

# ARMY GROUND-ACCIDENT REPORT COUNTERMEASURE

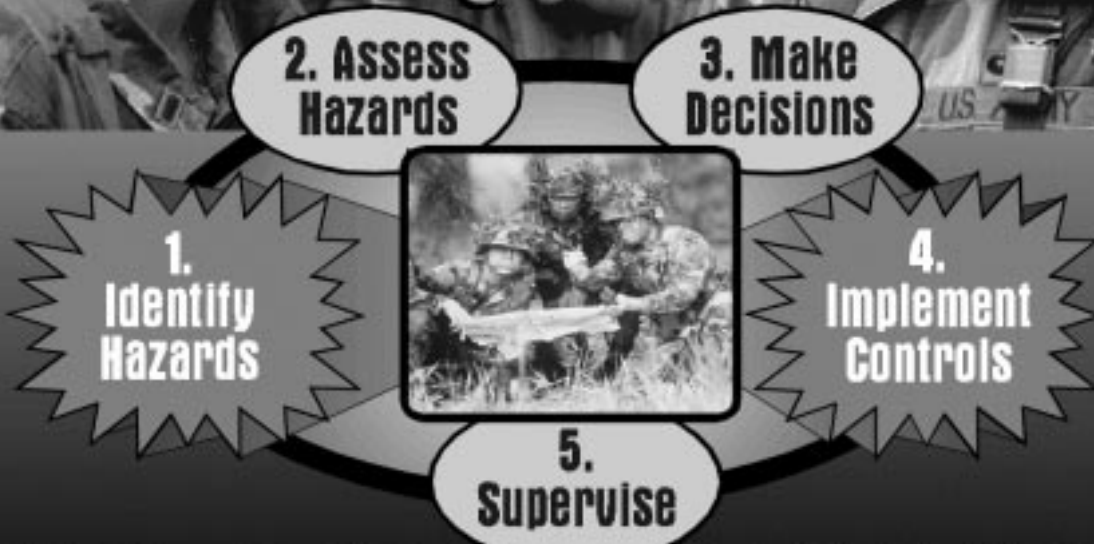
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# CHANGE



## Risk-Management Process



# WORLD—CLASS SAFETY PERFORMANCE

# The challenges of change

**C**hange. The Army's gone through a lot of it in the past 5 years. We've become a new force, a smaller force, a force that not only defends the nation militarily but also takes on new, nontraditional missions. And much of the time, we conduct operations as part of a joint and combined force. We've transitioned from a forward-deployed, forward-defense, major-land-war Army to a CONUS-based, contingency-force-oriented, crisis-response Army that must prepare to react to uncertain threats.

## The new reality

All this is now reality. It's not just coming, it's here. The radical changes we're dealing with as well as those we have yet to face require corresponding changes in the way we look at doing our business. Why? Because one thing has not changed: accidents are still a major threat. And, as the Army has shrunk in size even as our missions have grown, every accident has become more expensive not only in terms of manpower and money, but also in terms of readiness.

Today, more than ever before, every mission requires precise evaluation, precise planning, and precise execution. Risk-management integration into all three is the key to protecting the force.

We have a simple risk-management process that we can apply to everything we do. All we have to do when we receive a mission is work the hazards and controls in the five-step process:

**Step 1.** Identify hazards.

**Step 2.** Assess hazards.

**Step 3.** Develop controls and make risk decisions.

**Step 4.** Implement controls.

**Step 5.** Supervise and evaluate.

Simple, right? So how come we're not all doing it? It has to do with our culture.

## Our cultural dilemma

Some aspects of Army culture effectively exclude the risk-management process. After all, risk management leaves no place for —

- The "Hooah Factor," the "We can do any thing, any where, any time, at any cost" attitude that's so much a part of our Army culture.

- The need to "do more with less" mindset.

- Our inbred reluctance to say "No."

- Making decisions based on "the way we've always done it."

- Letting "somebody else" worry about the hazards involved in our missions.

- Doing only what we *have to do* and not giving a thought to what we *ought to do*—such as wearing flak jackets in all live-fire training even when it's not required by regulation. In other words, doing the harder right versus the easier wrong.

The solution to this cultural dilemma seems to be pretty straightforward: change the culture.



## Can we change our culture?

Absolutely we can. And it doesn't have to take forever. We've made some huge changes in our culture during the relatively recent past. We've seen —

- Yesterday's macho image of the hard-drinkin', hell-raisin' soldier replaced by today's image of the responsible, self-disciplined soldier.

- Yesterday's attitude that accidents are simply the cost of doing the Army's business replaced by today's attitude that accidents are neither necessary nor acceptable.

- Yesterday's attitude that high risk is inherent in hard, tough, realistic training replaced by today's attitude that risk management enables us to train harder, train tougher, and train even more realistically with less risk.

- Yesterday's acceptance of a Class A through C ground accident rate of 8.89 per 1,000 soldiers in FY 90 as real progress, replaced by the knowledge that today's rate of 4.02 is still much too high.

So, no, cultural change is not impossible. But it's not going to be easy — for a number of reasons.

## Barriers to cultural change

Certain of today's realities stand in the way of our easily changing the way we do business. For example —

- **Smaller Army with more missions.** Doing more and more with less and less results in little or no time to learn the lessons of the last mission or to adequately prepare for the next. Leaders and their staffs are so busy that they are off planning the next mission while the troops are executing the current one. There's so much to do, we stay with what we know — *"the way we've always done it."*

- **Personalities.** We have leaders at all levels whose style it is to say, "I don't want to hear excuses; if you can't do the job, I'll find somebody who can." And there are soldiers of all ranks who simply don't have it in them to tell the boss something he or she doesn't want to hear. And so we are encouraged to stay with what we know — *"the way we've always done it."*

- **Competition.** It's a hard thing to point out a problem — especially when nobody else is complaining. Doing so could be perceived as whining and give our peers an edge over us. So we go along, staying with what we know — *"the way we've always done it."*

- **Career aspirations.** Today's Army consists of quality competing with quality. May heaven

forbid that leaders become more concerned about their careers than about their troops, but the opportunity exists. We all have career aspirations and, therefore, walk a cautious line. As a result, we tend to stay with what we know — *"the way we've always done it."*

The Army has experienced significant change, creating a cultural dilemma we must overcome.

## How do we do it?

Leaders at all levels are responsible to protect the force. They are required to make unencumbered, *conscious* (vice *unconscious*) decisions to either eliminate hazards or accept risks. The mindsets previously discussed are encumbrances to clear decision making. A standard process linked to proactive leadership can be the effective means to overcome our cultural dilemma. Risk management is that process.

When it comes to payoff versus effort, consistent use of the five-step risk-management process offers an unparalleled win-win opportunity — a way to get any job done with a clear focus on hazards and controls to mitigate risks. The risk-management process gives us a standard procedure, regardless of mission or force mix or location, to deal with today's realities of uncertainty and high optempo, which demand that —

- We know and perform to established

**"As we become smaller, protecting the force becomes even more important. Risk management...has resulted in a dramatic reduction of injuries and fatalities."**

GEN Dennis J. Reimer  
Chief of Staff, Army

**"The risk-management process enables leaders at all levels to make conscious decisions to either control the hazards or accept the risks."**

BG Thomas J. Konitzer  
Director of Army Safety

**"Applying the risk-management process in conjunction with troop-leading procedures enables NCOs to make the difference between a mission accomplished safely and a mission failed because soldiers were injured or killed."**

SGM Gregory L. McCann  
Army Safety Center

standards—every time, in every thing. Using our standard five-step risk-management process is a credible way to challenge and eliminate the “That’s the way we do it in *this* unit” mentality and get everybody doing things right—to Army standards.

■ We make effective communication the norm up and down the chain of command. A by-product of the risk-management process will be improved communication as we make it not only *acceptable* but *expected* for everyone involved at every level to articulate to the boss the hazards, controls, and resources required to mitigate the risk of every mission. Risk management becomes the standard way of doing business. It is linking a process with leadership; that’s capturing the power of risk management.

■ We make good decisions based on facts, not on fear of being perceived as weak or negative. If we all speak the same language and work the same process of risk management, everybody will understand and no one will mistake the articulation of hazards (“Here’s the level of risk for this mission (or task), Boss, and I need your help to bring it down to an acceptable level and still accomplish the mission without any loss”) for making excuses (“What’s the matter? You can’t do it?”).

■ We make it not just *acceptable*, but *mandatory*, to tell the boss “No, we can’t do that” when risks are too high. If we work the five-step risk-management process at every level, the yes will come—but only after the risks have been controlled to an acceptable level or someone with the proper authority at the proper level makes a *conscious, fully informed* decision to accept that risk.

■ We once and for all destroy the notion that we’ll do things differently when the shooting starts, that we’ll abandon standards and all that other “training stuff.” Risk management is not only an enabler to realistic training, its across-the-board, methodical use will be the best method we have of making sure that the only threat we face in combat is the enemy.

### **Where do we start?**

We start by making risk management—identifying hazards, putting controls in place—the standard way we do business in the Army. So, how do we do that?

We base it on doctrine.

Doctrine is the engine of change in the Army; it drives change not only in training, equipment, and organization but also to a large extent in Army culture—those attitudes and thought processes that make the Army what it is.

This being the case, the catalyst for embedding risk management in our culture is already in our doctrine. FM 100-5: *Operations*, our keystone warfighting text, was significantly updated in 1993 to stress the principles we need to learn and understand to maintain the edge in future theaters of war. A key update was the addition of safety as a component of the protection element of combat power. Safety has also been included in joint-operations doctrine since 1995 (Joint Pub 3-0: *Doctrine for Joint Operations*). That doctrine specifies that protection of the force through the integration of safety into all aspects of planning and execution is crucial to successful operations.

Just as doctrine and policy changes are capturing the top-down approach to risk-management integration, so too TRADOC is working the bottom-up approach through the integration of risk management into officer, NCO, and civilian schools. All that’s left is for the field to shoot to the middle and *just do it*, just integrate risk management into all that we do.

### **Summary**

The Army has done remarkably well in reducing accidents, thus saving lives—especially in the past few years even as global responsibilities have increased. A combination of factors has had a direct impact on this success. First and foremost is proactive leadership at all levels. Second is the fact that we have clear and achievable standards for every individual and collective task soldiers are required to perform. Third is teamwork. It is the essence of how we do business. The fourth is the information flow to enhance communications between decision makers. These four elements are institutionalized throughout our Army today. The fifth ingredient that needs to be institutionalized is a process—the risk-management process. Once embedded as a systems approach to business, we can consistently achieve world-class safety performance.

We must embrace risk management as a sound investment in readiness, not as just another “safety requirement” that has nothing to do with our *real* mission. The true cost of our failure to protect the force through risk management will be paid out of lives and equipment—and thus out of readiness.

And that’s a price we simply cannot afford to pay. ♦

—BG Thomas J. Konitzer, Director of Army Safety and Commanding General, U.S. Army Safety Center, DSN 558-9360 (334-255-9360), [konitzet@rucker-safety.army.mil](mailto:konitzet@rucker-safety.army.mil).

# Near misses

*Editor's note: In the December issue of Countermeasure, General Thomas J. Konitzer, Director of Army Safety, acknowledges the difficulties of doing more and more with less and less and the impact this can have on accident reporting. But he also emphasizes how important accident reporting is to our ability to identify hazards and provide controls to prevent similar accidents from happening.*

*In this issue, General Konitzer's article on cultural change points out that a smaller Army with more missions can result in little or no time to learn the lessons of the last mission because leaders and their staffs are busy planning the next mission while the troops are executing the current one.*

*These are some of the reasons why we think it is important to publish the article about the near rollover of an M577 at Fort Sill. This unit had done some things right; they needed to work on some others. But the important thing is that Fort Sill publicized what happened. As a result, when another rollover occurred, the second unit had taken note of the lessons learned in the previous accident. They had identified hazards, developed and implemented controls, and rehearsed. The controls were in place, the unit had performed good rollover drills, and the driver was wearing his seatbelt. The crew walked away with no injuries.*

*These are the kind of lessons learned that we need to share with the rest of the Army. There could be a unit in Germany or one in Korea or one somewhere in the Army that could benefit from this information. And that is why we need to know about the accidents and we need to know about the near misses—so that every soldier in every unit across the entire Army can benefit.*

**T**he fallacy in accident statistics is that we haven't found a way to capture the non-recordable accident—the one where no one was killed or seriously injured and equipment damage wasn't enough to require it to be recorded. Does that mean that these near misses aren't important? Not on your life! This is the kind of accident that except for the grace of God (or call it luck if you wish) someone would have lost their life or a piece of equipment would have been destroyed.

Just such an accident happened at Fort Sill when a track shoe broke and an M577 Command Post Carrier partially flipped over with five crewmembers inside. Except for the trailer—which dug into the ground, its front wedged against the M577, preventing it from completely

overturning—the outcome might have been quite different.

As related by the crewmembers, it was bad enough. Two of them managed to crawl out of the overturned track vehicle. When two NCOs who were preparing a road block reached the M577, they found another crewmember's leg was trapped under a field desk. As they helped free him, the track commander was helping still another crewmember out of the vehicle. None of the crew were seriously hurt. But that wasn't what they thought was going to happen when they heard a loud crack, and the tracked vehicle began drifting to the right. The left track had come off, and the driver couldn't stop the vehicle. The track commander, who was riding with his upper torso out of the TC hatch saw the



Recent accidents similar to the M577 at Fort Sill reveal the following common factors:

- Soldiers driving too fast for conditions
- Poor maintenance
- Drivers who are poorly trained or lack experience
- Soldiers operating vehicles in unfamiliar environments

**Controls:**

Protecting our force involves tough, realistic training coupled with risk controls that protect soldiers in training and in combat. It is the responsibility of the first-line leader not only to help set those standards but also to enforce them.

rollover coming. He yelled "Get down, hang on!" and dropped. The driver had only seconds to lower himself inside the vehicle, and all he could think about was that he would be crushed by the vehicle's weight. As the vehicle tilted, the field desk, safe, and crewmembers were piled on top of each other, and a track crew's nightmare, fuel, was pouring over them.

When movement stopped, the soldiers didn't know if the vehicle was stable or if it would come crashing down on them as they crawled out the track commander's hatch, located in the middle of the vehicle—but they made it.

"My instructor in AIT used to tell us to watch for those tracks flipping, I used to laugh and think it would never happen to me...it happened," said one crewmember.

### **The cause**

MAJ John Stephens of the Force Protection Office said "The track shoe broke. The bushings appeared to have worn, which caused undue stress. It was obviously a materiel failure, but one that could have been caught."

### **Controls**

- *Those they used*

- Crewmembers were all wearing protective headgear.

- Tiedown plan was pretty good.

- Driver did as good a job as possible with a runaway track headed downhill.

- *Those they didn't use*

- Driver wasn't wearing his seat belt.

- *Those they will do better*

- Continue to stress and enforce safety and diligent maintenance.

- Check seatbelt use.

- Practice rollover drills during command maintenance every Monday.

- Make rollover drills a part of pre-combat inspections, convoy briefings, and during command maintenance.

"In many cases, proper emphasis on maintenance, checking tracks, following your dash 10, can prevent track accidents," MAJ Stephens said.

A Battery executive officer, 1LT Brian Waltman said three of the crewmembers are all brand-new soldiers. "They reacted as a team, and that is a credit to them and the training they received in AIT. They were all banged up and bruised, but none were seriously injured." ♦

—adapted from the *Cannoneer*

## **Near miss for the environment too**

**W**hen an accident or near accident occurs, something besides the safety of the crew and equipment is at stake.

When an M577 at Fort Sill flipped partially over, fuel poured from the wreckage. Except for the quick action of soldiers and civilians, the fuel would have found its way into a nearby creek, threatening wildlife and vegetation and eventually finding its way into the drinking-water supply.

NCOs on the scene knew what to do and did it—fast. They quickly obtained and put into use "spill kits" designed to minimize the environmental damage. First, they placed a drum underneath the fuel leak, managing to catch more than 15 gallons of fuel. Then they

used "socks" or booms in runoff areas to trap the 5 gallons or more of fuel that had spilled and create a containment barrier. These "socks" are like net tubes filled with absorbent material that allows water to pass through but absorbs petroleums, oils, and lubricants. Fire fighters saturated the area with water to dissipate fumes, a necessary precaution because of the potential for sparks from recovery equipment. Once the track was uprighted, the cleanup crew brought in a backhoe, scraped up the contaminated soil, and transported it to the contaminated soil site at the landfill.

Knowing what to do, how to do it, and doing it quickly prevented what could have been serious damage to the environment. ♦

# M989A1 HEMAT trailer accident claims life

**A** soldier was crushed to death when he tried to stop an M989A1 HEMAT trailer, which was rolling down an incline. The soldier was part of a crew assigned to a red-cycle tasking replacing trailer beds. The operation consisted of removing rotted floor boards from the trailers in a holding area, moving them to a motor pool to replace the boards, then returning the trailers to the holding area.

The individual in charge of the operation planned and reviewed the procedures needed to carry out the operation. However, his primary focus was on the steps required to replace the boards—cutting, drilling, and emplacing the boards in the trailers.

Several hazards were identified, but the leader considered the risk of damage to the equipment as more probable than risk to the soldiers who were performing the operation. He identified the hazards to soldiers as potential heat injuries and injuries while operating power tools. He didn't include in his risk assessment such things as crew turnover, moving the trailers manually, and adequacy of the motor pool for conducting such an operation.

The operation had been going on for about a month. The day before the accident, a new crew reported for duty. The project leader briefed them on the operation and checked to make sure all of the soldiers on the detail

were able to perform the required tasks. But one soldier was absent from the briefing.

Previous crews had used several methods of positioning the trailers inside the maintenance bays where the work would be done. Because entry into and exit from the bays was restricted, the trailers had to be backed for an extended distance then pushed into place by the soldiers. Just before the accident, the team was pulling trailers into the bay with a HEMTT, then they would disconnect the trailer and move the HEMTT through the bay where, with some difficulty, the vehicle could turn left onto a roadway. Because the turn out of the bay was so tight, the crew couldn't push the trailer directly onto the road after they had finished working on it. So they would push the trailer out by hand, steer it left, and push it over a curb to an area adjacent to the road. As the trailer was maneuvered into place, one soldier



A soldier was killed when this trailer rolled over him while he was attempting to steer it away from parked vehicles. The risk assessment did not cover all aspects of the operation, and controls were not in place that could have prevented this accident.

would steer and another one would push in the emergency brake release handle (located under the left side of the trailer) to stop the trailer. After the trailer came to a stop, a HEMTT would hook up to it and tow it back to the holding area.

### **The accident**

On the day of the accident, the soldier who had missed the safety briefing arrived at the motor pool to work on the detail. He had a medical profile directing no lifting of more than 5 pounds with his right hand.

Just before lunch time, the crew had completed work on a trailer, and it was still sitting in the bay. One soldier went to the motor pool office to order food. When the other members of the detail saw the HEMTT approaching with another trailer, they started moving the one they had just completed out of the bay. Because they were one person short, the soldier with the profile volunteered to steer the trailer by holding the approximately 65-pound tongue. The other soldiers pushed the trailer out of the bay and over the curb, and one of them tried to stop it by pushing in the emergency brake release handle. The vehicle continued rolling and the soldier continued to try to stop it, using the emergency brake release. When he realized the trailer wasn't going to stop, he yelled "No brakes!" and the rest of the crew

backed away from the free-rolling trailer.

One of the soldiers yelled that the trailer was headed down the slightly inclined road toward some POVs. At this time, the soldier with the profile ran in front of the trailer to try to steer it away from the POVs. As he grabbed the tongue, he either slipped or was knocked down by the trailer. When he fell to the pavement, the trailer ran over him and he was dragged approximately 63 feet. The trailer then ran off the road and into a water-filled ditch. The injured soldier received prompt emergency treatment but died of injuries to his head and chest.

### **Accident causes**

The primary causes of this accident were a flawed risk assessment, the soldier's belief that he would be able to control the trailer, and improper procedures with regard to trailer operations. Several other things also stand out about this accident. First, it points out the potential danger during red-cycle taskings with soldiers assigned tasks they aren't trained to do. New people, under a new leader, in a new location are the building blocks of an accident. Second, leaders must scrutinize all aspects of an operation for risk, not just the main task. Last is the need to use equipment for its intended purpose.

—POC: MAJ Julian C. Simerly III, Chief, Ground Tactical Branch, DSN 558-3901 (334-255-3901)

# **Driver killed when M981 FISTV flips**

**A** soldier was fatally injured when the M981 FISTV he was driving flipped and he was partially ejected from the vehicle. He was not the assigned driver of the vehicle but was orienting the assigned driver during preparation for a field training exercise (FTX) where drivers maneuver Officer Basic Course (OBC) students as they execute tactics, techniques, and procedures (TTPs) learned during instruction.

The primary cause of the accident was excessive speed, but other factors also contributed to the cause and severity of the accident:

- The maintenance section failed to road test the vehicle after service, allowing the track to be

operated with an improperly adjusted left lateral.

- There was no record of any PMCS completed in the 8 days the vehicle was dispatched before the accident.

- Two drivers for the exercise had never participated in the exercise before and were unaware of the routes they were supposed to navigate with the student track commanders.

- The victim was not wearing his seatbelt, allowing him to be partially ejected from the M981 as it flipped.

### **Hazard identification**

During this type of exercise, inexperienced OBC students act as track commanders in a scenario.



Drivers follow orders from the students and assist them if they become disoriented during the execution of the exercise. Two of the assigned drivers had never driven for this particular exercise and were not familiar with the routes they were supposed to navigate with the student track commanders. The accident M981 had an improperly adjusted left lateral, which the soldier who was driving did not know about.

### **Hazard assessment**

The NCOIC was off on another tasking, and all officer instructors were involved in a sand-table (terrain-model) rehearsal with the OBC students. The senior enlisted soldier, a specialist, authorized two drivers—a specialist and a private (the victim)—to show the new drivers the routes they would take during the exercise. The specialist and private, who had previously driven for the exercise, decided they would drive the M981s while the inexperienced drivers acted as track commanders.

### **The accident**

Along the route taken by the accident vehicle, the driver had to descend a hill on a paved road, then make a sharp (approximately 135-degree) left turn onto a tank trail.

The designated speed limit for this road is 35 MPH. The military police report estimates the speed of the vehicle at the time of the turn was 27 MPH.

As the driver entered the turn, the track began to skid and then vaulted, partially ejecting the driver from the hatch during the course of the rollover. When the vehicle landed on its top,

the driver's head and upper torso were crushed between the vehicle and the ground.

Although the assigned driver had identified a fault with the north-seeking gyro (NSG) he did not identify any non-mission-capable (NMC) faults with the vehicle. During the 8 days the vehicle had been dispatched, there was no record of any PMCS after the initial before-operators check done for dispatch.

During the accident investigation, a technical inspection determined two NMC faults existed before the accident. One of them was an improperly adjusted left lateral, requiring a force of 75 pounds to release the lateral from the second-notch position. The standard cited in the TM is 10 to 30 pounds. The improperly adjusted left lateral resulted in the vehicle making a sharper left turn than expected when the driver applied normal pressure to the laterals. Coupled with the speed of the vehicle, this caused the track to vault 28 feet through the air. The assigned driver of this vehicle stated that he was aware the left lateral was harder to unlock than the right lateral. ♦

**POC: MAJ John Stephens, Field Artillery  
Branch Force Protection Office,  
DSN 639-4215**



An improperly adjusted left lateral resulted in this FISTV making a sharper left turn than expected when the driver applied normal pressure. This and the vehicle's speed caused it to vault through the air and overturn.

# Night jump turns tragic

**W**hat was planned as a routine, night airborne operation utilizing the ground marked release system (GMRS), turned tragic for one ARNG paratrooper. The paratrooper, who was the primary jumpmaster, drifted approximately 800 meters from the intended point of impact and was killed when he landed in a set of high-tension power lines.

## Hazard identification

The mission was a night, zero-illumination, static-line paradrop operation – involving multiple jumpers – into a small drop zone (DZ) with a known hazard (high-tension wires). Drop altitude winds were greater than expected.

## Hazard assessment

The hazard (airborne operations in the vicinity of high-tension power lines) was identified but not communicated. It was not marked on the survey and was not briefed to the jumpers.

When the hazard was identified and assessed, the risk-assessment moved up

to the high-risk category, but no additional action was taken.

## Controls

Even though FM 57-220: *Static Line Parachuting Techniques and Training* gives two options for determining wind velocity, when units set up or establish a drop zone for any airborne operation utilizing the GMRS, they should, as recommended by FM 57-220, utilize the pilot balloon system (PIBAL) to determine the mean effective wind (MEW). The MEW is the constant wind-speed average from drop altitude to ground surface. The wind speed and direction at drop altitude, or the MEW, should be taken and utilized when determining the desired release point. This reading is taken from the desired point of impact for the No. 1 jumper.

Units that use the second option, which is based on surface wind speed and direction only, are setting jumpers up for the inevitable – off-drop-zone landings.

FM 57-220 and FM 57-38: *Pathfinder Operations* explain the procedures for establishing a drop zone utilizing the GMRS and provide a list of necessary equipment. Units can reduce the probability of injury to jumpers from missing the drop zone by using the GMRS method. Furthermore, units should always review the drop-zone survey and conduct a reconnaissance of the drop zone to confirm or identify any additional hazards that may be present that were not there or were not identified when the survey was initially conducted and approved. ♦

**POC: MSG James D. Cobler, Infantry NCO, Force Development/Force Projection Branch, 558-2933 (334-255-2933)**



A. Intended point of impact. B. The paratrooper struck high-tension power lines that were not marked on the survey or briefed to the jumpers.

# Safety messages

Following is a recap of safety-of-use messages (SOUM), ground precautionary messages (GPM), and maintenance advisory messages (MAM) issued during 4th Quarter FY 96.

## Communications-Electronics Command (CECOM)

*Note:* Article in December 1996 *Countermeasure* regarding lithium sulfur dioxide battery venting incidents states that GPM 96-012, BA-5800/U (NSN 6665-99-760-9742), lithium sulfur dioxide batteries and GPM 96-013, BA-5590/U lithium sulfur dioxide non-rechargeable batteries (NSN 6135-01-036-3495) consolidate and supersede all previously issued battery GPMs.

■ AMSEL-SF-SEP, subject: GPM-96-007, BB-558/A (NSN 6140-01-186-8802) nickel cadmium battery manufactured by SAFT America, Inc., all contracts, used in the OH-58D aircraft (NSN 1520-01-125-5476). POC: Mr. David Kiernan, DSN 992-0084 ext. 6447.

■ AMSEL-SF-SEC, subject: GPM-96-008, small lightweight global positioning system receiver (SLGR), AN/PSN-10. POC: Mr. David Kiernan, DSN 992-0084 ext. 6447.

■ AMSEL-SF-SEC, subject: GPM-96-009, AN/ALQ-144A(V) infrared countermeasures (IRCM) set (NSN 5865-01-299-5859/60, LIN J01916). POC: Mr. Thomas Brennan, DSN 992-0084 ext. 6404.

■ AMSEL-SF-SEC, subject: GPM-96-009 followup, AN/ALQ-144A(V) infrared countermeasures (IRCM) set (NSN 5865-01-299-5859/60, LIN J01917). This message supersedes and rescinds GPM 96-009. POC: Mr. Thomas Brennan, DSN 992-0084 ext. 6404.

■ AMSEL-SF-SEP, subject: GPM-96-010, BB-5800/U (NSN 6665-99-760-9742) lithium sulfur dioxide battery manufactured by Power Conversion, Inc. (PCI), contract DAAB07-94-D-E002. POC: Mr. David Kiernan, DSN 992-0084 ext. 6447.

■ AMSEL-SF-SEC, subject: GPM-96-011, small lightweight global positioning system receiver (SLGR), AN/PSN-10. POC: Mr. Philip Klimek, DSN 992-0084 ext. 6437

Following is the status of open and previously opened CECOM messages.

■ AMSEL-SF-SEP, subject: GPM-96-001, BB-558/A (NSN 6140-01-186-8802) nickel cadmium battery manufactured by SAFT America, Inc., all contracts, used in the OH-58D aircraft (NSN 1520-01-125-5476). Status: closed. POC: Mr. David Kiernan, DSN 992-0084 ext. 6447.

■ AMSEL-SF-SEC, subject: GPM-96-003, electronic shop, AN/ASM-189C (NSN 4940-01-274-9959, LIN H01855), mandatory, operational. Status: closed. POC: Mr. Wil Vega, DSN 992-0084 ext. 6407.

■ AMSEL-SF-SEC, subject: Followup to SOUM (CECOM 92-02-01, modification work order (MWO), mandatory, operational, OE-254 antenna ground (NSN 5985-01-063-1574, LIN A79381). Status: closed. POC: Mr. Wil Vega, DSN 992-0084 ext. 6407.

■ AMSEL-SF-SEC, subject: GPM-96-005, all hydrogen-filled meteorological balloons. Status: closed. POC: Mr. Philip Klimek, DSN 992-0084 ext. 6437.

■ AMSEL-SF-SEP, subject: GPM-96-006, AN/VRC-12 VHF radio set series installation. Status: closed. POC: Mr. Andrew Burbelo, DSN 992-0084 ext. 6415.

■ AMSEL-SF-SEC-V, subject: SOUM-95-001, S-389/MSA-34 shelter, electrical equipment (NSN 5410-00-988-0302). Status: open. POC: Mr. Vernon Vondera, DSN 229-7192.

## Armament and Chemical Acquisition and Logistics Activity (ACALA)

No SOUMs were issued by ACALA during 4th Quarter FY 96. Following is a list of GPMs issued by ACALA.

■ AMSTA-AC-CTTE, 311252Z Jul 96, subject: GPM ACALA No. 96-04, technical, cleaner, steam, high-pressure, hot and cold water jet, diesel-fuel fired, 200 gallon per hour (GPH), trailer mounted (NSN 4940-01-025-9856, LIN C32887), 200 GPH skid mounted (NSN 4940-00-186-0027, LIN E32466), 600 GPH skid mounted (NSN 4940-00-473-6218, LIN E32525). POC: Mr. Lonnie E. Griffin, DSN 793-1947 (309-782-1947).

■ AMSTA-AC-FAPN, 061206 Aug 96, subject: GPM ACALA No. 96-05, M109 self-propelled howitzers (NSN 2350-01-031-0586, 2350-01-031-8851, 2350-01-277-5570, 2350-01-281-1719, LIN

K57667, 2350-01-305-0028, LIN H57642) and field artillery ammunition support vehicle M992 (NSN 2350-01-110-4660), M992A1 (NSN 2350-01-352-3021), M992A2 (NSN 2350-01-368-9500) LIN C10908, MK19 mod-3 grenade machine gun (NSN 1010-01-126-9063, LIN M92362), MK64 mod-7, mount, machine gun (NSN 1010-01-179-7616, LIN M74823). POC: Mr. Gary Rogers, DSN 793-0030 (309-782-0030).

■ AMSTA-AC-SF, 192134Z Sep 96, subject: GPM ACALA No. 96-06, removal and disposal of M16/M16A1 rifle low-light, tritium front sights. POC: Mr. Tim Mohs, DSN 793-6228 (309-782-6228).

Following are SOUMs, GPMs, and MAMs issued during 1st Quarter FY 97

### Tank-Automotive and Armaments Command (TACOM)

■ AMSTA-IM-O, 251611Z Nov 96, subject: SOUM TACOM-WRN Control No. 97-01, "limited operational" for M1A2 Abrams tank (NSN 2350-01-328-5964, LIN T13305) using mine-clearing blade system (NSN 2590-01-230-8862, LIN B71632) and mine roller system (NSN 2590-01-134-3724, LIN R11006). Reference SOUM TACOM-WRN Control No. 96-15, DTG 301846Z May 96. POCs: Mr. Mike Calleja, DSN 786-6848 (810-574-6848) and Mr. Byron Polen, DSN 786-7375 (810-574-7375).

■ AMSTA-IM-O, 111902 Oct 96, subject: GPM TACOM-WRN Control No. 96-12, crane 25-ton (NSN 3810-00-018-2021, model MT250, LIN F43429); crane 25-ton (NSN 3810-01-054-9779, model TMS 300-5, LIN F43429); crane 20-ton rough terrain (NSN 3810-00-275-1167, model M320RT, LIN F39378). Reference GPM TACOM-

WRN Control No. 96-11, DTG 031238Z Sep 96. POCs: Mr. Roy Rogers and Ms. Gwen Shaffer, DSN 786-7350 (810-574-7350).

■ AMSTA-IM-O, 111809Z Oct 96, subject: MAM TACOM-WRN Control No. 96-013, service brake proportioning valve and serpentine belt drive system used on the XM1114 up-armored HMMWV (NSN 2320-01-413-3739, LIN Z62630). POCs: Mr. Allan Yasoni, DSN 786-8068, or Mr. John Kaminske, DSN 786-8060.

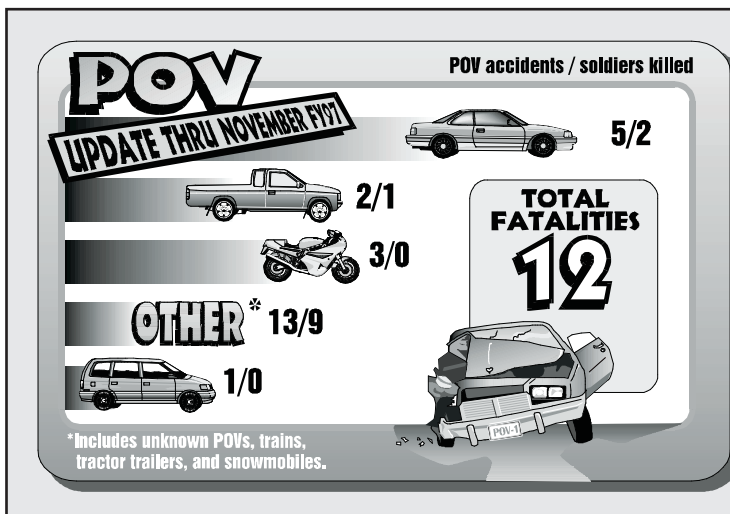
### Armament and Chemical Acquisition and Logistics Activity (ACALA)

■ AMSTA-AC-AS, 252021Z Oct 96, subject: MAM TACOM-ACALA 97-03, alternate lubricants for the MK19 mod-3, 40mm, grenade machine gun (GMG) (NSN 1010-01-126-9063, LIN M92362). POC: Mr. Michael Lopez, DSN 793-0033 (309-782-0033).

■ AMSTA-AC-CTC, 261131Z Nov 96, subject: MAM TACOM-ACALA 97-06, concerning shelf-life extension for M273 maintenance kits and M293 maintenance kit availability. POC: Ms. Denise Stewart, DSN 793-6598 (309-782-6598).

### Aviation and Missile Command (AMCOM), formerly Aviation and Troop Command (ATCOM)

■ AMSAT-D-WS, 101500Z Oct 96, subject: MAM ATCOM 96-020, official interim instructions for mounting the AR2 automatic ripcord release (NSN 1670-01-369-7914, LIN N/A) on the MC-4 RAM air parachute (NSN 1670-01-306-2100, LIN P68275). POC: Mr. Gayle Sappington, DSN 693-3997 (314-263-3997). ♦



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THOMAS J. KONITZER  
Brigadier General, USA  
Commanding

# ARMY GROUND-ACCIDENT REPORT COUNTERMEASURE

Volume 18 Number 2

February 1997

**C**ommanders whose units experience aircraft and ground-vehicle accidents are increasingly confronted not only with the accident and the resultant loss of valuable resources but also with exposure of personnel to accident-site hazards such as advanced composite materials, or ACMs. Even though the immediate symptoms of exposure to ACM hazards (headache, burning eyes, and vomiting) may not be evident, the potential still exists for long-term health problems. Therefore, it is crucial that personnel who must work near an accident site be informed of the hazards so that they can take appropriate precautions to lessen their risk of exposure.

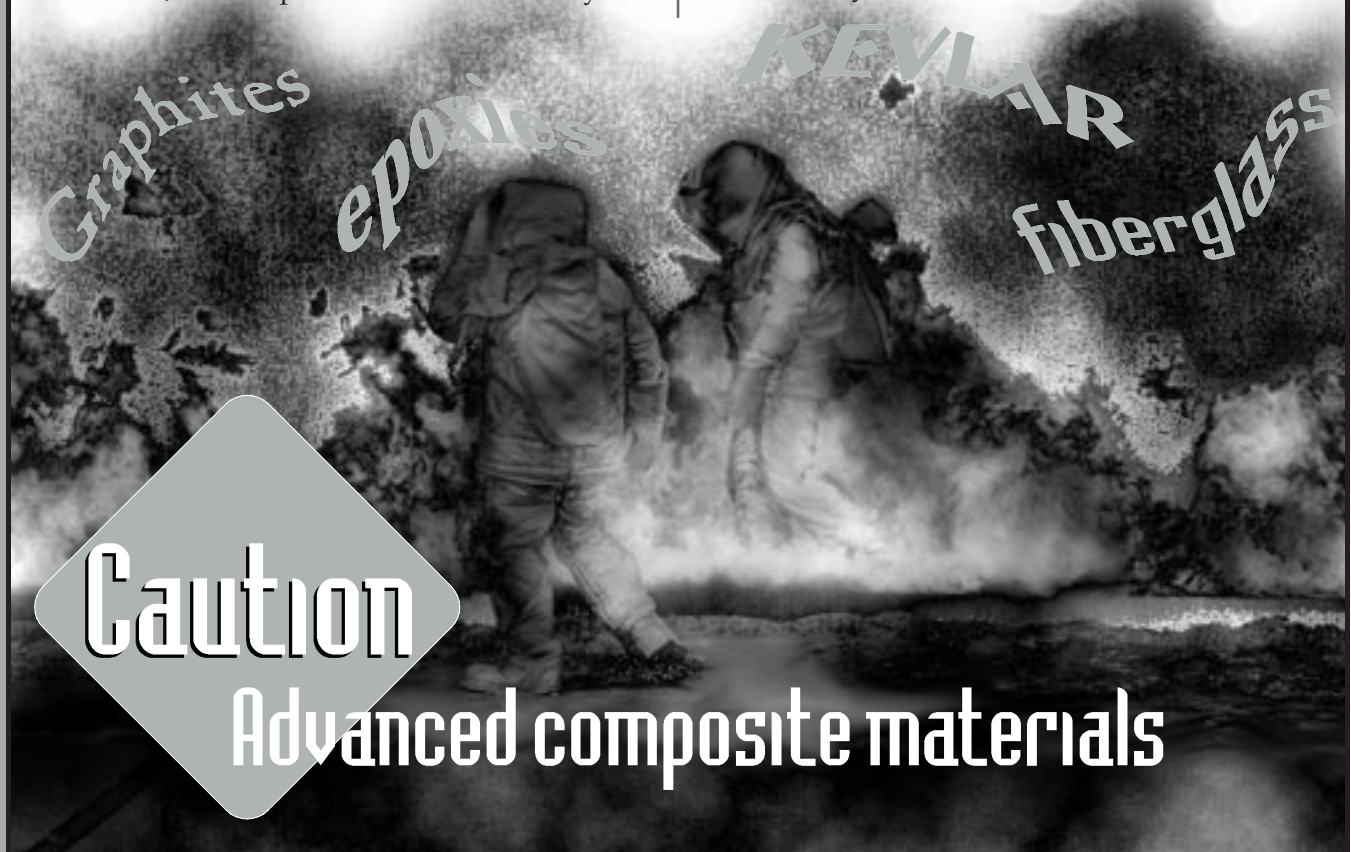
Personnel responding to aircraft and ground-vehicle accidents are most at risk because of their immediate exposure to ACMs and other accident-site hazards such as bloodborne pathogens (see sidebar on page 3). However, first responders are not the only

ones at risk. Individuals involved in the subsequent investigation, recovery, and cleanup operations also may be exposed to these accident-site hazards.

#### **Potential health hazards**

Advanced composite materials—such as graphites, Kevlar, epoxies, and fiberglass—are widely used in modern Army equipment including personal protective equipment, armored vehicles, and aircraft. As more information is obtained about the properties of these materials, concern has heightened about the potential health risk to personnel exposed to ACMs that have been severely fragmented or burned in aircraft or vehicle accidents. When an accident occurs, particularly when a fire has ensued, fragmented composites and gases including nitric oxides, sulfur dioxides, hydrogen cyanide, as well as burned fragmented carbon fibers, are generated.

The Navy Environmental Health Center has



collected extensive data concerning composites and, in particular, composites in fires (NEHC-TM 91-6, Sep 91). Their main concern is the possibility that the fibers, liberated as the resins burn off, will splinter into a small enough size to be inhaled and retained in the lungs. Fibers also may lacerate or irritate the cornea of the eyes, or they may penetrate the skin in the same manner as a splinter.

In addition, experimental studies done to assess and define composite combustion products revealed that burning graphite or epoxy composites produce carbon monoxide and, to a much lesser extent, hydrogen cyanide. Also found as combustion products were ethane, propane, isopropyl alcohol, benzene, and trace amounts of propylene. Although the gaseous hazards are more prevalent while the fire is active, residual gases may be trapped and subsequently released when the wreckage is moved.

The effects from these hazards may include respiratory function irritation or inflammation (difficulty in breathing may occur) as well as skin irritations (contact dermatitis) and rashes. Cancer could be a delayed effect especially with prolonged and repeated skin contact or inhalation exposure without protection. At this time, there is not enough information to determine all of the short- and long-term health problems that exposure to ACMs may cause. However, sufficient evidence does exist to suggest the presence and toxicity of many of the materials generated in postaccident composite fires. Without question, an accident site involving composites is a potentially hazardous area. Therefore, commanders must develop pre-accident plans that identify the risks to personnel and specify control measures that will minimize exposure to ACMs.

### **Pre-accident plans**

Installation and unit pre-accident plans must address accident-site hazards as required by DA Pam 385-40: *Army Accident Investigation and Reporting*, paragraph 2-2(2). Commanders, unit safety officers, and personnel at all levels must be actively involved in pre-accident planning. To minimize unnecessary exposure to ACMs and other accident-site hazards, unit and installation emergency response teams must be properly trained, equipped, and disciplined to use the appropriate personal protective measures when responding to any accident but especially when the accident involves composite fires.

The best way to minimize unnecessary exposure to accident-site hazards is through a solid pre-accident plan that outlines work practices required to ensure proper handling of the hazards and specifies the protective equipment necessary to minimize the risks.

■ **Work practices.** In mishaps where fire or an

explosion occurs, the following controls must be observed:

- Limit accident-site access to essential personnel. While the wreckage is burning or smoking, allow only firefighters and rescue personnel equipped with a self-contained breathing apparatus (SCBA) into the immediate area.
- Work upwind from the fire whenever possible. Restrict all unprotected personnel from assembling downwind of the wreckage (fires), and restrict entry into the immediate area where burned fibers may be stirred.
- Restrict all personnel except those administering immediate life-saving efforts from entry until munitions have been cleared by the proper disposal teams if live ordnance or munitions are involved.
- Prohibit eating, drinking, or smoking in or around the crash site.
- Spray the debris with a fixative, such as polyacrylic acid (for example, Carboset XL-11 manufactured by B.F. Goodrich) as soon as the fire is extinguished and the wreckage has cooled, to contain the burned-fiber materials. A light oil, acrylic floor wax, or an equivalent tack substance are acceptable substitutes and easily applied. Treat components and wrap them with heavy-gauge plastic wrap if they are required for further analysis. This keeps the fibers from becoming airborne during the recovery and transport phases and prevents personnel who handle the components from being injured.
- Cordon off the area and restrict entry to a single entrance and exit point.
- Keep guards and other personnel on the periphery of the accident upwind at a safe distance when fire or smoke is present. Entry into any downwind area must be restricted. If personnel must be downwind, ensure that they wear protective clothing and equipment.
- Exercise caution while handling debris. Skin punctures from reinforcing fiber splinters are possible.
- Shower as soon as possible after leaving the accident site.
- Handle residue from burned composite materials as nonhazardous waste according to local environmental policies.
- **Protective clothing and equipment.**
  - **For accidents not involving fire.** Leather gloves with inserts offer adequate protection from splinter injuries. A respirator and safety eye protection with side shields will provide adequate protection from airborne fibers. All three should be worn when moving or handling composite fiber components.
  - **For accidents involving fire.** Units should consider procuring the following appropriate protection devices to be used in rescue operations:
    - ◆ A self-contained breathing apparatus

as determined by firefighting protocol is essential while the vehicle or aircraft is burning or smoldering. All personnel without a SCBA should be restricted from the immediate area with the exception of those providing immediate, life-saving efforts.

◆ A full-face respirator with high-efficiency particulate air (HEPA) organic vapor filter should be worn by personnel present during the early stages of the investigation before a fixant has been applied or when composite fiber components are being cut, broken, or ripped apart. In the absence of full-face respirators, a respirator with filters and eye goggles is required as a minimum.

◆ Tyvek® or comparable coveralls that have been taped at the openings should be worn by investigation and cleanup crews or anyone working within 25 feet of any burned composite vehicle (M113, Bradley, M1, UH-60, CH-47D, AH-64, OH-58D) unless or until a fixant has been applied. These coveralls are single-use and should be disposed of as normal waste after use.

#### NSNs for Tyvek® disposable coveralls

Small	8415-01-092-7529
Medium	8415-01-092-7530
Large	8415-01-092-7531
Extra large	8415-01-092-7532
Extra, extra large	8415-01-092-7533

◆ Puncture-resistant leather gloves with inserts are necessary when handling debris. Standard-issue black leather gloves are acceptable.

◆ Safety glasses or goggles with side shields will provide eye protection if a full-face respirator is not used.

◆ A respirator is still warranted even after a fixant has been applied to the debris and vapor or mist generation is no longer a concern.

#### Points of contact

When developing your unit's pre-accident plan, you can obtain specific guidance from the—

- Local flight surgeon or occupational medicine officer (ground accidents).
- Installation industrial hygienist.
- Local hazardous materials emergency response team.
- Installation safety and occupational health manager.
- U.S. Army Safety Center, Operations Office, DSN 558-2660 (334-255-2660).
- U.S. Army Center for Health Promotion and Preventive Medicine, DSN 584-3118 (410-671-3118).

Commanders and safety officers must manage the risks associated with accident-site hazards. A pre-accident plan that identifies and assesses ACM hazards and specifies control measures will provide commanders with an effective risk-management tool to protect the health of those who must work in and around crash sites. ◆

—MAJ Paul Nagy, USASC, DSN 558-3262 (334-255-3262), developed this article from USASC safety alert message (201506Z May 96) and an April 1992 *FlightFax* article written by LTC Kenneth Tannen.

## Another accident-site hazard

**B**iological hazards involving bloodborne pathogens may be present during rescue operations.

While initial responders and emergency rescue personnel are most at risk for these hazards, subsequent investigation, recovery, and cleanup personnel must consider the possibility of exposure to body fluids and bloodborne pathogens. For example, an accident investigation team member could sustain a cut from a piece of contaminated debris while handling biological materials.

■ Units should identify work practices and controls in their pre-accident plans to protect personnel from exposure to bloodborne pathogens at accident sites. This should

include requirements for mandatory briefings of personnel who will be operating in and around an accident site.

■ Personal protective equipment should include—

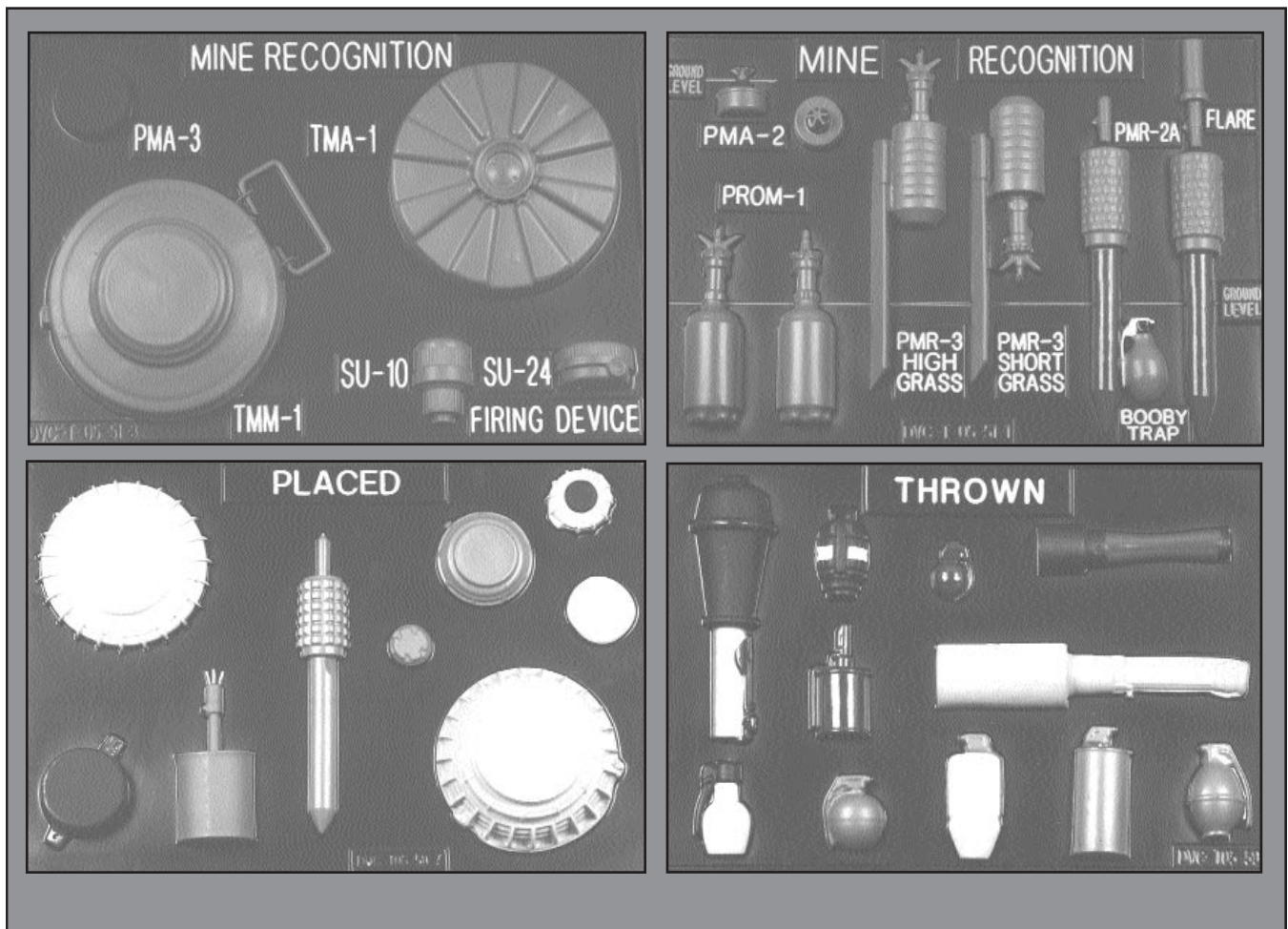
- Latex gloves or double-latex gloves.
- Utility work gloves.
- Disinfectant wipes.
- Red biohazard bag.
- 10-percent household chlorine bleach solution.
- Boot covers.
- Protective coveralls.
- Goggles.
- Surgical masks. ◆

# Helping soldiers recognize UXO

**D**uring Operation Desert Storm, 26 U.S. soldiers died when unexploded ordnance or “duds,” including mines, blew up. Estimates of the problem in Bosnia indicate that 4 to 6 million antitank and antipersonnel mines have been randomly laid in mountain roads, fields, forests, and villages. To add to the problem, many of these devices don’t even look like a piece of ordnance.

That is why SGM Gary Sampson of the Explosive Ordnance Disposal Training Department at the U.S. Army Missile Command (MICOM) decided

there must be a better way to teach soldiers how to recognize these devices. There was, and he found it. He presented his idea to the Corporate Information Center’s Exhibits Branch at MICOM, and Kenneth Kilpatrick, an exhibits specialist, created a series of board-mounted plastic models that illustrate grenades, rockets, projectiles, submunitions, mortars, and a variety of mines. The models are the same size, shape, and color as their lethal counterparts and can be placed on boards for exhibit in positions they would likely be found on the ground. Costing about \$150 per set, the models



Realistic models like these in the Mine Recognition Board and Ammunition Recognition Board sets will help soldiers recognize their lethal counterparts.



are lightweight — each set weighs about 10 pounds — and easily shipped.

The first boards were shipped to units in Bosnia. Additional boards are available to units throughout the world. The seven-board Ammunition Recognition Board set (DVC-T 05-50) and the four-board Mine Recognition Board set (DVC-T 05-51) can be

requested through your unit's Training Support Center (TSC). ♦

**POCs: Ms. Juanita Davis, Training Aids Manager, U.S. Army Training Support Center (ATSC), Fort Eustis, VA, DSN 927-4771/4772 (804-878-4771/4772) and Mr. Randy Porter, Ammunition and Mine Recognition Board Producer, USAMICOM-CIC, Redstone Arsenal, AL, DSN 645-6078 (205-955-6078)**

## Live demolition training fatality

Last summer, a soldier died when shrapnel struck him in the chest during live demolition training. Since April 1992, three soldiers have been killed and one suffered a serious disabling injury during this kind of activity. In this case, the soldier was not within the minimum safe distance (MSD). He also was not wearing a flak vest, and upon detonation, he stood up to observe the smoke plume.

The OIC was not qualified to run the demolition range, and the range safety officer (RSO) was being multi-tasked as the RSO, platoon sergeant, and the primary trainer. AR 385-63: *Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat* outlines the duties and responsibilities of the OIC and RSO.

These soldiers were doing round-robin type training using three sites: bangalore torpedo, shaped charges, and steelcutting charges. All three sites were tied into the same ring main. All of the charges were to standard with the exception of the steelcutting charge. AR 385-63 states that steelcutting charges placed on steel will not exceed 2 pounds. In this case, the soldiers had far exceeded the necessary amount in a last-minute effort to dispose of excess demo. FM 5-250: *Explosives and Demolitions* also advises using the minimum amount of explosives necessary to accomplish the mission.

There also was no appropriate

confining structure such as an excavated pit or hemp-type material covering the charge.

To make a hazardous situation worse, the soldiers had lost track of the total amount of explosives being detonated — so when they computed the MSD, it was far shorter than it should have been. The RSO chose a defilade position which, unfortunately, was not within the MSD.

