

ARMY GROUND RISK-MANAGEMENT PUBLICATION

# COUNTERMEASURE

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Qualification Training

Vehicle Standards

Sustainment Training

Operator Standards

**AR 350-XX**

Remedial Training

Driver Management

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**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.

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# 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 OPTEMPO

Select  
Train  
Test  
License

### Today

- Policy
- Standardization
- Model Program

New Direction

### XXI

- Change Culture
- Life-Cycle Responsibility
  - Accessions
  - Schools
  - BaseOps
  - Commander
- Common Task



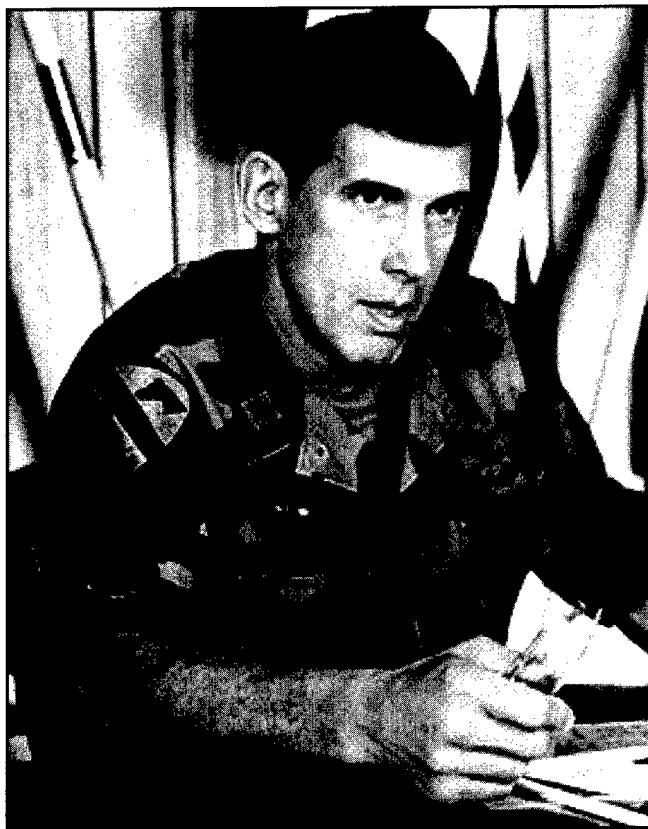
Safety is everyone's business. Every soldier and leader must internalize the process. We must live the five steps both on and off duty. Only then can we face the most deadly killer of soldiers—moving vehicles (tracks, wheels and POVs). More than 70 percent of all Army fatalities come from operating these 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.**

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

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

# 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.

**POC: MAJ Julian Simerly, U.S. Army Safety Center, DSN 558-1186 (334-255-1186), e-mail [simerlyj@safety-emh1.army.mil](mailto:simerlyj@safety-emh1.army.mil)**

## 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?

POC: MAJ Julian Simerly, U.S. Army Safety Center, DSN 558-1186 (334-255-1186), e-mail [simerlyj@safety-emh1.army.mil](mailto:simerlyj@safety-emh1.army.mil)

## 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

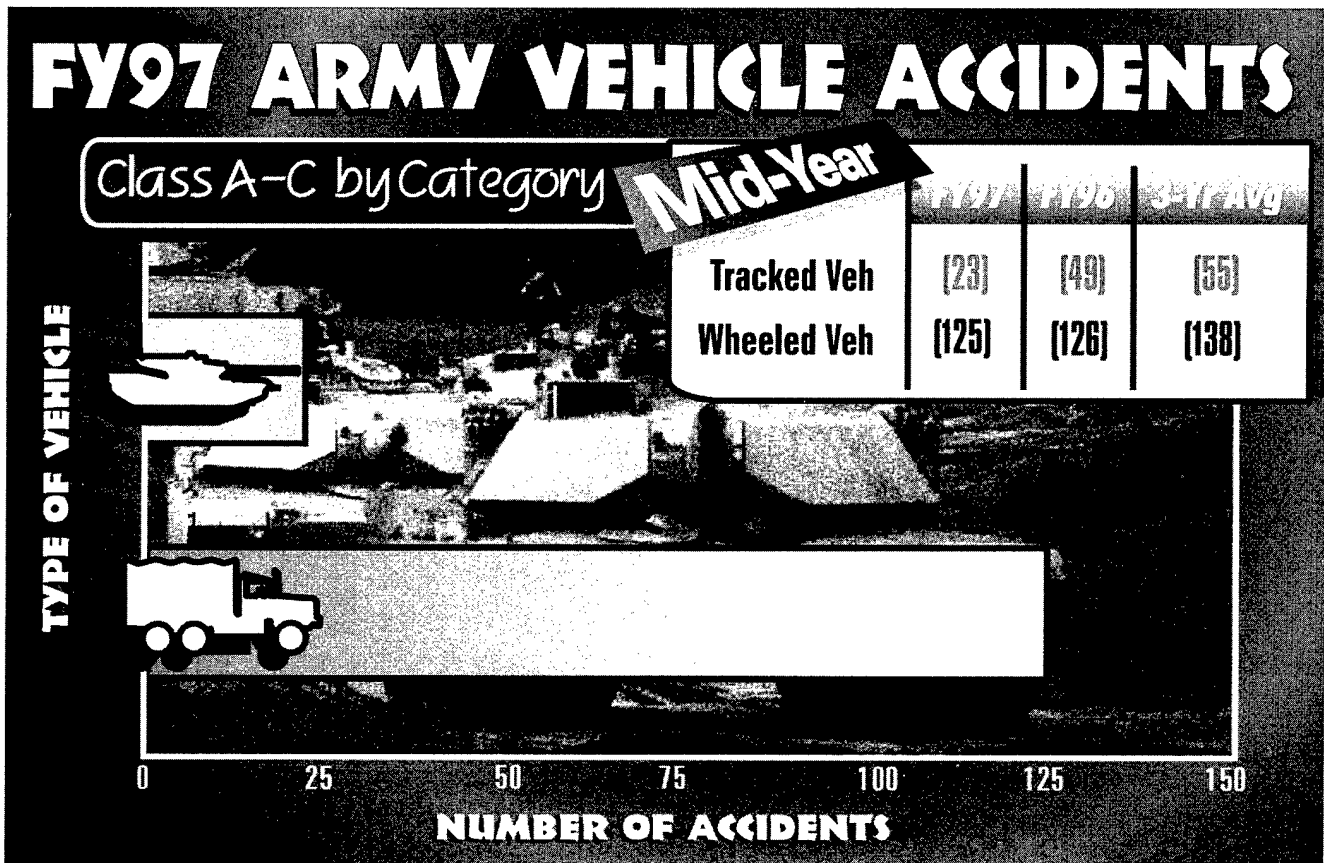
Through the first half of FY 97, the most common causes of injury/damage were improper driving techniques and improper intervals between vehicles. A total of 61 percent of all wheeled vehicle accidents can be attributed to these two cause factors.

