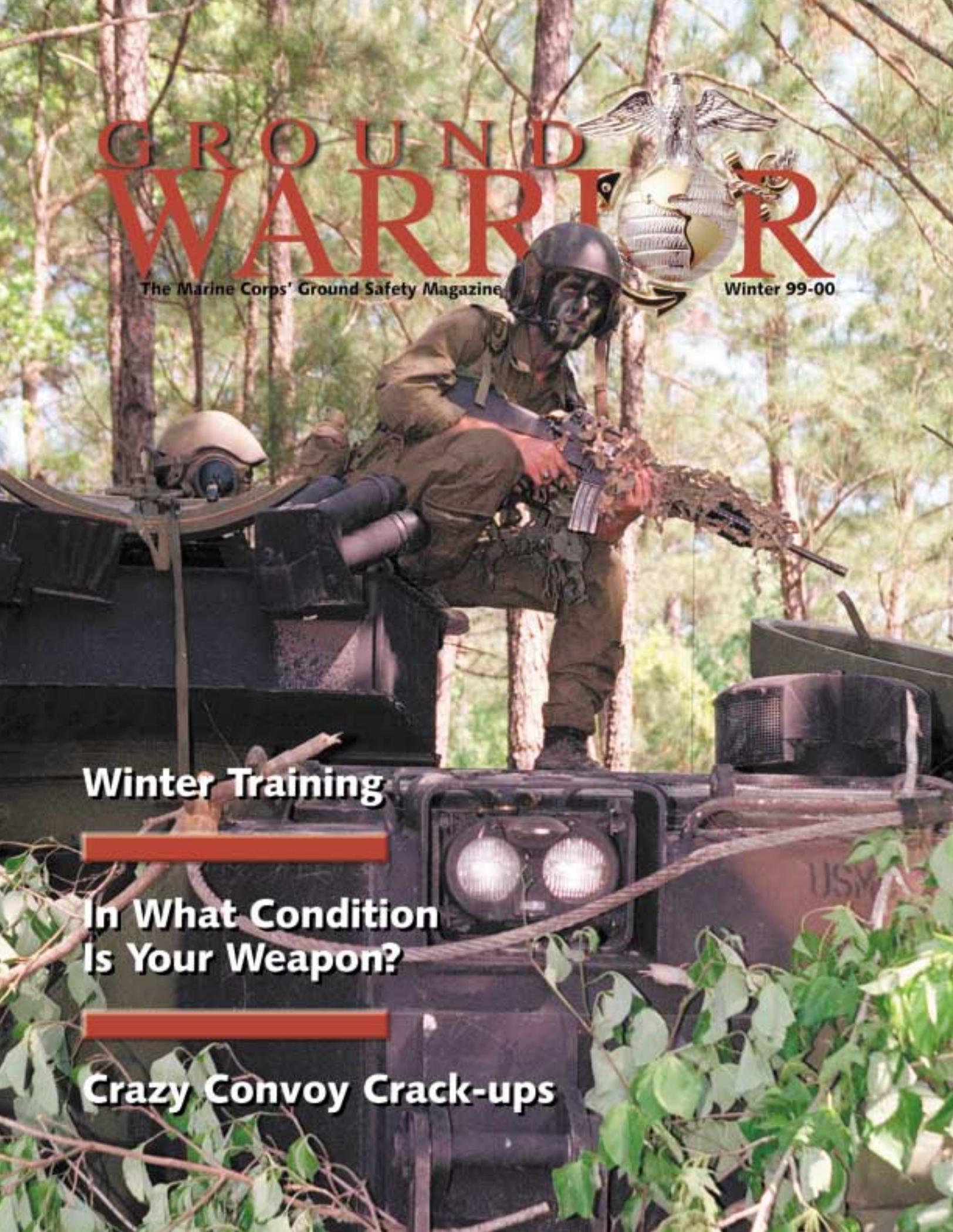


# G R O U N D W A R R I O R

The Marine Corps' Ground Safety Magazine

Winter 99-00



**Winter Training**

**In What Condition  
Is Your Weapon?**

**Crazy Convoy Crack-ups**

# GROUND WARRIOR



The Marine Corps' Ground Safety Magazine

Winter 99-00, No. 4

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## In What Condition Is Your Weapon?

*by Capt. Joe Cleary*

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# Reader e-mail



Most editors call this section "Letters to the Editor," but, this being the computer age, we received only e-mail responses to our previous issue. Thanks to those Marines who took time to let us know what they thought, what mistakes they caught, and for general feedback.

Re: High-Wire Act  
*Ground Warrior*, Summer '99

The "facts" regarding to some of the Marines involved and what allegedly happened were not what really happened. I know this because I was the Marine who had a "severely scratched throat", as you put it.

The instructors told us the cable could hold the weight of 10 Marines. The most they were letting on the wire-rope bridge was six. We were going to hang off the bridge for a photo-op. Halfway across, we jumped off to take the picture. As we did, I saw the safety cable snap. It cut through the air and wrapped around my neck. Hanging in the air, I was able to free myself and climb to safety.

Your article says that the Marines were told not to jump and shake the wire. That's not true. Maybe we should not have jumped, but it shouldn't matter if 25 Marines jumped off that bridge. The safety rope was supposed to hold 51 tons. The Marines in charge should be more worried about what the real problem was and the unsafe equipment.

LCpl. Paul Seitz

*The opening paragraph of the article "High Wire Act" states that the 14-year-old wire rope that served as a safety line had not been maintained or inspected prior to use. Later in the article (highlighted as a "Contributing Factor") it states that "The wire rope was worn and frayed throughout its length. The safety line was rusted inside and out, and wires within each strand were broken." Additionally, in the "Contributing Factors" section of the article, "...it is up to the unit responsible [for the equipment] to establish procedures defining who was supposed to maintain the rope and when they were supposed to do it. In this case, they hadn't."*

*We think that makes it clear the deficiency lies in the lack of regularly scheduled maintenance, and the unsafe equipment. – Ed.*

Re: *Ground Warrior*, Summer '99

I strongly believe this magazine has a definite impact around Marine Forces Headquarters. I've had more and more people dropping by to read the articles, and the magazines keep disappearing.

Recently, I've found it very useful to download the articles via the web site. However, I've noticed that the new

magazine hasn't been published, yet. Do you have an estimated release date of when the new one will be posted?

Sgt. Eli Chavez  
Ground Safety Specialist, MARFORPAC

*By the time you read this, the next issue will have already been posted on the website. We have reviewed and improved the Naval Safety Center's website, streamlining the process by which information is posted. Thank you for the feedback. – Ed.*

Safety Videos (from a letter sent to *Ashore* magazine.)

After reviewing our injury reports, I realize that roughly half the personnel getting hurt are doing so after work. I am searching for videos or other information about home and recreational safety (primarily sports-related). Any help or guidance you can give will be great.

LCdr. Mike Kammerzell  
Base Safety Officer  
NAS Whidbey Island

*A distribution center in Norfolk handles all requests outside of San Diego. It distributes VHS or Hi-8 videos that cover a range of subjects from safety issues to general military training. You can write or e-mail them a request for a list of titles and subjects.*

*Norfolk Regional Electronic Media Center (NREMC)  
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*e-mail: steve.freeman@smtp.cnet.navy.mil  
Commands in the San Diego area have to go to the center and pick up any videos you want. Here's how to get in touch with them.*

*Naval Education and Training Professional Development and Technology Center (NETPDTC)  
921 West Broadway, Bldg. 110  
San Diego, CA 92132-5105  
(619) 532-1353 (DSN 522)*

# THIS STORY HAS A RING TO IT

Staff Article

**A**fter covering his vehicle with cammie netting, a PFC jumped from the fender of his vehicle. Unfortunately, he didn't make sure his hands were clear prior to the leap. No, one of them didn't get caught in the netting. Instead, the wedding band on his hand snagged the vehicle's rear view mirror.

The force from the Marine jumping off the HMMWV tore the ring and finger off his hand. The Marine was immediately taken by medevac to the nearest hospital.

How many times have you told your Marines to remove any rings or watches when lifting or moving gear? Yes, they will argue it is important to wear their wedding band, but isn't it more critical to have a finger for the ring? You never know at what point your hand could get caught. In this instance, all the work was done, and the Marine was just getting down off the vehicle.

You can always take the ring off while doing the heavy work and put it on your dog tags' chain. That way, you never lose it, and you keep all your fingers where they belong – attached to your hand. 🍀

*The editorial assistant, Capt. Joe Cleary, can be reached at [jcleary@safetycenter.navy.mil](mailto:jcleary@safetycenter.navy.mil).*

A close-up photograph of a Marine in desert camouflage gear, including a bucket hat and gloves, aiming an M203 grenade launcher. The background is a blurred outdoor setting. The word "Those" is written in large, bold, red letters in the upper right corner of the image.

# Those

The minimum-safe range for firing an M203 HE round is 130 meters. The Marines in this story decided that 50 meters away was plenty safe.

**M**arines face risk every day, and their survival can depend on the decisions they make as a result. The following story starts with a couple of bad decisions.

First, some Marines decided to use an M203 grenade launcher on a range where it wasn't permitted. Then, to make matters worse, they set up their own targets 50 meters away – 80 meters inside the danger zone of the weapon.

The first couple of rounds landed close to the targets. Then a round fell short, hit the ground in front of the targets, and exploded. As it is supposed to do, shrapnel flew in all directions. One piece cut through one Marine's right thigh. The Marines firing

the weapon were fortunate that only one person was injured, and that the metal sliced through his leg and not his neck.

Most of the Marines who are injured during training don't fully understand the purpose and the procedures of the training. They rely on their leaders, who must fully understand the hazards of operations and provide safeguards against them.

Safe-weapon practices for firing the M203 grenade launcher require a minimum safe distance of 130 meters for high-explosive rounds, and 165 meters for HEDP. If the Marines in charge of this live fire had followed range regulations (which stipulated that all targets had to be more than 200 meters

# Targets Are Far Enough Away

By Lt. Paul Berthelotte

away), the mishap would not have occurred. With targets at 50 meters, the Marines were well within the danger area for the M203.

## Leadership Dropped the Ball, Too

RSOs and OICs must be familiar with precautions for the weapons being fired and enforce those precautions. They can't prevent Marines from killing or injuring themselves if they don't know what is going on.

The unit did not use range targets, they created their own. The fact the platoon decided to use their own range targets and not those specified increased the chance this mishap could occur, even if they had been on a range where the M203 was authorized. Range controllers place targets at distances based on the weapons fired on that specific range.

Range Control permits Marines to place their own targets on the range, but the procedures require the platoon to contact Range Control first. EOD personnel then accompany the unit to make sure they place targets at safe distances. How often has your platoon used a range to fire weapons without first checking in? Have your platoon commanders and sergeants ever visited Range Control? A trip to see

how they control the ranges at the base will increase communication and make events safer.

Another factor to consider in this case is unexploded ordnance. If a range prohibits using weapons that can produce unexploded ordnance, and someone uses a weapon like the M203, personnel on the range will not look for unexploded ordnance when they move the target. This creates an unknown and potentially lethal hazard.

## How To Manage These Risks

Some of the recommendations that came out of this incident require Range Control to contact the RSO/OIC and have them report the following:

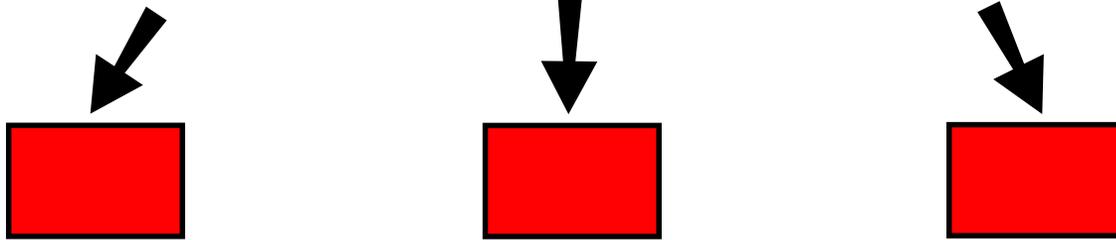
- A. Did the Marines place their own targets?
- B. Are the targets approved? If not, the range must remain cold until the targets have been verified.
- C. Personnel authorized to clear a range hot will verify the authorized weapons and ammunition.