The missile-hazard effect was not taken into consideration. The missile hazard from steelcutting charges extends for a greater distance than for other type charges. AR 385-63 provides the criteria for missile-hazard distances. FM 5-250 also gives the safe distance for personnel with charges on target, taking the missile effect into consideration. The FM also says to maintain accurate accountability of all explosives and accessories.

There was no missile-proof shelter available, so the soldiers went into a defilade position. But some of them were not in the prone position directly behind the berm; some were even standing. Flak vests were not available. If flak vests had been available and worn, the severity of this accident could have been greatly reduced.

AR 385-63 and FM 5-250 provide guidelines for this kind of operation. If leaders had followed these guidelines, this accident could easily have been avoided. ♦

**POC: SFC Charles Olsen, Engineer NCO, DSN 558-3034 (334-255-3034)**

# Safety messages

## **Armament and Chemical Acquisition and Logistics Activity (ACALA)**

■ AMSTA-AC-CTTE, 071419Z Jan 97, subject: Ground Precautionary Message (GPM) 97-04, technical, saw band metal cutting (NSN 3405-00-294-9591, LIN S34850), manufacturer Doall, model DBW-15 welder, machine serial number 500-93313, welder serial number 290-8714815. POC: Mr. Lonnie Griffin, DSN 793-1947 (309-782-1947).

## **Aviation and Troop Command (ATCOM)**

■ AMSAT-R-X, 052007Z Dec 96, subject: Safety-of-Use Message (SOUM) ATCOM-97-001, deadline, termination of use of the improved reserve parachute system (IRPS) (T-101R) (NSN 1670-01-420-4256). POC: Mr. Gayle Sappington, DSN 693-3997 (314-263-3997).

■ AMSAT-R-X, 012112Z Oct 96, subject: GPM-ATCOM-97-001, technical, convenience receptacle overload protective parts, MEP-802 (NSN 6115-01-274-7387, LIN G11966), MEP-812 (NSN 6115-01-274-7391, LIN G12102), MEP-803 (NSN 6115-01-275-5061, LIN G74711), MEP-813 (NSN 6115-01-274-7392, LIN G74779), MEP-804 (NSN 6115-01-274-7388, LIN G12170), MEP-9814 (NSN 6115-01-274-7393, LIN G12238), MEP-805 (NSN 6115-01-385-7389, LIN G74575), MEP-815 (NSN 6115-01-274-7394, LIN G74643), MEP-806 (NSN 6115-01-274-7390, LIN G12034), MEP-816 (NSN 6115-01-274-7395, LIN G18052), PU-797 (NSN 6115-01-332-0741, LIN G42238), PU-797A (NSN 6115-01-413-3820), LIN G42238), AN/MJQ-35 (NSN 6115-01-313-4216, LIN P28083), AN/MJQ-35A (NSN 6115-01-414-9697, LIN P28083) AN-MJQ-36 (NSN 6115-01-313-4215, LIN P28151), PU-798 (NSN 6115-01-319-9032, LIN G42170), PU-798A (NSN 6115-01-413-3818, LIN G42170), PU-799 (NSN 6115-01-313-4283, LIN G53403), PU-799A (NSN 6115-01-413-3819, LIN G53403) AN/MJQ-37 (NSN 6115-01-299-6035,

LIN P42262), AN/MJQ-38 (NSN 6115-01-313-4214, LIN P42330), PU-800 (NSN 6115-01-317-2137, LIN G78203), PU-801 (NSN 6115-01-319-9033, LIN G78374), PU-801A (NSN 6115-01-413-3821, LIN G78374), PU-802 (NSN 6115-01-317-2138, LIN G53778), AN/MJQ-39 (NSN 6115-01-299-6034, LIN P42614), PU-803 (NSN 6115-01-317-2136, LIN G35851), PU-804 (NSN 6115-01-317-2135, LIN G35919), AN/MJQ-40 (NSN 6115-01-129-6033, LIN P42126), PU-805 (NSN 6115-01-317-2134, LIN G78306), PU-806 (NSN 6115-01-317-2133, LIN G17460), AN/MJQ-41 (NSN 6115-01-303-7896, LIN P42194). POC: Mr. Jim Wilkins, 693-2258 (314-263-2258).

■ AMSAT-R-X, 051926Z Dec 96, subject: GPM-ATCOM-97-002, one-time inspection, riser extension, personnel troop parachute (NSN 1670-00-708-4473) used on parachute, personnel-type, T-10C, (NSN 1670-01-248-9502, LIN N67925) and parachute, personnel-type, T-10B (NSN 1670-00-591-0720, LIN N67925). POC: Mr. Gayle Sappington, DSN 693-3997 (314-263-3997).

■ AMSAT-R-X, 021429Z Jan 97, subject: GPM-ATCOM-97-003, repair kit, collapsible fabric tank (NSN 5430-01-359-1078) used on all Army collapsible fabric water tanks and drums, including the 3,000-gallon collapsible fabric water tank (NSN 5430-01-359-4774, LIN T19033). POC: Mr. Randy Wethington, DSN 693-3931 (314-263-3931).

## **Industrial Operations Command (IOC)**

■ AMSIO-QAS, 192034Z Dec 96, subject: SOUM-IOC-2-97, operational, 1340-H164, 2.75-inch rocket, M151, HERS, with M433 fuze hydra and M66 motor, precautionary measures when firing rockets airborne. POC: Ms. Mary Crosson, DSN 793-4106 (309-782-4106).

■ AMSIO-QAS, 192045Z Dec 96, subject: SOUM-IOC-3-97, operational, MK66 motor, 2.75-inch rockets, all mods. POC: Ms. Mary Crosson, DSN 793-4106 (309-782-4106).

## Tank and Automotive Command (TACOM)

■ AMSTA-IM-O, 072115Z Jan 97, subject: SOUM-TACOM-WRN Control No. 97-03, operational, for M1 Abrams tank (NSN 2350-01-061-2445, LIN T13374), M1A1 Abrams tank (NSN 2350-01-087-1095), IPM1 Abrams tank (NSN 2350-01-136-8730), and M1A2 tank (NSN

2350-01-328-5964). POC: Mr. Tim Milanov, DSN 786-7895 (810-574-7895).

## Missile Command (MICOM)

■ AMSMI-MMC-LS-SM, 201000Z Dec 96, subject: SOUM-MICOM-96-07, compressed gas (nitrogen) cylinders (NSN 8120-01-075-5963). POC: Mr. Willie Armstrong, DSN 746-9508 (205-876-9508). ♦

# Battery explosion injures soldier

**W**hile conducting a PMCS of a 5-ton truck, a soldier was sitting in the driver's seat observing the operation of the gauges. His arm and hand were resting on the passenger seat when the battery box exploded. The latches that connect the passenger seat to the battery box failed, and his arm was slammed into the structure of the truck. He suffered a shattered arm and required immediate surgery. The soldier also lost 15 workdays due to the seriousness of the injury.

The explosion was caused by arcing of the battery cables. While the soldier's arm was resting on the passenger seat, pressure was applied to the battery cables, causing connection with the top of the seat and the interconnecting battery cable.

Leaders should monitor maintenance of all batteries to ensure that soldiers are conducting a proper PMCS in accordance with the technical manuals. All

battery-operated equipment should be inspected to ensure that nothing interferes with the battery cables. Battery safety awareness and battery maintenance classes should be scheduled to educate soldiers on proper procedures and prevent further injuries of this type.

Things to keep in mind when checking batteries and cables include—

- Continued reliability of electrical systems requires performance of routine maintenance to assure a good electrical connection and safe cable positioning.

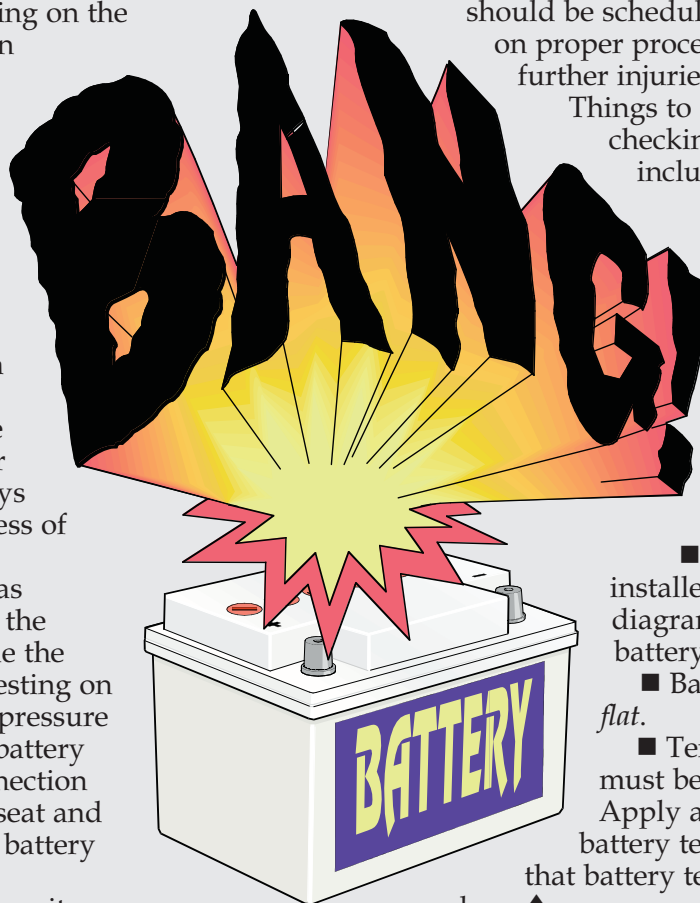
- Battery cables must be installed as shown on diagrams for each specific battery.

- Battery cables must lie flat.

- Terminals and connectors must be kept clean and tight. Apply a light coat of grease to battery terminals and ensure that battery terminal covers are in

place. ♦

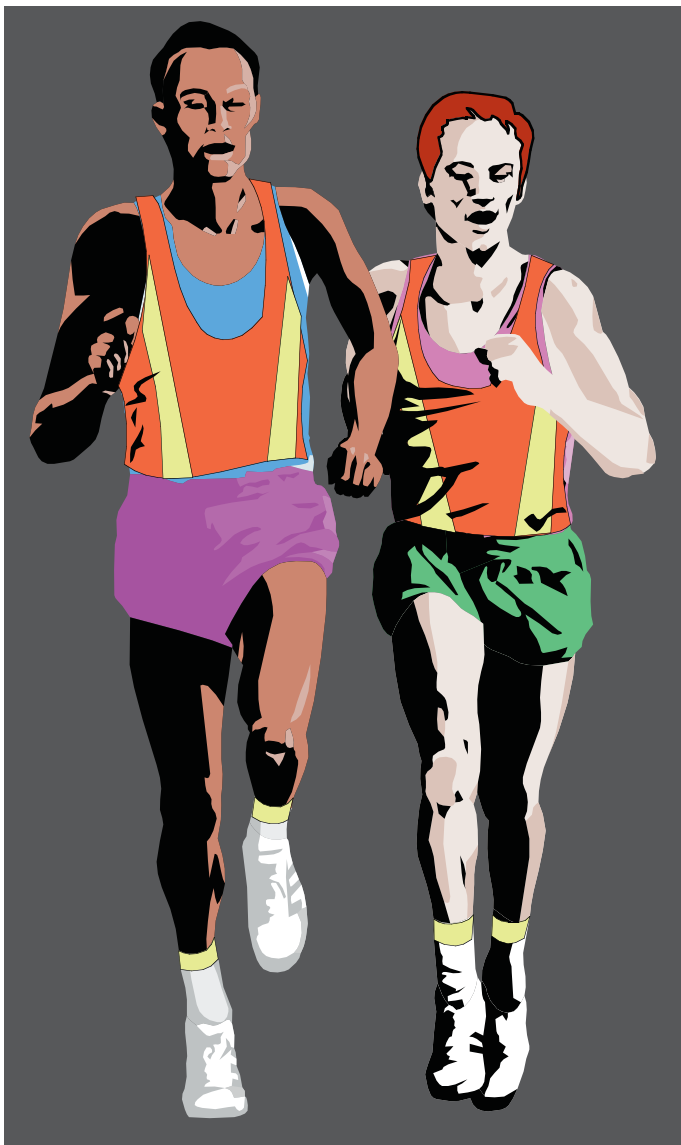
POC: SSG Bridgette M. Mills, Safety NCO, 3d Battalion, 58th Aviation Regiment, USAREUR, DSN 337-6056



# From the field

## It just keeps on going and going . . .

**N**o, this isn't about the "pink bunny" you see marching across your TV screen. "It" is the network of safety people all over the world and across the military services who find a good idea or a better way to do something and share it with us all.  
CW5 Stephen Rauch at HQUSAREUR



picked up an e-mail message listing stock numbers and prices for colored reflective belts from SSgt "Safety Joe" Muhlberger, 52FW/SEG (Wing Ground Safety), who had got his information from TSgt Rogowski, the 53FS alternate UGSM, and he passed it on to other ASOs. We're using *Countermeasure* to ensure that ground safety people also get the info.

Stock No.	Color	Price
8465-01-225-4659	Blue	\$8.50
8465-01-225-4661	Lime	8.50
8465-01-163-8835	White	5.90
8465-01-225-4656	Yellow	8.50
8465-01-225-4660	Red	8.50

When CW4 Mark Hutchings at Fort Campbell saw this message, it prompted him to pass on some information about what Fort Campbell has done on reflective equipment. When they compared reflective bands, vests, and belts, they found that vests and belts tend to get obscured by equipment and clothing. So they decided on the ankle band. Leg movement attracts attention to the ankle band, under most conditions it does not become obscured, and it costs less than the vests and belts, especially if purchased in quantities of 100 or more. Many sources are available, so shop around.

If you want to talk to CW4 Hutchings, you may call him at DSN 635-6789.

—thanks to CW5 Mark Barker, Training Division, USASC, for forwarding this information to *Countermeasure*

## Close call in Bosnia

**U**.S. troops in Bosnia face many enemies: the weather, unexploded ordnance and mines, and accidents. Luckily, no one was injured recently when a fire occurred in a dining facility at Comanche Base, Tuzla West.

The time was 2000 and an NCO was performing duties as the supervisor/operator of 17 M2 burners located in the dining facility. He and a PFC performed a PMCS (preventive maintenance checks and services) on the M2 burners before placing each one in operation. Once all of the burners were on line, the NCO and PFC continued to check them every 15 minutes to ensure they were functioning normally.

At 2145, a dining facility contractor employee reported the presence of fuel vapor. As the employee walked by a line of four M2 burners, a small quantity of fuel on the floor near one of the burners ignited. The employee fled the scene while the NCO and another dining facility employee began fighting the flames with fire extinguishers. Fortunately, the extinguishers functioned as they should have and they were able to extinguish the fire in less than a minute. About 5 minutes after the fire began, the fire department arrived to find everything under control. No injuries or property damage resulted. The cause of the fuel leak was

determined to be a faulty pre-heater on one of the M2 burners. The pre-heater was replaced, and the pre-heaters on all of the other M2 burners were inspected to ensure they were serviceable.

A potentially costly, even life-threatening, accident was averted because the hazards associated with M2 burner operations were identified and proper control measures instituted. Procedures had been established and were followed to inspect the M2 burners every 15 minutes, and fire extinguishers were readily available in case they were needed. ♦

—thanks to CW3 Marty J. Martin, Safety Officer, 11th Aviation Regiment, DSN 467-4780/542



Food has always been important to the health and welfare of soldiers. These troops in Bosnia will be better equipped to face the cold temperatures after a hot meal.

## Let us hear from you

If you have information you would like to share through *Countermeasure*, or if you would like to write an article for this publication, our e-mail address is [marcumb@rucker-safety.army.mil](mailto:marcumb@rucker-safety.army.mil). Or send it to Commander, U.S. Army Safety Center, ATTN: CSSC-RSG (*Countermeasure*), Bldg 4905 5th Ave, Fort Rucker, AL 36362-5363. The fax numbers are DSN 558-9528 (commercial 334-255-9528). Call us at DSN 558-2688 (334-255-2688). If you don't have time to polish your writing, don't worry about it. Get the facts to us, be sure you give us a way to contact you, and we'll take it from there. If you have a story to tell but don't want your name used, we can handle that too. Remember, something you know could save a soldier's life—**don't think "I'll do it tomorrow," that might be too late!**

# Family safety

## Moving? There's something you need to know

**M**oving is a way of life for military families—that isn't going to change. But when you move now, you have a right to know about lead-based paint and lead-based paint hazards in homes you buy or rent. This is particularly important to families with small children or women who are or may become pregnant.

More than 1.7 million American children under the age of 6 have unsafe blood-lead levels, making lead poisoning a top environmental health hazard for young children. Most of these children are poisoned by deteriorated lead-based paint and the contaminated soil and dust it generates. Children with too much lead in their bodies can experience lowered IQ, reading and learning disabilities, impaired hearing, and other problems. More than 80 percent of the

U.S. housing built before 1978—some 64 million residences—contains lead paint.

The reason that you need to be concerned about housing built before 1978 is that is the year the sale of lead-based paints for use in residential dwellings was banned.

Effective 6 Sep 96, real estate agents and property owners with more than four residential dwellings (including single-family homes) are required to disclose to buyers and new tenants all known lead-based paint and lead-based paint hazards in a residence. On 6 Dec 96, the requirement was extended to owners of even a single residence.

When you consider renting or purchasing a home that predates 1978, you should ask for—and the owner is required to provide—information on lead-based paint and lead-based paint hazards in the property you are considering. The owner must also provide you a copy of Environmental Protection Agency pamphlet *Protect Your Family from Lead in Your Home*. This pamphlet includes practical, low-cost tips on identifying and controlling lead-based paint hazards. (See box for

### **If you suspect that your house has lead hazards, you can take some immediate steps to reduce your family's risk:**

- If you rent, notify your landlord of peeling or chipping paint.
- Clean up paint chips immediately.
- Clean floors, window frames, window sills, and other surfaces weekly. Use a mop or sponge with warm water and a general all-purpose cleaner or a cleaner made specifically for lead. Remember: *Never mix ammonia and bleach products together since they can form a dangerous gas.*
- Thoroughly rinse sponges and mop heads after cleaning dirty or dusty areas.
- Wash children's hands often, especially

before they eat and before nap time and bed time.

- Keep play areas clean. Wash bottles, pacifiers, toys, and stuffed animals regularly.
- Keep children from chewing window sills or other painted surfaces.
- Clean or remove shoes before entering your home to avoid tracking in lead from soil.
- Make sure children eat nutritious, low-fat meals high in iron and calcium, such as spinach and low-fat dairy products. Children with good diets absorb less lead.

an example of the kind of information the pamphlet contains.)

People who renew leases after 6 Sep 96 must also be provided this information. Specific notification and disclosure language must be included in the contract or lease, along with signed statements from all parties verifying the requirements have been met.

Home buyers will have a 10-day opportunity to conduct a lead-based paint inspection or risk assessment at their own expense before a contract is made final.

For a copy of the pamphlet, sample disclosure forms or the rule, call the National Lead Information Clearinghouse at 1-800-LEAD-FYI. The EPA pamphlet and rule are also available through the Internet at <http://www.epa.gov/opptintr.lead>.

—adapted from a release by the Environmental Protection Agency

## Lead in miniblinds

**O**n June 25, the Consumer Product Safety Commission (CPSC) warned the public about a lead hazard to young children from some miniblinds. Miniblinds are venetian blinds with 1-inch slats, made of metal or plastic. The warning applies only to plastic miniblinds that do not have a high-gloss finish and were imported from China, Taiwan, Mexico, or Indonesia. Some of these blinds are not marked with a brand name or country of origin. The miniblinds contain lead that can be rubbed off when the

plastic ages. Children under 6 years old may run their hands over the blinds or suck on them and then swallow the lead. CPSC's advice is to remove lead-containing miniblinds from homes where small children live.

Army policy is to provide safe housing and workplaces for soldiers, their families, and civilians. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Lead Team has developed a fact sheet that provides guidance on how to deal with this new health concern. The guidance recommends that lead-containing miniblinds be removed from places where children under 6 years old or pregnant women may be exposed to them. The highest priority is to remove blinds from Army housing and other facilities where this exposure is currently taking place. The fact sheet is available by calling the Industrial Hygiene Field Services Program, DSN 584-3118 (410-671-3118) or 1-800-222-9698.

Army personnel who think that they have these miniblinds should contact their local Directorate of Public Works (DPW) for more information. Personnel who have bought their own blinds should contact the store where they were bought. Stores are beginning to carry miniblinds made with "lead-free" plastics. They also sell metal miniblinds. Both are slightly more expensive than the lead-containing blinds. Many stores will take lead-containing blinds back and give a refund or credit toward other kinds. ♦

—courtesy U.S. Army Center for Health Promotion and Preventive Medicine newsletter *CHPPM Today*. USACHPPM POC: Ms. Victoria Belfit, DSN 584-2559 (410-671-2559) or 1-800-222-9698

## Lead (Pb) exposure control guide

**T**he CHPPM Lead-Based Paint Team, in a joint effort with the Army Environmental Policy Institute (AEPI), has published a *Mission-Area Guide to Lead-Exposure Control*. This guide is designed to raise the awareness level of Army commanders and other DA personnel to lead exposures from Army activities and offers mission-area-specific lead-exposure control strategies that can be implemented by installations Armywide. The guide also provides information needed to comply with Federal, state, and local laws governing the use of lead and lead compounds on military installations. Copies are available by calling Ms. Victoria Belfit, DSN 584-2559 (410-671-2559) or 1-800-222-9698. ♦

# Home smoke alarms

**D**o you remember the last time you checked the smoke alarms in your home? If you don't make it a regular routine to check your home alarm system, you may think you are protected when in fact you're not.

A good way to remember to replace batteries and check how well your alarms are functioning is to choose a significant date in the year. How many of us forget Christmas and New Year's? Some of us might like to forget our birthdays, but we seldom do. What I'm saying is we don't forget days that are significant to us (don't tell your wife that if you have trouble remembering your wedding anniversary). So why not make it a habit to check your home smoke alarms on one of those significant days?

## Make sure you perform a proper functional check

If you limit your alarm check to the battery and annunciator by pushing the test button, you're not doing enough. This doesn't actually check the smoke sensor's circuitry. To do that, you have to expose the sensor to smoke.

Before you do this step, practice risk management and establish some controls to protect yourself, your family, and even your pets.

- Use earplugs for any humans who

will be exposed to the high-pitched sound when the detector goes off. (This might be a good time for the kids to take the pets outside.)

- Be sure the stepstool or ladder you use to get close to the alarm is sturdy and won't slip on the floor surface.

- Light a small candle, blow out the flame, and let the smoke rise into the alarm sensor. The alarm should activate within a few seconds. If it doesn't, repeat the procedure to ensure that the smoke reaches the sensor. If the smoke alarm continues to fail, check or replace the battery. If the battery is good, you should replace the smoke alarm with a new one. Once the alarm sounds, you can blow into the sensor to help deactivate the alarm.

- If your house has multiple alarms wired together, listen for alarms in other rooms while you conduct each alarm test.

## Remember how important smoke alarms are to your family's safety

- Replace batteries at least once a year.

- Check new alarms and those in service on a regular basis.

- Replace faulty alarms as soon as possible.

- Put a reminder to do this in your day planner/timer right now! ♦


—SFC Daniel Denham, ARNG, 19th SFGA, Environmental Health and Safety Coordinator, AMOCO Corporation (303-830-6070)

POV


POV accidents / soldiers killed

UPDATE THRU DECEMBER FY97

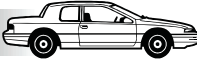
OTHER\* 17/8




9/3



8/0




15/7




2/0

TOTAL FATALITIES

18



\*Includes unknown POVs and tractor trailers.



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THOMAS J. KONITZER  
Brigadier General, USA  
Commanding



# ARMY GROUND-ACCIDENT REPORT COUNTERMEASURE

Volume 18 Number 3

March 1997



**T**he United States Army has jumped wholeheartedly into the information age. The purpose for the rapid moves in this direction centers on doing more with less and enhancing performance by providing valuable information to the right people at the right time. The Army Safety Center has adopted information management for the same reasons.

The purpose of this article is to explain the information systems at the Safety Center and their linkage to you, Army commanders and staffs, and acquisition officials. Customer

requirements drive the evolving information systems at the Safety Center.

The Army Safety Center's business is information. Whether we get that information to you by print media such as *Countermeasure* and *Flightfax* or through computer links and the World Wide Web (WWW), the heart of our effort is to identify and disseminate the relevant and timely information about risk management—conditions, hazards, and controls—to you, our customers.

The first part of the process is to gather information from multiple sources (primarily

Army accidents), and clearly identify the conditions, hazards, and controls that affect Army performance. The lessons learned through this process are disseminated to those who shape Army policies, procedures, training, and acquisition decisions.

## **Vision**

The vision for the Safety Center information organization consists of three parts:

- Surround Safety Center analysts with summarized but rich information dealing with Army hazards and controls.

- Ensure users can easily view and ask questions about hazards, controls, and trends that affect Army operations.

- Meet customer requirements for information that, when implemented, reduces accidents.

## **Mission**

The mission of the information organization within the Safety Center is to—

- Serve as a risk-management information broker for the Army and the Safety Center.

- Leverage information technology in support of the Center's analysts to identify conditions, hazards, and controls that affect Army customers worldwide.

- Produce, market, and promote multimedia safety products.

## **Goals**

The Safety Center information organization's four goals follow closely:

- Use an array of information tools: print media, e-mail, list servers, bulletin boards, and the World Wide Web to distribute information throughout the Army. *Countermeasure* is just one example of how we disseminate the conditions, hazards, and controls drawn from accidents to our customers.

- Use information systems (PC-based and on the Web) to simplify accident reporting. The current forms—DA Form 285 for ground accidents and DA Form 2397 for aviation accidents—are very detailed attempts to gather information that may be of value to customers and analysts. However, the current procedure is a rather daunting task and one that is often delegated to the most junior member of an organization. We hope to use both the Web and PC-based programs to simplify that process so that a reporting individual merely fills in the available blanks, using assistance provided by the software.

- Move accident data from the large main-

frame computer to smaller systems called servers, which use "user friendly" software. Our current system, the Army Safety Management Information System (ASMIS), presents serious challenges to customers—including our own analysts—in getting to the data they need. As a result many people simply give up because it is too complicated. We have invested over \$1.7 million into our computer infrastructure to ensure much simpler manipulation and access to important hazard and control information.

- Use e-mail, list servers, and the World Wide Web to distribute information about Career Program 12 for safety and occupational health professionals around the Army.

## **Customers**

We are listening to what our internal (within the Safety Center) and external (throughout the Army) customers say that they want.

### **■ Internal customers**

- Up-to-date, easy-to-use information systems and software.

- Statistical packages for analyzing information.

- Ability to ask research questions and easily use our data base to find the answer.

- Quick assistance with computer system problems.

- Additional data bases, e.g., hazards, enlistment data, and subsets of accident records, etc.

### **■ External customers**

- A clear layout of the conditions, hazards, and associated controls that have either led to or reduced accidents in the past or will reduce accidents in the future.

- Ability to enter and use the data base with a friendly Windows-based layout.

## **Where do we go from here?**

We have a vision and we know the expectations and requirements of our customers—both internal and external. What are the actions that will allow us to reach our goals and meet our customers' expectations and requirements?

- First, we have dramatically enhanced the capabilities of each person at the Safety Center by taking our office automation systems to state-of-the-art status (Pentium, Windows 95, Microsoft Exchange groupware, Microsoft Internet Explorer). And we have invested in training to ensure the potential of this automation effort is realized. The Safety Center system today is in the top 10 percent of Army information systems (computers, software, and interconnections). Each person in the Center can

bring powerful technology to bear on the problems *you* face daily.

■ Second, we have combined our efforts with those of the Director of Information Systems for Command, Control, Communications, and Computers (DISC<sup>4</sup>) to provide a powerful client/server data base, using commercial relational data base software. What this means in plain English is that we have easy-to-access software, allowing us – and, more important, you – to find answers to the questions you have about conditions, hazards, and controls.

Furthermore, we are using the Internet, and specifically the World Wide Web, to enhance the flow of information from individuals to Army organizations. Currently, our Web site (<http://rucker-usasc.army.mil>) outlines the major programs the Safety Center is currently working. In the near future, we will have a portion of our Web site that links to the relational data base just described. Using “point-and-click” Windows procedures, authorized users will be able to ask questions, using simple menus just as you would if you’re at the “Mornings” Web site as you search for a top-performing mutual fund. Trouble in finding the information you need will be a thing of the past.

■ Finally, we use the power of the new technologies to enhance the collection, analysis, and dissemination of risk-management information. We will ease the process of getting information from the field, ease the review and analysis of hazards and controls, and disseminate – using digital (e-mail, Web, etc.) when you want it that way, or paper if you’d prefer. We’ve also bought software necessary to broadcast information to you across the Web . . . and put it on your screen.

### **Opportunities**

Several key opportunities present themselves through the new information systems at the Safety Center. For example, these systems will

allow us to –

■ Put information into the hands of analysts, Army commanders, leaders, and acquisition officials.

■ Move away from mainframe costs, technologies, and challenges.

■ Invest in our people at the Safety Center.

■ Get progressively closer to our customers and their needs.

■ Move gradually toward digital distribution of our safety products, using e-mail, the Web, CDs, videos, and broadcast across the Web.

### **Time lines**

Many of the changes have already occurred. Specifically, receipt of the new relational data bases, Pentium overdrives and work stations, and new Windows 95 software and applications. At the Safety Center, we have a Web server that allows us to move between the Web and our data base when the latter is up and running.

In April 1997, we will move the data from the older mainframe into the new relational data base (client/server).

By July 1997, we will turn off the mainframe and use our relational data base linked to the Web to ease answering your questions about hazards and controls.

### **The objective**

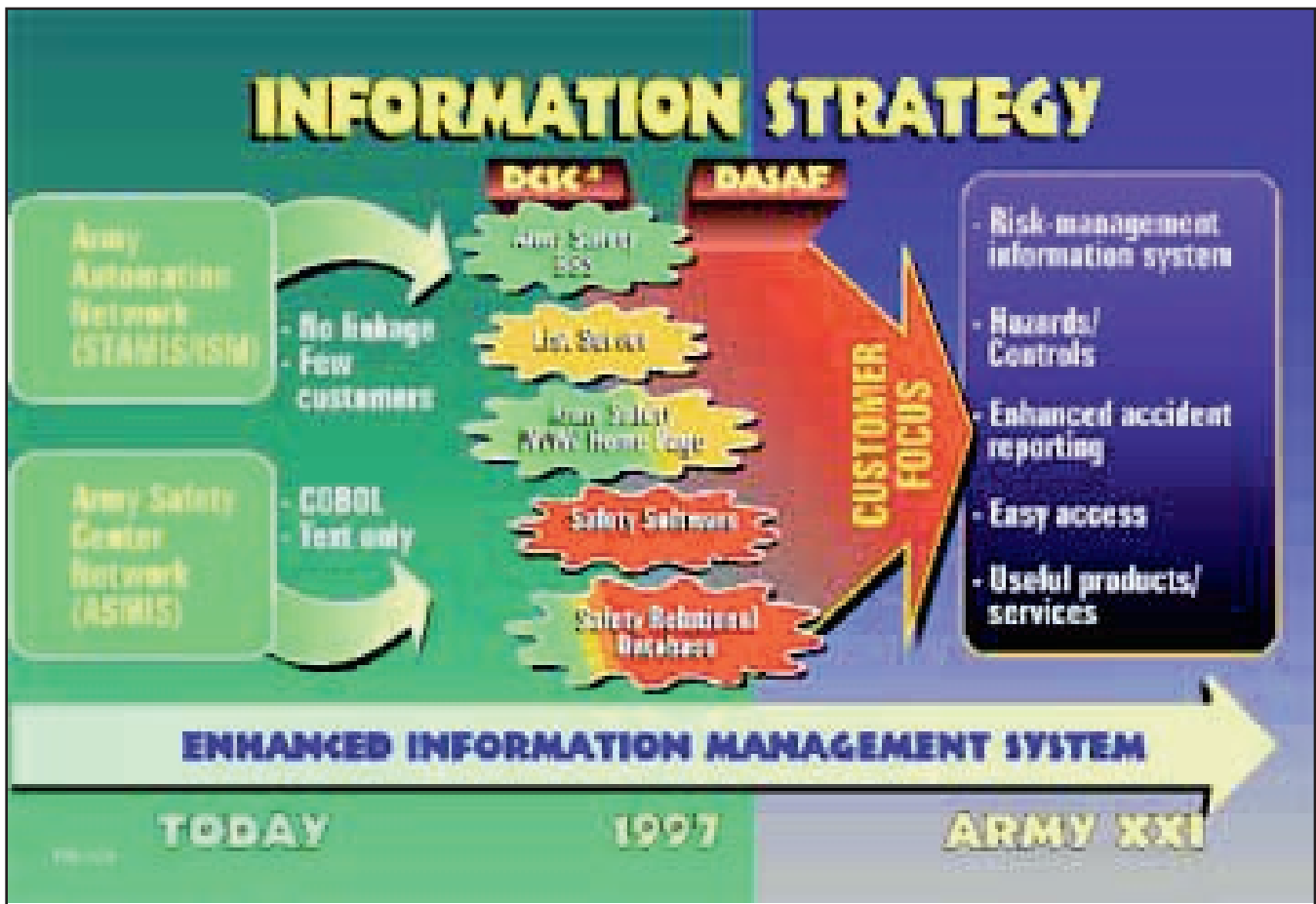
The objective for the new and improved information system at the Safety Center is to make your life easier. Our job in the Center is to identify the hazards and controls that present challenges to you. With the new information system – since information is at the heart of our business – we will be able to meet our requirements and identify those hazards, controls, and trends that affect you, your resources, and the lives of your soldiers.

—COL Jack H. Cage, Deputy for Support, U.S. Army Safety Center, DSN 558-3075 (334-255-3075), e-mail [cagej@safety-emh1.army.mil](mailto:cagej@safety-emh1.army.mil)

## **USASC information systems structure**

The information systems structure of the Army Safety Center is designed to provide –

- Easy-to-use information technology – point-and-click.
- The fastest work stations and local connections available.
- Worldwide access in and out of the Safety Center.
- Information on demand from internal and external customers.
- Broadcast information dealing with hazards and controls directly to your PC.
- The capability to deliver to you, the customer, any information you need, regardless of the format.



# USASC information strategy

This chart graphically portrays the Army Safety Center's information strategy. At the left, two boxes show the Army Automation Network and Army Safety Center Network and suggest changes that are rapidly moving us into the future.

Two major ideas are coming together. First, the Army Program called STAMIS was designed to provide information support to the major base operations functions within the Army. Unfortunately, the system has been challenged by very limited linkage among centers and activities in the Army. The program, however, is still alive and funded.

The second major idea deals with the information systems that have been developed here at the Army Safety Center, particularly the Army Safety Management Information System or ASMIS. ASMIS was designed to collect information on Army accidents to determine trends about specific hazards and controls. The anticipated outcome of this effort was overall

reduction in Army accidents. Unfortunately, the system is hampered by its COBOL language orientation; it is hard to use. The COBOL-orientation means that the average person, like you and me, has tremendous difficulty getting out the information that is of value to us. For example, a battalion aviation safety officer would have tremendous difficulty going into the system and identifying the specific conditions, hazards, and controls that are important for his or her organization. So, how do we move toward the future and make an information system that is useful for you?

The center section of the chart (highlighted as 1997) suggests there are a number of systems coming on today to provide assistance. These are—

- Army safety bulletin board system (BBS).
- List servers.
- Army Safety World Wide Web home page.
- Safety (accident) software.
- Safety relational data base.

### **Army safety bulletin board system**

This system was designed to support customers worldwide by providing an easy means to collect information that has been provided and generated at the Safety Center. Although it is older technology, it has provided a valuable service as we move toward greater capability.

### **List servers**

The Safety Center operates a number of list servers – which are merely high-speed ways to distribute e-mail to tens or thousands of recipients, all at the same time. We operate three today. The first, CP12, provides information services to Career Program 12 officials around the Army. Second, we provide an ASO (aviation safety officer) system that sends information to the ASOs, who are primarily at battalion- and brigade-level aviation units throughout the Army. Though a new system, it is rapidly growing in size and capability. The third list server – Safe-Risk – provides the ability to send information to those interested in safety and risk management.

### **Safety World Wide Web home page**

We intend to use the current up-and-running World Wide Web home page (<http://rucker-usasc.army.mil>) to provide immediate information on topics ranging from aviation and ground safety to CP12 functions. In the near future, we will use enhanced capability to provide transactions on the Web. This means that individuals both in the Safety Center and around the world will be able to use the World Wide Web with point-and-click screens to find the information they want immediately, without direct intervention by anyone at the Safety Center.

### **Safety software**

Safety software is designed to provide accident-reporting capability for PC systems or work stations that already exist around the Army. This software will provide a shell that, when completed, becomes an Army accident report – either ground or aviation. We have high hopes that this software will be in our hands, ready to send to you, the customer, in May of 1997.

### **Safety relational data base**

This data base provides a means to simplify the current ASMIS to provide specific answers to research questions raised by people here at the Center or more importantly to you, the customer, anywhere around the world, either through direct dial-in over telephone lines or, ideally, using the World Wide Web as the linkage.

In the end, we believe that the new information strategy and structures will provide greater risk-management information around the world in an easy-to-use format. Specifically, it will provide a layout of conditions, hazards, and controls that will be the basis for enhancing our ability to reduce these hazards and thus reduce accidents in both aviation and ground arenas. We believe the enhanced accident-reporting software will ease the process of reporting accidents and provide better information on the conditions, hazards, and controls that led up to that particular accident. But all in all, the greatest capability is it provides you, the most important customer we have, easy access and usable products to reduce accidents in the Army today.

—COL Jack H. Cage, Deputy for Support, U.S. Army Safety Center, DSN 558-3075 (334-255-3075), e-mail [cagej@safety-emh1.army.mil](mailto:cagej@safety-emh1.army.mil)

## **We want to make it easy**

**W**e provide a number of ways to make it easy for you to reach *Countermeasure*:

- Phone: DSN 558-2688 (334-255-2688).
- Fax: DSN 558-9528/9478 (334-255-9528/9478).
- E-mail: [countermeasure@safety-emh1.army.mil](mailto:countermeasure@safety-emh1.army.mil).

- Mail: Commander, U.S. Army Safety Center, ATTN: CSSC-RSG (*Countermeasure*), Bldg. 4905 5th Ave., Fort Rucker, AL 36362-5363.

Calls regarding distribution should be directed to Ms. Sharrell Forehand, DSN 558-2062 (334-255-2062).

# Smoking can get you now—and later

The long-term, negative health effects of cigarette smoking are well-known to most soldiers and of great concern to the Army. Smoking has been repeatedly named as a strong risk factor for developing certain types of cancers, chronic lung and heart disease, stroke, and has even been implicated in osteoporosis (softening of bones) and tooth and gum disease. Now there is a new and rapidly growing concern about significant short-term adverse health effects of smoking. Of interest to the Army are two important studies of infantry soldiers and basic trainees that have shown that smokers become injured over 50 percent more often than nonsmokers. In both studies, the incidence

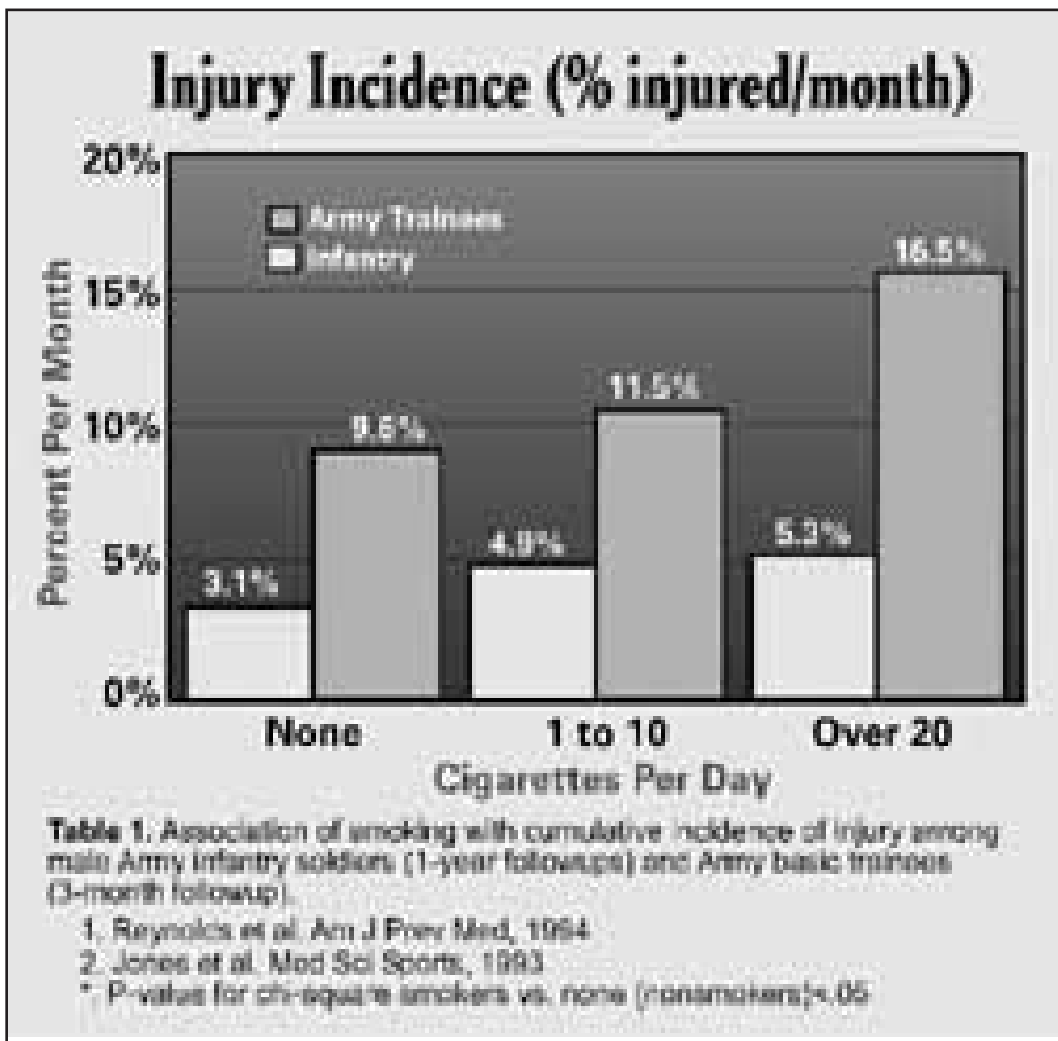
increased with the number of cigarettes consumed per day (see table 1).

Injuries experienced more frequently by smokers include muscle strains, ligament sprains, bone fractures (stress and traumatic), tendinitis, bursitis, fasciitis, shin splints, and both knee and lower-back-pain syndromes. Several other Army and civilian studies, both published and unpublished, further drive home the message that *smoking can get you now—and later*.

Injuries cause not only pain and suffering, but are responsible for five to ten times as many days of limited duty in the Army as illnesses. The injured and temporarily ineffective soldier

may miss valuable training, which can significantly impact career ambitions and unit readiness. Soldiers need to be where the action is, and not waiting in the aide station. Often injured soldiers may simply become less competitive in the modern "right-sized" Army. Empty foxholes also hurt unit performance.

Smokers not only experience a greater number of injuries, but their recovery from these injuries is often inferior and substantially slower. Ghazel et al. (1994) found good or better



results following surgical nerve repairs in fingers was 47 percent in smokers as compared to an 87 percent rate in nonsmokers. Schmitz (1995) documented that healing times for major fractures in smokers exceeded that of nonsmokers by 70 percent (250 days versus 150 days). Finally, Silverstein et al. (1992) showed that soft-tissue wounds heal significantly slower in smokers than in their nonsmoking counterparts.

In spite of repeated warnings, the Army continues to smoke at a rate higher than the U.S. civilian population (34 percent versus 31 percent). Many of our young soldiers (ages 18 to 25) appear particularly deaf to the message with a frightening 41 percent smoking rate, compared to slightly more than 30 percent in our older, career-aged soldiers (ages 26 to 55). Many younger smokers may ignore the health message or put off quitting because they believe consequences are not seen or felt for 20 or 30 years. To the young troop, this time period may literally represent more than one lifetime and certainly does not appear to be an immediate threat. However, the recent Army studies should send this rationale into an "about face."

Readiness is cornerstone to our military mission—the fundamental reason for our existence. Any short- or long-term health threat that impedes readiness certainly presents a clear danger to this nation. In 1995, the United States Army Center for Health Promotion and Preventive Medicine (USACHPPM) stood up to advocate "Readiness thru Health" and to lead the entire Army into health and wellness. Smoking is more than just a personal health issue, it is a command issue. Each and every smoker needs to be afforded every possible opportunity to quit "mainlining" nicotine—and smokeless tobacco is not an acceptable alternative. Commanders and soldiers need to look to the Army Medical Department as an ally and a resource to convince soldiers to stop smoking and guide them to maximum individual and unit potential. Cigarette smoking poses short-term, immediate threats to the health of our soldiers and unit readiness, and can no longer be categorized as only a long-term problem.

**POC: MAJ Leo H. Mahony, USACHPPM Physical Therapy Staff Officer, DSN 584-4656 (410-671-4656)**

## Smokeless can be hazardous

**A**thletes do it, coaches do it, aviators do it—and, unfortunately, soldiers do it too. But if you think snuff or chewing tobacco are a good alternative to smoking—think again. Soldiers need to understand that trading cigarettes for any other form of tobacco is just swapping one set of hazards for another. A typical smokeless tobacco user is exposed to the same amount of nicotine each day as a person smoking a pack of cigarettes. Although the danger of lung cancer may be dramatically lessened by quitting smoking, there are a whole lot of nasty possibilities in store for users of smokeless tobacco.

### **Smokeless doesn't mean hazardless**

The nicotine in smokeless tobacco produces the same adverse effects on the body as cigarettes:

- Increased heart rate and blood pressure.

- Constricted blood vessels in the extremities.
- Decreased oxygen supply to the heart; reduced exercise capacity.
- Earlier heart disease, delayed wound healing, reproduction problems, stomach irritation or ulcers.
- Bad breath, receding gums, tooth erosion and loss.

The biggest risk to people who use smokeless tobacco is oral cancer. Chronic smokeless tobacco use is directly related to an increased risk of cancer of the mouth, larynx, throat, and esophagus. And the longer you use smokeless tobacco, the more likely you are to develop such cancers. Long-term users of smokeless tobacco are at 50 times greater risk of developing cancer of the cheek and gum.

—adapted from an article by MAJ Daniel T. Fitzpatrick, Flight Surgeon, in *Flightfax*, May 1991

# Sports injuries

**W**e all know that physical training programs are critical to operational readiness. Participating in sports is one of the most popular ways soldiers can choose to maintain physical fitness. But when soldiers are injured while participating in sports, that directly impacts on the Army's ability to accomplish its mission.

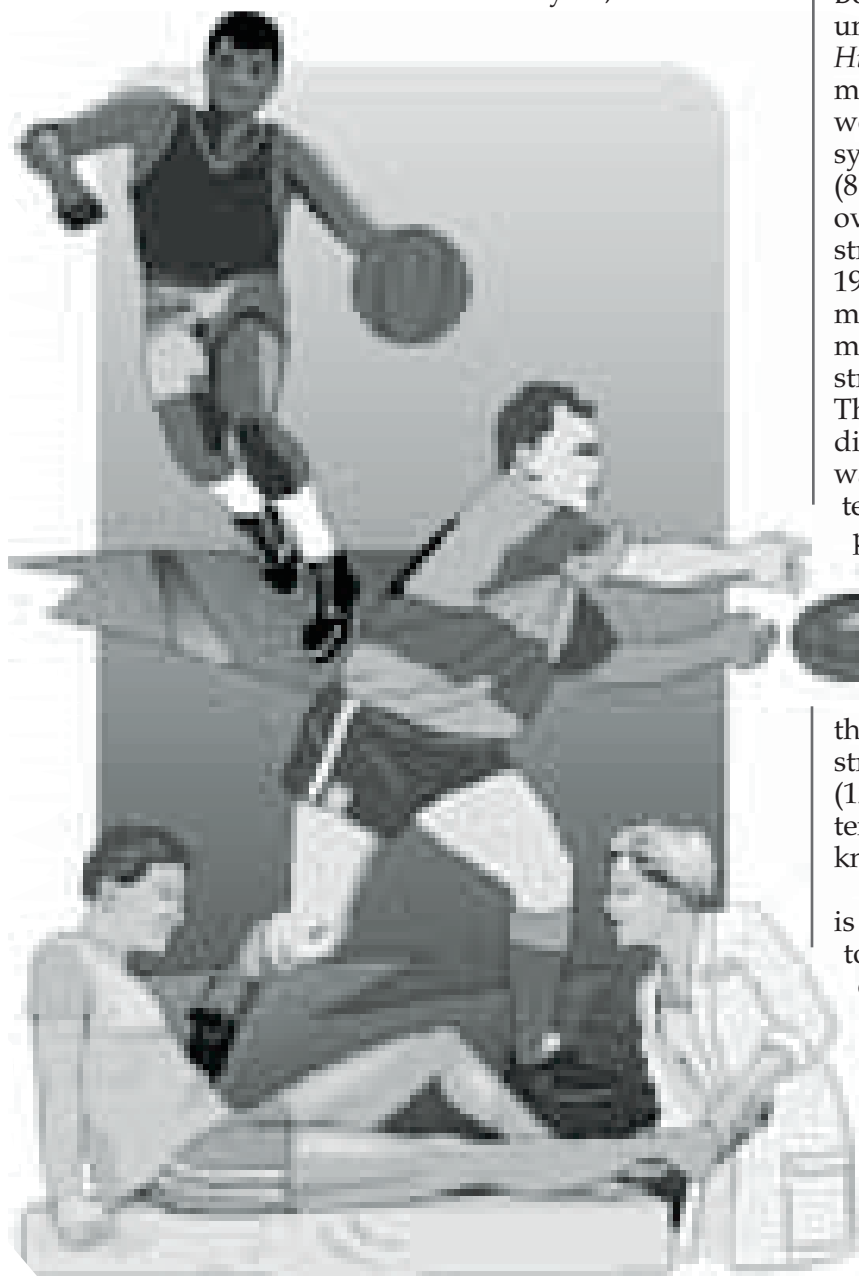
Last year, 267 soldiers

were injured while participating in sports. The most common types of injuries seen in the military populations are musculoskeletal overuse injuries. The majority of these injuries occur at or below the knee.

A study of soldiers during Army infantry basic training by the Injury Prevention and Control Work Group of the Armed Forces Epidemiological Board, published in November of 1996 under the title *Injuries in the Military: A Hidden Epidemic*, discloses that the five most commonly diagnosed conditions were pain attributed to overuse or stress syndrome (23.8 percent), muscle strains (8.6 percent), ankle sprains (6.3 percent), overuse knee injuries (5.9 percent), and stress fractures (3.0 percent) (Jones et al., 1993B). Among 298 infantry soldiers, the most common injury diagnosis was musculoskeletal pain, followed by strains and sprains (Knapik et al., 1993). The distribution (percent) of commonly diagnosed injuries in Army male recruits was low back pain (7.3 percent), tendonitis (6.5 percent), sprains (4.8 percent), muscle strains (3.2 percent), and stress fractures (2.4 percent) (Jones et al., 1993A). In the same training program, the incidence of injuries was higher for women, and the distribution of the most frequent injuries was muscle strains (15.6 percent), stress fractures (12.3 percent), sprains (5.9 percent), tendonitis (5.5 percent), and overuse knee complaints (2.1 percent).

That's the bad news. The good news is that there are some things we can do to reduce the number of injuries experienced by soldiers while participating in sports.

In 1996, the largest number of soldiers were injured while playing basketball. This was followed by touch football and softball. These and other sports injuries can be minimized if leaders are aware of the hazards and establish some controls to minimize the risks. For





example, soldiers should –

- Work to stay in shape all year round, not just during a particular season.

- Wear the appropriate shoe for the playing surface. For example, running shoes should be used for running and not for playing basketball or other sports played on a gym floor.

- Wear pads to protect knees and elbows from bruises or floor burns.

- Wear mouth guards. This protects the tongue as well as the teeth.

- Never wear chains, rings, or metal wrist bands.

- Secure eyeglasses so that they can't fall off and wear shatterproof lenses.

FM 21-20: *Physical Fitness Training* outlines the principles of exercise. These principles are important for developing an effective physical fitness program whether the program is for an entire unit or for an individual. Development and use of a structured program can help minimize the risk of injury.

The following principles of exercise should be followed:

**Regularity.** To achieve a training effect, a person must exercise often. Soldiers should strive to exercise each of the first four fitness components (see box) at least three times a week. Infrequent exercise can do more harm than good. Regularity is also important in resting, sleeping, and following a good diet.

**Progression.** The intensity (how hard) and/or duration (how long) of exercise must gradually increase to improve the level of fitness.

**Balance.** To be effective, a program should include activities that address all of the fitness components, since overemphasizing any one of them may hurt the others.

**Variety.** Providing a variety of activities reduces boredom and increases motivation and progress.

**Specificity.** Training must be geared toward specific goals. For example,

soldiers become better runners if their training emphasizes running.

**Recovery.** A hard day of training for a given component of fitness should be followed by an easier training day or rest day for that component and/or muscle groups(s) to help permit recovery.

Another way to allow recovery is to alternate the muscle groups exercised every other day, especially when training for strength and/or muscle endurance.

**Overload.** The work load of each exercise session must exceed the normal demands placed on the body in order to bring about a training effect.

Prior to any exercise program, ensure that proper diet and adequate hydration are addressed. These factors also help reduce the risk of injury.

But despite leaders' best efforts, strains and sprains will still occasionally happen. If an injury does occur, remember to take the appropriate action to safeguard the individual until an assessment of the injury can be made. Applying the principles of fitness, maintaining hydration, and adhering to locally established policies for sporting events and physical fitness are only a few measures that can help reduce the risk of injury. Each situation presents a challenge that must be analyzed and then controlled to minimize risk.

**POC: SFC(P) William R. Gunter, Ground Branch, DSN 558-2913, (334-255-2913), e-mail gunterw@safety-emh1.army.mil**

## Components of Fitness

- Cardiorespiratory (CR) endurance—the efficiency with which the body delivers oxygen and nutrients needed for muscular activity and transports waste products from the cells.
- Muscular strength—the greatest amount of force a muscle or muscle group can exert in a single effort.
- Muscular endurance—the ability of a muscle or muscle group to perform repeated movements with a sub-maximal force for extended periods of time.
- Flexibility—the ability to move the joints through an entire normal range of motion.
- Body composition—the amount of body fat a soldier has in comparison to his/her total body mass.

