

# KNOWLEDGE

VOL 4 JUNE 2010

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

## **A JUMP TOO FAR** p. 4

**»» A DEADLY TURN** p. 8

**»» GUNNING FOR SAFETY** p. 12

**»» WHY THE RUSH?** p. 22



**THINK BEFORE YOU SINK** p. 24



U.S. ARMY  
ARMY STRONG.



2 From the CSM

4 A Jump Too Far

14 When Safety Fails

16 Crippling Complacency

20 The Best Pilot in the Unit

8 A DEADLY TURN



24 Think Before You Sink

28 Controlling Power Management Errors



22 WHY THE RUSH?



12 GUNNING FOR SAFETY

32 Un-muffling Hearing Loss

34 Nuts and Bolts

36 Accident Briefs

Plus: pull-out posters



U.S. ARMY COMBAT READINESS/SAFETY CENTER

ARMY SAFE IS ARMY STRONG

<https://safety.army.mil>

Brig. Gen. William T. Wolf Commander/Director of Army Safety  
Command Sgt. Maj. Michael P. Eyer Command Sergeant Major  
JT Coleman Acting Director, Strategic Communication

Chris Frazier Managing Editor  
Bob Van Elsberg Editor  
Paula Allman Editor

Blake Grantham Graphic Design  
Taryn Gillespie Graphic Design  
Leslie Cox Graphic Design (CinetiQ)  
Kami Lisenby Graphic Design (CinetiQ)

**Mission statement:** The United States Army Combat Readiness/Safety Center (USACR/Safety Center) supports our Army by collecting, analyzing and communicating actionable information to assist Leaders, Soldiers, Families and Civilians in preserving/protecting our Army's combat resources.

We welcome your feedback. Please e-mail comments to [safe.knowledge@conus.army.mil](mailto:safe.knowledge@conus.army.mil).

Knowledge is published monthly by the U.S. Army Combat Readiness/Safety Center, Bldg. 4905, 5th Ave., Fort Rucker, AL 36362-5363. Address questions regarding content to the managing editor at (334) 255-2287. To submit an article for publication, e-mail [safe.knowledge@conus.army.mil](mailto:safe.knowledge@conus.army.mil) or fax (334) 255-9044. We reserve the right to edit all manuscripts. Address questions concerning distribution to (334) 255-2062. Visit our Web site at <https://safety.army.mil>.

Knowledge provides a forum for Soldiers, Leaders and safety professionals to share best practices and lessons learned and maintain safety awareness. The views expressed in these articles are those of the author and do not necessarily reflect the official policy or position of the U.S. Army, Department of Defense or the U.S. Government. Contents are specifically for accident prevention purposes only. Photos and artwork are representative and do not necessarily show the people or equipment discussed. Reference to commercial products does not imply Army endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission; please credit the magazine and author.

## FROM THE DASAF

For 235 years, our Army has been protecting this great Nation and the way of life we hold so dear. During a time of persistent conflict, our Band of Brothers and Sisters has evolved into one of the greatest combat forces on this Earth, committed to our core values and selflessly making extraordinary sacrifices for a better future for others.

Beyond these remarkable Soldiers are the Families and Army Civilians who provide steadfast support which allows us to carry on and accomplish our mission. Each of us should be proud to be part of a total Army Family that indeed makes America's Army: the Strength of the Nation.

As we celebrate our Army's rich history, we must also honor those Soldiers who have made the ultimate sacrifice in defense of freedom. They are truly the fiber of our legacy. To all who wear the uniform today, those who have worn it in the past and the Families that give us the strength to continue, we extend our deepest gratitude and wish you all a Happy 235th Birthday!

Army Safe is Army Strong!

  
William T. Wolf  
Brigadier General, USA  
Commanding



FROM THE CSM

Please **LET ME KNOW** what **YOU'RE SEEING** out there and **HOW** our USACR/Safety Center **TEAM CAN HELP.**



# TRAVELING THE ROAD TO SAFETY

One area that continues to be of concern is privately owned vehicle accidents involving sedans. While fatal POV accidents as a whole are down about 16 percent from fiscal 2009, we're seeing a slight trend in fatalities among unbuckled backseat passengers in sedans specifically. This finding proves that we, as first-line Leaders, must continue to reinforce the importance of seat belt use within our force, especially with younger drivers and their passengers.

The Army has tools in place to help both individual Soldiers and Leaders recognize potential driving hazards. I recently started a discussion on BCKS Safety Net regarding the TRiPS program, asking whether the process had become a paper drill or if it was still useful for Leaders to identify high-risk Soldiers. The overwhelming majority of responses emphasized the value of TRiPS, especially when first-line Leaders embrace the

tool and actively use it to engage with Soldiers about their off-duty activities.

Without supervisor and Soldier buy-in, TRiPS is just a tool — but it becomes a game changer when it encourages dialogue between Soldiers and their supervisors. These conversations must include a discussion of all the hazards Soldiers and their passengers might face on the road and the importance of seat belts in saving lives. You don't have to wait until your Soldiers complete a TRiPS report before talking to them about safe driving practices, however. In fact, most of our POV fatalities are happening near home stations, so the need for timely guidance is ever present. Listen to what your Soldiers are saying, and always be on the lookout for those who might need additional experience or direction to become a safe and responsible driver.

This same emphasis on driving safety must

translate to on-duty operations. Just recently, we lost three Soldiers within one week to separate MRAP rollover accidents. While investigations are ongoing, at least one of the fatalities — a vehicle commander — is reported to have not been using his restraint system.

Around the same time, another vehicle crew experienced a potentially devastating rollover into a canal, but everyone survived thanks to restraint use and quick execution of the trained rollover drill. This accident proves the importance of thorough pre-combat checks and inspections and the power of engaged leadership, even within the crew itself. The bottom line is it's just as easy for vehicle crews to follow the standard as disregard it, but the difference between the two is measured in lives saved.

Please let me know what you're seeing out there and how our USACR/Safety Center team can help. Take advantage of the

ready-made Safe Summer Campaign available on our website (<https://safety.army.mil>) and also check out our tactical tools, including the new MRAP Safety Awareness video. These are great plug-and-play applications that will not only make your job a little easier, but also educate your Soldiers on the fundamentals of safety. And please join the conversation on our BCKS Safety Net and NCO Net, where you can find information on other great programs working within our Army today.

