to mention the risk of injuring or killing oneself, loved ones or others. Instruct soldiers to plan ahead and provide a designated driver. Establish and maintain a list of designated drivers and taxi phone numbers. Soldiers, keep the list handy and use it!!

Heat stress

Heat stress injuries can range from painful heat cramps to a deadly heat stroke. Know the early signs of heat stress, such as dizziness, weakness, and profuse perspiration. To prevent heat stress injuries, drink plenty of water before, during, and after activity. Go to the nearest shaded or cool place and sit or lie down. If symptoms are not relieved in a few minutes, seek medical attention immediately. (See April 1999 issue of *Countermeasure* for more information on heat stress).

Water activities

Whether it is a dip in the backyard pool or a swim in the ocean, always follow the rules on water safety.

- **Swimming.** Wear a personal flotation device or life jacket. Before diving, always check for obstructions as well as the depth of the water. If there's any doubt, do not dive. Never enter the water alone unless a lifeguard is on duty; use the buddy system. Swim only in designated areas.
- **Boating.** Inspect boating equipment. Have life jackets for everyone and ensure they know how to use them. Never boat alone. Don't overload the boat. Don't speed. Avoid alcohol in all water activities. (See April 1999 issue of

Countermeasure for more information on boating/swimming tips.)

Fireworks

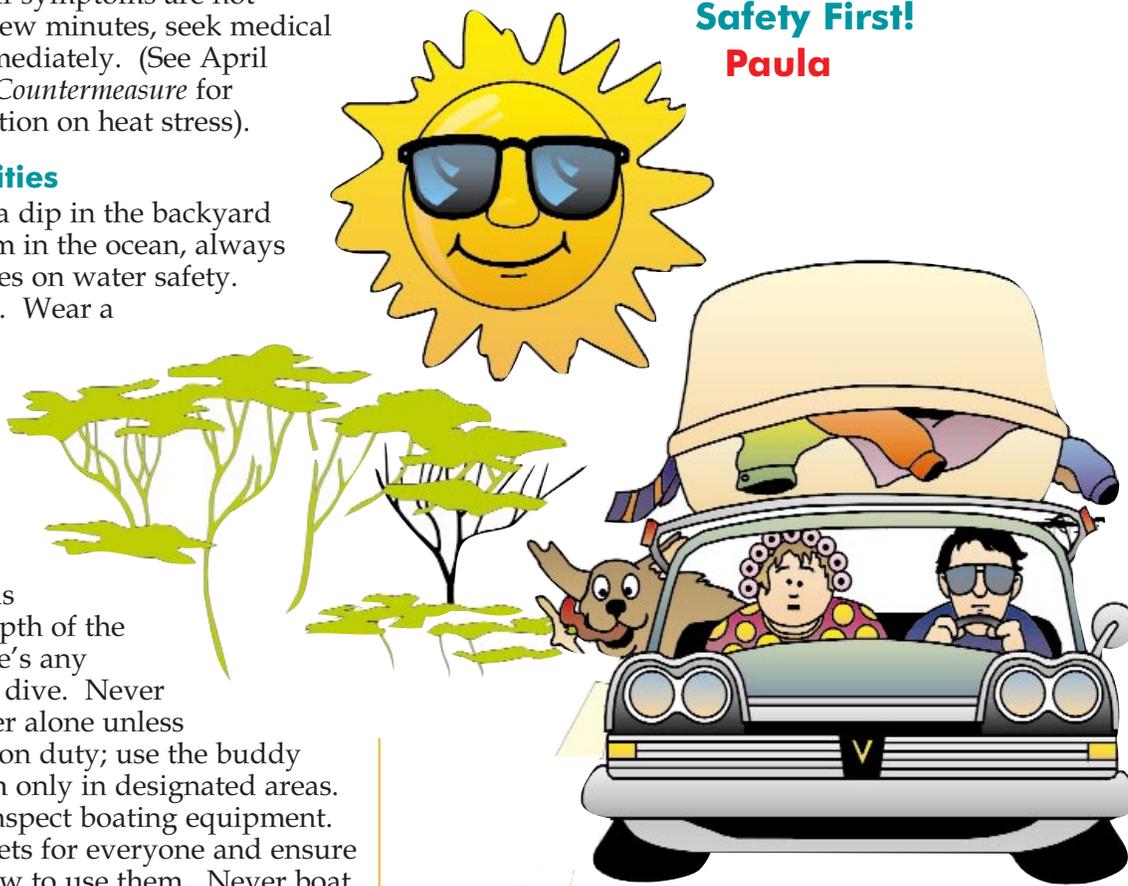
Play it safe and let the experts at a public display set off the fireworks.

Barbecuing

Keep the barbecue grill a safe distance from the house or flammable materials. Keep children and pets away from grill. Never start the grill with gasoline. Never leave the fire unattended. (See additional information on barbecuing on page 8 in this issue.)

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

Safety First!
Paula



Munitions Safety

“Hey, Look What I Found!”

In FY98, 39 accidents involving ammunition and explosives were reported to the Army Safety Center. The majority of them were caused by either tampering or improper handling. For example:

- An explosive ordnance disposal (EOD) soldier left the EOD team and went off alone looking at ordnance piles. He picked up a grenade fuse not knowing that it was not expended. Consequently, it detonated when he picked it up resulting in severe burns on his hands and body. **CONTROLS:** All personnel must be briefed on the hazards of unexploded ordnance (UXO).

- Prior to a tactical training clean-up detail, all personnel were briefed not to handle any UXO and that if they found

any, they were to mark its location with Engineer tape or whatever was available. Two lieutenants from the group came across a UXO, but did not have Engineer tape, so they marked it with twigs and branches. Later, a group of soldiers came across the simulator. One of the soldiers picked up the simulator and indicated that there was no cap on it. All of a sudden, the ordnance flashed, severely burning the soldier's hands. **CONTROLS:** Chain of command must ensure that all material is available to properly mark UXO. They must also ensure soldiers are supervised at the proper levels.

- A specialist was left in a battle position to guard equipment when his squad was split into two sections in

order to set up an anti-armor ambush. While waiting, the specialist decided to load his M47 weapon system so he would be prepared to protect himself from armor threats. He opened the breech of the M47 with his bare hand, then proceeded to place an antitank weapon effects simulator system (ATWESS) cartridge into the breech. At this point, the firing pin had failed to disengage to the safe position and it detonated the ATWESS as



Follow the required procedures in technical manuals and Army regulations for handling and disposal of explosives such as these shown above.

pressure was applied to close the breech. The specialist received first and second degree burns to the majority of his right hand from the explosion. **CONTROLS:** Ensure leaders are enforcing the pyrotechnic standard operating procedures (SOPs) concerning explosive devices and protective clothing. Retrain all subordinate personnel in ATWESS weapon loading, firing, and unloading procedures. Ensure all ATWESS weapons systems are inspected by user and test-fired prior to mission. Supervise subordinates, especially when operating weapon systems.

Ammunition and explosives are inherently hazardous and dangerous. After handling ammo and explosives for long periods, soldiers sometimes assume the mistaken attitude that munitions are not really all that dangerous, and they begin taking shortcuts. **DON'T!**

Procedures for use, handling, and disposal are in technical manuals and Army regulations, but they are not effective unless they are followed. Training and education are the keys to safe handling of explosives.

Unit leaders must teach soldiers that ammo and explosives are dangerous and that they must use proper handling techniques and strictly follow established procedures.

Commanders must emphasize that explosives are handled under the direct supervision of trained personnel and that duds are handled only by EOD personnel.

Explosive ordnance disposal personnel can provide services other than getting rid of duds. They will, upon request, provide explosives safety and ammunition recognition classes to military and civilian authorities. Commanders should coordinate with their nearest EOD unit to integrate explosives safety training into the unit training program.

Where ammunition and explosives are concerned, there is a constant requirement for caution. This safety responsibility begins with receipt and extends throughout the life of munitions – including storage, transportation, handling, use, and disposal. For more information, consult FM 21-16, *Unexploded Ordnance (UXO) Procedures*. ♦

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

Explosives

Ammunition and explosives are Army tools that require constant caution. You must always handle them properly and strictly follow established procedures.

Most soldiers are exposed to explosives only during field training. Because you may not get to use them very often, you may be curious about them. But curiosity can kill where explosives and duds are concerned.

Simulators

Many soldiers have been killed or badly injured by simulators. Most of the victims treated the devices as toys—as “practice” rather than “real” explosives. Never make the mistake of thinking that “simulators” are toys. They’re not. They’re explosives that can kill you just as dead as the “real thing.” In fact, simulators contain more sensitive explosives than other ammo, so they will ignite or explode more quickly.

Curiosity can kill where explosives and duds are concerned.



Transportation of Explosives by Truck

Safely transporting explosives and ammunition can be a challenge. Materials can be transported by land, air, and sea. Each mode of transport has a list of advantages as well as a list of problems. *Countermeasure* will discuss only the method of transporting explosives by land.

Personnel securing ammunition while performing cargo operations must contend with many factors including the weight and size of objects, the strength of material used for securing cargo to the floor or to other cargo, and momentum. One of Newton's laws of physics explains that objects in motion continue to stay in motion unless acted upon by an external force.

Guidelines for dealing with force and momentum are based on physics, common sense, and the U.S. Army AMC 19-48 series drawing, *Index of U.S. Army Unitization, Storage and Outloading Drawings for Ammunition and Components* (Apr 98). Detail procedures are listed for moving every configuration of ammunition load by motor vehicle transportation in USAAMC 19-48 series. By following the proper procedures, soldiers will be safe and the mission will be completed in a safe and timely manner.

Personnel involved in the loading of explosives and ammunition for land transportation must be knowledgeable of blocking, bracing, and tie-down procedures. Information on blocking and bracing can be found in the following directives: 49 Code of Federal Regulations; DA Pam 385-64, 28 Nov 97,

Ammunition and Explosives Safety Standards, and TM 9-1300-200, Oct 69, *Ammunition, General*.

These requirements assure that:

- Cargo is loaded on the center-of-balance of semi-trailers and other cargo vehicles and then secured with blocking and tie-downs as appropriate.

- Movement of the load is minimized by using materials strong enough to withstand the abuse received from rough roads and sudden stops. To ensure that loads are safe,

USATCES performs test loads. The vehicle is loaded with inert ammo and driven over a course of railroad ties, unimproved roads, and over a washboard course designed to bounce materials out of position. The vehicle is then

subjected to panic stops.

- Cargo is retained

within the walls of the vehicle or tied to the truck bed. The cargo should not extend outside of the bed.

Defense Ammunition Center, Transportation Engineering Division, provides drawings depicting acceptable configurations for blocking and bracing military ammunition for motorized land transportation. The index of the drawings may be ordered at <http://www.dac.army.mil/det/dapam/toc.html> or by contacting the Director, Defense Ammunition Center, ATTN: SIOAC-DET, Savanna, IL 61074-9639, DSN 585-8927 (815-273-8927), sioacdet@dac-emh1.army.mil ♦

POC: Mr. Robert Durand, USATCES, Savanna, IL, DSN 956-8397 (918-420-8397), Fax DSN 956-8503



Protect Your Eyes From Fireworks

Because the anniversary of the founding of the United States has been traditionally celebrated with explosives of some sort, Countermeasure wants to remind you to protect your eyes from injury this Fourth of July.

How hazardous are fireworks? The U.S. Consumer Product Safety Commission estimates that more than 11,000 people were treated for fireworks-related injuries in 1995 and more than 7,600 in 1996. According to the American Academy of Ophthalmology, fireworks cause over 2,000 eye injuries each year. The average age of those injured is 13 years.

What are the most dangerous fireworks? It isn't the big items that cause the most injuries to the eye. The firework that produces the most frequent eye injuries is the bottle rocket. Many of these injuries result in permanent vision loss or even loss of an eye. Sparklers are second on the eye injury list. Sparklers account for three-quarters of all fireworks injuries to children under age 5. The firecracker ranks high even though they are banned in most states. Severe injury can result from use of these devices.

How can I protect my family from fireworks-related eye injury? The best way to view fireworks is by watching displays produced by professionals from a safe distance. If you decide to use fireworks personally or allow your family to use them, here are some suggestions that will help prevent injury:

- Use only fireworks legal in your community.
- Both the people lighting fireworks and those

watching should wear safety glasses with side shields or goggles. Inexpensive (\$3-\$10) industrial safety eyewear meeting national safety standards are available

at most lumber or hardware stores. You can also use this safety eyewear the rest of the year when involved in other eye hazardous activities.

- Do not allow young children to handle or light fireworks.
- Never put fireworks in containers. An explosion may propel debris into the eye or other body areas.

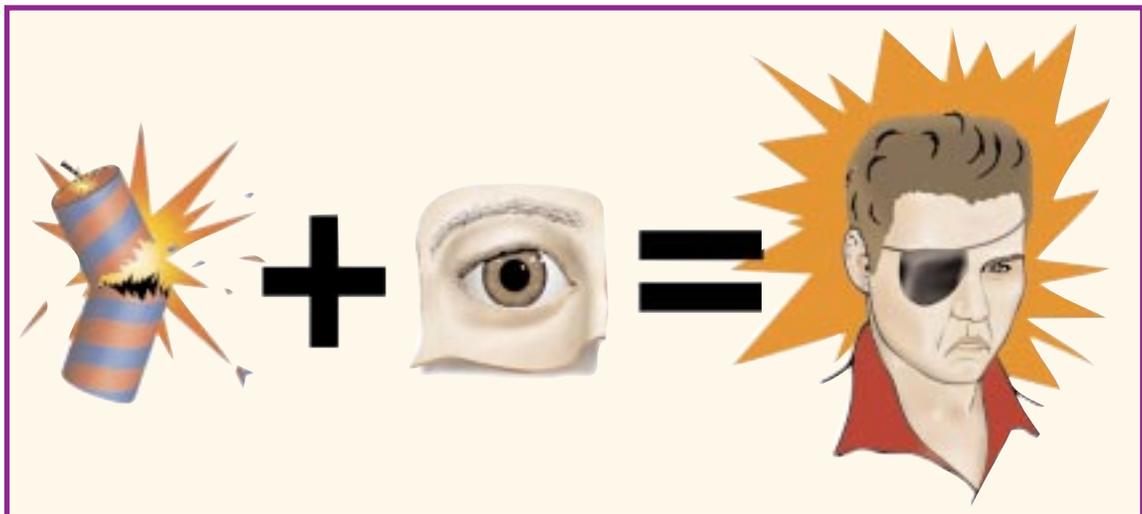
■ Make sure a bucket of water or hose is available to douse fireworks that do not ignite properly or stop fires started by the fireworks.

What should I do if an eye injury occurs?

Injury from explosions may cause damage to the inside of the eye even though damage to the outside of the eye does not appear to be too severe. Should an eye injury occur, do not put any pressure on the eye because the eye may be punctured. Protect the injured eye from pressure and call an ambulance or take the injured individual to an eye care provider or emergency room immediately.

The founders of this great nation planned the future with vision, plan ahead for your own clear vision by celebrating this Fourth of July safely. ♦

—Adapted from the U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD, DSN 584-2088 (410-671-2088 or 1-800-222-9698), Fax 410-671-4784



Don't Get Burned, Do It Right!

Fourth of July – motherhood, apple pie, and baseball. Okay, it's time to barbecue our favorite steaks, burgers, chicken, shish kebabs, and hotdogs. Smell that aroma of charcoal on the grill! Meat sizzling over the glowing coals!

It never fails, some inspired backyard chef will get the idea he can speed up the fire preparation by dousing an already-burning pile of briquettes with “just one more” squirt of charcoal lighter fluid. If he's fast, he might even get back before the fire flares up in his direction. If he's not, he might find himself minus his mustache, his eyebrows – or worse.

Never, ever pour charcoal lighter fluid on burning coals or an open flame to get the fire burning more quickly! Once the coals start turning white, they are ignited. That extra drenching with lighter fluid is just too dangerous.

Along with charcoal grills, many

people now own gas grills. Some gas grills come equipped with a propane tank. Tanks can be filled at filling stations, any propane gas company, and RV dealerships. States now require a safety cap to be installed on gas grill propane tanks when transported.

Without the safety cap, you can no longer have your tank refilled. One of the stories behind the safety cap was a mother who had a propane tank filled and had it placed in the back seat of her car along with her small child. The child had somehow managed to open the valve filling the car with gas. At some point in time, the mother decided to light a cigarette, well – you can figure out what happened!!!!

The point of this message is directed to those individuals who try to light the gas grill with a match. Most gas grills use a spark ignitor to ignite the gas, but we know how well they sometimes

work. After a while, the ignitor stops working and we eventually have to go to the old standby, the match. The problem arises when we have problems getting the match to work. We close the lid on the grill, turn the gas knob on, then begin to strike the match against the side of the match box. After three unsuccessful attempts to get a match to work, one lights. We are proud of our success and place the match inside the grill not realizing that the gas has been on for 5 minutes. . .my how time flies! Of course, we wake up later in the hospital with no hair, no face, and no brains to find out you not only blew up your grill, but you burned down your house along with the whole neighborhood.

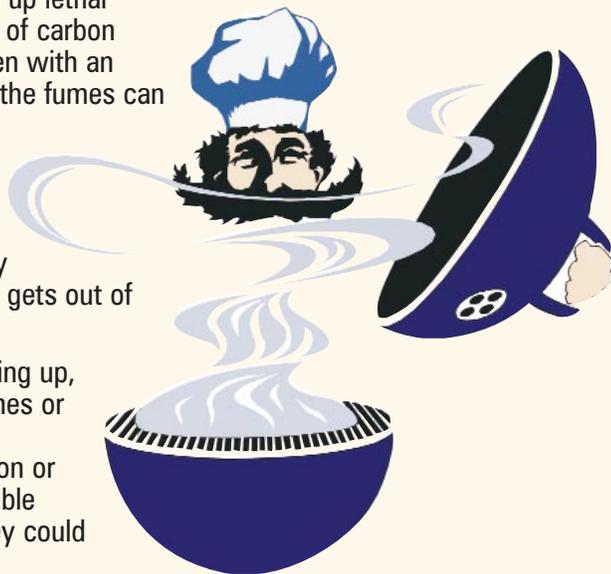
Be smart when cooking out. If you're in too big a hurry for your food, leave the barbecuing for those with patience and do your cooking in a microwave. ♦

BBQ Tips:

■ Never move grill into the garage or other closed area because coals can build up lethal concentrations of carbon monoxide. Even with an open window, the fumes can kill you.

■ Always have a fire extinguisher or a hose ready in case the fire gets out of control.

■ When cleaning up, never trash ashes or briquettes in a cardboard carton or other combustible container—they could ignite.



The Dangers of Speed

For some, it's exhilarating to zip down the open road as fast as possible. Others think it's necessary because of poor time management before the trip began. For still others, speeding is part of a mindset that sees driving as a race with other vehicles for domination of the road.

BUT HISTORY SHOWS THAT SPEEDING IS DANGEROUS: When speed limits were cut to 55 in the 1970s, traffic deaths dropped off sharply. They rose again when the speed limit on the open road was raised back to 65. When you speed, you put others on the road in danger as well as yourself. Why is speed so dangerous? Let's look at a few facts.

SPEED AND STOPPING

DISTANCE: Remember the formula for stopping distance: Reaction distance + braking distance = stopping distance. Reaction time—the time it takes your foot to move from the accelerator to the brake—is generally the same at any speed, but the distance you cover during that reaction time depends on your speed. The faster you're going, the further you'll travel before coming to a stop. At 55 miles per hour, your combined reaction distance and braking distance add up to around 200 feet. At 65 miles per hour, it can take 300 feet—half again as far—to stop even under ideal traffic conditions. Failure to stop in time is one of the major causes of fatal collisions on the road.

SPEED AND IMPACT FORCE:

Another reason not to speed is that speed translates into force in a collision. The force of a collision at a mere 30 miles per hour is equivalent to the force of jumping off a 10-story building. Bad enough, but survivable if you're wearing a seatbelt. At 60 miles per hour, this force is quadrupled. Statistics show that the risk of being killed in a collision is twice as great at 65 miles per hour as it is at 55 miles per hour. At 75 miles per hour, the risk is tripled.

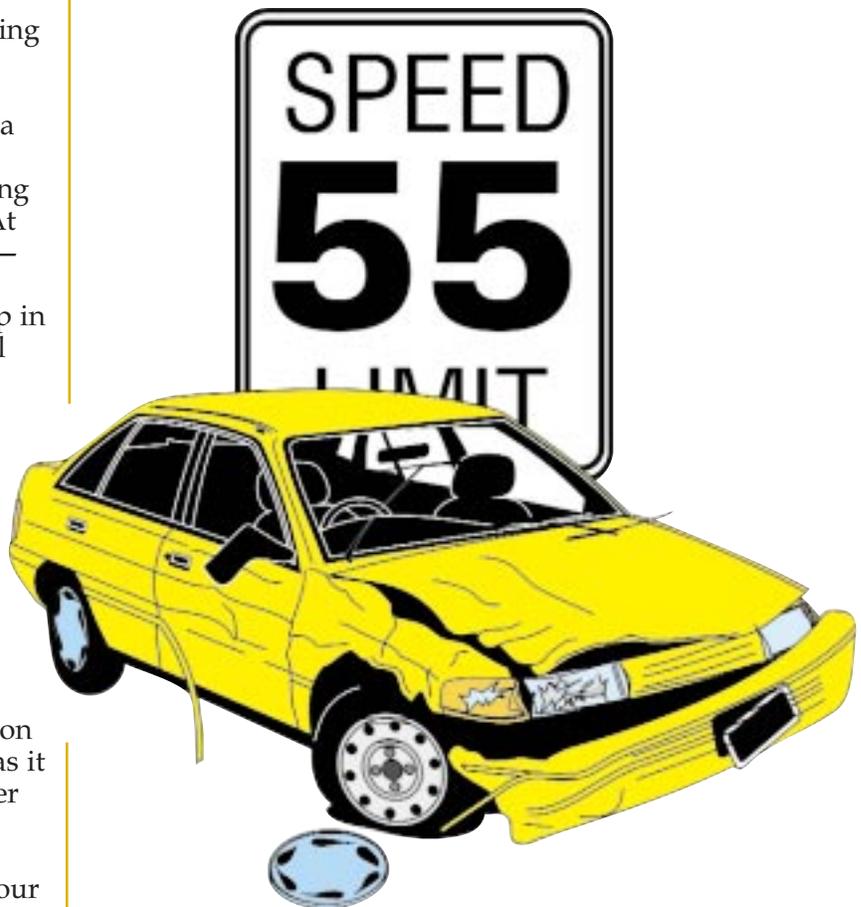
SPEED AND COST: Speed is not only dangerous, it's costly—both to your

wallet and to the environment. Studies show that steady travel at 55 miles per hour can yield a savings of up to 38 percent in fuel costs and 40 percent on overall maintenance. And these days with our concerns about pollution, it makes environmental sense to use fuel as efficiently as possible.

GIVE YOURSELF TIME TO SLOW

DOWN: Many people end up speeding because the time they allow for their trip is the time the trip takes under ideal conditions with no traffic. Why not start adding extra time to all your routine trips, so you don't get caught behind schedule? It can be hard to stick to the speed limit when everyone else is speeding, but it's not impossible. You can make the decision to behave safely and lawfully, even if others don't. ♦

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Real People/Real Accidents

This month, we want to share some recent accident reports to remind you that an accident takes only a second to happen. This goes to show you that we need to always, I repeat, a-l-w-a-y-s, think safety.

■ A 25-year-old specialist died after a 3-story fall from his post barracks. The soldier fell over a metal guardrail while trying to spit farther than another soldier. To gain momentum, he hurled himself forward. Unfortunately, he misjudged the force of the jump and went over the balcony, leaving him balancing his body weight on his arms. His handgrip was not strong enough to hold his body weight and he fell approximately 24 feet to the concrete walkway below, sustaining fatal head injuries. The soldier's blood alcohol content was estimated to be between .13 and .15 at the time of the accident. His judgment and reaction time were impaired because of the effects of the alcohol he had consumed during the two hours prior to the accident.

■ A soldier was practicing ramp jumps on a dirt bike course. Apparently, the rider who preceded him on the ramp was involved in a crash in the landing area; however, the soldier either was not aware of this situation or thought he could avoid it. Upon clearing the ramp, the soldier realized that his landing area was obstructed, and he too crashed upon touchdown. The dazed soldier sustained a right femur fracture and was hospitalized with complications for a

period of approximately 14 days.

■ A sergeant and two other soldiers were rock climbing in an unauthorized area when they were asked to leave by a quarry foreman. In his haste to leave, one of the soldiers attempted to jump from one rock to another and lost his balance.

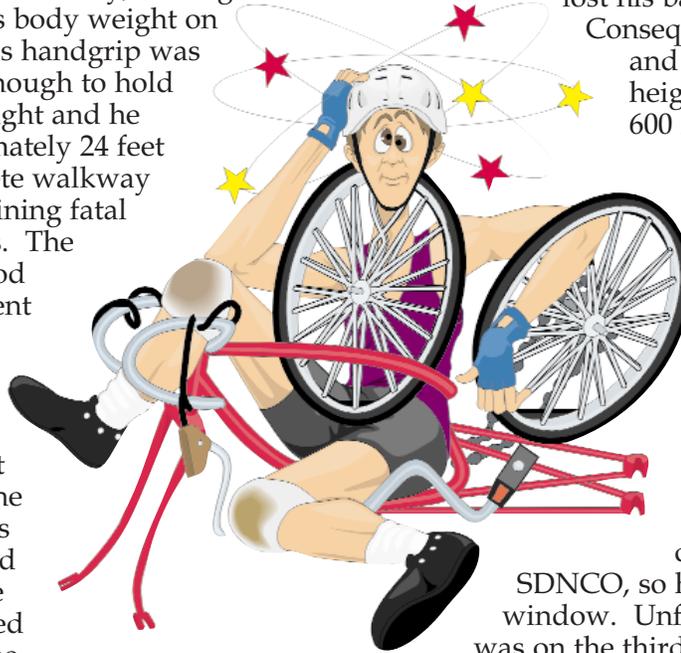
Consequently, he fell back and off the ledge from a height of approximately 600 feet to his death.

■ A private was in his room at the barracks drinking with a female friend when he heard a loud banging on his door by the staff duty noncommissioned officer (SDNCO). He didn't want to confront the

SDNCO, so he jumped out his window. Unfortunately, his room was on the third floor! He was taken immediately to the hospital by ambulance and admitted for surgery on his two heels and treatment for his back.

■ A specialist was cutting timbers with a circular saw. While trying to avoid cutting the power cord, he lost control of the saw and cut his thigh. The cut was approximately 12 inches above the soldier's right knee and required 80 stitches.