# Tire cages

**R**ecently, there have been a number of soldiers and Department of the Army civilian employees who took chances with tires and wheels and *lost*. It is a fact that exploding tires and wheels can **severely injure** or **kill** you. It is also a fact that almost all injuries and deaths can be prevented if you follow the rules. If your unit doesn't have the equipment or the training to practice these rules, your local logistics assistance representative (LAR) can help.

## Before you do anything

*Here's some stuff that applies to all tires and wheels.*

- **Always use a tire cage for multi-piece wheels.**
- Never inflate a tire that has been run flat or run with very little air in it until you have removed and repaired any damage to the tire, tube, or rim. If you do, damage you can't see could make the tire explode or wheel parts fail, harming you and others.
- Before removing a tire for service or

disassembly, be certain there is no air pressure in it by removing the valve core.

- Run a stiff wire into the stem to be sure nothing is clogging it on the inside.

- Inspect the tire and rim components for damage once you have it disassembled. Look closely at the bead, rim flange, and retaining ring.

- After the tire and wheel are reassembled, inflate the tire to **3 PSI**. That's it—**3 PSI, no more**. Check to ensure that the tire bead or retaining ring is seated properly in the rim flange or groove.

- Never inflate a tire that has a damaged, misaligned, or improperly seated bead or retaining ring.

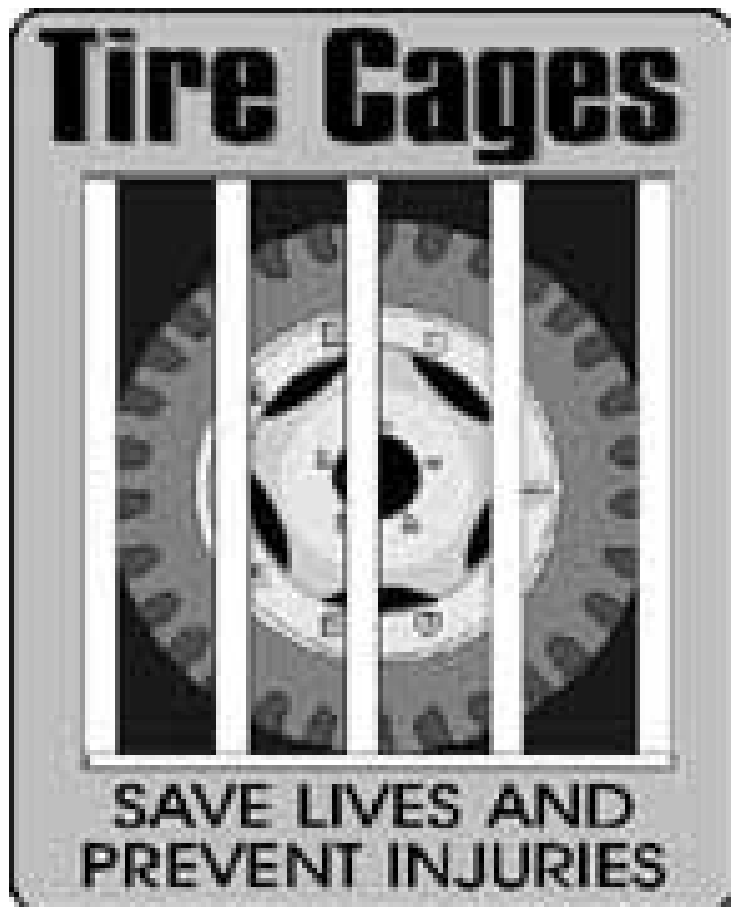
## Safety equipment, tools

- Use only an OSHA-approved safety cage. NSN 4910-01-373-0267 gets a cage that's 40<sup>3</sup>/<sub>4</sub> inches long, 25 inches wide, and 56 inches tall. Most tactical vehicle tires will fit. For larger tires, NSN 4910-00-025-0623 gets a cage that's 78<sup>3</sup>/<sub>4</sub> inches long, 35 inches wide, and 86<sup>1</sup>/<sub>4</sub> inches tall. If you have a locally fabricated cage, it must be inspected and approved by your local safety office before it can be used. If you're not sure your cage is approved, get it inspected by your local safety office now.
- Use tire inflation gauge, NSN 4910-00-441-8685. It comes with a 10-foot hose, quick-disconnect coupling, and two coupler adapters. Attach the gauge assembly straight to your air-supply hose with the straight pipe-to-tube adapter, NSN 4730-00-266-0533.

## Doing the work

- If you're working with a single-piece wheel, inflate or deflate it either in a cage or on a positive wheel lock-down device (automatic tire mounter/demounter) or while it is mounted on the vehicle. This information is also good for bolt-together wheels, like those on the HMMWV.

- If you're working with a multi-piece wheel, inflate or deflate it only in an OSHA-approved cage. Multi-piece wheels can be identified by a retaining ring or side flange, which is seated in a groove around the rim. The ring or flange holds the tire bead in place.



## Step-by-step

■ Stand a minimum of 10 feet away from the wheel and to the side, facing the tire tread. That's why you need the inflation gauge that has a 10-foot hose. It gets you away from the danger zone. That's the area in front of or behind the rim or facing the tire sidewalls. Make sure no one stands in the danger zone while you're adding or removing air.

■ Reseat the tire bead by adding air up to 40 PSI. If the TM-recommended air pressure for the tire is less than 40 PSI, inflate it to no more than the TM pressure.

■ Carefully inspect the assembly so that the tire bead and rim components have seated right. Don't use more than 40 PSI or any other method to force the bead or components to seat. If it's not working right, deflate the tire and

lubricate the bead area. Then reinflate to 40 PSI. If the bead and components still don't seat, deflate the tire, demount it, disassemble the wheel and check the tire, rim, and wheel components for damage.

■ Once the bead and rim components seat right, add air to the TM-recommended pressure.

■ Check the final seat of the bead and rim components before removing the wheel from the cage or installing it on the vehicle. If you notice anything that doesn't look right, do not remove the wheel from the cage until it is safe to do so.

Point of contact: SFC Raymond G. Taylor, Ground Branch, DSN 558-2892 (334-255-2892, e-mail [taylorr@safety-emh1.army.mil](mailto:taylorr@safety-emh1.army.mil)).

—adapted from *PS, The Preventive Maintenance Monthly*, October 1996

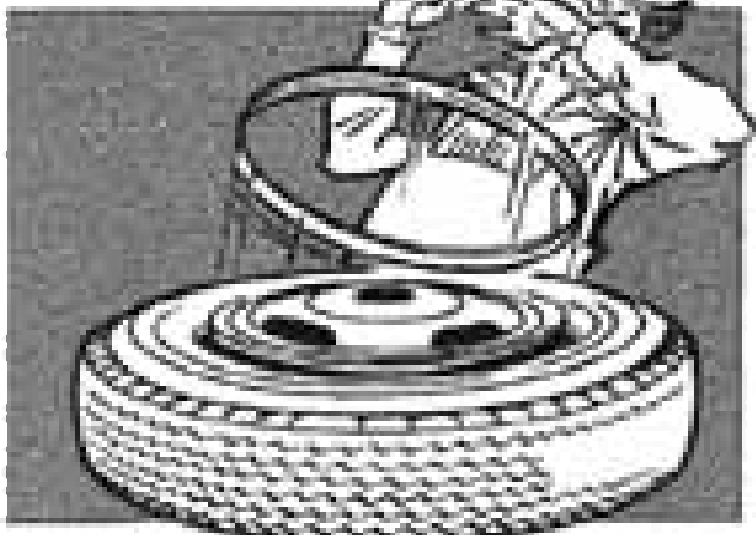
# From the field

## Split-rim wheel safety training

**F**ailure to follow standards for safe work with split-rim wheels continues to result in fatal tragedy after fatal tragedy. Mr. Jerry Moore is the collateral duty safety officer in the Maintenance Division, Fort Lee, VA. Part of his job is to ensure employees who service and maintain multi-piece and single-piece rim wheels receive required training, some of which he conducts himself. In his search for training materials, Mr. Moore has found a vendor who will supply **free** training manuals and videos that can be used to conduct this kind of training. You may call 1-800-626-7096 or write Accuride Corporation at P. O. Box 40, Henderson, KY 42420 for a copy of the printed training materials and videos. You will also need TM 9-2610-200-24, which covers OSHA

requirements for the Army. OSHA 29 CFR part 1910.177 has been reprinted in the vendor's training materials.

—thanks to Mr. John M. Pessagno and Mr. Edward Duke, TRADOC Safety Office, for forwarding this information to *Countermeasure*



# Safety messages

Following is a safety-of-use message (SOUM) and maintenance advisory message (MAM) issued during 1st Quarter FY 97 and not previously published in *Countermeasure*.

## Tank-Automotive and Armaments Command (TACOM)

■ AMSTA-IM-O, 241624Z Dec 96, subject: SOUM TACOM-WRN Control

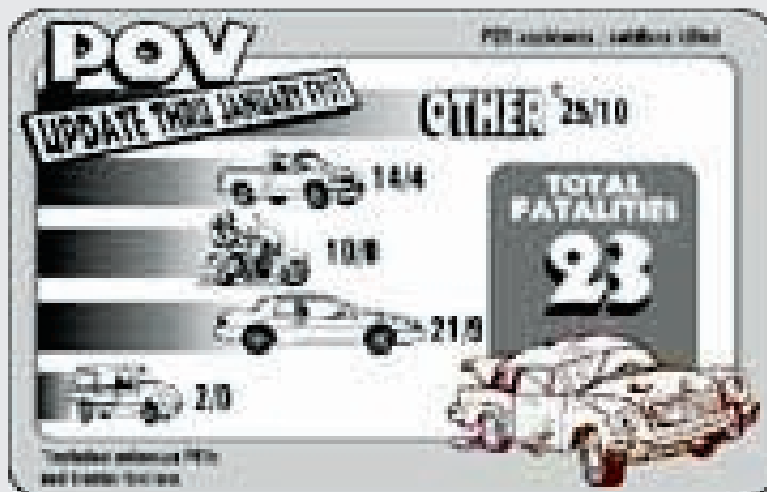
No. 97-02, operational, for M1A1 Abrams tank (NSN 2350-01-061-2445, LIN T13374), M1A1 Abrams tank (NSN 2350-01-087-1095), IPM1 Abrams tank (NSN 2350-01-136-8730), and M1A2 Abrams tank (NSN 2350-01-328-5964, LIN T13305). POC: Mr. Tim Milanov, DSN 786-7895 (810-574-7895).

■ AMSTA-IM-O, 131409Z Dec 96, subject: MAM TACOM-WRN Control No. 97-001, protective control box (NSN 6110-01-144-8674, PN 11669304) for the M939 family of vehicles: M923/A1/A2 (LIN X40794), M925/A1/A2 (LIN 40931), M927/A1/A2 (LIN X41105), M928/A1/A2 (LIN X41242), M929/A1/A2 (LIN X43708), M930/A1/A2 (LIN X43845), M931/A1/A2 (LIN X59326), M932/A1/A2 (LIN X59463), M934/A1/A2 (LIN 62237), M936/A1/A2 (LIN X63299), chassis: M942 (NSN 2320-01-047-8745), M945 (NSN 2320-01-050-4894), M942A1 (NSN 2320-01-205-2666), M944A1 (NSN 2320-01-205-2667), M942A2 (NSN 2320-01-230-0287). POC: Mr. Gerry Taube, DSN 786-8009 (810-574-8009). ♦


## Oops, we goofed

If computers are so darned smart, why can't they change what you said to what you meant to say? In the November 1996 *Countermeasure* article "Too Fast for Conditions," we were describing which Army trucks have highway fifth wheels and which have cross-country fifth wheels. The examples we used were M915-series trucks. We stated that the M915A1 has a highway fifth wheel and the M915A2 has a cross-country fifth wheel. That's incorrect. The M915, M915A1, and M915A2 have single oscillating fifth wheels and the M916A1 has a four-way oscillating fifth wheel.

**References:** TM 9-2320-273-10, M915, 7 Jun 93; TM 9-2320-283-10, M915A1, 7 Jun 93; and TM 9-2320-363-10, M915A2 and M916A1, 5 Nov 91.



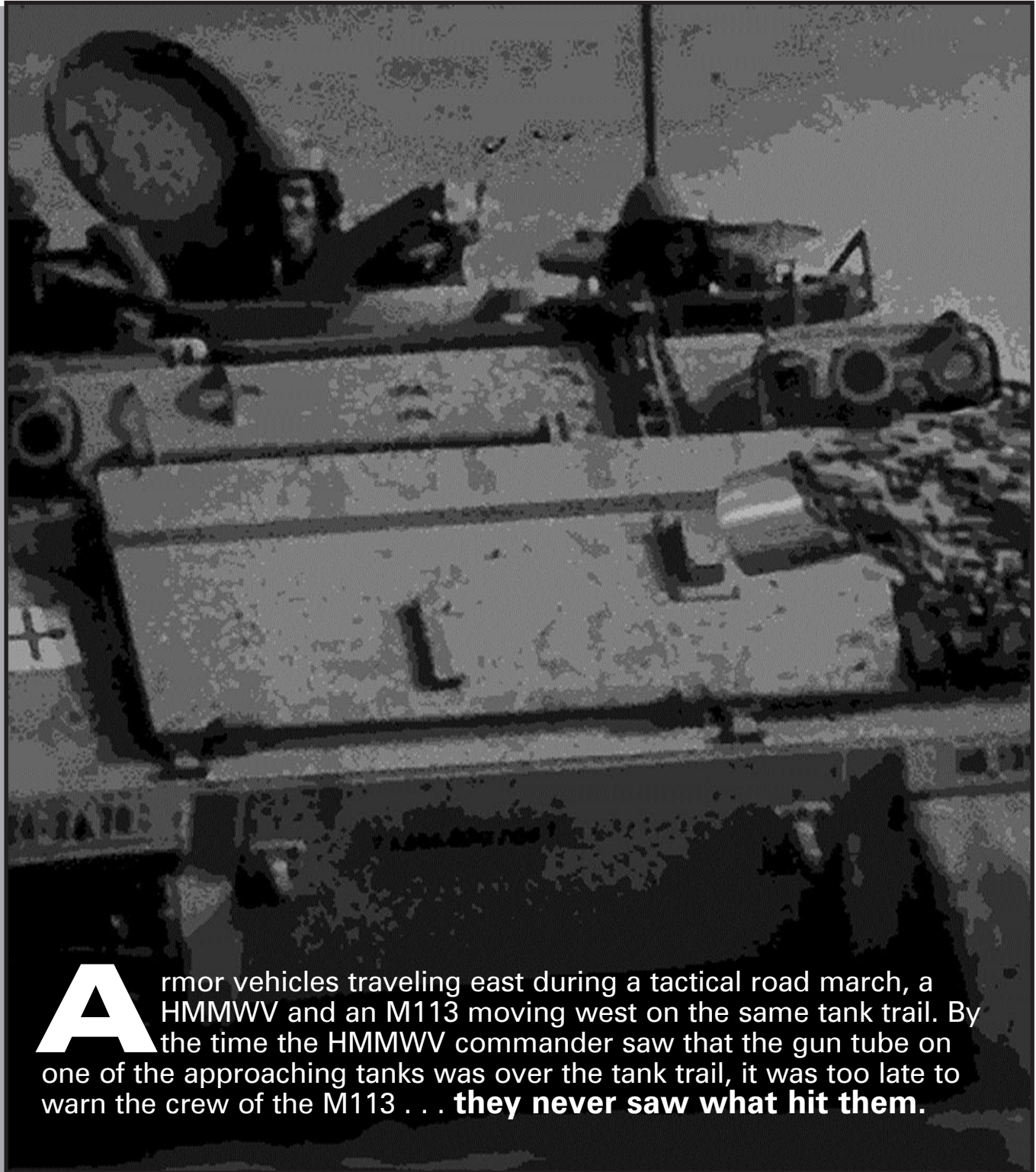
Report of Army ground accidents; published by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident prevention purposes only. Specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. Address questions about content to DSN 558-2688 (334-255-2688). Address questions about distribution to DSN 558-2062 (334-255--2062).

  
 THOMAS J. KONITZER  
 Brigadier General, USA  
 Commanding

# ARMY GROUND-ACCIDENT REPORT **COUNTERMEASURE**

Volume 18 Number 4

April 1997



**A**rmor vehicles traveling east during a tactical road march, a HMMWV and an M113 moving west on the same tank trail. By the time the HMMWV commander saw that the gun tube on one of the approaching tanks was over the tank trail, it was too late to warn the crew of the M113 . . . **they never saw what hit them.**

# Risk management could have made a difference

**D**uring a night tactical operation, an armor platoon was displacing from a screening mission to their battle positions. An engineer element was moving from their assembly area to the tank platoon's vacated position to emplace a minefield. The two elements met on the same tank trail, resulting in an accident and a fatality.

The armor platoon was composed of three M1A1 tanks and an M2 Bradley fighting vehicle (BFV). The engineer element consisted of an M998 HMMWV and an M113 armored personnel carrier.

The events leading to the accident were set in motion between 0530 and 0630 when the armor platoon received the order to displace from the screening mission to their battle positions. The platoon began moving south and then

turned east, traveling at 10 to 15 MPH on the tank trail. The lead tank and the M2 had their turrets oriented to the east. The tanks in the third and fourth positions had their turrets oriented to the north, observing enemy targets as they were leaving their screening mission.

The engineer element had been given a countermobility mission in the sector that the armor platoon was vacating. The engineer element was heading west on the tank trail with the HMMWV leading the M113.

## The engineer vehicles

The vehicle commander of the HMMWV identified the armor platoon through his AN/PVS7B night vision goggles, but then he put the goggles down around his neck. (He was using the PVS7Bs in the

binocular mode.) As his vehicle closed with the third armored vehicle, the HMMWV commander noticed that something looked out of the ordinary. Looking through his NVGs, he saw that the approaching M1A1's gun tube was over the tank trail. He immediately told his driver to turn hard right, but there wasn't enough time for him to warn the M113 crew. The tank's gun tube struck the top of the HMMWV before striking the M113, tearing off the M113 driver's and track commander's hatches. The M113 driver was killed. Neither the M113 driver nor the track commander was wearing or using any type of night vision device. They never saw the M1A1's



The M113 driver was killed when the M1A1's gun tube struck his vehicle, tearing off the driver's hatch

gun tube.

As the M113 went off the tank trail, it hit the right rear of the HMMWV, which had pulled over and stopped. After leaving the tank trail, the M113 traveled about 783 feet before the track commander was able to pull the emergency fuel cut-off switch.

### The armor vehicles

The only communication from the armor element that there were approaching vehicles on the tank trail was a call over the platoon net by the crew of the M2. Neither the driver, gunner, nor tank commander of the M1A1 that was involved in the accident recalls hearing the radio transmission from the M2 crew. The crew of the trail M1A1 did hear the radio transmission, and they rotated their tank's turret to the rear.

The driver of the accident M1A1 saw the oncoming HMMWV and M113 approximately 5 seconds before they passed each other. The driver announced "Humvee/PC" over the intercom. But the communication from the driver was

not precise, and the tank commander did not realize what the driver was talking about. The tank commander thought the driver was referring to targets that he had been observing through his sight.

The tank commander and crew of the accident vehicle never realized that they had hit another vehicle. The tank commander thought that they had inadvertently scanned too far to the rear, engaging the back deck clearance switch.

The armor platoon was unaware that anything had happened, and they continued on their mission.

### Hazards/controls

Had the engineer element gone through the risk-management process by identifying the hazard – moving at night during a tactical road march – and identifying controls to assist in the movement – using night vision devices to aid in seeing – perhaps this accident would not have occurred or at least they would have had some time to react.

—LTC Pete Simmons, Chief, Systems Division, DSN 558-2926 (334-255-2926)

## GROUND CLASS A ACCIDENT

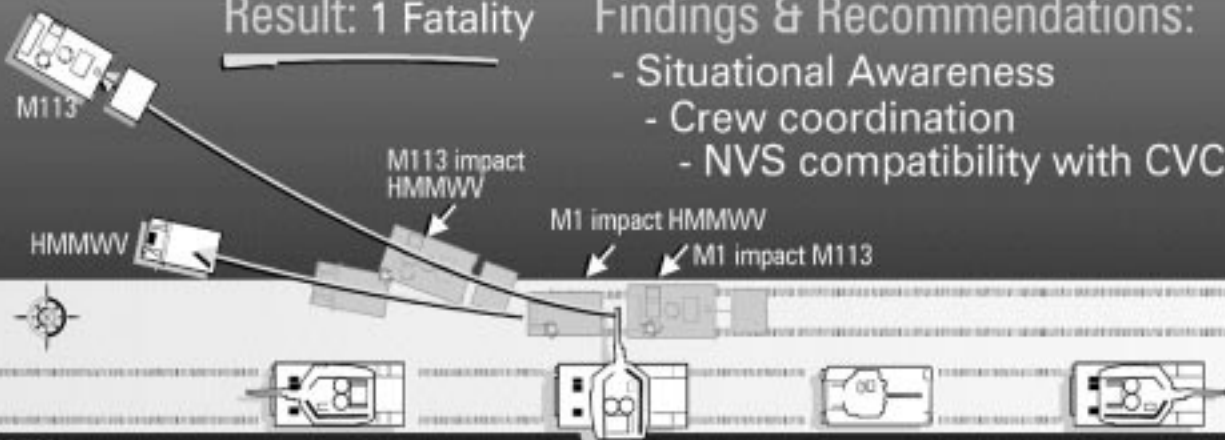
**Mission:** Armor unit repositioning from screening mission to battle position. Engineer unit conducting countermobility operations.

**Summary:** Armor unit traveling east along tank trail at night passed Engineer unit traveling in opposite direction. While continuing to track enemy elements, an M1A1 gun tube struck passing HMMWV & M113 causing fatal injuries.

Result: 1 Fatality

Findings & Recommendations:

- Situational Awareness
- Crew coordination
- NVS compatibility with CVC



IPR7-126

# CO<sub>2</sub> fire extinguishers in Army weapon systems

## Background

Over the last two decades, national and international legislation has been enacted, limiting the production and use of ozone-depleting chemicals (ODCs). The *Montreal Protocol on Substances that Deplete the Ozone Layer* is an international agreement signed by representatives from the United States and 120 other nations. Originally signed in 1987 and amended in 1990 and 1992, it established phase-out schedules for the production of the chemicals that pose the most serious threat to the ozone in the upper atmosphere, identified as Class I ODCs.

The Clean Air Act Amendment signed by President Bush in 1990 codified the production phase-out schedules of the Montreal Protocol and also set restrictions on both the purchase of ODCs and the servicing of equipment that uses ODCs. Additional laws and federal regulations have also been enacted in the past several years that have focused on the sale, import, and storage of Class I ODCs.

Of special note is the National Defense Authorization Act of Fiscal Year 1993 (Public Law 102-484). Section 326 expressly prohibits the Department of Defense from letting any contract that requires the use of a Class I ODC. This law effectively barred the Army from purchasing any equipment that used ODCs, unless the Army could technically certify that there was no known or economically feasible non-ODC alternative.

One ODC of particular interest is halon 1301, a miracle chemical that actually inhibits the chemical process that initiates a fire. An unparalleled fire-fighting agent discovered through Army research, it was incorporated throughout Army weapon systems and facilities in the 1970s and 1980s. On Army installations it

is typically used in fire-suppression systems protecting critical equipment such as computers, telecommunication equipment, and flight simulators. Halon 1301 fire-protection systems are also built into numerous Army weapon systems to suppress engine fires and crew compartment explosions in aircraft, armor, and watercraft.

## The problem

The domestic production of halon 1301 ended on 31 December 1993 as a result of the Clean Air Act. As supplies have diminished, the price of halon 1301 has increased from less than \$1 a pound to over \$40 a pound. The Army has therefore identified the continued dependency on halon 1301 as a threat to Army readiness and quality of life.

## The impact

The Army also uses halon 1301 in a 2.75-pound hand-held fire

extinguisher. This extinguisher is fielded in a variety of Army aircraft (Apache, Black Hawk, Chinook, and Kiowa), command and communication shelters, and ground combat vehicles (Abrams, Bradley, Paladin, Fox, FAASV, Sheridan, and MLRS).

## The alternative

Tests run by the Army Test Center and the Army Surgeon General have identified carbon dioxide (CO<sub>2</sub>) as an acceptable alternative to halon 1301 in this application. Therefore, the Army is currently undertaking a program to replace the halon extinguishers in all applications with CO<sub>2</sub> extinguishers.

## The exception

One exception is in the M1 Abrams main battle

**CO<sub>2</sub> smothers a fire instead of chemically suppressing it . . . caution must always be exercised in using this agent.**



tank. CO<sub>2</sub> smothers a fire instead of chemically suppressing it, and so caution must always be exercised in using this agent. Since with certain turret positions the driver of the M1 cannot egress the vehicle, and the driver's position is the lowest crew position (CO<sub>2</sub> is heavier than air), a risk of asphyxiation exists if two CO<sub>2</sub> extinguishers are discharged into the driver's position at the same time.

On 24 Dec 96, the Program Manager (PM) for Abrams issued a Safety-of-Use Message (SOU) (241624Z Dec 96, TACOM-WRN Control No. 97-02) that stated the use of CO<sub>2</sub> hand-held fire extinguishers is not authorized for Abrams tanks. It further stated that any Abrams tank with CO<sub>2</sub> fire extinguishers installed was to be considered as deadlined. Halon 1301 fire extinguishers were to be requisitioned and reinstalled before the tanks were considered mission capable.

A 7 Jan 97 SOU (072115Z Jan 97, TACOM-WRN Control No. 97-03) issued by the PM-Abrams reiterated the prohibition on the use of CO<sub>2</sub> hand-held fire extinguishers in M1 tanks because halon 1301 fire extinguishers were not being replaced.

### **The dilemma**

Following these messages, the item managers for these fire extinguishers at the Defense Logistics Agency (DLA) and Tank-automotive and Armaments Command (TACOM) were overwhelmed with concerns from the field. It was learned that a significant number of Abrams tanks were equipped with CO<sub>2</sub> extinguishers and did not have immediate access to halon 1301 extinguishers. A serious situation developed, with immediate short-term and long-term consequences to unit readiness, if Abrams were to be deadlined until halon 1301 fire extinguishers were purchased, requisitioned, and reinstalled.

### **The resolution**

On 10 Jan 97, the PM-Abrams issued another SOU (102131Z Jan 97, TACOM-WRN Control No. 97-04) addressing these new readiness issues as well as the safety concerns. This SOU stated ". . . the use of CO<sub>2</sub> hand-held fire

extinguishers on Abrams tanks is approved as a temporary measure until all Abrams tanks can be equipped with the authorized halon 1301 hand-held fire extinguishers." In this SOU, the PM defined the specific conditions wherein CO<sub>2</sub> fire extinguishers could be safely stored and used on the M1 tank:

- A CO<sub>2</sub> extinguisher cannot be stored in the crew compartment of the tank.

- If a tank is to carry two CO<sub>2</sub> fire extinguishers, they must both be stored in the turret cargo rack box located near the commander.

- All crewmembers must evacuate the tank before a CO<sub>2</sub> fire extinguisher is discharged into the tank, and crewmembers must not reenter the tank to fight the fire.

If these conditions are met, then an Abrams tank with CO<sub>2</sub> fire extinguishers will be considered fully mission capable.

### **How do we get 1301 extinguishers?**

In order to expedite the change back to halon 1301 hand-held fire extinguishers, the 10 Jan 97 SOU identified several ways for obtaining these extinguishers:

- One option, since the Abrams is the only Army system that requires halon 1301 extinguishers, is to support Abrams' requirements with extinguishers from other vehicles at the same installation. The halon 1301 extinguishers in these vehicles are being replaced with CO<sub>2</sub> extinguishers.

- Another option being considered by TACOM is to conduct a swap-out program of halon 1301 and CO<sub>2</sub> fire extinguishers. This program will allow cross-leveling between installations and will redistribute serviceable halon 1301 hand-held fire extinguishers to M1 Abrams units.

- Finally, halon 1301 extinguishers may be acquired from DLA through the wholesale supply system by funded requisitions.

### **Point of contact**

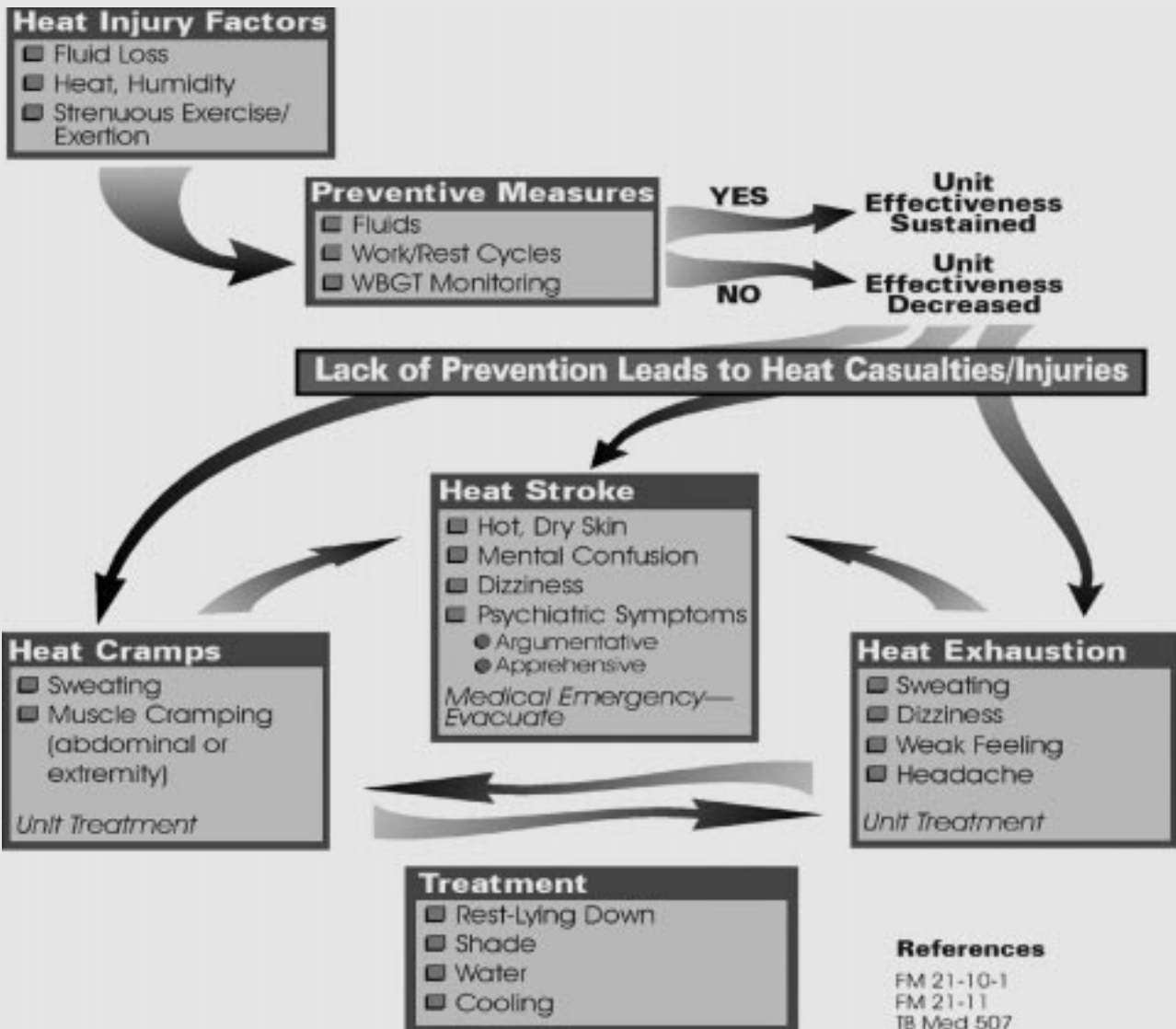
Mr. Jeff Conrad, Ocean City Research Corporation, 703-212-9006, e-mail [ocrc2@erols.com](mailto:ocrc2@erols.com).

—Mr. George H. Terrell, Army Acquisition Pollution Prevention Support Office, 703-617-9488

# Heat—number one summer health hazard

**H**ot weather is just around the corner. Before it gets here, you need to know how to prevent heat injuries, how to recognize signs and symptoms if they do occur, and the proper treatment. The diagram below shows that heat injuries do not necessarily follow a progression from heat cramps, heat exhaustion, to heat stroke. A soldier may experience heat stroke without having previous symptoms of heat cramps or heat exhaustion. The article "How the body handles heat" explains what happens within the body when soldiers are exposed to conditions of heat and humidity and stresses the importance of hydration. "Understanding and managing heat stress in NBC operations" discusses factors that contribute to performance degradation and heat casualties in soldiers wearing MOPP gear.

And don't forget that heat injuries aren't restricted to the operational Army. Practice prevention and be aware of the signs of heat injury when you're working in your yard this summer or when you and your friends or family take that long-awaited trip to the beach or lake.



# How the body handles heat

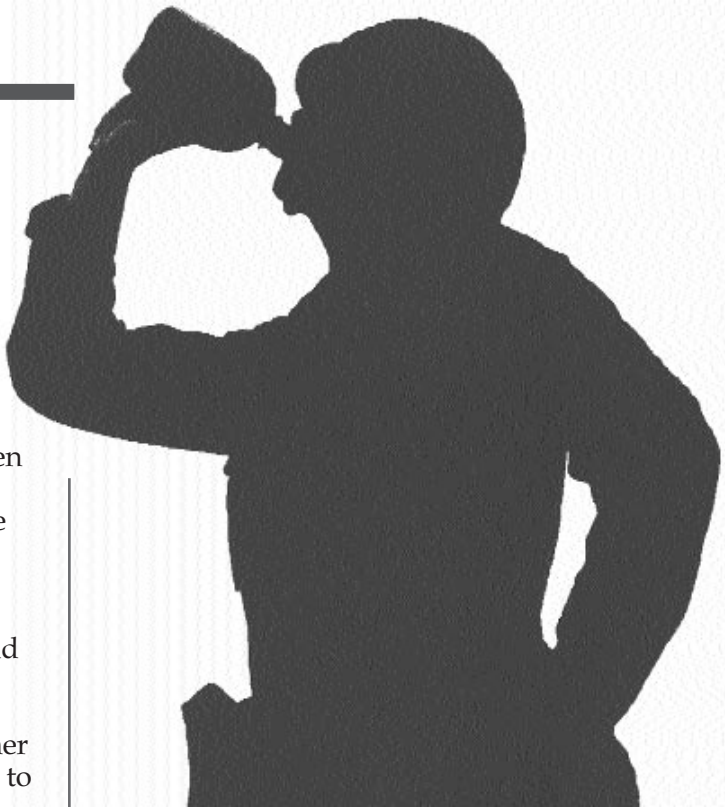
**T**he human body maintains a fairly constant internal temperature, even when it is exposed to varying environmental temperatures. To keep the internal body temperatures within safe limits, the body must get rid of its excess heat through the skin by convection and evaporation of sweat. The body automatically responds when the temperature of the blood exceeds 98.6°F, by increasing blood flow to the skin and sweating.

In this process of lowering internal body temperature, the heart begins to pump faster to increase blood flow and blood vessels to the skin expand to accommodate the increased flow. As more blood is directed to the skin, other blood vessels contract and blood flow to the internal organs and muscles is reduced. By circulating more of the blood to the skin's surface, heat is lost to the cooler environment, and the body cools down.

At the same time blood vessels expand and more blood flows to the skin, the brain signals the sweat glands in the skin to secrete sweat onto the skin surface. Evaporation of sweat cools the skin, eliminating excess heat from the body.

As environmental temperatures approach normal skin temperature, cooling of the body becomes more difficult. If air temperature is as warm or warmer than the skin, blood brought to the body surface cannot lose its heat through convection. Under these conditions, the heart continues to increase blood flow to the body surface, the sweat glands increase sweat production onto the surface of the skin, and evaporation of the sweat becomes the sole or principal means of cooling body temperatures.

But sweating does not cool unless the moisture is evaporated from the skin. Sweat dripping from the skin is wasted



in the cooling process. Under conditions of high humidity, the rate at which sweat evaporates from the skin decreases, and the body's efforts to cool itself may be significantly impaired. These conditions adversely affect an individual's ability to work in a hot environment. With so much blood going to the external surface of the body, relatively less goes to the active muscles, the brain, and other internal organs, strength declines, and fatigue occurs sooner than it would otherwise. Alertness and mental capacity also may be affected. In fact, mental performance can be affected with an increase in body temperature of only 2°F above normal. Workers who must perform delicate or detailed work may find their accuracy suffering, and others may find their comprehension and retention of information lowered.

## Importance of hydration

Hydration is the most important element in prevention of heat injuries. Liquid used for sweat production comes from the blood plasma, not from cell tissues. Maintenance of fluids is essential for

both blood volume for blood flow and sweating. Both are reduced by dehydration. The dehydrated individual has less ability to maintain body temperature in the heat.

As soldiers become acclimated to hot weather, their bodies become more efficient at producing large volumes of sweat to cool the body faster. The body will also increase blood volume 10 to 25 percent to help compensate for the added fluid demands for more blood flow and sweat production. **The body does not learn to get along with less water**—rather it learns to use more as part of the natural acclimatization process and must have it for cooling.

Another thing that is often misunderstood is that when a person suffers from an illness that causes fever, they completely lose whatever acclimatization they have achieved. The body is back at zero, and the process of becoming acclimatized begins again.

By the time the body is stimulated to feel thirst, it is already 1 to 2 percent dehydrated, so soldiers can't depend upon feeling thirsty to tell them that they need fluids. A drinking discipline policy must be enforced to maintain adequate hydration.

**POC: MAJ Bob Wallace, Industrial Hygienist, DSN 558-1122 (334-255-1122), e-mail wallacer@safety-emh1.army.mil**

## Preventing Heat Injury

Developing controls for the hazard of conducting training and other physical activities during conditions of high temperatures and humidity are fairly simple. For example:

- Provide adequate water and ensure water breaks are taken every 15 to 30 minutes. Water should be cool (50° to 60°F). Thirst is not an adequate indicator of dehydration, soldiers should drink one-third more water than necessary to satisfy thirst. Water requirements must be increased to reduce heat stress.
- Schedule rest breaks.
- Use shaded areas: trees, buildings, tents to reduce radiant heating. The temperature in the sun and under the canopy of a tree can vary from 8 to 20 degrees.
- Schedule activities as early in the morning or as late in the afternoon as possible.
- Schedule heavy work for the cooler part of the day. The body generates more heat when heavy work is being performed than during light or moderate work activities.
- Consider weather, workload, protective equipment—such as MOPP gear—when scheduling activities.
- Monitor weather conditions so a heat stress index can be evaluated. The danger of heat stress increases with higher temperatures and humidity and with direct sunlight. The heating effect of the sun (without clouds) can add as much as 13°F to the apparent temperature that soldiers are exposed to. Wind reduces the risk of heat illness by increasing the evaporation of sweat when normal clothing is worn.
- Encourage use of sun screens, ultraviolet rays penetrate most clothing. Desert BDUs are designed to provide an extra layer of fabric to prevent penetration of the sun's rays on soldiers' backs.
- Use mechanical aids whenever possible or spread tasks between several soldiers to reduce the stress on individuals.
- Monitor soldiers and encourage them to monitor each other for signs of heat stress. *Be prepared to provide medical assistance.*

# Managing heat stress in NBC operations

Once an accurate assessment of the NBC threat has been made, the key to selecting an appropriate Mission-Oriented Protective Posture (MOPP) level lies in understanding the factors that contribute to performance degradation and heat casualties.

MOPP4 protects soldiers by completely isolating them from the NBC environment. Once leaders understand the potential problems associated with heat stress in MOPP they will be better prepared to carry out the MOPP analysis.

## Heat stress in MOPP

Body temperature must be maintained within narrow limits for optimum physical and mental performance. The body produces more heat during work than rest. Normally, the body cools itself by evaporation of sweat and radiation of the heat at the skin's surface. MOPP gear restricts these heat loss mechanisms because of its high insulation and low permeability to water vapor. In addition, physical work tasks require more effort when soldiers wear protective clothing because of added weight and the restriction of movement. This results in more body heat to be dissipated than normal and body temperature tends to rise quickly. The amount of heat accumulated depends upon the amount of physical activity, the level of hydration, the clothing worn, the load carried, the state of acclimation, physical fitness and fatigue, as well as the terrain and climatic conditions.

Adjusting the MOPP level by opening the Battle Dress Overgarment (BDO) jacket, unblousing boots, and rolling up the hood will reduce barriers to body cooling. The decision process for selecting appropriate adjustments is covered under MOPP analyses, FM 3-4: *NBC Protection*, May 92.

Work intensity is a major contributing factor to heat stress and can be managed by leaders. Military work can be categorized as very light, light, moderate, or heavy. Table 2-1, FM 3-4, provides examples that can be used as a guide in estimating the work intensity for a particular mission or task. The incidence of heat casualties can be reduced if soldiers can be allowed to lower their work intensity and/or take more frequent breaks. Tables 2-2 and 2-7 provide information necessary to calculate recommended work/rest cycles for various environmental conditions, clothing levels, and work intensities during daylight and night (or fully shaded) operations. The work/rest cycles specified in the tables are based on keeping the risk of heat casualties below 5 percent. Under some operational conditions, work/rest cycles offer no advantage to continuous work (see NL entries in tables 2-2 and 2-7). There are conditions when work/rest cycles offer no advantage; for example, when the environmental and clothing conditions



do not permit any cooling during rest (see NA entries in tables 2-2 and 2-7), leaders may choose to use the estimated tolerance times such as maximum continuous work times specified in tables 2-4 (daylight) and 2-9 (night or shade) to limit the risk of heat casualties to less than 5 percent.

Although strict adherence to work/rest criteria is possible during training exercises, this may not be possible during combat operations. Tables 2-4 and 2-9 provide guidance on tolerance times; for example, the maximum number of minutes of work before the risk of becoming a casualty exceeds 5 percent (1 of every 20 soldiers). These estimates, representing average expected values within a large population, should be considered *approximate guidance* and are not to be used as a substitute for common sense or experience. Individuals will vary in their tolerance. Once the work time limit has been reached, soldiers should rest in the shade according to guidance provided in table 2-6 before returning to work. As table 2-6 clearly shows, reduction of MOPP level during the rest period is the key to maximizing the time soldiers can spend performing work.

In minimizing heat stress, work/rest schedules may be supplemented by microclimate cooling (MCC) systems in which an air- or liquid-cooled vest is worn under the BDO to remove body heat from the skin. MCC systems are available inside certain combat vehicles, but MCC options are not usually available for dismounted soldiers.

Even when work/rest schedules and MCC are used, an increased risk of performance degradation and heat casualties is inevitable when wearing MOPP in hot weather.

## Dehydration

Because of higher body temperatures, soldiers in MOPP gear sweat considerably more than usual, often more than 1.5 quarts of water every hour during work periods. Water must be consumed to replace lost fluids or dehydration will follow. Even a slight degree of dehydration impairs the body's ability to regulate its temperature and nullifies the benefits of heat acclimatization and physical fitness, increases the susceptibility to heat injury, and reduces work capacity (including G-tolerance in pilots), appetite, and alertness. Even in soldiers who are not heat casualties, the combined effects of dehydration, restricted heat loss from the body, and increased workplace effort place a severe strain on the body's functions, and soldiers suffer from decrements in mental and physical performance.

The difficulty of drinking in MOPP increases the likelihood of dehydration. Thirst is not an adequate indicator of dehydration; soldiers will not sense when they are dehydrated and will fail to replace body water losses, even when drinking water is readily available. Unit chain of command must take responsibility for enforcing regular and timely fluid replacement in their soldiers.

Water requirements should be estimated using the guidelines provided in tables 2-3, 2-5, 2-8, and 2-10. Base the recommended hourly replenishment on current work intensity, temperature, clothing layers, and light cycle. For example, at a moderate work intensity in MOPP4 (over underwear only) and a daylight wet bulb globe temperature (WBGT) of 80°F (27°C) a soldier should drink approximately 2 quarts of water per hour if working continuously or 1 quart per hour if working according to the work/rest schedule recommended in table 2-2 (for example, 10 minutes work, 50 minutes rest).

Soldiers should drink as much as possible before donning the mask, and frequent drinking while working is more effective in maintaining hydration than waiting for rest periods to drink.

## Training and conditioning

Well-prepared soldiers suffer less stress when in MOPP4 than do soldiers who are less prepared. Well-prepared soldiers are those who are in good physical condition and have trained extensively in protective gear. Physically fit soldiers are more resistant to physical and mental fatigue and acclimatize more quickly to climatic heat or to heat associated with MOPP wear than less fit soldiers.

Units that anticipate deployment to regions where employment of chemical/biological agents is possible should augment physical training programs and increase their state of heat acclimatization. To optimize heat acclimatization, soldiers should progressively increase the duration (reaching 2 to 4 hours) and intensity in the heat over 7 to 14 consecutive days.

Finally, when soldiers are required to routinely work in MOPP gear, it is important to practice good hygiene; keeping skin clean to avoid developing heat rash that can dramatically reduce the ability to regulate body temperature.

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# Sunburn: A painful experience

**A**sk anybody who has fallen asleep in the sun what exposure to ultraviolet rays can do to the human body. A weekend at the lake or on the beach and a serious sunburn can send you to sick call and even a stay in the hospital.

If you think that using sun block, wearing protective clothing, and limiting exposure means you won't suffer any damage from the sun, think again. Use of

sunblock might enable you to spend the day in the sun without burning or blistering, but effects of exposure to the sun are cumulative. You could be setting a time bomb for the future. Sunblock products also vary, so be sure you read the label and select the one that gives you the most protection.

Maybe you think wearing long sleeves will protect you from the sun. No doubt that's better than exposing your bare skin to the sun's rays, but lightweight summer shirts have a sun-protection factor (SPF) of 7 or 8; when wet, it's even less. (Dermatologists recommend a minimum SPF of 15 for clothing.) So use sunblock in addition to the long sleeves.

The best way to

protect yourself from exposure to the sun is to avoid the hottest hours of the day. Next best is to provide barriers between your skin and the sun. The best barriers

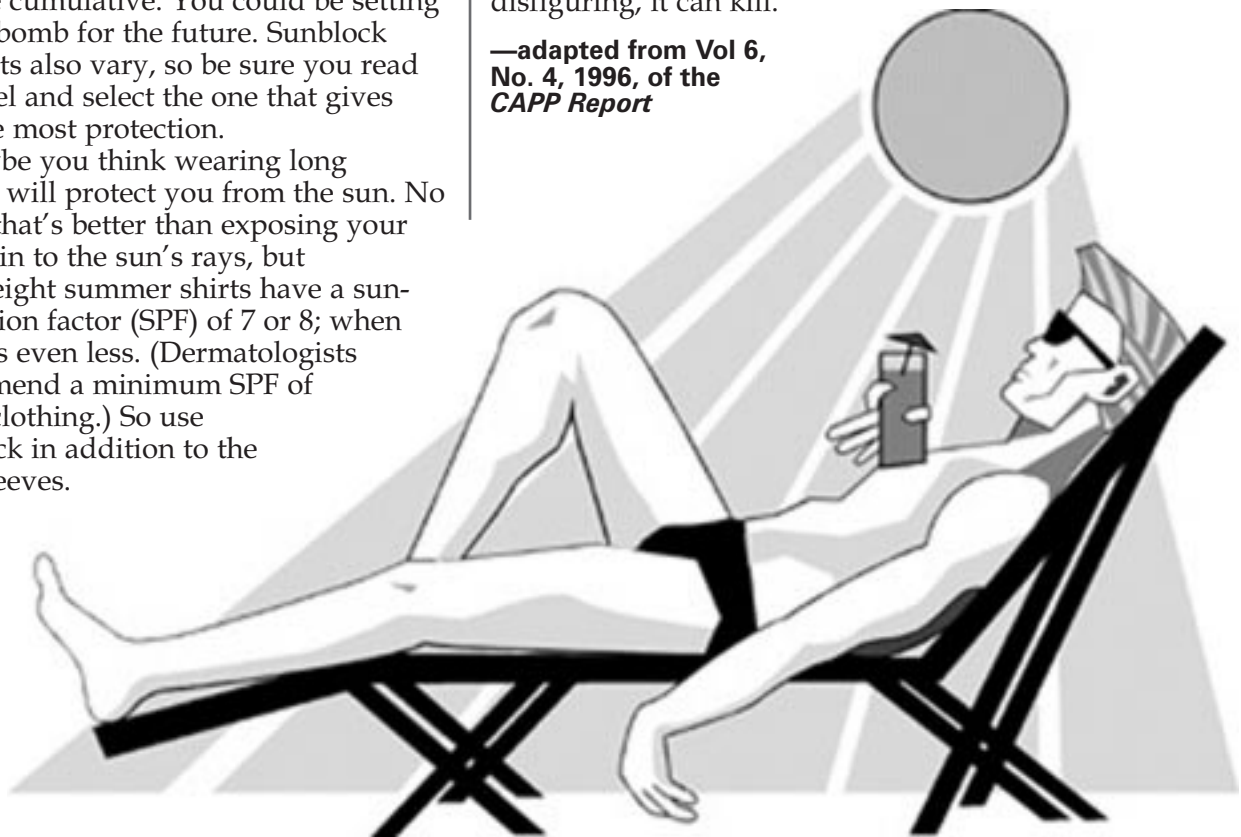
are those that restrict exposure completely: awnings, umbrellas, roofs, and other structures. Even if you're under a barrier such as an umbrella, sunblock and protective clothing will help shield you from the effects of the sun and its reflection on sand and water.

Exposure to the

sun can be a painful experience now, but its long-term effects of wrinkling and skin cancer can be not only disfiguring, it can kill.

—adapted from Vol 6, No. 4, 1996, of the *CAPP Report*

**The best way to protect yourself from exposure to the sun is to avoid the hottest hours of the day.**



# Safety messages

**F**ollowing are ground precautionary messages (GPM) issued during 1st Quarter FY 97 and not previously published in *Countermeasure*.

## Armament and Chemical Acquisition and Logistics Activity (ACALA)

■ AMSTA-AC-ASI-R, 011342Z Oct 96, subject: GPM ACALA No. 97-01, 5.56mm M4A1 grenade launcher.

■ AMSTA-AC-ASI-R, 051413Z Nov 96, subject: GPM ACALA 97-03, 5.56mm M4A1 carbine.

Following are safety-of-use messages (SOUM) and maintenance advisory messages (MAM) issued during 2d Quarter FY 97.

## Aviation and Troop Command (ATCOM)

■ AMSAT-R-X, 102048Z Jan 97, subject: Safety-of-Use Message (SOUM) ATCOM-97-02, operational, aircraft refueling nozzles manufactured by Carter Ground Fueling Company, closed-circuit refueling (CCR) nozzle assemblies, model 64017 (NSN 4930-01-363-6449). POC: Mr. Gerold Chaklos, DSN 693-3833 (314-263-3833).

■ AMSAT-R-X, 071619Z Feb 97, subject: SOUM ATCOM 97-03, technical, general, helicopter cargo slings and pendants. POC: Mr. Jerome C. Smith, DSN 693-1676 (314-263-1676).

## Tank-automotive and Armaments Command (TACOM)

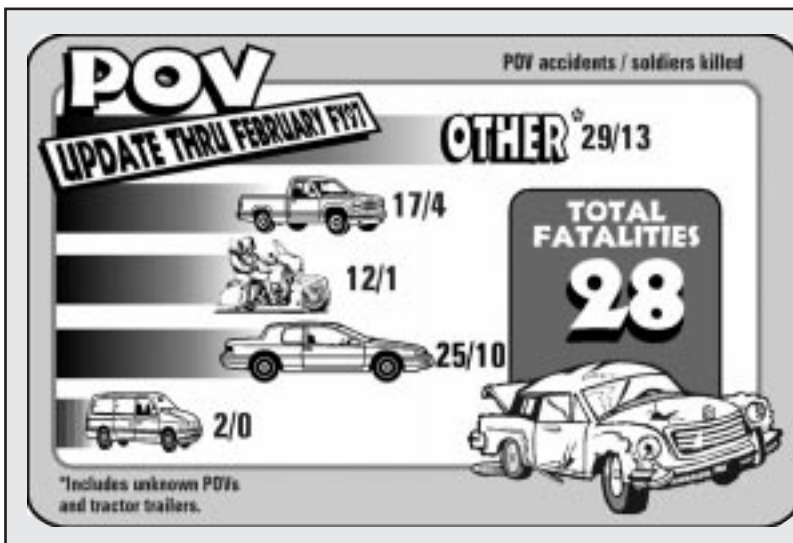
■ AMSTA-IM-O, 102131Z Jan 97, subject: SOUM TACOM-WRN Control No. 97-04, limited operational, for M1 Abrams tank (NSN 2350-01-061-2445, LIN T13374), M1A1 Abrams tank (NSN 2350-01-087-1095) IPM1 Abrams tank (NSN 2350-01-136-8730) and M1A2 tank (NSN 2350-01-328-

5964). POC: Mr. Tim Milanov, DSN 786-7895 (810-574-7895).

■ AMSTA-IM-O, 142104Z Feb 97, subject: SOUM TACOM-WRN Control No. 97-05, operational, water barrier swim system (12358415) for the Bradley Fighting Vehicle (BFVS) M2A2 (NSN 2350-01-248-7619, LIN F40375), M3A2 (NSN 2350-01-248-7620, LIN F60530), M2A0 (NSN 2350-01-048-5920, LIN J81750), M2A1 (NSN 2350-01-179-1027, LIN F40307), M2E1 (NSN 2350-01-200-3037, LIN F40307), M3 (NSN 2350-01-049-2695, LIN C76335), M3A1 (NSN 2350-01-179-1028, LIN F60462), M3E1 (NSN 2350-01-200-3038, LIN F60462), M2A20DS (NSN 2350-01-405-9886, LIN F40375) and M3A20DS (NSN 2350-01-405-9887, LIN F60530). POC: Mr. Peter Sturos, DSN 786-8948 (810-574-8948).

■ AMSTA-IM-HH, 071419Z Feb 97, subject: MAM TACOM-WRN Control No. 97-003, procedures for erecting the crane: M984A1 wrecker (NSN 2320-01-195-7641, LIN T63093), M977 cargo w/winch (NSN 2320-01-097-0260, LIN T39518), M977 cargo wo/winch (NSN 2320-01-099-6426, LIN T59278), M985 cargo w/winch (NSN 2320-01-097-0261, LIN T39654), and M985 wo/winch (NSN 2320-01-100-7673, LIN T39586). POCs: Mr. Jim Howard or Mr. Loren Schrader, DSN 786-5843/7438 (810-574-5843/7438).