No risk assessment was done before this live-fire event. Had even a quick risk assessment been done by the RSO, OIC and other knowledgeable personnel at the range, it might have determined that this training was too dangerous. 🎯

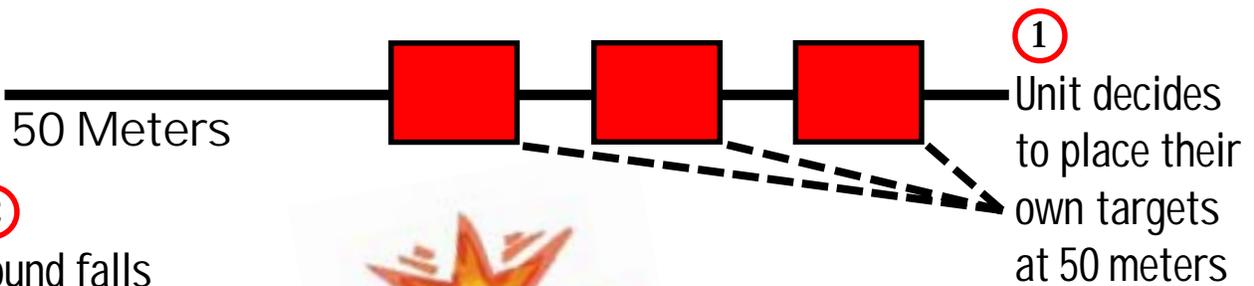
See diagram on next page.

# Diagram for Disaster

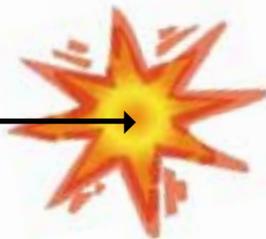
Range Targets



200 Meters



② Round falls short, shrapnel hits Marine



Firing line



Marines firing M203 grenade launcher

# Before You Fire That Mortar . . .

## Understand the 81mm Barrel Clamp

**S**ome Marines are confused about the purpose of the barrel clamp on the 81mm mortar.

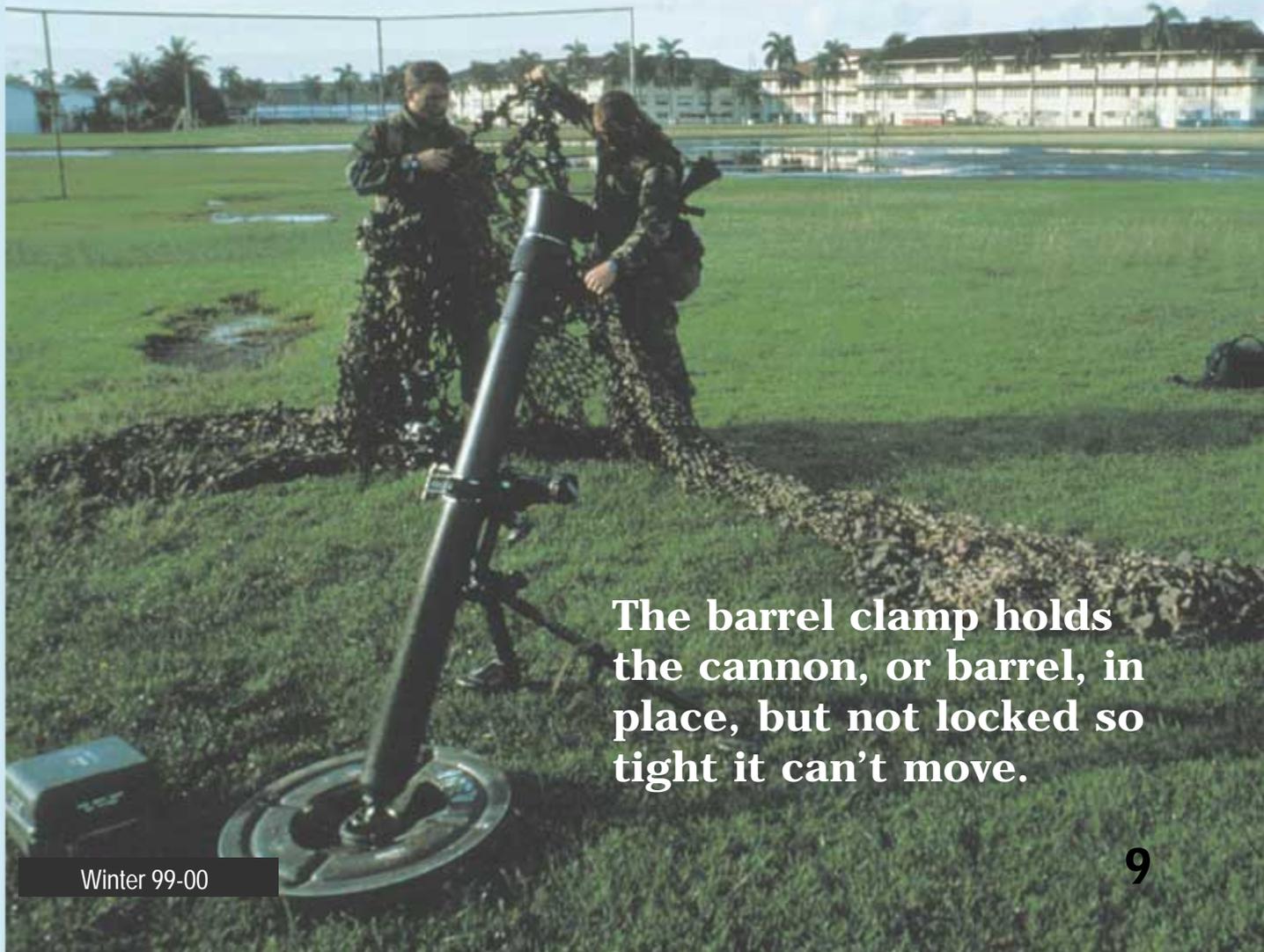
First, the barrel clamp holds the cannon, or barrel, in place securely, but not locked so tightly it can't move.

Second, the adjustment to the tension of the barrel clamp will be made by 3<sup>rd</sup> echelon maintenance. The specifications in the tech manual call for a tension of 25-to-30 foot-pounds.

After a period of use, the mortarman may notice the clamp is no longer holding the cannon securely. Readjustment of the barrel clamp tension must then be done by 3<sup>rd</sup> echelon maintenance.

The barrel clamp will no longer be removed and replaced at the organizational level. Changes to the SMRC have been initiated to move the barrel clamp from PAOFF to PAFFF. ☛\*

**Ref: COMMARCORLOGBASES ALBANY  
151004Z JUL99**



**The barrel clamp holds the cannon, or barrel, in place, but not locked so tight it can't move.**

A soldier in a white winter uniform is operating a large telescope mounted on a tripod in a snowy field. The soldier is wearing a white helmet and a white jacket. The background is a snowy landscape with some trees in the distance. The word "win" is written in a stylized, glowing font in the upper right corner.

win

Leaders must stress the hazards of high-altitude and cold-weather training . . .

# ter Training

Staff Article

It is one thing to go hiking and skiing in the snow for fun in civilian clothes. Add a 70-pound pack and heavy, military-issue winter gear and the level of difficulty skyrockets. The following two mishaps highlight some of the most dangerous aspects of mountain-warfare training.

## The Tree Jumped out at Me, Honest!

The pursuit of excellence in all areas of warfighting leads Marines to different kinds of training. When one particular lance corporal joined the Corps, he probably never dreamed he'd be paid to ski, especially since it wasn't a sport he practiced.

Skiing with a combat load can distract even the most skilled of snow warriors. This Marine had only a three-hour skiing PME. While honing his skills, he failed to react in time to a tree branch across his path. Unable to stop in time, or even duck, he collided with a branch.

The Marine hit the branch at chest level, knocking the wind out of him. The lance corporal was flown to the nearest hospital, where he was diagnosed with a bruised heart. He was hospitalized for four days, and placed on light duty for 20 days.

Some Marines are most dangerous to themselves when they have just qualified at a certain skill. Occasionally they'll forget that a qualification means they have the minimal skill level necessary to fire that weapon or drive that truck. It is only through hours of careful practice that they become proficient. Leaders need to stress at all levels the inherent dangers of the activities that they are engaged in, and sometimes rein in Marines when they become careless.

## Mountain Sickness

The Marine Corps is well known for being one of the most physically fit branches of the military. But most of that training, in preparation for an amphibious assault, is done at sea level. Switching to high altitude presents a whole new set of problems. Try running that three-miler at 6,000 feet and see how fast your times are. Sportscasters are fond of saying that the "altitude factor" plays a big role in sports. Teams playing in the Mile High City often have to adjust to the lower oxygen levels.

Why does it affect physical performance? There simply isn't the usual amount of air for the human body to process. Imagine only being able to take a breath every five seconds while running a race. It doesn't affect the runner right away, but halfway through, they are gasping for breath. It takes some time for you to acclimate yourself to training at high altitude.

Add severe cold to the formula. Your body is already moving blood more slowly in order to conserve heat. If you aren't getting the normal amount of air you are used to, mountain sickness may hit you.

Disorientation, and even nausea, are the major symptoms. The brain is literally starving for oxygen. This may seem amusing at first, but if it happens while skiing or moving down a narrow mountain trail, the results could be fatal. In a recent case, a Marine at the Mountain Warfare Training Center was disoriented and showing signs of hypothermia. He was quickly taken by medevac to the nearest hospital, where he was hospitalized for four days.

Alertness for these symptoms at all levels is paramount. Leaders must stress the hazards of high-altitude and cold-weather training, and then take a proactive role in preventing mishaps. ❄️

*The editorial assistant, Capt. Joe Cleary, can be reached at [jcleary@safetycenter.navy.mil](mailto:jcleary@safetycenter.navy.mil).*

# Ammo and Pyrotechnics an Explosion

by MSgt. Randy L. Leer

**J**UST because a Marine works with explosives or pyrotechnics every day does not make them safer to handle. If anything, explosives become more dangerous. Haste and a strong desire to get the job done increase the odds of a mishap. Here are some recent mishaps that prove this point.

## Common Sense?

A demolitions expert with 30 years experience disregarded everything he'd learned. He was part of a crew taking down a utility-line tower. The crew planned to disassemble the metal portions and blast the concrete base.