Have a great summer, and remember to always play it safe for our Soldiers, Families and Civilians. <<

Army Safe is Army Strong!



Mike Eyer  
Command Sergeant Major  
U.S. Army Combat Readiness/Safety Center

*Editor's note: The ranks and names of the individuals mentioned in this story have been changed to protect their privacy and that of their Families.*

**T**he Sunday afternoon was shaping up nicely as Sgt. 1st Class Jeffrey Baker hopped into his pickup truck at his on-post quarters. He, his daughter and one of her friends were eager to ride their dirt bike and all-terrain vehicle (ATV) on the installation's off-road vehicle (ORV) area. Baker drove to the outdoor recreation office, signed out the key for the ORV area and then drove to an on-post storage area where a trailer held his dirt bike and his daughter's ATV. Within 45 minutes of leaving home, they were ready to ride.

The ORV area offered a main track designed by a professional dirt bike racer along with an ATV track and peewee track to cater to riders of various skills. On the main track, tabletops and other jumps gave riders a chance for some "air time" while several stadium-style berms allowed them a chance to keep their speed up in the turns.

It was almost 2 p.m. when Baker rolled his dirt bike off the trailer and put on his motocross personal protective equipment (PPE). A veteran motocross

and off-road rider with 30 years' experience, he'd taken the Motorcycle Safety Foundation's Dirt Bike RiderCourse<sup>SM</sup> five months earlier and ridden the course several times. Loving to race his Kawasaki KX250 on the course, he was in the process of starting a new dirt bike club at the post. However, after a few laps on the track, all that would change.

Sgt. Michael Cantor was also riding on the track and trailing Baker through the jumps. Cantor looked ahead at a tabletop jump with a

40-degree upward pitch. Baker had a handful of throttle as he climbed the incline and then launched from the tabletop, flying 74 feet before landing 37 feet beyond the obstacle. However, he had jumped too far and was now in serious trouble.

Some 50 feet ahead of Baker was a dirt berm. Instead of entering the berm through the corner, Baker went straight at it. The berm, at the point of entry, was 3½ feet tall and angled up at 60 degrees. When Baker hit

# Jumped Too Far

COMPILED BY THE KNOWLEDGE STAFF

“The simple **LESSON** is to **ALWAYS BE AWARE** of your true **LIMITATIONS** — the real **HAZARDS** — in the things **YOU** do.”

it, he and his bike vaulted into the air and landed 48 feet on the other side. After the Kawasaki landed, Baker was thrown and ended up 21 feet away from his bike.

At some point during the accident process, Baker was thrown violently forward and struck his chest. His motocross PPE, effective in most crashes, could not protect him from the tremendous impact that broke his sternum and several

ribs. Cantor saw the dust from the crash and rode to where Baker was laying face down in the dirt. As Cantor began administering first aid, he found Baker unconscious and not breathing. Cantor rolled Baker over and the injured rider began breathing again.

Sgt. Timothy Canny was riding his ATV on the track that afternoon. A member of Baker's unit, Canny quickly rode to the crash and assisted

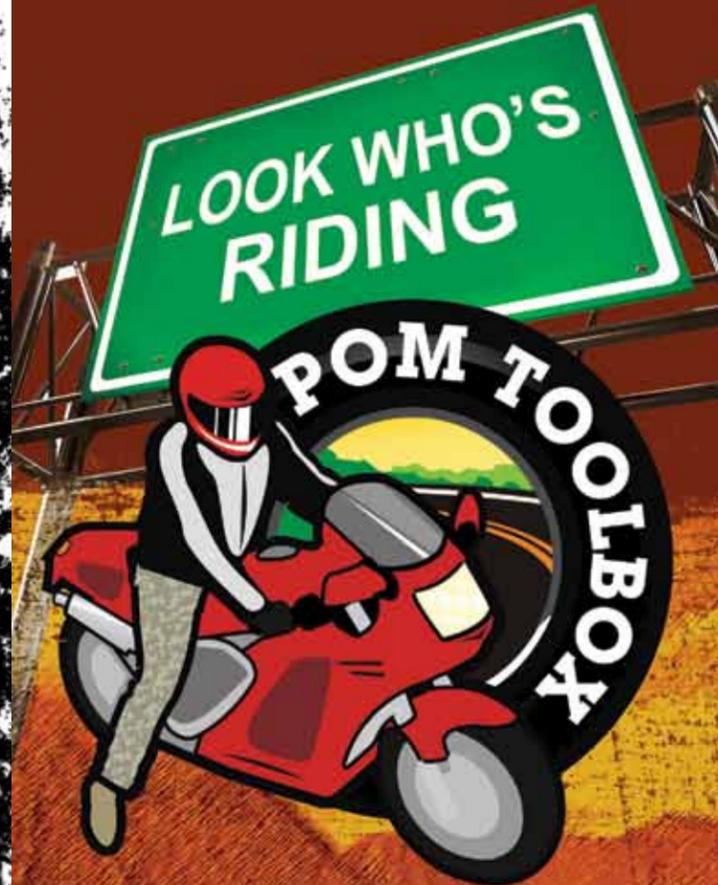
Cantor with providing first aid. Staff Sgt. Larry Kellogg, another dirt bike rider on the track, called 911 — but the call failed due to poor reception. Running to the landline phone at the ORV area's entrance, he called the 911 operator and reported the crash.

Emergency services personnel from the post's hospital reached the accident scene six minutes later. They prepared Baker for transport to the hospital, where he was taken to the emergency room (ER). The ER physician checked Baker and saw he needed treatment beyond what the hospital could provide. The doctor made arrangements to have him flown to another medical center.

But, sadly, Baker never made the flight. A little more than two hours after he crashed, his heart stopped beating. With that, both he and his hopes to start a new riding club died. To make this tragedy even more painful, his daughter was at the track when the accident happened.