■ AMSTA-IM-O, 121817Z Feb 97, subject: MAM TACOM-WRN Control No. 97-004, air induction system maintenance for Abrams tank systems: M1 (NSN 2350-01-061-2445, LIN T13374), IPM1 (NSN 2350-01-136-8730, LIN T13374), and M1A1 (NSN 2350-01-087-1095, LIN T13168). POCs: Mr. Brad Voss, DSN 786-7389 (810-574-7389) or Mr. Edward G. Feeley, DSN 786-6846 (810-574-6846).



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THOMAS J. KONITZER  
Brigadier General, USA  
Commanding

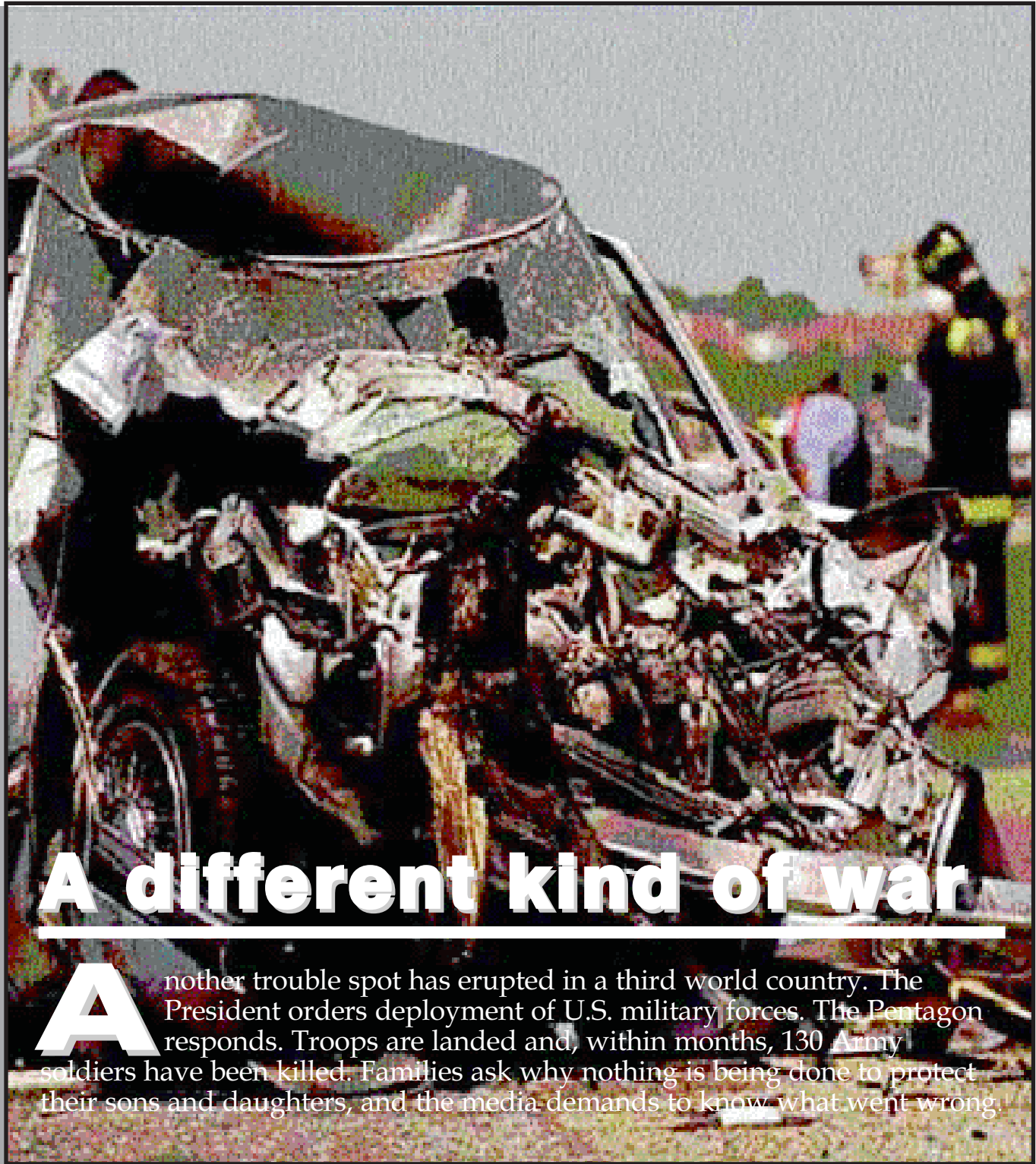


# ARMY GROUND-ACCIDENT REPORT COUNTERMEASURE

Volume 18 Number 5

<http://safety.army.mil>

May 1997



## A different kind of war

**A**nother trouble spot has erupted in a third world country. The President orders deployment of U.S. military forces. The Pentagon responds. Troops are landed and, within months, 130 Army soldiers have been killed. Families ask why nothing is being done to protect their sons and daughters, and the media demands to know what went wrong.

The 130 soldiers lost in FY 96 were not involved in an Army operation. They died in privately owned vehicle (POV) accidents; and they died needlessly. This is one war the Army isn't winning; POVs are the Number 1 killer of soldiers. POV fatalities in FY 96 accounted for 67 percent of all Army accident fatalities.

We stress risk-management at every opportunity, and we're making progress in almost every category. Soldier fatality rates have decreased in the categories of tracked vehicles, wheeled vehicles, aviation, and personnel injury. But POV fatality rates continue to rise. By the end of February of this fiscal year, 28 soldiers had died in POVs.

### 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, and what can we do to change this senseless loss? Somehow we must convince soldiers to take what they have learned about risk management with them when they transition from operating that extremely

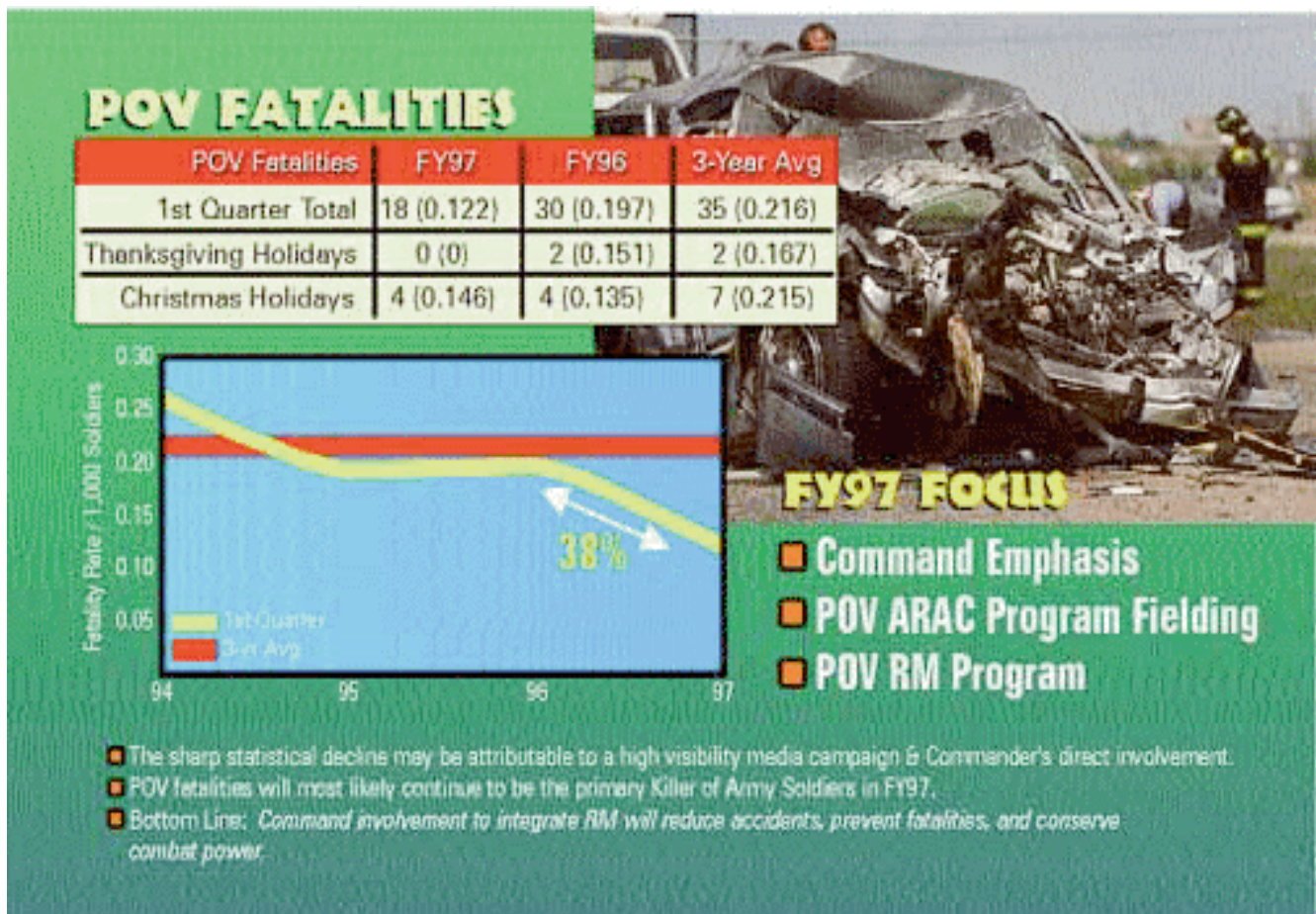
demanding piece of Army equipment to their personal vehicle.

### What causes these accidents?

The greatest 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 speed limit change is a major factor in soldier POV fatalities. Personal attitude and lack of self-discipline have a greater effect on a person's likelihood to speed than the posted speed limit. Without a change in attitude and improvement in personal discipline, soldiers who speed when the limit is 55 will speed if the limit is 65. And 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 go too far and wait too late to begin their return trip or they start after a long day at work. Visits home and to recreation areas are usually jam-packed with activities, and the



soldier may already be 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 sleep.

*Alcohol.* The Army is making progress on decreasing incidents of DUI. The word is out that drinking and driving won't be tolerated. But in spite of many effective tools such as designated driver programs, cards providing telephone numbers soldiers can call for a ride if they have been drinking, and so forth, there are still too many POV accidents where alcohol is a factor.

*Seatbelts.* There just is no logical way to explain why soldiers don't use seatbelts. But accident reports make it clear that some don't. Statistics show over and over again that your seatbelt is a lifesaver—wear it, and insist that everyone else in your vehicle does the same.

### **Leader responsibility**

The closer you are to your soldiers in the 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, positive incentives, to recommending suspension or revocation of driving privileges when it becomes obvious that such action is needed.

Leader responsibility doesn't let individuals off the hook either. Soldiers need to examine their own driving habits and look at ways to improve. Additionally, soldiers know when other soldiers drive irresponsibly. You wouldn't turn a blind eye if a fellow soldier was mishandling a weapon, and 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. ♦

## **Share the Success**

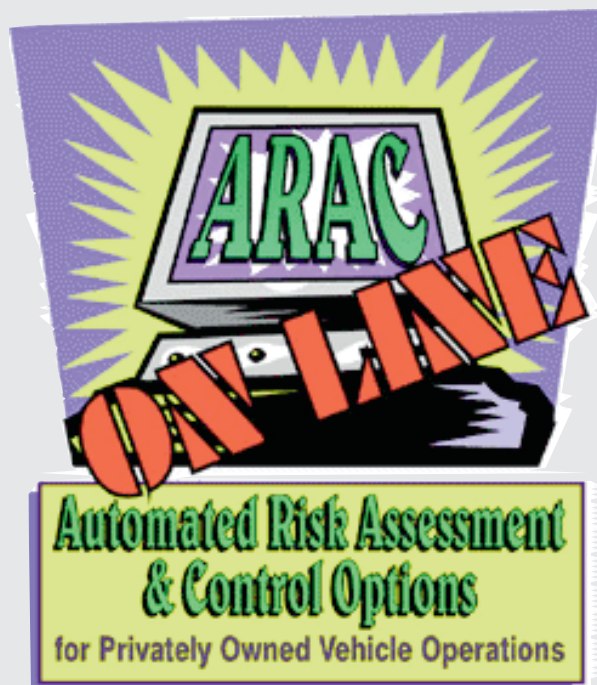
**T**here are a lot of good ideas and programs out there that are helping in the war against POV accidents. If your unit or your installation is doing something that is making a difference and saving lives, let us help you share it with the rest of the Army. There are several ways you can contact Countermeasure:

- Phone: DSN 558-2688 (334-255-2688).
- Fax: DSN 558-9528/9478 (334-255-9528/9478).
- E-mail: [countermeasure@safety-emh1.army.mil](mailto:countermeasure@safety-emh1.army.mil).
- Mail: Commander, U.S. Army Safety Center, ATTN: CSSC-OSA-G (Countermeasure), Bldg. 4905, 5th Ave., Fort Rucker, AL 36362-5363.

## **ARAC is on the Web**

**I**n the October 1996 issue of Countermeasure, we published an article "Soldiering in Cyberspace," announcing the Automated Risk Assessment and Controls (ARAC) for POV Operations and a toolbox of POV force-protection (risk-management) ideas for commanders, leaders/NCOs, and soldiers.

The ARAC program has been field tested and is now available on the Safety Center home page at [safety.army.mil](http://safety.army.mil).



# Stayin' alive

**A**t 0700 formation on Saturday, the first sergeant received a report from one of her platoon sergeants that a soldier had been killed in a privately owned vehicle (POV) accident.

Late the night before, the soldier in question left his civilian job and began a journey that would end his life. He had awakened at 0400 on that Friday morning, traveled to work, and spent 10 hours on the job. After working his 10-hour shift, he immediately went to his POV and began the drive to the drill site. Approximately 75 miles down the road he began to feel drowsy, but he didn't stop. Minutes later, his POV left the roadway, hit a guardrail, and overturned three times. The soldier was ejected from his vehicle. Like most reservists and guardsmen this was a dedicated soldier, but he never made it to drill that weekend.

Is this scenario familiar to you? It happens every weekend although, fortunately, not always with such tragic consequences. Reservists and guardsmen work long hard hours, and then often set out for a long drive to their drill hall or

armory. Some of them never reach their destination. Would this story have ended differently if this soldier had practiced some basic risk management: identifying and assessing hazards, developing controls and making a decision, and implementing controls before setting out on his journey.

The most obvious hazard was fatigue. This soldier's day had begun very early, and he had worked for 10 hours before beginning his journey to drill. If he had used the following controls, he might still be alive.

- Get a few hours of sleep before starting the drive to drill.

- Arrange an alternate way of getting to drill (perhaps getting someone who is less tired to do the driving).

- Always wear your safety belt.

Last year, 44 POV accidents accounted for 46 injuries and 13 deaths of our reservists and guardsmen while traveling to and from drill. These accidents can be minimized if we look at some of the causes and apply a risk-management approach to help prevent them from occurring. We suggest you use the POV ARAC program (see figure on page 3) to evaluate your risks and identify controls you can implement.

Commanders and leaders need to understand the risk that their soldiers take while making their way to drill. Consider using commander/leader module of the POV ARAC to assess risk and identify controls that can be implemented. Let your soldiers know that you care for their well-being. Add to your safety briefings a reminder that soldiers traveling long distances should take rest breaks. Commanders need to identify high-risk soldiers, in terms of work schedules, and miles driven, and implement controls for those soldiers.

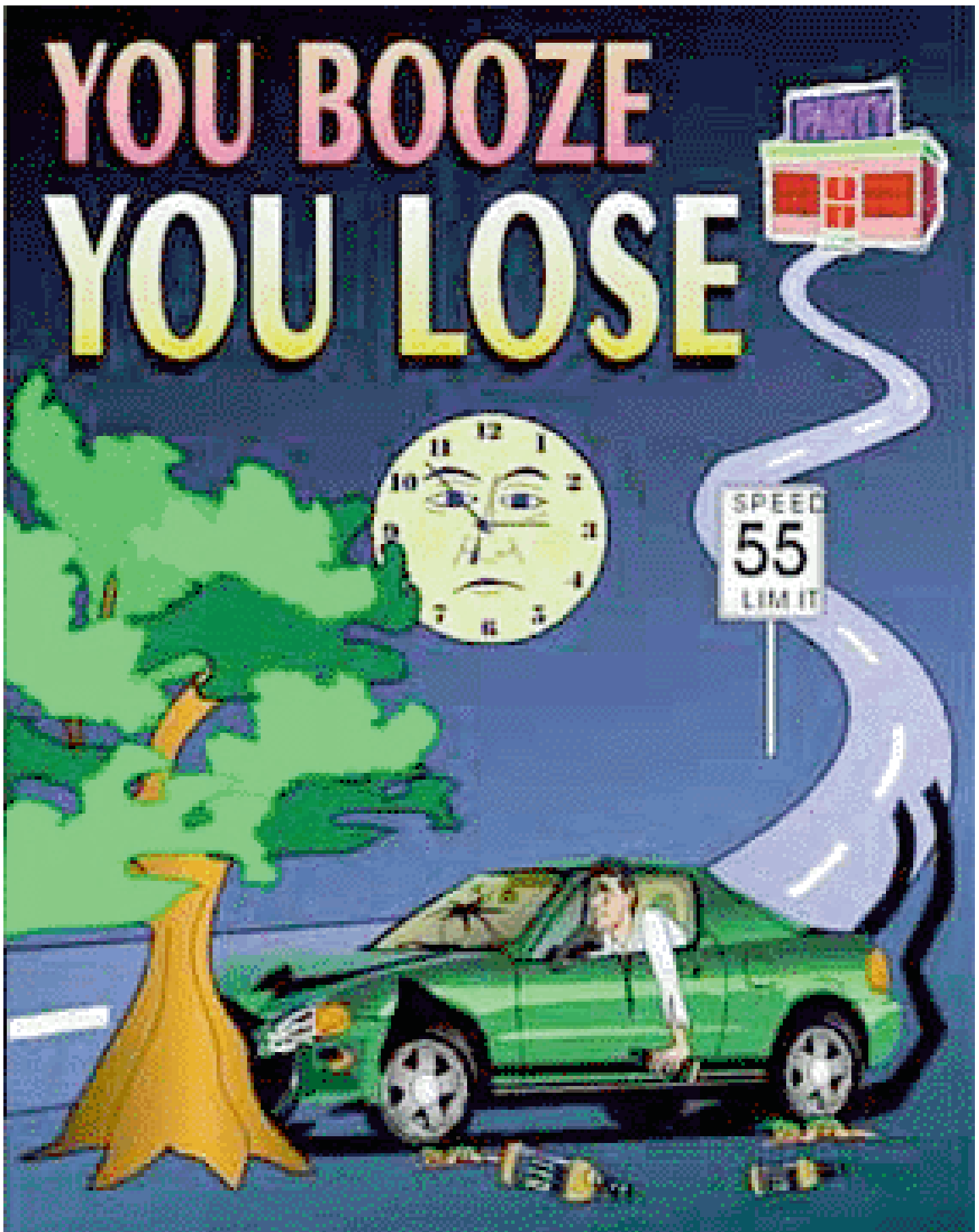
Don't let your formation be the next one to hear that one of your soldiers was injured or killed in a POV accident.

**POC: SFC(P) William R. Gunter, Ground Branch, USASC, DSN 255-2913 (334-255-2913), e-mail Gunterw@safety-emh1.army.mil**

## Driving to Stay Alive

- Obey all posted speed limits.
- Adjust speed for road conditions
- Ensure adequate rest before traveling.
- Plan trip so that adequate time is available and rest stops/breaks are included.
- Drive in pairs, driver and alternate driver, if possible.
- Drive sober. If you plan to drink, ensure someone is a designated driver.
- Use safety belts.
- Be prepared to take evasive action when other drivers make mistakes.
- Check mechanical condition of POV before starting your trip.

# YOU BOOZE YOU LOSE



ON-DUTY



OFF-DUTY

# RISK MANAGEMENT

A Continuous Process

# Traveling down the risk-management highway

## Applying risk management in the field

**T**his 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 indorsement by the Safety Center of a unit's policy as doctrine. Our goal is to make it easy to exchange information that will expand understanding and application of risk management in training and operational environments.

This month's submission deals with the hazard of junior enlisted soldiers operating Army motor vehicles (AMVs) without an NCO in the vehicle.

In this unit, soldiers in the grade of specialist and below cannot operate AMVs without an NCO in the vehicle. Exceptions are granted by the battalion commander in accordance with the policy at figure 1. This is the policy these commanders use to aid them in making their

assessment. Of note is the point system used by this battalion in making its soldier risk assessment. Commanders of other units should consider adopting a similar system to identify and certify soldiers as single drivers.

The success of this forum for exchange of risk-management information will depend on input from you. We encourage you to tell us about risk-management ideas that are working in your unit. Because space is limited, we ask you to be as brief as possible while still providing enough detail that other units can evaluate the idea for possible use.

We are also inviting you to participate in naming this section of Countermeasure. If we use your suggestion, you will receive a Safety Center coin engraved with your name. Call us or send us your ideas by e-mail, fax, or regular mail. (See box, page 3 for ways to contact Countermeasure.)

**Figure 1.**

**DEPARTMENT OF THE ARMY  
104TH MILITARY INTELLIGENCE BATTALION  
FORT HOOD, TEXAS 76544**

AFZC-M-CDR

Date

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Commander's Policy Memo #13 Certification of Single Drivers

1. All tactical and administrative vehicles operated by subordinate units of the 104th MI Battalion will have a TC in the grade of CPL or above present while operating a vehicle. The only exception will be vehicles operated by corporals and above, when participating in a convoy led by an NCO, or those operated by authorized single drivers.
2. Certain mission requirements necessitate the operation of a vehicle without an NCO TC. The battalion commander may authorize exceptionally responsible junior enlisted soldiers to operate a vehicle as a single driver. Such authorization will be kept to a minimum and made not on the basis of convenience, but rather as a matter of mission requirements.
3. Procedures for authorization of single drivers.
  - a. Commanders will complete a certification document stating the soldier's qualification to perform as a single driver, a risk assessment, and the unit's responsibility for supervision.
  - b. Soldiers designated as single drivers will complete a statement of responsibility.
  - c. Both documents will be presented to the battalion commander along with the soldier's 348 and 346E. The 348 will state: "This driver has been certified by the commander and authorized to operate the vehicle

as a single driver for (vehicle type).” The 346E will state “Authorized Single Driver” in the remarks portion. Both licensing forms must be signed by the battalion commander.

4. Soldier Qualification Standards.

a. The soldier has demonstrated exceptional maturity and responsibility and can drive safely without supervision.

b. The soldier has been in this unit for three months, and has been licensed on and operated a military vehicle for at least one year.

c. The soldier has had no moving violations, accidents, or traffic-related incidents in the past year.

d. The soldier is properly trained in the areas of vehicle maintenance, operation of the assigned military vehicle, on- and off-road vehicle operations, and night driving.

e. Be identified as a low-risk soldier (see risk assessment below).

f. Single-driver licensing will be approved for a specific vehicle type.

5. Unit responsibilities.

a. Decide on each occasion when this driver is to be allowed to drive as a single driver. The decision should be based on the weather/terrain conditions, the soldier’s level of experience and training, the amount of sleep in the last 24 hours, the availability of qualified TCs, and the importance of the mission. At no time will a single driver be used out of convenience.

b. Provide a TC whenever possible and under any condition where risk to the soldier is in question.

c. Ensure that the soldier’s vehicle and supporting equipment is complete and free of deadlining or safety deficiencies.

d. Units will complete the following Soldier Risk Assessment Matrix prior to recommending a driver.

<b>Risk Factors</b>	<b>Points (All or None)</b>	<b>Points Assessed</b>
1. Self Discipline (dependability): Soldier knows and is trained to standard, but doesn’t follow standard.		
a. Counseled for poor performance (3 times in last 12 months, or more than 4 times in last 24 months).	8	
b. Had at-fault accidents or citations (2-4 in last 12 months or 5 or more in last 24 months).	14	
c. Abused alcohol/drugs (in last 12 months) or referred to community mental health (last 24 months).	14	
d. Had judicial/nonjudicial punishment (last 24 months).	8	
e. GT score of 90 or less (enlisted).	6	
f. Male under age 25.	2	
g. Not married.	4	
h. Financial irresponsibility.	4	
i. No Safety Belt use.	nn	
2. Training (job skills and knowledge): Soldiers lack training or perform tasks to standard.		
a. Cannot perform MOS tasks to standard.	6	
b. Not proficient in assigned tasks outside MOS (has not received OJT, school, unit, or task training).	6	
<b>Point Total</b>		
0-22 Low Risk	Risk	Low
23-32 Moderate Risk	(Circle)	Moderate
33-42 High Risk		High
43+ Extremely High Risk		Ext High

e. Units will inform the battalion commander or command sergeant major of any information which might cause reconsideration or disqualification of the soldier as a single driver.



# Never argue with a big truck

It was late on the Pennsylvania Turnpike, and Tom was still 2 hours from his destination. He was cranky and tired, and the transport truck in front of him was hogging the passing lane on the steep incline. Tom flashed his lights several times and honked his horn angrily. The inside lane was blocked by a truck too. Tom held his place in the passing lane at 20 miles an hour and stewed.

Things changed dramatically on the downgrade. A third truck came up behind him quickly, and the three 18-wheelers kept him wedged between them as they careened down the mountain at 70 miles an hour. His small Buick was never more than 10 feet from disaster. The episode taught Tom a new respect for big trucks and their drivers.

While most drivers are courteous professionals, trucks are potent dangers and should be handled with respect and caution.

According to the National Safety Council large trucks were involved in 4,814 fatalities in 1991. Almost 80 percent of the deaths happened to the other guy.

## Self defense is the first rule

The National Highway Traffic Safety Administration says miscues by car drivers contribute significantly to nearly two-thirds of fatal car-truck accidents. With that in mind, here are some tips for peaceful coexistence with highway behemoths.

- Stay out of a truck's blind spot.
- If you can't see a truck's mirrors, you're probably in its "rear" blind spot, which trails about 200 feet directly behind a truck.
- Blind spots exist along both sides of trucks. Experts say the right blind spot is especially dangerous because trucks like to swing into the right lanes to avoid troubles in the road ahead.
- If you are in a truck's blind spot, drop back or pull forward. Don't ride alongside a truck.
- The American Trucking Association suggests that drivers following trucks should position their cars at either side of the lane so they can be seen in the truck's mirrors.
- Don't try to sneak up on trucks. They need to know your whereabouts. Let them know you're there, and give them plenty of room to maneuver.
- Leave a truck room to change lanes in heavy traffic.
- If a truck approaches quickly on a steep

downhill grade, pull to the right and let him pass. He may have lost his braking power.

- In wet weather, exercise more caution.
- Be alert for trucks swinging wide to turn corners.

## Some passing remarks

■ Before passing a truck, blink your headlights, whether it's day or night.

■ Do you really have to pass the truck? In many cases you gain very little time in passing a truck and risk the possibility of a head-on crash, a sideswipe or being run off the road. These dangers are especially prevalent in inclement weather when the truck's spray blurs your vision.

■ Pass fast, but don't speed. Don't tarry. Get beyond the truck as quickly as possible.

■ Even on dry surfaces, trucks need twice as much stopping distance as cars. Cooperate with truckers by allowing plenty of safety cushion for the truck when you pull into the lane in front of it. Don't pull into the truck's lane until you can see the truck in your rear view mirror.

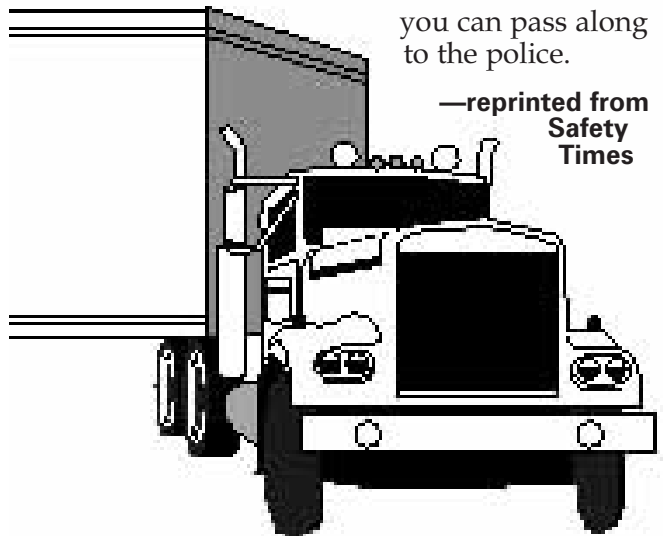
■ Stay as far away as possible when encountering a truck on the highway to reduce the wind blast.

## The best revenge

■ No matter how irritated you may be with a trucker, don't retaliate. It's a losing battle.

■ If you encounter an unsafe trucker, take down the registration number painted on the cab, the license number, the name of the company, or any other information that you can pass along to the police.

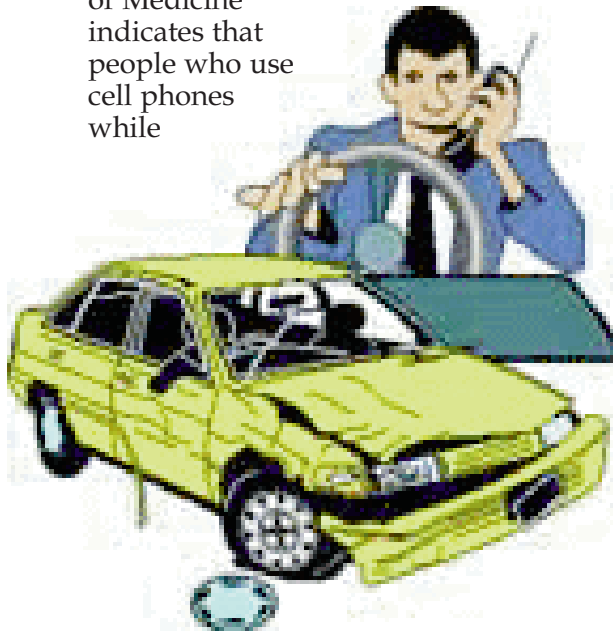
—reprinted from  
Safety  
Times



# Talking and driving don't mix

**T**hat cellular phone that makes parents of young people rest easier because it can be used to call for help in case of a vehicle breakdown now itself appears to be a risk factor in vehicle accidents.

A study by researchers at the University of Toronto published in the New England Journal of Medicine indicates that people who use cell phones while

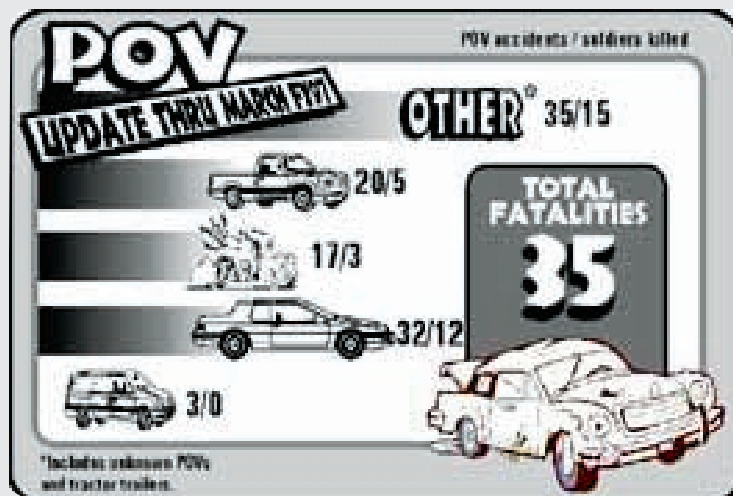


driving are four to five times more likely to be involved in traffic accidents than nonusers. And the increased chances of an accident can remain as long as 15 minutes after the call has been completed. So it isn't just while you're on the phone that your risk is increased. In fact, telephones that allow the driver's hands to be free do not appear to be safer than hand-held telephones. All age groups of drivers who use cell phones while driving showed increased risk of accidents, but the highest risk was among young people who are still in high school.

## Controls

This is an easy one: find a safe place to pull over, stop your vehicle, and make your call. But watch those emergency lanes on interstates, they weren't intended to be telephone booths and stopping your vehicle in them can present another set of hazards.

Cellular phones are like other distractors (whether it's tuning the radio, trying to look at a map, or dealing with rambunctious kids). A split second's inattention even at low speeds can cause an accident. ♦



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THOMAS J. KONITZER  
Brigadier General, USA  
Commanding

ARMY GROUND RISK-MANAGEMENT PUBLICATION

# COUNTERMEASURE

VOL 18 NO 6

[HTTP://SAFETY.ARMY.MIL](http://SAFETY.ARMY.MIL)

JUNE 1997



# Summertime!

Risk management plays an important role in summer activities

# Guess what, honey, we're going to Hawaii

**W**ith that kind of news, you could be the most popular spouse in the Army. But even in an island paradise, it's important to practice risk management (identify the hazards, assess the hazards, develop risk control options and make decisions, implement the controls, and supervise) to ensure that you and your family enjoy every minute of your assignment. The following story shows that even people who have lived all of their lives in Hawaii and know the hazards of the ocean well; can benefit from applying the Army's risk-management process to prevent water-related tragedies.

## **Risk management at work in ocean safety**

Captain Brian Keaulana, a native Hawaiian from a family of famous surfers, can usually be found on any given day at Makaha Beach where he is a manager for ocean safety services with

the City and County of Honolulu Ocean Safety Division. Makaha, a famous beach located on the west side of Oahu, is noted for its big waves and natural beauty.

Partners in ocean safety with U.S. Army, Pacific, and U.S. Army, Hawaii,

the Ocean Safety Division has assisted the Army and other U.S. military services through the years with training personnel to prevent drownings and other ocean-related mishaps. In August of 1995, Captain Keaulana and several other ocean-safety specialists were invited to attend a risk-management course conducted in Hawaii by the Army Safety Center. The



Wave runner rescue craft increase the success of rescues while minimizing the risk to rescuers.

concept taught during the course provided a new approach for enhancing their ocean-safety program.

Using risk-management skills acquired during the course, Captain Keaulana proceeded to do a thorough hazard analysis of Makaha, culminating in the development of viable controls to reduce risk. The following is Captain Keaulana's risk assessment.

"Makaha's big waves present its most obvious hazards—surf and strong rip currents. Makaha is one of the few surfing beaches on the island that can catch a swell from almost any direction . . . arriving quickly without warning and catching surfers and swimmers off guard. During times of high surf, rip currents run parallel to the shoreline and then abruptly change direction toward the open ocean. When the surf is over 4 feet, unexpected waves come up past the shore where bathers are sitting and take everything back in with them—including unsupervised children.

"During the months of October through March, the winter swells hit Makaha with surf ranging from 1 to 25 feet. Shifting sand from these swells often exposes hazardous reef and creates embankments, making it difficult to monitor people along the shoreline.

"Throughout the year, the sand shifts below the water line, creating sudden dropoffs in many seemingly shallow areas, posing a danger to inexperienced swimmers."

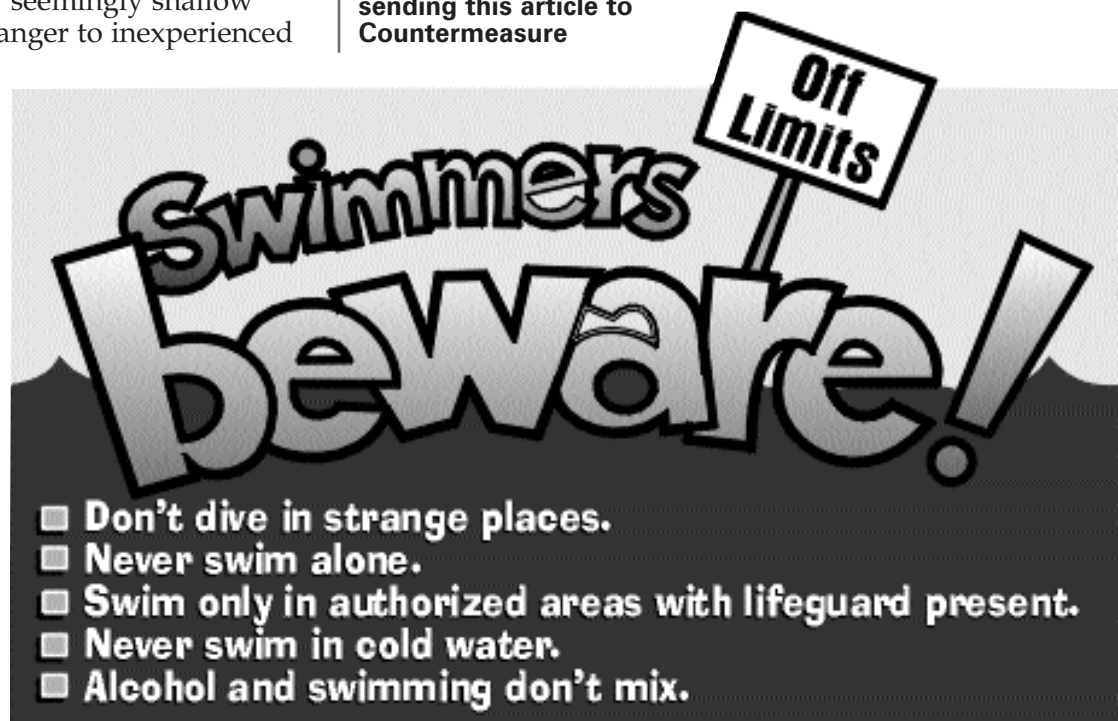
The Ocean Safety Division developed a systematic means of managing these risks. Captain Keaulana trained other ocean safety specialists to better recognize potential dangers utilizing risk assessments. Through these risk assessments,

prevention efforts were developed and the right equipment identified for rescues. Safety videos are shown on inbound flights, at military newcomer orientations, and at local elementary and high schools. International danger signs are posted at certain beaches to warn people of their peculiar dangers. Most importantly, people are encouraged to talk to the ocean safety specialists on duty for information prior to engaging in any ocean recreation activities. As a last resort, the Ocean Safety Division has lobbied for legislation to control beach behavior where necessary.

Since implementing the risk-management concept, Captain Keaulana noted that drownings and rescues have declined significantly. In recognition of his conscientious and effective work in ocean safety—which he credits to the risk-management concept learned from the Army—Captain Keaulana was nominated by his community to be a torch bearer during the 1996 Summer Olympics.

Mr. Ralph Goto, Director of the City and County of Honolulu Ocean Safety Division, sums up the importance of risk management by saying "It offers us a strategy to do our jobs more efficiently and effectively."

—Thanks to Mr. Ed Lee, Director of Safety, U.S. Army, Pacific, for sending this article to Countermeasure



# Summer fun or needless tragedy?

**O**rganizational Day...this phrase conjures up images of sunshine, barbecues, volleyball, swimming, fun and games. Many units and installations sponsor summer parties to take advantage of good weather and to take a break from the often relentless pace of being in the Army these days. And well we should stand back from the pressures of the mission for just a few moments to relax with family, friends, or

maybe just camaraderie among unit members.

But...as is so often the case, behind the pleasant imagery of this fun in the sun summer scene lurk many hazards; some are minor, others catastrophic. Last summer, we (the Army) experienced the ultimate tragedy: swimming deaths that happened at an organizational day picnic. So as we plan these events we should rely on the same process we use to plan military operations...risk management.

## HAZARDS

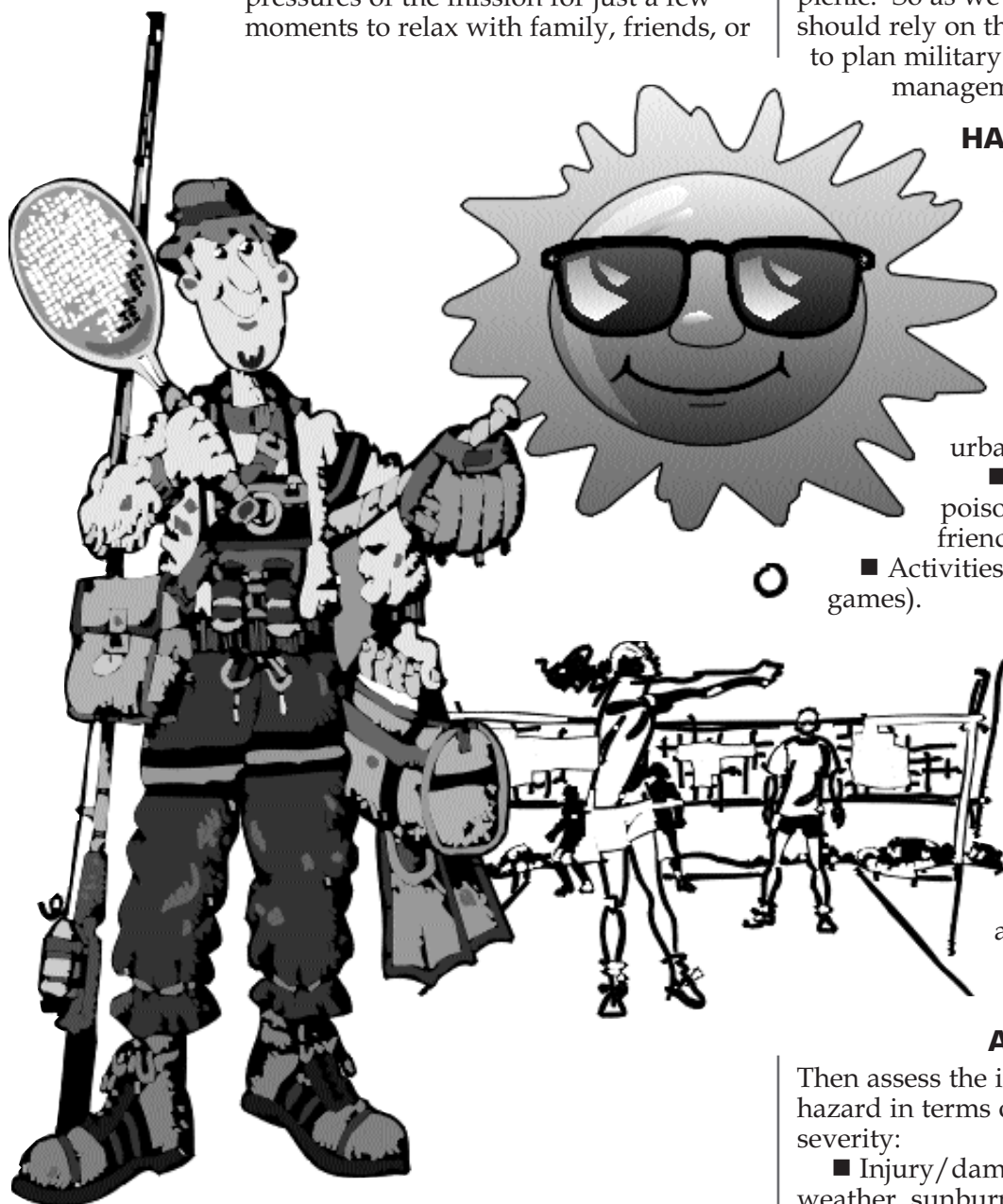
Look at the hazards associated with an organizational day picnic:

- Weather (heat, thunderstorms, wind, humidity).
- Location (near water, desert, forest, urban).
- Wildlife (bugs, snakes, poisonous plants, other friendly critters).
- Activities (water activities, sports, games).
- Attendees (military, family members, children, DACs, contractors, open to the public).
- Menu (barbecue, store-bought, cooked on site, refrigeration, alcohol).
- Many others, situation-dependent.

## Assess

Then assess the impact of each hazard in terms of potential loss and severity:

- Injury/damage due to severe weather, sunburn, etc.



- Incidents involving water, dehydration, heat injuries, POVs, etc.
- Animal bites, insect-borne diseases, skin irritations, bothersome pests.
- Drownings, sprains, broken bones, overexertion, slips/trips/falls, etc.
- Relative health of attendees, allergic reactions.
- Food poisoning, barbecue burns, flammable liquids, increased susceptibility to heat injury due to alcohol consumption.

### Controls

Once you have identified your organization day hazards and assessed the associated risk, you should decide on some controls which can be emplaced to reduce or mitigate the hazards:

- Start with a good, thorough safety brief to all participants.
- Check the weather and plan accordingly. Don't take chances with summer thunderstorms. Plan for shady areas and cover in case of inclement weather. Encourage the use of suntan lotion and hats.
- Make sure people don't wander off into the water or the woods.
- Use insect repellent. Know what local critters may be encountered and what to do if one shows up...talk to the local wildlife biologist at your post or local government.
- **Have one or more trained lifeguards on hand if there is swimming or water activities, and ensure they have the tools necessary to do their jobs!!!**
- If you have a medic, combat lifesaver, or EMT in your unit or activity, identify them and have them bring their aid bag along.
- Ensure sports are played by the rules and are supervised.

- If alcoholic beverages are present, have designated drivers and watch drinkers for signs of overindulgence.
- Watch young children closely.
- Consider elderly people or anyone with known pre-existing medical conditions.
- Know the rules of safe barbecuing and follow them. Have a fire extinguisher handy.
- Be careful of food, particularly meats; ensure they are continuously refrigerated prior to cooking, and that they are cooked thoroughly. Pre-cook chicken if possible.

### Implement

Once you select appropriate controls, **Use Them!!** A plan is only good if it is followed.

### Supervise

As always, the situation is subject to change quickly. *Leaders and supervisors* should all monitor the situation and adjust the controls as necessary to keep things under control.

Summer is a great time to have fun, and soldiers, families, and Army employees all deserve a break every now and then. From now on, use risk management to make your organization day picnic fun, memorable, and safe. No one wants a party to turn into a tragedy...again.

—SGM Gregory L. McCann, U.S. Army Safety Center, 558-3575 (334)-255-3575



# Water safety

## Life jackets—They float You don't

**T**he vast majority of people who die in recreational boating accidents fall overboard or capsize their boats. Once in the water, even an experienced swimmer can quickly lose orientation and drown. The problem is compounded if the person is wearing heavy clothing or has been drinking alcoholic beverages, or if the water is cold.

Everyone knows that life jackets save lives, but they can only work if people wear them. Life jackets stored below deck or jammed into a storage compartment are of no use to someone who is knocked unconscious in a fall overboard.

The National Safe Boating Council and the U.S. Coast Guard remind recreational boaters that the best "insurance policy" against accidental drowning is to wear a life jacket. Countless lives have been saved because boating accident victims were wearing their life jackets. And as many lives have been lost because they were not.

Small boats are unstable at best, and when weather and water conditions deteriorate, there is no smarter move than to make sure everyone is wearing their life jacket.

For more information, contact the U.S. Coast Guard Customer Infoline at 800-368-5647.

### Fit is critical when choosing life jackets for children

Too often, boating tragedies have found us lamenting the loss of a young life. There's an easy way to prevent tragedy from hitting home when it comes to young boat passengers—a properly fitted and worn life jacket.

### Guidelines for selecting a life jacket for a child

■ Life jackets for children are sized according to weight ranges: under 30 pounds, 30 to 50 pounds and 50 to 90 pounds. Be sure to choose the one that is right for the child.

■ Be sure to measure the child's chest

(underneath the arms) before purchasing a life jacket because many manufacturers include a chest size. Be sure the chest measurement is accommodated by the life jacket you decide to purchase.

■ If the child has a fear of the water or does not know how to swim, a Type II Child or Infant life jacket is recommended.

■ Choose brightly colored life jackets.

Children are more likely to wear devices that are attractive to them. And bright colors are also more readily visible on the water.

■ While at the store, have the child try on the life jacket and make sure it fits snugly. To determine fit, lift the shoulders of the life jacket to make sure it does not slip over the chin or ears. The life jacket is too big if there is more than 3 inches between the child's shoulders and the device.

### After purchasing a life jacket, consider the following suggestions:

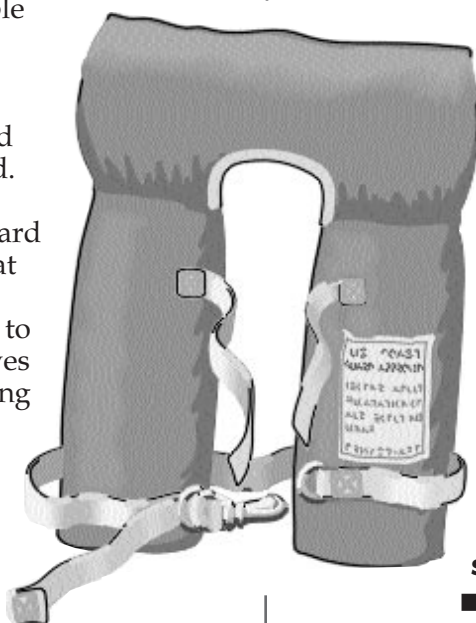
■ Crotch straps are an important feature on life jackets for children. For the child's protection, be sure the crotch straps are used at all times. Remember that the straps do not have to be uncomfortable to add security.

■ A parent or other adult should assist the child in testing the life jacket in the water. Adjust the life jacket so that its optimum performance is achieved. Let the child indicate when the device needs to be tightened or loosened.

■ Oftentimes a child fights the life jacket's tendency to float a person slightly back of vertical. Encourage the child to relax. They should be comfortable once they reach the proper flotation position.

■ Working together, parents and other adults can ensure a child's optimum protection. Make sure children wear their life jackets! And be a good role model—wear your life jacket too.

—Reprinted from material provided in the 1996 National Safe Boating Campaign, U.S. Coast Guard





# Only tennis players get tennis elbow . . . right?

**T**ennis players sometimes get painful “tennis elbow” for the same reason that workers end up with cumulative trauma disorder (CTD) caused by excessively repetitive and forceful exertion. And yet, although the symptoms show up in the elbow, the source of the problem really arises from activity of the hand and wrist.

## Then why don't they call it “tennis hand and wrist”?

The medical term for tennis elbow is lateral epicondylitis. With your fingertips feel for the bony prominences on either side of your elbow. You are feeling the epicondyles (bony prominences) of your humerus (upper arm bone). The one on the outside is the lateral epicondyle and the one on the inside is the medial epicondyle.

Now slide your hand down onto the forearm muscles; make a fist and then open it. You'll feel the forearm muscles contract and relax. Tendons attach the muscles to the bones. At the elbow end, the tendons attach to the epicondyles. At the other end they attach to the wrist bones and fingers.

The suffix “itis” means inflammation. So, lateral epicondylitis is an inflammation of the tendons of the forearm muscles at their attachment on the lateral epicondyle.

Think about playing a racquet sport, observe the backhand stroke in slow motion and you will get a visual picture of the action that can lead to tennis elbow. Here's the interesting point, most people who experience tennis elbow don't get it playing tennis. The inflammation often results from repeated, high-force-level gripping of the hand, which is aggravated by a flexed wrist and an extended elbow position.

(Now, a good question would be: Is there such a thing as medial epicondylitis? There is, it's known as golfer's elbow.)

## A classic CTD

True to the definition, the symptoms of tennis elbow appear gradually, the most common site

of symptoms is over the lateral epicondyle, but some people may also have symptoms that show up in the forearm or hand. Symptoms include complaints of a general dull aching pain that can sharply increase in intensity to a burning/needle-like pain with gripping, lifting, or repeated hand and wrist movements.



## Treatment options

Initial self-treatment plans are to:

- Apply ice to the area, which helps to control swelling and pain.
- Limit the activity that initially brought on the symptoms.
- Gradually increase activity to restore the initial strength and function of the elbow, wrist and hand.

If the symptoms do not subside within a reasonable time (3 to 5 days) it may become necessary to seek medical attention.

Other treatment options include use of a tennis elbow band to relieve the pressure on

the epicondyle (see diagram). In more severe cases, prescription anti-inflammatory medications and steroid injections are used. As the last resort, treatment options include surgery where the tendons are lifted off of the epicondyle and then reattached to promote healing.

## Ergonomics changes

No matter what treatment is used, the critical prevention element is to identify and correct the root cause or source of the problem. Tasks and tools need to be analyzed and ergonomic changes made, especially the grip size of tools and the movements required, as well as possible changes to related equipment and the work environment.

Getting into the “swing” at work doesn't need to lead to conditions like tennis elbow.

—Reprinted from the Department of the Navy ErgoNews, Vol. 1, No. 5, November 1996

# Family safety

## How to prevent foodborne illness

**M**ost *foodborne* illnesses in the home can be prevented by consumers. Unsanitary food preparation practices are major contributors to outbreaks of foodborne illness. Errors made in shopping, transporting, storing, preparing, and serving food can allow bacteria to survive and multiply. Food prepared a day or more in advance, if handled improperly, can allow bacteria more time to multiply. Cross contamination—the contamination of food by bacteria from other food, from utensils and work surfaces, and from persons handling or preparing food—is another important factor in foodborne illness.

### Food safety tips

- Do not buy cans or glass jars with dents, cracks, bulging lids, or leaking or rusted seams. Commissary canned goods are checked by veterinary food inspectors.
- Do not eat raw meat, poultry, seafood, or eggs.
- Cook raw food thoroughly to kill any bacteria present. Use a clean, sanitized metal stem cook's thermometer to check the internal temperature of the food.
- Reheat leftovers thoroughly. Reheat to a minimum internal temperature of 165°F. Boil liquids.
- Refrigerate cooked meats, fish, and poultry in shallow containers. Remove any stuffing and refrigerate separately.
- When shopping, do your grocery shopping last. Pick up perishable foods and other foods that require refrigeration after nonperishable items. Refrigerate perishable foods promptly.
- Check the temperature of your refrigerator, air temperature should be 40°F or below.
- Store canned goods in a cool, dry place and use them within a year or by the manufacturer's expiration date. Never store canned or bottled foods in direct sunlight, in warm areas such as over a stove, or in damp areas. If canned goods become rusted, especially along the seams, throw them away. If you open canned food that is foamy, discolored, or off odor, do not taste it. Throw it away.
- Do not thaw food on the counter, bacteria grow rapidly at room temperature. Thaw food

in the refrigerator or in a microwave oven immediately before cooking.