■ A sergeant was injured while riding his off-road motorcycle through a pineapple field when his foot slipped off the foot peg and got caught under the back wheel.



Safety Alert

Asbestos

Sample data has recently revealed that certain vehicle components within the Army inventory currently identified as asbestos-free do in fact contain asbestos. Maintenance personnel must be immediately informed of proper control measures to minimize exposure to asbestos fiber dust.

Specifically, the presence of asbestos has been

discovered in engine gaskets and braking systems of various AMVs within the Army inventory.

As an example, the gaskets of the newer model 6.2-liter diesel HMMWV engine have been identified as containing asbestos. Locally purchased gaskets and those procured through the Army supply system inventory for HMMWV engines as well as for other series vehicles have re-introduced asbestos hazards into Army

operations. Personnel are exposed to significant dust contamination while attempting to clean away gasket residue with a power tool and wire brush attachment.

In addition to engine gaskets, the residual presence of asbestos has been discovered in the braking systems of many series vehicles in the Army inventory, despite efforts to remove asbestos brake shoes and pads from the system. Due to the inability to visually identify asbestos, control measures must

be implemented into all specific maintenance procedures to comprehensively reduce the hazard of potential exposure (see Asbestos Advisory in May 99 issue of *Countermeasure*).

Exposure to asbestos dust in low concentrations can cause significant health problems, although often not

realized for many years thereafter.

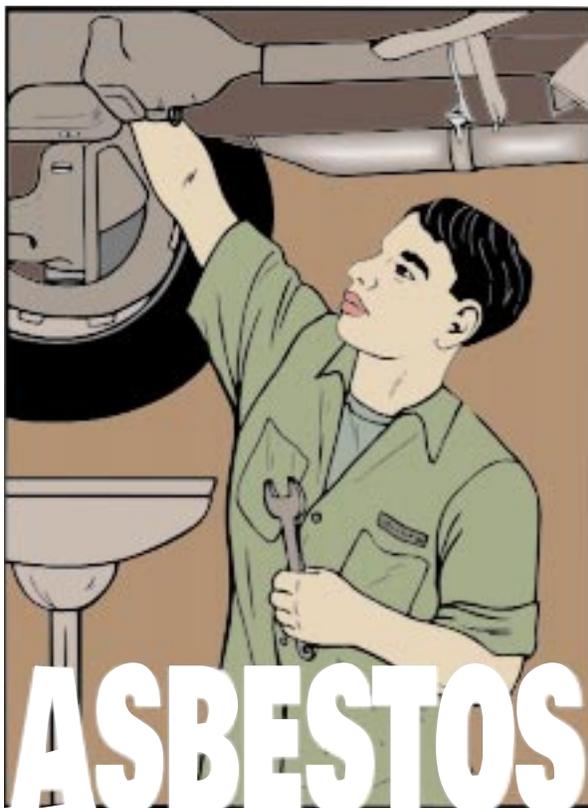
Control measures:

■ Unit level:

All gaskets, brake shoes, and pads should be handled under the assumption that they contain asbestos. Prohibit dry, abrasive cleaning methods. Contact your local medical department industrial hygiene representative for site-specific asbestos-handling procedures.

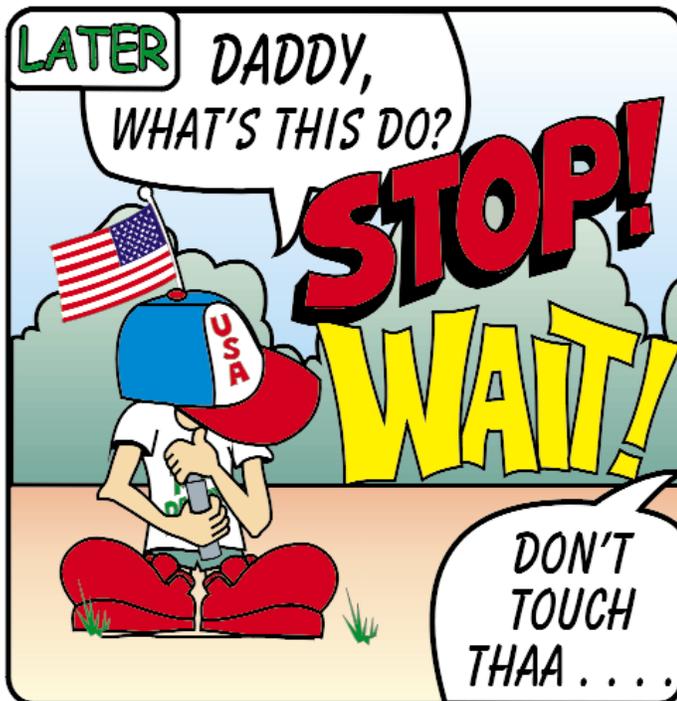
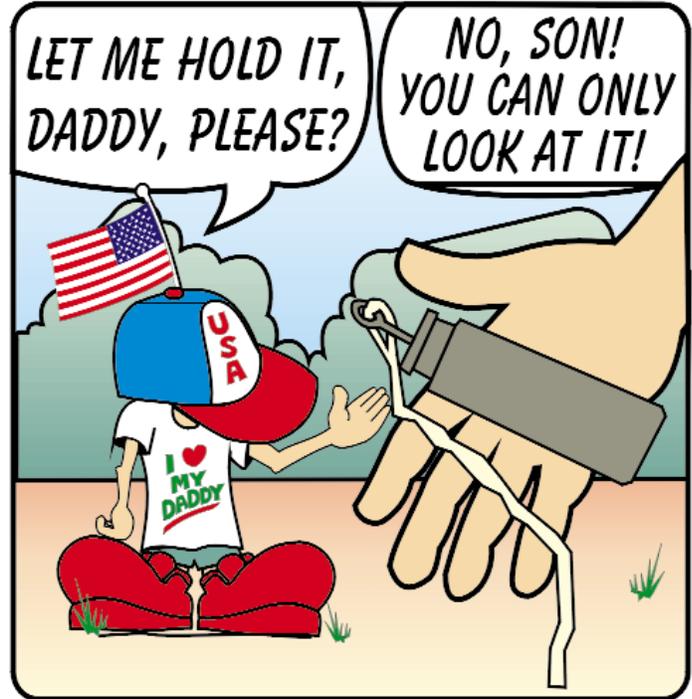
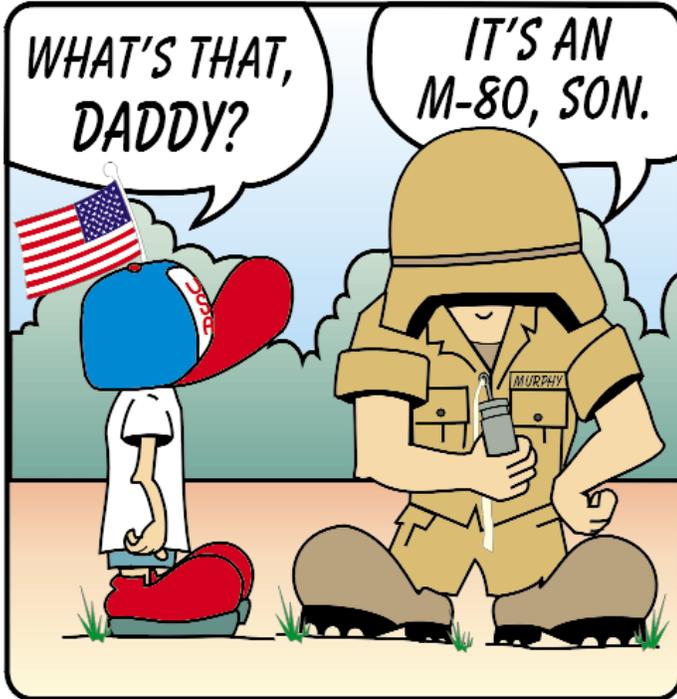
■ **Army level:** Actions are underway to issue a Safety-Of-Use Message regarding this subject. Applicable technical manuals will be updated to cite and warn against the possibility of asbestos hazards with regard to various vehicle components and cite proper use and disposal requirements. ♦

POC: Jennifer Houser, Industrial Hygienist, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD, DSN 584-2559 (410-436-2559)



Murphy's Flaws

Celebrate The Fourth of July Safely



DON'T LET KIDS PLAY WITH FIREWORKS WITHOUT STRICT ADULT SUPERVISION!

ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

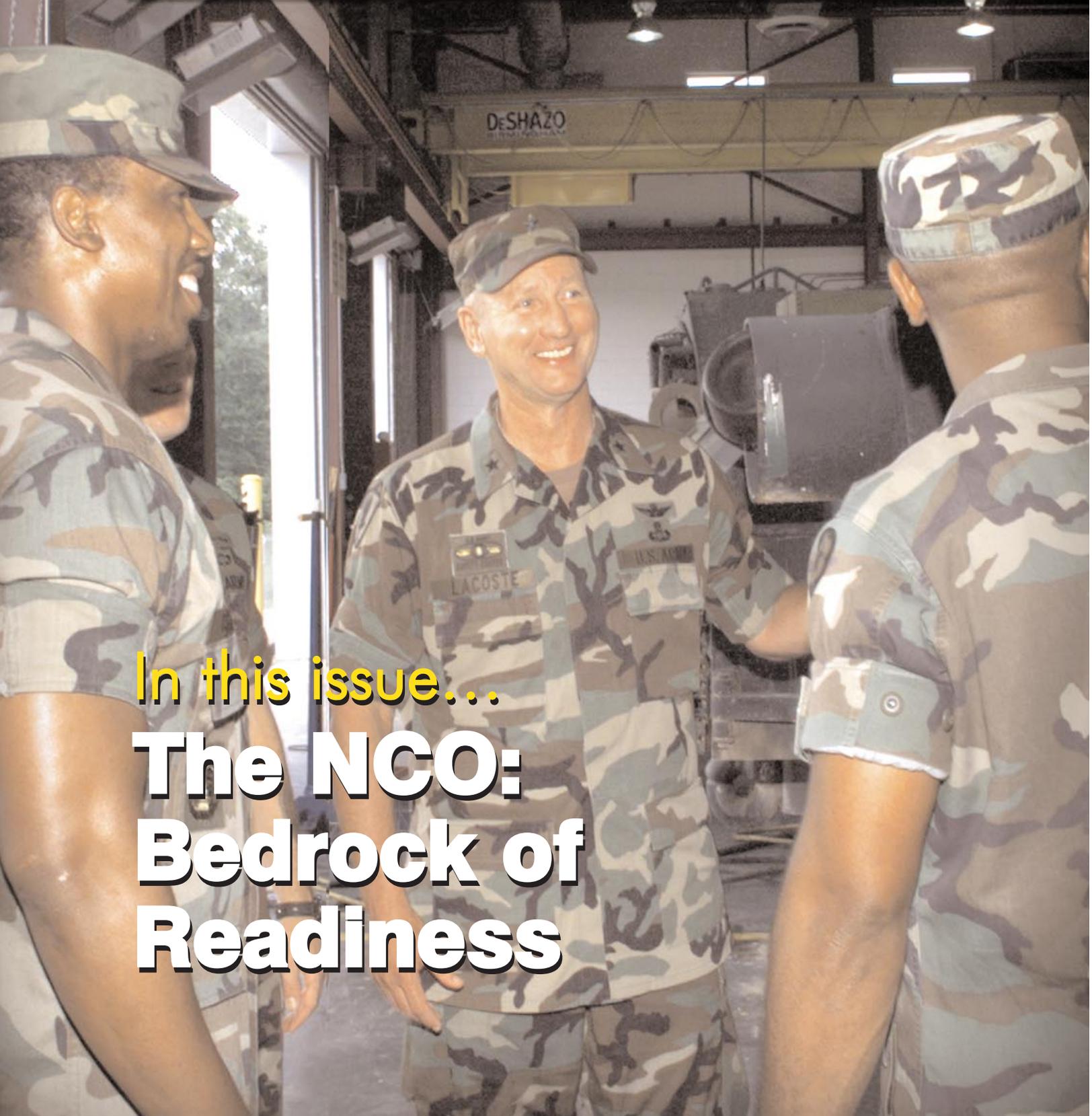
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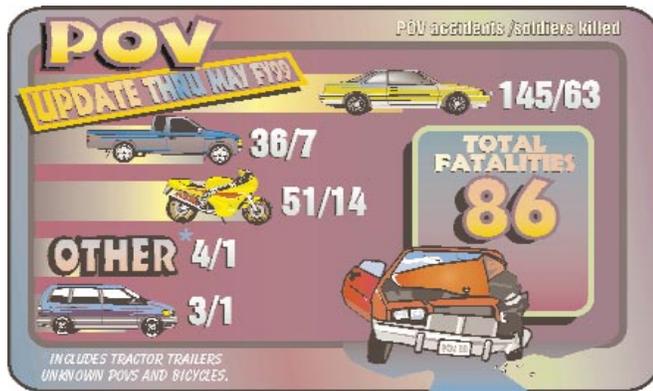
ARMY GROUND RISK-MANAGEMENT PUBLICATION
COUNTERMEASURE

The Official Safety Magazine for
 Army Ground Risk-Management

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

USASC CSM Speaks Out

NCO Leadership

You are the second most important person in the Army. Your soldiers are the first. Have you read the NCO creed lately? Do you understand it? It talks about professionalism, pride, competence, mission, welfare of soldiers, responsibility, respect, confidence, taking care of officers, loyalty, and personal courage. Today's NCOs do all of that and MORE—especially our senior NCOs. They have that tremendous common sense wisdom that comes from lots of experience. They do so much—they take care of our soldiers and families, they develop young soldiers to be NCOs, they train junior NCOs and make them tomorrow's 1SGs and CSMs, and they train, coach, and teach our junior officers.

Noncommissioned officers are the backbone of the Army. The NCO's responsibilities to soldiers are endless. Every minute of the day is crammed with something to do, check, inspect, train, plan, or enforce. But the biggest responsibility NCOs have is accomplishing the mission while keeping soldiers safe.

Safety and mission accomplishment are two integral parts of every soldier's life. Mission accomplishment requires that soldiers be properly trained, equipped with the right tools (which have been properly maintained), and informed, so they know what they are expected to do. Safety requires the same things. NCOs who maintain discipline and enforce standards save lives. Good, sound planning includes enforcing the standards—that means leading soldiers. NCOs—as a first-line supervisor, squad leader, platoon sergeant, section sergeant, or the NCOIC—must supervise soldiers and enforce the standard every time. If you don't, you have lowered the standard. Never forget your two most important duties: **Mission First, Safety Always!** ♦

—SGM Johnnie Forehand, U.S. Army Safety Center, DSN 558-3575 (334-255-3575)
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Director of Army Safety Shares Thoughts

As the new Director of Army Safety and Commander of the U.S. Army Safety Center, I will be on the front lines with you in the Army's continuous battle against accidental losses. I look forward to working with each of you as we proactively seek means of making the Army a safer place for our soldiers and civilians to live and work. The following are some areas I believe we should carefully address in the near term.

Summer's fast-paced, high-energy activities are already in full swing—both on and off duty. Operational activities have intensified, especially field training; basic training has expanded; Reserve components are now accomplishing their annual unit training; and units are capitalizing on improved training opportunities and flying weather.

Off-duty POV accidents remain the number one killer of soldiers. While POV accidents account for the majority of our losses, they are not the only killers. Every summer, we lose soldiers due to all types of hazards: plunging into cool waters to momentarily escape the heat of the summer sun, heat exertion during training activities, and even insect bites. For example, one Fort Campbell soldier recently contracted ehrlichiosis disease from an infected tick. We need to ensure our soldiers are familiar with these lesser-known hazards and appropriate controls.

The best weapons in this battle to avoid injuries and deaths are your NCOs and risk

management. Make sure your NCOs get the word out on common and not-so-common summer hazards, so that your soldiers can, in turn, make informed, intelligent risk decisions. We must instill in all a keen sense of awareness of the tragic consequences of failing to effectively manage risks associated with both their on-and off-duty activities.

As commanders, leaders, first-line supervisors, and NCOs, we each have a moral responsibility to devote time and attention to ensuring that this summer's activities are accident-free. Leadership, training, discipline, enforcing standards, and applying solid risk-management principles can help us accomplish this.

Stress to your soldiers the importance of avoiding complacency in dealing with summer's known hazards and being vigilant in identifying new hazards as missions and environmental conditions change. Your personal involvement in a summer safety campaign will make a difference: a single word of caution may save a life or prevent a serious injury.

I urge you to join us in waging an effective battle against these accidental losses that can seriously degrade our combat readiness. ♦

Leaders Make A Difference!

—BG Gene M. LaCoste, Director of Army Safety



Accident Review

Safety Cannot Be Ignored

Time and time again, we've heard the phrase, "Safety is no accident." This is a true statement. A person has to choose to be safe from the time he or she rises in the morning until they retire at night. This requires that we be aware of our situation at all times, especially when we operate Army motor vehicles (AMVs). The military has the most efficient equipment in the world, but also the most deadly to its operators when safety is ignored.

As soldiers, we each perform our slice of the Army mission day in and day out; therefore, we must not allow it to become routine. We must not allow the mission to become so familiar that we begin to ignore procedures and built-in safeguards intended to keep us safe. It is when we ignore proper procedures that disaster strikes suddenly and severely.

It is called complacency. Complacency is a feeling of quiet pleasure or security, often while unaware of potential danger. It can happen to anyone. Therefore, soldiers must make a conscience decision to perform every task with acute attention to detail – which means that we are aware of our environment with its probable hazards and that we take all precautions possible to reduce the risk. This is not just a good idea, it's our job.

The Accident

Recently, there was an accident involving a high-mobility multipurpose wheeled vehicle (HMMWV) and commercial semi-tractor trailer truck. The HMMWV was hit by the semi-tractor while attempting to cross a busy, four-lane highway. The accident took place just before dark and according to witnesses

on the scene, the weather was dry, cold, and slightly overcast. The soldier driving the HMMWV had just finished washing the vehicle. He drove up to the intersection, to the stop sign, and proceeded across the south-bound lanes to get to the median in order to make a left turn into the

Mission: Return to training area after washing vehicle

Hazards

- ❑ Heavy traffic on civilian roads
- ❑ Plastic windows on HMMWV may reduce visibility

Results

- ❑ 1 Potential Fatality
- ❑ 1 Destroyed M998

Controls

- ❑ Training to emphasize operations on civilian roads
- ❑ Unzip windows if visibility becomes impaired
- ❑ Wear helmet and seatbelts while in vehicle



northbound lanes. The HMMWV never made it to the median. Just as it entered the inside lane, it was struck on the driver side by the semi-tractor which was moving at approximately 50 mph.

The HMMWV traveled sideways across the median for 161 feet and came to rest on the northbound shoulder of the highway pointing north. The semi-tractor continued across the median striking a privately owned vehicle (POV) before coming to rest in the northbound lanes also.

Why?

The headlights of the on-coming traffic should have been easily seen by the driver of the HMMWV. Yet he continued across the roadway causing the collision with the semi. Why? We may never know. We do know that he was not wearing his seatbelt nor his Kevlar helmet. Why? I'll tell you why. It would have taken too much time to buckle the seatbelt and the Kevlar helmet was too much of an inconvenience, too cumbersome, too heavy. So not only were state, local, and military laws violated, but a soldier sustained life-threatening injuries. Injuries that may have been minimized by proper use of a seatbelt and a helmet.

The question must be asked: What is more important—saving a few seconds or saving a life? A little inconvenience or total disability? Yet many people choose the former by choosing not to wear a seatbelt or safety equipment.

What is the lesson learned? No one is invincible. No one is exempt. Safety is no accident; it must be integrated into every facet of our lives.

We must remain aware of potential danger around us at all times, especially when operating AMVs on major thoroughfares. The potential hazards should motivate us to do what it takes to be safe. So what will it take to cause you to think safety? Remember, think safety—good results. Ignore safety, well... you know. ♦

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Fitting Your Kevlar Helmet

Head injuries are the leading cause of death in ground vehicle accidents. They also lead the list of severe injuries that could have been prevented. One important preventive feature is to ensure your personnel armor system, ground troop (PASGT) helmet, a.k.a. the Kevlar, fits correctly. Correct sizing improves not only the fit, but the function of your helmet.

Determining the correct size helmet to issue is the responsibility of the Central Issue Facility (CIF) that services your unit or installation. The proper procedure for sizing the Kevlar includes obtaining three separate measurements of the head.

The first measures the circumference of the head using a tape measure placed just above the eyebrows and above both ears. Secondly, head length is measured using calipers. Lastly, the head width is measured by using calipers. The soldier is then issued a helmet based on the largest of the three measurements.

A properly fitted helmet will:

- Maintain at least ½-inch stand-off from your head in all directions. The helmet will be cooler and more comfortable to wear; more importantly, the protective capabilities are more effective.
- Be comfortable and remain stable on your head whether you are marching, running, or hitting the dirt.
- Be compatible with your weapons, equipment and clothing, even in the prone position.

The Kevlar is the best protective helmet in the world. However, if not properly sized, the helmet may not provide the protection that it was designed to provide.

Additional information can be obtained from the Natick Soldier Center web site: <http://www-sscom.army.mil> ♦

First NCO Attends Safety Intern Class

The 1st Infantry Division, USAREUR, recently selected for the first time, a safety NCO to attend the Army Safety Program Risk Management Course. The following article honors SSG Alvaro Vargas, who not only participated in the intern safety training, but he was also selected for the Safety Intern Class 1999 Leadership Award.

Staff Sergeant Alvaro Vargas was the first noncommissioned officer to attend the 17-week Phase I Intern Army Safety Training Program. It was SSG Vargas' dedication and commitment to the 1st Infantry Division (1st ID) Safety Program that led his commander, Major General David L. Grange, to select him for attendance to the safety training program at Fort Rucker, Alabama. The 1st ID is one example where the commander believes in and supports the safety program and rewards accomplishment. This is an excellent example where all levels of command are supporting a common goal—from the NCO to the commander.

SSG Vargas plans to use the training he received at the Army Safety Center to enhance his safety program at 1st ID. He indicated that his increased specialized safety knowledge will serve him well in his role as an advisor on risk management. "We need to push for more qualified and quality safety personnel to serve the commanders, whether they are enlisted, officers, or civilians. Standardized training programs and commitment to protecting the force are essential," Vargas said. He believes the NCO can serve a vital role in the Army Safety Program ensuring the protection of soldiers and Army equipment.

"Motivated NCOs in a supportive command environment can bring positive results to the Army," Vargas said. "I have benefited from my experience at the Army Safety Center."

However, the interns (our future safety specialists) have also benefited by integrating a soldier's view into the classroom. SSG Vargas shared his experiences and provided the safety interns examples of risk management as it is applied in a tactical environment.

SSG Vargas was also selected for this year's Safety Intern Class Leadership Award. The leadership award is in recognition for leadership excellence in each class. SSG Vargas provided direction for other students, boosted esprit de



corps, and enhanced group cohesion. His presence in the intern classes was a very positive one. In addition, SSG Vargas is also enrolled in the Texas A&M graduate degree program and plans to further his knowledge in safety technology.

One concept that SSG Vargas would like to see developed in the Army Safety Program is to implement a standardized or accredited ground safety program. He conducted research on the curriculum requirements and presented the results to the Army Safety Center. The Safety Center is currently utilizing the research for the development of a ground safety training program.

Our hats are off to SSG Vargas for his hard work and dedication to safety and also to MG Grange for supporting him and the Army Safety Program. We also encourage other NCOs to apply. HOOAH! ♦

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Safety Is NCO Business

As NCOs, our job is harder than most. We must see that our soldiers stay alive and uninjured while preparing for combat. We must train our new soldiers to follow correct procedures, retrain those who don't, and enforce the use of proper procedures in every task.

Every day in a garrison or field environment, we hone our soldiering skills to a fine point. We take inexperienced soldiers and transform them into highly-skilled crewmembers. As we train, we teach correct procedures and relentlessly enforce their use. We are constantly aware that such things as boredom, routine training, and laziness can lead soldiers to take shortcuts that could result in accidents.

Our business is to keep soldiers alive, intact, and able to fight. Only through positive action can we do this. Too many times, we let safety become a late Friday afternoon class that takes 10 minutes to present. Why? Because it's a requirement. We must look at reality. Accidents will continue as long as NCOs consider safety as one more required class to teach during mandatory training time. We need to take the time to convey to our soldiers realistic hazards that are potentially harmful or fatal.

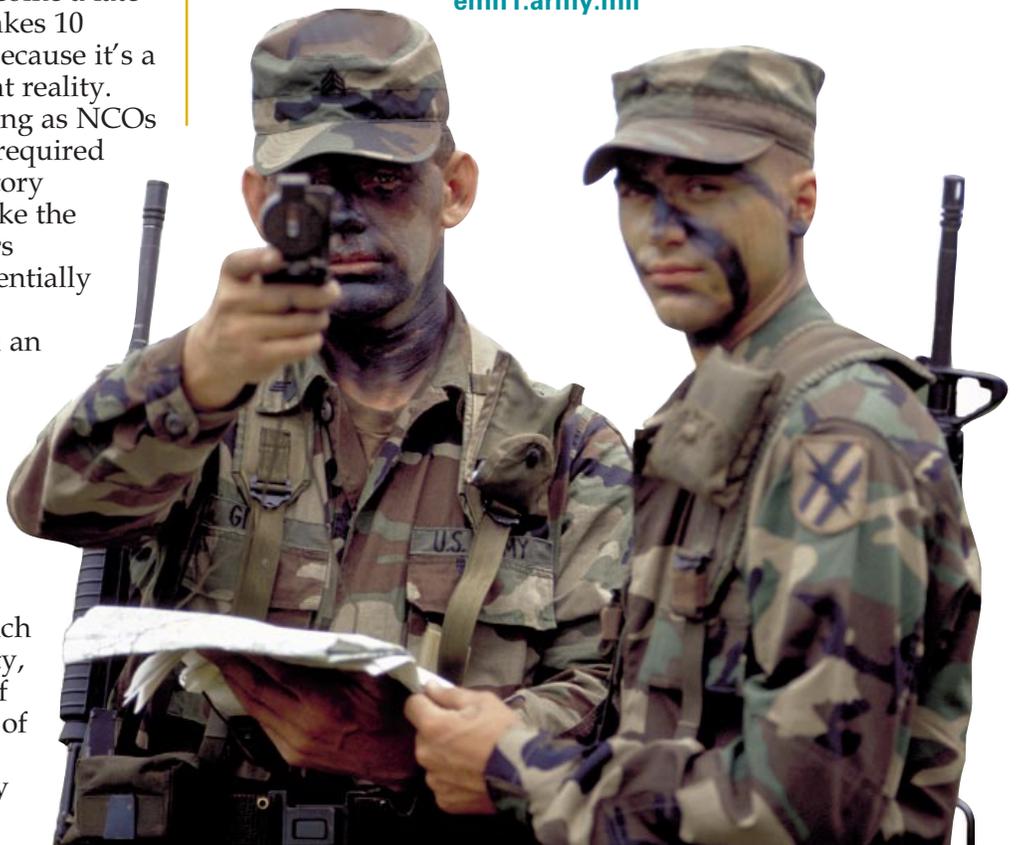
Everyone has experienced an unfortunate situation at one time or another that may have resulted in loss of life or serious injury of another soldier, friend, or relative. As unfortunate as they may be, use them as a foundation for future prevention measures and teach our most valuable commodity, the soldier, the importance of safe, precautionary methods of performing our duties.