#### Conclusion

Nothing can bring back this well-thought-of Soldier, husband and father. Perhaps he was overconfident on this particular day and pushed himself and his bike too far. Maybe it was a case of taking a different line through the tabletop and being surprised by how high and far he flew? He wasn't a reckless rider — his record shows that. But sometimes it only takes one mistake to end an otherwise outstanding life and bring tragedy to loved ones and friends. The simple lesson is to always be aware of your true limitations — the real hazards — in the things you do. If you don't, sometimes you won't get the chance to come back and ride that second moto.◀



The Privately Owned Motorcycle (POM) Risk Management Toolbox is designed as a tool for commanders, Leaders, supervisors and subordinates to use in their organizations. The toolbox contains best practice examples and lessons learned that can be used as accident prevention measures when developing a unit POM safety program.

**Give it a  
Test Ride Today!**

<https://safety.army.mil/>

**T**here was nothing out of the ordinary or complex about this day's mission. While providing air movement security, an AH-64D experienced a failure in the No. 1 engine oil system. Minutes later, the aircraft crashed, killing one crewmember and seriously injuring the other. A post-crash fire consumed the aircraft.

# A Deadly Turn

COMPILED BY THE KNOWLEDGE STAFF

“It is **ESSENTIAL** for **ALL PILOTS** to understand **WHAT POWER MANAGEMENT IS** and what it **INCLUDES.**”

In fiscal 2009, power management was a contributing factor in 20 percent of all Class A aviation accidents. Many Army aviators executing combat missions in power-limited mountainous environments find themselves with limited available power. When operating in high elevations and warmer temperatures, an aircraft's engine produces less power, reducing maneuverability and limiting the load it can carry.

## What Happened?

The crews completed their preflight activities and individual crew briefs. The AH-64D was flying as the trail aircraft in a flight of three, providing air movement security for two UH-60L aircraft. The flight arrived at the initial forward operating base (FOB) to pick up the passengers, refueled and then departed for their destination.

Approximately eight minutes after takeoff, while flying at 1,500 feet above ground level, the AH-64D

crew reported a No. 1 engine oil low-pressure segment light to the air mission commander in Chalk 2. The AH-64D crew then banked right and exited the formation, hoping to return to the FOB where they had just refueled. Going through their operator's checklist for the emergency procedure, the crew reduced the No. 1 power lever, but they were slow in jettisoning their external stores and adjusting airspeed. This caused the main rotor speed (Nr) to decrease. Three minutes (actual was 3 minutes, 20 seconds) after the low engine oil pressure warning, the helicopter crashed, killing the pilot in command (PC) seated in the back. The front-seat pilot crawled out of the mangled mess before the post-crash fire ensued.

## Lessons Learned

It is essential for all pilots to understand what power management is and what it includes. An aspect of power management is knowing the amount of power required for

continued flight as environmental conditions change and, specifically, single-engine capability for a dual-engine aircraft. When a crew loses one of their engines, they need to fully understand how the reduction in capabilities will affect the aircraft given the current ambient conditions. Not completing a performance planning card (PPC) and not knowing your single-engine airspeed for a given mission equates to playing Russian roulette every time we fly.

- **Review aircraft operating procedures that address power management when one engine is not available.** It is common for aviators to focus on committing aircraft limitations and emergency procedures to memory; however, a more comprehensive knowledge of the operator's manual is essential to safe flight. Training Manual 1-1520-251-10, AH-64D Operator's Manual, has a note in Chapter 9 that states: "When

continued flight is in question, due to a loss of rotor RPM or reduction of available power (as a result of equipment malfunctions or environmental conditions), the immediate corrective action should be to adjust collective to maintain Nr within limits and jettison the aircraft wing stores. This should be done as the immediate means of reducing power requirement by approximately 1% torque per 200 lbs. of weight reduction."

Single-engine maximum torque available is the maximum torque output an engine is capable of producing prior to being limited by turbine gas temperature, fuel flow or engine gas generator speed output. Most pilots only worry about this value when forced into a single-engine situation, and therein lies the danger. Anytime you are operating at a torque value greater than 50 percent of single-engine max, you must be prepared to react instantly to a malfunction or failure. You must keep this number in mind anytime while in flight, even when operating with dual-engine power available. Upon failure of one engine, the remaining engine will pick up the load and its torque will instantly double. If you fail to reduce the power applied to the single-engine



max torque number, the rotor will droop rapidly and may become unrecoverable. Most Army aviators are continuously operating above this value in places like Afghanistan, whether flying security missions or simply landing or taking off. Hence, you must be prepared to execute either a "forced landing" or a "flyaway" plan.

• **Heighten aviators' awareness of terminology "when conditions permit."** When faced with an engine malfunction, it is essential for the crew to adjust their airspeed to remain within single-engine airspeed limits. The aircrew training manual says to select an airspeed that

is between velocity safe single engine (the minimum airspeed) and single-engine velocity not-to-exceed (the maximum airspeed for this airspeed range) to prevent loss of rotor RPM and altitude. This airspeed provides the most reserve power for single- or dual-engine situations. If the aircraft cannot maintain altitude at this airspeed and you have applied maximum power available, you are committed to land.

The crew correctly identified the emergency and the correct emergency procedure: EMERG ENGINE SHUTDOWN when conditions permit, LAND AS SOON AS PRACTICABLE. However, the PC reacted by reducing the No.1 engine power

lever to the idle position without a corresponding adjustment of his airspeed to single-engine airspeed limits. This resulted in the aircraft not having power to maintain altitude. This decision led to the eventual crash.

As with this crew, aviators in combat must make hard decisions when faced with emergency situations. The thought of landing in enemy territory must be weighed against the threat of further aircraft damage. In this case, with single-engine capability in question, the crew would have been better off using one of the following courses of action:

(1) Jettison external stores immediately and adjust airspeed to safe single-engine flight. This would have allowed the crew to safely return to the FOB or safely land as soon as practicable.

(2) Make the determination that both engines are still operating and return to the closest FOB. Although the No. 1 engine oil low-pressure caution light and corresponding audio warning alerted the crew, the engine was operating with no other resultant adverse indications, such as high oil temperature.

**Conclusion**

The AH-64D is arguably one of the most demanding, workload-intensive aircraft in the Army's inventory. Digitized aircraft and demanding flight environments require crewmembers to continually process and analyze an increasing load of competing mission tasks. Some of the element of surprise can often be removed if emergency procedures are contemplated and planned for, proper mission and performance planning is accomplished and effective aircrew coordination is conducted.