- Prevent cross contamination—
  - Wash hands thoroughly with warm, soapy water and dry them with a clean paper towel before handling food and after handling raw foods, especially meat, fish, and poultry.
  - Do not use a dish towel to dry your hands. Bacteria on the dish towel can “cross contaminate” clean hands.
  - After cooking meats, do not use the same serving tray that was used to transport the uncooked meats to the grill or to the stove.
  - Always use separate serving utensils for different dishes that are served.
- Keep work areas clean. Wash utensils and cutting boards in hot, soapy water, rinse with clean hot water; and air dry before handling foods, especially after handling raw meats, fish, or poultry. Do not store uncooked food like meats, fish, or poultry above cooked foods or foods that you eat raw.
- A plastic cutting board is generally easier to keep clean. If you have a board made of wood, it should be hard maple and free of cuts and gouges. After washing with hot soapy water, rinse cutting boards with hot water, then sanitize them, using a solution of one teaspoon of unscented household bleach in a gallon of warm water. This same strength bleach solution can be used to sanitize counter tops and other items.
- Keep pets away from food preparation and cooking.
- If your children help, teach them to wash their hands before handling food, before washing dishes, and before putting clean dishes away.
- Contaminated foods may contain some bacteria that produce toxins that are resistant to destruction even when the food is properly cooked or reheated. Do not take chances, if you suspect there is a problem, throw the food out.

—Courtesy U.S. Army Center for Health Promotion and Preventive Medicine newsletter *CHPPM Today*. USACHPPM POCs: Mr. McNeil, DSN 584-2488 (410-671-2488); MAJ Nang, DSN 584-2714 (410-671-2714) or 1-800-222-9698.

# Awards

## Sergeant awarded Soldier's Medal for rescue

**S**ergeant Ismael Alvarado has been awarded the Soldier's Medal for rescuing two soldiers who might otherwise have drowned last summer at Fort Sill. While on an outing at a lake with his wife and 6-year-old daughter, SGT Alvarado, his daughter, and a co-worker paddled out in a canoe. After about 10 minutes, as the canoe was returning to land, SGT Alvarado noticed a female swimmer in the water at about the same place he had seen her previously. He called to see if she was all right, and she yelled to him to please help her friend, who was in trouble. Seeing that she was having trouble staying afloat, he pulled her to the canoe where she could hold on. At first he couldn't see the friend she was talking about. When he did spot the other swimmer, Alvarado and the other man in the boat tried to paddle to where the other soldier was struggling. But he soon realized he couldn't get there fast enough. Alvarado told his friend to keep his daughter safe and to paddle behind him as fast as possible, then he slipped into the water. Thinking he wouldn't be able to swim fast enough with his life jacket on, he slipped it off and dove toward the drowning swimmer. A man from another nearby canoe left his two children in the boat and also dove into the water. Swimming toward where he had seen the soldier, Alvarado dove under the water. He couldn't see the soldier until he felt the soldier grab onto him. Pulled under the water by the soldier he was trying to rescue, he had to punch the soldier in the chest before he could make him let go. Then grabbing the soldier from behind, Alvarado surfaced and yelled for the canoe to hurry. During the struggle, he went under the water several times, and he could see there was a lot of branches and brush in the water. Each time he surfaced, holding onto the soldier, he looked for the canoe. As they came to the surface the third time, he found the canoe by hitting his head on its bottom. He hooked the rescued soldier's arms over the side of the canoe. By this time, a motor boat had reached the canoe and the two swimmers were pulled into the boat.

The man who had jumped in to assist from the other canoe never reached the accident scene, in fact no one remembers seeing him after he dove from his canoe. His body was recovered

from the lake hours later. The Soldier's Medal will be posthumously awarded and presented to his family.

—Adapted from the February 6, 1997, issue of the *Cannoneer*

## PFC Watson and SPC Hill Receive the Army's Safety Guardian Award

**I**n September 1996, PFC Watson and SPC Hill rendered first aid to an individual who was hit by a car as he was walking along side of a road. SPC Hill who had been behind the vehicle that struck the individual stopped and assisted the victim by stabilizing him. The victim sustained head injuries, a broken ankle and had a blocked airway. The driver of the car went for help to the nearest establishment. PFC Watson who was working there at the time, rushed to the scene and started to assist SPC Hill. They took control of the accident scene by rerouting traffic, moving the victim out of the street and keeping bystanders away from the scene. They removed the victim from the roadway maintaining control of the neck which prevented further injury. They also applied pressure to the head to stop the bleeding. When the paramedics arrived, PFC Watson and SPC Hill gave the paramedics a detailed account of the victim's injuries thus allowing for expeditious transport to the hospital. PFC Watson's and SPC Hill's steady composure kept the injured man from causing further harm to himself. PFC Watson and SPC Hill were from the 463d Military Police Company, Fort Leonard Wood, Missouri.

### Safety Guardian Award facts

The Army's Safety Guardian Award recognizes soldiers for extraordinary actions in emergencies. To be eligible for nomination, a soldier must have accomplished one of the following:

- Prevented an imminent-danger situation.
- Minimized or prevented damage to property.
- Prevented injury to personnel.

Further guidelines are in AR 672-74: Army Accident Prevention Awards Program.

# Vehicle safety profile

## BSFV-E upgrade

**T**here is good news for the Bradley Stinger Fighting Vehicle-Enhanced (BSFV-E). First, the system has a new name. It is now the Bradley Linebacker, and it has undergone an upgrade in its weapons systems. The upgrade allows Linebacker crews to fire Stinger missiles off the turret instead of dismounting a MANPAD Stinger team. The Linebacker replaces the tube-launched, optically-tracked, wire-guided missile (TOW) launcher with a light-armored, four-missile Stinger pod derived from the Avenger. The Linebacker is integrated into the Forward Area Air Defense Network. Targeting information is automatically received by the gun system and places the target in the gunner's field of view. The gunner can then rapidly engage the target, using a displayed Stinger reticle in either his direct-view optics or thermal sight.

### Safety concerns

The Bradley Linebacker's speed and agility give it overall mobility compatible with the Abrams tanks. The Linebacker's armament consists of the 25mm Bushmaster gun, a 7.62mm coaxial machinegun, and Stinger missile. This armament allows the Bradley to destroy light skinned armored vehicles, and aircraft. With its stabilized turret, it can suppress the enemy with cannon and machinegun fire while maneuvering. Thermal-imaging sights allow target engagement under all visibility conditions. The Bradley's armor plating shields its occupants from enemy artillery fragments, small arms fire and heavy machinegun fire.

Despite the improvements of the Bradley over the M113, the vehicles share an unfortunate commonality: soldiers get hurt on or around both. As they did on the M113, soldiers slip and fall off the Bradley, they don't communicate adequately with each other, they fail to use ground guides, they drive the vehicle too fast and fail to use available restraint systems, and they don't always perform maintenance by the book and obey all cautions and warnings.

### Slips and falls

Mounting, dismounting, or any external movement on a Bradley requires that crewmembers—

- Use three points of contact.
- Do not jump from the vehicle.
- Use extra care if mud, water, ice, snow, frost, or spilled fuel is on boots or vehicle surface.
- Pay close attention to their task and their movements.

### Communication

■ TCs should establish and follow adequate communication procedures to warn all crewmembers before traversing the turret.



■ Personnel should not enter or exit turret while turret power is on (TM 9-2350-252-10-2).

■ Crewmembers should keep turret shield door closed and latched while turret power is on.

■ Crewmembers should advise the TC when they are in the turret danger area.

### Before moving vehicle

■ Make sure safety pins are installed in hatch latches.

■ Be sure of clearance behind the vehicle before backing.

■ Use ground guides when moving the Bradley where people are dismounted, day or night. Use ground guides any time vision is obstructed.

### Vehicle movement

Precautions to take when a Bradley is moving include the following:

■ Don't turn sharply at high speeds.

■ Always use seatbelts and required head protection to help prevent injury.

■ Maintain safe speed and alert passengers to upcoming rough terrain when driving cross country.

■ Have passengers use available hand-holds for bracing.

■ Assure sufficient clearance, especially if turret is traversed. The protruding machinegun barrel extends beyond the hull and can be damaged by trees or other objects.

■ Have TC and gunner serve as additional

eyes for the driver, especially during right-hand movement because of limited visibility to the right.

### Maintenance

■ Perform routine after-operation maintenance checks and services such as checking transmission oil level carefully. But remember that the transmission and other engine parts are hot after operation.

■ Perform maintenance by the book; obey all cautions and warnings.

■ Install anti-recoil plug on fire extinguisher bottle discharge port to prevent accidental discharge when bottle is unsecured.

■ Only lift the power unit with the engine and powerpack lift sling. Lifting both power unit and stand will exceed design limits.

### Weapon system

■ When cleaning or repairing 25mm, shut down turret. Check operator or maintenance manual for necessary equipment conditions.

■ Secure spring in equilibrator assembly in the compressed position during maintenance on the 25mm.

■ A 50-meter backblast area is required when firing stinger weapon system.

■ Check TM for additional safety concerns.

**POC: SFC Quincy Barr, Product Development Branch, DSN 558-3989 (334-255-3989), e-mail BarrQ@rucker-safety.army.mil**

## Bradley

### Hazard

■ Rollover

■ Night operations

### Causal factors

■ Lack of NVG training

■ Too fast for conditions/environment

■ Failed to recognize hazard

■ Improper ground—guide procedures

■ Failed to lock/secure hatch

■ Failed to use safety devices

### Controls

■ Recon/rehearse

■ Train vehicle crew thoroughly

■ Use ground guides when appropriate

■ Enforce standards

## Preventing Rollovers

### Controls

■ Adjust speed to terrain and environment

■ Ensure loads are properly secured

■ Dismount ground guides when appropriate

■ Conduct rehearsals

■ Perform a terrain or map recon

■ Train in emergency drills before going to the field

■ Provide adequate driver's/NVD training

# PLGR memory battery installation

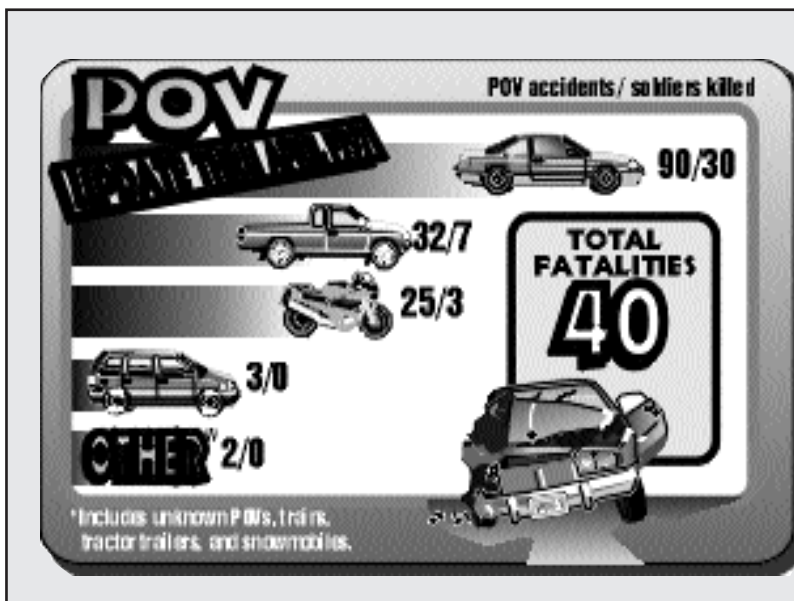
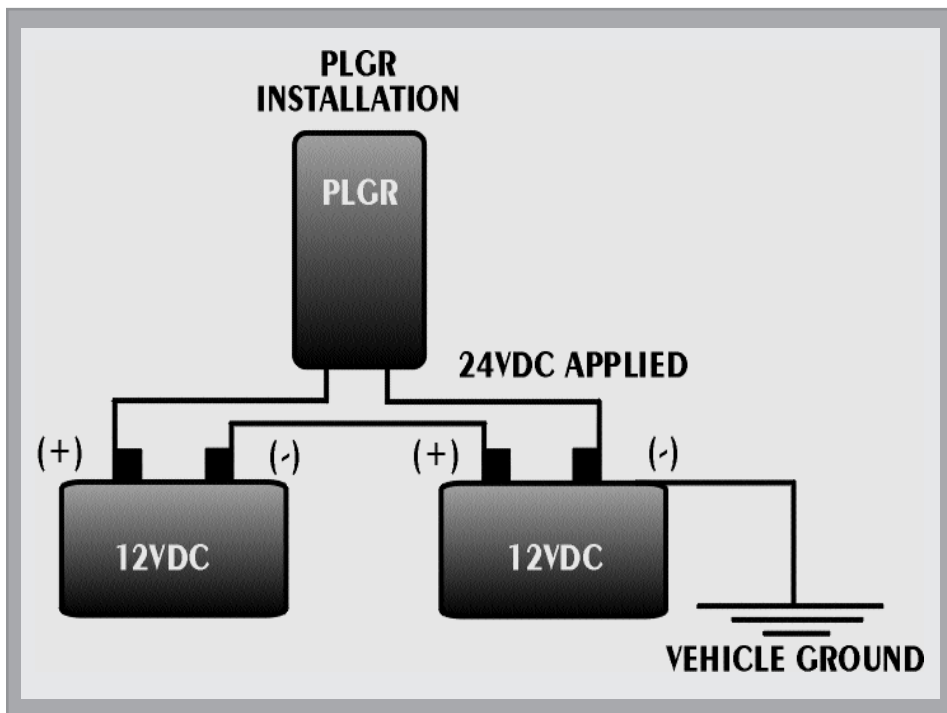
**A** recent detonation of the memory battery inside the Precision Lightweight GPS Receiver (PLGR) caused minor injuries to the user and significant damage to the PLGR.

This failure has been linked to the improper installation of the wiring harness of the PLGR to the host vehicle. If the host vehicle has two batteries in series and the PLGR connection is made **ONLY** to the battery not connected to the

vehicle ground, the PLGR ground will not be the same as the vehicle ground. This difference can cause an internal hardware failure inside the PLGR which will cause the 3.6 VDC memory battery to receive a charge from the host vehicle battery and explode. This explosion can cause significant bodily harm and equipment damage.

The diagram below shows the proper method of installation of the PLGR when two batteries are used.

**Reference: Ground Precautionary Message (GPM 97-005) 31 March 1997.**



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THOMAS J. KONITZER  
Brigadier General, USA  
Commanding

ARMY GROUND RISK-MANAGEMENT PUBLICATION

# COUNTERMEASURE

VOL 18 NO 7

<http://safety.army.mil>

JULY 1997

**What The Program Addresses**

**AR 350-KX**

- Qualification Training
- Sustainment Training
- Remedial Training
- Driver Management
- Operator Standards
- Vehicle Standards

**W**e need a serious change in the way we do business if we expect to stop losing our Nation's most precious resources to vehicular accidents.

# The road ahead

**J**ust as the Army has changed, so too has the Army Safety Program. Significant is the fact that the Army has changed from an institution that views safety as an external influence, focused primarily on compliance, to one that manages risks to optimize mission effectiveness. I am proud to have been a part of this shift to a new direction and our journey toward integrated risk management. Your safety performance has made a difference in protecting the force. It is paying huge dividends in preserving the Army's warfighting capability. However, we must not lose sight of one thing: any accidental loss of life is unacceptable.

Although the statistics look good, the battlefield is still fragile. Proactive leaders and quality soldiers and civilians using the risk-management process creates the best combination to achieve our goal of zero loss.

Institutionalizing risk management by

firmly fixing it into everything we do requires a change in culture. Three primary actions are required in order to effect this cultural change: a policy in place, commitment by leaders throughout the Army, and an individual commitment by every soldier and civilian.

The policy for risk management has been developed and is in place. There is a strong commitment from senior leadership. The MACOMs are moving out with risk management integration action plans. TRADOC is preparing to teach risk management in Basic and Advanced Individual Training as well as officer and NCO leader development courses. Work is being undertaken to develop training to identify high-risk behavior patterns. Progress is being made with the first two elements of change; now it is up to you to work the third with an individual commitment to "make risk management happen."

**THE ARMY DRIVER / OPERATOR CHALLENGE**

**The Challenge**

- 1/3 of Accessions - No POV License
- Most Soldiers Operate Something
- Commanders Responsible for it ALL
  - In Today's Environment of:
    - More Complex Systems
    - Reduced Resources
    - Increased OPEL/PO

**Today**

- Policy
- Standardization
- Model Program

**XXI**

- Change Culture
- Life Cycle Responsibility
  - Accidents
  - Safety
  - FieldOps
  - Command
  - Curriculum Test

**New Direction**



Safety is everyone's business. Every soldier and leader must internalize the process. We must live the five steps both on and off duty. Only then can we face the most deadly killer of soldiers – moving vehicles (tracks, wheels and POVs). More than 70 percent of all Army fatalities come from operating these high tech, lethal systems. Teaching soldiers to operate these vehicles in an environment of reduced resources is one of our greatest shortfalls and, thus, challenges.

In most Army vehicle accidents, the operator was not trained, tested, selected or licensed properly. Sometimes the failure is only in one of the areas; other times it's some combination of the four.

We must develop a method of identifying high-risk individuals. More than 25 percent of soldiers entering the Army do not possess a civilian driver's license. That means that the experience level for these soldiers is exceptionally low. Since most soldiers operate something, the probability that these inexperienced soldiers will end up operating a wheeled or tracked vehicle is extremely high. Currently, commanders are responsible for the training, testing, selection and licensing of soldiers in today's environment of more complex systems, reduced resources, and increased OPTEMPO. We need a serious change in the way we do business if we expect to stop losing our Nation's most precious resources to vehicular accidents.

The Army must take a new direction with this complex problem. TRADOC and the Safety Center are working to change the policy by incorporating AR 600-55: *The Army Driver and Operator Standardization Program (Selection,*

*Training, Testing and Licensing)* and AR 385-55: *Prevention of Motor Vehicle Accidents* into a new AR 350 series for which DCSOPS will be the proponent. The policy will define the standards for an effective operator training program, mandate wheel and track type system requirements, and define a model operator program.



**My parting message is this—You can make a difference. It takes an individual commitment to “make risk management happen.” Just do it and you, your families and your buddies will be around to grow old together.**

In order to change the culture and help commanders truly train, test, select and license the best, the entire life-cycle needs to be a part of the program.

Responsibilities must be layered –

■ **From the point of accessions through formal schooling.** This would identify high-risk behavior and allow the “best” to receive additional training on specific systems.

■ **At posts, camps, and stations.** Military and civilian driving records would be screened for high-risk behavior. In addition, standardized testing would be conducted prior to unit assignment.

These measures will ensure the commander receives a soldier who has been better trained and prepared for system specific training, testing, and licensing.

Most soldiers will operate something in

the Army of the 21st Century. Therefore, operator training should be a common task that is evaluated annually, including training on systems that are unit specific.

This new direction is only part of the solution. The lessons that you have learned in risk management cannot be left at the gate. Take risk management home with you and incorporate it into everything you do, especially operating a POV. ♦

—BG Thomas J. Konitzer, Director of Army Safety

# A seatbelt takes away my right . . . TO DIE!

**Y**ou're traveling 55 MPH in your POV trying to make it to formation. It's late and you're really tired. But you don't have enough time left to stop. Your eyelids are heavy,

your eyes start to lose focus. Your mind drifts off to far away places. The vehicle calmly slips off the road. The sudden vibration

## Risk-management pointer

**S**oldiers 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. Over 50 percent of all fatalities involving vehicles could have been prevented if seatbelts were worn.

startles you back to consciousness. As your eyes re-focus, you see an enlarged view of tree bark. Your car slams into a tree on the side of the road. An instantaneous thought crosses your mind, "SEATBELT?!!!"

One tenth of a second elapses. The front bumper and chrome of the grill work collapses. Pieces of chrome and grillwork penetrate the tree to a depth of one and one half inches or more.

At two tenths of a second after impact, the hood rises, crumples and smashes into the windshield. Your rear wheels continue to spin at 55 MPH, and they leave the ground. The front fenders come into contact with the tree, forcing the rear vehicle parts out over the front doors. You continue to travel at 55

MPH in a forward motion. At 20 times the normal force of gravity, your body now weighs approximately 3,200 pounds. Your legs snap at the kneecaps due to the force put on them.

At three tenths of a second after impact, your body is still being thrust forward at incredible speed and force. Your body is now off the seat, torso upright, your broken knees are pressed up against the dash board. The metal and plastic steering wheel is beginning to bend under your death grip. Your head is now close to the shattering windshield and your chest pushing against the steering column.

At four tenths of a second, the car's front 24 inches have been demolished. The rear end is still traveling at approximately 35 MPH. Your body is still traveling at 55 MPH. The half-ton motor block meets the tree.

At five tenths of a second, the steering wheel bends under the force of your hands and moves forward into an almost



vertical position. The force of gravity impales you on the steering shaft. You are unable to defend yourself from the onslaught of jagged, dirty, metal tearing into your flesh. Blood starts to fill your lungs.

At six tenths of a second after impact, your feet are ripped out of your shoes as the brake pedal shears off at the base. The car chassis bends in the middle shearing body bolts. Your head smashes into the windshield. Glass rips through your skin. The rear of the car begins its downward fall, spinning wheels dig into the ground, forcing the vehicle further out of shape.

At 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 you against the cruel steel of the steering shaft. Blood leaps from your mouth; shock has frozen your heart. You are now dead.

This scenario could become real to you if you don't effectively manage risk when you operate your POV. You know the hazards, you have heard the controls over and over again. Yet, we still consistently fail to properly implement them. "It won't happen to me" is the battle cry of the dead and not forgotten. Is your family worth the minor discomfort of wearing your seatbelt? Should you have planned a little more time into your trip, just in case you got tired? This scene is played out again and again and the consequences are devastating. Common sense will tell you that if it is important when operating military equipment, it is equally important when operating your POV. Don't let your POV become a steel coffin, because you forgot to do what you know you should have. Remember, that if you don't apply the entire risk-management process to your thinking process that it can happen to you.

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## Safe driving tips

- **Don't drink and drive.** Forget the BAC charts; it only takes one beer to mess up your life. It's not worth it!
- **Use a designated driver.** Or call for a ride or take a taxi if you're going to be drinking. All installations and clubs should have these programs available.
- **Always buckle up.** Insist that your passengers do too. Even in states that don't require seatbelts; wear one. Army regulations do require you to wear seatbelts on and off duty.
- **Be prepared; watch the road and the traffic; check your mirrors often.** Monitor the traffic situation frequently; it can change rapidly. Take evasive action when other drivers make mistakes, because they will.
- **Stack the odds in your favor.** When the weather is bad, slow down.
- **Maintain your vehicle.** A well-maintained vehicle is a safe vehicle. Maintain yours as you'd maintain your weapon. Check water hoses often, especially before a long trip.
- **Buy the best tires you can afford and check tread and inflation often.** Your life depends on those four small rounds of rubber. Don't take chances by driving on tires that are badly worn.
- **Avoid fatigue.** Try not to drive during your normal sleep hours. Limit the number of hours you drive without rest. Make frequent stops.
- **Snow chains.** If you will be traveling in areas where snow and ice are possible, have snow chains available.
- **Just in case.** It's a good idea when traveling in hot weather conditions to have water in your vehicle. And on any trip, you should include a well-equipped first-aid kit when you pack your vehicle.
- **If possible, avoid driving when drunk drivers are more likely to be on the road.** Late Friday and Saturday nights and early morning hours are times to avoid. Be especially vigilant during holiday periods.

# Inadequate driver selection equals mission failure

Inadequate or negligent driver's training and licensing programs and inadequate commander involvement in the selection process continue to contribute to Army motor vehicle accidents. Several fatal accidents identified one or a combination of these factors as a primary contributor.

Recently, an accident which resulted in one fatality, illustrates this trend. The fatally injured soldier, never possessed a civilian driver's license, had not been properly licensed, and had little or no experience driving any type of vehicle including a POV. Although this in itself does not restrict a soldier from obtaining a military driver's license, it does significantly increase the risk associated with that soldier operating an Army motor vehicle. The unit commander did not conduct an interview of the prospective driver, did not ensure the eye examination was performed (the soldier had 20/70 vision), and signed the learner's permit despite the discrepancies pointed out by the

assistant master driver. A properly conducted interview, coupled with a risk assessment, would have identified this soldier as a high-risk individual. Once identified as a high-risk soldier, the commander should have implemented additional control measures to reduce the associated risk.

This company had an excellent written driver's training program. However, they chose not to follow it. The commander felt that accomplishment of the mission warranted sending a high-risk (although not identified as such) soldier on the mission— a soldier without proper or adequate driver's training and with no experience operating the vehicle outside the motor pool area. As a result, one driver was fatally injured, three soldiers were injured, the vehicle was damaged and the mission failed.

This is not an isolated incident. Accident investigations frequently reveal that there is a need to increase efforts in this area. The commander, by signing the license, has a

responsibility to ensure the operator has received the required training and meets appropriate qualifications. The commander's interview is an integral part of the aspect of managing risks and must be taken seriously by unit commanders.

Commander's are charged with developing and publishing guidance for establishing and implementing risk-management programs that identify potential



The driver of this M981 lost control as the vehicle was descending a 7° slope, turned to the left and ran upon an embankment. The vehicle overturned resulting in one fatality, three soldiers injured and vehicle damage.

hazards, determine the associated risk, and implement controls in an effort to mitigate the inherent risks. Effective training programs must be tailored for high-risk soldiers to reduce the chance of mission failure.

Review your driver's training and licensing

program. Does it allow unqualified or untrained personnel to receive operator permits/licenses?

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## Who needs a Commercial Drivers' License (CDL)?

**W**e get a lot of questions at the Army Safety Center about whether we can waive the CDL requirements. The answer is "No." The Safety Center does not have the authority to waive the CDL requirement to operate a vehicle on a military installation.

Some background on CDLs might be helpful –

- The CDL requirements came about as the result of a recognized problem nationwide with over-the-road drivers of commercial vehicles. These drivers were often licensed in multiple states, each state had different licensing requirements, and there was not an effective means of tracking driving offenses between states.

- The Commercial Vehicle Act of 1986 mandated that states use Federal highway – grant funds to establish licensing programs for commercial motor vehicle operators. Some states and Federal agencies immediately began seeking exclusion from the CDL requirements and implementing regulations at 49 CFR, Parts 383 and 3912.

- Final rules were published in 1988 in the *Federal Register* (Vol. 53, No. 186).

By Federal law, DOD and contract-employed civilians (except fire fighters) must have a state-issued CDL in order to operate the following government owned or leased vehicles off the installation:

- a. A single vehicle with a gross vehicle weight rating (GVWR) of more than 26,000 pounds, or any such vehicle towing a vehicle not in excess of 10,000 GVWR.

- b. Any combination of vehicle(s) with a combined GVWR of more than 26,000 pounds, provided the GVWR of the vehicle(s) being towed is in excess of 10,000 pounds.

- c. Any vehicle designed to transport 16 or more persons, including the driver.

- d. Any vehicle which requires hazardous material placards.

Military personnel were exempted from the CDL requirement *so long as the operation of the vehicle was for military purposes only*. In 1991, the Deputy Assistant Secretary of Defense (Logistics) issued guidance for all military services. This guidance ensured that the services understood the waiver did not apply to DOD civilian motor-vehicle operators. All civilian operators are required by licensing states to obtain a CDL, and they have to pay the costs of obtaining the CDL as a condition of employment.

There is a single exception to the policy –

- DOD civilian operators who operate government vehicles *totally within* the confines of any government or military installation and *never on a public highway* will not be required to obtain a CDL. But a CDL is required for all off-post trips, even if it is only an occasional trip for such purposes as to transport personnel or pick up supplies. A CDL is required if the DOD civilian driver has to use a public highway to go from one part of an installation to another and even to drive just outside the gate to purchase gasoline.

Questions concerning these requirements should be addressed to your local safety office. If they are unable to provide an answer, they will get an answer for you. We, at the Safety Center, are also here to help if you need us. But we urge you to let the system work: call your safety office first.

**POC: Mr. Al Brown, U.S. Army Safety Center, DSN 558-2644 (334-255-2644), e-mail [brownj@safety-emh1.army.mil](mailto:brownj@safety-emh1.army.mil)**

# Army vehicle analysis

**A**rmy Vehicle Analysis is going to be a new section in *Countermeasure*. It will cover tracked and wheeled vehicle accident data received from the field through accident reporting. The purpose is to inform users and the chain of command of the most frequent type of accidents that result in either personal injury or property damage. It is not intended to be all inclusive but rather an overview of what is happening in the field **Army wide**. (Results will come from the previous quarter; thus allowing time for review of accidents.)

## Wheeled vehicles

Through the first half of FY 97, the most common causes of injury/damage were improper driving techniques and improper intervals between vehicles. A total of 61 percent of all wheeled vehicle accidents can be attributed to these two cause factors.

## Improper driving Techniques

A HMMWV was traveling in the left lane of a four lane road when a POV to its front signaled to make a left turn. The POV signaled approximately 300 feet from the turn site. The driver of the HMMWV saw the turn signal and decided to pass on the right. He put on his right signal and moved into the right lane. To his surprise there was already another POV in that lane. The HMMWV driver had failed to check the right lane before moving into it.

Other examples of improper driving included:

- Loss of control.
- Not coming to a full stop (rolling stops).
- Inattention to traffic conditions. Looking inside the cab as opposed to out the window.
- Unfamiliarity with the characteristics and limitations of



the vehicle driven.

### **Improper intervals between vehicles**

Improper intervals can be divided into two categories. Following too close to the vehicle in front and not allowing enough time and space to react to unexpected conditions.

A convoy of vehicles was traveling on a dusty trail. The lead vehicle stopped to allow the others to catch up.

The second vehicle failed to stop in time and rear-ended the first vehicle. When the dust settled, a total of five vehicles were stuck together, end to end.

Some of the control measures for these types of accidents are:

- Select the best, most qualified drivers.

- Ask about past driving history. Find out about the soldier's reliability and driving record in the commander's interview.

- Ensure that soldier has completed a driver's training program IAW AR 600-55 and TC 21-305 series. Licensing is serious business.

- Ensure that the soldier is familiar with the vehicle's limitations and characteristics.

- Identify high-risk drivers and implement controls based on METT-T to reduce the risk associated with using these drivers.

### **Tracked vehicles**

During the first half of FY 97, the most common systems involved in Army accidents were the Abrams and Bradley series vehicles. These vehicles accounted for 59 percent of all accidents involving tracked vehicles.

In the M1 Abrams, the leading cause of injury/damage was the lack of crew communication while conducting maintenance.

A tank company returned to its assembly area and positioned the tanks in their designated areas. The accident crew was performing a standard PMCS. The tank commander needed to traverse the turret in order to check the tank's fluid levels. He announced "power" and started

to traverse the turret, but did not receive verbal confirmation from the crew members.

After a few seconds of traversing, the tank commander heard screaming. The driver of the tank had started to exit the driver's station without notifying the tank commander. The driver was pinned between the turret and driver's compartment and suffered serious injuries.

**Hold track commanders responsible for the operation of their vehicle and safety of the crew. This one control will have a definitive impact on reducing injuries with very little time and effort.**

In the M2/M3 Bradleys(BFV), the leading causes of injury/damage were attributable to soldiers in the squad compartment failing to use seatbelts, unfamiliarity with the limitations of the vehicle during tactical maneuvers, and lack of crew communication.

A BFV was returning from a gunnery range. Traveling at 20 to 25 mph over rough terrain, the BFV came to a sudden stop when it drove

into a hole, causing a soldier to get tossed around inside the crew compartment. The soldier struck his head on the crew compartment door. He was wearing a Kevlar, and his injury was not immediately apparent. The BFV continued to its assembly area where the soldier blacked out after exiting the vehicle.

Some controls that could be used are:

- Continue to emphasize crew communications and crew drills.

- Ensure that track commanders train their crews in standard terminology/phraseology.

- Ensure that seatbelt usage is enforced by the chain of command.

Hold track commanders responsible for the operation of their vehicle and safety of the crew. This one control will have a definitive impact on reducing injuries with very little time and effort.

Although there has not been a death or serious injury as a result of a Bradley rollover this quarter, there have been a few near misses. Crews should know the vehicle's limitations and not exceed them. ♦

# Beware of ticks!

**R**ecently I noticed a sign in a public area that read “**Beware of Ticks**”. I didn’t know what to do. If you were in someone’s back yard and saw a sign that said “**Beware of Dog**”, you’d know what to do. **Run!** But, what do you do on the eighth hole when you see a sign “**Beware of Ticks**”. I don’t know either.

If we apply the risk-management process to this dilemma, maybe we can come up with the answer of what to do.

First we must identify the hazard. Do ticks present a hazard? Yes they do. In the United States, ticks may be infected with diseases such as Lyme disease, Rocky Mountain Spotted Fever, and Human Ehrlichiosis. Overseas ticks may carry diseases such as Tick-Borne Encephalitis and Crimmean-Congo Hemorrhagic Fever. Only infected ticks that have attached themselves to your skin can actually transmit a disease. Since not all ticks are infected, just having a tick embedded in your skin does not mean you will contract the disease.

Next we must assess the hazard. Depending on the area you live and the activity you’re involved in will determine the probability of the hazard. Some ticks are as minute as a dot from a sharp pencil point, while others may be quite large. They wait in the grass, in leaf litter or bushes from early spring to late fall in both rural areas and city suburbs. When a host—bird, animal or human—comes in contact with them, they grab on and attach themselves to the skin with their mouth parts.

The severity of the tick bite can range from nuisance to permanent disability, to death. This creates a high-risk situation anytime there is a chance of getting a tick.

Now that we have assessed the hazard we must make some decisions. What do we do to protect ourselves against ticks. We certainly can’t wait until we see one in the woods and just go the other way. However, we can reduce the probability by using several control measures.

We could avoid areas which ticks may inhabit, like forested areas, meadows, river

valleys or any other place that might be damp or contain tall, damp vegetation.

We could wear appropriate clothing. Tucked in shirt and pants legs, snug collar, cuffs and boots.

We could use the DOD repellent system—treat clothes with Permethrin and apply DEET to exposed skin; or a civilian equivalent system.

Now that we identified some control measures

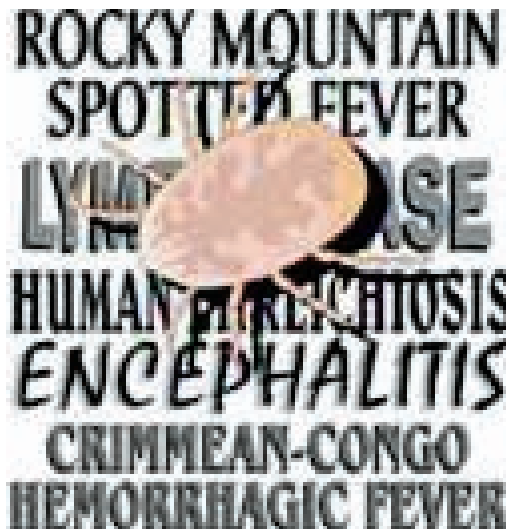
we must actually **DO SOMETHING**. We must implement those controls. All the good intentions in the world are useless with out action. You should monitor yourself and others periodically throughout your exposure. You should use the buddy system to check your clothing and body for ticks. Its recommended to do this at least twice daily.

The last step, Supervise. What do you do if you find a tick embedded in your skin? First do not squash, burn or apply substances such as oils or repellents. If

possible, report to medical personnel to have the tick removed. If medical care is not readily available, use tweezers to grasp the tick’s mouthparts as close to the skin as possible and pull it straight outward. **Pull slowly, firmly and steadily. Be patient.** A tick’s mouth parts are long and covered with tiny barbs. This may make it difficult to remove. Wash the site of the bite and apply antiseptic. Save the tick, if possible, and turn it over to unit medical personnel.

Early treatment is important. If you experience flu- like symptoms within a month of being bitten or develop a rash around the site, contact a doctor immediately.

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# NCO BUSINESS

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**F**rom my desk at the Army Safety Center, I review all Field Artillery Branch accident reports. The accidents range from attempting to fire a howitzer with a guidon and tire tool to another POV accident killing 5 soldiers. It's hard to imagine how some of the accidents could happen; easy to see how others occurred. Accidents can and do happen. That's why they are called accidents. However, most of the accidents that I have seen are preventable and should not have happened.

For example, a section chief wanted to conduct driver's training on an M110A2 howitzer. The howitzer's communication was not working. He decided to ride on the front deck to train his driver. With a crew of 6 soldiers on board, the driver failed to negotiate a bridge and ran off the bridge. The result was three dead soldiers and three injured soldiers. The section chief knew the standard, but he chose to lower the standard.

Why would a soldier drive at a high rate of speed returning from a Defensive Drivers Course? We can only guess at his reasons. But this we do know: he lost control of his POV and died as a result. He was trained to the standard, he knew the hazards associated with driving at a high rate of speed, but for some reason, he chose to ignore them and he paid the ultimate price.

Sitting here reading accident reports, I start reflecting back to when I was a gun chief "walking the tube". Taking the howitzer out of travel lock while the howitzer was still pulling into position. I could have very easily been thrown to the ground or possibly run over. Was I lucky? I probably did it at least 500 times without incident. Three section chiefs, this year, weren't as lucky. Actually they were lucky. None of them were run over, just some broken bones.

My mind continues to wander. As a young private, we had a misfire. The section chief, thinking that the number one cannoner had not put a powder



**The way you lead, train and care for your soldiers, plays a big part in the way soldiers act and conduct themselves, both on and off duty.**

into the chamber, jumped over the trails and opened the breech before misfire procedures were initiated. The camouflage net was the only thing that was damaged. Were we lucky? A section was not as lucky. The howitzer and ammo carrier and all associated section equipment were destroyed.

First line supervisors set the stage for most accidents. The Non-Commissioned Officer spends the majority of his time with soldiers. The way you lead, train and care for your soldiers, plays a big part in the way soldiers act and conduct themselves, both on and off duty. Protecting our force involves tough realistic training coupled with risk controls that protect soldiers in training and in combat. And it's the responsibility of the first line leader not only to help set those safety standards, but also to enforce them.

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# Gas cans and plastic bedliners don't mix

It's grass-cutting, weed-eating, lawn-edging time and most of the tools we use to make these tasks easier are gasoline powered. As you hop in your pickup truck and head for the nearest station to fill your gas can, there's something you need to know.

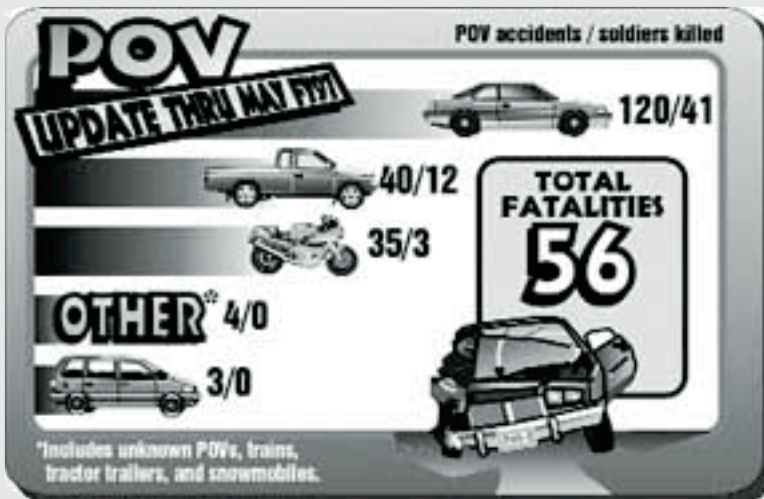
Several vehicle fires have occurred at service stations as a result of customers filling gas cans placed on plastic surfaces. The reported fires have involved a gas can in the back of a

pickup truck with a plastic bed liner. The insulating effect of the plastic surface prevents the static charge generated by the gasoline flowing into the gas can from grounding. As static charge builds, it can create a static spark between the gas can and the fuel nozzle. When the spark ignites gasoline vapor near the open mouth of the gas can, a fire occurs.

—adapted from a safety bulletin by Chevron USA

## How to fill a gas can to minimize the danger of fire

- Use only an approved container.
- Do not fill any container while it is inside a vehicle, in a vehicle's trunk, placed in a pickup's bed, or placed on any surface other than the ground. This includes pickup trucks, sports utility vehicles, vans, and others.
- Remove the approved container from the vehicle and place it on the ground a safe distance away from the vehicle, other customers, and traffic.
- Keep the nozzle in contact with the can during filling.
- Never use a latch-open device to fill a portable container.
- Follow all other safety procedures, including no smoking.



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## **Managing Risk—An Example of Mission Success**

**R**isk Management is often taken for granted throughout the Army. On some occasions a mission can be so apparently dangerous that risk management becomes the focus of the operation. It dictates every event associated with the performance of the mission. Such a case occurred during Operation Vigilant Warrior in Saudi Arabia. Elements of the 7th Transportation Group (Composite) deployed to download equipment for the 24th Infantry Division

Mechanized) from the Army War Reserve-Three (AWR-3) Preposition Afloat program. This exercise was conducted to counter Saddam Hussein's advance on Kuwait in October 1994. The immediate deployment stopped the Iraqi advance. The Transportation Group's mission shifted to the total discharge of equipment as a demonstration of force and display of our force projection capability.

During this deployment, soldiers of the 7th Transportation Group were challenged with a highly unusual and hazardous discharge of mission essential equipment. The 7th Group needed Rough Terrain Container Handling (RTCH) equipment to remove ammunition and PLL containers from the AWR-3 vessels. Although commercial container handlers were available in the theater, they could not operate inside the prepositioned ships, due to overhead clearance limitations. Consequently RTCHs, stored as cargo on Landing Craft Utility Watercraft (LCU 2000) on board the American Cormorant—Heavy Lift Prepositioned Ship (HLPDS) were needed for the operation. The operational concept associated with the HLPS requires it to submerge to

discharge the watercraft and their cargo. This requires the complete dismantling of the dehumidification devices and depressurization of the watercraft. This is an expensive operation requiring depot-level shipyard work to refit the watercraft before returning them to the HLPS.

The challenge was to remove a limited number of RTCHs without the discharge or removal of Army watercraft from the HLPS. The options were limited. The host nation's supporting barge crane could not reach into the LCUs to lift the RTCHs onto the dock. The only option was to drive the RTCHs onto the pier from the LCUs while the LCUs were still loaded on the HLPS. The most obvious hazard (because the LCUs were still on board the HLPS) was the significant difference in height between the LCU deck and the pier.

Due to the conditions of the operation, the need for risk management (RM) was obvious. The application of the 5 step RM process, identified the hazards and selected appropriate controls to reduce the overall risk level of the mission.

The team first determined that low tide would reduce, but not eliminate, the deck and ramp height problem. This

determination was reached by using models of LCU and Armored Vehicle Launch Bridges (AVLB) then moving them up and down to simulate tidal changes. PMCSs on the RTCHs were conducted to ensure that brake systems were operationally safe, as these vehicles had been stored for months before this operation. Large wood bracing, called dunnage, was used to shore up or secure the LCU 2000 ramp and the AVLB. This also created a larger "foot print" at the end of the



The 7th Transportation Group applies Risk-management to safely download RTCHs during Operation Vigilant Warrior, in Saudia Arabia.

bridge. The winch cable from an M-88 was run under the RTCH, around a pulley, and back to the front of the RTCH. This cable controlled the speed of the RTCH's descent while providing stability and reducing the risk of a roll-over. Cabling was also used to secure the bridge and prevent it from slipping when the RTCHs crossed.

Sea conditions were checked. For this operation, optimal sea state was critical to reduce the risk. Ships tied to a pier continually move with the actions of both the waves and tides. Minimal wave action would decrease the likelihood of an accident.

The team selected an experienced driver and rehearsed emergency actions in the event of a vehicle roll-over. The team then developed a supervision plan. They placed the signal men and observers at critical points to monitor any changes in the conditions and the effectiveness of selected control measures. They conducted rehearsals and then a final safety brief.

The driver climbed into the RTCH, put on his seatbelt, and the discharge began. The operation went smoothly for the first hour and a half. They had successfully down-loaded 2 RTCHs when the team stopped the discharge because the conditions had noticeably changed. The tide was rising. The ramp angle increased to such a degree that the risk level had increased significantly. Therefore, the commander discontinued the operation until the following day. An important note here is that the supervision of this operation allowed the commander to make an informed decision prior to an accident.

With the available RTCHs now safely discharged in theater, the AWR-3 was completely discharged. The use of the entire 5-step risk management process not only allowed the 7th Group to accomplish their mission without a mishap but also provided the necessary ammunition and PLL to the deploying forces.

— Adapted from **Transportation Corps Regimental Magazine**. The author is **Mr. M. Winget II, Safety Manager 7th Transportation Group (Composite), Ft. Eustis, VA, DSN 927-3183, Commercial 757-878-3183**

<b>RTCH RISK MANAGEMENT CHART</b>	
<b>Hazards</b>	<b>Controls</b>
● Height of LCU 2000 cargo deck to dock below.	⇒ Conduct operation at low tide.
● The weight placed on LCU 2000 ramp chains by the RTCH with the LCU ramp suspended in the air.	⇒ Use dunnage to support AVLB and ramp.
● The steep ramp angle.	⇒ PMCS brake systems on RTCH. ⇒ Use winch cable and pulley to control RTCH descent.
● Weight on the AVLB resting points due to RTCH and the maximum span weight of the RTCH.	⇒ Use dunnage to increase "foot print" of AVLB.
● The narrow width of the ramp.	⇒ Winch cable to recover RTCH if not aligned. ⇒ Winch cable and pulley system to brake RTCH in the event of system failure.
● High center balance of RTCH.	⇒ Rehearse roll over drill with driver.
● Effects of sea state (wave action).	⇒ Operate in optimal sea conditions.
● Inexperienced operator.	⇒ Use the most experienced driver.

# The right gear for the job

**T**here has been an increase in questions concerning the minimum requirement for combat vehicle crewman (CVC) protective clothing. This increase is due in part to the fielding of the M1A1 Abrams Tank by National Guard and Reserve Units across the country. CTA 50-900 authorizes every armor vehicle crewmember to have the entire 7 pieces of the uniform. Most commanders in the field are concerned with the cost to provide all Armor personnel the full ensemble. The cost of not having soldiers protected by Nomex is much greater.

## **FORSCOM MESSAGE 252020Z MARCH 92**

FORSCOM issued this policy requiring all M1 crewman

to wear NOMEX tankers uniforms during live fire-training. To receive maximum fire protection, soldiers must wear the entire Nomex uniform, leather boots, and cotton,

wool, or NOMEX under garments. This mirrors aviation crewman clothing and equipment standards regarding Nomex. **This policy was amended to permit, a substitute uniform.** The Battle Dress Uniform (BDU) with sleeves, rolled down and buttoned; collar, turned up and buttoned; with black work gloves on, is an authorized substitute if the commander has conducted a risk assessment and accepts the risk. Nomex is clearly preferred, and every effort must be made to provide the Nomex uniform for each crewman.

### **Authorization for wear**

The CVC uniform is authorized for year-round wear by combat vehicle crewmen when issued in accordance with CTA 50-900 and approved by the unit commander.

### **Why Nomex instead of BDU?**

Results of a study conducted by The Armor Center at Fort Knox, weighed the potential for fire in each series of combat vehicles and determined the priority of issue for the Nomex uniform. Priority was given to the vehicles with the highest risk as follows:

- (1) M1 Abrams Tanks.
- (2) M2/M3 Bradley Fighting Vehicles.



(3) M551

Sheridans.

(4) M88

Recovery Vehicles.

(5) M109 Howitzers.

(6) HMMWVs.

(7) all other vehicles.

The results of the study showed that—

- When complete Nomex is worn during a vehicle fire it will provide 10 seconds of protection before material break-down.
- Complete BDUs, worn properly, would provide only 6 to 8 seconds of protection before material break-down is experienced.

Nomex gives a crewman an additional 2 to 4 seconds to exit the vehicle before he is severely burned.

### **When should Nomex be worn?**

Gunnery or live-fire exercises require the wear of Nomex. In all other operations the uniform may be determined by the commander's application of risk management.

### **NOMEX Composition**

The fabric is a flame resistant, anti-static treated, plain weave over garment. There are seven essential components of the complete uniform.

#### **— Jacket, NOMEX, Cold Weather**

The jacket is fully lined with quilted flame-resistant batting material.

- Coveralls
- Balaclava hood, CVC
- Body Armor
- Boots, combat, leather black
- Gloves, CVC, summer CVC, cold weather
- Cotton or wool underwear

**Occasion for wear**

The CVC uniform will be worn on duty when directed by the commander. The uniform may not be worn for travel or off military installations except in transit between the individual’s quarters and

duty station. These uniforms are not intended to be worn as an all-purpose uniform.

It is imperative that training be conducted in the safest possible manner. The Nomex uniform (Combat Vehicle Crewman Uniform) is one piece of gear that will definitely ensure safe training. So, get your personnel in the right gear for the job!

**POC: SFC Erwin Bailey, AR, USASC, Ground Tactical Branch, DSN 558-2908 (334-255-2908).**

# It’s hazardous to wear synthetic fiber underwear under a Nomex suit

**A** question that surfaces frequently is: Is it safe for combat vehicle crewmen to wear underwear made with synthetic fibers under their Nomex CVC coveralls?

**The answer is, No.**

All soldiers in the field need to be made aware that a hazard exists, in the event of a vehicle or aircraft fire, if synthetic underwear is worn under the Nomex CVC coveralls. Nylon and synthetics such as polyester and polypropylene melt at about 480 degrees Fahrenheit and 300 degrees Fahrenheit respectively. Heat transfer through your Nomex (which is resistant to temperatures up to 700 degrees Fahrenheit) could be high enough to melt these synthetic undergarments. It also should be noted that your Nomex will burn if it’s contaminated with flammable substances such as petroleum, oil and lubricants (POL) products or household starch. Dry cleaning or laundering after contact with these substances will restore your Nomex’s fire retardant state.

To restate the importance of wearing proper underwear underneath your Nomex,

I’ll use a quote that a CW3 made in a recent Flightfax regarding the experience he had when his aircraft caught on fire. “My chest, back, and buttocks were spared from any burns at all due to the cotton underwear that I had on. The burn literally went to where the underwear was and stopped. If I hadn’t been wearing my Nomex protective equipment and wearing it properly, there is no doubt in my mind, that I would very probably have either died in the fire or died as a result of the burns I would have received.”

So for your protection, the underwear that you wear should be made of a cotton/wool blend, or 100 percent cotton. These natural fibers won’t melt under heat and will help keep the heat away from your body in a flash fire. If your underwear is fabricated of 50 percent cotton, 50 percent polyester, it’s unsafe to be worn when the possibility of heat hazard exists. If your unit’s mission requires wearing the Nomex CVC, ensure that you wear the proper undergarments.

**If you have additional questions please contact Mr. Larry Hasty at Directorate of Force Development, Armor Center and School. DSN 464-3662/2176.**

**—Adapted from Armor Magazine**

# Do not override BFV driver's hatch safety latch!

## Do not misuse straps!

**U**sing a strap to secure the driver's hatch handle in the open position is becoming a critical safety issue! Do not use a strap to make opening the driver's hatch easier; it is a dangerous act and defeats the safety latch. The open hatch can fall on the driver, causing injury or loss of control of the vehicle. The strap is also often misused as a handhold that can break, and cause a fall.

A soldier fell from a Bradley, crushing his ankle and foot. The injuries were so severe that part of his foot had to be amputated. The soldier was using a strap attached to the driver's hatch release handle to close the driver's hatch, when the strap broke, the soldier fell.

To avoid injury to yourself or others, do not use a strap in an unauthorized manner. Do not defeat the driver's hatch safety latch or drive a BFV with the latch

tied or strapped into the unlatched position.

To open or close the driver's hatch correctly, follow the procedure in your operator's manual.

- Unlock and remove padlock from lock lever.

- While holding latch cover down with left foot, push lock lever toward right of vehicle.

- Holding periscope guard with both hands, raise driver's hatch cover to FULL-OPEN position in one motion.

- Check that safety latch is in locked position.

### NOTE :

*Driver's hatch cover will lock into POP-UP or MID-OPEN position if not raised in one smooth motion. If hatch cover locks into POP-UP, follow TM procedures.*

—From Bradley Bits, February 1997 issue

## Slingload operations

**O**ver the past 6 months, the Safety Center has received several questions regarding slingload operations. The majority of these revolved around operations and criteria for inspecting slingloads. The proponent for slingload operations is the Quartermaster School at Ft. Lee, VA. Questions should be addressed to Mr. Don Lynn, Chief, Slingload Office, ABN/FS Department. at DSN 687-4185. You may also contact SFC Rumley, DSN 687-5889.

Effective 1 October 1997, all slingloads must be inspected by a qualified inspector. Qualifications for inspectors are E-4 or above

AND a graduate of Air Assault School, Pathfinder School, or the Slingload Inspector Certification Course. FM 10-450-3 gives the training and inspection requirements, inspector qualifications and the inspection form.

Commanders can train their units with the slingload training support package (TSP). This TSP will not certify an inspector but is capable of training up to 48 soldiers. These packets are available from the Slingload Office at Ft. Lee.

—POC at the Safety Center is SFC Phillip Purdie, DSN 558-9852 (334-255-9852), e-mail [purdieb@safety-emh1.army.mil](mailto:purdieb@safety-emh1.army.mil).



# Defend yourself

**W**hile we seek perfection in many things we do, the consequences of falling short are usually not significant. However, falling short of perfection in our driving habits can have grave consequences.

Your lifetime odds of being killed in an automobile accident are 1-100. Each year 1 of 16 drivers is involved in a reported motor vehicle crash according to AAA. These figures should be enough to encourage you to drive and react defensively when you are on the roadways.

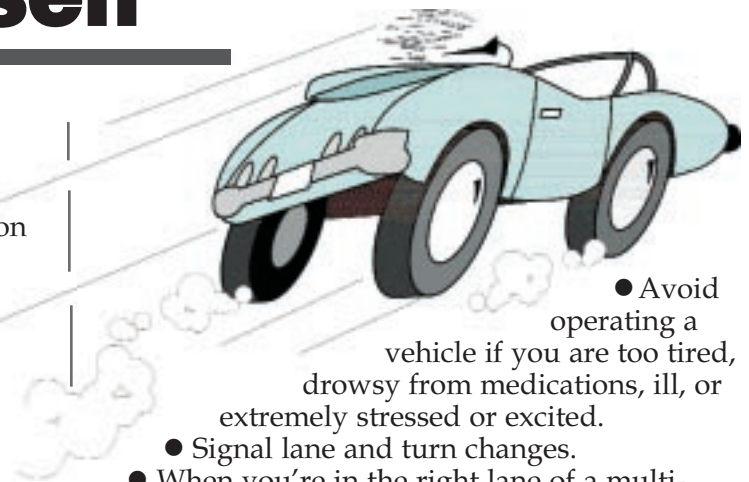
Here are some tips to make the routine use of your automobile less likely to end in an accident or a disaster.