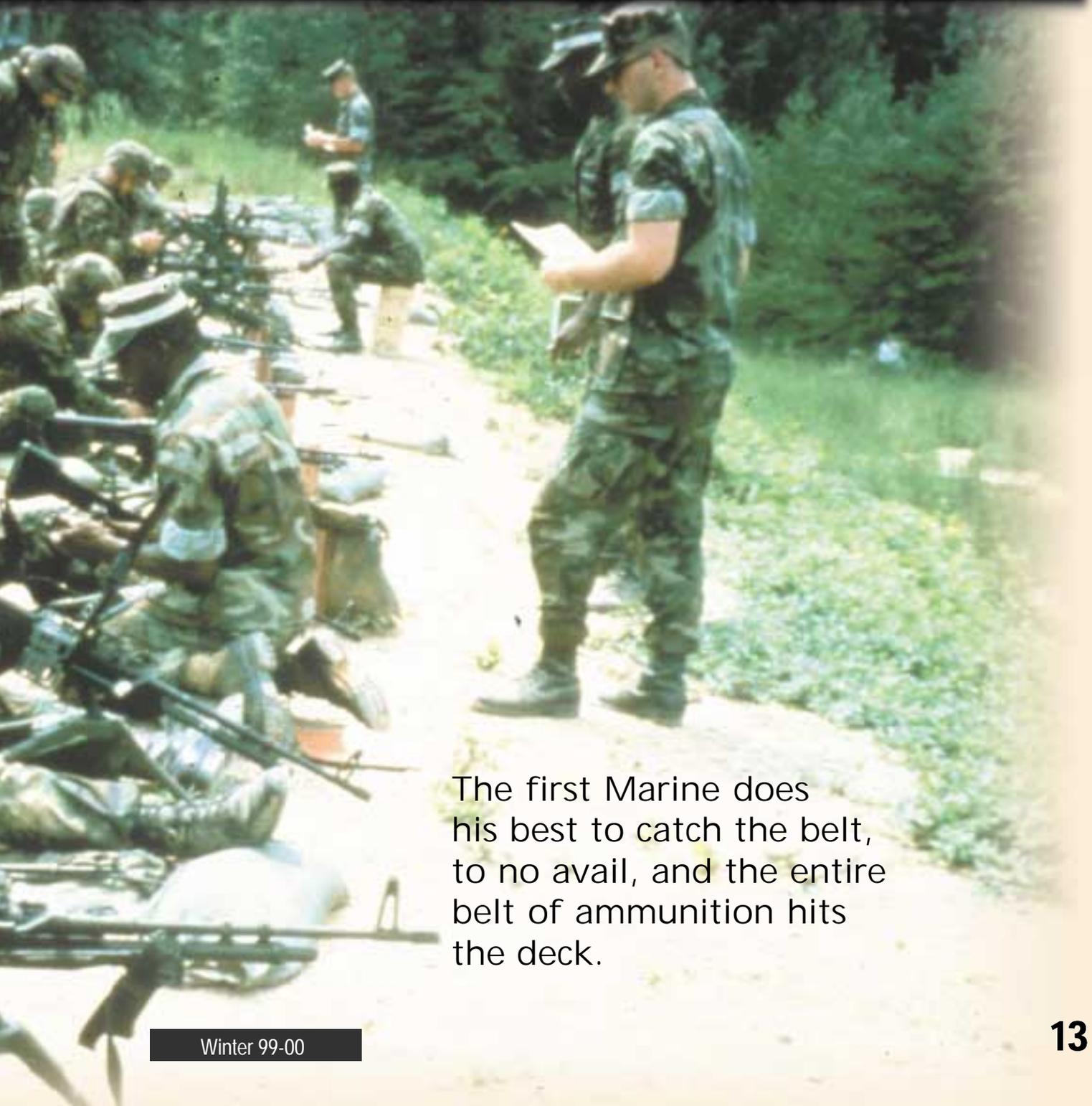
The last job required one extra blasting cap. The supervisor who had the key to the portable blasting-cap magazine had just left for the day. Our demolition expert decided not to wait to get the key for the magazine. Instead, he took an acetylene torch and used it to cut the locks off the magazine. He made it through the first lock and was working on the second one when the magazine exploded.

The force hurled his body like a rag doll, dropping him 50 feet away. Every bone in his body was shattered from the blast concussion. The remains of the steel magazine were embedded in the ground 50 feet in the opposite direction. The force of the explosion was so strong it blew the logo off his hard hat.

Because he did not survive the explosion, no one will ever know what he was thinking when he took a blowtorch to a magazine full of explosives. He probably wasn't thinking. He was so experienced that he assumed whatever he did would be correct.



# S: ve Lifestyle



The first Marine does his best to catch the belt, to no avail, and the entire belt of ammunition hits the deck.

Had he even done a cursory risk assessment, he would have realized that blowtorch + explosives = big explosion. He should have waited until someone contacted the supervisor to open the magazine. Using the acetylene torch, he might have saved an hour or two. Balance that against the risk: If he'd torched off this blast in the middle of the day, who knows how many other people would have been killed or injured?

## Yes, That's a Flare in My Pocket

During field training, a Navy corpsman assigned to a Marine Corps platoon found out the hard way why you don't remove a flare's safety cap and put the flare in your pocket.

Once inside the corpsman's pocket, the safety pin worked its way out of the device. The movement of his body or pressure from a piece of equipment pressed against the triggering mechanism and set it off.

A Marine had to kick the burning flare away from the corpsman after it burned through his clothes. Second- and third-degree burns, as well as a few bruises from the Marine's boot, served as a painful reminder for several days. The scars will remind him for a lifetime.

If you are going to use pyrotechnics, make sure you use them correctly. Training SOP should address how ammunition is carried after being unwrapped and how to carry or store it.

## Unexploded Ordnance. . . Temporarily

A civilian contractor demolishing a barracks at a Marine Corps base came across a round, blue grenade. When he picked it up, the grenade blew up in his hand, causing minor injuries.

How in the world could anyone get minimal injuries from an exploding grenade? In this case, it was a practice one. Had it been a live grenade, like

a high-explosive, frag or white phosphorous, he likely would have been killed or seriously injured.

Unexploded ordnance should be handled only by EOD personnel. No one else can determine the device's condition or how close it might be to igniting. If you find something that looks like an explosive, you should:

1. Clear the area and secure it. Allow no one else to enter the danger zone.
2. Call explosive-ordnance disposal immediately.
3. Describe what the device looks like and where it was found.
4. Assist the EOD team when they arrive.
5. Notify appropriate personnel IAW your unit's SOP.

I doubt the civilian will ever forget his experience or pick up another grenade.

## Better Than the Egg Toss

I seriously doubt that "Tossing the Ammo" is a game approved for the firing range. Yet that is exactly what two Marines did one morning as they were getting ready for a live-fire event.

A Marine had asked one of his buddies for a belt of 7.62mm link ammunition. Not wanting to risk over-exertion for the strenuous event to come, the second Marine didn't walk the 10 feet to hand it over. He just tossed the ammunition to his buddy.

The first Marine did his best to catch the belt, but missed, and the entire belt of ammunition hit the deck. The primer end of a tracer round fell at the correct angle with enough force to detonate. The Marine on the receiving end got fragments of rock and brass in his left eye.

Usually there is a long series of events leading up to a mishap, and stopping any one of them will prevent it. In this case, a Marine ignored a safety rule because he was too lazy to do it the right way. How many times have we cut corners for convenience? As leaders, we cannot run the risk of injuring subordinates; we also cannot risk creating a climate where shortcuts are OK because junior Marines see us committing an unsafe act. ☹️

*MSgt. Leer is an explosives analyst at the Naval Safety Center.*

# How To Roll an LVS

By GySgt. Brian McGeorge

**T**wo issues ago, we ran an article on LVS mishaps that had killed three Marines and injured 18 between 1994 and 1998. This year we already have had one fatality and two injuries. The fatality is under investigation, and the two injuries resulted directly from bad judgment.

At 1500 on a clear and sunny Saturday afternoon, two Marines were on an admin run to turn in wood pallets. Road conditions were dry, and the run should have been a piece of cake.

For this trip, to get a change of pace, the operator chose a route not normally taken. The route was an old, abandoned highway used only for field training. The speed limit was 25 mph. For some reason, the Marine decided the run needed to be made as soon as possible, and had the LVS traveling at 40 mph.

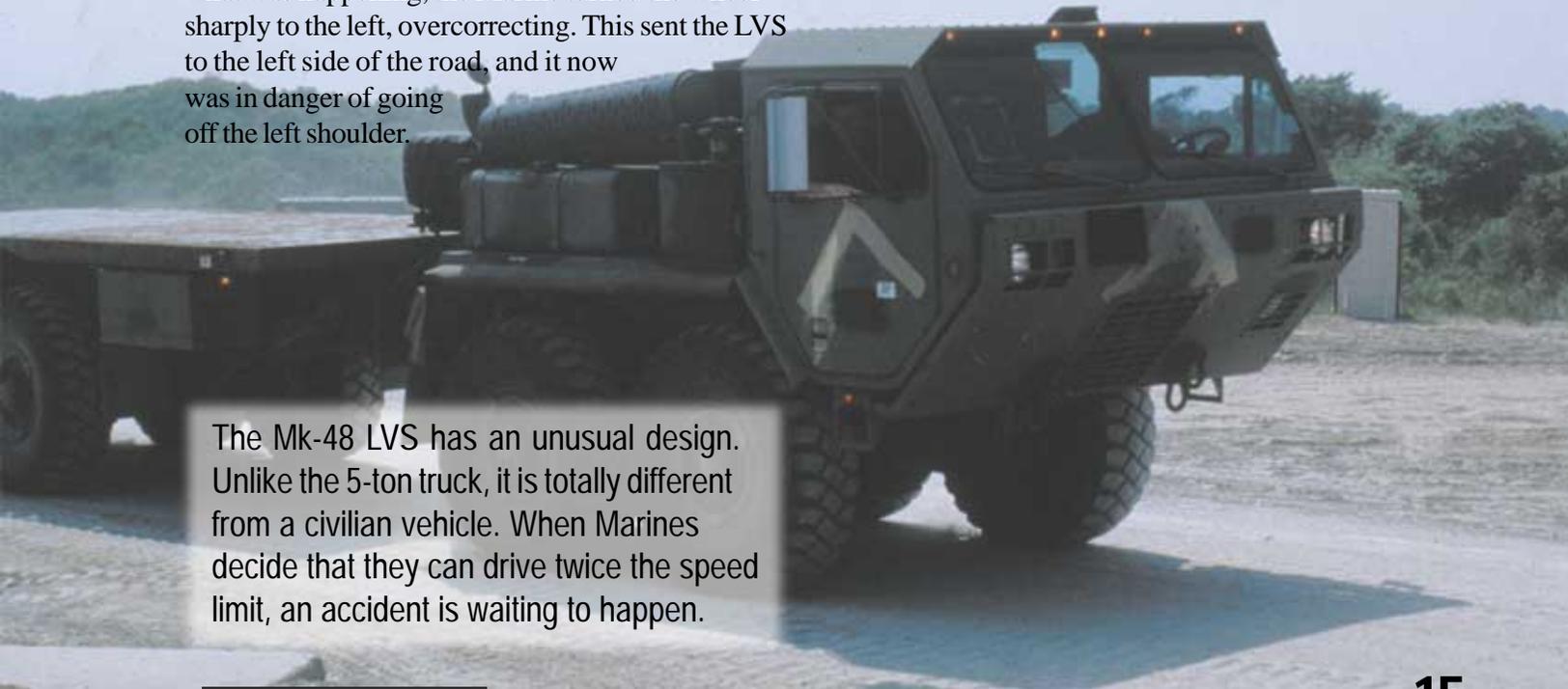
The road began to curve slightly left. Through inattention or because of the speed, the driver drifted to the right, toward the shoulder. When he realized what was happening, the Marine turned the wheel sharply to the left, overcorrecting. This sent the LVS to the left side of the road, and it now was in danger of going off the left shoulder.

The driver whipped the wheel to the right. His reaction sent the vehicle out of control across the road. It slid off the right shoulder and rolled, coming to rest upside down. The two Marines scrambled out of the cab. Because they were wearing their seatbelts, they were only slightly injured.