Oftentimes, crews operating in Afghanistan do not have single-engine capability even after jettisoning their wing stores. There is no single-engine envelope available, but there is an airspeed that will provide the lowest/least rate of descent and that's the maximum rate of climb and endurance airspeed. The crew is going to land, no doubt; but at least at that airspeed, with maximum power applied, they may be able to choose their forced landing site.

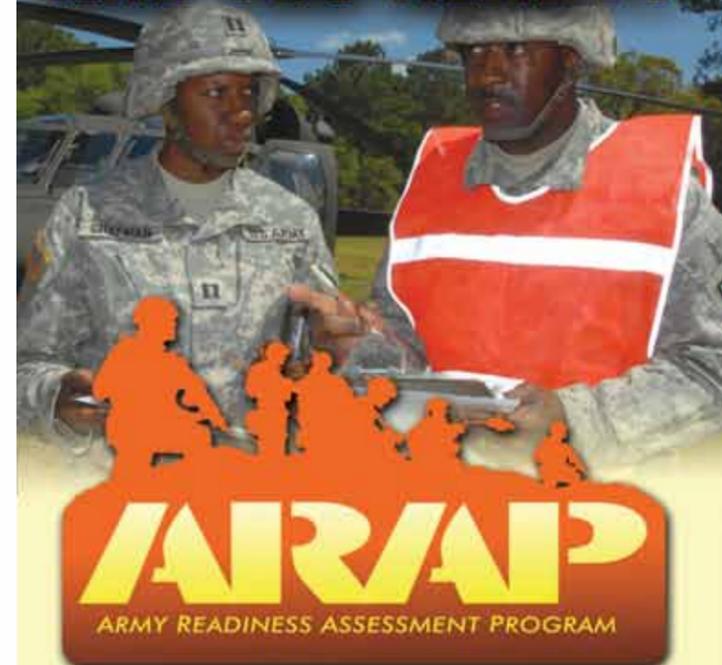
It is incumbent upon all aviators to know their aircraft, its operating limits and emergency procedures. No aviator wants to be on the "backside of the power curve," so you must know your machine, fly it to its capabilities and be cognizant of all external factors that might affect the mission. ◀

**THINGS TO THINK ABOUT BEFORE HAVING A SINGLE-ENGINE FAILURE:**

- **Crew coordination:** It is imperative for crewmembers to quiz/rehearse "what if's" BEFORE having a single-engine failure. During the aircrew brief, discuss specific crew actions in the event of an actual emergency.
- **Never place a power lever to IDLE if your torque will double beyond single-engine max torque available and the aircraft configuration does not allow single-engine capability.**
- **Make sure to crosscheck indications to verify if you have an actual engine emergency.**



**ARE YOU READY?**

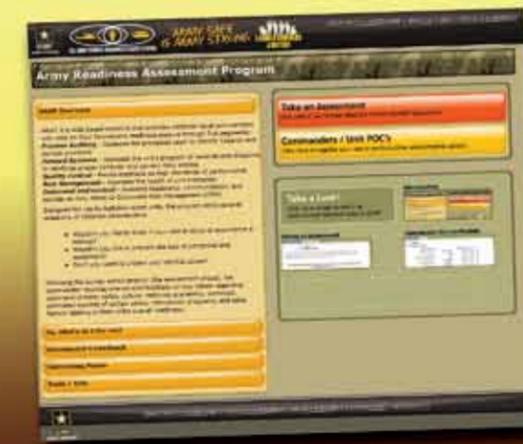


**Wouldn't you like to know if your unit is about to experience a mishap?**

**Wouldn't you like to prevent the loss of personnel and equipment?**

**Don't you want to protect your combat power?**

*ARAP is a Web-based initiative that provides battalion-level commanders with data on their formation's readiness posture.*



**Sign up for your assessment today!**  
<https://unitready.army.mil>

It never fails. You're at the range when a person walks up and says, "You're in the Army? You can help me with my gun!"

# Gunning for Safety

SGT. JAMES M. KLEINHEINZ  
278th Military Police Company  
Fort Gordon, Ga.



You hear it from people all the time. If you're in the military, people think you must be a weapons expert. Everyone wants your opinion and help. You even begin to believe you're an expert. However, just how much of an expert are you?

Let's go through a scenario. You just got home from a year or more overseas. You carried your issued weapon at all times. You went through all of the training and shot expert on all the ranges. Now that you're back home, you're ready to buy that beautiful Glock 23 or Kimber 1911 that you were eyeing in the pictures hanging on your

battle buddy's locker. You decide it's time to make a trip to the local gun store.

At home you admire your new purchase. It's beautiful — a work of art. You were so focused on buying your new pistol that the advice the gun store employee gave you about it went in one ear and out the other. On goes your new high-speed holster. You load the magazine with the Hornady .40 S&W TAP (Tactical Application for Police) rounds you purchased, insert the magazine into the weapon and work the slide to see if the bullets feed smoothly

into the chamber. They do!

Satisfied you've purchased the slickest pistol money can buy, you shove it into the holster and ... BAM! Your wife is not going to be happy. You just shot a hole through the rug she just bought. After a few choice expletives — and making sure you have all your fingers, toes and no extra holes — you think to yourself, "How the heck did that happen?" Maybe you are not the expert everyone, including yourself, has led you to believe.

The real issue is not that you're normally unsafe. The issue is you just bought a weapon you're not familiar with. This is not the Beretta M9 you carried in theater. The operating controls are different, and that is part of what led to your negligent

**“YOU'RE a SOLDIER and important to not only the ARMY, but your FAMILY. Do not take chances with YOUR SAFETY.”**

discharge. Luckily for you, it was only your wife's new rug and not her that was on the "receiving" end. Think of it like this, just because you drive a Ford F150 pickup to and from post every day doesn't qualify you to operate a light medium tactical vehicle. It is the same concept with firearms. Every year civilians and Soldiers alike fall victim to their own pride.

We have many options available to us to combat these problems. For example, the National Rifle Association (NRA) has an online link at <http://www.nra.org/nralocal.aspx> to help you locate your nearest NRA-certified firearms training program. Beyond that, many local gun ranges and clubs offer firearms safety training at their facilities. Indeed, that training is often a prerequisite for using the range or becoming a member of the club. Take the time to talk to the employees at these ranges and gun stores. Familiarize yourself with the weapon before you buy it, and continue to learn about it after you've made the purchase.