## Expect The Unexpected

- Assume a "what if" posture. Know what you will do if a driver swerves or stops suddenly.
- Watch for drivers who are preoccupied or driving "offensively." They count on you to react to them, instead of watching out for you.
- Stop lights and signs don't have the same fear factor they once had. People are running them with greater regularity. To protect yourself, don't jump into the intersection the instant the light changes or when you have the right of way.
- Search the roadway and off-road areas 20 to 30 seconds ahead for hazards that could affect you.
- Be particularly alert at blind intersections and around pedestrians and workers.
- Don't play chicken. If someone seems determined to enter your lane, yield the right of way.
- Use caution approaching curves and the crest of hills.
- Rush hour is especially challenging. Be ready to brake at all times, and expect drivers around you to stop or change lanes abruptly.
- If someone is signaling to turn, wait until they actually turn before pulling out into traffic.

## Take The Initiative

- Try to make every trip a "perfect" trip.
- Always buckle your seatbelt. Drivers who buckle up have a 45 percent better chance of surviving a crash and a 50 percent better chance of surviving without an injury.
- Stay alert. No eating, drinking, fiddling with the radio, or distracting conversations.
- Pull off the road to use a cell phone.



- Avoid operating a vehicle if you are too tired, drowsy from medications, ill, or extremely stressed or excited.
- Signal lane and turn changes.
- When you're in the right lane of a multi-lane highway, help traffic merge smoothly by moving over a lane if traffic permits.
- Slow down. Observe legal speed limits. The faster you are moving, the longer it takes you to stop safely.
- Proper maintenance can help you head off mechanical problems that could cause an accident. Work with your mechanic to develop a periodic inspection plan.

## Create A Cushion

- Maintain a safe following distance by staying 2 to 5 seconds behind the car ahead. Increase your following distance as your speed increases. At higher speeds a 2 to 3 second gap will not give you enough time to take evasive action if an emergency occurs in front of you.  
At 40 mph, stay 4 seconds behind; at 50 mph and higher stay 5 seconds behind. Increase your distance at night, on rough roads, and in bad weather.
- If you can't see the rearview mirror of the vehicle next to you, you're driving in its blind spot.
- Tail-gaiters are a dangerous nuisance. Pull over and allow them to pass.
- Be a loner. Avoid clumps of cars on the highway.

Some people have no business on the road with you, but there they are anyway. Look for these warning signs for drivers impaired by drugs, alcohol, medication or fatigue:

- Wandering from lane to lane.
  - Driving unusually slow or fast.
  - Running stoplights and signs.
  - Moving erratically or out of control.
  - Driving with lights off at night.
- Stay as far away as you can. If possible, notify the police.

**Safety Times — May/June 1997**

# Heat injury

## Plenty of fluids essential to heat injury prevention

**T**he unit's mission was to conduct a 3-mile run at an 8 ½ minute pace. After performing stretching and calisthenics, the unit started the run. Near the 2 ½ -mile point, a soldier started falling back behind the formation. The soldier made it to the finish, although he was not in the formation. Disoriented, the soldier collapsed while walking to the billets area. Other soldiers ran to assist; while others went to get medical help. He was carried to the unit aid station where medics diagnosed the soldier with heat stroke. His core body temperature was estimated at more than 106 degrees. The soldier was transported to the hospital where his condition improved. During his stay at the hospital, the soldier's condition would worsen and then get better. The soldier was then transferred to a civilian hospital where advanced care could be provided.

Fourteen days after suffering a heat stroke, this soldier died.

Heat stroke is a medical emergency with a high death rate. Heat stroke results when the body no longer has the ability to sweat. Early signs include headache, dizziness, delirious behavior, weakness, nausea and vomiting. Symptoms of heat stroke include collapse and

unconsciousness; hot, red, dry skin; and convulsions. Heat stroke may gradually progress through the symptoms of heat exhaustion, or it may occur very suddenly. Aggressive cooling using water and fanning and emergency care is essential in reducing damage to internal organs in heat stroke victims.

Heat injuries are mainly associated with hot-weather, conditions, but it is important to

remember that these injuries can occur at lower temperatures too.

### Factors related to heat injury

Environmental factors have a major impact on how well the body can regulate its temperature. When it's hot outside, the body obviously has to work harder to cool itself. Wind speed and the intensity of radiant energy from the sun can also affect the body's cooling ability.

A number of factors increase the heat stress on the body and thus the probability of heat injury. The biggest problem is that people do not drink enough water.

Many fall victim to heat injuries while exercising early in the morning. They suffer heat injuries, even though it is still cool outside, because they do not replace the water they lost the day before.

An overweight or fatigued body may have a diminished ability to cool itself. Heavy meals and hot food place additional heat stress on the



body. Use of alcohol and drugs such as antihistamines, tranquilizers, cold medicines, and some anti-diarrhea medications cause dehydration and increase the threat of a heat injury.

Other factors affecting the body's ability to lose heat include tight clothing, sickness, fever, and sunburn.

Once someone has suffered a heat injury, especially a heat stroke, that person is more susceptible to future heat injuries.

### Prevention of Heat Injuries

The most important thing you can do to prevent heat injuries is to drink plenty of water!

Sweating is the only way the body can maintain its proper temperature in hot weather. A person may lose in excess of 1 quart of water per hour by sweating. This must be continuously replaced to prevent a heat injury.

People working or exercising in the heat need to drink several gallons of water per day to properly maintain their body temperature control mechanism. Water should be consumed frequently

and in small amounts throughout the day. It is also important to drink water in the evening to give the body time to re-hydrate.

Thirst is not a good indicator of when the body needs water. By the time thirst is felt, the body is already dehydrated. The belief that people working in hot climates can adjust to decreased water intake is incorrect. They still require sufficient water to live and work in the heat.

People coming from cooler climates must acclimate to hot temperatures. People not accustomed to the heat should gradually increase their exposure to hot weather over a period of about 2 weeks.

Physical fitness is very important in preventing heat injuries. People in good shape are better able to handle heat stress. Other prevention measures include avoiding alcoholic beverages; wearing loose clothing; frequently resting in a cool place during long periods of work; and using sunscreen.

**A portion of this article was reprinted from the Guardian Newspaper, Fort Polk, Louisiana.**

## Guideline for Water Requirements

Activity	Typical Duties	Quarts Per Day	
		WGBT*	
		Less than 80°	More than 80°
<b>Light</b>	Desk work, guard work, radio operating	6	9
<b>Moderate</b>	Route march on level ground, tank operations	9	12
<b>Heavy</b>	Forced march, route march heavy load/MOPP, digging-in	12	15

\* MOPP or body armor adds 10° to the measured WGBT.

# North Dakota Guardsmen Awarded for Heroism

**N**ine members of B Company, 142nd Engineer Battalion, of the North Dakota Army National Guard, Wapeton, North Dakota, were taking part in "Nuevos Horizontes 96," a 6-month training mission in Panama. They were performing their 2-week annual training with their unit under the direction of the Fifth U.S. Army to support the construction and humanitarian service exercise.

The nine soldiers traveled to the coastal village of Puerto Viejo Costa to enjoy swimming and to take a break from the sweltering jungle heat. The engineers were savoring the refreshing tropical waters of Costa Rica when without warning a "rip tide" swelled, carrying members of the group beyond the shallow waters and out to sea. Sergeant Aker and Specialist Johnson watched in horror as the unexpected tide began to pull their comrades under the water and out to sea.

Sergeant Aker quickly battled the waves to get to the now struggling soldiers. He gave them instructions on how to conserve their energy and began the arduous task of swimming to shore to find flotation devices for the floundering soldiers. Although an excellent swimmer, Aker was already tiring from the unrelenting tide.

Sergeant Aker, with flotation devices in tow, managed his way back to the group, which had drifted even further from shore. Sergeant Aker alerted several local swimmers to assist those soldiers that he could not reach. Now breathless and battered by increasingly strong waves, Sergeant Aker continued his heroic quest. Not before saving the lives of five fellow

soldiers did the young sergeant yield to total exhaustion.

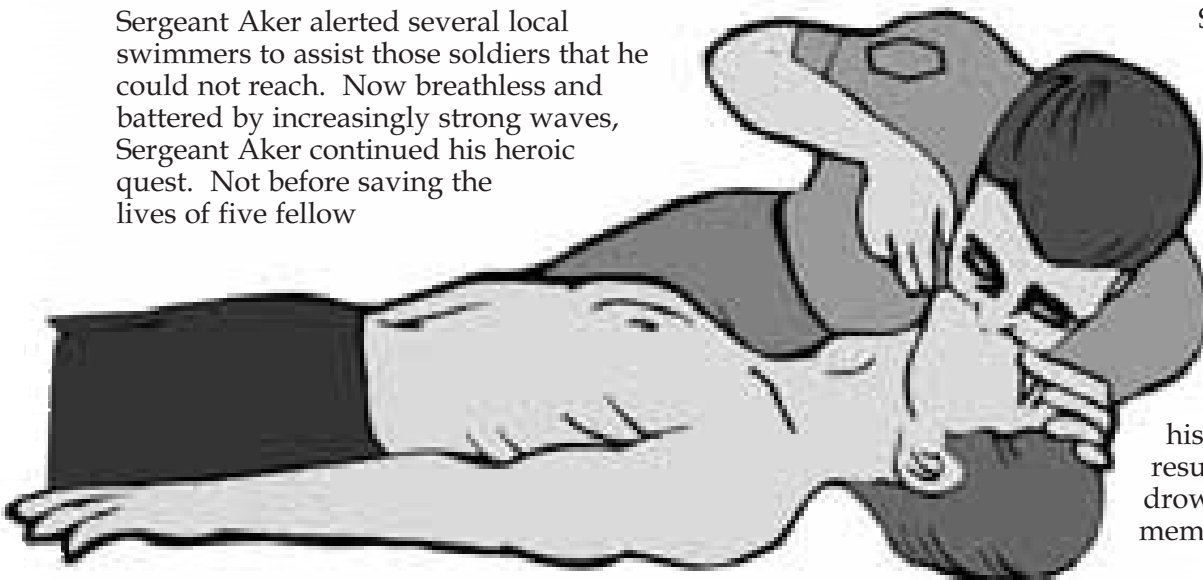
Specialist Johnson was assisting Sergeant Aker by helping the soldiers conquer the remaining distance to the shore line. Sergeant Aker was nearing total exhaustion and called out to Specialist Johnson to save the last remaining swimmer. By now, the churning water was no match for even the most experienced of swimmers. With total disregard for his own safety, Specialist Johnson leaped into the pounding waters and began swimming towards the imperiled Guard member. While Johnson was helping the exhausted soldier back to shore, a large wave engulfed the two, pulling them beneath the surface. Two local swimmers rushed to their aid and found Specialist Johnson floating face down in the swelling water.

After almost an hour and a half of continuous CPR, Specialist Johnson never regained consciousness. The 27-year old specialist had made the supreme sacrifice, giving his life to save a fellow soldier. Sergeant Aker received the Soldiers Medal as did Specialist Johnson posthumously.

A third soldier, Staff Sergeant Keller, received the Meritorious Service Medal for his efforts to revive Specialist Johnson. For more than 90 minutes, the firefighter from Fargo, North

Dakota, administered CPR to the lifeless hero. Staff

Sergeant Keller was relentless in his efforts to save Specialist Johnson. It was not until the Costa Rican authorities directed Staff Sergeant Keller to stop that he reluctantly ended his attempt to resuscitate the drowned Guard member. ♦



# The risk-management highway

## Safety: A return to basics

**R**ecent visits to the offices of fellow safety officers evidences a diffusing of the focus on what makes the charge of a safety officer successful: Remembering the basics.

We have come to call safety many things. Notice the placards and nameplates on the walls next to the safety officer's door: "Force Protection" reads one; "Aviation Safety" reads another. "Risk Manager" caught my eye, and I half expected to find my insurance salesman behind the door of that one. My mentor and the most successful of my peers labeled themselves simply "Safety Officer."

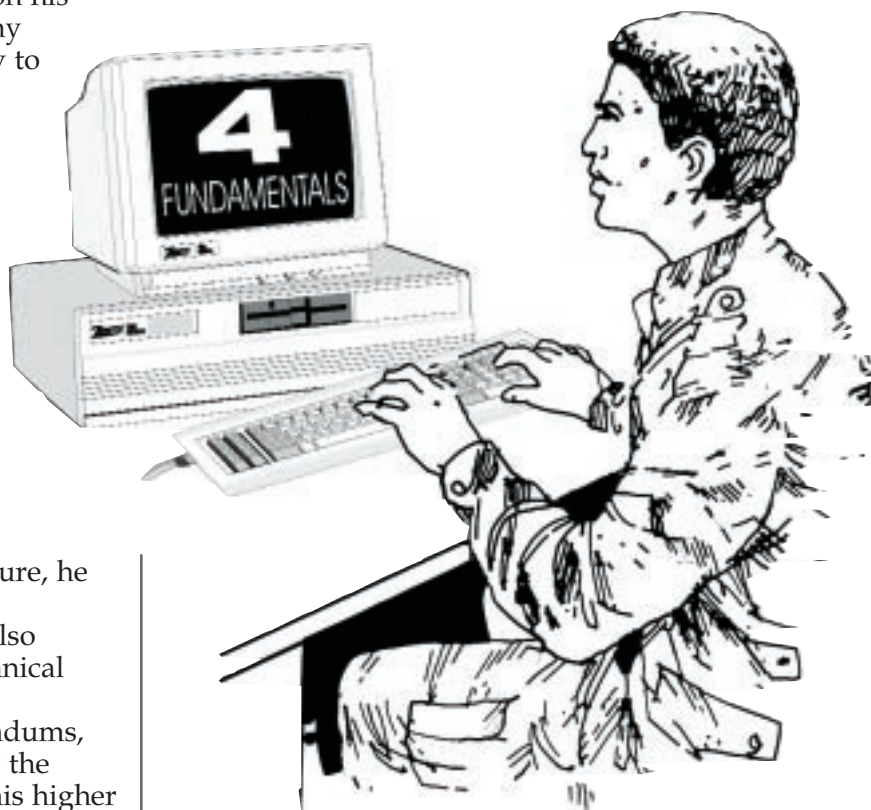
My mentor sports a collection of free stickers and labels, pamphlets and brochures, pictures and posters, tapes and buttons. From time to time, I can even find pens and coffee cups on his "freebie" table. If this table is any indication, he has not fallen prey to the latest trend to select a politically correct and more glamorous title for his position. His unit's accident record is superb. The morale of his charge is high. His office seems to reflect a sort of eclectic approach to his job.

I find that his success, after some prodding, comes from four fundamentals:

1. Ensure you have the right guidance. His bookshelves are crammed with publications I wouldn't have thought had the remotest connection to safety. Sure, he has eye-catchers with "safety" somewhere in the title. But he also harbors quite a collection of technical bulletins, engineering books, maintenance manuals, memorandums, and operating procedures. Why the ample collection? Just reading his higher headquarters' SOPs would send the

average reader on a wild goose chase for dozens of publications. "If you haven't got access to them, how could you understand what's expected?" Profound question of the obvious.

2. Ensure you've given the right guidance. Have the SOPs and policy letters at your level of command or responsibility adequately and correctly implemented the required safety programs? It's easy to assume that your higher has taken care of most of those programs required for you to implement. Have you given the proper treatment to all the areas of the Code of Federal Regulations (CFRs) that are required. A simple cover letter saying "Do it in accordance with..." often won't cut it. OSHA (both State and Federal) often requires you, to implement a



program. This often requires that each safety officer develop a program for such things as bloodborne pathogen exposure control and hearing conservation.

3. Ensure that the right people are in place to administer the safety program adequately. My mentor always seems to have a moment to talk with me when I call or visit. Ditto for anyone else. With all that he's responsible for, how does he find the time to do it? "Surround yourself with excellence," he quips. Hearing conservation, HAZCOM, lifting devices, range safety, laser safety, foreign object and debris damage, the list goes on and on. Certainly there are other folks in the organization who can be tapped for their expertise to help administer portions of the overall safety program. Have these folks been placed on additional duty orders? Do they know their jobs? "With extra help in the form of additional duty officers, it's a matter of teaching them how to fish. They'll gladly pitch in once they know where the rules of the game can be found and how they fit in to the big picture."

4. Ensure the program can continue seamlessly if you have to take your daughter to her baseball game. (Yes, baseball, not softball. Seems Andrea had a choice this year at school. Besides not too many softball leagues on TV.) Has a matrix been put together, so that the

boss knows what's due this month, quarter, or semi-annual period. What's the suspense date? the deliverable? to whom? Is there a long-term plan and short-term goals in place for improving the safety program?

A simple four-faceted philosophy for running a good safety program (not to be confused with the five-step process, of course). If I neglect to pick up a piece of debris while walking across a flight ramp and it winds up in an engine, that aircraft is just as out of service as if it had been shot up by hostile fire. If I'd taken to mowing my lawn yesterday without insisting that Andrea not be out there without me, some earmuffs, and safety goggles, that rock that shot out from the lawn mower and hit her in the face might have ended a brilliant baseball career. Wouldn't take much to digest an elephant like safety if it's reduced to eating it one bite at a time. Walk like you talk. Never call yourself an expert in safety, and never put boundaries on those things you look at to question whether it's being done safely. Safe, sage advice.

**This article was authored by CW3 Mark W. Grapin, BN, ASO, 1st Battalion 211th Aviation Regiment, Utah National Guard, DSN: 766-4428. 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.**

**POV**  
UPDATE THROUGH 2006 FY17  
FOR ACCIDENTS / INCIDENTS REPORTED

Car	141/44
Truck	51/14
Motorcycle	41/3
Van	4/0
OTHER	3/0

**TOTAL FATALITIES**  
**61**

U.S. ARMY SAFETY CENTER

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*Burt S. Tackaberry*  
Burt S. Tackaberry  
Brigadier General, USA  
Commanding

ARMY GROUND RISK-MANAGEMENT PUBLICATION

# COUNTERMEASURE

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SEPTEMBER 1997



## Convoys

**I**n the past 2 years, 84 Army Motor Vehicle (AMV) accidents involving convoys have been reported to the U.S. Army Safety Center. These accidents have resulted in 13 fatalities and 83 injuries with a cost to the Army of \$4.6 million. Although this is significantly lower than 3 years ago, human-performance errors have increased. In July of 1996, Countermeasure reported, in an article titled Convoy, the top three accident causes as speeding, following too close (improper interval), and fatigue, in order of frequency. This year following too close has jumped to the top of the list.

To protect yourself, monitor the space that is around the vehicle. When things go wrong, this space provides time to think and act. You have to manage this space if you expect to have it when something goes wrong. This is especially true when operating large vehicles. They need more room and require more space for stopping and turning. Of significant



## Risk management pointer

**B**ase your interval on the largest vehicle in the convoy. If your convoy composition never changes, then you can integrate a standard interval and speed into unit SOPs. There are always exceptions and leaders need to know when and if adjustments are needed. **Prior Planning Prevents Poor Performance.** ♦

importance is the area in front of your vehicle—the space you are entering. You must maintain enough space to stop in the event the vehicle in front of you stops suddenly. Misjudging that distance can lead to a “following too close” accident. Remember, smaller

vehicles can stop faster than larger vehicles. For more information on managing space, see *TC 21-305, (Training Program for Wheeled Vehicle Accident Avoidance)* and *FM 21-305 (Manual for the Wheeled Vehicle Operator)*.

**How much space should I keep in front of me?** At speeds below 40 MPH, keep at least 1 second for each 10 feet of vehicle length. For vehicles less than 20 feet 2 seconds is the minimum safe distance. Add one second for each 10 MPH increment over 40 MPH. For example, if you are driving at a speed below 40 MPH in a 40-foot vehicle, you should have 4 seconds between you and the vehicle ahead; in a 60-foot vehicle, 6 seconds. If the 40-foot vehicle is moving at 50 MPH, then it requires 5 seconds; for a 60-foot vehicle, traveling at 50 MPH, 7 seconds. (See poster on Safe Distances in this issue) *ref; FM 21-305, (Manual For The Wheeled Vehicle Driver)*, Chapter 24 page 24-1. See also the newly revised *FM 55-30 (Army Motor Transport Units and*

*Operations)* dated 27 June 1997 for more information on control, organization and planning a convoy operation.

Chapter 5 of *FM 55-30, (Convoy Control, Organization, and Planning)* will aid commanders and leaders in identifying and completing all of the tasks required to control, organize, and plan a convoy movement.

### CONVOY COMMANDERS

Each convoy is organized under the control of a convoy commander who must be free to supervise the movement of the convoy. the convoy commander's location is determined by METT-T. Convoy commanders should not change their location within the convoy unless it is absolutely necessary for control. They should have radio contact with all subordinate serial commanders during the movement. The convoy should maximize use of radio communications if the mission allows. At a minimum the lead and trail vehicles in each serial and each march unit should have radio communications.

### SERIAL OR MARCH UNIT COMMANDERS

Serial or march unit commanders are also positioned by METT-T. They must be in a position where they can best control their convoy element. It is not recommended that they are the lead vehicle, because it reduces their ability to control the other vehicles. Vehicles are easier to control from the rear. From there, commanders can monitor vehicles that may pull over due to mechanical failures. They can also ensure that the personnel or cargo loaded in broken down vehicles is cross loaded. If the march unit is held up, commanders can move up to the source of trouble and make the necessary adjustments. If the commander is the lead vehicle, he/she may not notice the loss of another vehicle. Commanders should not position their vehicles as the last vehicle either. Each convoy plan should plan for breakdowns and everyone should know the actions to be taken in the event of a breakdown or break in contact.

**NOTE:** Convoy, serial, and march unit commanders should avoid driving in the left-hand or “fast” lane of a multi-lane road. The slower speeds of military



traffic causes a hazard to faster moving civilian traffic.

### **PACESSETTER**

The convoy commander will designate a vehicle to lead the convoy. The lead vehicle or pacesetter will travel at a designated speed to accommodate the slowest vehicle restriction in the convoy. The lead vehicle or pacesetter will—

- Set and maintain the pace established by the convoy commander.
- Check the time at start point, critical point, checkpoints, and release points.
- Advise the convoy commander of any obstacles or road hazards (road blocks, washouts, or any other obstacles) that may cause a deviation from the established route.
- Slow the convoy speed in preparation for exits, highway entrances and tunnels.

## **NCOs enforce standards**

**N**oncommissioned Officers are the closest to the everyday business that goes on in the Army. NCOs enforce standards. A task or mission performed to standard will be successful. In some cases, accidents happen as a result of NCOs who fail to enforce standards. Recently, a unit was given the mission to convoy from their installation to another post (approximately 70 miles). The convoy consisted of one HMMWV, one 2½-ton, and five 5-ton vehicles. “Hey, Joe let’s go,” replaced the required convoy safety briefing. The convoy commander (NCO) decided to lead the convoy over a heavily populated highway in a POV. The convoy commander told the soldiers in the convoy to meet at the dining facility located at the other post. At the dining facility, they met with the convoy commander and then continued on to a field site. While enroute, the operator of an M923A2, 5-ton cargo, attempted to negotiate a curve at 45 MPH. As a result of the excessive speed, the driver lost control of the vehicle. The vehicle overturned at least once, causing extensive damage to the vehicle and simultaneously ejecting the unrestrained



## **PREPARATION OF DRIVERS**

**T**he convoy commander or his designated representative will ensure that—

- Drivers are aware of any restrictions required by special permits(hazardous cargo permits, special hauling permits, etc.) prior to the convoy movement.
  - Drivers and assistant drivers possess valid OF-346(U.S. Government Motor Vehicle Operator’s Identification Card).
  - Radio checks are completed.
  - SOL’s are issued.
  - Each vehicle has a strip map.
  - A safety briefing is given to all participants.
  - Convoy and catch-up speeds have been briefed.
  - Intervals have been discussed.
  - Safety equipment(Rotating Amber Warning Lights, first aid kits, and warning triangles) is present for each vehicle IAW AR385-55.
  - Convoy signs are placed on the lead and trail vehicles.
  - Rest halt locations have been identified.
  - Hazards or threats have been identified along the route.
  - Required security measures are implemented.
  - Break down procedures are understood.
- \*This list is not all inclusive; units may have additional requirements.**

driver and both passengers. The driver sustained only minor injuries; however, both passengers were fatally injured.

#### **RISK MANAGEMENT FAILURES:**

- The convoy commander failed to adequately plan the convoy operation. Hazards and controls were not identified and a briefing was not conducted.
- The convoy commander did not supervise and control the convoy.
- The driver was not properly trained on the vehicle.
- None of the vehicle occupants were wearing seatbelts.

The driver was not aware of the 40 MPH speed restriction for the M939 series vehicles.

The convoy commander did not establish and enforce a maximum safe operating speed that accommodated the maximum speed limit of the M939 series 5-ton vehicles that were in the convoy.

#### **CONTROLS:**

Commanders should ensure that the risk-management process is applied to all convoy operations and that convoy commanders are carefully selected and thoroughly briefed on their duties and responsibilities; see *FM 55-*

*30(Army Motor Transport Units and Operations), and FM 21-305 (Manual for the Wheeled Vehicle Operator).*

#### **CONVOY COMMANDERS WILL:**

- Have knowledge of all restrictions required by Ground Precautionary Messages, Safety of Use Messages, Safety Alert Messages, etc., for vehicles in the convoy, for example: *TACOM GPM 96-04*, which limits the M939 Series vehicles to 40 MPH. (GPM's and SOUM's can now be found on the Internet at <http://www-ssn.ria.army.mil>)
- Ensure that special attention is placed on seatbelt use and that speed restrictions are briefed.
- Ensure troops are briefed on convoy speed, catch-up speed, following distance, etc.
- Ensure all drivers are properly licensed on vehicles.
- Ensure control is established and maintained within the convoy until mission is complete.

A convoy checklist such as the one shown on the poster in this publication, will assist the convoy commanders planning and execution.

**POC: SFC John Dawson, Transportation NCO, DSN 558-2933 (334-255-2933), Force Projection Branch**



This M923A2 5-ton overturned while attempting to negotiate a curve at 45 MPH. The two passengers were killed.

# SAFE DISTANCES TO MAINTAIN WHEN DRIVING AMVs AT 40 AND 50 MILES PER HOUR

(NOT TO SCALE: DISTANCES BETWEEN VEHICLES ARE MUCH GREATER THAN THEY APPEAR)

**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



This diagram represents only the minimum safe following distances. Environmental conditions and vehicle payload greatly impacts following distances. Refer to FM 21-305, FM 55-15, and appropriate TCs and TMs for guidance on individual vehicles.

NOTE: The minimum safe following distance for any vehicle is 2 seconds.

# Convoy Checklist

ARs 55-29,385-55, and 600-55 and FMs 21-305,21-306, and 55-30 provide guidance in convoy operations. In addition, use the checklist below to manage the risks associated with convoy operations.

- 1. Do tactical vehicle drivers have a valid Government Motor Vehicle Operator's Identification Card, Optional Form (OF) 346?
- 2. Have drivers been trained to drive in adverse weather (ice, snow, fog, rain) and difficult terrain? Blackout drive? NVGs?
- 3. Are convoy drivers provided 8 consecutive hours rest for each 10 continuous hours of driving a tactical vehicle within a 24-hour time period?
- 4. Do convoy commanders brief all drivers' assistant drivers, and senior occupants prior to the march on hazardous areas or conditions to be encountered (e.g., safe following distances, proper speed, route rest periods, and signals)?
- 5. Do drivers keep proper distances between vehicles?
- 6. Do drivers reduce speed during conditions of reduced visibility and adverse weather?
- 7. Do drivers perform before-, during-, and after-operation preventive maintenance?
- 8. Do drivers know the meaning of traffic-control signs, signals, devices, and markings used by civilian and military police?
- 9. Do all drivers know route?
- 10. Are vehicle basic-issue items, pioneer tools, highway warning devices, and fire extinguishers present on every wheeled convoy vehicle?
- 11. Are drivers of bulk-fuel transporters instructed on emergency procedures for fuel leaks?
- 12. Are vehicles that transport hazardous materials or dangerous cargo (e.g., ammunition, gasoline, flammable liquids)-
  - a. Appropriately posted with placards and loaded to meet hazard classification and compatibility requirements?
  - b. Inspected using DA Form 626: Motor Vehicle Inspection?
  - c. Equipped with two fire extinguishers appropriate for the cargo?
- 13. Are ammunition and PCL cargo transported separately?
- 14. Do vehicles carrying hazardous cargo have assistant drivers?
- 15. When operating on paved roads, are radio whip antennas tied down to not less than 7 feet from the ground and antenna tips covered with protective balls?
- 16. Are service drive lights used at all times on paved public roads (blackout drive prohibited)?
- 17. When transporting personnel, do drivers-
  - a. Walk to rear of the vehicle before starting to secure the tailgate and safety strap and ensure all passengers are seated?
  - b. Adjust the tarpaulin to ensure proper ventilation (i.e., lash down the tarpaulin and front curtain in adverse weather, roll tarpaulin and secure at bar top in good weather)?
  - c. Secure baggage and other loads safely and not in the way of passengers?
  - d. Prohibit personnel from riding on outside of wheeled and tracked vehicles?
  - e. Ensure that all occupants use restraint systems when available?
- 18. Is the rear vehicle the largest and a nonpassenger-carrying vehicle?
- 19. Are ground guides used IAW AR385-55, FM 21-305 & unit SOPs?
- 20. Are rotating and flashing amber lights and convoy flags used on the first and last vehicles in the convoy?
- 21. Are vehicles marked in accordance with AR 385-55 and FM 50-30?

# What you need to know if your car catches fire

**W**hen people talk about the problem of fires in the United States, they are usually referring to fires in buildings. They probably don't realize that one of every five fires involves a motor vehicle, and that one out of eight fire fatalities, occur in motor vehicles. According to the United States Fire Administration, 600 people are killed in car fires each year. Also 3,800 people are injured — 1,200 of those are firefighters.

Fires in motor vehicles can produce toxic gases. Automobiles, trucks and other motor vehicles are made of many synthetic materials that emit harmful — if not deadly — gases when they burn. A main by-product of fires is carbon monoxide, an odorless, colorless, and tasteless gas that kills when present in high concentration.

A vehicle fire can generate heat upwards of 1,500°F. Keep in mind that water boils at 212°F, and that most foods are cooked at temperatures less than 500°F. Flames from burning vehicles can often shoot out distances of 10 feet or more.

Parts of the vehicle can burst because of heat, shooting debris great distances. Bumper and hatchback-door struts, two-piece tire rims, magnesium rims, drive shafts, grease seals, axles, and engine parts all can become lethal shrapnel.

Although a relatively rare happening, gas tanks of motor vehicles can rupture and spray flammable fuel, a serious hazard. In even more extraordinary instances, gas tanks have been known to explode. Hazardous materials such as battery acid can injure even without burning.

Vehicle fires are so dangerous that firefighters wear full protective, fire resistant equipment and self-contained breathing apparatus. Firefighters also have the ability to quickly put out vehicle fires with large amounts of water or other extinguishing agents. You don't have these advantages, so use Risk Management when deciding to fight a motor vehicle fire.

Here are some of the things you should do if your vehicle catches fire:

- Get yourself and all others out of and away from the vehicle. If it is in a garage or any other structure, exit immediately.
- After you are a safe distance away from the vehicle, call 911 or your local emergency-telephone number and report the location and type of fire.

- Remain away from the vehicle. Do not try to go back into a burning vehicle to retrieve belongings.
- Never put yourself in danger using a fire extinguisher. If you use a fire extinguisher, only do so from a safe distance and always have a means to get away.
- Use a fire extinguisher approved for class "B" and class "C" fires.
- Do not open the hood or trunk if you suspect a fire under it. Air could rush in, enlarging the fire.

Fires in tactical vehicles can be dangerous as well. Unlike POV fires, tactical vehicle fires require an approach that is a little different. There are a few standard procedures that should be addressed when dealing with tactical vehicle fires:

- Stop the vehicle immediately.
- Follow the egress procedures as outlined in the appropriate technical manual.
- Get the hand-held fire extinguisher before dismounting vehicle.
- Activate automatic fire suppression system, if applicable.
- Move a safe distance from vehicle.
- Account for all vehicle occupants.
- Attempt to extinguish fire if possible.

Remember that the safety of personnel is the first requirement when dealing with vehicle fires. Attempts to minimize property damage should be second priority.

To determine the emergency procedure for your specific equipment, refer to its technical manual or to the unit standing operating procedures (SOP). If the TM does not address egress procedures for fires, submit a *DA 2028-2 (Recommended Changes to Equipment Technical Publications)*, to the appropriate MACOM. In addition, the unit SOP should address egress procedures and how frequently they should be practiced. If your SOP does not address emergency procedures, address the issue to the chain-of-command.

One example of emergency procedures for a tactical vehicle fire can be found in the technical manual for the M1A2 Abrams Tank, *TM 9-2350-288-10-2*, change 4, dated February 1995, pages 2-894 through 2-899.

**-adapted from Safetyline Magazine**

# Risk management highway

## Force protection can be risky business

**T**he Commandant of Cadets at the United States Military Academy has implemented a new and innovative approach to educate young people on responsible attitudes toward alcohol consumption. In the development of the program, he also enlisted the assistance of the student-run Alcohol and Drug Dependency Intervention Council (ADDIC). The program places the responsibility for mature behavior directly onto the individual and takes steps to define what that responsibility entails. I believe this approach has a more universal application than just to the Corps of Cadets. It applies to an age group – an age group which contains officers, cadets, NCOs, soldiers, and civilians alike.

Studies show that alcohol is a factor in most serious incidents which involve young people. Alcohol consumption is the number one Force Protection issue facing young adults (18-25 year olds) in the peacetime Army. Irresponsible consumption of alcohol has a detrimental impact on the combat potential of the Force as it affects not only the individual, but also the cohesion and discipline of units. Abuse can have fatal to near-fatal consequences, ruin promising careers, reduce leader credibility, and create long-term health risks. We have also noted that the values of integrity and respect for others (known at West Point as Bedrock Values I and II) are most often violated by those with impaired judgment. All these things are frequently preached to our soldiers; however, we often find that some decide to gamble away their futures without taking steps to mitigate the risks inherent in alcohol consumption.

There also exists the problem of underage drinking. Many consider alcohol the “forbidden fruit,” and therefore are tempted to partake. Prevailing attitudes consider underage drinking as an OK thing to do, that it is nothing more than a mere “traffic ticket” type of offense, condoned with a nod and a wink by those of legal age who provided the alcohol to them. But the fact remains that underage drinking, as well as providing alcohol to minors, is against the law in all 50 States. And it is well-known that the legal

age of consumption is 21 years of age. Sure, there are exceptions which can be made on military installations; however, our lawmakers believe that the decision to drink requires greater maturity than it takes to get a driver’s license, join the Armed forces, or vote.

Attitudes are difficult to change, especially among energetic, invulnerable young people. The Commandant’s approach was to start with making cadets understand why people drink. I think you’ll be able to relate to most of the reasons listed below, but they do not provide sufficient rationale for irresponsible behavior.

- \* **Escapism** – medicate emotional pain; get smashed and blow off some steam

- \* **Relational** – meet people and possibly meet that “special someone”

- \* **Pleasure and Celebration** – catch a buzz; celebrate the birthday or achievement

- \* **Sociability** – be accepted as part of the in-crowd; reduce inhibitions

- \* **Tension Reduction** – relax; calm your nerves after a challenging day

After some research, we discovered that Army policies and regulations do not provide a concise definition of Responsible Drinking or an ethic by which soldiers are supposed to conduct themselves. There are some do’s and don’ts discussed; but mostly they discuss administrative and punitive actions to take once an alcohol-related incident occurs. Therefore, we developed the following as a definition of responsible drinking:

*A responsible relationship with alcohol is defined by a range of behaviors from abstinence on the one hand, to moderate consumption. Responsible drinking is the result of a conscious decision to consume alcohol under safe, legal, and authorized conditions wherein one maintains control over his or her own behavior.*

The next step was to define an Army ethic for responsible consumption. As a technique to shape cadet attitudes, we developed a program under the catch phrase “**RISKY BUSINESS**” to capture Army and societal norms concerning alcohol usage. The phrase serves as more than just catchy rhetoric as it emphasizes responsible behavior and recognizes that there is an element of risk inherent in a soldier’s decision to drink.

Therefore, in line with the Army's risk management program, we would expect cadets or soldiers to make a risk assessment and implement appropriate controls to ensure that consumption will be conducted under safe, legal, and authorized conditions, while maintaining control over their own behavior. Wallet-sized fold-over cards were produced and given to the cadets like the ones shown here, which highlight the salient points of the RISKY BUSINESS program. The cards also serve as an emergency data card so cadets can call someone as an alternative to turning an already risky situation into something entirely irresponsible, or worse . . . deadly.

Implementation was accomplished through a formal Chain Teaching methodology which highlights the development of a healthy relationship with alcohol. The classes were conducted by the cadet chain of command from the Brigade down to the Platoon level. We believed this was the most effective method because we wanted the cadets to accept ownership of the program from both the "living it" and enforcement perspective. After cadets received training, they signed briefing certificates which serve as an acknowledgment that they understand the State and local laws, Academy policies, and their own responsibilities regarding alcohol consumption. The statement is non-binding; but is similar to what we have soldiers do to acknowledge their responsibilities to safeguard sensitive information (in the case of security clearances) or physical security procedures (in the case of sensitive items such as weapons, NODs, etc.).

We believe that this approach will be successful in preparing future leaders to accept an officer's responsibilities of providing for the health, welfare, and training of subordinates. We also believe that this applies to a broad spectrum of people who might benefit by reflecting on the proposed ideas. And finally, we hope that this approach might plant a seed of caution that will resonate deep in a soldier's conscience if they tend toward any risky behavior.

**PROTECT THE FORCE !**

**POC: Robert W. Madden LTC, FA Regimental Tactical Officer, 4th Regiment, United States Corps of Cadets Work: (914) 938-2028/2826 Fax: (914) 938-7904**



*"DRINKING...MAKE A RESPONSIBLE CHOICE"*

*EMERGENCY NAMES AND NUMBERS*

CO ORDERELY ROOM# \_\_\_\_\_

CO CDR PHONE# \_\_\_\_\_

TAC NCO PHONE# \_\_\_\_\_

TAC PHONE# \_\_\_\_\_

CENTRAL GUARD ROOM: 938-2555/3030  
 KELLER ARMY HOSPITAL: 938-4004  
 MILITARY POLICE: 938-3333

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**RISKY BUSINESS**

THE DECISION TO DRINK IS...RISKY BUSINESS

*Regulations and laws govern your actions*

*If you drink, think ... don't drive*

*Soldiers don't drink in the field or on deployment*

*Know your limit; stop before reaching it*

*You can abstain and still have fun*

*Bedrock values! Violated most often by those impaired or drunk*

*Use the buddy system and have a designated driver*

*Subordinates don't make good drinking buddies*

*If you drink, do it as the result of a deliberate decision*

*Never assume duty in an impaired state*

*Emotion and stress should not be medicated with alcohol*

*Soldiers don't drink to get drunk*

*Stay in control; sober is safe*

*LEADERS MUST ASSESS RISKS AND TAKE APPROPRIATE ACTION*

# Safety messages

The Following is a list of all ground precautionary messages(GPM) and maintenance advisory messages (MAM) issued by Tank-automotive and Armaments Command (TACOM) and Communications and Electronics Command (CECOM) for 3QFY97.

## Tank-automotive and Armaments Command (TACOM)

### Ground Precautionary Messages (GPM):

- AMSTA-IM-O, 021613Z May 97, subject GPM Control No. 97-03, M1 Abrams tank (NSN 2350-01-087-2445, LIN T13374) and M1A1 Abrams tank (NSN 2350-01-087-1095, LIN T13168). POCs: Ms. Berniece Dubai, DSN 786-8215 (810-574-8215); Mr. Raj Patel, DSN 786-6267 (810-574-6267); Mr. Pete Gray, DSN 793-1176; Ms. Maxine McDonald, DSN 793-4810; or Mr. Russell McBride, DSN 970-3731 (407-384-3731).
- AMSTA-IM-O, 141503Z May 97, subject GPM Control No. 97-04, Raea door bracket, (NSN 5340-01-158-0825); for all M992 (NSN 2350-01-110-4660, LIN C10908); M992A1 (NSN 2350-01-352-3021, LIN C10908); and M992A2 (NSN 2350-01-368-9500, LIN C10908); POCs: Mr. Randy McCauley, DSN 786-5308 (810-574-5308) or Mr. Leroy Bauer, DSN 786-6230 (810-574-6230).

### Maintenance Advisory Messages (MAM):

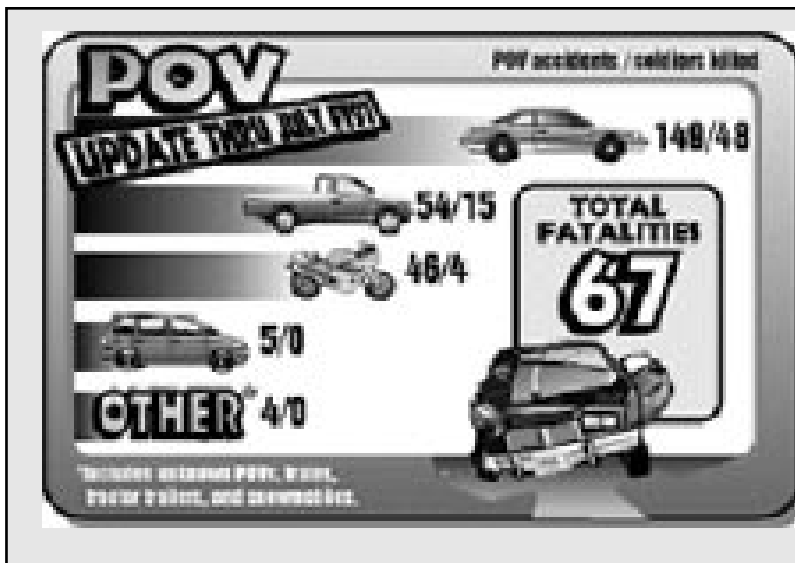
- AMSTA-IM-O, 221507Z Apr 97, subject: MAM Control No. MAM-97-005, Halon hand-held fire extinguishers on the Abrams family of vehicles (FOV), M1 (NSN 2350-01-061-2445, LIN T13374); IPM1 (NSN 2350-01-136-8730, LIN T13374); M1A1 (NSN 2350-01-087-1095, LIN T13168); M1A2 (NSN 2350-01-328-5964, LIN T13305); POCs: Mr. Art Drake, DSN 786-7389 (810-574-7389); Mr. J.

Wharton, DSN 327-7447 (703-607-7447); Mr. Ted Bozeman, DSN 367-5605 (404-464-5605) or Ms. Audrey Studevant, DSN 695-3756 (804-279-3756).

- AMSTA-IM-O, 051754Z May 97, subject: MAM Control No. MAM-97-006, Abrams FOV, M1 (NSN 2350-01-061-2445, LIN T13374); IPM1 (NSN 2350-01-136-8730, LIN T13374); M1A1 (NSN 2350-01-087-1095, LIN T13168); M1A2 (NSN 2350-01-328-5964, LIN T13305); POCs: Ms. Berniece Dubai, DSN 786-8215 (810-574-8215); Mr. Brad Voss, DSN 786-6049 (810-574-6049); or Mr. Tim Milanov, DSN 786-7895 (810-574-7895).
- AMSTA-IM-O, 052009Z Jun 97, Subject: MAM Control No. MAM-97-007, 2½ Ton parking brake preventive maintenance checks and service (PMCS) check, for 2½ ton tactical vehicles:POCs: Mr. Allan Lundie, DSN 786-6523 (810-574-6523) or Ms. Alice Maksymowicz, DSN 786-8501 (810-574-8501).

## Communications and Electronics Command Ground Precautionary Messages (GPM):

- AMSEL-SF-SEP, Subject: GPM (GPM-97-007), All equipment utilizing two or more BA-5590/U Lithium Sulfur Dioxide batteries, POC: Mr. Dave Kiernan, DSN 992-0084, ext. 6447.
- AMSEL-SF-SEC, Subject: GPM (GPM-97-008), Electronic shop AN/ASM-189 (LIN H01855) and AN/ASM-190 (LIN H01857), POC Mr. Wil Vega, DSN 992-0084, ext. 6407.
- AMSEL-SF-SEP, Subject: GPM (GPM-97-009), BA-5112/U battery, nonrechargeable, (NSN 6135-01-235-4168), POC Mr. Philip Klimek, DSN 992-0084, ext. 6437.
- AMSEL-SF-SEP, Subject: GPM (GPM-97-010), Ungrounded Motorola MMT-1500 (STU III) W/DNVT Module, (NSN 5810-01-408-0224), POC Mr. Joe Cocco, DSN 992-3112, ext. 6436 ♦



Report of Army ground accidents; published by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident prevention purposes only. 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). Address questions about distribution to DSN 558-2062 (334-255-2062).

Burt S. Tackaberry  
Brigadier General, USA  
Commanding



ARMY GROUND RISK-MANAGEMENT PUBLICATION

# COUNTERMEASURE

VOL 18 NO 9

<http://safety.army.mil>

SEPTEMBER 1997



## Convoys

**I**n the past 2 years, 84 Army Motor Vehicle (AMV) accidents involving convoys have been reported to the U.S. Army Safety Center. These accidents have resulted in 13 fatalities and 83 injuries with a cost to the Army of \$4.6 million. Although this is significantly lower than 3 years ago, human-performance errors have increased. In July of 1996, Countermeasure reported, in an article titled Convoy, the top three accident causes as speeding, following too close (improper interval), and fatigue, in order of frequency. This year following too close has jumped to the top of the list.

To protect yourself, monitor the space that is around the vehicle. When things go wrong, this space provides time to think and act. You have to manage this space if you expect to have it when something goes wrong. This is especially true when operating large vehicles. They need more room and require more space for stopping and turning.

## Risk management pointer

**B**ase your interval on the largest vehicle in the convoy. If your convoy composition never changes, then you can integrate a standard interval and speed into unit SOPs. There are always exceptions and leaders need to know when and if adjustments are needed. **Prior Planning Prevents Poor Performance.** ♦

Of significant importance is the area in front of your vehicle—the space you are entering. You must maintain enough space to stop in the event the vehicle in front of you stops suddenly. Misjudging that distance can lead to a “following too close” accident. Remember, smaller

vehicles can stop

faster than larger vehicles. For more information on managing space, see *TC 21-305, (Training Program for Wheeled Vehicle Accident Avoidance)* and *FM 21-305 (Manual for the Wheeled Vehicle Operator)*.

**How much space should I keep in front of me?** At speeds below 40 MPH, keep at least 1 second for each 10 feet of vehicle length. For vehicles less than 20 feet 2 seconds is the minimum safe distance. Add one second for each 10 MPH increment over 40 MPH. For example, if you are driving at a speed below 40 MPH in a 40-foot vehicle, you should have 4 seconds between you and the vehicle ahead; in a 60-foot vehicle, 6 seconds. If the 40-foot vehicle is moving at 50 MPH, then it requires 5 seconds; for a 60-foot vehicle, traveling at 50 MPH, 7 seconds. (See poster on Safe Distances in this issue) ref; *FM 21-305, (Manual For The Wheeled Vehicle Driver)*, Chapter 24 page 24-1. See also the newly revised *FM 55-30 (Army Motor Transport Units and*

*Operations)* dated 27 June 1997 for more information on control, organization and planning a convoy operation.

Chapter 5 of *FM 55-30, (Convoy Control, Organization, and Planning)* will aid commanders and leaders in identifying and completing all of the tasks required to control, organize, and plan a convoy movement.

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**T**he convoy commander or his designated representative will ensure that—

- Drivers are aware of any restrictions required by special permits(hazardous cargo permits, special hauling permits, etc.) prior to the convoy movement.
  - Drivers and assistant drivers possess valid OF-346(U.S. Government Motor Vehicle Operator’s Identification Card).
  - Radio checks are completed.
  - SOI’s are issued.
  - Each vehicle has a strip map.
  - A safety briefing is given to all participants.
  - Convoy and catch-up speeds have been briefed.
  - Intervals have been discussed.
  - Safety equipment(Rotating Amber Warning Lights, first aid kits, and warning triangles) is present for each vehicle IAW AR385-55.
  - Convoy signs are placed on the lead and trail vehicles.
  - Rest halt locations have been identified.
  - Hazards or threats have been identified along the route.
  - Required security measures are implemented.
  - Break down procedures are understood.
- \*This list is not all inclusive; units may have additional requirements.**

driver and both passengers. The driver sustained only minor injuries; however, both passengers were fatally injured.

### **RISK MANAGEMENT FAILURES:**

- The convoy commander failed to adequately plan the convoy operation. Hazards and controls were not identified and a briefing was not conducted.
- The convoy commander did not supervise and control the convoy.
- The driver was not properly trained on the vehicle.
- None of the vehicle occupants were wearing seatbelts.

The driver was not aware of the 40 MPH speed restriction for the M939 series vehicles.

The convoy commander did not establish and enforce a maximum safe operating speed that accommodated the maximum speed limit of the M939 series 5-ton vehicles that were in the convoy.

### **CONTROLS:**

Commanders should ensure that the risk-management process is applied to all convoy operations and that convoy commanders are carefully selected and thoroughly briefed on their duties and responsibilities; see *FM 55-*

*30(Army Motor Transport Units and Operations), and FM 21-305 (Manual for the Wheeled Vehicle Operator).*

### **CONVOY COMMANDERS WILL:**

- Have knowledge of all restrictions required by Ground Precautionary Messages, Safety of Use Messages, Safety Alert Messages, etc., for vehicles in the convoy, for example: *TACOM GPM 96-04*, which limits the M939 Series vehicles to 40 MPH. (GPM's and SOUM's can now be found on the Internet at <http://www-ssn.ria.army.mil>)
- Ensure that special attention is placed on seatbelt use and that speed restrictions are briefed.
- Ensure troops are briefed on convoy speed, catch-up speed, following distance, etc.
- Ensure all drivers are properly licensed on vehicles.
- Ensure control is established and maintained within the convoy until mission is complete.

A convoy checklist such as the one shown on the poster in this publication, will assist the convoy commanders planning and execution.

**POC: SFC John Dawson, Transportation NCO, DSN 558-2933 (334-255-2933), Force Projection Branch**



This M923A2 5-ton overturned while attempting to negotiate a curve at 45 MPH. The two passengers were killed.

# SAFE DISTANCES TO MAINTAIN WHEN DRIVING AMVs AT 40 AND 50 MILES PER HOUR

(NOT TO SCALE: DISTANCES BETWEEN VEHICLES ARE MUCH GREATER THAN THEY APPEAR)

**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



**40 MPH**



**50 MPH**



This diagram represents only the minimum safe following distances. Environmental conditions and vehicle payload greatly impacts following distances. Refer to FM 21-305, FM 55-15, and appropriate TCs and TMs for guidance on individual vehicles.

NOTE: The minimum safe following distance for any vehicle is 2 seconds.

# Convoy Checklist

**ARs 55-29,385-55, and 600-55 and FMs 21-305,21-306, and 55-30 provide guidance in convoy operations. In addition, use the checklist below to manage the risks associated with convoy operations.**

- 1. Do tactical vehicle drivers have a valid Government Motor Vehicle Operator's Identification Card, Optional Form (OF) 346?
- 2. Have drivers been trained to drive in adverse weather (ice, snow, fog, rain) and difficult terrain? Blackout drive? NVGs?
- 3. Are convoy drivers provided 8 consecutive hours rest for each 10 continuous hours of driving a tactical vehicle within a 24-hour time period?
- 4. Do convoy commanders brief all drivers' assistant drivers, and senior occupants prior to the march on hazardous areas or conditions to be encountered (e.g., safe following distances, proper speed, route rest periods, and signals)?
- 5. Do drivers keep proper distances between vehicles?
- 6. Do drivers reduce speed during conditions of reduced visibility and adverse weather?
- 7. Do drivers perform before-, during-, and after-operation preventive maintenance?
- 8. Do drivers know the meaning of traffic-control signs, signals, devices, and markings used by civilian and military police?
- 9. Do all drivers know route?
- 10. Are vehicle basic-issue items, pioneer tools, highway warning devices, and fire extinguishers present on every wheeled convoy vehicle?
- 11. Are drivers of bulk-fuel transporters instructed on emergency procedures for fuel leaks?
- 12. Are vehicles that transport hazardous materials or dangerous cargo (e.g., ammunition, gasoline, flammable liquids)-
  - a. Appropriately posted with placards and loaded to meet hazard classification and compatibility requirements?
  - b. Inspected using DA Form 626: Motor Vehicle Inspection?
  - c. Equipped with two fire extinguishers appropriate for the cargo?
- 13. Are ammunition and POL cargo transported separately?
- 14. Do vehicles carrying hazardous cargo have assistant drivers?
- 15. When operating on paved roads, are radio whip antennas tied down to not less than 7 feet from the ground and antenna tips covered with protective balls?
- 16. Are service drive lights used at all times on paved public roads (blackout drive prohibited)?
- 17. When transporting personnel, do drivers-
  - a. Walk to rear of the vehicle before starting to secure the tailgate and safety strap and ensure all passengers are seated?
  - b. Adjust the tarpaulin to ensure proper ventilation (i.e., lash down the tarpaulin and front curtain in adverse weather, roll tarpaulin and secure at bar top in good weather)?
  - c. Secure baggage and other loads safely and not in the way of passengers?
  - d. Prohibit personnel from riding on outside of wheeled and tracked vehicles?
  - e. Ensure that all occupants use restraint systems when available?
- 18. Is the rear vehicle the largest and a nonpassenger-carrying vehicle?
- 19. Are ground guides used IAW AR385-55, FM 21-305 & unit SOPs?
- 20. Are rotating and flashing amber lights and convoy flags used on the first and last vehicles in the convoy?
- 21. Are vehicles marked in accordance with AR 385-55 and FM 50-30?

# What you need to know if your car catches fire

**W**hen people talk about the problem of fires in the United States, they are usually referring to fires in buildings. They probably don't realize that one of every five fires involves a motor vehicle, and that one out of eight fire fatalities, occur in motor vehicles. According to the United States Fire Administration, 600 people are killed in car fires each year. Also 3,800 people are injured — 1,200 of those are firefighters.

Fires in motor vehicles can produce toxic gases. Automobiles, trucks and other motor vehicles are made of many synthetic materials that emit harmful — if not deadly — gases when they burn. A main by-product of fires is carbon monoxide, an odorless, colorless, and tasteless gas that kills when present in high concentration.