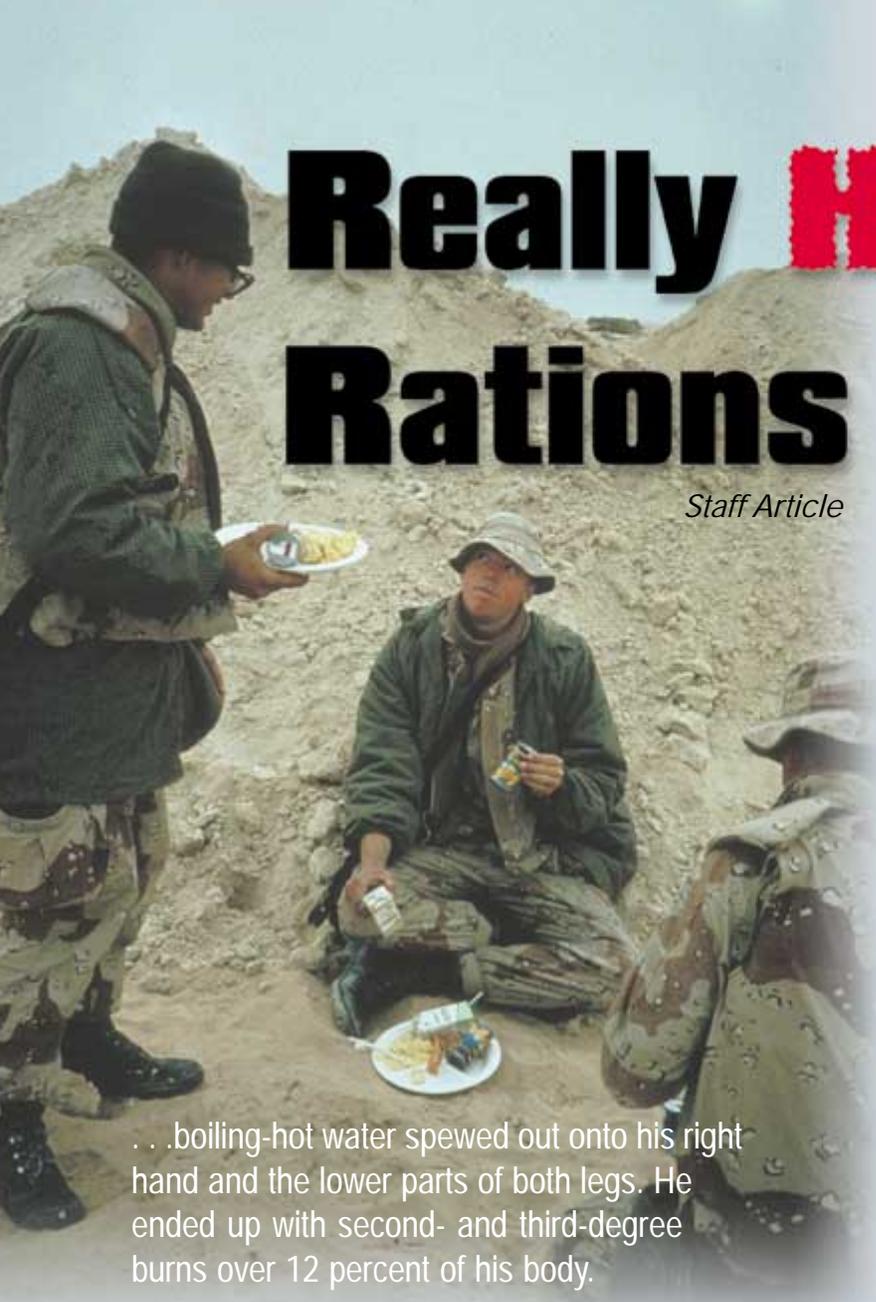
Speed-limit signs are posted for a reason. Tactical vehicles are not like your average auto, they're designed to operate in field conditions at substantially slower speeds than a sports car. Apparently this is not obvious because Marines continue to feel they can speed in them.

The driver was qualified and licensed to operate the Mk-48/17 LVS. He also had attended a required driver-improvement course. No matter how safe the vehicle, speeding on an unfamiliar route is a mishap waiting to happen. The vehicle damage was estimated at \$55,000. ☹\*

*GySgt. McGeorge is the tactical vehicle specialist at the Naval Safety Center. His e-mail is [bmcgeorge@safetycenter.navy.mil](mailto:bmcgeorge@safetycenter.navy.mil)*



The Mk-48 LVS has an unusual design. Unlike the 5-ton truck, it is totally different from a civilian vehicle. When Marines decide that they can drive twice the speed limit, an accident is waiting to happen.



# Really Hot Rations

Staff Article

...boiling-hot water spewed out onto his right hand and the lower parts of both legs. He ended up with second- and third-degree burns over 12 percent of his body.

The last thing you want to do is be late with the evening meal for a platoon of ravenous Marines. They've been in the field all day and would be less than pleased to find out their meal will be late. Unfortunately, one cook was running behind schedule, arriving late to the field by HMMWV. The cook and his assistant hurriedly began to set up the Tray Ration Heater (TRH). They had problems starting the TRH burner, and had to find a replacement, wasting more time for the hungry Marines.

In the cook's haste, he decided that it would be faster if he placed the TRH in boil mode, instead of auto. This would heat the water more quickly and allow him to complete the meal before sunset.

The cook heated the water for 25 minutes before shutting off the system. He waited about 10 minutes for it to cool. The Marine thought this would give

the tank enough time to depressurize. Accordingly, he slowly began to unlatch the TRH lid. Just after he started flipping latches, the cook realized he'd made a mistake. The tank was going to burst.

Desperately, he tried to refasten a latch, but it was too late. Pressure forced the lid open, and boiling-hot water spewed out onto his right hand and the lower parts of both legs. He ended up with second- and third-degree burns over 12 percent of his body.

The food-service cook had received training on the system and was qualified to use it. In fact, he had used the system more than a dozen times and felt he was experienced in its operation.

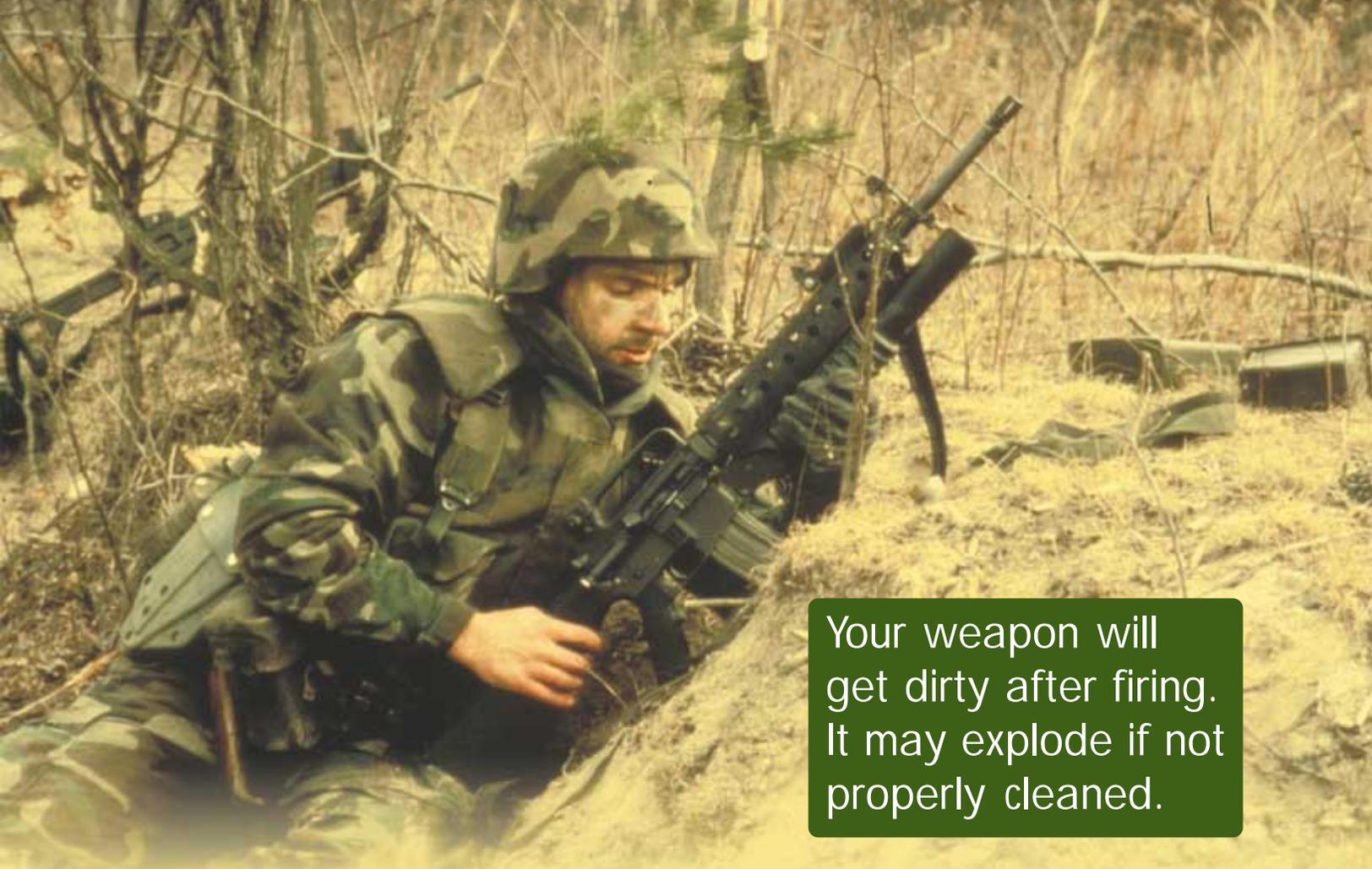
The main factor in this mishap was the cook's haste to prepare the evening meal before sundown by setting the burner in boil mode, rather than auto mode, as specified in the technical manual.

The TRH system is designed to operate in the auto mode, which heats the water to 200 degrees Fahrenheit and

cooks meals in 40 minutes. The boil mode heats the water to 212 degrees Fahrenheit, and causes pressure to build in both the tank and the tray rations. The technical manual specifically warns personnel of potential burn injuries when using the burner in the boil mode because of pressure building up in both the TRH tank and tray rations.

By violating tech manual procedures, the cook in this story saved himself only 15 minutes. This time may seem like an eternity when you have hungry Marines voicing their "suggestions" to you, but it is a heck of a lot better than spending time in a burn ward, followed by months of painful treatment. And you know what? The Marines were late eating anyway. 🍌

*The editorial assistant, Capt. Joe Cleary, can be reached at [jcleary@safetycenter.navy.mil](mailto:jcleary@safetycenter.navy.mil).*



Your weapon will get dirty after firing. It may explode if not properly cleaned.

# Dirty Work on the Rifle Range

A company of Marines was on the range firing their M16A2s. Suddenly, the barrel of one of the rifles exploded. Metal shrapnel tore into the neck of one of the Marines.

The battalion took two other rifles that were found obstructed during cleaning and cut the barrels to find what was clogging the bores. In one case, a machinist cut a cross section out of the barrel and found a 5.56mm ball-tracer round.

The problem was over-lubrication, which causes sand and dirt to get stuck in the barrel. If you don't clean your weapon regularly, this mixture can harden and block the barrel. In some cases, the hazard may

be hard to detect. That's why Marines must clean their weapons after every use. Basic risk management involves starting with safe equipment, and keeping it that way.

Leaders, from the fire team-level on up, need to ensure that their Marines closely inspect and clean weapons before and after all live-fire and blank-training exercises. Weapons with any defect need to be reported to the armorer immediately.

The Marine injured in this incident was wearing his kevlar helmet and flak jacket. If not, his injuries could have been more severe or even fatal. ☘

# “You’re Out of P

**L**ive-fire ranges are one of the most dangerous places in the Marine Corps. In the last five years, six Marines have died while doing live-fire exercises.

Range controllers and range-safety officers are charged with keeping an eye not only on the Marines visiting the range, but also on each other. This vigilance is especially important when training new range controllers. As a gunnery sergeant quickly found out, being in the wrong place at the wrong time will hurt—and might even kill.

The gunnery sergeant was training to qualify as a range controller. During a live-fire, trench-clearing exercise, he was struck by an M-67 grenade fragment. He had been helping control a squad clearing the trench and was out of position.