Take advantage of these opportunities to further enhance your knowledge. But don't stop there. Make sure your Family members are also knowledgeable about firearms handling and operation. Take them to the range with you and enroll them in the same classes. Firearms safety should not stop with you. You're a Soldier and important to not only the Army, but your Family. Do not take chances with your safety. Stay alert. Stay alive.◀

**D**uring the first five months of fiscal 2010, the Army averaged a fatality or injury-producing negligent discharge each month. One Soldier was killed while he was attempting to clear a jam in his Glock handgun and discharged a round into his chest. Another Soldier suffered disabling injuries when a Soldier in his house was handling a shotgun and accidentally discharged it.

# When Safety Fails

**BOB VAN ELSBERG**  
Strategic Communication Directorate  
U.S. Army Combat Readiness/Safety Center  
Fort Rucker, Ala.

## DID YOU KNOW?

To assist you in raising privately owned weapons safety awareness and help prevent the next accident, the U.S. Army Combat Readiness/Safety Center (USACR/Safety Center) developed a safety training video entitled "No Second Chances." The video

is designed for small-group discussion and based on an actual case in which a Soldier died after pointing a weapon at himself while intoxicated. It describes the events leading up to the accident and contains personal accounts from the Soldier's peers and

Leaders, highlighting the impact his death on those left behind. "No Second Chances" is available at <https://safety.army.mil/nosecondchances> and can also be found under the Privately Owned Weapons tab of the Range & Weapons Safety Toolbox

at <https://safety.army.mil/rangeweaponssafety>. We'd appreciate any feedback you may have. Please direct your comments or suggestions to the USACR/Safety Center's Ground Task Force at [safe.groundtaskforce@conus.army.mil](mailto:safe.groundtaskforce@conus.army.mil).

## THINK

Leaders, drill home that your Soldiers must **THINK** weapons safety!

**T**reat every weapon as if it's loaded.

**H**andle every weapon with care.

**I**dentify the target before you fire.

**N**ever point the muzzle at anything you don't intend to shoot.

**K**eep the weapon on safe and your finger off the trigger until you intend to fire.

Three other Soldiers were injured in less serious accidents. In one, a Soldier forgot to clear his weapon before attempting to clean it and shot himself through the hand. An intoxicated Soldier was playing with a handgun inside a vehicle when he discharged it, injuring himself and another passenger. Another Soldier was handling a newly purchased Colt 1911 .45-caliber pistol when, unaware there was a round in the chamber, he pulled the trigger and shot his left hand.

### Some Observations

Two of the Soldiers involved in the accidental discharges were mishandling Glock pistols. These handguns lack the externally mounted manual safeties common on many other semiautomatic firearms. Instead, their safety is located on the trigger and is disengaged whenever the trigger is pulled. Because of that, shooters should never place their finger inside the trigger guard unless they intend to fire the weapon. That is essential advice when handling Glock pistols or any other type of firearm.

Clearing the chamber is also essential to firearms safety. The warning, "Always assume a gun is loaded," reflects the fact that people have shot themselves or others with what they thought were unloaded firearms. Never assume a gun is unloaded. Check the chamber every time you pick it up to handle it.

Finally, there is muzzle awareness. The old saying, "Never point a weapon at anything you don't intend to shoot," should be ingrained in every shooter's mind. Each Soldier in the cases above failed to ensure their weapons were pointed in a safe direction. As a result, one Soldier died, another suffered disabling injuries and three others experienced painful injuries.◀

## ARE YOU A SHARPSHOOTER?

### RANGE & WEAPONS SAFETY TOOLBOX

<https://safety.army.mil>



The Range & Weapons Safety Toolbox contains information and tools related to the safe handling of privately owned weapons in addition to resources to establish and maintain effective range and weapons safety programs with military weapons.

## CHECK IT OUT TODAY!



ARMY SAFE IS ARMY STRONG

*Editor's note: Self-confidence is a great thing, especially when it is based upon proven, successful performance. But self-confidence taken too far can lead to complacency, robbing you of situational awareness when you need it most. In last month's issue, the story "Recipe for an Accident" showed how complacency cost the Army an OH-58D. However, it's not just in combat where complacency can hurt you. In the story below, an off-duty Army civilian found out the price of complacency can be far more than you — or anyone else — would ever want to pay.*

# Crippling Complacency

**BOB VAN ELSBERG**  
Strategic Communication Directorate  
U.S. Army Combat Readiness/Safety Center  
Fort Rucker, Ala.

**D**anny Curry hit the ground beside his tractor with a thud. He'd been towing a bush hog, which is basically a giant lawnmower with a 5-foot-long blade, when his tractor's left-rear wheel hit a hidden stump. The sudden impact dumped him onto the ground just inches in front of the tractor's right-rear tire. His worst fear was that the tractor would tip over on him. There was nothing he could do. A paraplegic since he was 10 months old, he couldn't move quickly. Earlier, he'd lowered the tractor's rollover bar to mow under some low-hanging tree limbs. Now, without it, he was in danger of being crushed.



Mercifully, the tractor stayed upright, but his troubles weren't over. Years earlier, the tractor's seat-mounted, pressure-sensitive engine kill switch had malfunctioned and he'd rewired it, bypassing it. Until now, that hadn't been a problem. However, things were about to be much different. Before he could catch his breath, the tractor's right-rear tire rolled over his legs,

breaking both of them. And the worst was yet to come.

The riderless tractor pivoted to the left around the stump and swung the bush hog directly toward Curry. The steel blade, designed to chop through heavy brush, instead chopped through Curry's upper and lower legs, tearing skin, muscles, arteries and bones. And, unlike most paraplegics, Curry still had normal sensation in both legs.

"I felt every bit of what happened to me," he said.

Miraculously, Curry was still conscious after the ordeal.

"When the bush hog came off of me, I sat up to see that



I was busy thinking about **OTHER THINGS** and **STOPPED THINKING** about the **HAZARDS** of the task at hand. I let **DOWN MY GUARD.**



my right leg was gone below the knee," he said. He also saw his left leg was broken above and below the knee and part of his foot was missing. His situation was desperate.

"At that point I knew I only had a matter of minutes to make some things happen," Curry said. "My first reaction was to ask the good Lord above for some help. He responded to my request; I know that is the reason I did as well as I did."