A vehicle fire can generate heat upwards of 1,500°F. Keep in mind that water boils at 212°F, and that most foods are cooked at temperatures less than 500°F. Flames from burning vehicles can often shoot out distances of 10 feet or more.

Parts of the vehicle can burst because of heat, shooting debris great distances. Bumper and hatchback-door struts, two-piece tire rims, magnesium rims, drive shafts, grease seals, axles, and engine parts all can become lethal shrapnel.

Although a relatively rare happening, gas tanks of motor vehicles can rupture and spray flammable fuel, a serious hazard. In even more extraordinary instances, gas tanks have been known to explode. Hazardous materials such as battery acid can injure even without burning.

Vehicle fires are so dangerous that firefighters wear full protective, fire resistant equipment and self-contained breathing apparatus. Firefighters also have the ability to quickly put out vehicle fires with large amounts of water or other extinguishing agents. You don't have these advantages, so use Risk Management when deciding to fight a motor vehicle fire.

Here are some of the things you should do if your vehicle catches fire:

- Get yourself and all others out of and away from the vehicle. If it is in a garage or any other structure, exit immediately.
- After you are a safe distance away from the vehicle, call 911 or your local emergency-telephone number and report the location and type of fire.

- Remain away from the vehicle. Do not try to go back into a burning vehicle to retrieve belongings.

- Never put yourself in danger using a fire extinguisher. If you use a fire extinguisher, only do so from a safe distance and always have a means to get away.

- Use a fire extinguisher approved for class "B" and class "C" fires.

- Do not open the hood or trunk if you suspect a fire under it. Air could rush in, enlarging the fire.

Fires in tactical vehicles can be dangerous as well. Unlike POV fires, tactical vehicle fires require an approach that is a little different. There are a few standard procedures that should be addressed when dealing with tactical vehicle fires:

- Stop the vehicle immediately.

- Follow the egress procedures as outlined in the appropriate technical manual.

- Get the hand-held fire extinguisher before dismounting vehicle.

- Activate automatic fire suppression system, if applicable.

- Move a safe distance from vehicle.

- Account for all vehicle occupants.

- Attempt to extinguish fire if possible.

Remember that the safety of personnel is the first requirement when dealing with vehicle fires. Attempts to minimize property damage should be second priority.

To determine the emergency procedure for your specific equipment, refer to its technical manual or to the unit standing operating procedures (SOP). If the TM does not address egress procedures for fires, submit a *DA 2028-2 (Recommended Changes to Equipment Technical Publications)*, to the appropriate MACOM. In addition, the unit SOP should address egress procedures and how frequently they should be practiced. If your SOP does not address emergency procedures, address the issue to the chain-of-command.

One example of emergency procedures for a tactical vehicle fire can be found in the technical manual for the M1A2 Abrams Tank, *TM 9-2350-288-10-2*, change 4, dated February 1995, pages 2-894 through 2-899.

**-adapted from Safetyline Magazine**

# Risk management highway

## Force protection can be risky business

**T**he Commandant of Cadets at the United States Military Academy has implemented a new and innovative approach to educate young people on responsible attitudes toward alcohol consumption. In the development of the program, he also enlisted the assistance of the student-run Alcohol and Drug Dependency Intervention Council (ADDIC). The program places the responsibility for mature behavior directly onto the individual and takes steps to define what that responsibility entails. I believe this approach has a more universal application than just to the Corps of Cadets. It applies to an age group—an age group which contains officers, cadets, NCOs, soldiers, and civilians alike.

Studies show that alcohol is a factor in most serious incidents which involve young people. Alcohol consumption is the number one Force Protection issue facing young adults (18-25 year olds) in the peacetime Army. Irresponsible consumption of alcohol has a detrimental impact on the combat potential of the Force as it affects not only the individual, but also the cohesion and discipline of units. Abuse can have fatal to near-fatal consequences, ruin promising careers, reduce leader credibility, and create long-term health risks. We have also noted that the values of integrity and respect for others (known at West Point as Bedrock Values I and II) are most often violated by those with impaired judgment. All these things are frequently preached to our soldiers; however, we often find that some decide to gamble away their futures without taking steps to mitigate the risks inherent in alcohol consumption.

There also exists the problem of underage drinking. Many consider alcohol the “forbidden fruit,” and therefore are tempted to partake. Prevailing attitudes consider underage drinking as an OK thing to do, that it is nothing more than a mere “traffic ticket” type of offense, condoned with a nod and a wink by those of legal age who provided the alcohol to them. But the fact remains that underage drinking, as well as providing alcohol to minors, is against the law in all 50 States. And it is well-known that the legal

age of consumption is 21 years of age. Sure, there are exceptions which can be made on military installations; however, our lawmakers believe that the decision to drink requires greater maturity than it takes to get a driver’s license, join the Armed forces, or vote.

Attitudes are difficult to change, especially among energetic, invulnerable young people. The Commandant’s approach was to start with making cadets understand why people drink. I think you’ll be able to relate to most of the reasons listed below, but they do not provide sufficient rationale for irresponsible behavior.

- \* **Escapism** — medicate emotional pain; get smashed and blow off some steam

- \* **Relational** — meet people and possibly meet that “special someone”

- \* **Pleasure and Celebration** — catch a buzz; celebrate the birthday or achievement

- \* **Sociability** — be accepted as part of the in-crowd; reduce inhibitions

- \* **Tension Reduction** — relax; calm your nerves after a challenging day

After some research, we discovered that Army policies and regulations do not provide a concise definition of Responsible Drinking or an ethic by which soldiers are supposed to conduct themselves. There are some do’s and don’ts discussed; but mostly they discuss administrative and punitive actions to take once an alcohol-related incident occurs. Therefore, we developed the following as a definition of responsible drinking:

*A responsible relationship with alcohol is defined by a range of behaviors from abstinence on the one hand, to moderate consumption. Responsible drinking is the result of a conscious decision to consume alcohol under safe, legal, and authorized conditions wherein one maintains control over his or her own behavior.*

The next step was to define an Army ethic for responsible consumption. As a technique to shape cadet attitudes, we developed a program under the catch phrase “**RISKY BUSINESS**” to capture Army and societal norms concerning alcohol usage. The phrase serves as more than just catchy rhetoric as it emphasizes responsible behavior and recognizes that there is an element of risk inherent in a soldier’s decision to drink.



Therefore, in line with the Army's risk management program, we would expect cadets or soldiers to make a risk assessment and implement appropriate controls to ensure that consumption will be conducted under safe, legal, and authorized conditions, while maintaining control over their own behavior. Wallet-sized fold-over cards were produced and given to the cadets like the ones shown here, which highlight the salient points of the RISKY BUSINESS program. The cards also serve as an emergency data card so cadets can call someone as an alternative to turning an already risky situation into something entirely irresponsible, or worse . . . deadly.

Implementation was accomplished through a formal Chain Teaching methodology which highlights the development of a healthy relationship with alcohol. The classes were conducted by the cadet chain of command from the Brigade down to the Platoon level. We believed this was the most effective method because we wanted the cadets to accept ownership of the program from both the "living it" and enforcement perspective. After cadets received training, they signed briefing certificates which serve as an acknowledgment that they understand the State and local laws, Academy policies, and their own responsibilities regarding alcohol consumption. The statement is non-binding; but is similar to what we have soldiers do to acknowledge their responsibilities to safeguard sensitive information (in the case of security clearances) or physical security procedures (in the case of sensitive items such as weapons, NODs, etc.).

We believe that this approach will be successful in preparing future leaders to accept an officer's responsibilities of providing for the health, welfare, and training of subordinates. We also believe that this applies to a broad spectrum of people who might benefit by reflecting on the proposed ideas. And finally, we hope that this approach might plant a seed of caution that will resonate deep in a soldier's conscience if they tend toward any risky behavior.

### **PROTECT THE FORCE !**

**POC: Robert W. Madden LTC, FA Regimental Tactical Officer, 4th Regiment, United States Corps of Cadets Work: (914) 938-2028/2826 Fax: (914) 938-7904**



**"DRINKING...MAKE A RESPONSIBLE CHOICE"**

### **EMERGENCY NAMES AND NUMBERS**

CO ORDERELY ROOM# \_\_\_\_\_

CO CDR PHONE# \_\_\_\_\_

TAC NCO PHONE# \_\_\_\_\_

TAC PHONE# \_\_\_\_\_

**CENTRAL GUARD ROOM: 938-2555/3030**

**KELLER ARMY HOSPITAL: 938-4004**

**MILITARY POLICE: 938-3333**



## **RISKY BUSINESS**



### **THE DECISION TO DRINK IS...RISKY BUSINESS**

**Regulations and laws govern your actions**

**If you drink, think ... don't drive**

**Soldiers don't drink in the field or on deployment**

**Know your limit; stop before reaching it**

**You can abstain and still have fun**

**Bedrock values! Violated most often by those impaired or drunk**

**Use the buddy system and have a designated driver**

**Subordinates don't make good drinking buddies**

**If you drink, do it as the result of a deliberate decision**

**Never assume duty in an impaired state**

**Emotion and stress should not be medicated with alcohol**

**Soldiers don't drink to get drunk**

**Stay in control; sober is safe**

**LEADERS MUST ASSESS RISKS AND TAKE APPROPRIATE ACTION**

# Safety messages

The Following is a list of all ground precautionary messages(GPM) and maintenance advisory messages (MAM) issued by Tank-automotive and Armaments Command (TACOM) and Communications and Electronics Command (CECOM) for 3QFY97.

## Tank-automotive and Armaments Command (TACOM)

### Ground Precautionary Messages (GPM):

- AMSTA-IM-O, 021613Z May 97, subject GPM Control No. 97-03, M1 Abrams tank (NSN 2350-01-087-2445, LIN T13374) and M1A1 Abrams tank (NSN 2350-01-087-1095, LIN T13168). POCs: Ms. Berniece Dubai, DSN 786-8215 (810-574-8215); Mr. Raj Patel, DSN 786-6267 (810-574-6267); Mr. Pete Gray, DSN 793-1176; Ms. Maxine McDonald, DSN 793-4810; or Mr. Russell McBride, DSN 970-3731 (407-384-3731).
- AMSTA-IM-O, 141503Z May 97, subject GPM Control No. 97-04, Raea door bracket, (NSN 5340-01-158-0825); for all M992 (NSN 2350-01-110-4660, LIN C10908); M992A1 (NSN 2350-01-352-3021, LIN C10908); and M992A2 (NSN 2350-01-368-9500, LIN C10908); POCs: Mr. Randy McCauley, DSN 786-5308 (810-574-5308) or Mr. Leroy Bauer, DSN 786-6230 (810-574-6230).

### Maintenance Advisory Messages (MAM):

- AMSTA-IM-O, 221507Z Apr 97, subject: MAM Control No. MAM-97-005, Halon hand-held fire extinguishers on the Abrams family of vehicles (FOV), M1 (NSN 2350-01-061-2445, LIN T13374); IPM1 (NSN 2350-01-136-8730, LIN T13374); M1A1 (NSN 2350-01-087-1095, LIN T13168); M1A2 (NSN 2350-01-328-5964, LIN T13305); POCs: Mr. Art Drake, DSN 786-7389 (810-574-7389); Mr. J.

Wharton, DSN 327-7447 (703-607-7447); Mr. Ted Bozeman, DSN 367-5605 (404-464-5605) or Ms. Audrey Studevart, DSN 695-3756 (804-279-3756).

- AMSTA-IM-O, 051754Z May 97, subject: MAM Control No. MAM-97-006, Abrams FOV, M1 (NSN 2350-01-061-2445, LIN T13374); IPM1 (NSN 2350-01-136-8730, LIN T13374); M1A1 (NSN 2350-01-087-1095, LIN T13168); M1A2 (NSN 2350-01-328-5964, LIN T13305); POCs: Ms. Berniece Dubai, DSN 786-8215 (810-574-8215); Mr. Brad Voss, DSN 786-6049 (810-574-6049); or Mr. Tim Milanov, DSN 786-7895 (810-574-7895).

- AMSTA-IM-O, 052009Z Jun 97, Subject: MAM Control No. MAM-97-007, 2½ Ton parking brake preventive maintenance checks and service (PMCS) check, for 2½ ton tactical vehicles:POCs: Mr. Allan Lundie, DSN 786-6523 (810-574-6523) or Ms. Alice Maksymowicz, DSN 786-8501 (810-574-8501).

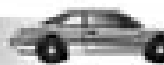
## Communications and Electronics Command Ground Precautionary Messages (GPM):

- AMSEL-SF-SEP, Subject: GPM (GPM-97-007), All equipment utilizing two or more BA-5590/U Lithium Sulfur Dioxide batteries, POC: Mr. Dave Kiernan, DSN 992-0084, ext. 6447.
- AMSEL-SF-SEC, Subject: GPM (GPM-97-008), Electronic shop AN/ASM-189 (LIN H01855) and AN/ASM-190 (LIN H01857), POC Mr. Wil Vega, DSN 992-0084, ext. 6407.
- AMSEL-SF-SEP, Subject: GPM (GPM-97-009), BA-5112/U battery, nonrechargeable, (NSN 6135-01-235-4168), POC Mr. Philip Klimek, DSN 992-0084, ext. 6437.
- AMSEL-SF-SEP, Subject: GPM (GPM-97-010), Ungrounded Motorola MMT-1500 (STU III) W/DNVT Module, (NSN 5810-01-408-0224), POC Mr. Joe Cocco, DSN 992-3112, ext. 6436 ♦


# POV

UPDATE FROM MAY 1997


POV accidents / soldiers killed




148/48



54/15



46/4




5/0

OTHER


4/0

TOTAL FATALITIES

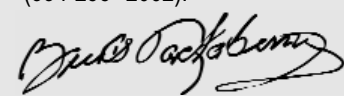
# 67



\*includes military POV, buses, tractor trailers, and aircraft etc.



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Burt S. Tackaberry  
Brigadier General, USA  
Commanding

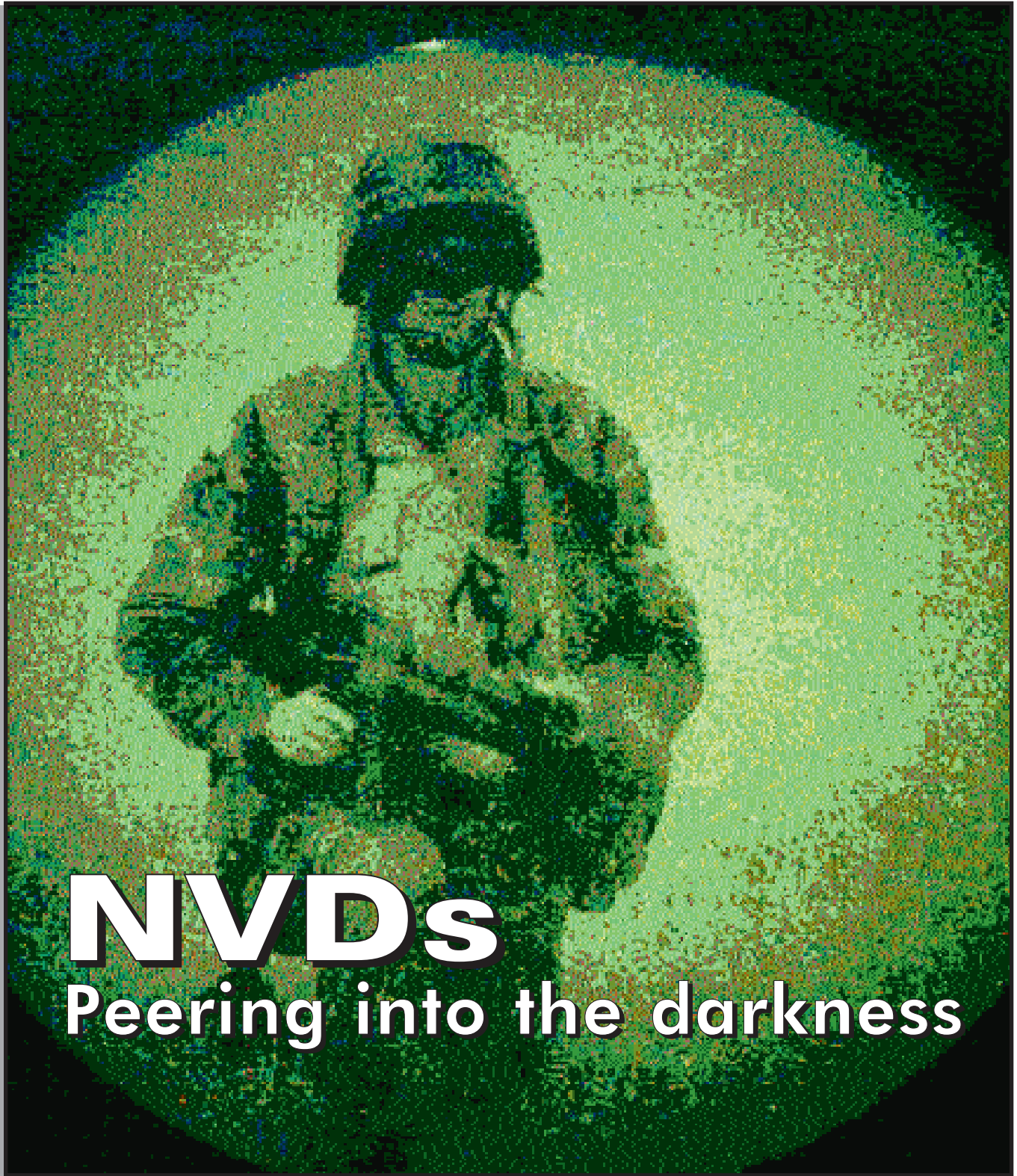
ARMY GROUND RISK-MANAGEMENT PUBLICATION

# COUNTERMEASURE

VOL 18 NO 10

<http://safety.army.mil>

OCTOBER 1997



# NVDs

Peering into the darkness

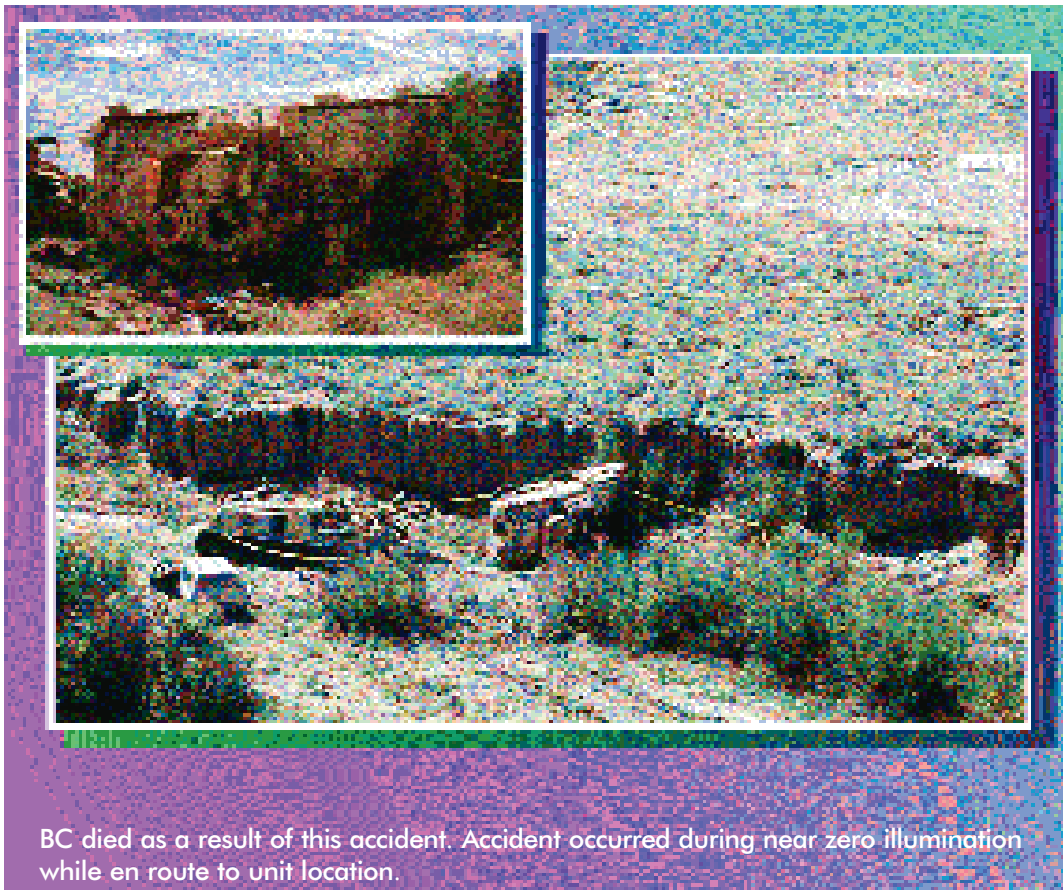
# BC dies in night operation accident

**T**wo soldiers operating an M3A2, Cavalry Fighting Vehicle(CFV), encountered catastrophe while en route from a Unit Maintenance Collection Point(UMCP) back to their troop assembly area.

The gunner acting as the Bradley Commander(BC) and the assigned driver were escorted from the UMCP by a HMMWV at approximately 2000 hours. The BC used the AN/PVS 7-B Night Vision Goggles(NVG) and the driver was using the AN/VVS-2, Driver's Night Vision Viewer(DNVV). Visibility was limited by the near zero illumination that night. The blackout drive headlights were not used to assist in movement because it was not consistent with unit SOP.

As the two vehicles turned off onto a tank trail, the HMMWV encountered a mud hole. The NCOIC decided to return to the MSR and wait until daylight to continue. As he drove past the CFV he shouted (in the dark, over the engine noise of both vehicles and through the CVC helmet) for the BC to turn around and follow him to the MSR. The NCOIC returned to the MSR, allowing the CFV operated by two Specialists to continue on by itself to the Assembly Area. When they arrived at the Assembly Area the Troop was no longer there. The BC called the Platoon Leader(PLT LDR) for new instructions. The PLT LDR told him to go to the Troop Operations Center(TOC). He also warned him of an arroyo that was near the TOC. The BC

did not have a map so he could not ascertain the exact location of the hazard in relation to his path to the TOC. The BC radioed the TOC OIC for the grid coordinates. The OIC suggested to the BC that "his best bet was to go to ground" due to the visibility and the arroyo to the north of the TOC. The BC continued towards the TOC aided by the NVG and the DNVV. One hour later the CFV drove over a 14 foot cliff(arroyo), landing on its turret and killing the BC.



■ The AN/VVS-2, Driver's Night Vision Viewer(DNVV) for track vehicles, is a second generation night device which is not very effective for detailing differences in terrain, especially depth perception.

The AN/VVS-2 is a passive night vision imaging device that uses an image intensification tube similar to the night vision goggles (NODs). Like the NODs, the VVS-2s amplify ambient illumination and present an image of the viewed scene. These night vision devices are terrific combat multipliers and, when operators are properly trained and the device limitations are planned for, make night operations more effective, easier and safer.

Several other accidents involving VVS-2s have revealed some consistent problem areas that leaders, planners, and users can easily and quickly resolve.

The use of the VVS-2 by the vehicle driver, combined with the vehicle commanders AN/PVS-7's is an effective combination when

both devices are optimized. The proper use of this combination can reduce the mission risk level. To optimize these devices, operators must ensure all pre-operational checks are completed.

In the case of the VVS-2, operators must ensure the mirrors or prisms and the eyepieces are clean. In addition to preventive maintenance checks and services (PMCS), operators should pay close attention to the *Operating procedures listed in paragraph 2-5 of TM 11-5855-249-10, Driver's Night Vision Viewer Operator's Manual*. This paragraph is very often overlooked by users but is key in optimizing the device.

When adjusting the brightness of the device, users must consider two very important elements:

■ Ensure that the brightness is set using a target that is 50 feet away. If the target cannot be clearly seen at 50 feet, notify unit maintenance so the VVS-2 can be properly adjusted.

■ Use a high contrast target, the best is NSN 5855-01-027-1567, listed in the AN/VVAS-2 technical manual. Too much brightness can wash out detail, and too little brightness can make the overall scene too dark.

AN/PVS-7 operators should go through the *focusing procedure* listed in *the operator's manual*. When focusing

the NVGs, be sure to also focus on a high contrast target. (See Feb 96

Countermeasure article "Less is More" with NVGs.)

Normally, when using the PVS-7s on vehicles, the goggles objective lens should be focused at infinity or all the way to the clockwise stop. The eyepieces should be focused for individual acuity but should always be "plused up". To "plus up" the PVS-7s, make the basic focus adjustments, then take the individual diopter

or eyepiece rings and slowly turn them counterclockwise. If the image instantly gets fuzzy, stop and go back to the original setting. If the image stays clear, continue counterclockwise until it gets fuzzy and then re-adjust clockwise until the image is clear. (When operators "over minus" the eyepiece or diopter ring, the eye muscles accommodate and the scene is seen clearly. However, the muscles can become tired after a while and cause eye strain and headaches.)

When operating with both the VVS-2 and PVS-7, operators should recognize two not-so-obvious issues:

■ All VVS-2s are second generation image intensifiers. Resolution or how well you can see with them will normally be poorer than with the PVS-7s

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**Night vision devices are terrific combat multipliers and, when operators are properly trained, make night operations more effective, easier and safer.**

---

regardless of the generation of tube in the NVG. PVS-7 users will be able to see things clearer and should not assume the driver using the VVS-2 can see the same things. The majority of PVS-7s have third-generation tubes in them. Leaders should identify the PVS-7s that have third generation tubes in them by using the TS-4348 so they can be used on the darker nights. A smaller target can be discerned with the third generation NVG. (Presently, there is not a program to upgrade the VVS-2 with newer generation tubes. The long term fix is to field the Driver's Vision Enhancement [DVE], a thermal imaging system).

■ When using these systems together, there are different viewing angles for each of the systems. Because the VVS-2 is located lower on the vehicle than the TC's head, the driver has a flatter viewing angle, which will hide some obstacles the TC can see using the PVS-7s. The fact that the TC can see things that the driver cannot makes crew coordination important when these two devices are used together.

Many TCs use the PVS-7s like binoculars rather than mounting the NODs because of the difficulty of moving up and down in the cupola. When the PVS-7s are used like binoculars, TCs should know that when they first remove the NODs from their face, their eyes are not fully dark adapted. It will take 2 to 3 minutes for their vision to fully adapt every time they remove the goggles. This will reduce the TC's ability to see at night.

There are times when there is not enough light for the devices to work well without supplemental lights. The use of low-intensity lights like black out drive and black out marker lights can make large improvements in the device's resolution. If the tactical situation limits the use of blackout drive lights, commander's should consider the use of ground guides to reduce the risk when dangerous terrain or obstacles are present in the area. Commanders should make a Risk Assessment to determine if ground guides or other controls are necessary to reduce the risk

of a tragedy like the one described above.

An important point leaders should consider is that operator training is key to the safe, effective use of the NVDs. Not only should the basic night vision training be thorough and detailed, leaders must know that NVD proficiency is highly perishable. The unit training program should include time to update training on this equipment. Just because a driver used the VVS-2 during the last NTC rotation does not mean the driver can do the same missions six months later without refresher training.

Commanders must ensure that they have



A soldier uses a special light designated for Night Vision use to locate equipment. This type of lighting devices are essential on nights when the illumination levels are very low and NVD operations could not occur.

a driver's night training program that familiarizes drivers with how to check all night vision devices to ensure they are operating within required parameters. Drivers must become very familiar with the -10 for the VVS-2s. It explains in detail how to ensure that the sight is functioning properly. Sight must also be serviced at the required interval and documented.

In the accident described several other control measures could have been implemented which may have reduced the severity of the accident or eliminated it completely.

- The BC was standing out of the hatch at waist level. This may not have allowed the BC sufficient time to get into the turret when the vehicle started to fall. Had the BC been at name tag defilade he may have made it into the turret. Although not doctrine in the Bradley community, commanders should consider enforcing name tag defilade when conducting operations.

- The M3A2 crew was not using the blackout drive headlight to supplement the near zero illumination. Policy was that scout vehicles don't use the blackout drive headlight. If visibility is low and the tactical situation restricts the use of black out drive then a ground guide should have been used.

- The BC did not have a map to assist in the identification of terrain features. He was solely relying on the plugger for navigation.

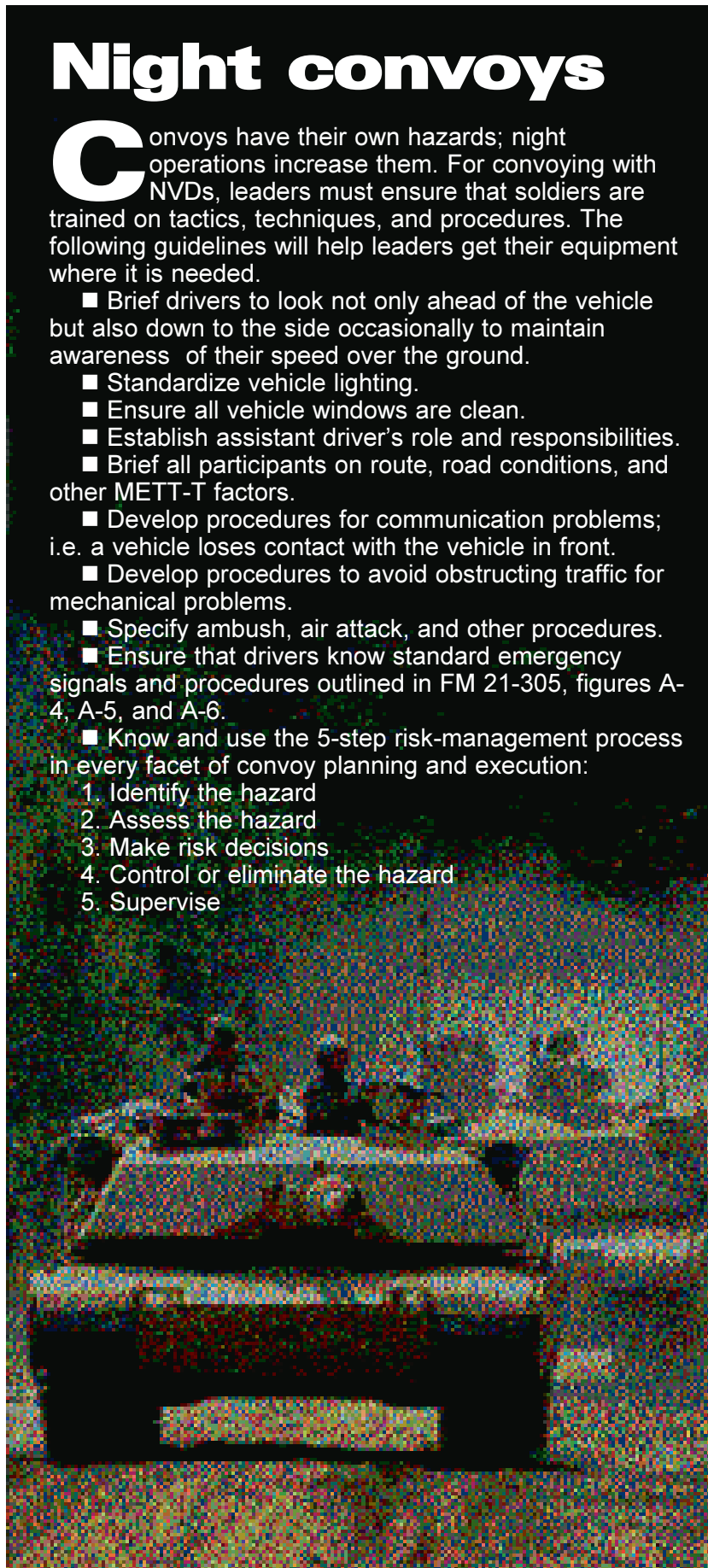
The identification of hazards and the implementation of effective controls if properly supervised will prevent the needless loss of a soldier's life. The breakdown in this accident was not in identifying the hazard but in implementing and supervising the controls which were available.

**POC: LTC Pete Simmons for the accident, DSN 558-2926 and CW5 Bobby Brooks for night vision, DSN 558-2845.**

# Night convoys

**C**onvoys have their own hazards; night operations increase them. For convoying with NVDs, leaders must ensure that soldiers are trained on tactics, techniques, and procedures. The following guidelines will help leaders get their equipment where it is needed.

- Brief drivers to look not only ahead of the vehicle but also down to the side occasionally to maintain awareness of their speed over the ground.
- Standardize vehicle lighting.
- Ensure all vehicle windows are clean.
- Establish assistant driver's role and responsibilities.
- Brief all participants on route, road conditions, and other METT-T factors.
- Develop procedures for communication problems; i.e. a vehicle loses contact with the vehicle in front.
- Develop procedures to avoid obstructing traffic for mechanical problems.
- Specify ambush, air attack, and other procedures.
- Ensure that drivers know standard emergency signals and procedures outlined in FM 21-305, figures A-4, A-5, and A-6.
- Know and use the 5-step risk-management process in every facet of convoy planning and execution:
  1. Identify the hazard
  2. Assess the hazard
  3. Make risk decisions
  4. Control or eliminate the hazard
  5. Supervise



# Aggressive drivers?

**“W**e estimate that about one-third of these crashes and about two-thirds of the resulting fatalities can be attributed to behavior associated with aggressive driving” stated the Honorable Richard Martinez, MD, Administrator National Highway Traffic Safety Administration on July 17, 1997, when he addressed the U.S. House of Representatives. In his address to

the Subcommittee, he explained that for years the highway safety spotlight has been focused on the impaired driver, the speeding driver, and the unbelted driver and passengers. Today we must add the aggressive driver to the list of those contributing to the problems on our nation’s roads and highways.

Aggressive drivers exhibit **“driving behavior that endangers or is likely to endanger people or property”**. This definition includes a diverse range of driving behaviors, ranging from erratic or abnormal maneuvers and escalating into dueling or violence on the road.

## **Aggressive drivers are most likely to:**

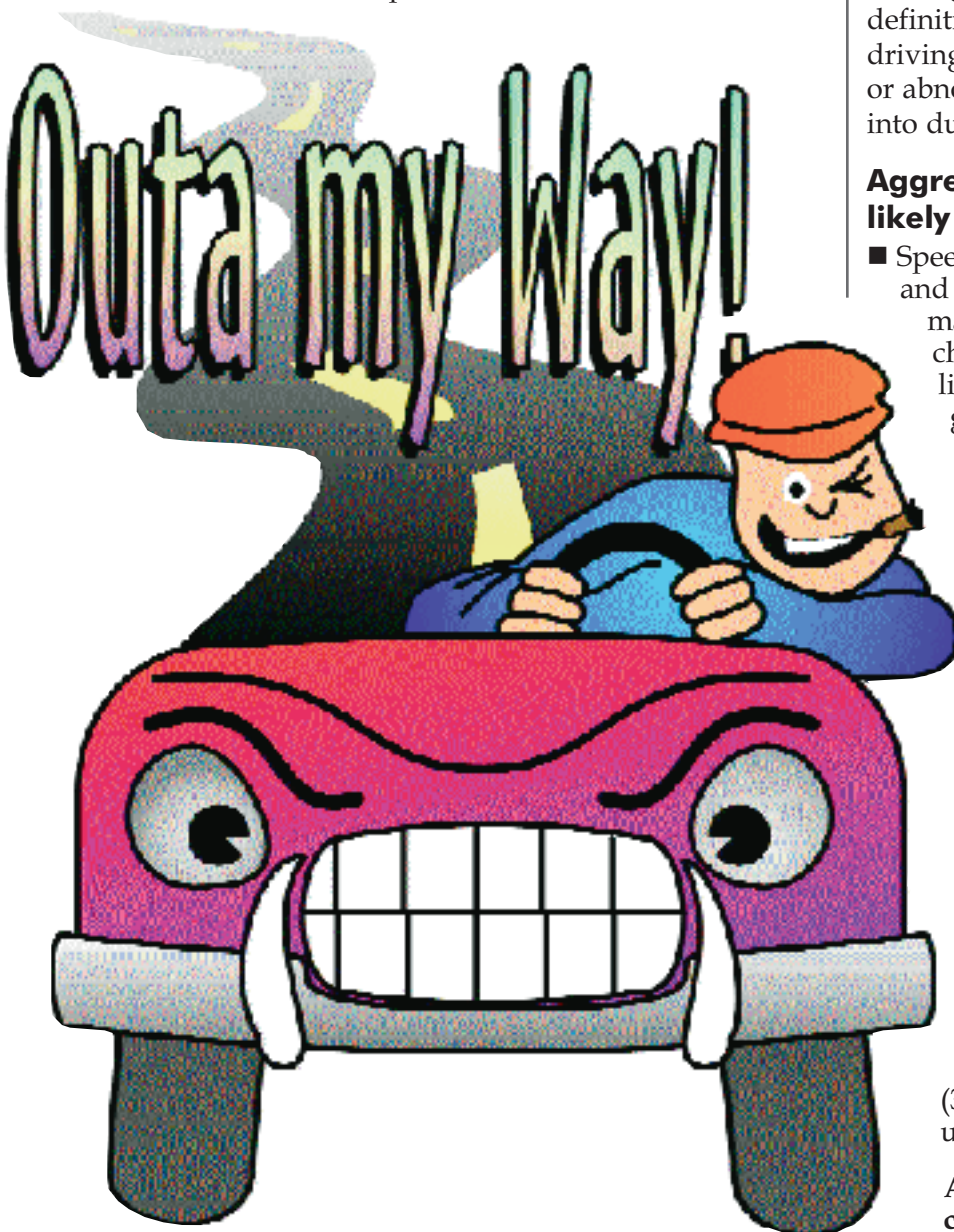
- Speed, tailgate, fail to yield, weave in and out of traffic, pass on the right, make improper and unsafe lane changes, run stop signs and red lights, make hand and facial gestures, scream, honk, and flash their lights
- Climb into the anonymity of an automobile and take out their frustrations on others at any time
- Allow high frustration levels to diminish any concern for fellow motorists
- Be impaired by alcohol or drugs, and drive unbelted or take other unsafe actions

## **What causes aggressive driving?**

Three factors in particular are linked to aggressive driving:

- (1) Lack of responsible driving behavior.
- (2) Reduced levels of traffic enforcement.
- (3) Increased congestion in our urban areas.

**Aggressive driving countermeasures.** Focus on the 3 E’s: education, enforcement, and





engineering.

### What can we do now?

- Don't become part of the problem
- Don't personalize or challenge
- Report aggressive driving behavior

The good news is that we are beginning to see an increased nationwide awareness of the consequences of aggressive driving. A few recent cases have charged aggressive drivers with negligent homicide.

**Conclusion.** *Seat belts are the best defense against aggressive driving!* Seat belts are now saving 9,500 lives annually. A person is twice as likely to die or sustain a serious injury in a crash if unbelted. The experience of 11 States that already have a primary seat-belt use law has shown that these laws are one of the most effective strategies for increasing seat belt—use and saving lives.

The testimony can be found on <http://www.nhtsa.dot.gov/announce/testimony/aggres2.html> SUBJECT: Aggressive Drivers

**When Confronted by Aggressive Drivers.** Get out of their way. Do not challenge them by speeding up or attempting to “hold your own” in your travel lane.

Wear your seat belt; not only will it hold you in your seat and behind the wheel in case you need to make an abrupt driving maneuver, but it will protect you in a crash.

- Avoid eye contact.
- Ignore gestures and refuse to return them.
- Report aggressive drivers to the appropriate authorities by providing a vehicle description, license number, location, and if possible, direction of travel.
- Don't block the passing lane, do not block the road while talking to a pedestrian.
- Don't tailgate.
- Don't switch lanes without first signaling.
- Don't raise your middle finger, you may be playing Russian roulette.
- Use your horn sparingly.
- Avoid the turning lanes if you are not turning.
- Do not take more than one parking

## Questions and Answers on Commercial Drivers Licenses(CDL)

The following questions and corresponding answers are in response to an article published in the July 1997 issue of Countermeasure.

**Question 1:** Are school and church bus drivers required to obtain a CDL?

**Answer:** Yes, if they drive vehicles designed to transport 16 or more people.

**Question 2:** Do mechanics, shop helper, and other occasional drivers need a CDL if they are operating a Civilian motor Vehicle(CMV) or if they only test drive a vehicle?

**Answer:** Yes, if the vehicle is operated or test-driven on a public highway.

**Question:** Do active duty military personnel not wearing military uniforms, qualify for a waiver from CDL requirements if the CMVs are rental trucks or leased buses from the General Services Administration?

**Answer:** Yes, the driver(s) in question do not need to be in military uniform to qualify for the waivers as long as they are on active duty and the vehicle is owned or operated by the Department of Defense.

**Question:** Does the waiver of the CDL requirements for military personnel include National Guard technicians?

**Answer:** Yes, the waiver includes National Guard civilian technicians.

place, do not park in handicapped parking, do not allow your door to tap another vehicle and look before backing up.

- Don't approach a vehicle from the rear with high beams and then dim your lights as soon as you pass alongside that vehicle.

- Don't let the car phone become a distraction.

- When buying an alarm, select one that turns off after a short period of time.

- Refrain from showing any type of bumper sticker or slogan that could be offensive.

If you have a "Cell" phone, and can do it safely, call the police; many have special numbers (e.g. 9-1-1 or #77). If an aggressive driver is involved in a crash, stop a safe distance down the road from the crash scene, wait for the police to arrive and report the driving behavior that you witnessed.

Avoid the challenges or confrontations of an aggressive driver and support law enforcement's efforts to rid the streets and highways of this menace.

#### **Examples of violent traffic disputes:**

Each of the quotes listed below were taken from incidents that resulted in a death or serious injury:

- "It was an argument over a parking place".

- "He cut me off".

- "She wouldn't let me pass".

- "Because he hit my car".

- "Nobody gives ME the finger".

- "Because they were playing their radio too loud".

- "The Mth! kept honking their horn".

- "They were driving too slowly".

- "Braking and accelerating, braking and speeding up".

- "They kept crossing lanes without signaling- — maybe I overcorrected but it taught them a lesson".

- "I never would have shot him if he hadn't rear-ended me".

#### **Weapons used by aggressive drivers**

- Fists and feet.

- Tire irons and jack handles.

- Baseball bats.

- Knives, bayonets, ice picks, razor

blades, and swords.

- Hurlled projectiles, beer, liquor bottles, rocks, coins, soda cans, and garbage.

- Other clubs, crowbars, lead pipes, batons, 4X4 timbers and canes (with the elderly)

- Defensive sprays, Mace and pepper spray.

- Miscellaneous, eggs, water pistols.

Domestic violence plays a significant role in aggressive violence. Spouses and lovers often take to the road to vent their rage. When the flames of passion burn out, love turns to hate. Incidents involving hate or racism occur among every ethnic group. These disputes are usually committed by groups of men and are directed towards a specific group(s) and the victims are usually sought out.

Some aggressive drivers are struggling with their own inner demons and are just angry at the world. Frequently they vent their anger by crashing through offices, homes, hospitals, schools or other properties. Aggressive drivers have intentionally plowed their vehicles into crowds of people.

#### **Some control measures for the person who feels frustration when driving:**

- Alter your schedule.

- Change your route for variety.

- Improve the comfort of your vehicle.

- Concentrate on relaxation when in traffic.

- Don't drive angry.

- Give the other driver the benefit of the doubt.

- Allow more time to arrive.

- Relax, relax, relax. Driving relaxed may take more time, but an accident or confrontation will guarantee you'll be late. The outcome is also often permanent death or injury.

Additional information can be found in the AAA Foundation, Three Studies, 1440 New York Avenue, NW Suite 201, Washington, D.C. 2005 on the Internet at <http://www.aaafoundation.org/aaa>

**POC: Mr Al Brown, Force Management Division, U.S. Army Safety Center, DSN 558-9377 (334-255-9377), e-mail [brownj@safety-emh1.army.mil](mailto:brownj@safety-emh1.army.mil)**

# 'Tis the Season to be... "HUNTING"

**A**s the days begin to shorten and the evening air turns briskly cool, many of us will feel a quiet desperation and almost longing for the woods on a bitter cold day. This feeling is commonly referred to as buck fever. You can almost taste the excitement as many hunters around the country eagerly await the opening of their favorite season.

Most of us won't think of Risk Management as part of our preparations for the onset of the season. However, Risk Management is necessary if we want to see the next season. We must apply the same thought process to our recreation as we do our work. It is imperative to protect ourselves from hazards that each type of hunt presents.

Almost every state now has a requirement for hunter safety course if born after a certain date. These courses are interesting, informative and have significantly reduced hunting accident rates. If you have never attended one or its been awhile, it might be a good idea to get a refresher. Another way to approach the course is to go with a young hunter and help teach the next generation of hunters.

Hunting is one of the safest sports in terms of the ratio of people involved to people injured or killed. However, due to the nature of the sport, most accidents have drastic results. If hunting is to survive as a safe sport, hunters must apply Risk Management when they go into the field.

The most frightening hazard when hunting is the risk of being shot by another hunter. There are several controls if thought about ahead of time and implemented properly will reduce the risk of becoming an accidental target.

1. The proper dress for the type of season open.  
■ **BLAZE ORANGE** during deer season. The more the better (the deer can't see it; but other

hunters can). Most states have a minimum amount that you must wear, so check your local game laws.

■ **NEVER** wear blue or red during Turkey season. You might be mistaken for a Turkey.

■ **NEVER** wear brown or white during deer season. These are the primary colors of a deer and you may get shot at by mistake. It is important to note that these rules apply to all

people in the woods during hunting season, no matter what the reason.

2. Never carry a deer or turkey on your shoulder through the woods. Carry it as low as possible. It is also a good idea to mark it with blaze orange to prevent someone else from shooting at it.

3. Never shoot at sound or movement. Make sure you identify your target before you shoot. Make sure you also check the background. Don't shoot if you're uncertain where the bullet might end up.

4. If you see another hunter, but are concealed from his view, step out into the open so he can see you.

5. Make sure everyone in the hunting party knows where each other is hunting and pre-coordinate any movements.

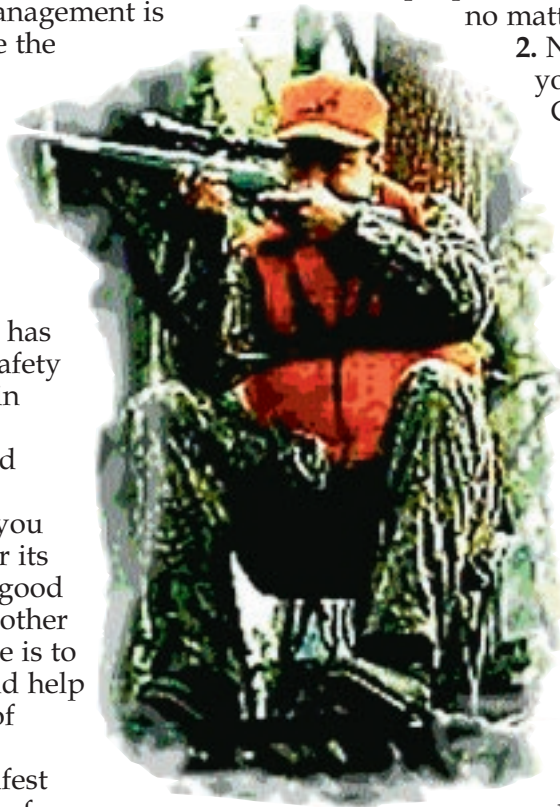
6. Use a flashlight and unloaded weapon when moving in darkness. Always carry a spare flashlight.

7. Never use your scope for binoculars.

8. When in a ground stand or a blind keep a rock or tree to your back to prevent getting shot in the back.

9. Always handle firearms as if they were loaded. Never assume someone is handing you an unloaded weapon. Visually check it and then treat it as if it is still loaded.

10. Make sure someone knows where you're going and when you plan to return. Never hunt alone. ♦



# Understanding your ballistic helmet...

## Sized To Provide Comfort and Protection?

**R**ecent surveys conducted by the U.S. Army Natick Research, Development and Engineering Center found that the Helmet, Ground Troops and Parachutist's (PASGT), better known as the Kevlar® Helmet, is not being properly fitted. One of the major reasons for conducting the surveys was to obtain data on how soldiers are sized for issuance of a helmet. A large percentage of the respondents stated that they were asked "What size hat do you wear?", then issued a helmet based on their hat size.

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 PASGT 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. Second, head length is measured using calipers. Lastly, the head width is measured by using the calipers. The soldier is then issued a helmet based on the largest of the three measurements.

A properly fitted helmet will –

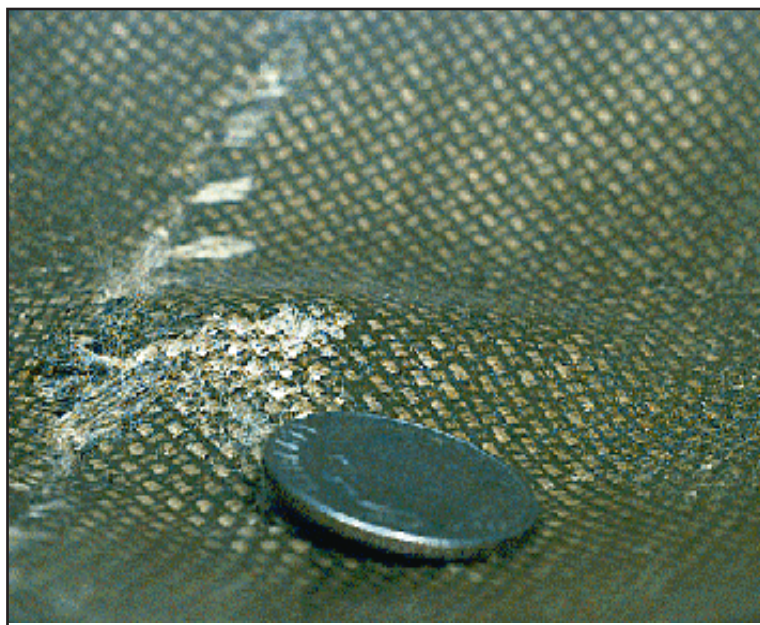
- Maintain a minimum ½-inch stand-off from your head in all directions for cooling and ballistics.
- Be stable, whether marching, running, or hitting the dirt.
- Be compatible with your weapons, equipment and clothing, even in the prone position.
- Provide comfort and protection.

The PASGT helmet is the best ballistic protective helmet in the world. However, if not properly sized, the helmet may not provide the protection that it was designed to provide. Before you leave CIF the next time, ask yourself "Does my helmet fit properly?"

Remember that a projectile that hits the helmet will cause an indentation, and the kinetic energy of the impact will dissipate over the surface of the helmet. Proper sizing is critical to this process.

U.S. Army Natick Research, Development and Engineering Center has written an instruction pamphlet for the helmet. The title is This is your Ballistic Helmet. The instruction pamphlet comes with each new helmet from the manufacturer. Try to get a copy from your CIF and become familiar with its contents. Additional information can be obtained from the Natick homepage <http://www-sscom.army.mil>, or by contacting Mr. Scott Bennet, DSN 256-5442, (508)233-5442, e-mail [sbennet@natick-emh2.army.mil](mailto:sbennet@natick-emh2.army.mil).

**POC: MSG William R. Gunter, U.S. Army Safety Center, DSN 558-2913, comm'l (334)255-2913, e-mail [gunterw@safety-emh1.army.mil](mailto:gunterw@safety-emh1.army.mil)**



This close-up photo shows permanent deformation to a Kevlar helmet that occurred when struck with a fragment simulating projectile, during testing. The need for the ½ standoff that a properly sized helmet allows is clearly illustrated.

# Hazard alert for tactical laser pointers

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**T**he use of potentially hazardous near-infrared laser diodes is becoming widespread in many applications. Hazards have been identified by the laser safety community. Users of these products need to be alerted to the hazards associated with these devices.

## Devices of concern

One device has raised particular concern—the tactical laser pointer. Relatively inexpensive, readily available and powered by common batteries, these small lasers can produce a very narrow, powerful beam that can be used in night operations for aiming fire, illuminating targets and area marking. One accident has occurred to date, from an individual staring into this type of device. These Class 3b laser products range in power from 5mW to 500mW, and they can cause serious eye injury if used improperly. Examples of tactical pointers of concern are the Torch, LPL-30 and the GCP-1. The AN/PAQ-4 series of tactical laser pointers are Class 1 IAW ANSI Z136.1 and are not hazardous. An exemption label has been affixed to these devices indicating they have been exempted from Title 21, Code of Federal Regulations (CFR) Part 1040, Performance Standards for Light Emitting Products. This label suggests the use of personal protective equipment and procedures when operating these devices. However, during normal operation, the use of personal protective equipment and procedures is not necessary.

## Hazard identification

The hazard is limited to the unprotected eyes of individuals who look at the laser from within the direct beam. No skin hazard exists. These lasers are infrared, thus the beam normally is not visible to the unaided eye. Even looking directly into the beam at a very close range a

viewer will only see (at most) a very weak “red” dot. Therefore, individuals could stare directly into hazardous levels of laser radiation at close range and not realize the serious risk to the eye. Individuals should never look at the laser from within the beam. Buyers should be wary of seller claims of device safety, unless the laser is clearly labeled a Class 1 laser product IAW Title 21 CFR, Part 1040. This information, by law, must be on the label.

## How devices are promoted

These laser pointers are currently marketed to military organizations through mailing brochures and electro-optics trade shows. Although some of these devices contain warning labels, many have been erroneously advertised as “eye safe.”

## How to use the devices safely

Users of the laser pointer must never aim the pointer at unprotected personnel. Users could also unscrew the case enough to disable the power source or remove the batteries when storing it in their shirt pocket or rucksack. These devices are not flashlights and should not be used haphazardly.

## Conclusion

Despite their size and the fact that most are powered by small, commonly available batteries, these tactical pointing devices can cause, and have caused, eye damage as a consequence of improper operation. The device should be clearly labeled a Class 1 laser IAW 21 CFR 1040; if not, the organization listed below should be contacted before using these systems.

**POC U.S. Army Center for Health Promotion and Preventive Medicine  
ATTN: MCHB-DS-L Aberdeen Proving Ground, MD 21010-5422 Phone: DSN 584-3932/2331 Comm'l (410)671-3932**

# Maintenance Advisory Message for the M16A2 Rifle

**R**ecently, there have been several reports of accidental firing of the M16A2 rifle. TACOM-ACALA has issued Maintenance Advisory Message(MAM) NO. 97-14 for the M16A2 rifle.

The MAM does not contain safety-of-use information, but directs all users to perform the function check described in TM 9-1005-319-10 THE OPERATOR'S MANUAL M16A2 RIFLE prior to firing the weapon.