The day had started out smoothly. All participants had received a range-safety brief and orientation. They also had seen a demonstration of how to use fragmentation grenades. The trench clearing was being conducted per the unit’s SOP.



Unless closely monitored, inexperience and high-explosives can be a deadly combination.

# osition!"

## Staff Article

The squad attacked and cleared the stem of the T-shaped trench. The fire team advanced down the trench toward the junction of the two trenches swiftly and smoothly. The gunnery sergeant saw the trench clearing from on top of the trench edge, facing the intersecting trench.

This is where the qualified range controllers should have stopped the drill and told the gunnery sergeant he was in the wrong position. Instead of facing the trench the Marines were in, he should have been on the inside corner of the intersecting trenches. None of the other senior or more experienced controllers noticed or tried to correct his mistake.

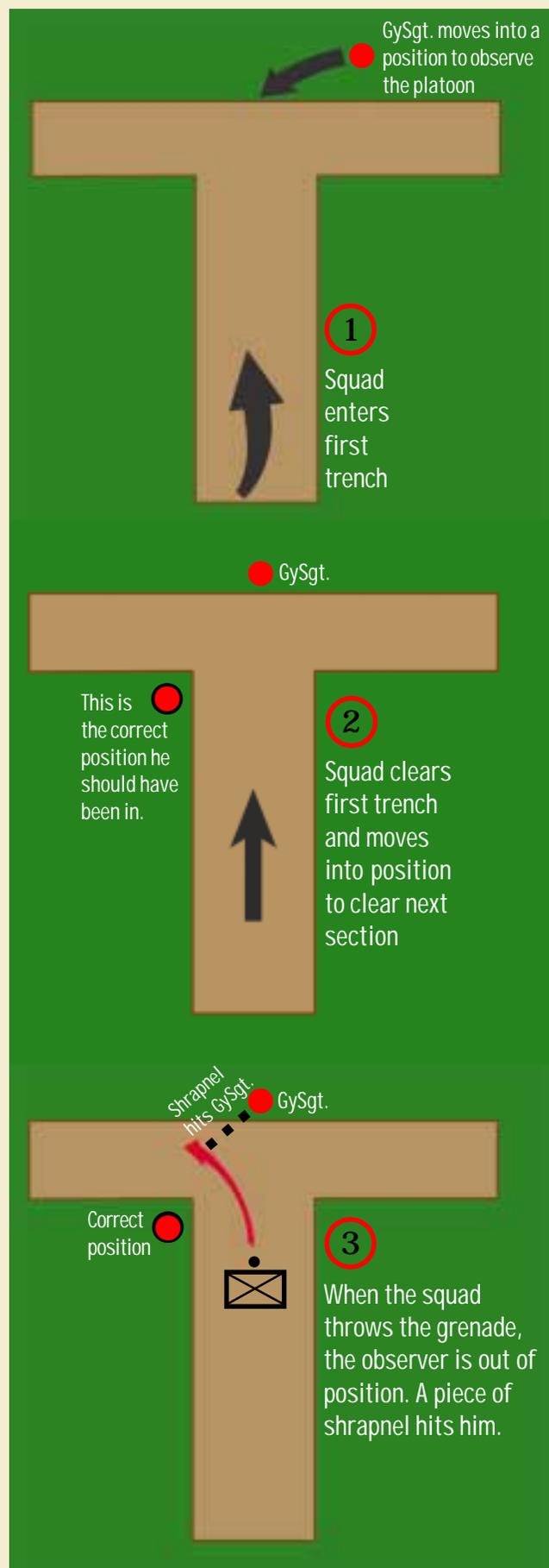
The Marine under instruction had been on the range for the two previous days. If he was in the wrong position this time, how many times before had he been out of position?

A fire-team member threw a grenade down the adjoining trench. The gunnery sergeant verified that the Marine had thrown the grenade safely, then stepped back from the edge of the trench and crouched down to clear the blast. When the grenade detonated, a small fragment pierced the right armhole of his protective vest and sliced into his back.

People saw him stagger. The exercise was immediately halted, and corpsmen treated him. This Marine suffered only a light wound and didn't require hospitalization.

Marines training the trainer must take extra precautions. Two days will not make an expert. A Marine might put himself in danger trying to better observe the live-fire. Just because you know the safety procedures doesn't mean everyone else does. 🍀

*The editorial assistant, Capt. Joe Cleary, can be reached at [jcleary@safetycenter.navy.mil](mailto:jcleary@safetycenter.navy.mil).*



The next thing the Marines knew, fire from the burn-bin had spread to the 5-ton truck.



# New Meaning for 'Hot Truck'

*Staff Article*

**W**hen you barbecue, common sense tells you not to place the lighter fluid next to the grill. You also know not to light a cigarette when filling up your car with gas. So why, then, would someone place a container, in which they are going to burn excess gunpowder, next to a 5-ton truck?

Gunpowder will burn, not explode, if it is loose and set on fire. One way to destroy excess is to divide it into small increments and burn it in a metal container. A Marine unit had completed a live-fire exercise and had extra powder on hand. The NCOIC used a burn-bin at the burn site for an increment burn.

The first increment was destroyed without a hitch, then the burn got out of control. The Marine in charge was not familiar with the SOP of an incre-

ment burn. His first mistake was not holding a safety brief (it could have been a simple one). For example, he might have explained what an increment burn was for, any problems they might encounter, dangerous areas, and emergency actions.

Had he done the brief, he also might have realized that the 5-ton truck they had driven to the burn site, which also contained the powder increments to be burned, was parked next to the burn-bin. A quick risk assessment would have revealed there was danger in having a large truck with external gas tanks, and loaded with gunpowder, parked next to a metal bin where they were going to burn the gunpowder.

The Marine failed to ensure that the fire was completely out before adding the second increment. He was unfamiliar with procedures: SOP also calls for the burn-bin to cool before adding a second increment.



## There was no way the small fire extinguisher from the truck would have put out the blaze that erupted.

It had been a long day, and the crew was tired from the live-fire. The NCOIC and his crew may have been anxious to get the job done, and since the powder was burning fine, they may have felt confident adding a second increment of powder before they were supposed to. Most likely, a combination of all these factors and the NCOIC's inexperience contributed to the lapse in judgment.

The next thing the Marines knew, fire from the burn-bin had spread to the 5-ton truck. There was no way the small fire extinguisher from the truck would have put out the blaze that erupted. The weapons, equipment and supplies contained in the cargo bed of the truck were destroyed.

Every Marine intending to conduct an increment burn should know not only where on the range it is permitted, but also the unit's SOP. These procedures

are supposed to save lives and equipment, not be used as coasters for your coffee cup. If you are responsible for leading Marines, make sure they know what to do before you get yourself or your Marines killed.

Recommendations for topics to be covered in a safety brief:

1. Park the vehicle a safe distance away and upwind from the burn-bin. This will prevent flames and cinders from landing on the vehicle.
2. Review safety procedures.
3. Let the burn-bin cool before adding the next increment.

Remember, not only must the NCOIC be qualified, he must be supervising the event, and not be a member of the working party. ☘

*The editorial assistant, Capt. Joe Cleary, can be reached at [jcleary@safetycenter.navy.mil](mailto:jcleary@safetycenter.navy.mil).*

# ANYONE CAN DRIVE

By GySgt. Brian McGeorge

**A**nd anyone can kill himself if he doesn't take driving 5-ton trucks seriously. Large, tactical vehicles are hard to drive under the best circumstances. When the weather is bad or the road is rough, it's even harder. Put a young Marine behind the wheel, driving at top speed, not wearing a seatbelt and you can almost hear the coffin lid closing.

For protection while driving these trucks, Marines wear Kevlar helmets, flak jackets, and seatbelts. This equipment shields you when something mechanical fails, when someone else doesn't pay attention, or when you make a mistake.

Precautions for driving these 5-ton monsters:

1. Wear the proper equipment and seatbelt.
2. You must be licensed and trained.

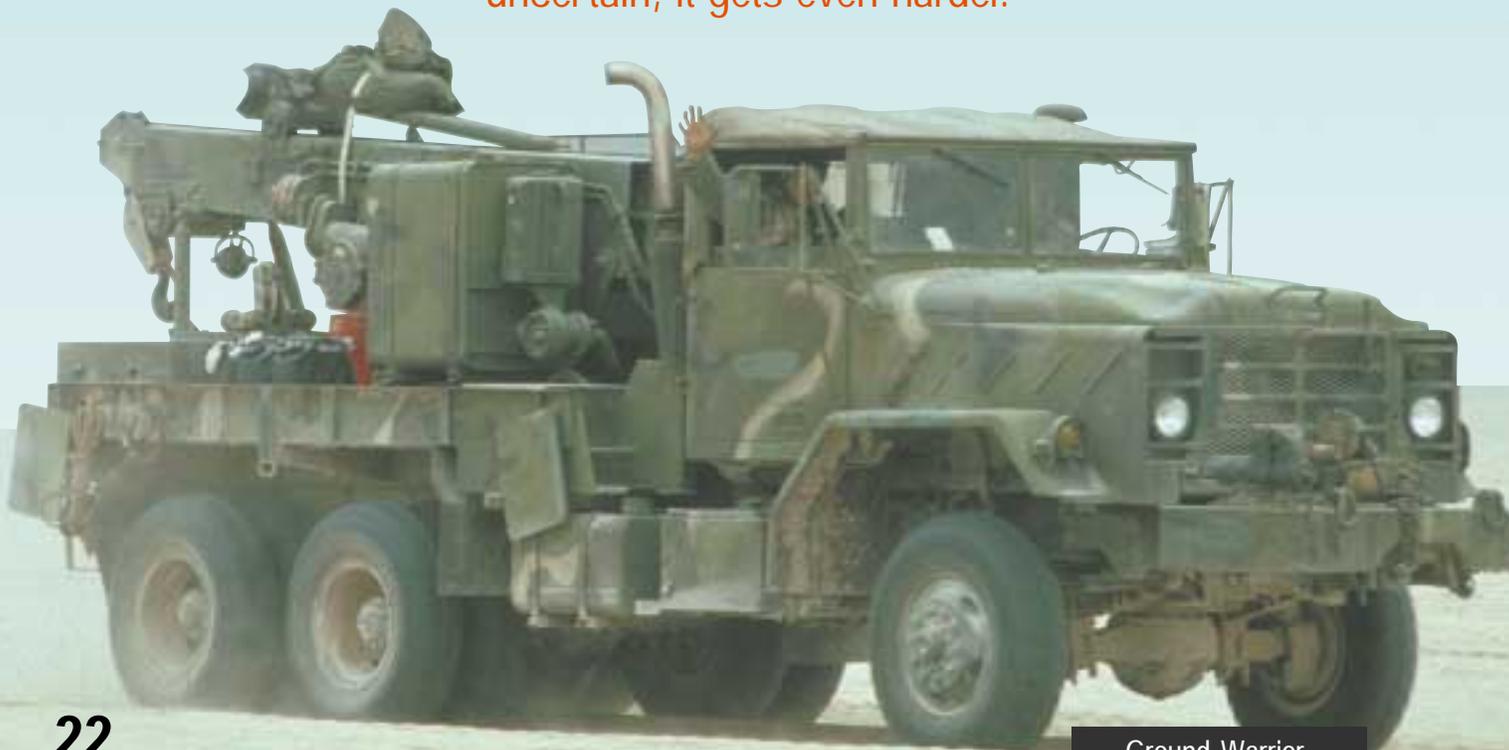
3. Drive no faster than the speed limit and weather conditions permit—period.

The following mishap dramatized why these rules exist. Marines in two 5-ton trucks were in a convoy towing waterbulls to the BAS for inspection. The day was sunny and clear. The Marines were wearing flak jackets, helmets and seatbelts.