Curry knew he'd soon bleed to death if he didn't get medical help. In a bizarre twist of events, as the bush hog tore off his right leg, it also filled the wound with grass and dirt, effectively slowing the bleeding. Severely injured, he considered his options. His wife was out of

state, so he couldn't reach her for help. He could stay where he was and hope one of his neighbors would come down the dirt road and notice him — but with only two neighbors, his chances were slim. Although his mother lived in the house nearest his, she was 89 years old and suffered from a heart condition. Curry feared the shock of seeing him would be too much for her, provided he could even make it to her house. He decided his best option was to make his way to Florida State Road 2, which ran next to his property, and try to flag down a passerby. But getting there meant covering nearly 150 feet — a long distance in his condition.

"I just started scooting backward, pulling my

injuries with me," he said. "As I was doing that, I was thinking, 'Stay in the shade — don't get in the sun. Stay calm and take deep breaths. This area has a lot of fire ants, so don't drag through an ant bed. I had the presence of mind to retrieve one of my socks and carry it with me in case I needed a tourniquet.'"

Curry made it some 100 feet to a tree which offered shade and allowed him to see and be seen from the road. Within a few minutes a car passed by, but the driver, looking at the pasture across the road, never noticed Curry. Frustrated, he decided he'd drag himself to the road's edge if another car passed him by.

A few minutes later, another driver came down the road. Curry waved at her and she, thinking it

was a friendly greeting, waved back. As she passed, however, something got her attention. Looking back, she saw Curry on the ground and realized he was injured and came back to help him. Neither she nor Curry had a cell phone to call 911. Fortunately, there was a fire station a couple miles away.

"I asked her to go and alert the onsite medic at the station that something had happened and to tell him who I was and where I was," Curry said.

The woman drove to the station and passed the information to the medic, who immediately drove to Curry's farm. While he couldn't transport Curry, he could render assistance and call for an ambulance. As he evaluated Curry's injuries, he passed the information to the

ambulance and helicopter that were en route to the accident site.

Curry estimated it took the ambulance crew nearly 20 minutes to arrive. When they did, they evaluated him and checked for internal injuries. Stabilizing him, they loaded him onto a helicopter for a flight to the nearest Level I trauma center, located at the Tallahassee Memorial Hospital in Florida. After Curry landed, doctors X-rayed him to measure the extent of his injuries. In addition to the damage

done to his legs, they found his pelvis had been fractured in four places. After the examinations were complete, the doctor gave Curry his diagnosis.

"He looked at me and said, 'I'm going to have to take your right leg off above the knee, what do you want to do with the left leg?'"

Curry answered, "Well, it really doesn't serve a purpose and I'd hate to carry it around with me the rest of my life — take it off even with the other."

The surgery went well and Curry

soon began physical therapy. He set himself several goals. First, he wanted to get off the bed and into his wheelchair. Second, he wanted to go from the wheelchair to the restroom and then get back into his bed. Finally, his ultimate goal was to be able to get back into his truck and return to work at Fort Rucker, Ala. He'd spent 28 years supporting Army aviation programs and Soldiers. Doing that was, and remains, his life's passion.

Curry's recovery went remarkably well and he was back to work in a little more than two months. However, he was a changed man — and not just physically. He'd learned the hard way that complacency can exact a terrible cost. He'd felt so confident that morning on his tractor he'd neglected to use his seat belt and rollover bar — two safety devices that could have prevented his injuries. He'd also ignored the danger of not having a functioning engine kill switch. Had he repaired the switch, the tractor would have stopped running, saving him from being mutilated by the bush hog.

Finally, in his complacency, he ignored the threat posed by the tree stump near the end of the fence. He'd never hit it before, so why should it be any different that day? That morning, Curry let his mind drift from his work and, in the process, sacrificed his situational awareness. Self-confidence and complacency wove a chain of events he couldn't escape. And he knows he was responsible.

"If I had to say what caused my injuries, it was my complacency and not paying attention to what I was doing," he said. "I was busy thinking about other things and stopped thinking about the hazards of the task at hand. I let down my guard."

From his painful experience, Curry offers the following advice to those who might be tempted to let self-confidence degenerate into complacency.

"Avoid becoming complacent — pay attention to what you're doing," he said. "Life is fragile — it can quickly be taken away from you."◀

# THE Best Pilot IN THE UNIT

RETIRED LT. CMDR. LAWRENCE DOWNS JR.  
Norfolk, Va.

**A**s the commander continued the eulogy, I reflected on his statement and stared at the flag-draped casket in front of the altar. That mahogany box contained all that was left of “the best pilot in the unit” — precious little, since the accident site was a smoking hole in the side of a local mountain. He had missed clearing the ridge by only 10 feet.

Rumor had it that the cause was pilot error, but I couldn't buy that. Pilots of his caliber don't just fly into mountains. There had to be something else — an engine failure or loss of tail rotor. I was sure he had wrestled with the aircraft every inch of the way, trying to get it airborne and save his crew. If he couldn't save that helicopter, no one could.

He thrived on challenge. He did things I could only dream about. We both flew formation, but he could fly tighter. When flying low-level, he flew lower. He flew longer hours and took off in weather that kept me on the ground. His briefs and debriefs were just that — brief.

“Nobody ever learned about flying from talking about it,” he said. He didn't believe in preflights — except on checkrides.

“This aircraft has had its daily, right?” he once asked me. “If it flew in, it'll fly out.”

The XO was speaking now, recounting the time six months ago when the late pilot had won a medal for serving as officer in charge of a short-notice surge operation. He won all the accolades when he managed to target the high-value “enemy” unit without being detected. It had been a black, moonless night, and he had closed to within two miles by flying at 40 feet and 120 knots. I had flown earlier that night, but I wouldn't trust

myself or the autopilot below 125 feet. It was all I could do to relax my death grip on the cyclic. But then, I wasn't him.

“Heck,” I remember him saying later, “I could have gone 10 feet lower, but I thought my co-pilot would have a heart attack.”

I also knew he had flown more than 50 hours during that five-day period; he had even launched on an eight-hour mission without having slept in the previous 30 hours. However, everyone knew he could handle it. When he wasn't flying, he was directing the action. He was that type of guy. He liked to manage everything. That's why he was always considered for the difficult tasks and why he always got the medals.