## MAKE SURE THE WEAPON IS CLEAR

### 1. SAFE

Pull the charging handle to the rear. Place the selector lever on safe. Pull the trigger. The hammer should not fall.

### 2. SEMI

Place the selector lever in semi. Pull trigger. Hammer should fall. Holding the trigger to rear, charge the weapon and release the trigger slowly without hesitation until the trigger is fully forward (an audible click should be heard). Hammer should not fall. Repeat a second time.

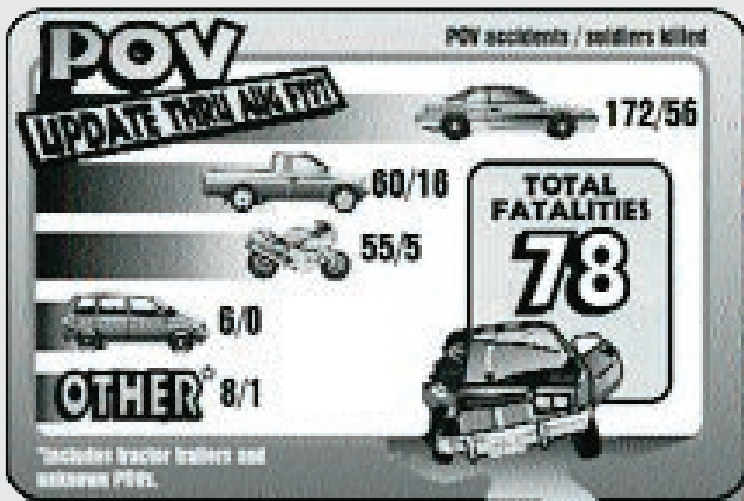
### 3. BURST

Place selector lever in burst. Charge weapon and squeeze trigger. Hammer should fall. Holding the trigger to the rear pull the charging handle to the rear and release it three times. Release trigger. Squeeze trigger. Hammer should fall.

If any faults are found during the function check notify the unit armorer. The weapon is Non-Mission Capable until the faults are corrected at the proper level of maintenance.

Normal range safety precautions shall be followed at all times. When not in a range training situation, normal firearms safety precautions shall be followed; i.e., always point weapon in a safe direction, always assume weapon is loaded, always clear weapon before disassembly, cleaning, inspecting, transporting, or storing.

POC: Mr. Neal Christianson, AMSTA-AC-ASIR, DSN 793-0034,  
e-mail nchristi@ria-ehm2.army.mil.



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Burt S. Tackaberry  
Brigadier General, USA  
Commanding

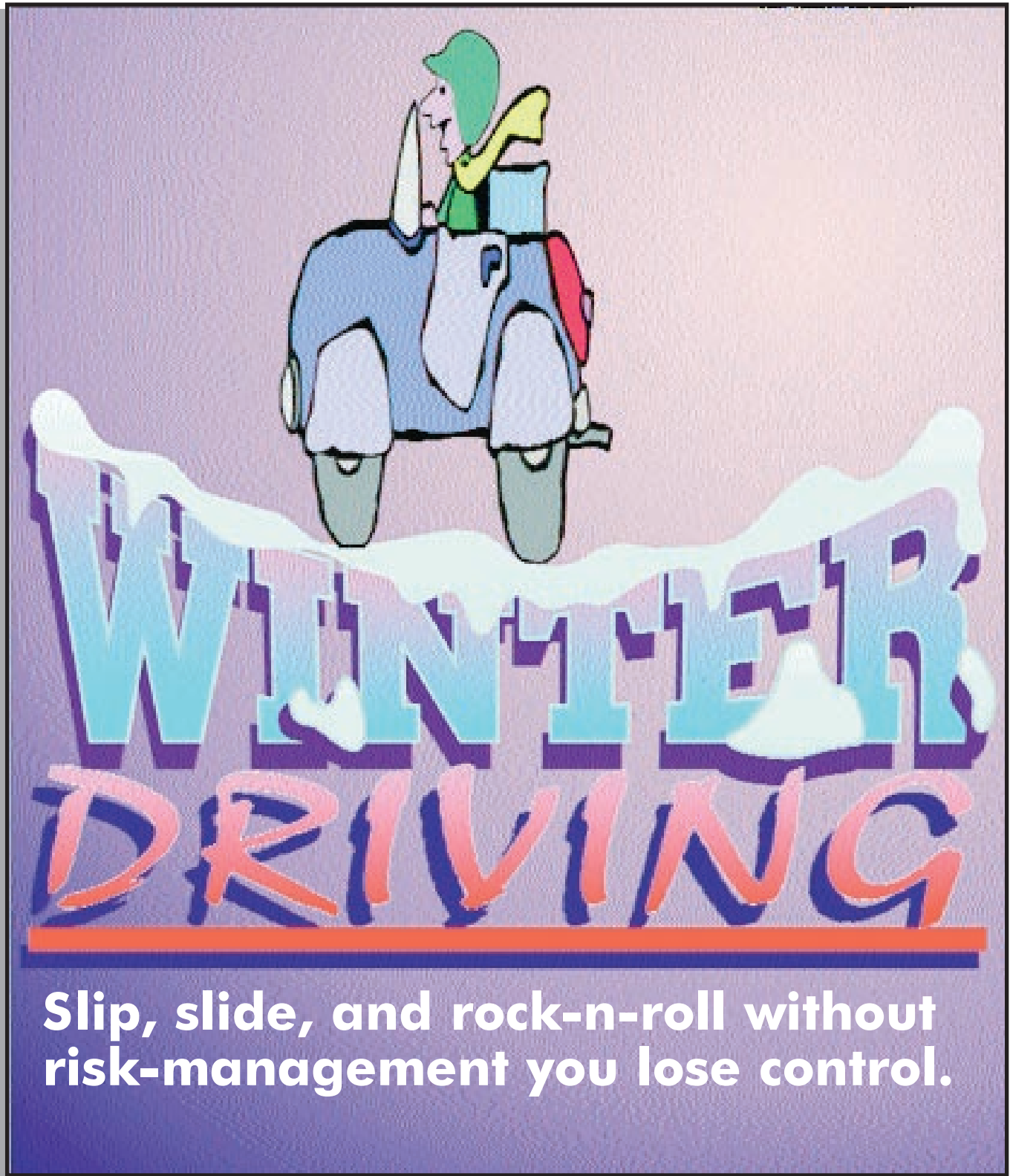
ARMY GROUND RISK-MANAGEMENT PUBLICATION

# COUNTERMEASURE

VOL 18 NO 11

<http://safety.army.mil>

NOVEMBER 1997



**Slip, slide, and rock-n-roll without risk-management you lose control.**

# Are you ready for the winter?

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**W**hether driving your private vehicle(POV) or a military vehicle, there are controls that you can implement to reduce the risk inherent in winter driving. They will also enable you to avoid mission delays and failures and costly POV breakdowns. PMCS on your car is just as important as it is for your military vehicle, especially in the winter months. There are a number of simple inspections and minor repairs which you can do to your car just as we do for our military vehicles, such as checking the fluid level and tire pressures. Other inspections and repairs may require a certified mechanic. You should check the following systems, as a minimum:

- Exhaust system: check for leaks in pipe connections, holes in mufflers and tailpipes. An undetected carbon monoxide leak in a closed car can be deadly.
- Electrical system: check the battery, alternator, lights, etc.
- Brake system: check the front and rear brake shoes, emergency brake cable and fluid level.
- Fluids: check the anti-freeze, water in battery, and windshield washer solvent.
- Hoses and belts: check for cracks.
- Windshield wipers: make sure they are in good condition.
- Tires: use all weather tires and inspect tread wear. Check the tire pressure

Problems can still occur even though you were prepared. Your winter driving kit should include:

- Cellular phone
- Jumper cables
- Flashlight
- Safety vest
- Flares
- Warning triangles
- Shovel
- Extra windshield washer solvent
- Blankets
- Sand or kitty litter
- Gloves

## Adverse conditions

**Curves:** *SLOW DOWN, before the curve,* steer steady and slow when on ice or snow. Don't make abrupt changes in direction.

**Intersections:** Keep your speed slow, and slow down well in advance of intersections in case they're slick.

**Bridges/overpasses/underpasses:** Adjust speed for bridges and overpasses, which freeze before other road surfaces because of the air flow both over and under the structure.

Learn how to recognize the hazard. A good rule is to slow down when approaching bridges and places where the road is in the shade, especially late in the afternoon and after dark when temperatures are lower.

## TIPS ON DRIVING

- Time is the key: Plan for increased travel times.
- Increase intervals. Allow eight to ten seconds between each vehicle even at slow speeds when driving in snow or icy conditions.
- Turn your headlights on and keep them clean. Don't forget to turn them off when you leave your vehicle.
- Monitor the space in front of the vehicle.
- Use your seat belt at all times.
- If the road is slick, anticipate problems.
- Remember, that there are fewer daylight hours, so adjust your trip when possible.
- Keep air circulating inside the vehicle.
- Anticipate lane changes and turns, and make them gradually.
- Use turn signals well in advance of turns and lane changes, so other drivers know your intention.
- Make sure your vehicle has enough fuel to reach your destination or plan stops to refuel well before the gas gauge reaches empty.
- Always keep your windshield clean.



- Never sleep in your vehicle while the engine running.

### Trouble Ahead

Braking procedures are different for vehicles equipped with anti-lock brake systems (ABS). Check your vehicle's owners manual or -10 to see which type of brakes are on your vehicle.

**ABS: Do not pump the pedal.** Keep constant pressure on the brake pedal. You may experience a slight vibration, this is normal. Continue to hold the pedal down. Letting up on the pedal will deactivate the ABS and prevent it from working properly.

**Other:** Keep your heel on the floor between the brake pedal and the accelerator. Use your toes to press the brake pedal until the vehicle's tires "lock" up, then ease off the brake pedal until you reach the "threshold" or the point where the tires aren't "locked" up.

### Black Ice

When ice forms on an asphalt surface, it is effectively camouflaged. The conditions are right for black ice if you have to scrape frost or ice off your car windshield.

If you find yourself in a patch of black ice—

- **Don't panic.** Keep your cool and take your foot off the gas pedal.

- **Don't slam on the brakes.** This will only make the situation worse.

- **Do not make quick turning maneuvers.** Steer gently in the direction you want the vehicle to go.

### Skidding

When your vehicle is involved in a skid:

- Ease your foot off the accelerator or brake pedal.

- Avoid slamming on the brake.

- Down shift if you have a manual transmission.

- Look and steer in the direction you want the vehicle to go.

- Do not over steer. Make necessary steering adjustments smoothly and gradually.

- If you over-correct at first, be prepared for a skid in the opposite direction. Again, remember to look and steer where you want the car to go.

- Continue to steer until your vehicle recovers from the skid

- Once the vehicle is under control again, adjust your speed to the road conditions.

When you are planning your holiday trips this winter, be sure to use all the sources of information available to assist you. The Internet has an endless supply of information to assist in your planning. I found a great, free, trip planner at URL: <http://www.aaa.com>. It includes information on the current weather and construction hot spots. This is not the only web site that is out there, any one of them can help you plan a safe trip.

**POC: Mr. Al Brown, U.S. Army Safety Center, DSN 558-2644 (334-255-2644). e-mail [brownj@safety-emh1.army.mil](mailto:brownj@safety-emh1.army.mil)**



# The Home Heating Unit

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**C**ooler nights are kicking in, and your furnace will soon be kicking on. For all the comfort it offers, heating equipment is the second leading cause of home fires in the U.S. Each year, home heating equipment results in more than 70,000 fires and 600 fatalities (including carbon monoxide poisonings) across America. With foresight and planning, you can keep your home fires cheery and safe.

## Central Heating Units

- Have your furnace, chimney, and chimney connections inspected and serviced at least once a year by a qualified professional.
- Install smoke detectors on every level of your home, including the basement. Place smoke and carbon monoxide detectors outside of every sleeping area, and in rooms with unvented gas heaters.
- Replace (or clean) your furnace filters monthly.
- If your furnace sits in a small room, do not use it for storage.
- Don't hang anything on the gas pipes. The weight puts stress on the joints and could allow gas to escape.
- If you smell a faint gas odor near a heating appliance, investigate, the pilot light may need re-lighting. Be sure to ventilate prior to re-lighting the pilot light.
- If the odor is strong or you hear a hissing noise, immediately leave the house. Leave the door open behind you for ventilation. Don't use anything that can create a spark—even the telephone. Go to a neighbor's house to make the emergency call.

## Fireplaces

- Have the chimney inspected by a certified sweep at the start of each heating season. If you regularly use the fireplace more than four times a week, or use soft or green woods, have it inspected more often.
- Block out animals and sparks with a chimney screen.
- Do not use flammable liquids to light or stoke a fire.
- To reduce creosote formation, use well-seasoned hardwoods.
- Never burn paper or pine boughs. The particles can float out onto the roof.
- Keep flammable items, such as papers,

blankets or pillows at least three feet from the fireplace.

- Ashes should be removed only in a metal container.
- Read the instructions before lighting an artificial log. Used incorrectly, these logs can burn unevenly and release abnormal levels of carbon monoxide.
- Don't overload your fireplace. A roaring fireplace can overheat your walls or roof and lead to a roaring inferno.
- Never leave a fire unattended. Be sure the fire is out before you go to bed or leave the house.
- To avoid flying sparks, use a sturdy screen made of metal or heat-tempered glass.
- Clip the branches of overhanging trees back at least 10 feet from the chimney top.
- Keep a fire extinguisher handy, and know how to use it.

## Space Heaters

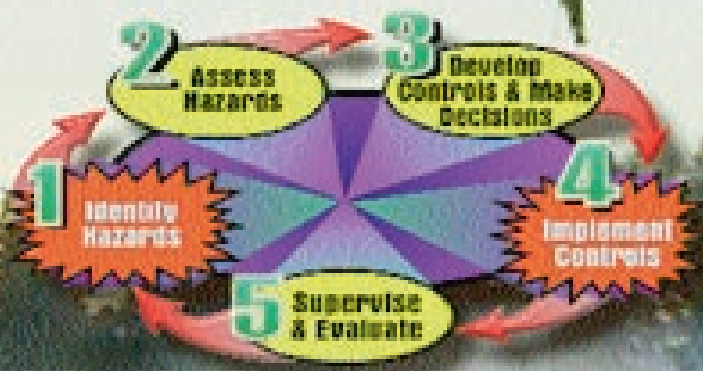
- Buy a heater with automatic shut-off safety features that has been approved by a nationally recognized testing lab.
- Never leave an operating heater unattended, or run it while sleeping.
- Keep heaters at least three feet from anything that can burn, including wallpaper, curtains, bedding, pets, and people.
- Place a smoke detector in each room where you use a space heater.
- Never hang wet clothes over the heater to dry.
- Kerosene heaters are dangerous, and are illegal in many areas. Follow manufacture's directions exactly if you must use one.

## Electric Heaters

- Keep the cord stretched out, not curled. Do not bury the cord under carpets or rugs.
- If the cord overheats while the unit is in use, have the heater inspected and serviced immediately.
- Avoid using an extension cord. If you must use an extension cord temporarily, be sure it is marked with a power rating at least equal to the heater.
- Periodically check for fraying or splitting wires. Take broken heaters to a qualified service center, or replace it. Do not attempt to repair it yourself.

—Adapted from *Safety Times* publication

# Ingredients for a successful mission



The right mix every time

## Cold-Weather Injuries

### Frostbite

Cause	Symptoms	First Aid
Freezing of tissue, normally due to exposure below 32°F.	<p>Numbness in affected area. Tingling, blistered, swollen, or tender areas.</p> <p>Pale, yellowish, waxy-looking skin (grayish in dark-skinned soldiers).</p> <p>Frozen tissue that feels wooden to the touch.</p>	<p>Warm affected area with direct body heat.</p> <p>Consult medical personnel as soon as possible.</p> <p>Do not thaw frozen areas if treatment will be delayed.</p> <p>Do not massage or rub affected areas.</p> <p>Do not wet the area or rub it with snow or ice.</p> <p>Do not expose affected area to open fire, stove, or any other intense heat source.</p>

### Chilblain

Cause	Symptoms	First Aid
Repeated exposure of bare skin for prolonged periods to temperatures from 20° to 60°F (for those not acclimated to cold weather).	<p>Swollen, red skin (or darkening of the skin in dark-skinned soldiers).</p> <p>Tender, hot skin, usually accompanied by itching.</p>	<p>Warm affected area with direct body heat.</p> <p>Do not massage or rub.</p> <p>Do not wet the area or rub it with snow or ice.</p> <p>Do not expose affected area to open fire, stove, or any other intense heat source.</p>

### Immersion foot (trench foot)

Cause	Symptoms	First Aid
Prolonged exposure of feet to wet conditions at temperatures between 32° and 50°F. Inactivity and damp socks and boots (or tightly laced boots that impair circulation) speed onset and severity.	<p>Cold, numb feet may progress to hot with shooting pains.</p> <p>Swelling, redness, and bleeding.</p>	<p>Rewarm feet by exposing them to warm air.</p> <p>Evacuate victim to a medical facility.</p> <p>Do not massage, rub, moisten, or expose affected area to extreme heat.</p>

### Dehydration

Cause	Symptoms	First Aid
Depletion of body fluids.	<p>Dizziness</p> <p>Weakness</p> <p>Blurred vision</p>	<p>Replace lost water. Water should be sipped, not gulped.</p> <p>Get medical treatment.</p>

### Hypothermia

Cause	Symptoms	First Aid
Prolonged cold exposure and body-heat loss. May occur at temperatures well above freezing, especially when a person is immersed in water.	<p>Lack of shivering.</p> <p>Drowsiness, mental slowness, lack of coordination. Can progress to unconsciousness, irregular heartbeat, and death.</p>	<p>Strip off wet clothing and wrap victim in blankets or a sleeping bag.</p> <p>Get victim to a heated location and medical treatment as soon as possible.</p>

# The identity of a hazard

**A** keen sense of the obvious is necessary to properly identify a hazard. Or is it? Often repetitive chores done around the home don't throw up the red flag of a hazard. Some hazards are buried so deep in our routines that we don't even realize that there is a significant risk involved. To illustrate my point, let's discuss yard work. I know that if we started to identify the hazards associated with making our yards look good, we'd come up with a list of obvious hazards. We all would top that list with things like: Rocks and debris kicked up by the lawn mower, line trimmer and edger. Of course to manage that hazard we would say, wear proper clothing and eye protection. But how many times do we hear about an eye injury or loss?

Another obvious hazard is coming in contact with the cutting instrument. Almost all these instruments have safety shields or devices built in to prevent injury. Why then do people remove them or figure out a way to get around them? Are they asking to get injured? Probably not, but still there are accidents every year where people have not identified even these obvious hazards, or failed to implement the necessary controls.

What about the not so obvious or hidden hazards? Recently, a man was using a line trimmer to finish up his yard. All the proper safety guards were attached to the apparatus. His daughter was playing on a swing set nearby. When he noticed that his daughter fell off the swing he

put down the trimmer and went to check on her. He found his daughter fatally wounded by a piece of the string that went through her temple and into her brain. A piece of the line. Now I don't know about you, but, I have used these contraptions for a number of years and the string has never even crossed my mind. The line! We all know that it breaks off, but who ever thought about where it went? The poor man in this accident probably never thought about it either. Make sure that when operating yard tools that everyone, including your animals, are a safe distance away. One thing is for certain though, if you have children and you use one of these trimmers, you will

probably never forget that you need to know where the string goes. ♦



# Holidays—happiness and celebration

Unfortunately, for some families, they will be a time of remorse

It's no secret that the Thanksgiving and Christmas holiday periods can be joyous or deadly. This is as true for soldiers as it is for the rest of the population. The Army, and the other services, are simply a small reflection of our society. Accidents just seem to happen indiscriminately. But can we prevent them?

Here are some numbers to think about:

## Number of Army POV Fatalities

	Thanksgiving	Christmas
<b>FY92</b>	<b>5</b>	<b>9</b>
<b>FY93</b>	<b>1</b>	<b>6</b>
<b>FY94</b>	<b>1</b>	<b>6</b>
<b>FY95</b>	<b>0</b>	<b>8</b>
<b>FY96</b>	<b>1</b>	<b>3</b>
<b>FY97</b>	<b>0</b>	<b>3</b>
<b>FY98</b>	<b>?</b>	<b>?</b>

Whose name will get added to the rolls? Will it be yours? Will you leave a legacy of remorse and regret for your family to remember every year during the holidays? Or will one of your soldiers not return to the unit after the holidays? I wonder if we as leaders had to visit the family every year after a preventable accident if we wouldn't take more time to ensure that our soldiers are well protected.

Each of these numbers represents a soldier who never returned to the unit following the holiday period. It's likely that some received a safety briefing, and others did not.

The numbers do not include family members, reserve component soldiers not on active duty, or DA civilians. If we could see those numbers, we would likely find that even more members of our extended Army family died on the highways during the holiday periods.

You say you always tell the soldiers to be careful before dismissing them for the holiday? Is that enough? How do these accidents happen anyway?

## Top Causes of Holiday Army POV Fatalities, 1992-1997

- Failure to use seat belts
- Fatigue, alcohol, failure to stay alert
- Excessive speed/Too fast for conditions
- Abrupt control/steering
- Failure to yield

If these represent the root causes of fatalities, then our question is answered. These fatalities could have been prevented. I know you say, "but I can't control what they do when they leave the unit." If that were true, how effective is your unit going to be in combat? Are our soldiers not charged with the responsibility of conducting battle in our absence? If we can't influence their decision to buckle up, how can we believe that we as leaders can influence their behavior when the bullets are flying.

There are tools available to assist leaders and soldiers to evaluate driving profiles and estimate the risk levels each soldier will face on the highway.

One of these tools, the Privately Owned Vehicle Automated Risk Assessment and Controls Program (POV-ARAC), is available for download from the Army Safety Program web site at <http://safety.army.mil>.

The program is DOS-based, will run on any IBM compatible computer 286 or above, and can be used by individuals or units. The program suggests control options that leaders or soldiers can select to help lower the risk of traveling our nation's highways during the holiday seasons.

I haven't forgotten about all of you who might be driving POVs overseas...I had a POV in Korea for 3 years and I know that soldiers face some "theater unique" challenges due to cultural differences.

While our POV ARAC does not address those "unique" circumstances, your local safety office likely has information about command unique driving risks and controls.

There is no magic about these tools. They are simply things that leaders can use to help their soldiers increase awareness of the dangers they face on the highways.

The Safety Center does not operate a risk-management psychic hotline. The bottom line is that leaders must care enough about their soldiers to spend a little time preparing them for the holiday

driving season.

So for a holiday present this year, let's give our soldiers the gift of life.

One final thought: Our soldiers are currently deployed in many countries

around the world. Many of them are without their families, in strange places, some away from home for the first time. If there's anything you can do during these holidays to make their lives a little brighter...even for a moment...why not do it? Send a

letter, a small gift, an e-mail...or a thought, meditation, or prayer...for the men and women who stand at freedom's frontier in service to America this holiday season.

**POC: SGM Gregory L. McCann U.S. Army Safety Center Sergeant Major DSN 558-3575 (334-255-3575).**

## These tools are simply things that leaders can use to help their soldiers increase awareness of highway dangers.

# POV FATALITIES

POV Fatalities	FY97	FY96
Thanksgiving Holidays	0	1
Christmas Holidays	3	3

### FY97 FOCUS

- Command Emphasis
- POV ARAC Program Fielding
- POV RM Program

- The sharp statistical decline may be attributable to a high visibility media campaign & Commander's direct involvement.
- POV fatalities will most likely continue to be the primary killer of Army Soldiers in FY97.
- Bottom Line: Command involvement to integrate RM will reduce accidents, prevent fatalities, and conserve combat power.

# Arsenal's forge earns award

**R**OCK ISLAND, IL -- A worldwide trade group has given its top safety award to Rock Island Arsenal, IL., for RIA's outstanding safety record in its forging operations.

The Forging Industry Association selected RIA for its 1996 First Place safety award in its size group. RIA is a member of the Forging Industry Association, which is made up of hundreds of major manufacturers involved in forging in the United States and overseas. To earn the safety award, the Arsenal had to compete with forgers of all types from the private and public sectors.

The award was based on a nomination which asked for statistics for 1996 and three previous years in nine safety-related areas, including job-related deaths; OSHA reportable incidents; lost days due to injuries; and days of restricted work activity due to injuries. Statistics had to be compiled for all employees involved in forging operations, including forgers, heat treaters, die sinkers and planners.

During 1996, the Arsenal's forge scored a perfect "zero" in all nine

categories. Zeroes and low numbers had also been achieved in the previous three years.

The perfect record in 1996, combined with the near-perfect record compiled in the recent past, earned the award for the Arsenal. The forge's good safety record has continued into 1997.

The dangers of forging are obvious even to a casual observer. In RIA's forge shop, metal parts are heated to temperatures of up to 2,300 degrees Fahrenheit and struck with hammers at forces of up to 207,000 foot-pounds.

Dennis Haut, coach of the Forge and Heat Treat Team in the Arsenal Operations Directorate, attributed the team's outstanding safety record in the face of such danger to awareness and teamwork.

"We have experienced, skilled employees who know how to work with this equipment and operate it safely," Mr. Haut said. "We pay attention at all times, and we don't take anything for granted when it comes to safety."

"We also use the buddy system," he said. "The people in the forge are a team who look out for one another. That's the key to safety, here and anywhere else." ♦

**POV**  
UPDATE THROUGH FY97


Car	203/63
Truck	75/20
Motorcycle	70/6
Other	4/1
OTHER*	11/1

\*Includes tractor trailers and unknown PVs.


POV accidents / soldiers killed

**TOTAL FATALITIES**

**91**



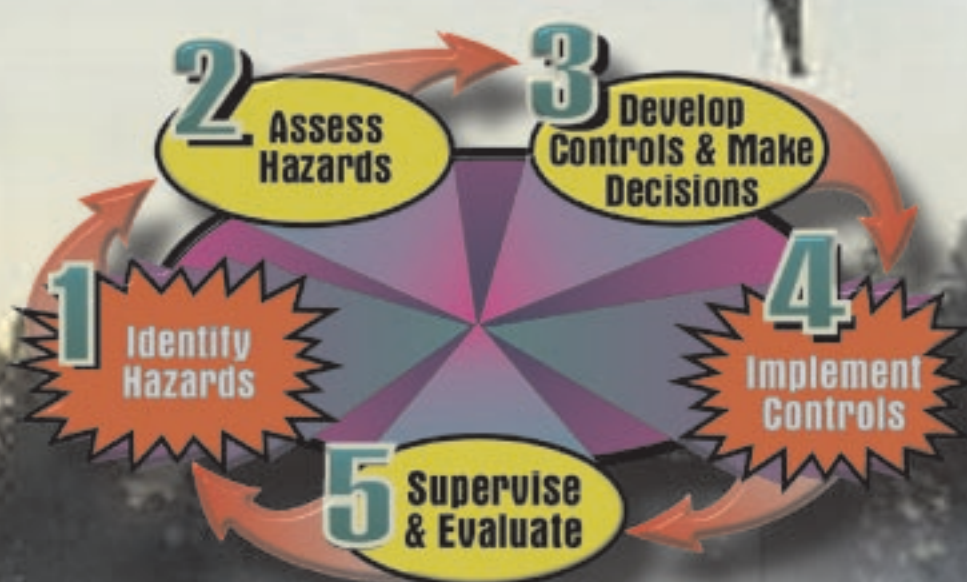
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Burt S. Tackaberry  
Brigadier General, USA  
Commanding



# Ingredients for a successful mission



The right mix  
every time

# ARMY GROUND RISK-MANAGEMENT PUBLICATION COUNTERMEASURE

VOL 18 NO 12

<http://safety.army.mil>

DECEMBER 1997



## ROLLOVER! ROLLOVER! What can you do?

**O**ver the past ten(10) years there have been 176 Army Combat Vehicle (ACV) accidents involving a rollover or turnover. Of these 176 accidents, 55 resulted in a fatality. Over 33% of the accident victims *did not survive*. The number of accidents and the number of fatalities are too high. What can we do about it? Can we make improvements in our efforts to reduce the number of rollover/turnover accidents, and also improve our chances of surviving such an accident?

Several Bradley fighting vehicles(BFV) were conducting a recon mission, in the desert(low contrast area), on an extremely dark night(low illumination). The platoon was expecting enemy fire, so they were maneuvering with blackout drive lights. They had not trained sufficiently under blackout conditions. The drivers were using AN/VVS2 Driver's Night Sights. The Bradley Commanders were using

AN/VVS7 Night Vision Goggles(NVGs) and Global Positioning Systems for navigation. As they approached their objective, three BFVs traveling abreast went over one small ditch and immediately came upon what appeared to be another ditch. However, rather than a small ditch, it turned out to be a 15-foot cliff. All three BFVs went over the cliff and tumbled into the wadi below. Two soldiers were killed and eight others injured.

### What caused it?

The unit had not fully incorporated risk management into their mission planning for this operation. They had not trained using NVGs and NVDs under total blackout conditions prior to this mission. They failed to identify and develop controls for a critical hazard: operating over rough terrain at night, under total blackout conditions.

## What to do about it

To prevent accidents from the same or similar causes, unit leaders should consider the following controls:

- Assess risks realistically and plan controls to reduce the hazards;
- Train vehicle crews on dark adaptation and night vision techniques, ground guiding at night, sensory illusions at night, and the capabilities and limitations of night vision devices;
- Ensure that primary and alternate drivers are fully trained and qualified to operate their vehicles day and night;
- Ensure that night vision devices 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 condition;
- Use ground guides when visibility is restricted;
- Enforce the requirement for crew members to use installed restraint systems;
- Establish and rehearse crew drills, rollover/turnover procedures designed for your particular type vehicle;
- Enforce the standards that requires vehicle commander(TC) and crew members, to position themselves at name-tag level while operating in the open hatch position;

## What happened?

A convoy departed the unit motor pool at approximately 0530. The convoy proceeded uneventfully except that one Vehicle Commander instructed his driver several times to keep the vehicle in the center of the road. No problems were noted with the M981A2. At approximately 0555, with the convoy traveling south on a tank trail at approximately 20 mph, the TC instructed his driver to slow down prior to descending a hill they were approaching. When the driver did not respond, the TC repeated his instructions several times, but the driver still did not respond.

As the M981A2 began to go down the 7-degree slope, it veered to the right and then back to the left several times. Each time the vehicle veered, the driver "overcorrected" in the opposite direction. The vehicle continued to swerve left and right, and at approximately 0556, the vehicle hit an embankment on the left side of the tank trail at approximately a 60-degree approach angle. As the left track of the M981A2 began to climb the embankment, the TC ducked into the vehicle in anticipation of the vehicle rolling over and transmitted over the radio, Rollover! Rollover! Rollover!" He gave no other instructions to the driver. The vehicle rolled to the right, down the slope, and came to rest on its top, fatally injuring the driver.

## What caused it?

This company had an excellent written driver's

### Mission:

Night recon to establish contact with the enemy

### Results:

2 fatalities and 8 injuries

### Contributing Factors:

- Did not fully incorporate risk management into their mission planning for this operation.
- Had not trained using NVGs and NVDs under total blackout conditions prior to this mission.
- Failed to identify and develop controls for a critical hazard: operating over rough terrain at night, under total blackout conditions.



training program. However, they failed to follow it. The commander did not conduct an interview of the prospective driver, did not ensure the eye examination was performed, and signed the learner's permit despite the discrepancies pointed out by the assistant master driver. Inadequate or negligent driver's training and licensing programs and inadequate commander involvement allowed a soldier with:

- 20/70 vision
- Without a civilian driver's license
- With little to no experience driving any type of vehicle, including a POV
- Without proper or adequate driver's training
- With no experience operating the vehicle outside the motor pool area

This soldier was issued a learners permit and allowed to operate a track vehicle within a convoy.

### What to do about it

- A properly conducted interview, coupled with risk assessment, would have identified the soldier as a high risk individual. Once identified as a high risk driver, the commander should have implemented additional control measures to reduce or eliminate the associated risk;
- Commanders have a responsibility to ensure the operator has received the required training and meets appropriate qualifications;
- The Commander's interview is an integral part of the aspect of managing risks and must be taken seriously;
- Review driver's training and licensing program, ensure that it does not allow unqualified or untrained personnel to receive operator's permit or licenses;
- Commanders are charged with developing and publishing guidance for establishing and implementing risk-management programs that identify potential hazards, determine the associate risk,

and implement controls in an effort to mitigate the inherent risk;

- Establish and rehearse crew drills, rollover and turnover drills and procedures;

### What happened

Two soldiers operating an M3A2 Cavalry Fighting Vehicle (CFV) encountered catastrophe while enroute from a Unit Maintenance Collection Point (UMCP) back to their troop assembly area. The gunner acting as the Bradley Commander (BC) and the assigned driver were escorted from the UMCP by a HMMWV at approximately 2000 hours. The BC used the AN/PVS 7-B Night Vision Goggles(NVG) and the driver was using the AN/VVS-2 Driver's Night Vision Viewer(DNVV). Visibility was limited by the near-zero illumination that night. The blackout drive headlights were not used to



#### Mission:

Reposition vehicles from Ft. Carson Camp Red Devil in preparation for squadron live fire exercise.

#### Hazards:

- Inadequate drivers training
- Improper supervision
- Convoy operations
- No rollover training program
- Vehicle inspection program not enforced

**Summary:** While traveling as the second of three vehicles in a tactical convoy, the driver lost control while descending a 7 degree slope, turned into an embankment to the left of the tank trail, and the vehicle flipped over onto its top resulting in one fatality, 3 minor injuries, and minor vehicle damage.

assist in movement because it was not consistent with unit SOP. As the two vehicles turned off onto a tank trail, the HMMWV encountered a mud hole. The NCOIC decided to return to the MSR and wait until daylight to continue. As he drove past the CFV, he shouted (in the dark, over the engine noise of both vehicles and through the CVC helmet) for the BC to turn around and follow him to the MSR. The CFV, operated by two Specialists, continued on by itself to the Assembly Area. When they arrived at the Assembly Area the Troop was no longer there. The BC called the Platoon Leader (PLT LDR) for new instructions. The PLT LDR told him to go to the Troop Operations Center (TOC). He also warned him of an arroyo that was near the TOC location. The BC did not have a map so he could not determine the exact location of the hazard in relation to his path to the TOC. The

BC radioed the TOC OIC for grid coordinates. The OIC suggested to the BC that "his best bet was to go to ground" due to the visibility and the arroyo to the north of the TOC. The BC continued towards the TOC aided by the NVGs and the DNVV. One hour later the CFV drove over a 14-foot cliff (arroyo) landing on its turret and killing the BC.


### What caused it

The unit maintenance sergeant leading the Bradley CFV cross-country at night did not confirm the BC fully understood his directives for the BC to turn around and follow him back to the main supply route. As a result, the BC continued cross-country with his Bradley. The BC continued moving cross-country with his vehicle without a guide in near-zero illumination, and with night vision systems that

do not provide optimum visual acuity for definition and depth perception, even after being advised that an arroyo was near "the TOC" his destination. At the time of the accident the BC was not seated and secured in his seat by a seatbelt.

### What can we do about it

- Ensure that leaders understand the need for positive communications and that all leaders are responsible for ensuring that their directives are understood;
- Ensure that all personnel understand how overconfidence and improper motivation can influence action



**MISSION:** M3A2 movement from unit maintenance collection point to assembly area.

**RESULT:** 1 soldier fatally wounded when vehicle rolled over.

**CONTRIBUTING FACTORS:**

- Inexperienced BC
- Cross country movement without map
- Use of AN/VVS-2 without supplemental illumination
- Lack of positive communications

and contribute to accidents;

- Establish and enforce a Vehicle Commander selection process to ensure only qualified personnel are tasked to function as a TC or BC;

- Enforce the seatbelt requirement IAW AR 385-55;

- Ensure that vehicle commanders are not riding too high and maintain name-tag level position while operating in the open-hatch position;

- Establish and rehearse crew drills, rollover/turnover drills and procedures;

### **Rollovers/Turnovers don't have to kill**

Recent accidents involving rollover/turnover have spurred inquiries from units in the field. They are requesting rollover drills that crews can use in the case of a rollover accident. Some units are conducting training on rollover procedures and how crews should react to a rollover sequence. Rollover drills are a vital training necessity but by themselves will not reduce the number of accidents nor reduce the number of fatalities. Commander's must use the drills as only part of an aggressive Risk management program. There are other control measures which must be implemented to reduce the risk.

1. Train vehicle crews on dark adaptation and night vision techniques, ground guiding at night, sensory illusion at night, and the capabilities and limitations of night vision devices.
2. Identify the terrain hazards and how low light levels impact on them.
3. Stress the dangers of overconfidence in either the equipment or personal ability to operate under adverse conditions.
4. Ensure that night vision devices have been properly serviced and are in good working order.
5. Ensure that primary and alternate drivers are fully trained, qualified and properly licensed to operate their vehicles day and night.
6. Enforce the requirement for crew members to use installed restraint systems.
7. Enforce the standards that requires vehicle commanders and crew members to position themselves at name-tag level during open hatch operations.
8. Establish and rehearse crew drills regularly; such as fire evacuation, loss of brakes, loss of steering, loss of power and **rollovers**.
9. Assess the risks realistically and plan controls to reduce the hazards.

Many of us, do agree that crews should be so well trained that their response to a rollover/turnover situation or accident is automatic.

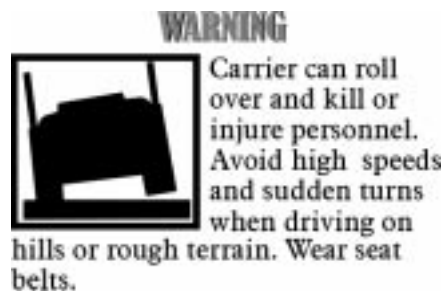
Many of the vehicle Technical Manuals(TMs) give some guidance or information on "Rollover/Turnover Drills". In the TMs, that we have reviewed, vehicle rollover/turnovers appears as a warning or caution statement.

#### **For Example: Warning**

When a track vehicle gets out of control and overturns, it is safer to stay in the vehicle than to try to get out while the vehicle is still moving. You may receive slight injuries from being thrown against metal parts; but if you try to leave the vehicle, it may roll over and crush you. Once the vehicle stops moving, get out as fast as possible because spilled fuel and oil may catch fire. The first thing the driver should do in such an emergency is shut off the engine and turn off the master switch to minimize the fire hazard.

Ref--TM 9-2350-266-10. (M981)

In some cases only a general warning statement and picture. Ref – TM 9-2350-261-10 (M113A2)



The best example; for guidance information that we have reviewed, exists inside the M1A1/M1A2 TM 9-2350-2264-10-2/TM 9-2350-288-10-2. See examples of emergency procedures on pages 6-9.

Many recommendations have been made to incorporate procedures with specific instructions of what actions crewmen should take in the event of a rollover in all Army Combat Vehicle Technical Manuals(-10). Some suggest that "Rollover/Turnover Drills" or Rollover Procedures should be incorporated into training ..i.e., Driver's Training Courses and TRADOC formal training courses. It has been recommended that all ACV crewmen regularly practice emergency action drills for accidents such as fires, loss of brakes, loss of steering, loss of power and "rollovers". It is not safe to say that "rollover drills" alone will eliminate the possibilities of a rollover/turnover accident being fatal. But it is safe to say that a reaction to a hazardous situation is far better than no action at all. ♦

**POC: SFC Erwin Bailey, AR, Combat Arms Systems, Ground Tactical Branch; DSN 558-2908 (334-255-2908)**

## ROLLOVER (TOP)

### WARNING

- At first indication of a rollover, drop down inside turret and brace for impact. Exposed personnel could be thrown from tank, causing injury or death. Do not attempt evacuation from unstable tank. Evacuate with caution when tank has stabilized.
- Ensure all hatches are in open-lock position, if possible, before evacuating. An unlocked open hatch can fall, causing injury or death.
- Each crewmember must ensure all loose items and equipment are firmly secured prior to tank movement. Loose items and equipment can cause severe injury or death.

### CAUTION

Do not turn **MASTER POWER** off before **ENGINE SHUTOFF** pushbutton is pressed for off. Engine damage or fire could occur.

### NOTE

Each crewmember task is performed at the same time as other crewmember tasks.

## TANK COMMANDER

A. Once tank has stabilized, survey situation and check crewmembers for injuries. Administer first aid if critical situation exists (see FM 21-11).

B. If turret fire exits, use commander's portable fire extinguisher (1) to fight fire (see 2-154).

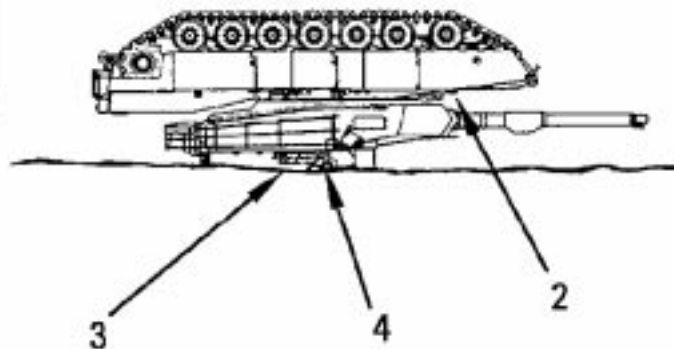
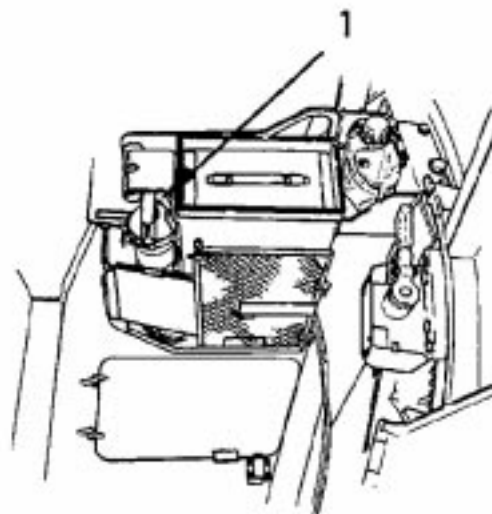
C. Check for evacuation route. Evacuation route should be through whatever hatch (driver's (2), loader's (3), or tank commander's (4)) can be most easily opened. Announce **EVACUATE** once route is established

### WARNING

**Turret lock must be locked if crewmembers pass between hull and turret during evacuation. Turret/hull could move, causing injury or death to crewmembers.**

D. If evacuation cannot be accomplished and life threatening situation does not exist, radio for rescue and turn off vehicle master power or direct driver to turn off vehicle master power. Direct crewmember to wait for rescue personnel, and administer first aid if necessary (FM 21-11).

E. If life threatening situation exist for any turret crewmember or driver, instruct gunner to attempt traversing hull to allow access to driver's station. Evacuate through established route once tank has fully stabilized.



# EMERGENCY PROCEDURES

## ROLLOVER (TOP) - Continued

F. If evacuation is accomplished, direct crewmembers to assemble 98 feet (30 m) to rear of tank. Administer first aid if necessary (see FM 21-11).

### GUNNER

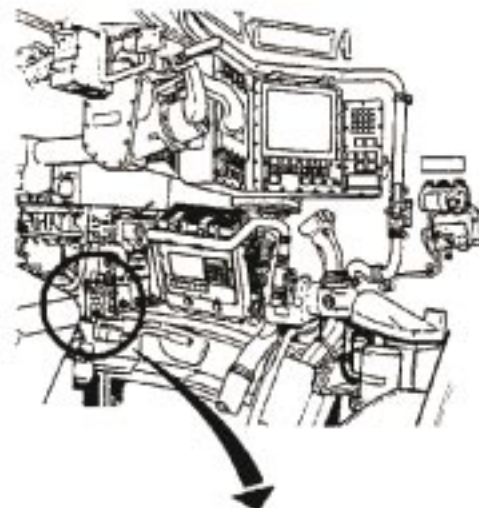
A. Ensure tank has stabilized and set GUN SELECT switch (5) to TRIGGER SAFE.

#### WARNING

Turret lock must be locked if crewmembers pass between hull and turret during evacuation. Turret/hull could move, causing injury or death to crewmembers.

#### NOTE

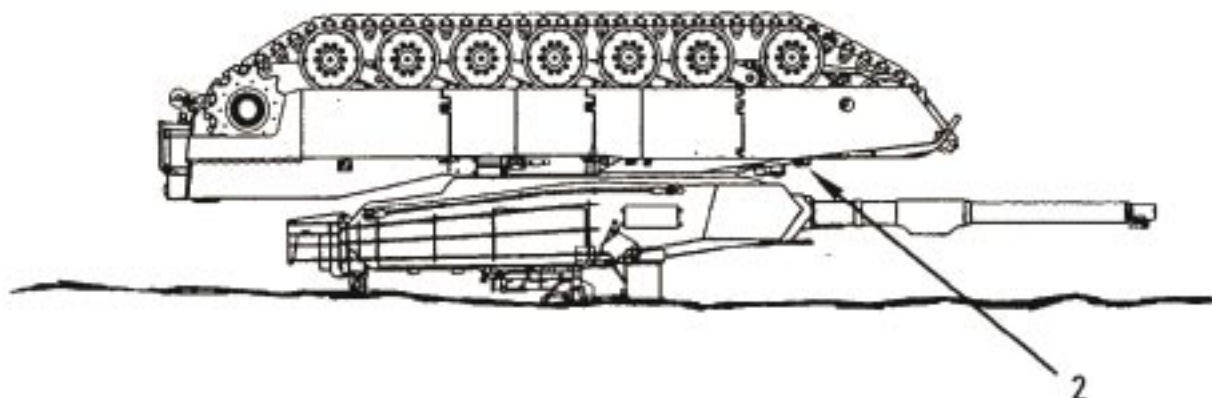
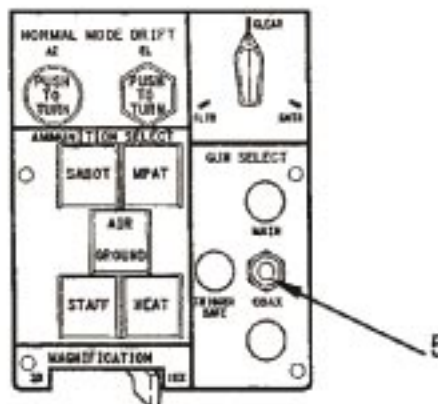
One or more turret screens may have to be removed to allow evacuation of turret crewmembers through driver's hatch (2), or driver through turret.



B. Check turret for obstructions. On tank commander's order, attempt to traverse hull (with power or manually) so turret crewmembers can evacuate through driver's hatch (2), if necessary, or driver can evacuate through turret, if necessary. Direct loader to set turret lock if access is achieved.

C. On tank commander's order, evacuate tank, if possible, by established route once tank has fully stabilized. If no evacuation route exists, remain in turret and wait for rescue personnel.

D. If evacuation is accomplished, report to assembly area 98 feet (30 m) to rear of tank.





# EMERGENCY PROCEDURES

TM 9-2350-288-10-2

## ROLLOVER (TOP) - Continued

### LOADER

- A. Once tank has stabilized, establish contact with driver.
- B. Move SAFE/ARMED handle (6) down to SAFE position.
- C. Make sure MAIN GUN STATUS SAFE light (7) is lit.
- D. Assist gunner in checking turret for obstructions, as required, and set turret lock (8) on gunner's order.
- E. Assist turret crewmembers with evacuation through driver's hatch (2), if necessary. Assist driver with evacuation through turret, if necessary.
- F. On tank commander's order, evacuate tank, if possible, through established route. If no evacuation route exists, remain in turret and wait for rescue personnel.
- G. If evacuation is accomplished, report to assembly area 98 feet (30 m) to rear of tank.

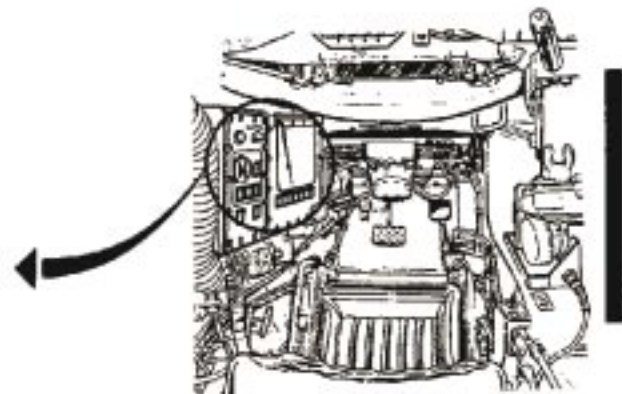
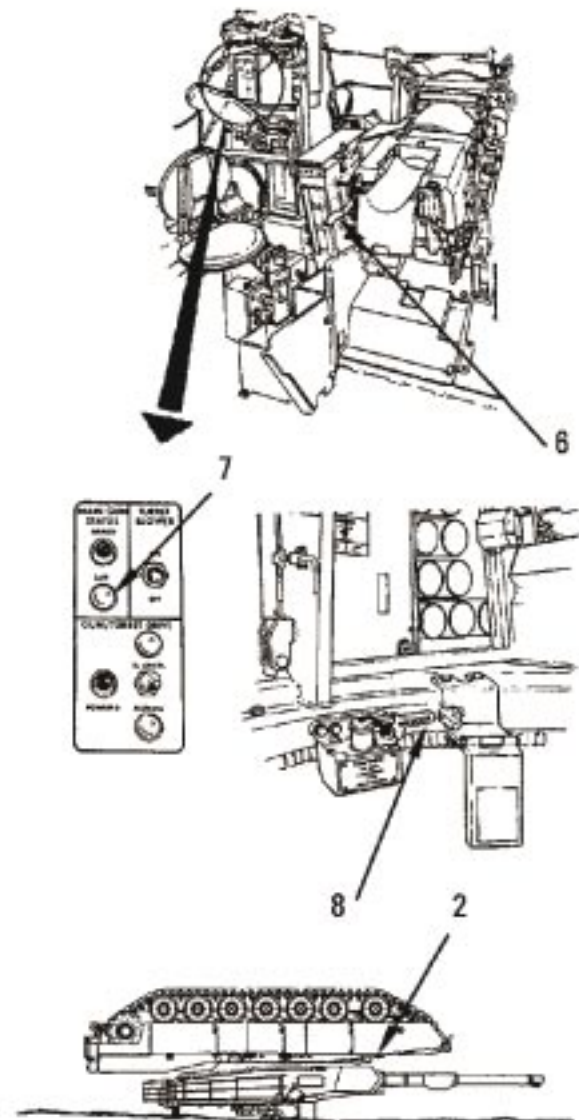
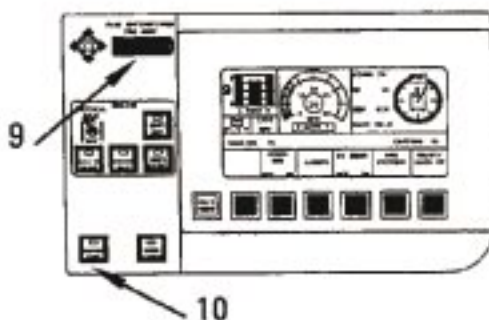
### DRIVER

- A. Once tank has stabilized, announce SHUT DOWN and shut down engine (see 2-216).
- B. If engine fire exists and the 1st shot (automatic) bottle has not extinguished the fire, activate 2nd shot fire extinguisher switch (9).

### NOTE

If main gun positioned anywhere except center, 45° right from center, or 45° left from center, driver can evacuate through driver's hatch (2) without removing driver's night vision viewer, if installed.

- C. On tank commander's order, press MASTER POWER pushbutton (10) for off. Remove driver's night vision viewer, if installed (see 2-216).



Change 4 2-893

# EMERGENCY PROCEDURES

## ROLLOVER (TOP) - Continued

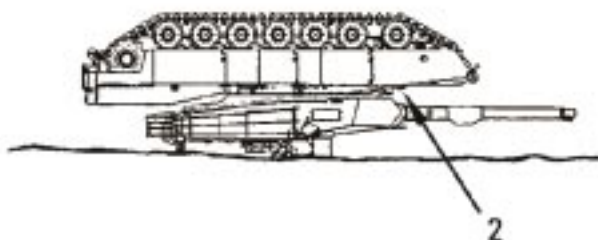
**WARNING**

Driver must not evacuate until turret is locked and command **DRIVER EVACUATE** is given. A traversing turret could cause injury or death.

**NOTE**

One or more turret screens may have to be removed to allow either evacuation of turret crewmembers through driver's hatch (2), or driver through turret.

D. Once vehicle has stabilized, announce **DRIVER EVACUATION** and evacuate, on tank commander's order, through driver's hatch (2) if possible. If not possible, crawl through to turret once route is cleared and turret lock is locked. Evacuate through established route once tank has fully stabilized.



E. Report to assembly area 98 feet (30 m) to rear of tank.

**WARNING**

Upon complete evacuation of all crewmembers, tank should be inspected for fire hazards such as leaking oil, fuel, hydraulic fluid, and electrolyte. Stand by with portable fire extinguisher when inspecting tank for leaks in case of fire, which could cause injury or death.

2-894

Vehicle Type	Accidents	Soldiers Killed
Car	7	7
Pickup	2	2
Motorcycle	3	2
Van	1	0
Other*	0	0

**TOTAL FATALITIES**  
**11**

\*Includes tractor trailers and unknown POVs.

Report of Army ground accidents; published by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident prevention purposes only. 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). Address questions about distribution to DSN 558-2062 (334-255--2062).

Burt S. Tackaberry  
Brigadier General, USA  
Commanding

# CY 97 Countermeasure index

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# Reporting accidents: Doin' it right

Even though it's been well over a year since accident-reporting procedures changed, many units are still doing it the old way – which is now the *wrong* way.

Briefly, DA Form 285-AB-R (Abbreviated Ground Accident Report) is now used to report all off-duty accidents and all Class C and D on-duty ground accidents. DA Form 285 (U.S. Army Accident Report) is used only for reporting Class

A and B on-duty ground accidents.

Army accident reporting requirements are outlined in AR 385-40: *Accident Reporting and Records*, and they are **mandatory**. Details on completing all accident-reporting forms, along with reproducible forms, are in DA Pam 385-40: *Army Accident Investigation and Reporting*. ♦

POC: Mr. Dave Brown, Support Directorate, DSN 558-2001, commercial (334-255-2001)

**DA Form 285: Use only for Class A and B on-duty ground accidents**

**DA Form-285-AB-R: Use for all off-duty accidents and Class C and D on-duty ground accidents**

DA FORM 285, JAN 92      DA FORM 285, AUG 94