NCOs must address safety daily in a no-compromise

manner, teach soldiers to perform to standard, and check and correct any deficiencies found. All NCOs must accept that it is our job to supervise soldiers to safely accomplish our mission. We have a responsibility to the stripes we wear. If a soldier sees an NCO who doesn't perform to standard, whose fault is it if that soldier has an accident? The NCO stands responsible.

Safety is not a careless turn of events. It is hard work, dedication, performance to standard, and a sincere belief that accidents don't just happen but are caused by things that are allowed to continue uncorrected. We NCOs must take charge, because safety is NCO business. ♦

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Fluid Replacement

The Nutrition Information Center at the New York Hospital-Cornell Medical Center and the International Bottled Water Association conducted a survey of 3,003 Americans last year which revealed that consumers are drinking nearly eight daily servings of hydrating beverages (water, milk, juice, decaffeinated soft drinks) per day.

One would think that this is pretty good news; however, according to this survey, Americans are also consuming approximately five servings of caffeine or alcohol-containing beverages per day as well. These beverages counter the benefits of the hydrating process and

actually cause us to lose or eliminate water.

The bottom line is that Americans, on the average, are getting only about one-third of the hydrating benefits actually needed to function optimally. One can appreciate these findings even more if you add jump boots, a battle dress uniform, rucksack, helmet, and a weapon and then place that person in an environment where heat is the major medical threat. Or you add three to five hours of mandatory physical fitness training per week at their home station and include various other physically demanding activities not typically performed by the general population. It doesn't sound too good now.

Yesterday morning as I was getting out of my car, I noticed that the person who had parked in the space next to me was fumbling with a large bag of what he told me was coffee and related supplies. He said it was his day to supply the coffee for his office and that he'd better not be late. I laughed and we joked a bit more about the importance of maintaining a proper, congenial office environment. "Save the hostilities and direct those toward the enemy," I said. We laughed a bit more and he hurried off to deliver the goods.

We, who wear the green suit, readily admit that coffee is the beverage of choice for the average "baby-boomer" soldier as the soft drink is probably the beverage of choice for our younger "Generation X" soldier. But do we realize that caffeine (either from coffee or cola) not only promotes dehydration, but it can affect one's blood pressure, circulation, digestion, kidneys, and most other body processes?

The survey mentioned above further revealed that two-thirds of the respondents said they were aware of the recommendation to consume eight 8-ounce glasses of water per day, but half of them admitted to only consuming around four. In fact, the average American consumes only 4.6 servings of water a day, with only 20 percent of all



Americans consuming the recommended eight 8-ounce glasses per day as directed by the medical community. An alarming 9 percent polled for this survey said that they drink no water at all. Forty-seven percent reported that they did not know that the human body loses as much water when asleep as when awake and 10 percent reported that they usually wait until they feel thirsty before they consume some type of liquid.

So why should we care about the rehydration (fluid replacement) habits of the average American citizen? One reason is that our military is merely a microcosm of the larger society we call the United States of America. And one of the behaviors that Army leaders first attempt to modify is the frequency young soldiers rehydrate themselves while performing physical activity. Nowadays you won't hear a drill sergeant say, "Down your canteen. Turn it upside down and let me see that it's empty!" We now know that it is possible to drink too much water. And

its effect can be just as detrimental as drinking too little water. Forced hydration, to that extreme, is a thing of the past. However, depending on the heat category and the workload, you will still see drill sergeants stop a group of young recruits and require them to drink 1/2 to 1 full quart of water per hour.

So how do we, as soldiers and leaders, promote safe, effective means of maintaining proper hydration at work and during recreation activities? The first step is to understand hydration or better yet, dehydration.

Dehydration - What is it?

Dehydration is an abnormal depletion of body fluid. Loss of water through such processes as sweating, breathing, or the elimination of body waste, must be replaced. Therefore, it is essential that particular attention be given to how we meet our daily water needs.

Dehydration never happens rapidly. It is a process that occurs over time and is the major contributor to heat illness.

Fluid Replacement Guidelines for Warm-Weather Training (Average Acclimated Soldier Wearing BDU, Hot-Weather)

		Easy Work		Moderate Work		Hard Work	
Heat Category	WBGT Index °F	Work/Rest*	Water Per Hour	Work/Rest*	Water Per Hour	Work/Rest*	Water Per Hour
1	78 - 81.9	No limit	½ qt	No limit	¾ qt	40/20 min	¾ qt
2 (Green)	82 - 84.9	No limit	½ qt	50/10 min	¾ qt	30/30 min	1 qt
3 (Yellow)	85 - 87.9	No limit	¾ qt	40/20 min	¾ qt	30/30 min	1 qt
4 (Red)	88 - 89.9	No limit	¾ qt	30/30 min	¾ qt	20/40 min	1 qt
5 (Black)	> 90	50/10 min	1 qt	20/40 min	1 qt	10/50 min	1 qt

*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 body armor adds 5°F to WBGT Index.

Note 4: MOPP gear adds 10°F to WBGT Index.

Examples:

Easy Work	Moderate Work	Hard Work
<ul style="list-style-type: none"> ● Walking hard surface at 2.5 mph, <30-pound load ● Weapon maintenance ● Manual of arms ● Marksmanship training ● Drill and ceremony 	<ul style="list-style-type: none"> ● Walking hard surface at 3.5 mph, <40-pound load ● Walking loose sand at 2.5 mph, no load ● Calisthenics ● Patrolling ● Individual movement techniques; i.e., low crawl, high crawl ● Defensive position construction ● Field assaults 	<ul style="list-style-type: none"> ● Walking hard surface at 3.5 mph, ≥40-pound load ● Walking loose sand at 2.5 mph with load

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.

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Acute or mild dehydration (equivalent to 2-3 percent of one's body weight) can reduce physical capacity and heat tolerance. As dehydration progresses, one's physical capacity further degrades with cognitive function and the body's ability to regulate heat (i.e., sweating) becomes seriously compromised. If this dehydration process continues and reaches 5-6 percent of body weight, total body functioning is affected.

Your Body Needs Water

A water loss of merely 1 percent of body weight (1.8 pounds for a 180-pound soldier) could raise the body's core temperature and increase the risk of heat exhaustion and stroke. As body temperature rises, muscles fatigue sooner and exercise performance declines by 20 to 50 percent. And remember this is only mild dehydration!

It is not uncommon for soldiers and leaders to voluntarily dehydrate themselves, often boasting that they have trained their bodies to go all day without water. This is simply not true. Other soldiers may, upon arriving in a hot environment, ration or limit their water intake thinking that this will hasten acclimatization. In fact, soldiers should consume large quantities of water, moderate their work/rest schedules, and consume adequate rations to replace depleted salt due to sweating. Water losses in hot environments can reach 15 liters per day per soldier!

Other Ways to Meet Your Daily Water Needs

- Don't wait until you are thirsty to consume water. In hot environments, thirst is not stimulated until the body has lost two or more cups of total body water. Therefore, if a soldier is only drinking water when he feels thirsty, he is operating at close to a 2 percent dehydrated state at all times.
- Drink plenty of water throughout the day, whether at work or play. Keeping a conveniently placed water bottle on one's desk, on the sideline, or in the gym bag will encourage water consumption.
- Drink decaffeinated beverages, especially in hot environments. Caffeine is a diuretic and causes more frequent

urination. Avoid or limit alcoholic beverages as well.

- Don't underestimate the amount of water lost through exercise or strenuous activities. A good rule of thumb is to drink 16 ounces of water for every pound of body weight you lose through those activities. Remember that you must also consume water during these activities as well.
- Start and end the day with a serving of water. The body loses water during sleep. So before heading off to morning PT, it's a great idea to consume at least 8 ounces of water. Drink another seven servings of water throughout the day. Remember that your requirements for water will increase with your activity level.
- Soldiers with fever due to illness or immunization may be more susceptible to heat stress. Ensure that medical supervision is provided and that adequate water consumption is afforded.
- Consume cool water instead of ice-cold or warm fluids/water. Cool water is absorbed much more quickly than ice-cold water and it also has more of a cooling effect on the body than warm to hot liquids (i.e., coffee, tea).

Bottom Line

Rehydration is the key to preventing heat-related illness or injuries. The body's thermoregulation system operates in a very narrow range of temperatures. Mild dehydration can raise the core temperature enough to affect the body's ability to dissipate heat. Simply replacing lost fluids in a manner that is consistent with workload and existing heat categories can minimize or eliminate the effects of this health threat.

Today's soldiers are constantly making beverage choices based on habit and/or tradition. Choosing the correct beverage is just as important as the frequency of consumption. The next time you reach for your second cup of morning coffee, think about its effects on your body. Then, instead of pouring a cup of Joe, pour a cup of water. You'll thank me. ♦

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From The Troops

The Kevlar Helmet: Wear It and Live!

Ever wonder about the need for wearing a Kevlar helmet in the field? After all, what can happen if it's not worn in a peace-time training environment? Do you think a tree might fall on you? This is exactly what happened during a field training exercise.

A One Station Unit Training (OSUT) company moved into a bivouac site to establish fighting positions and erect two-man tents.

Prior to the start of the field exercise, unit cadre had conducted a thorough safety briefing of known hazards, plus monitored weather broadcasts for updates on local conditions.

Two soldiers were tasked to erect an individual tent using their shelter halves. The

weather was calm. Both soldiers were facing away from a large pine tree, when suddenly the wind gusted to over 13 knots. Without warning, an upper section of a 14-inch diameter pine tree snapped and fell onto the soldiers. A drill sergeant interviewed later said he heard the tree snap, but there was no time to take evasive action.

One soldier was temporarily dazed after being struck by the tree's branches but otherwise was not hurt. The other soldier sustained potential life-threatening injuries including a fractured skull, fractures to both shins, broken left ankle, lacerated liver, and fractures to

the upper vertebrae and neck. Cardiopulmonary resuscitation (CPR) was performed and the soldiers were evacuated for treatment.

Investigation at the accident site showed the fallen tree did not have tell-tale indicators that it was rotten; e.g., brown leaves and stripped bark. The tree's outer wood was healthy-looking and solid. However, the inner core area was soft and weakened by insect infestation.

Cadre members had performed a safety briefing for the soldiers covering basic safety in a field environment, but the thought of trees causing personal injury during changing weather conditions was

not considered. They also agreed that without the Kevlar helmet the soldier was wearing, the severe blow to the head would surely have proven fatal.

Training area risk assessment and accident risk controls should address



Head protection is invaluable, especially during training. You can never tell what hazards you will face. Always be prepared for the worst. WEAR IT AND LIVE!

environmental hazards appropriate to the local area—like tree and limb fall hazards. Forestry or other staff should routinely inspect bivouac, tactical or high-use training sites to identify suspect trees and take necessary action to prevent tree falls during windy conditions.

This incident confirms the importance of wearing the Kevlar helmet at all times in a field environment. And the good news is the soldier is likely to recover without a permanent disability. ♦

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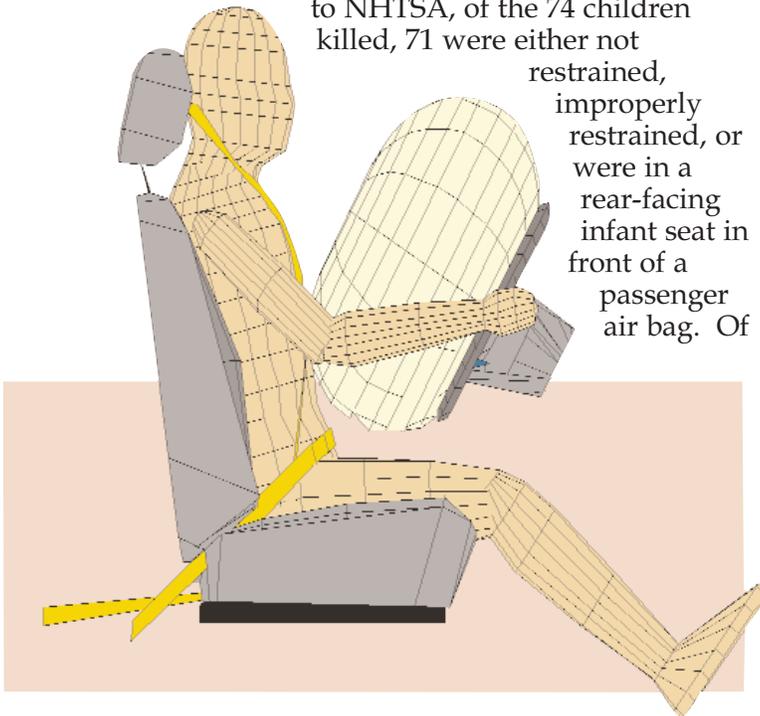
The ABCs of Air Bags

While most soldiers already know that by regulation they are required to wear seatbelts whenever they are in a moving vehicle, on post or off. But do you know anything about your car's air bag?

Since 1987, there have been more than 3.3 million air bag deployments. According to the National Highway Traffic Safety Administration (NHTSA), air bags have saved the lives of more than 4,100 people who otherwise may have died in vehicle crashes. Air bags save lives, but they work best when drivers and passengers properly secure themselves by lap and shoulder belts, and move their seats as far back as possible.

Since 1990, 58 adults and 74 children have reportedly died in crashes as a result of air bag injuries. According to NHTSA, of the 74 children killed, 71 were either not

restrained, improperly restrained, or were in a rear-facing infant seat in front of a passenger air bag. Of



the adults who died, most were not buckled up and many were sitting too close to the air bag when it deployed.

Soldiers, DOD civilians, and their families can benefit from the use of air bags and virtually eliminate the risks by following the ABCs of air bag safety:

Always slide the seat back as far as possible and sit back. Your seat should be in the upright position. Many people believe the closer you are to the steering wheel, the better control you have over the vehicle. The steering wheel itself is the primary cause of injury in a crash involving drivers sitting too close to the wheel. It is important to sit back as far as possible from the steering wheel whether or not the vehicle is equipped with air bags. That is why short-stature individuals are among the more than 4,100 people whose lives have been saved by air bags.

Buckle everyone in the vehicle. It is the driver's responsibility to ensure everyone is buckled up. NHTSA estimates that the combination of an air bag plus a lap/shoulder belt reduces the risk of serious head injury by 75 percent, compared with a 38 percent reduction for belts alone.

Children 12 and under should ride properly restrained in the back seat.

Bottom line: The air bag provides the protection it was designed for, but only when used with seatbelts. Additional information can be obtained from the NHTSA web site: <http://www.nhtsa.dot.gov/airbags>. ♦

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The one fact that is common to all who died is NOT their height, weight, sex, or age. Rather, it is the fact that they were too close to the air bag when it started to deploy. For some, this occurred because they were sitting too close to the air bag. More often, this occurred because they were not restrained by seatbelts or child safety seats and were thrown forward during pre-crash braking.

ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

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AUGUST 1999

POV
FATALITIES
THRU JUNE FY 98
97
THRU JUNE FY 98
86



**Stand up,
hook up,
shuffle to
the door,
jump right out
and count to four.**

ARMY GROUND RISK-MANAGEMENT PUBLICATION
COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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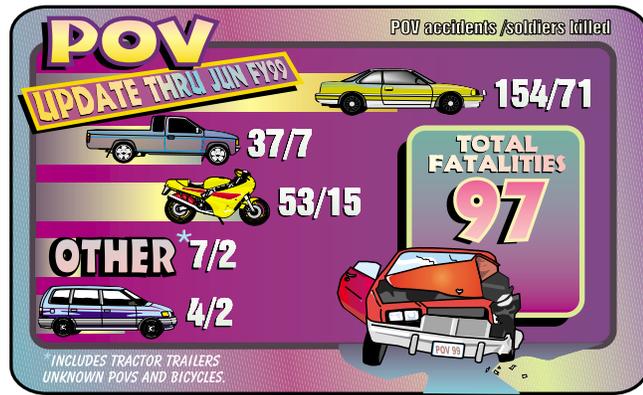
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Gene M. LaCoste
 Brigadier General, U.S. Army
 Commanding Officer



Tactical parachuting is inherently dangerous and should be given the attention and respect it deserves.

In this issue, Countermeasure addresses a wide range of subjects pertaining to airborne operations.

Tactical Parachuting— The Rush

If you ask any paratrooper why he participates in airborne operations, he will more than likely say that it is pride in belonging to an elite team of professionals who perform an important mission for our Army. Some will admit that it is the exhilarating rush they receive while participating in this high-risk activity. There's something about the adrenaline rush, the natural high that comes with the shallow, rapid breathing and racing pulse brought on by the thrill and danger of doing something that many people consider...well, CRAZY. It's true. That is how "normal" people look at paratroopers who intentionally "jump out of perfectly good airplanes." Jumping out of a perfectly good airplane is a precision activity in which a slight deviation from the norm or a split-second hesitation can have disastrous consequences.

Out of the hundreds of thousands of jumps made since FY 96, the airborne community has experienced 678 incidents, 13 of those were fatal. Three were military free-fall and ten were static line.

So far in FY 99 (as of 10 Jun 99), there have been 86 parachuting incidents, 2 of those fatal. Accidents resulting from troopers failing to perform proper parachute landing falls (PLFs) continue to be the prevalent cause factor. Other common causation factors are improper exits, landings on ALICE pack, excessive winds, drop zone hazards, lost/stolen air, and static-line injuries. Most of the injuries sustained were lower leg/knee damage, ankle/foot fractures, head/neck and back injuries.

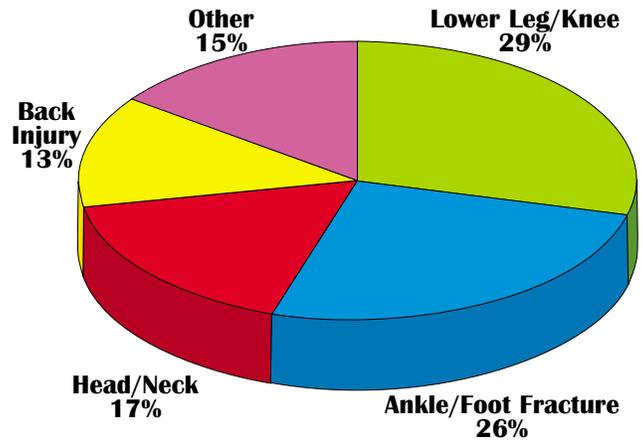
Although paratroopers get an adrenaline fix by jumping through the clouds and falling at an excessive rate of speed, we also perform a valuable mission for our Army – we respond to the world's emergencies quickly with overwhelming combat power and fight the minute we get on the ground. And we do it safely. We do everything we can to manage the risks associated with tactical parachuting.

I am proud to be a member of this elite group of professionals. It is also an exhilarating rush and worth all the bumps and bruises received while performing the Army mission.

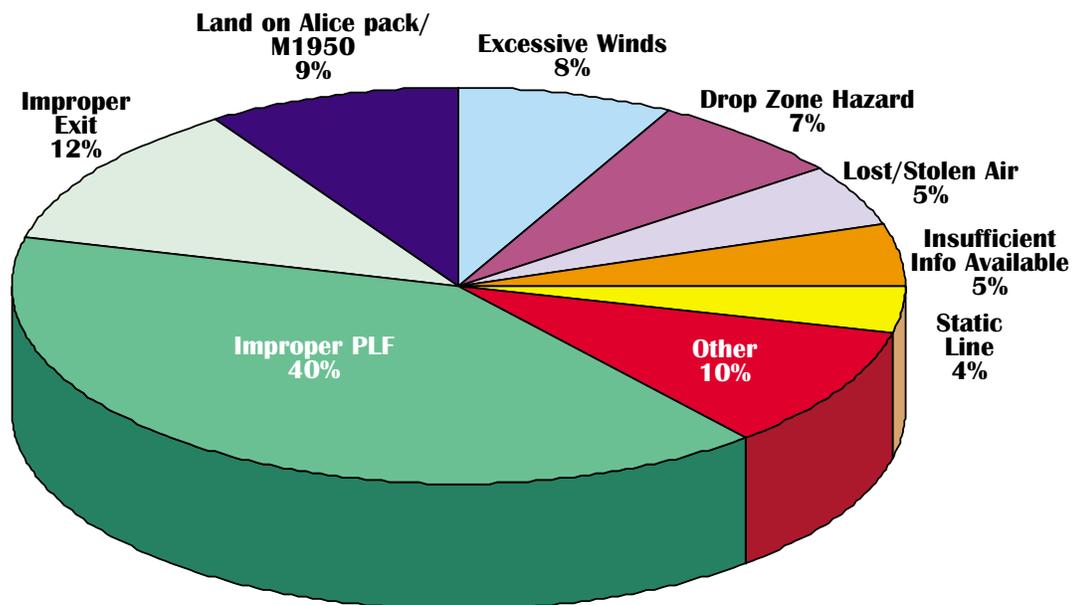
AIRBORNE!

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FY99 Tactical Parachuting Injuries



FY99 Tactical Parachuting Incident Cause Factors



Accident Review

What a Helluva Way To Die!

This was a routine proficiency jump at night with combat equipment. Upon reaching the drop zone, the jumpmaster gave the command, "GO!" You exit the aircraft. You have a good, tight body position...good canopy. You look around...no trouble. You look below...looks fine. But as the earth below quickly appears larger and larger, you realize the drop zone has an unfamiliar glare to it. Wait a minute! That's not the drop zone, that's water!

BACKGROUND

A long-range surveillance detachment (LRSD) was conducting a night airborne operation with the primary objective focusing on certifying drop zone support team leaders (DZSTLs) and jumpmasters.

The day prior to this operation, a jumpmaster refresher class was conducted. Additional classes were also given to include setting up a drop zone for an airborne operation and the duties and responsibilities of the drop zone safety officer (DZSO).

The next afternoon, the LRSD commander gave the marshaling area control officer (MACO) brief to the DZSO and all paratroopers scheduled to participate in the airborne operation. The primary hazards covered during the brief were three access gates adjacent to the DZ, steep creek banks on the northern end of the DZ, and power lines. No mention was made of a lake located 300 meters from the DZ nor was it depicted on the MACO board.

The DZSO was responsible for setting up the DZ. As part of their certification process, two NCOs were assigned as assistant DZSOs with the responsibilities to observe and assist the DZSO in the preparation of the DZ.

The DZSTL launched a 10-gram pilot balloon to determine mean effective winds (MEW). The DZSO determined the winds to be 12 knots.

Approximately two hours later, the DZSTL launched a 30-gram pilot balloon. The DZSO recalled the MEW to be again 12 knots. He determined the jumpers drift would be 450 meters based on a 10-knot wind factor. The code letter was emplaced and the release point (RP) established using 10 knots as the wind factor.

At approximately 2000, the first two jumpers exited over the DZ. As part of the jumpmaster certification process, the LRSD commander performed the jumpmaster duties with an NCO observing who was being certified. The DZSTL observed both parachutes land approximately 800 meters southeast of the desired impact point (IP).

Next, the second pass of three jumpers exited. The NCO being certified was now the

Mission: Conduct Night Airborne Operation

Winds - 144 deg. @ 22 knots avg.

RP based on actual winds

LAKE

Last Pass Jumpers

RP

IP

Second Pass Jumpers

First Pass Jumpers

AC landing 300m

Hazards

- Failure to properly risk manage operation
- Failure to ensure training area is authorized
- Inadequately trained personnel
- Failure to provide mandatory safety equipment
- Failure to confirm training requirements

Results

- 1 Fatality
- 2 Minor injuries

Controls

- Ensure adequate risk management training
- Properly assess and mitigate all risks
- Follow all procedures in ARs and TMs
- Select only trained personnel to conduct missions

jumpmaster and the LRSD commander observed and certified him to perform jumpmaster duties on his own for the next pass. Prior to exiting, the DZSTL made a correction based on the landings of the first pass. He had the aircraft on the same heading of 333 degrees and offset 50-meters to the west of the original RP. The command, "execute, execute, execute" was given, and all three jumpers exited. The DZSO determined that all three paratroopers landed off the DZ to the southeast and approximately 600 meters from the desired IP.

ACCIDENT

Subsequently, the next pass of paratroopers with three jumpers was on approach to the RP. The newly certified NCO was the jumpmaster on board. The DZSO had added an additional 50-meter offset and now had the aircraft on an approximate heading of 333 degrees and approximately 100 meters to the west of the original RP. He determined the aircraft to be parallel to the RP and 100 meters to the west. The command, "execute, execute, execute" was given, and the three jumpers exited the aircraft.

All jumpers had functional parachutes and all were observed drifting to the southeast. The DZSO relayed to the aircraft that all jumpers were clear and safely on the ground. However, the first jumper landed in trees beside the lake. He was approximately 300 meters west of the DZ and 600 meters west of the RP. The third jumper landed at the top of a ridge separating the DZ from the lake.

The accident victim was the second jumper. He landed in the lake approximately 450 meters west of the DZ and 750 meters west of the RP. The first jumper heard the victim yelling for help and splashing in the water. He immediately dove into the water and began swimming to where he last heard the cries for help.

The aircraft returned and initiated a search using their landing lights. With no rescue equipment available, the recovery of the victim took about an hour.

The victim was air evacuated to a nearby hospital and pronounced dead; cause of death was determined to be drowning.

CIRCUMSTANCES

The circumstances that led up to this accident were the result of individual, leadership, and training failures. These failures were the result of complacency, overconfidence, and just plain failure to supervise. For example:

■ **Individual failure.** To begin with, the LRSD commander failed to adequately plan the

airborne operation by failing to ensure the DZ was authorized for parachute operations. The drop zone survey that he used was outdated and only a draft. It did not depict the lake nor was it validated by approving authority signatures. The last authorized survey for this DZ was approved in 1993. At that time, the survey depicted the lake where the accident occurred, but was authorized only for daytime personnel drops. The drop zone survey became obsolete approximately one year before the drops were conducted.