No one was going to miss him more than our maintenance officer. He had a reputation for getting the bird up no matter what. If the numbers were close, the plane was up.

“It's all in how you look at the gauges,” he said. “Besides, some engineer has added a fudge factor.”

Many times, he completed a functional check flight well after official sunset.

“It's not really nighttime while it's still pink,” he claimed.

He was sure the commander would give him a waiver if he asked for it. It's not that he broke any rules. He just “bent” them a little.

Then there was the

Air Medal. He launched in zero-zero weather — he had a special instrument card — to rescue an A-7 pilot who had ejected 15 miles off the coast. As it turned out, a Coast Guard cutter got there first and made the rescue. However, his basic flight instruments went “boots up” and the airmanship he demonstrated in getting back earned him the Air Medal. He later confided to me that in the rush to launch, he had skipped the checklists that would have probably caught the problem. Checklists were for people like me. He didn't need them.

I glanced at his wife in the front row, stoically listening to the service. His young son and daughter sat beside her, neither seeming to grasp the fact

“your mission is whatever they tell you it is. You've got to be ready for anything.”

That day, power required exceeded power available, the most basic of truths. He had pushed the envelope a little too far this time and didn't make it. He made a nugget's mistake — him, the best pilot in the unit.

“Ashes to ashes, dust to dust,” the chaplain said. “From dust we came and to dust we shall return.”

Could I have prevented this? Could anyone? All the signs were there. What could we have done?

It suddenly occurred to me that the comment the commander had made in his eulogy was all wrong. The deceased was not the best pilot in the unit. The best pilot is the one who knows his limitations and

“CHECKLISTS were FOR people like ME. He DIDN'T NEED them.”

that they would never see their father again.

In the end, it was a day visual flight rules hop that got him. He always flew a little too low and a little too fast in the valleys up the mountains. He was “training” for his upcoming deployment to a hot overseas area. Never mind that nap-of-the-earth was not our mission.

“When the balloon goes up,” he always said,

doesn't push them. The best pilot understands the rules are for everybody, not just the other guy. The best pilot in the unit is the one who adds that little margin of safety instead of taking it away.

The best pilot in the unit is the one who is still with us.

*Editor's note: This article was adapted from Approach magazine. ◀*

# WHY THE RUSH?

**DR. PAT LEDUC**  
Human Factors Task Force  
U.S. Army Combat Readiness/Safety Center  
Fort Rucker, Ala.

**F**or those of us who have ridden in a New York City cab, it seems only fitting that our country's first arrest for reckless driving was a New York cabbie. By most accounts, Jacob German was the first person in this country to be arrested for speeding. He was stopped by a bicycle patrolman on May 20, 1899, for driving the exorbitant speed of 12 mph on Lexington Avenue in Manhattan (the speed limit at the time was 8 mph). Mr. German was booked and held in jail for a time, but no points were added to his license (New York didn't begin issuing driver's licenses until 1901) and his insurance rates didn't rise. Those times, however, are long gone. Nationwide connectivity of computer systems makes it difficult to escape a ticket or the havoc it wreaks on your insurance rates.

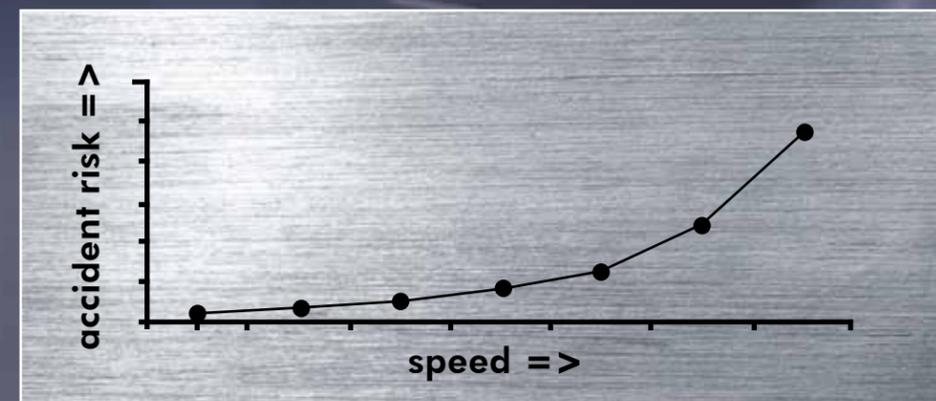


Advances in motor vehicles, much like our computer systems, have grown by leaps and bounds since that first speeding arrest. By today's standards, the first cars were little more than a box with tires and a steering wheel. Now we have air bags, seat belts, anti-skid and anti-roll protection, global positioning system navigation, satellite radio, DVD players and a host of other modern amenities. Despite all those added safety features, are we actually safer now than we were then? You

might be surprised to hear that the answer is "not necessarily." Back in 1899, the top speed was 12 mph. With enough money, we can now buy production cars that top 250 mph and motorcycles that reach nearly 200 mph (when tested by Guinness World Records in 2007, the SSC Ultimate Aero reached 257 mph and the Suzuki Hayabusa reached 196 mph, respectively). Unfortunately, this increase in speed has resulted in an exponential increase in accident rates. Why?

People need time to process information — to decide both how and when to react. High speeds affect this process by lengthening the distance covered while the driver reacts. This effectively shortens the driver's response time.

A human's ability to analyze, interpret and react to changing conditions remains fairly constant as long as no distractions are present. However, add in other issues such as fatigue, alcohol, texting or talking on a cell phone (hands-free or not)



and our ability to react quickly and correctly significantly decreases. Slowed processing and reaction times, coupled with high speed, means the distance we travel from the time we decide to hit the brakes until we actually stop is much, much farther. Basically, when too much happens in a short period of time, we are often unable to handle it all without making errors. Add to this the simple fact that humans are typically very bad at judging time and space changes and it doesn't make for a pretty picture.

It should be pretty obvious by now that speed and accidents have a strong correlation. Accident rates increase exponentially when speed is increased, as shown on the chart above.