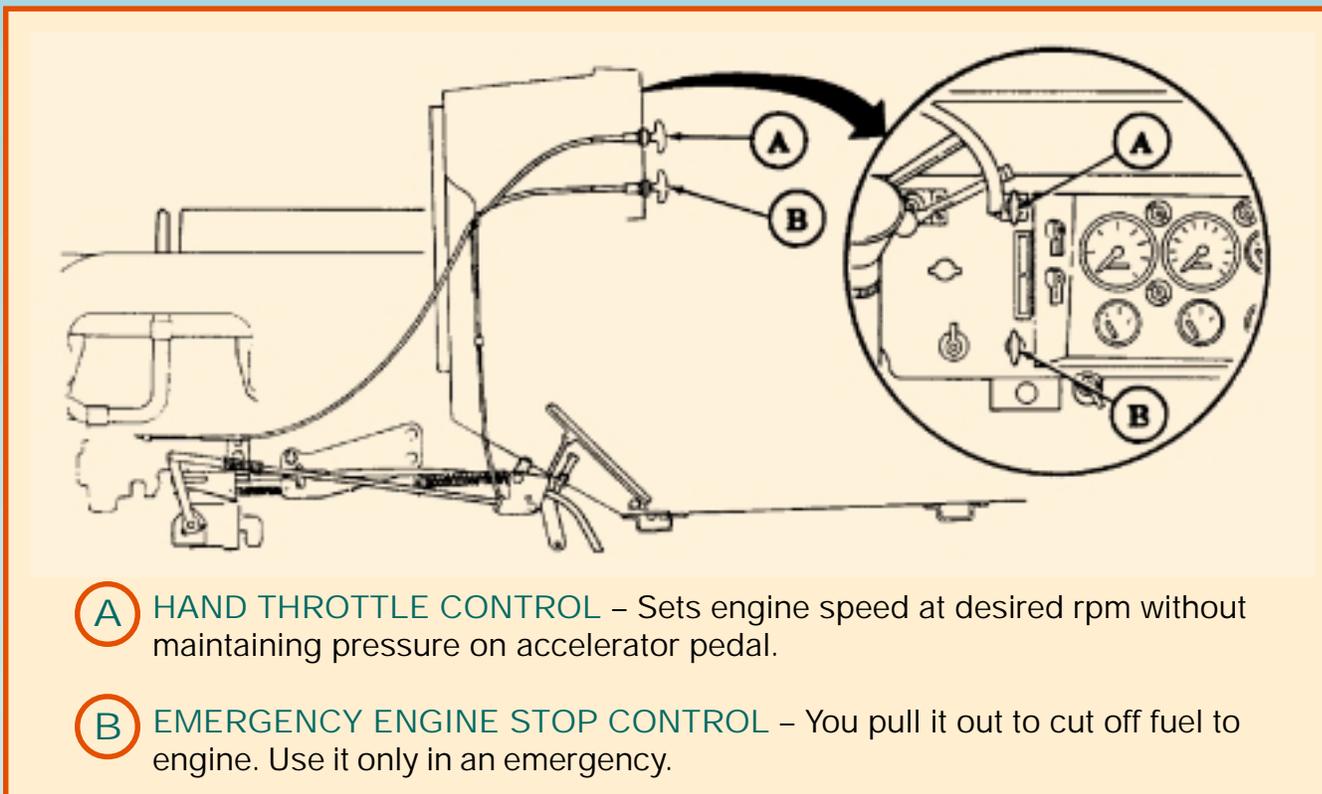
The lead slowed to make a left turn, and the driver of the second 5-ton tried to slow down. He pushed in the brake pedal but got no response. He stomped on it a second time. Again, no response. The truck smashed into the waterbull towed by the lead 5-ton.

In this case, the brakes had failed. Mechanical failures can be prevented by an aggressive vehicle-maintenance program, but they can never fully be

A very large tactical vehicle is hard to maneuver under the best of circumstances. When the weather is bad or the road surface uncertain, it gets even harder.



# E A TRUCK, RIGHT?



- A** **HAND THROTTLE CONTROL** – Sets engine speed at desired rpm without maintaining pressure on accelerator pedal.
- B** **EMERGENCY ENGINE STOP CONTROL** – You pull it out to cut off fuel to engine. Use it only in an emergency.

eliminated. The important point here is that the Marines were wearing all their safety gear, driving within the speed limit, and had their seatbelts on.

The damage was limited to the waterbull. None of the Marines were injured in what could have been a serious mishap.

This next event shows what happens when people don't follow the rules. This Marine was at the 5-ton-truck operator school. It had rained lightly all day. The road was wet, but there was plenty of daylight. The student had a current driver's license and was qualified to operate the M998 and the M1038.

While he was driving downhill, he approached a curve and began to slide. Because he was traveling too fast, he lost control, skidded and rolled down the embankment.

He was speeding, and he didn't adjust his driving

for the conditions. He also wasn't wearing a helmet, flak jacket, or his seatbelt. The Marine totaled the vehicle and ended up in the hospital for three days. He lost 30 days from work and was on light duty for another 30 days.

He had been through Marine Corps qualification courses for two other tactical vehicles. Did he just feel safer, or was he overconfident in his driving abilities? The seatbelt only takes a couple of seconds to put on and can keep you out of the hospital.

One question about this mishap involves the instructors. Who was responsible for making sure the students wore the correct PPE? Assuming someone else has an item for action is a sure bet that it will slip through the cracks.

The final story involves two Marines, the driver and A-driver. Their assignment was to take a 5-ton truck (which had a refueling pod chained in the

truck bed) to be filled. The driver arrived at the forward camp at 0215 that morning. Reveille went down at 0630.

The Marine headed out at 0725 with her A-driver for the base camp, topped off the fuel pod, and started the return trip to the forward camp at 0930. A HMMWV with three Marines in it headed in the same direction and followed the 5-ton.

The HMMWV turned off the road to visit one of the remote engagement sites. Fifteen minutes later, they were done and got back on the road to the forward camp. A mile later, they came upon the overturned 5-ton.

The driver in the HMMWV said that when he was behind the 5-ton, he had to travel at speeds of 50-60 mph to keep up with it. *[Why did the driver of the HMMWV feel it was necessary to follow the 5-ton at such high speed? – Ed.]* Inspection of the 5-ton showed that the hand-throttle control was fully open, in direct violation of TM. The engine will not disengage when this throttle is open, even when brakes are applied.

The driver was found 30 feet from the overturned truck, under one of the vehicle's doors. She was unconscious, and had a weak pulse. The A-driver was conscious but in shock; the other Marines kept her quiet until a corpsman arrived. She then was taken by medevac to the nearest hospital, and pronounced dead 45 minutes later.

Tire tracks show that the truck veered off the asphalt surface onto the right shoulder. It came back onto the road, crossed the centerline, and continued onto the left shoulder. The 5-ton began a sharp right turn, skidded and overturned. The truck finally came to rest 1,093 feet farther along the road.

In this case, the driver of the 5-ton was qualified for the cargo variant, but she was driving one with a fuel pod on the back. The vehicle was speeding, and the driver, with only four hours of sleep the night before, was tired.

The driver was not licensed to operate fuel-dispensing vehicles. The trucks, because of the liquid pod on the back, handle differently from a regular 5-ton. The fuel pod also was not positioned properly. It was over the rear axle, rather than in the

center of the truck bed. The Marines had planned to reposition it when the unit arrived in the field but an immediate need for fuel overrode this plan.

Speeding and fatigue add up to trouble. Fatigue accounts for one-third of private motor vehicle accidents and speeding a significant portion of the rest. When you create the same conditions in a tactical vehicle, sooner or later someone is going to be injured or killed. ☛

## Don't Touch That Throttle!!

The hand-throttle control opens the throttle on the engine to its maximum of 2,200 rpm. Some Marines have been using it as a sort of 'cruise control' when driving on paved roads. There are several problems with this hazardous practice.

First, the engine won't shut down when you hit the brakes. That is the way the system is designed to operate. When you press the brake, the engine is operating at maximum to keep the truck going while the brakes are trying to slow it down. If you are already traveling at max speed, you will not be slowing down anytime soon.

The other problem is that the throttle is only six inches from the emergency engine-stop control. In an emergency, the driver may hit the wrong one.

The emergency engine-stop control should never be engaged while traveling. Engaging this control shuts off all hydraulic systems, and the 5-ton truck uses power steering and air brakes.

These are only a few reasons why the Marine Corps requires their drivers to be qualified in all variants of a vehicle. Adding a tank of liquid to the back of a truck makes the weight shift constantly, which radically changes the truck's center of gravity. Dispatchers must keep these facts in mind when assigning drivers. ☛

# What a Way To End the Show!

By Lt. Paul Berthelotte

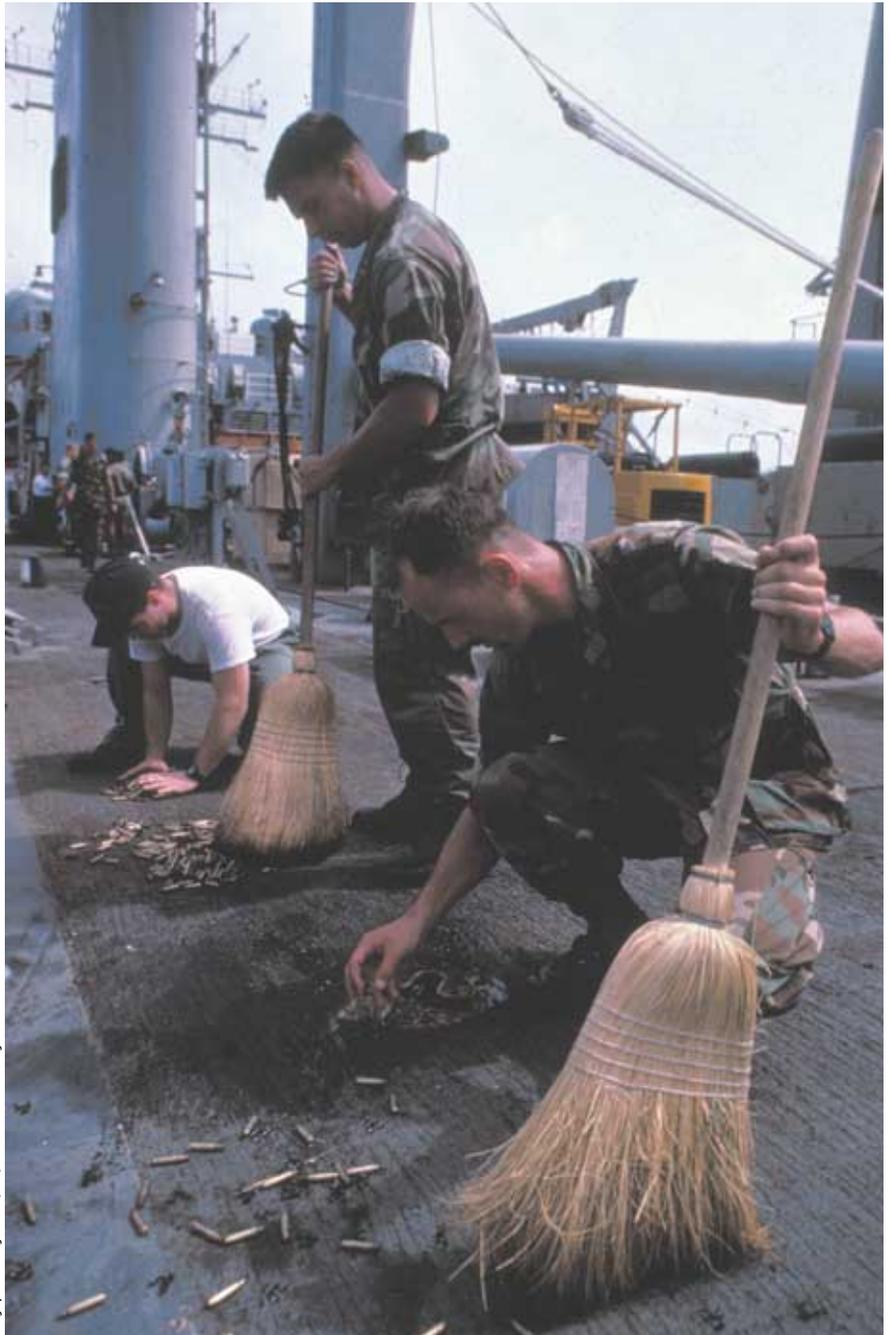
A company of Marines was assigned to organize and supervise a live-fire shoot. The family members on board, called "Tigers," would be firing the 9mm pistol, M16 rifle, M249 squad automatic weapon (SAW), and the M240G machine gun.