Also, the LRSD commander did not identify obvious hazards associated with the airborne operation. He noted on the risk management worksheet that the probability for injury due to a water landing was improbable (low risk) due to no bodies of water located within 1 kilometer of the drop zone. However, this lake was located 300 meters from the edge of the drop zone, and the accident victim landed in water 400 meters from the edge of the drop zone.

In addition, it was noted on the risk assessment that the probability for injury due to a tree landing was remote (marginal risk). However, the drop zone was adjacent to a ridgeline consisting of trees higher than 35 feet, which should have also indicated a "high-risk" assessment.

■ **Leadership failure.** The LRSD commander failed to select qualified personnel to conduct jumpmaster duties as part of this airborne operation. He selected an NCO to conduct jumpmaster duties, who was a senior-rated parachutist, but he had only been with this unit for a few weeks and had not been on jump status for over three years. He attended jumpmaster refresher the day before the jump; however, he didn't attend basic airborne refresher or conduct a refresher jump before assuming jumpmaster duties.

The LRSD commander failed to coordinate for maintaining currency of his jumpmaster-qualified personnel. There were no personnel within the LRSD that met the basic requirements in FM 57-220 for jumpmaster currency.

According to FM 57-220, "To be current as a jumpmaster, the jumpmaster must have either performed primary or assistant jumpmaster duties within the preceding 180 days; or if a senior or master-rated parachutist, performed duty as a safety on U.S. Air Force aircraft within the preceding 180 days; or completed a jumpmaster refresher course in the preceding 180 days. (Jumpmaster or safety duties performed on Army rotary-wing aircraft will not apply for jumpmaster currency)."

The LRSD commander failed to brief and

provide accurate information regarding the presence of the lake during the MACO briefing. He acknowledged that he knew of the position of the lake in respect to the drop zone, but felt it was not an issue. His MACO board, which he used to brief his personnel, did not address the lake, trees or power lines, all of which were prominent obstacles to be avoided. Thus, none of the jumpers, or personnel involved in the airborne operation, were aware of the position of the lake in respect to the drop zone.

The brigade commander, who was present on the DZ, was the final approving authority for all LRSD operations and was the direct supervisor of the brigade executive officer and staff managing this brigade training.

■ **Training failure.** The following failures were the result of inadequate training provided by the LRSD commander and inadequate experience of the DZSO in the proper actions, controls, and methods for conducting a successful parachute operation.

The DZSO miscalculated the position of the RP for the jumpers to exit the aircraft. It was determined that the jumpers were released approximately 1000 meters west of the drop zone. This was determined by two accounts.

First, a pilot on board the aircraft stated they were approximately 1000 meters west when the jumpers exited. More notable, however, was that the crew chief was videotaping the actions on board the aircraft. The video shows all three jumpers exiting the aircraft, and it distinctly shows the water beneath them when they exited.

The DZSO also failed to have the required safety equipment for this particular airborne operation on the drop zone. According to FM 57-220 and the LRSD ASOP, the DZSO should have had, at a minimum, tree-climbing equipment to retrieve jumpers from the trees and all necessary water-recovery equipment to include a boat with engine running, life preservers for the jumpers, and one 120-foot long rope. Also, parachutist type B7 life preservers should have been issued to the jumpers prior to the airborne operation. It was concluded that if the victim had been issued a B7 life preserver, he most likely would have survived the water landing. Because these safety measures were not in place, no water recovery was possible.

In addition, the DZSO failed to use a map to properly set up and assess requirements. In fact, not a single member of the DZST had a map of the drop zone. It is unclear how they confirmed they were on the correct drop zone,

established timing points or release points, and prepared the drop zone for operations without a map. It was concluded that the DZSO never located the drop zone on a map. If he had, it was determined that he would have realized the location of the lake and taken the appropriate precautions. Noteworthy is the fact that of all the LRSD personnel, not one of them ever plotted the drop zone on a map to review, plan, or verify features.

You may now ask yourself how this could have possibly happened? Leadership failure, from the NCO level all the way up through the command level, is how it happened. It is incumbent on leaders to ensure that their soldiers are properly prepared and adequately equipped for every operation. It is also incumbent on them to ensure that their chain of command is prepared and possesses all the appropriate information to make sound leadership decisions. Notwithstanding, the chain of command is given complete responsibility for soldiers' welfare in their command and should never compromise safety for the sake of any mission. It's just a shame that it takes a tragedy to open our eyes. ♦

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Free-Fall Ends In Tragedy

All parachute jumps enjoy one common factor. They all end when parachutists make contact with the ground. The law of gravity is going to see to that. The things you do from the time you exit any aircraft until you make contact with the ground will make the difference between a safe landing and a tragedy. While all airborne operations are inherently dangerous, it is safer than driving your car to work. Of course, parachuting accidents do happen occasionally. For example:

A jumper was performing a high-altitude low-opening (HALO) night jump from 12,500 feet above ground level (AGL) with nine other jumpers. The exit was reported as smooth and uneventful. All of the jumpers were instructed to wave off at 5,000 feet AGL. This allows for a safe separation between jumpers before they

pull their main parachute ripcord handle between 3,500–4,500 feet AGL.

The accident victim pulled his main parachute ripcord handle within the prescribed altitude and experienced a pilot chute hesitation. This malfunction is also referred to as a “burble,” and is considered a minor deployment problem. It usually occurs when a parachutist is in a nearly flat and stable body position. The airflow around him may be so uniform that it creates a partial vacuum located immediately above the jumper’s back. This vacuum can prevent the pilot chute from completely inflating, thereby preventing the main parachute from lifting out of the pack tray or container.

The emergency procedures for this type of malfunction are clearly defined in FM 31-19, *Military Free-Fall Parachuting*, and were rehearsed by all jumpers during pre-jump training. Generally, just turning to look over the right shoulder will change the airflow and remedy the hesitation. It is unknown whether this jumper decided he could not clear this malfunction or if he did it incorrectly. In either event, he attempted to perform a cutaway procedure.

As the name implies, a cutaway is simply cutting or getting rid of the main parachute prior to activating the reserve parachute. The procedures for this emergency action are formalized in TC 31-19, *Special Forces Military Free-Fall Parachuting*, and included in performance-oriented training prior to each jump. The cutaway handle is located inboard on the right side of the jumper’s main lift web and is identified or described as a red pillow.

The cutaway procedures are as follows:

1. Throw away the main ripcord.
2. **Look** and **grab** the cutaway handle.
3. **Look** and **grab** the reserve ripcord (located on left side of main lift web).
4. **Pull** the cutaway handle.
5. **Pull** the reserve ripcord.
6. Throw away the cutaway handle and the reserve ripcord handle.
7. Arch and ensure the reserve pilot chute has deployed.
8. Perform the post-opening procedures.

Reminder: The abbreviated form is **“LOOK GRAB, LOOK GRAB, PULL, PULL.”**

It is believed that this jumper activated his reserve parachute (step 5) before completing the cutaway procedure for his main parachute (step 4).

The reserve pilot parachute was launched and immediately became entangled with the main pilot-chute bridle line. His main canopy release handle (red cushioned handle) had not been pulled first; therefore, he activated it out of sequence. The main canopy immediately released, but stayed entangled with the reserve bridle. Although the reserve bridle line came to its full length, it could not deploy the reserve because the bridle line and suspension lines had created a bag lock (parachute unable to deploy from container) condition on the reserve.

Mission: Conduct night free-fall parachute jump.

Hazards

- ☐ Parachute malfunction
- ☐ Unstable body position
- ☐ Altitude awareness
- ☐ Improperly packed parachute

Results

- ☐ 1 Fatality

Controls

- ☐ Execution of correct emergency procedures
- ☐ Maintain stable body position
- ☐ Maintain altimeter vigilance
- ☐ Pack parachutes IAW proper Technical Manual

This accident, although rare, had characteristics indicative of an individual failure. This jumper failed to execute the correct emergency procedures to clear a pilot chute hesitation. He also performed an out-of-sequence cutaway procedure. Since this jumper was fatally injured, the specific cause for his actions will never be determined.

We investigate accidents for the purpose of preventing future accidents. Leaders and soldiers should focus on the errors being made, why they were made, and actions we can implement to reduce or prevent a recurrence of the same mistake. ♦

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Tree Landing

While conducting an administrative non-tactical daylight parachute jump from a UH-60 Blackhawk helicopter, a jumper descended into a 100-foot tree, becoming hung up about 68 feet above ground level (AGL). Consequently, he received fatal injuries when he fell from that elevation.

ACCIDENT

The jumpers drew and donned their parachutes after pre-jump training. They were inspected and

then boarded the aircraft. On command, the jumpers began exiting the aircraft. The accident victim was the sixth jumper to exit the aircraft. He made an appropriate exit and obtained a full, controllable canopy. The jumper traveled the complete width of the drop zone (DZ) and subsequently landed in a wooded area east of the DZ.

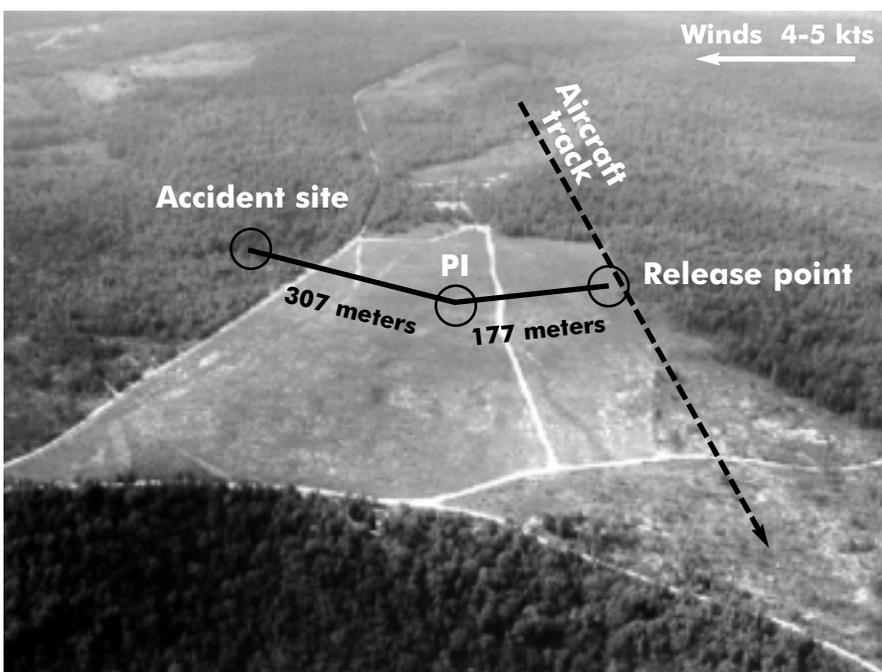
The jumper's descent into the trees was observed, and the NCOIC proceeded to the site with a 4-man recovery team. The jumper was found straddling a limb 68 feet AGL with his parachute above him in the tree. He immediately told the jumper to go for the trunk of the tree without first having him follow the proper procedure for recovery from a tree landing; i.e., pulling on the risers to determine the extent of support. Subsequently, as the jumper attempted to go for the base of the tree, the limb broke that was supporting him and he fell. He landed on his rear right shoulder and subsequently died of internal injuries.

■ **Individual failure.** The jumper did not apply appropriate controls to compensate for the lateral drift across the DZ to ensure descent into the DZ or descent away from the trees. He had, prior to this accident, successfully negotiated this type of parachute while crossing the DZ from west to east. On this day, however, he entered the trees on the east side of the DZ and became hung in a single tree.

■ **Leadership failure.** The NCOIC failed to stay attentive and properly assess the situation to determine all courses of action for recovery. He did not take into consideration that on the DZ was a 2½ ton truck with recovery equipment.

The actions by the NCOIC were a result of overconfidence in the jumper's ability and haste of the situation. The NCOIC had seen many jumpers enter the trees on this particular DZ prior to this accident. He also described how he had climbed trees before to recover jumpers on another DZ similar to this one. This haste perpetuated his reliance on the ability of the jumper to recover himself from the tree. ♦

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Guidelines For Safe Jumps

While there are relatively few parachute accidents, the ones that do happen generally are fatal. FM 57-220, *Basic Parachuting Techniques and Training*, provides further guidance for safe parachute operations. In addition, commanders and other leaders can use the following checklist to manage the risks inherent in parachute operations.

- Have conditions on the drop zone (DZ) been reviewed?
- Have actions been rehearsed that are to be conducted on the DZ?
- Are obstacles on and around the DZ marked?
- Have parachute landing falls been reviewed?
- Have emergency landing procedures been reviewed?
- Are corrective lenses worn by personnel who require them?
- Are loads limited to jumper's capability?
(Excess weight will increase the probability of a weak exit.)
- Are soldiers trained on 1-second interval and correct exit procedures?
- Have towed-parachutist procedures, equipment tiedowns, and accidental reserve activations been emphasized?
- Have reserve parachute activation procedures been reviewed for the new MIRPS?
- For night jumps, have all jumpers gone through the five points of performance? (Place special emphasis on getting into the fifth point ASAP; it is sometimes difficult to determine altitude at night.)
- Are only red lights used for 30 minutes before and during night jumps?
(Use of white lights may degrade jumpers' night vision.)
- Are night halo jumps rehearsed during daylight when the situation permits?
- Is an experienced buddy assigned to assist inexperienced jumpers?
- Do jumpmasters know and identify the correct release point?
- Are door bundles used for extra equipment and ammunition?
- Has crossloading plan been reviewed?
- Have aircraft crash drills been conducted?
- Has drop zone been verified as current and authorized?
- Are all jumpmasters current and qualified?

What Have You Done For Me Lately?

The purpose of a parachute drop is to deliver combat troops, equipment, and supplies to a designated ground area. To be effective, personnel must be delivered uninjured and capable of performing their mission. The U.S. Army Soldier Systems Center (Natick) has taken a monumental step toward perfecting airdrop technology. The following programs demonstrate the research and development efforts underway to allow our soldiers the benefits of modern technology. This results in enhanced mission performance, a dramatic increase in the soldier's warfighting capabilities, and safety on the battlefield.

ADVANCED TACTICAL PARACHUTING SYSTEM (ATPS)

The ATPS program is being developed as a result of an XVIII Airborne Corps top priority airdrop need and user requirement to reduce parachute injuries. The ATPS includes a main parachute, reserve parachute, and harness to replace the venerable T-10 parachute system. ATPS will provide the airborne soldier with unparalleled safety and enhance combat performance of the "First to Fight."

The ATPS will serve the same combat environment as the T-10: 500 feet above ground level (AGL) minimum planned altitude deployed from an aircraft traveling at speeds of 130-150 knots. ATPS will provide marked improvements in all areas. Rate of descent will be reduced by 25 percent from 21ft/sec to 16ft/sec. This reduction in the rate of descent will result in a 40 percent reduction in impact energy and a significant reduction in landing injuries. The ATPS will also incorporate an advanced reserve parachute and an advanced harness. The reserve parachute will provide a dramatic decrease in rate of descent over the T-10 reserve. The ATPS harness system will include shoulder-mounted main and reserve parachute riser attachments, added comfort pads, and an integral equipment release, improving all aspects of harness performance.

EXTRACTION PARACHUTE JETTISON SYSTEM (EPJS)

A malfunction during an attempted airdrop delivery of heavy equipment to the battlefield risks the safety of the entire crew and the aircraft itself. The capability of jettisoning extraction parachutes when they are outside of the aircraft before the load has been extracted is essential. Currently, if a malfunction occurs, the loadmaster must get behind the load and cut away the extraction parachutes by hand. This is very

dangerous because the load could break away while the loadmaster is cutting the lines. The EPJS concept has been developed to jettison malfunctioning parachutes quickly and safely.

A nondevelopmental item (NDI) candidate modeled after the EPJS system used by the French military currently is in testing.

DUAL ROW AIRDROP SYSTEM (DRAS)

The DRAS reduces the quantity of C-17s necessary to support the Strategic Brigade Airdrop (SBA) mission and reduces the tactical insertion time. The DRAS maximizes the cargo potential for airdrop of the C-17 by permitting airdrop use of the aircraft's dual logistics rail system (side by side) versus the single row airdrop system currently in use. The system reduces drop zone dispersion, results in faster delivery of troops and equipment, and thereby reduces the threat exposure of both aircraft and airborne forces.

The DRAS is composed of common rigging items and modified type V airdrop platforms in lengths of 8, 12, and 16 feet and are 88 inches in width versus the standard 108-inch type V version.

The DRAS will be able to gravity airdrop loads with a rigged platform weight capability of 14,500 pounds (HMMWV). The airdrop loads will exit the aircraft sequentially by row. The airdrop altitude range for operations will be 750 to 1200 feet at conventional airspeeds of 130-150 knots and deliver a fully mission capable load in 17 knot surface winds utilizing a parachute release.

UNIVERSAL STATIC LINE (USL)

The U.S. Army has a requirement for a USL suitable for airborne operations on all current Army, Air Force, Navy, and Marine aircraft. The current 15-foot static line in use is not acceptable for use on the Air Force's newest transport plane, the C-17. The program is investigating several

candidate items that could potentially meet the requirement. A single length 20-foot line was shown to be suitable on the C-17; however, it induced an increased safety risk on the C-130. The program strategy includes static line options such as adjustable/convertible candidates that are currently being produced for testing. Testing is scheduled to begin in the fall of 1999 with a goal of fielding in 3rd quarter 2000.

EMERGENCY PROCEDURES FOR ACTIVATION OF MIRPS

The Modified Improved Reserve Parachute System (MIRPS) includes a spring-deployed pilot chute attached to a bridle. This spring is designed to decrease the time needed for a successful deployment of the reserve parachute, thereby increasing the survivability rate of the jumper and reducing the injury rate. Originally, the MIRPS required no action by the paratrooper after pulling the reserve ripcord handle; however, in a recent incident, a MIRPS parachute failed to deploy when it was accidentally activated on the ground. What follows is a chronology of events that have occurred since that accidental activation:

- 2 March 1999-Initial non-activation on drop zone.
- 3 March 1999-Reserve ripcord bench tests by users.
- 4 March 1999-Temporary suspension of airborne operations using the MIRPS.
- 5 March 1999-On-site review.
- 10 March 1999-U.S. Army Infantry Center

issued message R101200ZMAR99, subject: Added Safety Procedures for Activation of MIRPS (see box below). Airborne operations using MIRPS resumes.

■ 26 March 1999-Soldier Biological Chemical Command (SBCCOM) issued Maintenance Advisory Message (MAM) 99-01, subject: Clarifying Packing Instructions.

■ 13 April 1999-SBCCOM issued MAM 99-02, subject: Surveillance Data and Schedule.

A review of all available information indicates that the activation failures were caused because the spring that deploys the reserve pilot chute was not centered in the reserve container. This packing issue has been corrected, and clarified packing instructions are outlined in MAM 99-01. The risk of the MIRPS failing to perform as designed is low. Additionally, there have been no accident reports submitted to the Safety Center that were the result of complications with the MIRPS.

Surveillance data and general information will continue to be gathered through September 1999 and a review of this data is scheduled to take place in October 1999 to determine if a requirement for a materiel fix is warranted. In the interim, all airborne personnel should be aware of the added safety procedures required for activation of the MIRPS as they are outlined in the message.

POCs: CPT Joel B. Rieman, DSN 256-5631 (508-233-5631); CW4 Martin J. Neises, DSN 256-6247 (508-233-6247), www.natick.army.mil; or SFC Michael R. Williams, USASC, DSN 558-2959 (334-255-2959)

101200ZMAR99 UNCLAS Subject: Added Safety Procedures for Activation of MIRPS

1. In a recent incident, a MIRPS parachute failed to deploy when accidentally activated on the ground. Although there is no indication that the MIRPS will fail to deploy when properly activated during an actual malfunction, the following additional safety precautions are required:

- Activate the MIRPS using the pull drop method. The jumper will remain in a good tight body position, secure the MIRPS left carrying handle, and pull the ripcord grip. The MIRPS should immediately activate.
- If there is no immediate reserve parachute reaction, the jumper will maintain his good tight body position and hold onto the left carrying handle and quickly punch the MIRPS pack tray on the right side with a closed fist.
- If the MIRPS still does not respond, jumper will pull the right end panel loose from the MIRPS pack tray while keeping his hand away from the front of the reserve.

2. This information should be incorporated into all pre-jump training. All jumpmaster personnel will be informed of the above actions and the information will be distributed to units subordinate to addressees.

3. Jumpmasters should pay particular attention to the positioning of the MIRPS spring to ensure it is properly centered behind the ripcord protective flap when conducting the inspection of the reserve parachute during the jumpmaster personnel inspection (JMPI) sequence.

4. Commanders should consider these additional precautions in their risk assessment for airborne operations when using the MIRPS.

5. This information will be incorporated into Change 1 of FM 57-220.

6. POC: Mr. John Graber, 1/507th Airborne Technical Advisor, DSN 835-3012.

Safe Reading—Pass the Word

Our Army is better now than it has ever been. Today's Army has the best equipment, the best training, and the finest soldiers, civilians and families in its history. We can deploy in a moment's notice to wherever we're needed and successfully meet mission requirements.

If we are serious about the readiness of our Army, we must be serious about safety. Safety must be our first concern at all times.

The U.S. Army Safety Center can help. We have the responsibility to collect and distribute accident data and statistics relating to injuries, occupational illnesses, and report damage related to Army operations. The major vehicles for meeting this requirement are *Countermeasure*, *Flightfax*, and *CAPP Report*. If you're not already taking advantage of the Army's safety publications, check them out. They're full of the latest information on doing your job safely.

Countermeasure, now in its 20th year of publication, deals with accident prevention in Army operations other than aviation (to include motor vehicles, explosives and weapons, fire protection, recreation and athletics, and training). *Countermeasure* is published monthly with a circulation of about 35,000 copies and is also posted to the Army Safety Center web site: <http://safety.army.mil>. Distributed down to unit level, its primary audience includes first-line leaders of soldiers, and its secondary audience is commanders.

Flightfax, now in its 27th year of publication, is the Army's only aviation accident-prevention publication. It is published monthly with a circulation of 18,000 copies and is also posted to the Army Safety Center web site. Distributed

CAPP Report



down to unit level, its primary audience is aviation safety officers and operational pilots, and its secondary audience is aviation commanders and maintenance personnel.

CAPP Report, now in its 9th year of publication, is the Army's civilian accident prevention program publication. Its primary audience includes Army personnel and civilian safety managers who oversee workplace safety, enforce safety rules, and are responsible for environmental and occupational safety and health fields. The *CAPP Report* is published quarterly and is posted to the Army Safety Center web site.

To receive *Countermeasure* or *Flightfax* publications, write to:

U.S. Army Safety Center
Bldg. 4905, 5th Avenue
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Fort Rucker, AL 36362-5363

or call DSN 558-2062 (334-255-2062) or e-mail countermeasure@safety-emh1.army.mil or flightfax@safety-emh1.army.mil. ♦

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FATALITIES**
THRU JULY FY 99
107
THRU JULY FY 98
101

In this issue...

Fighting The "COLD" War



ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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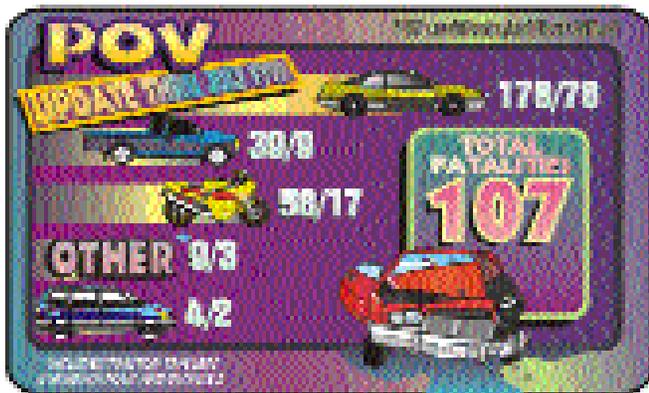
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Gene M. LaCoste
Brigadier General, U.S. Army
Commanding Officer

From the Editor

Autumn is here, and winter is not far away. In some parts of the world, winter is here, right now, with all of its inherent dangers to soldiers and their equipment. It is important to remember that we are all susceptible to cold weather injuries, even when temperatures are moderate. Prolonged exposure to conditions that we would not think of as cold can be every bit as dangerous as the biting cold of winter. This issue of *Countermeasure* is dedicated to helping commanders, leaders, and soldiers recognize some of the hazards associated with cold weather operations.

Cold weather operations demand a high price, first in terms of human suffering, and then in terms of reduced mission capability. Nevertheless, the Army is getting better at protecting soldiers from the cold. In 1998, 5 cold injury cases were reported to the Safety Center; that is down from 11 cold injuries the year before. While the numbers are coming down, the causes remain the same.

The three most common types of cold injuries are hypothermia, frostbite, and trench (immersion) foot. To address these threats, the article, "Fighting the Cold War," on page 3 explains what happens when soldiers are exposed to the harsh conditions of cold and freezing precipitation and the importance of keeping warm and dry.

On page 8, the Accident Briefs illustrate the cold weather incidents that are recurring every winter. Also in this issue, the Safety Center Command Judge Advocate gives us a legal review of the consequences of leaders who demonstrate negligence when they fail to take care of their soldiers in the cold. We believe you will find this article interesting and informative.

Take note of the survey on page 11. Please take a few minutes to answer the questions. Your input is important to us. We receive many calls and comments from our readers on what they read and what they would like to read. To those who have responded, we thank you. To the rest of the readers, we would like for you to let us know. If you have specific questions or if there are any topics you would like to see covered, please annotate it on the questionnaire or call us. Help us help you. ♦

Safety First!

Paula

Fighting The “COLD” War

Anyone would be hard pressed to find someone who would disagree with me when I say that this summer was hot! Yet, it didn't really matter. Sustainment operations, training, and deployments continued. Mission planners and leaders on all levels diligently developed strategies that reduced or eliminated the most obvious health threats associated with the hot summer environment.

Interesting prologue, but what does it have to do with preventing cold weather injuries? Everything, given the connection between sound mission planning, respect for known environmental factors, and ultimate mission success.

Military history is riddled with poorly planned and ultimately tragic endeavors where armies were decimated and their objective lost—not from enemy fire, but from a more formidable opponent—the environment.

George Washington's encampment at Valley Forge in 1776 is an example of unpreparedness. Eight thousand men suffered horribly from cold exposure while the British troops ate and drank merrily close by. Napoleon's defeat at Leipzig in 1813, where thousands of soldiers succumbed to the cold, clearly illustrates why military leaders and planners must consider environmental factors if victory is truly desired. In World War II, the U.S. Army reported 90,000 cold weather casualties, and during the Korean War, as a result of a weeklong battle at the Chosin Reservoir, 18,000 allied soldiers and marines suffered from frostbite or other cold-related injuries. Even today, the “cold”

war continues to be a problem.