## 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.

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

**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.**

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

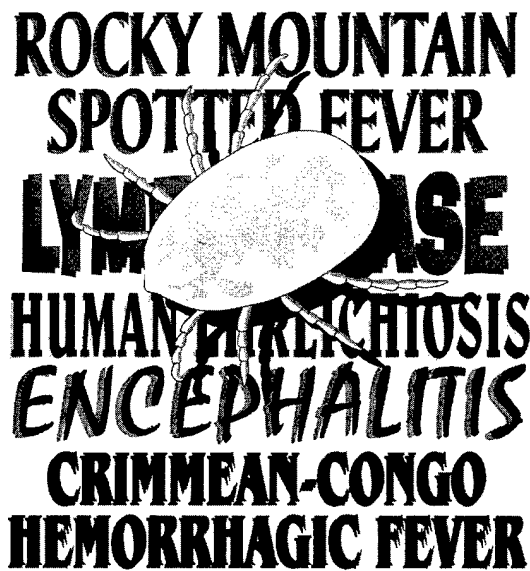
we must actually **DO SOMETHING**. We must implement those controls. All the good intentions in the world are useless without action. You should monitor yourself and others periodically throughout your exposure. You should use the buddy system to check your clothing and body for ticks. Its recommended 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.

**POC: MAJ Julian Simerly, U.S. Army Safety Center, DSN 558-1186 (334-255-1186), e-mail simerlyj@safety-emh1.army.mil**



# NCO BUSINESS

**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 cannoneer 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.

**POC: SFC Raymond G. Taylor, FA Systems Manager, DSN: 558-2892, COMM: 334-255-2892.**

# 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.

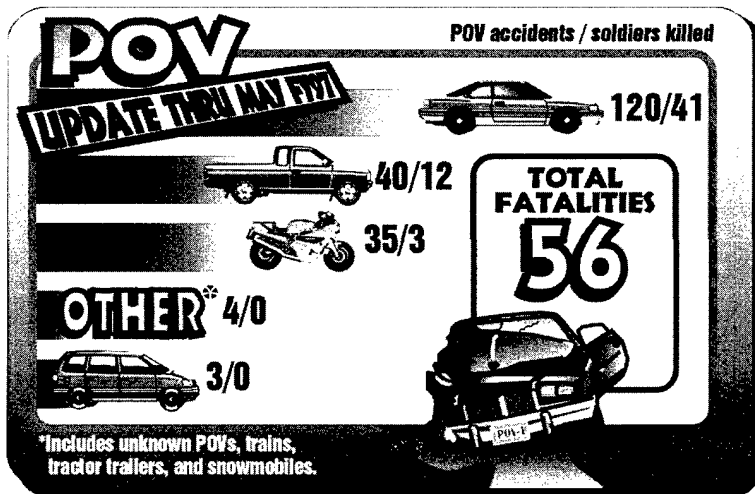
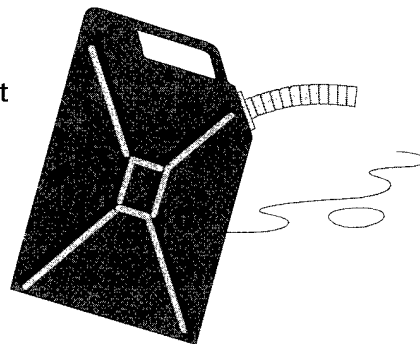
Several vehicle fires have occurred at  
service stations as a result of customers  
filling gas cans placed on plastic  
surfaces. The reported fires have  
involved a gas can in the back of a

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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*Burt S. Tackaberry*

Burt S. Tackaberry  
Brigadier General, USA  
Commanding General