Tigers always expect a good show when they come aboard. It's a chance for Sailors and Marines to show off their battle skills to an appreciative audience. What you don't want to show them is how to medevac a Marine who shoots himself during a live-fire exercise. However, that's what happened aboard an LHA.

The company commander and the range OIC (the XO) did an informal hazard analysis and decided to eliminate the 9mm pistol from the exercise. Nine days before the Tiger shoot, the Marines assigned positions, briefed everyone on safety procedures, and held a rehearsal. A walkthrough of the area identified the firing lines for each weapon. The Marines were divided into morning and afternoon teams to ensure they were well-rested and alert.

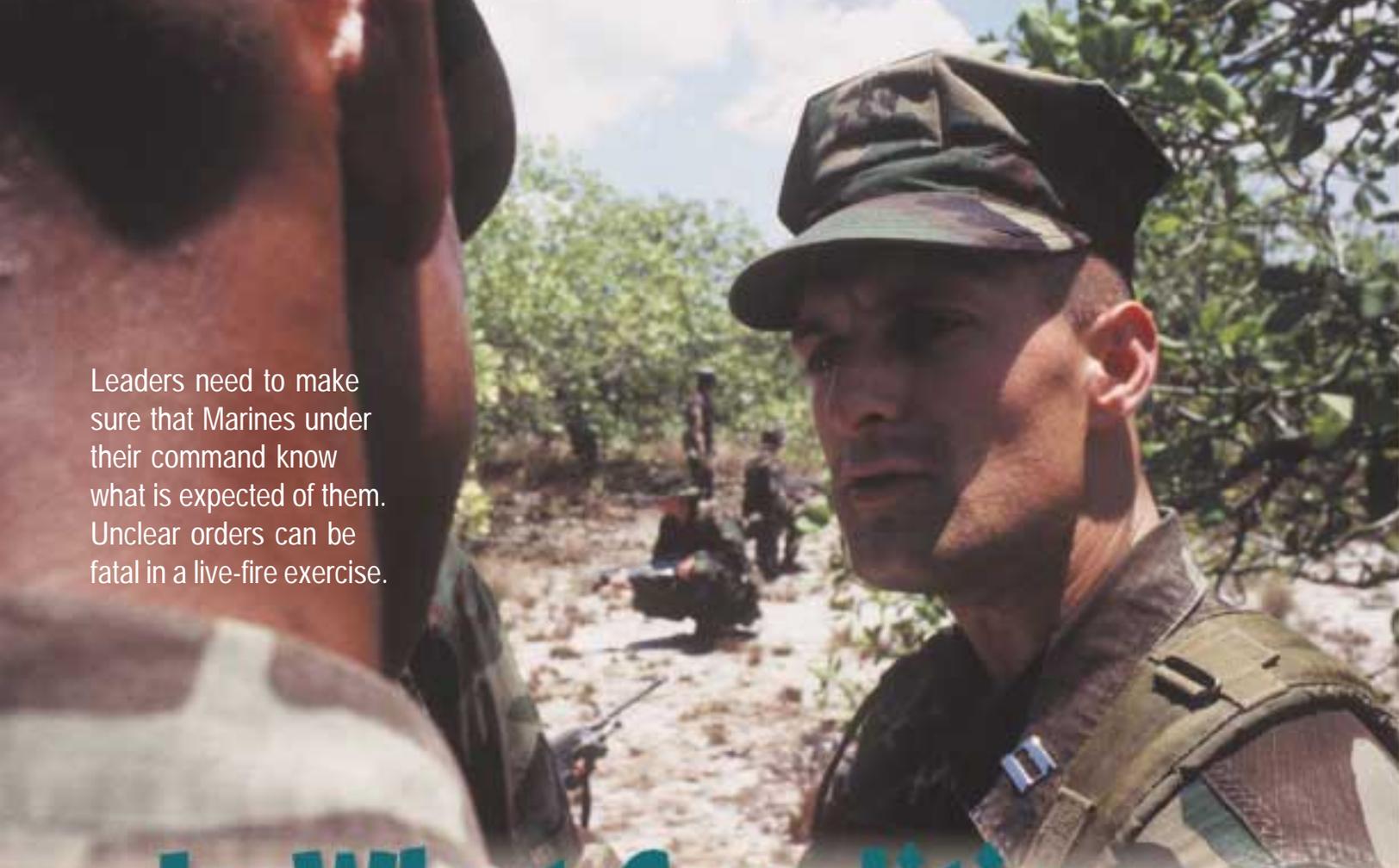
The afternoon M249 SAW team included a line NCO and three coaches. The Marine who shot himself was one of these coaches. Confirmation briefs were given 24 hours before the

(Continued on page 32)



Navy photo by PH1 (SW) Michael D.P. Flynn

Marines clean up shells from shooting practice. Some Tigers doing the same thing after a live-fire exercise aboard an LHA ended up seeing a finale they hadn't expected.



Leaders need to make sure that Marines under their command know what is expected of them. Unclear orders can be fatal in a live-fire exercise.

# In What Condition Is Your Weapon?

*By Capt. Joe Cleary*

**T**his is the third article we've run about the operating procedures of the M249 SAW. Is this one different? Only the location and people involved have changed.

Just before illuminated, night, live-fire attacks, a negligent discharge from an M249 SAW sent three rounds into an assembly area, shattering the stillness of the briefing. One of the rounds ricocheted off a rock and punched through a Marine's hand.

The SAW gunner had tried to place his weapon in condition 3. Noticing that the charging handle was loose, he slammed it forward. This action fired the three rounds.

The company of Marines arrived early in the morning at the firing range. Training started at 0700, with safety walkthroughs and dry runs. All of these were conducted under the supervision of a safety NCO, RSO, and range OIC. At 1100 that morning, the safety brief for the afternoon's firing events was given at a spot overlooking the range.

All weapons were placed in condition 4 (feed tray clear of ammunition or magazine removed, chamber empty, cover closed, bolt forward, weapon on fire) at the ammunition-issuing point. Thirty minutes later, squad-size units began their live-fire assaults on the targets. This event and the second assault were without incident.

After the afternoon assaults were completed, the range was prepped for the night assaults. When the ammo was issued, new assignments for fire-team leaders were given. This gives more fire-team leaders the opportunity to lead the attacks. The RSO gave the safety brief at 1700. At the ammo-issue point, all weapons were checked again to ensure a condition 4 status.

An hour and a half after the night's safety brief, the company commander passed the word to stand-by for the next series of attacks. Five minutes later, a three-round burst cut through the night air, originating from the squad scheduled to make the first night attack.

A first lieutenant standing next to the company commander and range safety officer was struck in the hand by a ricochet off a rock. The lieutenant's injury was treated at the nearest hospital, and he was released the next morning.

Within a minute, the fired weapon was identified. The RSO immediately inspected and cleared the weapon.

All Marines were instructed to have a condition 4 weapon at the assembly area, and upon moving across the line of departure, make it condition 3. The SAW gunner in this instance claimed he understood he was to have his M249 in condition 3 as he

The SAW gunner had tried to place his weapon in condition 3. Noticing that the charging handle was loose, he slammed it forward. This action fired the three rounds.



crossed the line of departure, and that he had done so throughout the day.

Instead he placed the rounds in the feedtray and pulled the bolt to the rear, thus making it a condition 1 weapon. He then slammed the charging handle forward, chambering a round, and firing it. The safety was not engaged.

Even though there were two NCOs assigned to each squad conducting the live-fire attacks, neither was close enough to the SAW gunner to hear him place the weapon in condition 3. It was too dark to see any action he was taking. While not an excuse, the deepening darkness increased the likelihood of a mishap. Good supervision requires better communication between observers. Here, each safety observer thought the other was providing supervision for that particular fire team.

The last time the SAW gunner had used the M249 was five months previous during a combined-arms exercise. The SAW he was using that day had been issued to him that morning. Although weapons conditions were briefed and the Marine had conducted weapons certification a week earlier with another SAW, he did not do that in front of either his fire-team leader or safety NCO on the day of the incident.

Adding to the confusion was the decision to assign new fire-team leaders. The new team leaders

were unclear on the safety guidelines, which had been set forth by the previous team leaders.

The Marine that negligently discharged his weapon had entered the fleet five months earlier. That was the same time he was assigned to carry the M249 SAW. The Marine didn't have the experience to maintain the automatic-rifleman position. His inexperience, coupled with issuance of a new weapon, led to his lapse in judgment in placing a weapon in condition 1 in the assembly area.

The small unit leaders and safety NCOs also weren't vigilant in allowing a Marine to make a condition 1 weapon in the assembly area. Several other Marines stated that they had heard someone messing with their weapon immediately before the incident took place. Why didn't anyone speak up or stop the Marine? Everyone within sight or hearing of this Marine should have stopped him. Yes, it was dark, but not pitch black. Anyone standing next to this Marine should have asked him what he was doing.

Repetitive maneuvers can make Marines less alert. If a long day is scheduled, leaders need to ensure a risk assessment is done before each major event. If the situation changes (e.g. darkness, fatigue, new leaders), analyze the change because new risks and hazards are there. Put new control measures in place and make sure they are enforced. 🌟

Range-safety procedures keep  
Marines from shooting each other.  
Violating them buries Marines.





## Just How Important Is This ORM Process?

by Donald Weightman

The military always touts the need for bold, risk-taking leaders, who can reasonably predict the results of their decisions and are satisfied with those results. But too often, we have “gambler” leaders, who not only take unnecessary risks with equipment, but with the lives of their troops. These people have no idea of the outcome of their decisions.

The old attitudes of “Can do,” “We’ve always done it this way,” and “I’d rather be lucky than good,” are still part of the Marine Corps. People with these attitudes are behind the times. Every asset, whether personnel or equipment, in the Marine Corps is precious, and with right-sizing, you must consider any risks associated with using these assets. That’s where operational risk management comes in.

I’ve learned four things about ORM since I started teaching courses to military groups two years ago:

**First, early planning helps identify any problems.** You can more easily identify risks and hazards and manage them when you’re planning an operation or mission. Trying to tack on control measures as an afterthought can result in deaths, injuries or major losses of equipment. Mishaps I have investigated prove this.

**Second, you shouldn’t accept unnecessary risks or hazards.** Any risk taken that doesn’t contribute meaningfully to the mission is not necessary. Leaders who accept unnecessary risks or hazards are gambling with the lives of their troops.

**Third, you must make risk decisions at the proper level.** Normally, decision-making is the leader’s direct responsibility for the mission. Decisions should be made by people at the lowest possible level, because they are the Marines who will come face-to-face with the risks or hazards. Having junior leaders use ORM to make decisions in the

planning phase and in field during training develops leadership skills that will pay off in combat.

**Fourth, we force leaders to take risks.**

Nothing humans do is risk-free, especially when it involves combat. Our goal is to become more lethal to our adversaries, and at the same time, make sure our troops survive.

Before any mission or training, leaders should ask themselves these questions:

- Do I have Marines with enough self-discipline to do their jobs to the standard I have set?
- Does the unit have leaders who are ready, willing, and able to enforce these standards?
- Has our training given people the skills to meet these standards?
- Are the standards clear and practical?
- Do we have the necessary support for doing our jobs, including equipment, maintenance, facilities, and services?