Today's military benefits from technological advancements in clothing and cold-weather survival systems.

Accordingly, between FY93 and FY98, only 78 cases of frostbite were reported to the Safety Center. This number is conservative considering that most people “suffer in silence” and that many reports of cold weather injuries never make it to the Department of the Army level.

So, why do cold weather injuries remain

a problem? Can we safely accept “the mission came first,” or “that soldier should have known better,” or “it's above freezing, how could a cold injury occur?” How do we, as leaders and soldiers, do our part to protect the force especially when we live and operate in environments conducive to cold-related injuries? To better understand our role in protecting soldiers, perhaps we should take a look at the

Leaders must ensure that their soldiers know the signs and symptoms of cold weather injuries.

hazards of exposure to the cold and what happens when the body's ability to regulate its core temperature is compromised.

The Core of the Problem

The human body functions optimally in a very narrow range of core body temperatures. Minimal excursions from what we consider “normal” (98.6 degrees Fahrenheit) are known to affect the body in profound ways. For instance, an increase of up to 7 degrees will cause severe illness. Conversely, a decrease in temperature by 7 degrees also puts one's life in extreme peril.

Hypothermia: The cold inside

Hypothermia, simply defined as low body temperature, begins in its mildest stage at about 96 degrees. Symptoms include lack of shivering, slow pulse, lethargy, and a

general decrease in alertness. If body temperature drops low enough, normal muscular and cerebral functions are impaired and the person may lose consciousness.

Immersion foot: Use your head to save your foot

Immersion foot occurs when there is prolonged exposure to cold and wet conditions (temperatures can be as warm as 60 degrees if contact with water is prolonged). Damage to the circulatory system is apparent and unfortunately, permanent. Symptoms include cold, numb feet with swelling and redness.

Chilblain: Recognize it and don't delay action

Similar to immersion foot, chilblain is caused by repeated exposure of bare skin to temperatures below 60 degrees. Symptoms include redness and itching of the cheeks, ears, fingers, or toes.

Frostbite: Don't let it defeat you

Frostbite, by far the most common cold-weather injury, occurs when tissue becomes frozen, thereby decreasing circulation to the affected area. Frostbite can affect fingers, toes, ears, forehead, chin, etc. Soldiers should avoid skin on metal contact, supercooled petroleum products, extreme wind chill, and restrictive clothing (especially boots). Frostbite demands professional medical attention. If tissue damage is prolonged, gangrene can appear and amputation results.

Other factors contributing to cold weather injuries

■ Previous cold weather injuries.

Soldiers who have had a previous cold-related injury are predisposed to another one. Surviving tissues (feet, hands, etc.) may be left with damaged nerves and blood vessels, not to mention the person may have some sensitivity to the cold. This is not to say that the individual is not mission-capable. It means that these individuals must be identified and first-line supervisors should monitor these soldiers' survival habits while in a cold environment.

■ Caloric intake. Some soldiers may feel that a two-week field training exercise is the perfect time to lose that last twenty pounds of unwanted body

fat. The body's most immediate response to a decrease caloric intake is to slow the metabolism down. A slower metabolism means lower heat generation, increased lethargy, decreased motivation, and an increased chance of acquiring a cold-related injury. Leaders, on all levels, must ensure that soldiers consume adequate combat rations (MREs) while deployed.

■ Alcohol and caffeine beverages act as diuretics and will cause the body to eliminate fluid, resulting in dehydration. Dehydration is detrimental regardless of the time of year. Symptoms include increased urination and perspiration, which is oftentimes absorbed into the clothing and doesn't act as a visual reminder of the need to consume water, thus compounding the problem. All soldiers should limit the consumption of diuretics.

■ Tobacco, regardless of the form (dip, chew, or cigarette), causes the blood vessels in the body to constrict. If one was to take a cross-section of the body while someone inhaled cigarette smoke, this constriction would be clearly evident. The culprit? Nicotine. Chewing or "dipping" can deliver an even greater dose of nicotine to the body. Constriction of blood vessels in the hands or feet further increases the chances of cold-related injury for these body parts.

What can we do as leaders?

Preventing cold-related injuries starts with a sound training program. Leaders on all levels must ensure that their soldiers know the signs and symptoms of cold weather injuries, and that they understand the origin of these injuries. Periodic internal inspections of cold weather equipment, clothing, etc., are paramount before training or deploying during the colder months.

Conclusion

Cold-related injuries can be prevented. To combat environmental factors that are out of our control, mission planning and developing sound strategies, not for avoiding the weather entirely, but for operating in it, ensure mission success. ♦

POC: MAJ Don Lundy, USASC Industrial Hygienist, DSN 558-2443 (334-255-2443), lundyd@safety-emh1.army.mil

Cold Weather Chart

Everything becomes more difficult under cold weather conditions. Tasks take longer and require more effort, liquids freeze, and metal becomes brittle; thus, a leader's job of protecting soldiers gets tougher. Leaders must watch for early signs of cold stress in their soldiers. The most dangerous of these threats are shown in the chart below.

Cold-Weather Injuries		
Frostbite		
Cause	Symptoms	First Aid
<ul style="list-style-type: none"> ■ Freezing of tissue, normally due to exposure below 32°F. 	<ul style="list-style-type: none"> ■ Numbness in affected area. ■ Tingling, blistered, swollen, or tender areas. ■ Pale, yellowish, waxy looking skin (grayish in dark-skinned soldiers). ■ Frozen tissue that feels wooden to the touch. 	<ul style="list-style-type: none"> ■ Warm affected area with direct body heat. ■ Consult medical personnel as soon as possible. ■ Do not thaw frozen areas if treatment will be delayed. ■ Do not massage or rub affected areas. ■ Do not wet the area or rub it with snow or ice. ■ Do not expose affected area to open fire, stove, or any other intense heat source.
Chilblain		
Cause	Symptoms	First Aid
<ul style="list-style-type: none"> ■ Repeated exposure of bare skin for prolonged periods to temperatures from 20° to 60° F (for those not acclimated to cold weather). 	<ul style="list-style-type: none"> ■ Swollen red skin (or darkening of the skin in dark-skinned soldiers). ■ Tender, hot skin, usually accompanied by itching. 	<ul style="list-style-type: none"> ■ Warm affected area with direct body heat. ■ Do not massage or rub affected areas. ■ Do not wet the area or rub it with snow or ice. ■ Do not expose affected area to open fire, stove, or any other intense heat source.
Immersion foot (trench foot)		
Cause	Symptoms	First Aid
<ul style="list-style-type: none"> ■ Prolonged exposure of feet to wet conditions at temperatures between 32° and 60° F. Inactivity and damp socks and boots (or tightly laced boots that impair circulation) speed onset and severity. 	<ul style="list-style-type: none"> ■ Cold, numb feet may progress to hot with shooting pains. ■ Swelling, redness, and bleeding. 	<ul style="list-style-type: none"> ■ Rewarm feet by exposing them to warm air. ■ Evacuate victim to a medical facility. ■ Do not massage, rub, moisten, or expose affected area to extreme heat.
Dehydration		
Cause	Symptoms	First Aid
<ul style="list-style-type: none"> ■ Depletion of body fluids. 	<ul style="list-style-type: none"> ■ Dizziness ■ Weakness ■ Blurred vision 	<ul style="list-style-type: none"> ■ Replace lost water. Water should be sipped, not gulped. ■ Get medical treatment.
Hypothermia		
Cause	Symptoms	First Aid
<ul style="list-style-type: none"> ■ Prolonged cold exposure and body-heat loss. May occur at temperatures well above freezing, especially when a person is immersed in water. 	<ul style="list-style-type: none"> ■ Lack of shivering. ■ Drowsiness, mental slowness, lack of coordination. Can progress to unconsciousness, irregular heartbeat, and death. 	<ul style="list-style-type: none"> ■ Strip off wet clothing and wrap victim in blankets or a sleeping bag. ■ Place another person in sleeping bag as an additional heat source. ■ Get victim to a heated location and medical treatment as soon as possible.

Freezing Troops Can Get You In Hot Water!

This lance corporal's "...death was not an accident. Accidents happen. His death didn't just happen, rather it was the culminating event in a series of acts, each consciously committed by human beings: intelligent, experienced, and highly trained Marine Corps officers and noncommissioned officers." (Excerpt from the court-martial of a Marine first lieutenant found responsible for the accidental death of a lance corporal.)

Caring for soldiers and avoiding cold weather problems are both an individual and a leadership responsibility. In this article, you will learn the potential legal ramifications should you fail to properly manage the risks of winter. The Army regulatory structure offers numerous administrative actions to be taken against officers, enlisted soldiers, and civilians who fail to perform their duties. This article, however, focuses only on the criminal actions available to the Army.

The Uniform Code of Military Justice (UCMJ) has several provisions that can be used to charge leaders for their inappropriate actions or inactions regarding the

performance of their duties and the resulting impact on the safety of their soldiers. These provisions include Article 92, *Failure to Obey an Order or Regulation*; Article 93, *Cruelty and Maltreatment*; Article 119, *Involuntary Manslaughter*; and Article 134, *Negligent Homicide*. The court-martial of a Marine Corps lieutenant best illustrates the application of Article 92 of the UCMJ.

During a field training exercise, a lieutenant (LT) was assigned the duties of posting road guides for a battalion-sized motorized night movement. He was to assign them in pairs, keep a roster of the postings, and provide the roster to a captain in his organization.

The battalion commander was aware of the extreme weather conditions in the desert and the fact that there were a number of new people in the unit. Accordingly, in preparing for the movement, he stressed to the LT strict accountability for all personnel. Despite this direction from his superior, the LT disregarded the order and posted two of his men on isolated posts without partners, endangering the welfare of his soldiers. Two of the road guards had even reminded the LT of the requirement for two guards per post, but he ignored the



recommendation.

This LT failed in three ways. He failed to post the guard in pairs; the buddy system protects the Marines from fatigue, weather, and other possible problems. He also failed to post the guards on the main route. Instead, the LT posted the two men in isolated areas. Finally, he failed to record the location and names of the guards to ensure all were retrieved after the movement. As a result, the unit failed to pick up one of the guides during recovery operations. By the time the guide's absence was noticed and a search had begun, it was too late. Over 40 hours after the LT had posted the Marine to his guard position, the corporal was found dead. He had been left alone in the desert for almost two days and expired from exposure.

Findings

The court found the LT in violation of two counts of Article 92. This LT clearly failed to obey a lawful order given by his battalion commander. The court also found the LT derelict in the performance of his duty to properly post two-man teams at designated checkpoints on the main route and to obtain a roster of individuals posted.

For these and other unrelated charges, the LT

was sentenced to dismissal (equivalent to a dishonorable discharge for enlisted soldiers) from the Marine Corps, confinement for four months, and forfeiture of all pay and allowances.

Corrective actions

This Marine's death was easily preventable. If the LT had taken the time to follow the orders his commander had issued, the lance corporal would not have suffered the slow, agonizing death from exposure. If the captain, who was expecting to receive the guard roster had followed-up on this requirement, the corporal could have been saved.

Don't let optempo cause you to knowingly take shortcuts, disregard safety precautions, or put mission above all else. No training exercise should force you to make decisions to accept unnecessary risks. If you allow that to happen, you risk the lives of the soldiers entrusted to your care and you risk your own career.

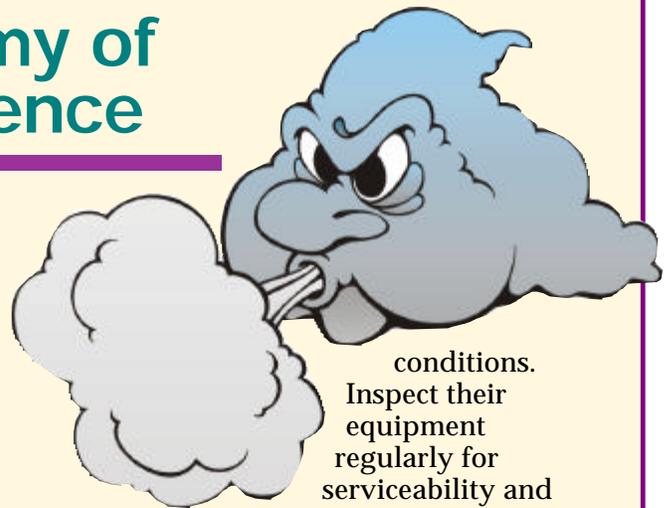
If you have any questions about this article or your obligations as a leader to maintain the health and welfare of your soldiers, please contact the USASC Command Judge Advocate or your local Staff Judge Advocate. ♦

POC: LTC Cynthia Gleisberg, USASC Command Judge Advocate, DSN 558-2924 (334-255-2924), gleisberc@safety-emh1.army.mil

Cold Weather: Enemy of Youth and Inexperience

As leaders, we should expect intuitively that our younger, less experienced soldiers would be most susceptible to cold-weather injuries. The hard numbers, however, are startling. A soldier in the rank of private through specialist is more than two-and-a-half times as likely as a noncommissioned officer and eight times as likely as an officer or warrant officer to get hurt by the cold. What do we do to reduce the risk of our junior soldiers being sidelined by frostbite or other cold injuries?

First, and most important: Train them to standard in prevention, recognition, and first aid for frostbite, hypothermia, chilblain, and trenchfoot. Then enforce the standards. Make sure that soldiers have clothing and equipment suitable for environmental



conditions. Inspect their equipment regularly for serviceability and cleanliness. Monitor soldiers for signs of cold-weather injury, and use the buddy system to have soldiers check each other. Insist that soldiers report signs of injury immediately. Make it clear to them that "toughing it out," is foolish and far from being heroic.

The extra time we take preparing our junior soldiers for the cold will reduce injuries and pay off in increased unit readiness. ♦

Accident Briefs

Hypothermia

The soldier departed his arctic station in his POV, dressed only in tennis shoes, thin socks, cotton trousers with sweat pants underneath, a thin long-sleeved shirt, a down-filled jacket with no hood, and Army dress gloves. He took with him his Army-issue arctic sleeping bag and a wool shirt. He started out tired and traveled about 75 miles. On his way back to the post, he pulled off the highway onto a snow-covered dirt road to nap. When he woke up, he couldn't get his car started. He wandered down a snowmobile trail for more than a mile before being discovered outside a lodge, confused and unable to function. The soldier suffered frostbite in addition to hypothermia, missed 30 days from duty and spent another 90 days on restricted duty.

Amputation

After he walked for about half an hour, barehanded, in -12 degrees Fahrenheit weather, the fingers on the soldier's right hand had to be amputated because of severe frostbite.

Dehydration

The soldier had been out periodically in weather ranging from 5 to 40 degrees Fahrenheit. He had been out for more than an hour when he passed out from hypothermia. He had consumed only one quart of water a day for the previous 5 days. Dehydration made him more susceptible to cold-weather injury. He was hospitalized overnight and on restricted duty for 5 days.

Lack of planning

The battalion was moving to the field for an FTX. Even though the mess hall had 12 new soldiers, no warming tent was set up and no sleeping area was provided. The section chief worked all soldiers the entire night. One of the new soldiers suffered frostbite to his toes. He spent 3 days in the hospital and 10 more on restricted duty. NOTE: Before moving to the field, leaders should develop a sleep plan and determine the need for warming tents and working in shifts. In addition, soldiers should be briefed on field hygiene: Change socks every 2 to 4 hours in cold, wet weather and wear overshoes if conditions call for them.

Frostbite

The soldier went to the field with only his standard leather glove shells and woolen inserts. After working for several hours in temperatures as low as 30 below, he complained that his hands were cold. He suffered frostbite to the tips of his fingers. NOTE: Leaders should check their soldiers' gear for personal protective equipment before taking them to the field in cold weather. An inspection would have alerted this soldier to the need for extreme cold-weather mittens or Gortex gloves.

No personal protective equipment

The soldier was taking part in a training exercise. After working out in the cold for several hours, the soldier complained of numbness in his feet. He suffered frostbite on both feet, spent one day in the hospital and five on restricted duty. The soldier had not worn his protective cold-weather boots.

Defective gear

The soldier didn't notice the zipper on his sleeping bag was broken near the bottom. The night was extremely cold and, after sleeping in the bag for six hours, the soldier complained that his feet were cold and hurting, and he went to see the medic. The soldier suffered frostbite on his feet and missed five days from duty. NOTE: Regular inspection of personal protective equipment is a must. If it doesn't function properly or a component is broken, it can't do its job. Defective equipment should be replaced as soon as it is discovered.

Prior victim

The soldier was participating in a unit range cleanup detail. Her gloves had gotten wet earlier in training, but she failed to change them or let a cadre member know that her gloves were wet. When the unit arrived back at the cantonment area, she complained of numbness and pain to her hands. Soldier was transported to the hospital and diagnosed as having frostbite. Subsequent investigation revealed soldier was a previous frostbite victim prior to entry into the Army. ♦

Accident Review

Death Waits In The Dark

The TC reported to his duty station approximately two months prior to this rotation. His pre-rotation training consisted of classes that were oriented toward the battle scenarios of foreign military forces. He conducted section certification and attended classes that covered local range regulations. Upon completion of this training, it was time to be put to the test—“Force against Force.”

The mission was to occupy defensive fighting positions at night utilizing the M551 Sheridan tank. On order, the platoon was to move from their hide positions and occupy prepared fighting positions as part of the operation. The troop operations order was given to all vehicle commanders subsequent to the battalion level operations order. Because the illumination for that particular night was going to be zero, low visibility SOPs were briefed as part of the order and safety considerations were addressed.

Accident

Around 1700, the TC and crew departed the laager site for their battle position (BP). They were to go to their BP, identify where it was, ensure it was marked properly, and then return to their hide position. The crew was unable to find the BP and drove around the training center for approximately an hour until

darkness fell upon them.

As they kept wandering around in the dark, their tank unintentionally drove obliquely into what ended up being their own BP. The tank subsequently rolled over on its left side, pinning the TC against the far inside wall of the battle position. The crew immediately executed rollover procedures and made a net call on the radio. Because the antennas were damaged in the rollover, the net call was not heard. The crew exited the tank, realized that their TC was pinned, and immediately attempted to free him. It took several minutes, but the TC was removed and emergency lifesaving measures were started. The MEDEVAC arrived soon thereafter...but it was too late. ♦

POC: SFC Clarence Welch, Ground Systems and Accident Investigation Division, DSN 558-3421 (334-255-3421), welchc@safety-emh1.army.mil



Mission: Reconnoiter Prepared Battle Position

Hazards

- ❑ Effective range of night vision devices during zero illumination
- ❑ Improper body position in turret
- ❑ Lack of ground guide in zero illumination
- ❑ Unfamiliarity with terrain

Results

- ❑ 1 Fatality
- ❑ 2 Minor Injuries

Controls

- ❑ Take appropriate precautions to account for zero illumination
- ❑ Enforce standards for turret body position
- ❑ Conduct recons during daylight when possible
- ❑ Utilize available navigational aids

ME51-0-1

FOOD FOR THOUGHT: Our Army is the best-equipped and best-trained military force in the world. We must continue to train as we will fight and fight as we have trained. We cannot stop tough, realistic, go-to-war training because of an accident. Good training means learning from mistakes, and allowing plenty of room for personal and professional growth. We can do this in peacetime. In wartime, we can't. We must provide our soldiers with the best and safest training conducted to prescribed standards.

You Make The Call

Starting with this issue, “You Make the Call” will be a regular feature in Countermeasure. Our purpose is to educate, to stimulate thought, and exchange information that will expand understanding and application of risk management in training and operational environments. The success of this forum will depend on input from you. 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 answers from those submitted and the winner will receive a Safety Center coin and a letter of congratulations from the Director of Army Safety. Although we are unable to offer financial rewards, rest assured that you have contributed significantly to saving someone’s life. And that’s more important than money. All winning entries will be published in a future issue.

Imagine the scene: It’s February 2000, and your unit is conducting tactical operations in a cold, snowy, icy environment. Temperatures average 20 degrees Fahrenheit during the day and hover around 0 at night. There is about 6 inches of snow on the ground; the roads, while generally clear, often have icy patches. Your unit is equipped with M113s and HMMWVs. Typical missions for the unit include mounted patrols, dismounted checkpoints, and local security around the base camp.

During the morning’s PMCS, your driver tells you that the M113 has three bad track blocks on one side and the heater doesn’t work. No one else in the platoon has any heater parts to give

you. The platoon sergeant tells you there might be some extra track at battalion, but he isn’t sure.

While checking to ensure that the driver did the rest of his PMCS correctly, the lieutenant (LT) tells you that your squad has been tasked to conduct a mounted patrol that evening through some of the nearby towns. He’s going to give you one of the new guys who just arrived in country that morning to accompany you on the mission.

What will you do? Identify the hazards associated with this mission based on the facts given above. Then identify some control measures to recommend to the LT to minimize the risks associated with these hazards. ♦

Safety Alert Notice

Without immediate action at all levels, improper tire maintenance procedures will continue to result in damaged equipment, personal injury, and loss of life.

During recent visits throughout the Army, the U.S. Army Safety Center (USASC) has noticed an increased number of Heavy Expanded Mobility Tactical Trucks (HEMTT) with improperly maintained multi-piece rimmed tires. Indicators of potentially dangerous maintenance procedures are incorrect tire pressure (too much or too little); improperly seated multi-piece tire rims (locking ring with a gap greater than 3/8 in. [9.5 mm]); and failure to use approved tire maintenance equipment (OSHA approved tire inflation cage, 10-foot extension air hose and air chuck/gauge with locking clips). A study of the past five years indicates that half of the

accidents occurring during tire maintenance involved multi-piece rimmed tires.

Corrective actions are relatively simple. Strict adherence to TM 9-2320-279-10 (w/change 5), TM 9-2320-279-20-1 (w/change 3), and TM 9-2610-200-14 is a must. Follow the procedures outlined in TM 9-2320-279-10 for using the tire inflation cage (NSN 4910-01-373-0267) and the 10-foot extension air hose (Part # 2155210U) with the locking chuck/gauge (NSN 4910-01-386-4300). Leaders also must ensure soldiers are trained and equipped properly to conduct maintenance on the equipment. Understanding the correct procedure is not enough. Rigorous enforcement of the standards by all levels of the chain of command is the best means of preventing accidents. ♦

—BG Gene M. LaCoste, Director of Army Safety

COUNTERMEASURE

Readership Survey

In an effort to keep current with field needs, we need your feedback. Please take a few minutes to fill out the form below and return it to us using the pre-addressed mailer on the back or fax it to Ms. Paula Allman, 334-255-9528.

Name (optional) _____ Rank/Grade _____

Duty Status

- | | |
|--|--|
| <input type="checkbox"/> Active Army | <input type="checkbox"/> DA Civilian |
| <input type="checkbox"/> Army Reserve | <input type="checkbox"/> Civilian Contractor |
| <input type="checkbox"/> Army National Guard | <input type="checkbox"/> Industry |
| <input type="checkbox"/> U.S. Air Force | <input type="checkbox"/> Foreign Ally |
| <input type="checkbox"/> U.S. Navy | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> U.S. Coast Guard | |

Duty Assignment

- | | |
|---|--|
| <input type="checkbox"/> Commander: Brigade__ Battalion__ Company__ | <input type="checkbox"/> Squad/Team Leader |
| <input type="checkbox"/> CSM/SGM | <input type="checkbox"/> Other Military Supervisor |
| <input type="checkbox"/> 1st Sergeant | <input type="checkbox"/> Civilian Manager/Supervisor |
| <input type="checkbox"/> Platoon Leader | <input type="checkbox"/> Other (specify) _____ |

What is your—

- | | |
|------------------|----------------------------------|
| Branch? _____ | MOS or civilian specialty? _____ |
| Job title? _____ | Geographic location? _____ |

How often do you read Countermeasure?

- | | |
|--|---|
| <input type="checkbox"/> Every month | <input type="checkbox"/> Every 3 months |
| <input type="checkbox"/> Every other month | <input type="checkbox"/> Rarely |

How much of Countermeasure do you read?

- 100%
- 75%
- 50%
- 25%
- Less than 25%

When do you usually receive Countermeasure?

- | | |
|--|---|
| <input type="checkbox"/> Early in the month it's dated | <input type="checkbox"/> Late in the month it's dated |
| <input type="checkbox"/> Mid-month in the month it's dated | <input type="checkbox"/> The month after it's dated |

How do you receive Countermeasure?

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Directly from USASC | <input type="checkbox"/> I don't know |
| <input type="checkbox"/> Through local distribution | |

Have you visited the Army Safety Center Web Site (<http://safety.army.mil>)?

- | | |
|---------------------------------------|-----------------------------|
| <input type="checkbox"/> Yes, at work | <input type="checkbox"/> No |
| <input type="checkbox"/> Yes, at home | |

Do you have e-mail at work?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

How would you prefer to receive Countermeasure?

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|---|--|
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| <input type="checkbox"/> Electronically (e-mail, web) | |

How do you use the information in Countermeasure?

- | | |
|---|---|
| <input type="checkbox"/> Topics for safety meetings | <input type="checkbox"/> Items for reading file |
| <input type="checkbox"/> Topics for unit publications | <input type="checkbox"/> To keep myself informed |
| <input type="checkbox"/> Items for bulletin boards | <input type="checkbox"/> Source of authority on safety issues |
| <input type="checkbox"/> Topics for directives | <input type="checkbox"/> Other (specify in remarks section) |

What additional articles or features would you like to see added to Countermeasure? _____

Do you feel the articles have ever prevented or decreased the probability of an accident by you or someone you know? Explain. _____

Use this scale to rate each of the following:

None = 1 Low = 2 Medium = 3 High = 4 Extremely High = 5

Rate these Countermeasure features in terms of their value to you in your current assignment.

- | | |
|--|---|
| <input type="checkbox"/> Lead articles | <input type="checkbox"/> Seasonal articles |
| <input type="checkbox"/> Branch specific | <input type="checkbox"/> Munitions Safety |
| <input type="checkbox"/> Accident Reviews | <input type="checkbox"/> POV Safety |
| <input type="checkbox"/> Safety messages | <input type="checkbox"/> From the Troops |
| <input type="checkbox"/> Murphy's Flaws (cartoon strip) | <input type="checkbox"/> Posters |
| <input type="checkbox"/> Info Tech Corner (Web site updates) | <input type="checkbox"/> Attaboy (Guardian Award) |
| <input type="checkbox"/> Real People/Real Accidents (selected accident briefs) | |
| <input type="checkbox"/> Other (specify) _____ | |

Rate the following safety publications in terms of their value to you in your current assignment.

- | | |
|---|--------------------------------------|
| <input type="checkbox"/> Countermeasure | <input type="checkbox"/> Torch |
| <input type="checkbox"/> Flightfax | <input type="checkbox"/> Road & Rec |
| <input type="checkbox"/> Ashore | <input type="checkbox"/> PM Magazine |

Rate the following types of information in terms of your interest in and need for it.

- | | |
|---|---|
| <input type="checkbox"/> In-depth reports of accidents, causes, and solutions | <input type="checkbox"/> Accident rates |
| <input type="checkbox"/> Hazards, risks, and controls | <input type="checkbox"/> Statistical studies |
| <input type="checkbox"/> Risk-management process | <input type="checkbox"/> Lessons learned |
| <input type="checkbox"/> Maintenance topics | <input type="checkbox"/> Technical information on equipment and systems |

Rate the overall quality of Countermeasure.

Content:

- Accuracy
- Adequacy of coverage
- Choice of topics
- Credibility
- Interest to soldiers
- Timeliness

Layout:

- Appearance
- Format
- Illustrations
- Readability

Comments/suggestions to improve Countermeasure. _____

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ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

VOL 20 NO 10

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OCTOBER 1999

**POV
FATALITIES**
THRU AUG FY 99 **107**
THRU AUG FY 98 **116**

In this issue...

20
Years
in Print

SPECIAL RISK MANAGEMENT ISSUE



ARMY GROUND RISK MANAGEMENT PUBLICATION

COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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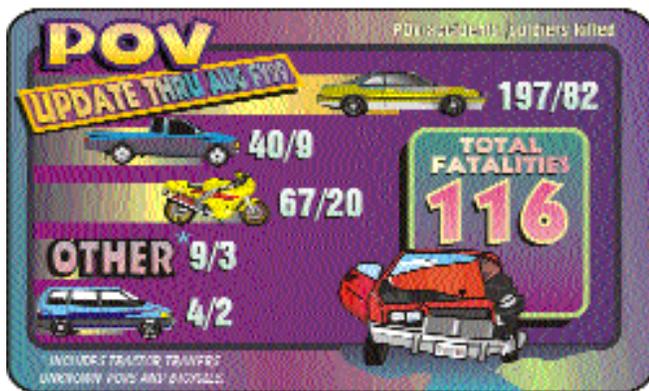
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Gene M. LaCoste
Brigadier General, U.S. Army
Commanding Officer

From the Editor

Countermeasure: 20 Years Later and Still Going Strong

This month, Countermeasure celebrates its 20th anniversary. The U.S. Army Safety Program has come a long way since the days when everyone knew there were accidents, but no one really knew how many, what kind, or what to do about them. During those early days, ground accident reports were little more than brief descriptions of what happened; little attention was given to why the accident occurred or how to prevent a recurrence. Yet in the long run, the Army's Safety Program has steadily reduced accidents over the past 20 years. These recent reductions largely are due to greater command involvement in safety.

As the Army enters the new millennium, it must continue to protect its greatest assets—the men and women of today's Army. It must also commit to the conservation of equipment in the face of reducing forces and more limiting budgets.

More than ever before, the Army is dependent upon risk management to attain and sustain a combat-ready force. Toward this end, the Army looks to commanders for leadership in its accident prevention efforts. Every decision and every commitment must be tempered by a continued understanding that safe performance is a primary element of readiness.

In these 20 years, we have made great strides in our efforts to reduce aviation and ground accidents. Our continued goal is mission accomplishment with minimum losses. Risk management requires a total team effort; we can and will be successful if we work together. The rewards certainly are worth our every effort. ♦

SAFETY FIRST!

Paula

Risk Management: Yesterday, Today, and Tomorrow

Military operations, both training and real-world, are inherently dangerous. History reveals clearly that risk is a principle of military operations with severe consequences if not managed effectively. In fact, in recent wars, the Army has suffered more losses due to accidents than from enemy action. So, what has the Army done to reduce such risks?

The 1968 version of FM 100-5, *Operations*, recognized the inherent nature of risk in every mission, yet devoted only one paragraph to it. By 1990, the concept of risk management began to mature when FM 25-101, *Battle Focused Training*, defined the steps of “risk assessment” and indicated that commanders were responsible for performing the assessments. However, only three paragraphs were devoted to the subject, and there were no supporting tactics, techniques, and procedures (TTPs), or institutional training.

In Operation Desert Shield/Storm, the Army again suffered more losses due to accidents (75 percent) and friendly fire (5 percent) than from enemy action (20 percent). Consequently, the Army leadership made a commitment in 1991 to attack this problem by institutionalizing risk management. Five rotations at the maneuver Combat Training Centers were used to develop and test risk management TTPs. Test units achieved significant reductions in ground accident casualty rates (60 percent lower than typical rotations) and incurred only one minor aviation accident. The risk management TTPs are presented in the Center for Army Lessons Learned (CALL) newsletter, *Risk Management for Brigades and Battalions: Task Force XXI Update*, No. 99-5, April 1999 and available on the CALL (<http://call.army.mil>) and Safety Center (<http://safety.army.mil>) web sites.

In 1995, the Army Chief of Staff issued guidance that, “Risk management is the Army’s principal risk-

reduction process to protect the force. Our goal is to make risk management a routine part of planning and executing operational missions.” In May 1997, FM 101-5, *Staff Organizations and Operations*, fully integrated risk management into the military decision-making process and provided a detailed appendix on risk management.

Today, risk management is being integrated into the Army schoolhouse from basic training to command and staff courses. In February 1999, the TRADOC Commanding General directed that risk management be integrated throughout all training to provide realistic, mission-oriented applications of risk management. During this training, risk management must be performed to standard as a routine part of mission planning, preparation, and execution. To be successful, tomorrow’s soldiers must learn to recognize the hazards they face and adapt their plans to reduce risk to an acceptable level.

By fully integrating risk management into Army operations, the Army has made the commitment to help you be successful. Do your part by making a commitment to implement the TTPs of risk management. ♦

POC: Mr. Darwin S. Ricketts, USASC Executive Research Psychologist, DSN 558-2131 (334-255-2131), rickettsd@safety-emh1.army.mil



Next Steps in Continuing Army Safety Improvement

It is an unequivocal fact that a disciplined force trained to standard equals a combat-ready force that conducts the mission safely. Risk management affords us the capability to conduct tough, realistic training and operational missions while minimizing losses due to accidents.

Since the introduction of risk management in 1987, the Army has made tremendous progress in safety. Considering the limited degree of control the Army has over conditions and the

environments in which soldiers have to operate, it is one of

the safest organizations in the world—but not safe enough. Accidents still take a significant toll on our most precious resources: the sons and daughters of the American people.

No commander wants to lose a soldier or have a soldier or civilian employee injured in an accident. But today, we are an Army operating in uncertain and complex environments around the world, and the hazards to which we have daily exposure are many. The keys to successful operations with minimal losses are command involvement and competent and effective management of risks. Bottom line: risk management allows us to do tough missions in tough environments and do them safely.

When made a routine part of planning and executing operational and training missions, risk management enables soldiers to identify hazards, assess risks, and take steps to reduce risks to an acceptable level. Appropriate actions to effect an Army cultural change that encompasses full integration of risk management into planning and executing missions are well under way.

The policy and doctrine to integrate risk management principles and

At the end of the third quarter of this fiscal year, there have been 134 soldiers lost in accidents. For an Army dedicated to fighting and winning our nation's wars, each loss represents a significant impact on combat readiness.

practices into everything the Army does were put in place with the publication of Field Manual 100-14: *Risk Management*. The educational foundation is in place. Classroom instruction is currently provided for precommissioning, squad, platoon, company, and higher level officer, warrant officer, and noncommissioned officer leader courses. Thus, the standard for risk management has been set: leaders at the appropriate level of authority making informed decisions to control hazards or accept risks.

The biggest challenge now is to ensure that the Army is providing hands-on risk management training to soldiers and ensuring that they, in turn, can execute to the standard. In terms of risk management, NCOs are the ones out there “where the rubber meets the road.” They are the experts, and it’s important to use our Noncommissioned Officer Corps to ensure that risk management is trained, reinforced, and practiced. Soldiers must be evaluated on their ability to manage risks. This can be accomplished through training and performing to standards, expecting excellence, intervention, and discipline where needed.

Instilling risk management into the Army culture and into the mindset of each individual soldier is not an easy, overnight job. It requires dedication, persistence, and caring. But the payoff will be twofold: a safer soldier on duty and a safer soldier off duty. Through positive habit transfer, the risk management skills soldiers learn on duty will also help them become better risk managers during their off-duty activities.

Commanders must be on the front lines in this effort to integrate risk management into training and operations and into the individual behavior of our soldiers. The U.S. Army Safety Center can help. We make many

risk-management tools available on our public web site (<http://safety.army.mil>) and the restricted Risk Management Integration System web site (<http://rmis.army.mil>) to aid in managing risks. Additionally each year, the Safety Center trains hundreds of military and civilian safety professionals in the latest risk management techniques and integration skills—trained professionals who are invaluable assets in building effective command safety programs. The

capstone Army Safety Program regulation, AR 385-10, is also being revised to provide guidance in risk management integration.

A current key focus of the Safety Center is resourcing an expansion of its proactive assistance visits program. At the request of a commander, the Safety Center will deploy a team of subject matter experts, based on the requirements identified by the unit commander, to do an

on-site assessment of his or her risk management and command safety programs. This is not an inspection. It is an internal evaluation to be used solely by the commander to improve his or her safety and risk management integration programs. At the same time, it allows the Safety Center team to capture lessons learned and good ideas and programs from the unit and share them with other units and organizations.

Soldiers must remain cognizant of the fact that cultural change is evolutionary, not revolutionary. Complete integration of risk management into the culture of an organization as complex as the Army requires persistence. Enhancing our Army’s combat readiness through proactive risk management is worthy of our continued commitment and personal involvement. ♦

—BG Gene M. LaCoste, Director of Army Safety and Commander, U.S. Army Safety Center

Risk management allows us to do tough missions in tough environments and do them safely.

Organizational Safety Culture

Implications for Commanders

Despite a long and successful tradition of work into the important relationship between safety and individual aspects of behavior and attitudes, wider organizational factors have only recently been clearly identified as contributing significantly to accident causation. This does not necessarily mean that organizational causes of accidents are a new phenomenon in Army operations; these factors have almost certainly been present since the earliest days of military operations. However, what has changed in recent years has been our thinking about the human origins of accidents. Safety culture is one such concept that explicitly addresses the wider social causes of accidents, and thus represents a significant departure from the traditional approach to safety.

Accidents happen for a number of reasons. Management or supervisory inattention at all levels are the most prevalent accident causes and contribute as much to accidents as the total number of operator and maintenance errors put together. This emphasizes the fact that soldiers often inherit faulty systems directly as a result of decisions made elsewhere up the chain of command.

The concept of safety culture points to a number of ways of understanding and influencing some of the factors that serve to undermine safety. Broadly defined, safety culture is the set of beliefs, norms, attitudes, roles, and social and technical practices within an organization which are concerned with minimizing the exposure of individuals to conditions considered to be dangerous. A safety culture is created as soldiers repeatedly behave in ways that seem to them to be natural, obvious, and unquestionable, and as such serves to minimize risks and improve safety.

Commander's Commitment

The first necessary condition for the development of a safety culture is that responsibility for safety should not reside purely with the soldier, but be a leadership issue as well. Effective safety programs begin at the command level with a strong emphasis on safety that flows through the entire organization. Such command commitment is essential for a number of reasons. It is important because attempts to effect enduring change are unlikely to succeed if commanders are not seen to be closely involved and committed to the initiative. Soldiers will quickly sense where the leadership's true

priorities lie and will, more often than not, try to accomplish those priorities despite explicit policy statements. This issue becomes very important when marginal decisions to go or not are required. Thus, strong leadership commitment to safety is critical to support soldiers' decisions made in the face of external pressures brought about by high optempo.

One sign to soldiers of command commitment is the perceived status within the organization of the personnel directly dealing with safety. Also, merely paying lip service for safety transgressions, rather than taking strong corrective action, can bring about a lax safety culture.

Distributed Concern

While the leadership's commitment to safety is necessary, there must be other elements in place for safe operations. The second requirement for the development of a safety culture is for concern about safety to be distributed, supported, and endorsed by all soldiers throughout the organization. Distributed concern for safety needs to be representative of all unit soldiers. Only in this way is it possible to move toward a safe state in which soldiers recognize the necessity and desirability of conforming to both the spirit and letter of safety rules and regulations. Under such circumstances, all soldiers regard the reduction of risk as a personal, as well as a unit goal. Toward this end, formal safety directives should be instituted with more subtle approaches aimed at promoting caring on the part of soldiers and the unit in terms of concern for the personal outcome of dealing with risks, and also for the effects of their activities upon other people.

Rules and Regulations

The specific norms and rules governing safety within the unit will also be at the heart of a safety culture. As guidelines for action, these will shape the perceptions and actions of your soldiers in particular ways, defining what is and is not to be regarded as a significant risk, and what represents appropriate responses to such risks.

In an ideal world, one might attempt to specify a set of complete, up-to-date, and practical contingencies that anticipates all foreseeable risks and hazards. However, there is always stress between the need to handle both hazards that are well defined in advance, and those that are ill-defined or unexpected. Perhaps this is because they arise only infrequently in periods of crisis or because they are completely beyond the boundary of current operational experience. Being alert to both well-defined and ill-defined hazards is a demanding task, since the application of existing rules and standard operating procedures to guard against anticipated hazards might lead to crucial oversights.

Guarding against hazards involves a willingness to monitor ongoing practices in many ways. Leaders must accept uncertainty and the unknown as facts of life. They must exercise creativity and safety imagination as aids in assessing risks and hazards. Finally, they must be prepared both to listen to opinions about risk from all soldiers, as well as to reward rather than ignore or punish those who point out safety deficiencies.

Ongoing Reflection

The final requirement for the development of a safety culture is ongoing reflection about current practices and beliefs. This involves the search for meaning and new knowledge in the face of initial ambiguity and uncertainty about what may prove to be a significant risk or hazard. This process is crucial if a unit is to learn, as well as adapt to changing circumstances. As noted earlier, one function of reflection is to guard against the over-rigid application of existing safety rules, regulations, and procedures.

This reflection is most effective when used by

reactive accident investigations, together with proactive incident reporting and feedback. Such open communication links between the leadership and soldiers have been found to be associated with safe organizational climates. This is fostered where units actively avoid laying blame for mistakes and errors. This latter consideration sets special responsibilities, once again, on the leadership for setting the framework within which safety can gain suitable priority.

Conclusion

It will be no simple matter to translate these concepts into practical action. The Army is notoriously resistant to change, and there is no reason to believe it will react any differently in this respect to the concepts of safety culture. Any permanent change will be best addressed through long-term organizational learning on the part of every commander, officer, noncommissioned officer, and enlisted soldier in the Army.

It must be emphasized that safety culture cannot be considered a cure-all to prevent accidents in the face of more pressing issues that undermine safety such as poor infrastructure or lack of resources and personnel. Senior Army leadership is aware of these threats to readiness. Yet, they are also

aware of the serious consequences (both direct, such as deaths and injuries, and indirect, such as loss of resources and mission capability) that accompany poor safety.

At the Safety Center, we are launching several initiatives to address concerns and improve safety. In order for these initiatives to be effective, every soldier at every level within the Army must support them. Your emphasis on safety and the establishment of a safety culture within your command is key. **Leader**

Involvement Saves Lives. ♦

—adapted from Pidgeon and O’Leary, (1994) *Organizational Safety Culture*. Hants, UK: Ashgate.

POC: CPT(P) Robert M. Wildzunas, Ph.D., USASC
Command Psychologist, DSN 558-2477 (334-255-2477), wildzunn@safety-emh1.army.mil

Effective
safety
programs
begin at the
command level
with a strong
emphasis on
safety that
flows through
the entire
organization.

Installation Commanders and Safety Managers: "Do You REALLY Care?"

How much do you care about safety? How much does it bother you when one of your soldiers gets hurt or dies? Do you ever lie awake at night wishing you could have taken better precautions that would have prevented someone's injuries? When you hear about accidents in other units, do you inquire about what happened and take precautions to ensure that does not happen in your unit? When you receive ground precautionary messages, safety alert messages, or safety of use messages, do you read them and take appropriate steps to ensure the safety of your soldiers? Do you circulate safety publications, such as *Countermeasure*, to your soldiers for them to read?

If you are reading this right now, you are most likely a safety specialist sitting

in an installation safety office. What you most likely are not, is one of the 400,000+ Army soldiers who should be reading *Countermeasure*. There are 31,000 issues of *Countermeasure* published each month with 6,200 recipients down to battalion level, many receiving multiple issues. There are even company-sized organizations that receive their own issues. Safety specialists and leaders are responsible for ensuring that the word gets out. Every soldier should have the opportunity to learn from the unfortunate and costly mistakes of others. First hand experience in the case of poor safety can be deadly.

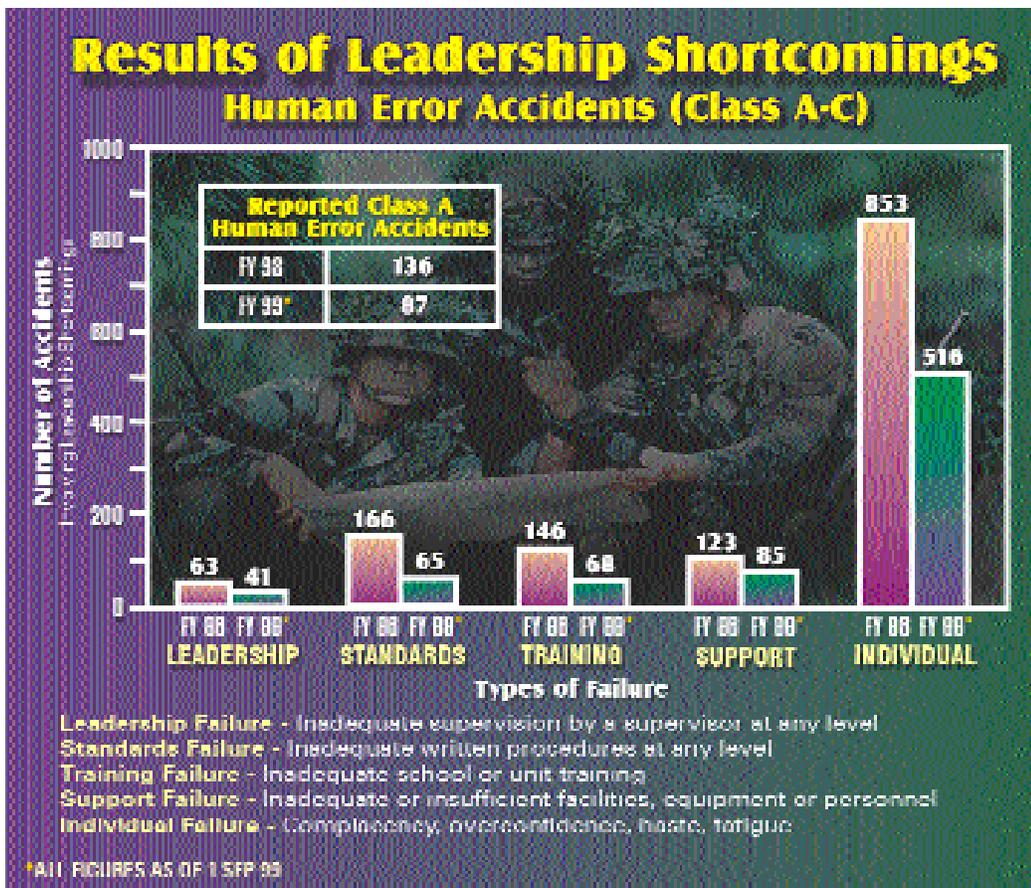
I should know, over the last 2 years I have had the unfortunate duty of having to conduct many accident investigations as a Centralized Accident Investigation (CAI) Board President. I say unfortunate

because, although the experience was professionally fulfilling, each investigation was the result of a fatality in an accident that was preventable.

Human error was a direct cause in many of these accidents. Lack of adequate supervision was often a contributing factor. Tragically, over 80 percent of all accidents result from human error.

Leadership Failure

Leadership failure comes in many different forms. The most upsetting, however, are those failures attributable



to complacency and/or apathy. These two characteristics have accounted for many of the soldier fatalities that I have investigated. Although usually not the direct cause, complacency and apathy were instrumental factors nonetheless.

Accidents are preventable at all levels of command. Every soldier is a safety officer—from the youngest private to the Chief of Staff of the Army, anyone can intervene if they believe that unsafe actions are being conducted. Over half of the accidents I have investigated could have been prevented if someone would have spoken up.

Effective leaders must learn to recognize and reward the candor of safety-conscious individuals who make “tough calls” for safety’s sake.

Installation Safety

Installation safety offices set the tone for all safety issues on each installation. They are a direct reflection of the installation commander’s safety program. Their resources, to include facilities and personnel, are a product of the commander’s approach to installation safety. The location of their office, number of safety personnel, type/condition of equipment, and authority are command directed.

A commander’s commitment to safety is reflected in the perceived status within the organization of personnel dealing directly with safety. The safety offices should be located as close to the commander as physically and operationally possible. The facilities should be state-of-the-art. If we have money to build new state-of-the-art facilities on our installations, then we have enough money to protect the reason for building them—the soldier. The installation commander’s safety program should focus on tactical safety, as well as garrison safety (playgrounds, schools, etc.). Tactical safety must not be left to untrained individuals who were designated as unit safety officers in the

form of additional duties.

According to AR 385-10, *The Army Safety Program*, “Safety officials will be a member of the commander’s special staff and report directly to the commander.” Installation safety managers should answer, as a minimum, directly to the installation chief of staff, or even better, the installation commander. They should not have to work up through staffing elements to get safety actions planned, approved, and accomplished. They should be adequately trained and held accountable for coordinating mandatory

safety requirements as spelled out in appropriate Army regulations.

Finally, safety managers must tell the commander everything, not just what he wants to hear; “yes men” only establish a false sense of security.

Excellent safety offices don’t always have the largest budgets. Their success lies in their proactive approach to safety. Many of the best are tied directly to the commander’s hip. Unit training plans, unit safety officer courses, safety literature dissemination plans, and safety inspection checklists are

but a few of many proactive steps that effective safety offices use in assuring garrison and tactical safety. These offices also manage to find funds to send their safety personnel to school so they can become fully trained safety managers.

Our soldiers deserve the best when it comes to safety. If you are an installation safety manager, stand tall. If you have to, demand that you be given the ability to conduct your duties properly. Demand funds, demand equipment, demand personnel. Step up to the plate and be recognized. Don’t let the fatality of a soldier be the first opportunity for you to make a point to your commander. It’s not fair to anyone, especially the soldier. ♦

POC: MAJ Gary Kotouch, Ground Systems and Accident Investigation Division, USASC, DSN 558-2933 (334-255-2933); kotouchg@safety-emh1.army.mil

Lack of adequate supervision was often a contributing factor in most of these accidents.

This article is written by accident investigators to provide major lessons learned from recent centralized accident investigations.

Investigators' Forum

Accidents Kill More Than the Enemy

More soldiers have died as a result of non-battle injuries than in combat. Many of these soldiers were killed by an enemy that doesn't disappear when the fighting is over; neither does it surrender nor lay down its arms. This enemy is accidents. The only defense against accidents is leading soldiers based on standards and enforcing the requirement to perform to standard at all times. By properly supervising soldiers, leaders can protect our soldiers as well as improve unit capabilities. Here's an example of how it should NOT be done...

The platoon received orders to conduct a mounted patrol to a nearby town as part of an ongoing peacekeeping mission. The mission included the requirements to travel from their base camp to the town, spend some time with the local civilian population, and then return back to the base camp. The unit had done many missions like this during their stay.

The platoon leadership assigned the mission to one of its squads. An M113A3 Armored Personnel Carrier and a HMMWV were used to conduct the mission. Five soldiers rode in the M113, and the squad leader and his driver

followed in the HMMWV.

The mission began with no problems. The squad drove to their first objective and spent about an hour interacting with the local population. They played some games with local children and shared some watermelon with them.

Afterward, they remounted their vehicles and began to drive back to their base camp. Three of the soldiers in the M113 occupied positions in the cargo hatch area to provide 360-degree observation and security. The driver and vehicle commander were in their usual positions.

While driving along the road between

30 and 35 miles per hour, the M113 crew felt what they later described as a large bump, similar to that felt when driving into a big pothole. Immediately after this bump, the vehicle began a sharp turn to the left. The driver attempted to correct the vehicle's motion, but his steering and braking attempts were ineffective. After spinning nearly 180 degrees, the M113 left the roadway and entered a ditch. It rolled into the ditch on its right side and



Mission: Conduct Mounted Patrol

Hazards

- Excessively worn track can break while vehicle is moving
- Vehicle can become uncontrollable after losing a track
- Soldiers operating in M113 cargo hatch area have no rollover restraints

Results

- 2 Fatalities

Controls

- Maintain track IAW vehicle -10 manual
- Operate at safe speeds
- Practice rollover drills

came to rest on its top. Two of the soldiers in the cargo hatch area fell completely out of the opening into the ditch and were unhurt. The driver, still in his position, was also unhurt. The vehicle commander and the third soldier in the cargo hatch were pinned beneath the overturned vehicle and suffered fatal injuries.

What went wrong?

The vehicle became uncontrollable due to a snapped track. The track on the M113's right side broke completely, resulting in the loss of the track and a complete loss of steering control. With no track on the right side, the driver's attempts to steer were not effective, and any braking that he did only worsened the vehicle's pull to the left.

Examination of the broken track showed that the pin on one block had worn through the metal parts that held it within the adjacent track block. Over time, the metal became weaker until the forces exerted by the pin overcame the metal's ability to hold it in place, and the pin tore completely free from the adjacent shoe.

The M113 crew's pre-mission PMCS did not identify the numerous unserviceable track blocks on both sides of the vehicle and the unserviceable track adjuster on the right side. A post-accident examination of the vehicle showed a very deep gouge in the hull on the M113's right rear, indicating a history of improper track tension on that side. The wear patterns on the failed track shoes also showed a long-term pattern of metal-on-metal wear after the failure of the track bushings.

Lessons learned

A properly conducted PMCS should have identified these deficiencies. The M113 driver had the necessary tools and manuals to identify the problems; however, he gave only a general impression of overall track wear to the platoon's leadership and failed to note the seriousness of the problem. The platoon's leadership did not ensure that the PMCS was performed properly and did not catch these problems through any sort of quality control or pre-mission inspection. The unit had a perception that all their vehicles had seriously-worn

track, but they did not quantify the problem nor did they notify the company commander or XO. As a result, replacement track was not ordered with a high priority, and this vehicle departed on the mission with an unsafe condition.