From my own experiences with ORM and from conversations with others in the classroom as well as those in the field, I’ve discovered a basic law of human nature: Never underestimate a person’s capacity for self-deception. At times, we are so mission-oriented that we become our own worst enemies. We take shortcuts, skip procedures and ignore known hazards to get the job done, because that’s what we think the boss wants. This is gambling, and leaders do it every day. You and I are as subject to that law as anybody else. We all want to get our jobs done and look good. It helps our promotions, all of which could halt if we kill a Marine during training.

Using ORM may be painful at first, but as with any new tool, practice will ease the pain. Soon, you will naturally make ORM part of everything you do, on and off duty. 🌟

*Mr. Weightman is the OSH and Ground Safety Manager for the Fleet Marine Force Pacific.*

As the Marine was standing on the driver's side talking to the second HMMWV driver, a 5-ton truck hit the back end of the HMMWV.



# Crazy Convoy

These are just a few examples of the dangers involved with convoys. Are any of them familiar?

## Where's the Vision?

A large Marine unit was conducting a night exercise. The problem was that not all the drivers were using night-vision goggles while in convoy. Was risk-management exercised by the senior leadership? ORM isn't just for platoons or companies. It needs to be an integral part of any exercise planning, or the mishap that follows will be often repeated.

**The scene:** desert training area at night. Dusty, windy and a temperature of 40 degrees Fahrenheit. The main actor: a HMMWV driver. He was fully qualified, but all the qualifications in the world will not help when you can't see where you're going.

The drama took place during a major exercise. The driver was part of a convoy that had become separated because of low visibility in the wind-

driven dust and oncoming vehicle lights that interfered with his NVGs. The driver got out of his HMMWV and walked to the one following him to pass the word to the convoy commander about the separation.

As the Marine stood on the left side talking to the driver, a 5-ton truck hit the back end of the second HMMWV. The crash sent the left end of the HMMWV flying into the Marine, knocking him 10 feet through the air.

The injured Marine was taken to the rear by medevac. He had a bruised buttocks muscle, resulting in two lost work days, which he probably didn't spend sitting down.

All of the vehicles in the first convoy had been operating without lights, and the drivers were wearing night-vision goggles. The problem was another convoy on the same road, traveling in the opposite

direction, with their headlights on. The light from these vehicles would often white-out the night-vision devices, rendering them useless for awhile.

Reduced visibility from winds and dust, combined with glare from the oncoming traffic contributed to blind the driver of the 5-ton. The driver of the first HMMWV that had pulled over, knowing he was having trouble seeing, should have pulled farther onto the shoulder of the road. This would have taken him out of the traffic. He should have approached the passenger side of the second vehicle, rather than stand on the main supply route.

### It's for Cargo, Not Marines

**T**welve days later, on the same main supply route, a convoy of nine vehicles was traveling to range maintenance. It was early afternoon and extremely dusty.

All the Marines wore helmets and flak jackets, and had buckled their seatbelts. All of them, that is, except the two Marines riding in the cargo compart-

ment of a low back HMMWV.

While the HMMWV was going around a turn, it left the road. The driver had been speeding and didn't see the turn in time because of the dust. The HMMWV bounced around tremendously, but didn't roll. The unrestrained passengers in the back suffered compressed vertebrae and bruised shoulders. They could have suffered concussions if they hadn't been wearing their helmets.

The driver was well over the 30-mph speed limit, and had allowed Marines to ride in an unauthorized part of the vehicle. The reason we have troop carriers is to transport troops; the reason we have cargo compartments is to transport cargo.

### Three Abreast

**A** convoy of six HMMWVs was traveling at 25 to 30 mph, along a two-lane highway in El Salvador, when they came upon a large tractor moving at half their speed. As briefed, they began to pass the tractor one at a time. The first three HMMWVs made it past the tractor fine.

# Crack-ups

Units that are deployed to foreign countries must be thoroughly briefed on driving conditions, local laws, and customs.

When the driver of the fourth HMMWV started to pass the tractor, he noticed a blue pick-up truck in his rear-view mirror. He was passing the tractor on the left when he saw the blue pick-up move over into the left lane. The pick-up truck then sped up and began to pass the HMMWV while the Marine was still passing the tractor.

Of course, this is when oncoming traffic began to appear ahead of the three vehicles that were in a line abreast and taking up both lanes of traffic. There were no lane markings on the road, which added to the crisis now developing.

The driver of the pick-up, seeing the oncoming traffic, began to edge over into the space occupied by the HMMWV. As the HMMWV got closer to the tractor, the A-driver began to give distances between the HMMWV and the tractor on the right. Then, the driver of the pick-up suddenly forced his vehicle into the path of the HMMWV. The HMMWV veered right into the left-rear wheel and

axle of the tractor. The tractor was forced off the road and into a ditch.

The HMMWV stopped a short distance from the collision. The pick-up truck continued on without stopping. No injuries were sustained by anyone in the HMMWV or the tractor.

Several factors led to this mishap. First, the driver of the HMMWV was inexperienced with convoy procedures and had not received convoy training. Second, the HMMWV driver, new to the country, was unfamiliar with local driving laws and customs. Third, the driver in the pick-up truck drove recklessly.

Units deployed to foreign countries need to be thoroughly briefed on driving conditions, local laws and customs. Just because it's in the law books doesn't mean the locals adhere to it. Brief what your quick reaction techniques are and what force-protection issues you want to use before the convoy heads out. 🚗💥

(Continued from page 25)

shoot. Before the live-fire exercise started, the range safety officer (RSO) briefed the entire company. The Tigers received their safety brief on the ramp leading to the flight deck.

The morning events proceeded without incident. The afternoon team worked closely with the line NCO for "going cold" with his weapon before walking down range and adjusting the targets. The Marine who shot himself told investigators he felt comfortable in his role because he had not experienced any problems controlling the Tigers.

Toward the end of the shoot, M249 belt ammo was running low, so the Marines tried to fire the weapons with magazines. They were unsuccessful, except for one M249. When the Tigers had finished firing the M240G machine gun, several Marines left to start cleaning it and some of the other weapons. Two Marines—a lance corporal and the mishap Marine—stayed behind to supervise the last of the Tigers.

About this time, some of the young Tigers were inching close to the firing line in pursuit of souvenir brass and links. The lance corporal moved them back but also helped them pick up some brass for a few moments. When the corporal had finished coaching the last shooter, he cleared the weapon, then was

called over by the range OIC for further orders.

The Marine returned to the firing line only to find that a working party had picked up his weapon and stacked it with the others in a pile 15 feet behind the line. He went over, picked up an M249 SAW, and started walking toward the fo'c'sle with it for cleaning. A lance corporal saw a piece of brass sticking out the weapon's ejection port and told the mishap Marine, who made the mistake of trying to clear the weapon, with the muzzle sticking in his chest, while he was walking. He was still tugging on the brass when another round inside the weapon chambered and fired, piercing his right shoulder.

The injured Marine had to be flown to a naval medical center for treatment of a fractured collarbone and heavy bleeding. Because of nerve damage to his arm, he is unable to flex his biceps.

This Marine's problems could have been avoided if he had followed weapons-handling procedures. When the lance corporal told him about the piece of brass, the Marine should have placed the weapon on the deck, pointed it in a safe direction, and cleared it. Clearing a weapon while carrying it not only violates safety rules; it also violates the rules of common sense. 🚗💥

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Dial the extension anytime during the greeting.

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Lynn Tacha Traffic Safety Specialist ltacha@safetycenter.navy.mil	7139	Carl Frank Training Safety Specialist cfrank@safetycenter.navy.mil	7176

## Headquarters Marine Corps (Safety Division)

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# **O**perational **R**isk **M**anagement

5. Supervise



4. Implement Controls



1. Identify





**1. Identify Hazards**



**2. Assess Hazards**



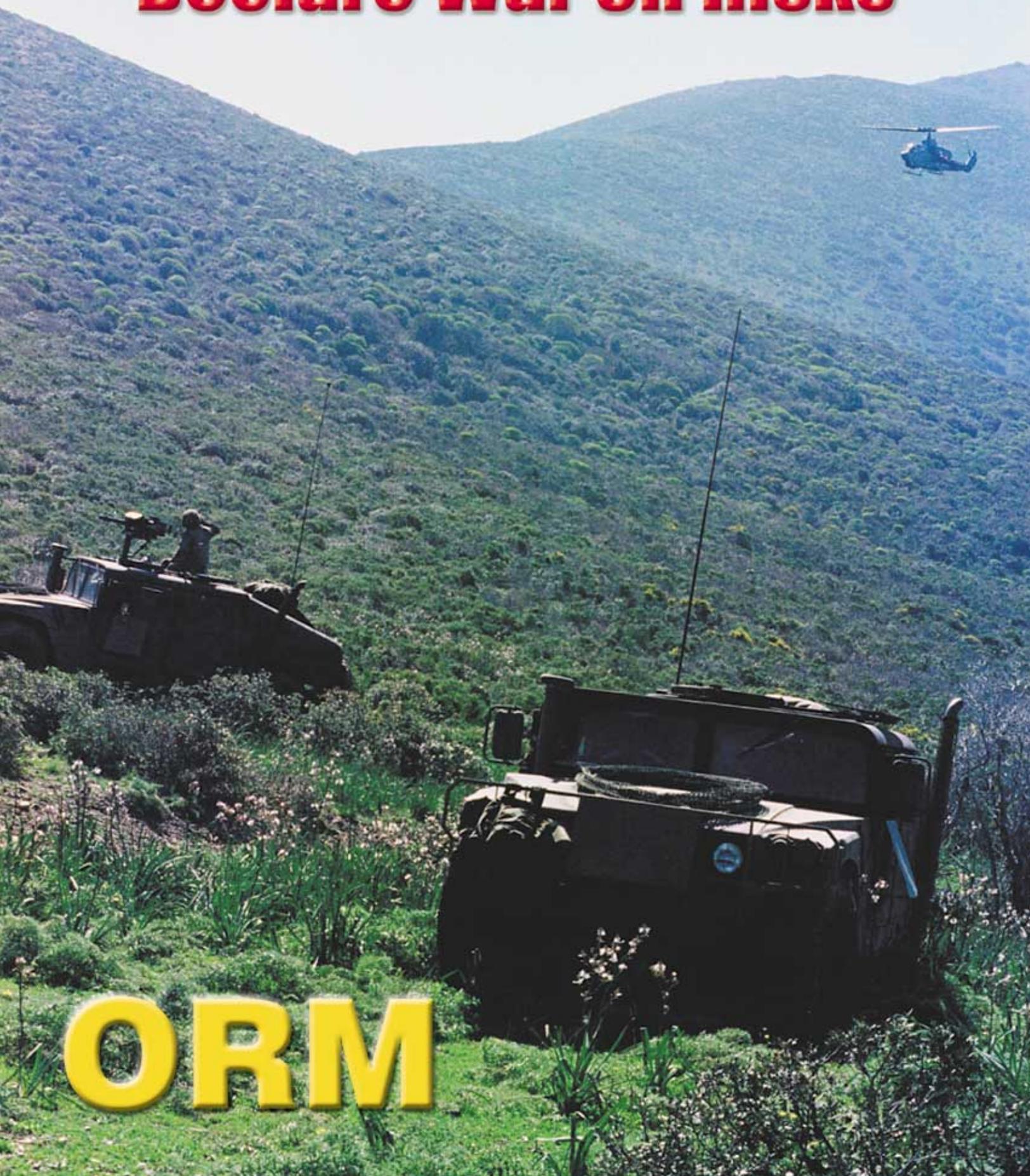
**3. Make Risk Decisions**



[www.safetycenter.navy.mil](http://www.safetycenter.navy.mil)



# Declare War on Risks



**ORM**