If the company commander had known of this vehicle's dangerously worn track, he could have taken control measures to reduce the risk of its use on the mission. DA PAM 738-750 outlines the "circle-x" procedure available to commanders in this situation. The commander can allow the crew to use the vehicle by imposing control measures that, in his judgment, mitigate the risks to an acceptable level. Examples of control measures applicable in this case include imposing a maximum speed limit or requiring frequent halts for track checks. Additionally, simply cross-leveling track between this vehicle and another one could have eliminated this risk.

The M113 was traveling faster than the authorized speed limit at the time of the accident. The theater-imposed maximum speed limit for a tracked vehicle on this type of road was 25 miles per hour. The newly published speed limit was also 25 miles per hour. The driver did not know these limits, and neither the vehicle commander nor the squad leader traveling behind him took any action to make him slow down. Excessive speed contributed to the track failure and to the rate of turn of the M113, which resulted in rollover.

Summary

Although this accident was caused by a materiel failure, it could have possibly been prevented by leader actions to develop and control risks in the planning through execution stages of the operation. Leaders at all levels need to properly supervise their soldiers to ensure that all operations are conducted to standard. By routinely enforcing standards, leaders can improve the capabilities of their units and help protect our soldiers. **Leaders can make a difference!** ♦

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You Make the Call

“You Make the Call” is a regular feature in Countermeasure. The purpose is to educate, to 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 answers 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 a battery commander in a mechanized 3x8, M109A6, field artillery battalion. You are in day 8 of a 14-day external evaluation (EXEVAL). The time is 2000 and you have just received a fragmentary order (FRAGO) to displace to a new firing location and be in-position-ready-to-fire (IPRTF) no later than 0600 the next morning. The battery has been firing since 0600 that morning and is operating on six hours of sleep.

The next firing position is approximately 30km away and the route to that location includes paved and unpaved roads. Your battery has not had their evening meal, but you have MREs and

hot “T-rations” available. All vehicles in the battery are getting low on fuel and you will need to conduct a “hot refuel” en route.

Your executive officer has determined that it will take about three hours to move to the next location based on the route you have suggested.

What should you do? Should you: (1) March-order and depart for the next location and get some sleep before 0600? Or, (2) Eat chow, bed down, then get up and depart for the next position at 0300. What would your actions be prior to conducting any of these options? What are the safety implications associated with each?

You make the call. ♦

Safety Alert Notice

In a series of recent accidents, U.S. Army Safety Center investigators have noted an increase in leaders failing to enforce standards defined in unit SOPs, gunnery manuals, or operator manuals. Identified acts of noncompliance include supervisors allowing operations with untrained/uncertified crews or fewer crewmen than required.

For weapon systems to function as designed, crews must be trained. For reasons such as personnel turbulence, short-notice deployments, or simply a lack of assigned crewmen, units sometimes find themselves without enough trained, qualified, and certified crews to operate all assigned systems. Unqualified crews and reduced-personnel crews cannot accomplish every task to the standards defined in the system operator’s or gunnery manuals. Shortcuts can lead to errors, which often result in death, personnel injury, and/or equipment damage.

Commanders are required to certify that all crews are proficient in mandatory tasks for all major weapons systems prior to the execution of live-fire gunnery. Before authorizing a deviation from established procedures or standards, commanders must first determine if the benefits of executing the mission outside of published procedures or standards outweigh the risks involved. If so, hazards associated with the deviation must be identified. Control measures to mitigate the associated risks then must be developed and implemented. Finally, commanders must decide that the training benefit of continuing the mission with these controls in place outweighs the residual risks. In all cases, commanders and leaders must provide the supervision necessary to ensure that sound risk management decisions are made and then enforce those identified control measures. ♦

—BG Gene M. LaCoste, Director of Army Safety

ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

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NOVEMBER 1999

**POV
FATALITIES**
THRU SEP FY 99
124
THRU SEP FY 98
116

In this issue...
**FY99 POV
Roll Call**

SPECIAL POV PULL-OUT POSTERS INSIDE



ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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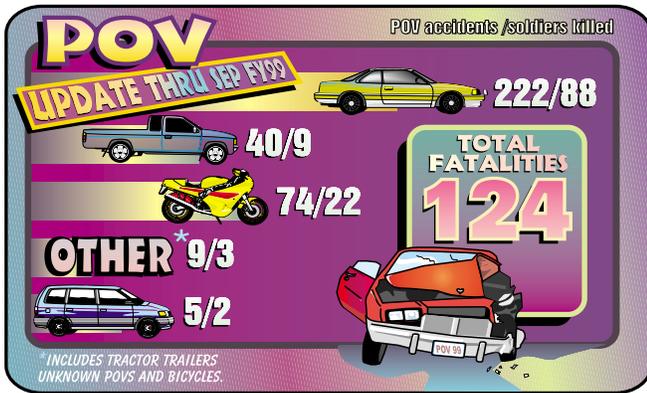
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Due to this POV Special Issue having limited space, "You Make The Call" will be featured next month.



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@safety-emh1.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

From the Editor

It's not a pretty picture. In FY 99, 124 soldiers were killed in car, truck, and motorcycle accidents. Automobiles have killed more soldiers than field exercises, tactical vehicles, or any other soldiering activity. Year after year, privately owned vehicle (POV) accidents account for almost three out of every five military fatalities.

Why are soldiers dying in POVs?

Why, if soldiers are having fewer on-duty accidents, are we still losing them to off-duty POV accidents? Most importantly, what can we do to change these senseless losses? Somehow we must convince soldiers to take the risk management they apply to operating extremely demanding pieces of Army equipment and transition these lessons learned to operating their personal vehicle.

What causes these accidents?

The foremost contributing factors to POV accidents are speed, fatigue, and alcohol.

Speed. While speed limits have been increased in many parts of the U.S., there is nothing to indicate that this change is a major factor in soldier POV fatalities. Rather, willful violations of the posted limit are suspect. Personal attitude and lack of self-discipline have a great effect on a person's likelihood to exceed the posted speed limit. Without a change in attitude and improvement in personal discipline, soldiers who speed when the limit is 55 will speed when the limit is 65. Additionally, driving the posted speed limit doesn't always mean you are driving at safe speed. Road conditions, weather, and the driver's level of alertness must be factored in to arrive at the safe speed.

Fatigue. Soldiers tend to start road trips after a long day at work. They also tend to go too far and wait too late to begin their return trip. Visits home and to recreation areas are usually jam-packed with activities, and the soldier often is already fatigued before the return-to-duty trip even begins. Then the pressure of getting back and signing in from leave or pass can cause even a normally good driver to skip rest stops and drive beyond his or her safe capabilities. Research shows a marked decrease in mental alertness after 2 hours of driving—even for fully

rested drivers. AR 385-55 recommends a 10-minute break after every 2 hours, but drivers must recognize that even with breaks, the effects of fatigue are cumulative, and the only sure cure is to stop and get some restorative sleep.

Alcohol. The Army is making progress on decreasing the incidence of DUI. The word is out that drinking and driving won't be tolerated. Yet, in spite of many effective tools such as designated driver programs, cards providing telephone numbers that soldiers can call for a ride if they have been drinking, and so forth, there are still POV accidents where alcohol is a factor.

Seatbelts. There is just no logical way to explain why soldiers don't use seatbelts. Nevertheless, accident reports make it clear that some don't. Statistics show over and over again that your seatbelt is a lifesaver — wear it! Furthermore, insist that everyone else in your vehicle does the same.

Leader responsibility

The closer you are to the soldiers in your command chain, the better you will know them.

Squad leaders and platoon sergeants know more about soldiers' driving habits than commanders. But awareness isn't enough. It is up to leaders at every level to take action to improve soldiers' driving habits and prevent accidents. This can range from awareness efforts and positive incentives, to recommending suspension or revocation of driving privileges if it becomes obvious that such action is needed.

Leader responsibility doesn't let individuals off the hook either. Each soldier must become involved in safety. Soldiers need to examine their own driving habits and look at ways to improve. Additionally, soldiers know when other soldiers drive irresponsibly. Remember, just as you wouldn't turn a blind eye if a fellow soldier were mishandling a tactical weapon, you can't do it when the weapon is a POV. Like it or not, you are your brother soldier's keeper — don't let someone you know be the next statistic. Believe me, it's not a pretty picture.

SAFETY FIRST!

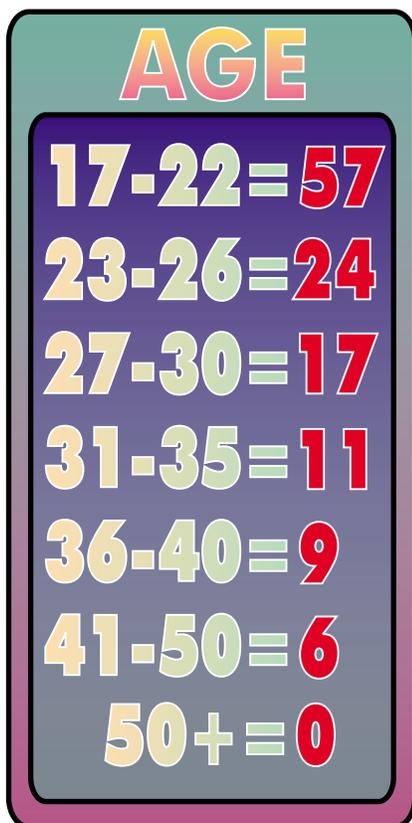
Paula

Roll Call!

This issue of Countermeasure recounts the 124 soldiers who died in POV accidents in Fiscal Year 1999. Most of these fatalities cite the same causes of speed, fatigue, alcohol, traffic rule violations, and not wearing seatbelts over and over again. These are vivid testaments to the fact that there are no new causes, just new victims—year after year after year. Yet, just identifying hazards won't save a soldier's life...leader involvement is key in gaining control and stopping this tragic loss of life. If you need help in establishing a POV Safety Program, call us. Remember that your safety and well being are important to us here at the Safety Center, as well as the Army and our nation.

- **PVT- 20** was driving while fatigued and exceeded the posted speed limit. Soldier lost control of her vehicle when she fell asleep at the wheel and ran off the roadway, striking a tree.
- **SGT- 34** stopped his vehicle on shoulder of road to take a bathroom break when he was hit by another vehicle.
- **SGT- 22** went through a red light and struck an 18-wheel truck.
- **SPC- 22** was speeding back to post on his motorcycle when he hit a curb and was thrown from his bike.
- **SPC- 27** was rear-ended by an 18-wheeler when he stopped to pick up a hitchhiker.
- **PFC- 21** was speeding late at night when he hit a curb and lost control causing his vehicle to leave the road and strike a pole. His vehicle proceeded to hit a building causing the main gas line to explode.
- **SPC- 21** was killed when he attempted to pass another vehicle and couldn't return to his lane. Vehicle was struck head-on. Both occupants were ejected from the vehicle.
- **SPC- 20** attempted to pass another vehicle as it was making a left turn. Soldier's vehicle crashed, flipped several times, and landed in a ditch. Passengers, **PFC-20** and **PFC-19**, also were fatally injured.
- **SPC- 27** was hit head-on when another vehicle tried to pass a line of cars and failed to get back in correct lane. Soldier's entire family died in accident.
- **SGM- 44** was traveling at a high rate of speed and attempted to change lanes and lost control of his vehicle. Soldier's vehicle ran off the road, struck a fence post, and then collided with a tree.

- **PFC- 30** was hit head-on when the vehicle he was a passenger in veered into the opposite lane of traffic.
- **SFC- 35** was traveling on a service road when a van crossed the centerline and ran head-on into his car.
- **PFC- 19** was driving while fatigued. Soldier fell asleep and collided head-on with another vehicle.
- **2LT- 22** was struck head-on by an oncoming vehicle that had crossed the median into his lane.
- **MSG- 49** struck a tree when his vehicle left the roadway. No seatbelt was used.
- **CPT -28**, a passenger in a car, was killed when the vehicle hydroplaned and struck another vehicle.
- **PFC-21** was speeding on a wet roadway and lost control of his vehicle. Soldier's vehicle spun out of control and entered the opposite traffic lane where he was struck head-on. Alcohol was also a factor.
- Two soldiers, **SGT- 31** and **PFC-21**, were killed when they crossed the centerline and collided with an oncoming vehicle. Fatigue was a factor.
- **PFC-21** was speeding and lost control of his vehicle on a curve and overturned. Soldier was not wearing a seatbelt and was ejected.
- **SSG-31** was test-driving a motorcycle. As he entered the intersection, a car ran a stop sign and collided into him.
- **SPC-24** rear-ended his motorcycle into a vehicle making a U-turn.
- **LTC-39** was struck by an unattended commercial cement truck while walking to work.
- **SGT-30** was traveling at a high rate of speed on his motorcycle when he attempted to pass a vehicle on the right side. Soldier's motorcycle collided with the vehicle when it made a right-hand turn.
- **PV2-19** fell asleep at the wheel after leaving a late night party. Vehicle went off the bridge, incinerating on impact with the ground. His passenger, **PV2-19**, who was asleep in the back seat died also.
- **SGT-32** was killed when his vehicle left the roadway, struck a telephone pole, flipped, ejected the soldier, and the vehicle landed on top of him. Alcohol, speed, and not wearing a seatbelt were factors.
- **SPC-23** was on leave and traveling with her family. An oncoming vehicle crossed the centerline and hit soldier's vehicle head-on.
- **SPC-21** lost control of his vehicle while passing a tractor-trailer on an icy road. Vehicle struck a guardrail, reentered the lane, and was struck by the 18-wheeler.



- **PVT-18** was a passenger in a vehicle exceeding the posted speed limit. Vehicle lost control and struck a concrete pillar causing the vehicle to slide into a pole and brick wall.
- **SPC-25** was a passenger in a vehicle that ran off the road, struck a wall, and overturned. Inattentive driving combined with excessive speed for road conditions (fog, dark, and slick roadways) were factors.
- **PFC-28** was killed when his vehicle was struck from behind, causing his vehicle to strike a tree.
- **SFC-47** hit a patch of black ice, lost control, and skidded into a tree and down an embankment.
- **SPC-22** fell asleep at the wheel. Soldier's vehicle crossed the median, exited the roadway, and landed on its roof in water.
- **PV2-20** was traveling with family when his vehicle was struck head-on by a drunk driver on New Year's Eve. Soldier's entire family was fatally injured.
- **PV2-19** swerved to avoid a turning POV, lost control of his vehicle, and spun counterclockwise across both lanes of traffic and struck an oncoming truck.
- **SSG-32** struck another vehicle while operating his motorcycle at over 100 mph.
- **PVT-18** was en route to formation which had been postponed due to inclement weather. Soldier's vehicle skidded off icy roadway, struck a guardrail, struck another vehicle, and then struck an oncoming tractor-trailer.

- **PFC-21** was killed when she struck another vehicle.
- **SGT-22** was a passenger in a vehicle traveling at a high rate of speed. The driver failed to negotiate a curve and lost control of the vehicle, causing it to spin and collide with a dirt embankment.
- **PFC-25** fell asleep at the wheel while returning to base during early morning hours. Soldier's vehicle skidded onto right shoulder of road, and then he overcompensated and steered into an oncoming vehicle.
- **PVT-19** lost control of vehicle and struck a house. Soldier was not wearing a seatbelt and was ejected from vehicle. Alcohol was involved.
- **SFC-37** fell asleep while driving and struck a concrete barrier.
- **SSG-27** lost control and fell off of his newly acquired motorcycle while trying to do a "wheelie." Soldier was not wearing a helmet.
- **CPT-27** received fatal injuries when his motorcycle was struck by a truck changing lanes.
- **SPC-28** struck a vehicle from behind while operating a motorcycle over 100 mph. The impact caused the motorcycle to erupt into flames.
- **PV2-18** was a passenger in a vehicle going 80 mph passing another vehicle. The driver lost control causing the vehicle to leave the roadway and hit a tree. Soldier was not wearing a seatbelt. The other two soldiers were wearing their seatbelts and survived.
- **SPC-21** lost control of his vehicle, veered off the road, flipped, and struck an embankment after a tire blowout. Soldier was not wearing a seatbelt and was ejected.
- **SPC-20** jumped out of a moving vehicle and was struck by another car. Alcohol was a factor.
- **PV2-19** received fatal injuries when the driver of the vehicle lost control, struck a guardrail, became airborne, and impacted a cement drainage ditch.
- **SPC-19** fell asleep while driving, drifted into the oncoming lane, and struck a tractor-trailer head-on.
- Two soldiers, **SFC-34** and **SFC-38**, were fatally injured when their speeding vehicle made a sharp left turn and hit the center median with the left front tire. The vehicle then turned sharply right and left the roadway. Both soldiers were thrown from the vehicle. Neither was wearing a seatbelt.
- **PFC-19** signed out on leave and was speeding to reach his destination. Vehicle hit the median and flipped several times. Soldier was ejected.
- **SSG-38** received fatal injuries when he was involved in a multiple car accident.
- **SPC-21** lost control of his motorcycle and struck a guardrail.
- **PFC-22** was exceeding the speed limit while driving intoxicated. In the early morning hour, soldier ran a red light, struck a median, and lost control of his vehicle. Vehicle rolled and flipped, ejecting soldier.
- **PFC-19** was struck head-on by a drunk driver driving the wrong way on a one-way street.
- **PV2-18** was a passenger in a vehicle that was traveling too fast for the rainy/snowy weather conditions. The driver lost control of the vehicle, hit a barbed-wire fence and rolled. Passenger was wearing only his shoulder belt and was ejected from the vehicle. Driver was wearing required seatbelts and received minor injuries.
- **SPC-27** lost control of his motorcycle and struck a concrete embankment. Soldier had not been licensed to operate a motorcycle.
- **CW4-41** failed to stop his motorcycle at a stop sign and collided with another vehicle.

RANK	
PVT	= 8
PV2	= 11
PFC	= 29
SPC	= 33
SGT	= 13
SSG	= 13
SFC	= 7
MSG	= 2
SGM	= 1
CW4	= 2
2LT	= 1
CPT	= 2
LTC	= 2

- **SPC-21** was involved in a head-on collision with a tractor-trailer in the early morning hour.
- **SFC-33** received fatal injuries when a mechanical failure caused him to lose control of his motorcycle.
- **PFC-19** was speeding approximately 90 mph when he struck a parked tow truck.
- **PV2-20** was hit by a vehicle while walking across a street on post.
- **SPC-23** lost control of his vehicle while speeding and driving intoxicated.
- **SPC-23** ran a red light and collided with another vehicle.
- **SSG-28** was involved in a head-on collision while off-duty.



- **SSG-29** fell asleep at the wheel and lost control of her vehicle, which veered into the median, rolled, and came to rest upright.
- **SGT-25** was a passenger in a vehicle involved in a head-on collision in the early morning hours.
- **SPC-24** was riding as a passenger in a car that the driver fell asleep at the wheel. The driver exited the roadway and struck a rock embankment causing the vehicle to flip and land on the passenger side roof.
- **SSG-45** fell asleep at the wheel and struck a guardrail.
- **PVT-23** lost control of his vehicle and traveled into the center median where it overturned several times. Soldier was not wearing a seatbelt and was ejected.
- Two soldiers, **PFC-18** and **PFC-19**, sustained fatal injuries when the driver fell asleep at the wheel and crossed into oncoming traffic and collided head-on. They were driving home from a night of socializing in nightclubs and both had been drinking.
- **PFC-21** received fatal injuries when the motorcycle he was a passenger on crashed into a large pine tree, throwing both riders from the bike. He was not wearing a helmet.
- **PFC-22** and **SGT-23** were killed when their vehicle collided with another moving vehicle. Both vehicles caught fire.
- **SPC-21** was traveling too fast for road/weather conditions and lost control of her vehicle on a curve. The vehicle left the highway, struck an embankment, overturned, and then struck a tree.
- **PFC-18** lost control of his vehicle, crossed the median into oncoming traffic, and struck a semi-truck head-on.
- **PFC-23** was speeding and did not slow down going into a curve, lost control of his vehicle, hit a pole, and then rolled several times. Soldier was not wearing a seatbelt and was ejected.
- **LTC-41** was a passenger in a car that was hit broadside by a vehicle failing to stop at a stop sign.
- **PFC-18** lost control of his vehicle and drove off a cliff. Soldier was not wearing a seatbelt and was ejected.
- **PFC-20** was a passenger in a vehicle in which the driver was under the influence of alcohol and traveling at a high rate of speed. The vehicle crashed into a tree and fence after failing to negotiate a curve.
- **SPC-20** fell asleep at the wheel in the early morning hour. The vehicle struck a culvert, went airborne, and hit a palm tree.

- **PVT-23** crossed both lanes of traffic, proceeded off the road, flipped, and struck a tree.
- **PV2-21**, a passenger not wearing a seatbelt, was fatally injured when the driver became fixated on the emergency lights of the tow truck parked on the side of the road, resulting in the vehicle veering off the road and hitting the tow truck. Alcohol, speed, and fatigue were factors in this accident.
- **SPC-24** was hit while attempting to cross an interstate highway on foot. The vehicle never stopped.
- **SFC-39** was hit head-on when a semi tractor-trailer crossed over the centerline and struck his vehicle.
- **SSG-32** was ejected from his vehicle after a tire blowout, causing the car to hit a guardrail and flip.
- **PFC-19** was ejected while riding as a passenger in the rear seat of a friend's car. In the early morning hours, the driver fell asleep at the wheel, veered off the highway, struck a guardrail, and slid down an embankment.
- **SSG-23** attempted to pass another vehicle, lost control of his motorcycle, went off the road, and flipped approximately four times. Soldier had his motorcycle only 2 months prior to accident and had not attended a motorcycle safety course.
- **PFC-21** fell asleep at the wheel while driving home from work in the afternoon.
- **SPC-25** and **PFC-19** were both killed when their vehicle, traveling at a high rate of speed, collided with the backend of a slower moving truck.
- **SSG-29** was on her way to PT formation and attempted to cross a water-covered bridge, but her vehicle was swept into the creek by the current. Soldier subsequently drowned in the swiftly flowing water after exiting the vehicle.
- **SPC-24** was not wearing a seatbelt and was ejected from the rear seat of a friend's car. In the early morning hours, the driver fell asleep at the wheel, veered off the side of the road, and overturned four times. Driver and front passenger wore seatbelts and survived.
- **SPC-23** exited his vehicle at a congested intersection and was hit by a civilian POV.
- **SPC-28** and **SPC-24** were fatally injured when their vehicle drifted into oncoming traffic and collided head-on. They were returning from a fishing trip.
- **SSG-40** was traveling at a high rate of speed on his motorcycle when he missed a sharp turn and ran into a telephone pole.
- **PFC-19** was traveling at too great a speed around an "S" curve and lost control of the vehicle.
- **PV2-25** was driving in the wrong direction on a one-way street when he swerved to avoid hitting an oncoming car and subsequently flipped his vehicle. Both occupants, not wearing seatbelts, were ejected through the windshield.
- **SPC-21** was a passenger in a vehicle when the driver lost control, went off the road, and flipped. Soldier was not wearing a seatbelt and was ejected.
- **SSG-35** was thrown off a four-wheeler and run over by it after attempting to cross a ditch.
- **SGT-29** lost control of his motorcycle and veered off the highway while attempting to negotiate a sharp turn.
- **PFC-22** fell asleep, lost control of his vehicle, hit a guardrail, and then rolled four to five times.



- **SGT-25** crashed his motorcycle into a vehicle attempting to turn at an intersection.
- **MSG-37** and family were fatally injured when his vehicle was hit from the rear by a semi tractor-trailer truck while stopped at a traffic light.
- **SPC-25** ran off the road, struck a drainage ditch, then rolled several times. Soldier was not wearing a seatbelt and was ejected.
- **PVT-24** crossed the median and collided into oncoming traffic.
- **PV2-20** ran off the road, oversteered, hit a culvert, and was vaulted into the oncoming traffic lane where he was hit by another vehicle.
- **PVT-21** was a passenger in a vehicle that struck an oncoming car while attempting to pass.
- **SGT-32** was traveling at an excessive rate of speed on his motorcycle when he failed to successfully negotiate a bend in the road and subsequently skidded into a trash dumpster.
- **SPC-24** lost control of his vehicle while attempting to drive and consume a meal at the same time. The vehicle ran off the road and the soldier attempted to guide it back onto the roadway, but overcorrected and spun into oncoming traffic where he was struck by a bus.
- **SPC-21** was traveling at a high rate of speed when he lost control, left the roadway, and slid off the opposite side of the road into an embankment and then a tree.
- **SSG-38** had his vehicle struck by a semi tractor-trailer truck while attempting to merge into interstate traffic. Passenger also expired.
- **SGT-28** was traveling at a high rate of speed on his motorcycle when he rounded a corner, lost control, and hit an embankment.



- **CW4-40** was involved in a 40-car pileup that resulted in at least six deaths and multiple injuries while driving during a dust storm. Winds were blowing between 80-100 mph dropping visibility to zero.
- **PFC-20** was killed while riding as a passenger in the back seat of a car. Vehicle left the roadway and struck an unknown object. Soldier was not wearing his seatbelt and was thrown through the windshield. Speed, alcohol, and the lack of a license appeared to be contributing factors. ♦

Food For Thought...

As an M1A1 Abrams tank crewmember, are you less likely than other soldiers of your same age and grade to be involved in a POV accident because you're more reliable, more disciplined, and more mature? Or are your chances of a POV accident actually higher than average because you're an Abrams crewmember?

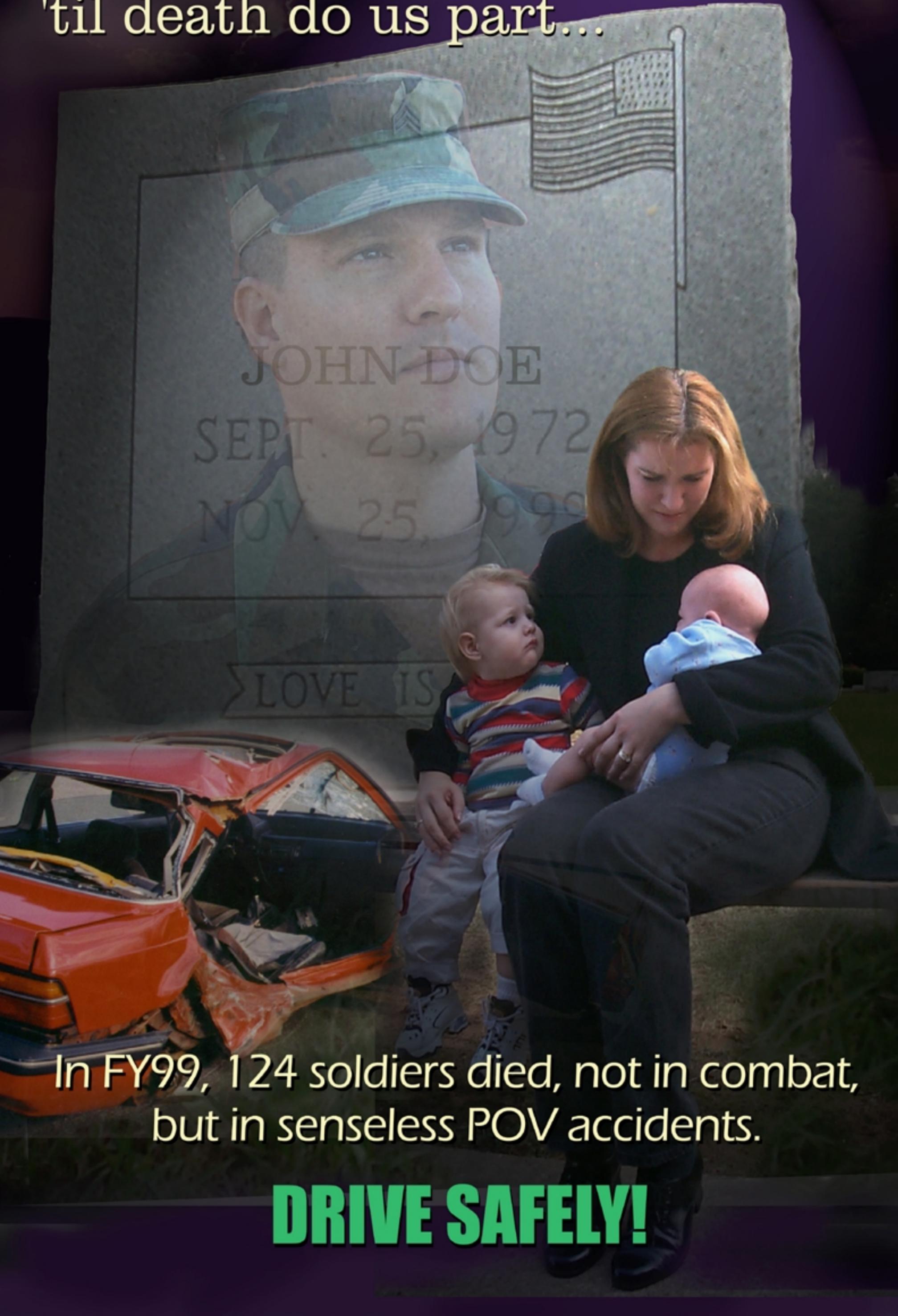
Maybe the fact that the Army trusts you with responsibility for high-cost tanks and priceless personnel makes you take seemingly lesser responsibilities for granted. Maybe that

car or truck or motorcycle doesn't seem like too big a deal when you've just crawled out of a Bradley or a high-mobility multipurpose wheeled vehicle (HMMWV).

Statistically speaking, that Abrams, Bradley or HMMWV is not what's going to get you killed. You're much more likely to die in your POV. That being the case, why aren't we applying risk management during our off-duty time as we do while we're on-duty? It should be a continuous process! ♦

Think about it...

'til death do us part...



In FY99, 124 soldiers died, not in combat,
but in senseless POV accidents.

DRIVE SAFELY!

Holiday Shots



DON'T LET THESE END UP IN YOUR FAMILY PHOTO ALBUM!

~~X~~ ALCOHOL

~~X~~ FATIGUE

~~X~~ SPEED

~~X~~ NO SEATBELT/HELMET

POV
FATALITIES
THRU OCT FY 99
14
THRU OCT FY 00
7

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COUNTERMEASURE

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In this issue...
**'Tis the
Season to Put
Safety at the
Top of Your
Holiday List**

Special Issue on Holiday Safety

ARMY GROUND RISK-MANAGEMENT PUBLICATION

COUNTERMEASURE

The Official Safety Magazine for Army Ground Risk-Management

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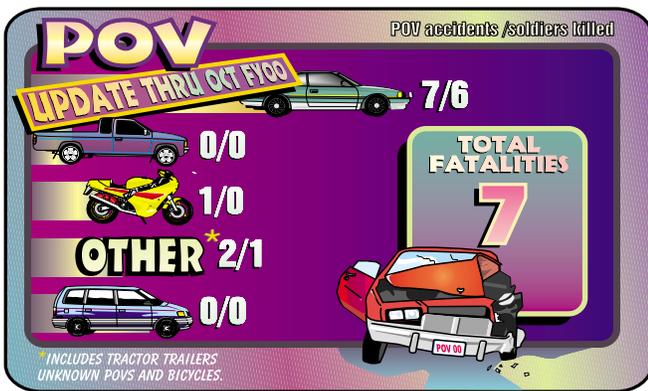
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Gene M. LaCoste
Gene M. LaCoste
Brigadier General, U.S. Army
Commanding Officer

From the Editor

The holidays are a joyful time of the year as we gather with our families and friends. Often, our lives become very hectic as the season approaches, and it's easy to overlook common safety precautions. Just as there are safety rules and precautions to help you on duty, there are also safety guidelines to help you through the holidays while off duty. As joyous as the season is, we must remember to keep our guard up when it comes to accident prevention. So, as you're making your holiday list, put safety at the top.

Holiday Safety List

- Smoke detectors
- Fire extinguisher
- Christmas tree
- Lights and decorations
- Fireplace
- Parties and alcohol
- Holiday blues

Smoke Detectors and Fire Extinguishers

If you don't have these essential lifesaving devices, put them at the top of your shopping list. Smoke detectors should be installed on each floor of your home and outside each bedroom. Avoid placing smoke detectors in the kitchen, where false alarms are common. Test your smoke detectors at least once a month, and replace their batteries once a year. Make sure every member of your household knows what the smoke detector alarm sounds like and what to do if there is a fire. Also, buy a fire extinguisher for your home and make a habit of inspecting it on a regular basis.

Christmas Trees

Christmas trees are one of the most popular traditions of the season—and one of the most dangerous. Whether you choose a live tree or an artificial one, there are certain precautions that must be followed.

Freshness is the most important safety factor. The higher the moisture content, the less likely the tree is to dry out and become a fire hazard. The best way to ensure a tree is fresh is to cut it yourself; however, sometimes that can't be done. Pre-cut trees can be just as good if you use these tests to help judge a tree's freshness:

- Lift the tree and tap the trunk on the

ground. Only a few needles should fall, and the trunk should be sticky with sap.

- Make sure the needles are attached firmly to the twigs and that the needles can be bent without breaking.

Once you get the tree home, take these precautions to keep it fresh:

- Immerse the tree in a bucket of water until ready to decorate.

- When you're ready to put up the tree, cut a one- or two-inch diagonal slice off the bottom of the trunk. The new cut helps the tree absorb water and will preserve freshness.

- Put the tree in a sturdy stand with widespread legs and keep the stand filled with water the entire time the tree is indoors.

- Keep the tree at least three feet away from heat sources such as fireplaces and space heaters.

When the holidays are over, take the tree outside as soon as possible. Recycle or discard it according to your local city or county regulations.

If you are considering using an artificial tree this year, look for the label "Fire Resistant" when purchasing. Be aware that even fire-resistant artificial trees can catch fire—especially if they have years of dust buildup on them. Wash the artificial tree each year and store the parts in plastic bags. When decorating, be sure lights are designed for artificial tree use.

Important: To keep your tree from being knocked over, set it up where it is out of the way of traffic and does not block entrances or exits.

Lights

Mixing and matching lights can create a fire hazard, so keep outside lights outside and inside lights inside. Examine lights before you hang them. Check to see that each strand has a United Laboratory (UL) label, indicating it has been safety tested. Inspect the light strings and cords for fraying, bare wire, loose connections and broken sockets. After replacing missing or broken parts, check each set by setting it on a nonflammable surface and plugging it in for 10-15 minutes to see that the lights don't melt or smoke.

Now that you have examined the lights, you're ready to hang them. Be sure to take the following precautions:

- Position the bulbs so they are not in direct contact with needles or ornaments. Also keep lights away from curtains or flammable materials.

- Don't overload electrical outlets. Don't connect more than three sets of lights to an extension cord.

- Keep cords and plugs away from the water under the tree.

- Don't run a cord under a rug or carpet, since wires may overheat and surrounding materials could catch on fire.

- Be cautious when placing cords behind furniture—if pinched, cords may fray.

Remember: Unplug all decorations inside and outside the home before leaving the house or going to bed.

Fireplaces

The holidays bring to mind images of relaxing in front of a cozy fire. But before you get too comfortable, review these safety rules for using fireplaces:

- Ensure a professional cleans your chimney every year.

- Don't use a fireplace to burn wrapping materials or newspapers. It can create toxic fumes and even a flash fire.

- Use kindling and wooden matches to light fires, not flammable liquids.

- Always use a fire screen.

- Don't wear loose or flowing clothes when tending fires.

- Don't close the chimney flue until you ensure the fire is completely out.

- Ensure the fire is out before leaving the house or going to bed.

Important: Dispose of ashes in a metal container. Never store them in or near the house.

Holiday Parties and Alcohol

It's great to get together with coworkers and friends to celebrate the season. Let common sense be your guide. Please don't drink and drive. Use a designated driver or take a taxi home. Better yet, don't overdo it. If you're hosting a party, serve plenty of food along with the drink.

Holiday Blues

Finally, the holiday season—a joyous season for most people—can be just the opposite for many soldiers away from home perhaps for the first time. Being alone for the holidays can have a depressing effect. Don't let someone you know spend the holidays alone. The true meaning of the season is that of giving and opening our hearts to others.

From our family to yours, we wish you a truly happy, healthy, and safe holiday season. ♦

SAFETY FIRST!

Paula

Accident Briefs

Candle Flames Kill

A soldier died when his mobile home was destroyed by fire. Because of cold weather, the power was out, and the soldier was using candles for illumination. He fell asleep and left the candles burning.

Hazards. It is especially dangerous to use candles or other open flames for home lighting over a long period of time.

Controls. When the power is off, lanterns and flashlights make safer alternatives for home lighting than candles.

“Unloaded” Pistol Kills Soldier

A soldier shot himself in the head while demonstrating to his wife the use of his revolver. He apparently was unaware that the weapon was loaded.

Hazards. All weapons should be considered loaded and dangerous until checked for ammunition.

Controls. Weapons should not be stored loaded. In addition, the safety should be

engaged until the shooter is ready to pull the trigger. Further, a weapon should never be pointed toward anyone—even the person holding the weapon. Soldiers should also use extreme caution in demonstrating weapon use. The pistol range is the most appropriate place for such demonstrations.

Black Ice Takes Life

A soldier died after his car hit a patch of black ice and slid out of control into the path of an oncoming car.

Hazards. Areas that have black ice (which is more common in Europe than in the States) usually have a nonreflective road surface. When ice forms on this type of surface, it is almost invisible.

Controls. Alert drivers know about black ice and are always on the lookout. It normally occurs in shaded areas or on bridges from late fall through early spring. Such areas should be approached with caution. **Hint: If you have to scrape frost or ice off your windshield, conditions are right for black ice.** ♦

Heater Safety

Safe operation of any type of heater requires:

1. Proper assembly and maintenance
2. Trained, licensed operators
3. Proper fuel
4. Proper supervision

Commanders must take the lead in ensuring heaters are used and monitored correctly.

Get Back to the Basics

Failure to execute “the basics” is costing the Army precious resources that we can ill afford to lose.

The basics may include using the proper equipment to inflate a split-ring rimmed tire, properly training and licensing drivers, conducting a thorough passenger briefing, or making an on-the-spot correction during training exercises. Combinations of high optempo, fatigue, personnel turnover, overconfidence, and complacency have caused us to forget the basics, and our soldiers and our Army are paying the price. Injuries, destruction of equipment, and most tragically, fatalities are often the consequences of letting our guard down during basic day-to-day operations.

The leading causes of aviation and ground accidents continue to be overconfidence, complacency, and lack of proper training that often result in soldiers failing to execute operations using the task, conditions, and standards to which they were trained. Evidence suggests that leaders rarely check to ensure that routine duties—the simple things—are performed to standard.

Unsupervised, a soldier’s desire to accomplish the mission can lead to taking shortcuts. Shortcuts in routine duties often lead to shortcuts in more complex tasks...and those shortcuts often lead to disaster.

Examples of accidents caused by overlooking the basics are located in the database here at the Safety Center and are too numerous to list. These accidents share a common thread—somewhere in the accident sequence, someone knowingly violated a basic standard or SOP, usually with good intentions, often trying to make things easier, and with mission accomplishment as the goal. In many of the cases, leaders failed to take corrective action either before or during the accident sequence.

Active leadership is the key to halting this alarming trend. When soldiers violate a procedure or standard, leaders must take immediate action to correct the situation. In

effect, failure to correct the violation sets a new, lower standard. It legitimizes the shortcut. Leaders at every level must establish procedures, and set and enforce standards that focus on doing tasks, including routine tasks, the right way...every time. This is something that we owe our soldiers. Tasks, conditions, and standards; standard operating procedures; and regulations have been developed over time for a reason: to

ensure safe, efficient operations. Enforcing them is one of the best ways we can take care of our soldiers. Taking or allowing shortcuts doesn’t help our soldiers nor does it help us maintain an Army that is combat ready.

Setting the standard is a function of command; however, the primary responsibility for ensuring execution to standard lies with first-line leaders. The squad leader, instructor pilot, team chief, and even the “battle buddy” must understand fully what the standards are and understand that shortcuts are not the answer. Our junior

NCOs and officers must be the commander’s controllers. Tell them what you want and the standards to which you expect your soldiers to perform. Give them the authority to enforce those standards and halt unsafe activities. Then hold them accountable. They must set the example and be the commander’s representative in garrison, in training, and during deployments.

We are an Army of standards, and we know the basics contained within those standards. We execute them every day. But the trends indicate that collectively we are letting our guard down. We are destroying equipment and putting soldiers at risk because they are taking shortcuts and not executing the basics. Don’t let the next fatal accident be on your watch because you took the basics for granted. ♦

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NCO Corner

"It Could Have Been Me!"

After being at the Safety Center almost 2 years, I've had enough time to get used to the questions about the patch above my right pocket and then the almost inevitable, "Safety Center? What's that?" To tell the truth, when I got the phone call to come here, I had the same reaction: "The Army Safety Center? What in the world is that?"

Of course, I knew all about safety. After all, I'd heard about it my whole career. Units had safety officers and NCOs put up safety posters on the bulletin boards. They would check the fire extinguishers to make sure they were up to date. Safety people were harmless enough, really. But that post safety officer! His mission seemed to be to make my life as miserable as possible. If he wasn't coming around doing a safety inspection, he was telling me why I couldn't get a mission done the way I wanted because it wouldn't be safe. What was his problem anyway? The Army is a risky business. If we aren't willing to accept a little risk, what are we doing in the Army? Sure, now and then someone is going to get hurt, but isn't that the cost of doing business?

Since reporting to the Safety Center, I have changed my mind. The Safety Center has a good system for processing and computerizing accident data. All the cold, official language of accident reports eventually ends up stored for easy access in an efficient computer database. Everything gets so well categorized that it sometimes seems that the Army could determine in a few minutes how many soldiers got hurt last year tripping over cracks in the sidewalk while wearing Santa Claus suits. At first, this all looked to me like one more bureaucratic waste of money.

Then one day, I had to retrieve data on cold-weather-related accidents and injuries for a *Countermeasure* article. Naively, I decided to look at several years in order to get enough information to establish any trends. I ended up with an overwhelming pile of computer printouts covering cold-weather injuries, cold-

weather vehicle accidents, tent fires, and all the other ways in which soldiers manage to hurt themselves when the cold season comes around each year.

Laboriously, I sifted through the reports, and I began to understand several things. First, the cost of these accidents was greater than I had ever imagined, whether measured in purely economic terms or in human costs. Secondly, almost all the accidents could have been prevented if someone had followed proper procedures, used a little common sense, or taken

a little more care. More often than not, there was an NCO or officer who could have acted to prevent the accident. Finally, there were similarities. After a while, I could read a few lines of a report and almost predict the outcome.

Before I could get too self-righteous in dismissing all these soldiers and their NCOs as the victims of their own lack of good judgment, I realized uneasily that, in too many cases, I was seeing myself. I had done many of the same

things they had. The difference was that I was lucky and got away with it. Obviously, I had not recognized the odds against me when I trusted the welfare of my soldiers as well as myself to blind luck. It wasn't long before I noticed the same similarities in other kinds of accidents.

Being a soldier is riskier than being a civilian. There is nothing glamorous or macho or professional about being hurt or killed in an accident, on or off duty. I have pledged that I will never again accept risk blindly. From now on, I want to know ahead of time what the risks of an operation are – whether conducting a water-crossing or mowing grass at home. When I can eliminate a hazard and still get the mission accomplished, I will. I will try to minimize the risks that I can't eliminate, and I will do my best to ensure that those around me do the same. ♦

POC: SFC Michael R. Williams, Ground Systems and Accident Investigation Division, USASC, DSN 558-2959 (334-255-2959), williamm@safety-emh1.army.mil

"I had done many of the same things, the difference was that I was lucky and got away with it."

NCO Receives Safety Award

The Director of Army Safety Award of Excellence is presented to CSM Donald H. Sheppard, Transportation Center Command Sergeant Major, for his selfless service and dedicated support of the Army Safety Program.

CSM Donald H. Sheppard has been an active and visible leader in the safety arena. During FY 98 and FY 99, he played a significant role in the Fort Eustis and Fort Story safety programs. His direct involvement and dedication to safety principles resulted in reducing the military disabling injury rate by 26 percent and Army motor vehicle accident rate by 25 percent. In addition, neither installation experienced a POV fatality during this period.

CSM Sheppard established a CSM safety action council that addressed and focused on resolving real-time safety issues. The highlight for the council over the 2-year period was the annual pre-exodus holiday safety show. Over a 3-day period, the show was presented to over 4,500 soldiers, civilians, and family members. Personnel were entertained and educated through skits, guest speakers, and music—truly a unique and creative way of conveying the safety message to all personnel.

CSM Sheppard also was instrumental in recognizing selected individuals on Fort Eustis and Fort Story for positive safe behavior. His pro-activeness and attention to detail raised safety awareness and heightened the

command's accident prevention program. CSM Sheppard personally reviewed each soldier and civilian nomination for their contributions to safety. To reward safe performance,

awardees received a black and gold Garland ink pen with the CSM insignia mounted on the top and inscribed with, "NCOs Protecting the Force, Backbone of the Army."

CSM Sheppard's focus has always been his soldiers. If you talk to him, he would probably say that he was just doing his job. And he's right. Noncommissioned officers are supposed to take care of soldiers, as

well as train soldiers to standard and enforce those standards.

There are thousands of other NCOs out there doing that every day. On every installation, soldiers are giving of themselves so that personnel can do their jobs better. These are strong and courageous people who go the extra mile to help our fellow soldier. NCOs must set the example every day by living and practicing these safety principles.

CSM Sheppard's sincere commitment to safety and extensive efforts to increase safety awareness truly make him deserving of this award. On behalf of the U.S. Army Safety Center, thank you, CSM Sheppard, for a job well done. ♦



Editor's Note: A lot of NCOs are doing good work, and we'd like to hear about them. Please send their story, a photo, and/or a reproducible copy of the unit crest to Commander, U.S. Army Safety Center, ATTN: CSSC-OG (Countermeasure), Fort Rucker, AL 36362-5363 or email countermeasure@safety-emh1.army.mil. Include full names and complete addresses and phone numbers so we can get in touch, if necessary.

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 answers 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 the First Sergeant in a mechanized infantry company (Bradley) that is task organized with a platoon of M1 tanks. You are in a desert environment, and the weather is cold and dry with fluctuating temperatures ranging from 40 to 60 degrees throughout the day and dropping to 20 at night. You arrive in the tactical assembly area (TAA) at 1300 and are finishing the company's re-supply operations consisting of classes 1 and 3, and a consolidation and redistribution of class 5.

The company's mission is to conduct movement to contact operations with the task force (TF) against a reported motorized rifle battalion (MRB) with a

line of departure (LD) time of 0500 the next morning. The distance to the LD is approximately 30 km from your current TAA location. The commander has issued the operations order. The rehearsals and back-briefs are done.

At 1900, the commander receives a Frago that the TF is now going to use your company's route of movement to the LD with your company as the lead element to secure a choke point 15-km into the route. Enemy helicopters have been spotted in the vicinity of the small mountainous choke point along the route with the possibility of anti-armor emplacements, therefore increasing the likelihood of an ambush.

The commander goes back into the planning phase and decides that he is going to use the dismounted infantry soldiers to secure the pass with a wheeled insertion no later than 2200. Your unit has been augmented with dismount soldiers from the cross-attached platoon, leaving you with four 9-man squads of dismounted troops. You have two 5-ton trucks in your company trains; however, one is loaded with all of your company's gear consisting of tentage, heaters, spare communications and maintenance parts, and a



combat load of MREs (3 per man). The second truck is used in log-pack operations, which also has to be back at the logistics release point (LRP) with an SFC or higher escort NLT 2030. This truck can be used, but your class one containers have to be returned to the brigade support area (BSA) with the log-pack that night. In addition, your water trailer is full.

What will you do?

From a logistical standpoint, what steps

would you and the executive officer take to ensure the success of the dismount mission from insertion to extraction after the last vehicle negotiates the pass?

What risk factors are involved and how would you minimize them to an acceptable level with appropriate control measures? **YOU MAKE THE CALL.** ♦

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NYARNG NCO Submits Best Answer

Thank you for responding to the September issue of "You Make the Call." All answers were excellent; however SSG Christopher D. Krupa submitted the best response. He took a step-by-step approach and identified each individual hazard and corresponding control measure to reduce that hazard. Congratulations, SSG Krupa! You will receive a Safety Center coin and a letter of congratulations from the Director of Army Safety for the following answer.

First of all, I have to take into account my environment. We are in a tactical environment that is cold and icy. The temperature is low, the snow is deep, and the road conditions are not the greatest.

HAZARD #1. THE M113 HAS THREE BAD TRACK BLOCKS ON ONE SIDE.

This is considered a high risk because of the environment and the road conditions we are expected to encounter. There is the possibility of damaging Army equipment and risking my driver's life, as well as injuring other personnel around us, if we operate the carrier with bad blocks. The only fix for this is to get the track repaired prior to mission deployment.

HAZARD #2. THE HEATER IS INOPERATIVE.

This has no effect on the carrier itself, but to the crew, this is critical. In such a harsh environment, operating this M113 without a heater is putting my crew's well-being in jeopardy. Morale would be low and cold injury would be likely. The heater would have to be repaired or replaced prior to mission deployment.

HAZARD #3. THE NEW GUY GOES ON THE MISSION.

Let's assume that these deficiencies go unrepaired and we deploy on the mission with our new soldier. What kind of example are we setting for a new troop? His safety is placed on the back burner by riding in an unsafe vehicle; he is subject to cold injuries due to his being out in the cold for days without getting warm and being immobile for long periods while riding in a crowded vehicle.

WHAT WOULD I DO???

First off, I would NOT deploy my carrier on this mission. You cannot have an effective mission with defective equipment. Assuming the lieutenant is an officer with common sense, he should allow an alternate vehicle to accomplish this mission. Upon completion of repairs to my vehicle, I would gladly resume my duties assigned and show the new soldier how this Army operates – with top-notch equipment and the soldier's safety and well-being held at the top of the list of concerns. ♦

POC: SSG Christopher D. Krupa, HHC 427th SB, OMS #4, NYARNG, Auburn, New York 13021-5398, cmkrup@a-znet.com

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The Do's and Don'ts of Boating Safety – *April*

Wheeled Vehicles

Asbestos Advisory on HMMWV Gaskets – *May*
Safety Alert-Asbestos on HMMWV Gaskets – *June*
Safety Alert: HEMTT – *September*

You Make the Call

Dismounted Infantry Soldiers Secure a Pass with a Wheeled Vehicle Insertion – *December*

M113 With Broken Track in Cold, Snowy Environment – *September*

M109A6 Unit Receives FRAGO to Displace Soldiers While Fatigued – *October* ♦

New USASC Initiatives

The U.S. Army Safety Center has established an aggressive safety initiatives program that includes on-site assistance visits and an NCO professional development mobile training team (NCOPD/MTT) to provide risk management training and assistance at all command levels, to include Active Army, National Guard, and Reserve Component personnel. The Safety Center will provide these services at no monetary cost to corps, division, or brigade-sized units and installations.

Assistance Visit Program

The Safety Center offers a 10-event, week-long, unit-tailored visit to provide training in hazards identification, "POV Toolbox" application, ground and aviation systems safety, driver's training program applications, and risk management integration at the leader and senior NCO levels. From a standard menu of events, units identify their requirements and USASC will tailor a team of subject matter experts to address the areas of concern. The Safety Center will "train the trainer," leaving units with a core of trained personnel who will integrate risk management more effectively into all operations and missions.

The team has the capability to conduct an individual unit (battalion) assessment on maintenance, training, operations and safety, providing non-attribution feedback to the commander on where the unit stands in comparison with like units across the Army. The program is designed to cross-fertilize good ideas. The Safety Center learns from units what works in the field and then provides others proven methods to eliminate potential accidents by identifying and mitigating hazards.

NCO Professional Development Mobile Training Team

The intent of this training is to teach safety to NCOs. NCOs are the leaders on the ground "where the rubber meets the road" and are most likely to have a direct impact on accident prevention. Therefore, USASC has designed a 45-hour course focused on hazard identification and risk management. The target audience is sergeants and staff sergeants who will integrate risk management into both the planning and execution phases of training and operational missions by speaking up when "something doesn't look right." Another benefit of this training is positive habit transfer; whereas, soldiers use risk management skills learned on duty and off duty.

This is great training for NCOs. If a unit/installation can provide 30-50 NCOs for a week, the Safety Center will help train leaders who are better prepared to identify and control hazards on ranges, in motor pools, or wherever high-risk operations occur. Additionally, this training program can be a reward for your outstanding NCOs. It is accredited by the American Council on Education, and upon completion, your NCOs are awarded three hours of college credit.

The cost to the unit is a commitment of time and selected personnel for a single week. The Safety Center will do everything possible to accommodate the unit's training schedule. For more information, visit our web site, <http://safety.army.mil>. ♦

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