The National Highway Traffic Safety Administration (NHTSA) lists speeding as a major factor in almost one-third of all traffic fatalities nationwide. Safety gains made with higher seat belt use and less drunk driving are being offset by increased fatalities due to higher

speeds. Experts are becoming more concerned because accident risks when speeding are similar to those seen with drunk drivers. Traveling 10 to 20 percent faster than the speed limit (just 4 to 8 mph in urban areas with speed limits of 35 to 40 mph) can increase accident risks equal to drivers with a blood alcohol concentration (BAC) of 0.05 to 0.08. Driving about 25 percent faster than the posted speed limit increases your accident risks as much as someone with a BAC of 0.12. That exceeds the legal limit in every state.

While the vast majority of us would never think about getting behind the wheel or jumping on a motorcycle with a BAC of 0.12, how many of us actually feel guilty about driving 50 in a 40-mph zone? Truth is, most of us probably don't. Despite posted limits, our driving speed is strongly influenced by what seems appropriate to us at the time. In addition, our fear of being caught, or our lack of it, also factors into the picture. Just remember,

most accidents are caused by human error (mechanical failure accounts for less than 5 percent of all accidents worldwide). People misinterpret situations, make poor decisions and end up overstepping the boundaries of safety. Most of us are not as competent behind the wheel as professionally trained race car drivers.

Have you ever thought about what you are saving by speeding? If you lived exactly 10 miles from work, speeding up from 50 to 60 mph the entire length of the 10 miles would only get you home two minutes faster. Realistically, most of us have never driven to or from work without having to slow for lights, other cars or pedestrians. Is the increased risk of having an accident really worth the two minutes? That is probably less time than it takes you to walk out and check your mailbox. The next time you head out on the road, before you stomp that gas pedal, ask yourself, "Is the rush really worth the risk?"

# Think Before You Sink

U.S. COAST GUARD  
www.uscgboating.org

**N**ow that the warm summer months are upon us, many Soldiers will be drawn to some form of water, whether it's a river, pond, lake or ocean. Regardless where you choose to cool off this summer, if you plan to operate a boat, canoe, WaveRunner or other personal watercraft, leave the alcoholic beverages on shore.

## Dangers of BUI

Boating under the influence (BUI) is just as dangerous as drinking and driving, so every boater needs to understand the risks of BUI. According to Coast Guard statistics, in 2008, there were 387 boating accidents in the United States in which alcohol use was listed as a contributing factor. These accidents resulted in 153 deaths and 346 injuries. The most common accident vehicle was an open motorboat, which accounted for 198 accidents.

Alcohol affects judgment,

vision, balance and coordination. These impairments increase the likelihood of accidents afloat for both passengers and boat operators. Coast Guard data shows that in boating deaths involving alcohol use, more than half the victims capsized their boats and/or fell overboard.

Alcohol is even more hazardous on the water than on land. The marine environment — motion, vibration, engine noise, sun, wind and spray — accelerates a drinker's impairment. These stressors cause fatigue that makes

a boat operator's coordination, judgment and reaction time decline even faster when using alcohol. Alcohol can also be more dangerous to boaters because they are often less experienced and less confident on the water than on the highway. Recreational boaters don't have the benefit of gaining experience by operating their boats on a daily basis. In fact, boaters average only 110 hours on the water per year.

## Alcohol Effects

Alcohol has many physical

effects that directly threaten safety and well-being on the water. When a boater or passenger drinks, the following occur:

- Cognitive abilities and judgment deteriorate, making it harder to process information, assess situations and make good choices.
- Physical performance is impaired — evidenced by balance problems, lack of coordination and increased reaction time.
- Vision is affected, including decreased peripheral vision,

reduced depth perception, decreased night vision, poor focus and difficulty in distinguishing colors (particularly red and green).

- Inner ear disturbances can make it impossible for a person who falls into the water to distinguish up from down.
- Alcohol creates a physical sensation of warmth, which may prevent a person in cold water from getting out before hypothermia sets in.

As a result of these factors, a boat operator with a blood

## DID YOU KNOW?

- A boat operator is likely to become impaired more quickly than a driver, drink for drink.
- The penalties for boating under the influence can include large fines, revocation of operator privileges and serious jail terms.
- The use of alcohol is involved in about one-third of all recreational boating fatalities.



**FYI**

It is illegal to operate a boat while under the influence of alcohol or drugs in every state. The Coast Guard also enforces a federal law that prohibits BUI. This law pertains to all boats (from canoes and rowboats to the largest ships) — and includes foreign vessels that operate in U.S. waters, as well as U.S. vessels on the high seas.

alcohol concentration (BAC) above 0.10 percent is estimated to be more than 10 times more likely to die in a boating accident than an operator with a BAC of zero. Passengers are also at an increased risk for injury and death — especially if they are also using alcohol.

**Enforcement and Penalties**

The Coast Guard and every state have stringent penalties for violating BUI laws. Penalties can include large fines, suspension or revocation of boat operator privileges and jail terms. The Coast Guard and the states cooperate fully in enforcement to remove impaired boat operators from the water.

In waters that are overseen solely by the states, the states have the authority to enforce their own BUI statutes. In state waters that are also subject to U.S. jurisdiction, there is concurrent jurisdiction. That means if a boater is apprehended under federal law in these waters, the Coast Guard will (unless precluded by state law) request that state law enforcement officers take the intoxicated boater into custody.

When the Coast Guard determines that an operator is impaired, the voyage may be terminated. The vessel will be brought to mooring by the Coast Guard or a competent and sober person onboard

the vessel. Depending on the circumstances, the Coast Guard may arrest the operator, detain the operator until sober or turn the operator over to state or local authorities.

**Tips for Avoiding BUI**

Consider these alternatives to using alcohol while afloat:

- Take along a variety of cool drinks, such as sodas, water, iced tea, lemonade or nonalcoholic beer.
- Bring plenty of food and snacks.
- Wear clothes that will help keep you and your passengers cool.
- Plan to limit your trip to a reasonable time to avoid fatigue. Remember that it's common to become tired more quickly on the water.
- If you want to make alcohol part of your day's entertainment,

plan to have a party ashore at the dock, in a picnic area, at a boating club or in your backyard. Choose a location where you'll have time between the fun and getting back into your car or boat.

- If you dock somewhere for lunch or dinner and drink alcohol with your meal, wait a reasonable amount of time (estimated at a minimum of an hour per drink) before operating your boat.
- Having no alcohol while aboard is the safest way to enjoy the water. Intoxicated passengers are also at risk for injury and falls overboard.
- Spread the word on the dangers of BUI. Many recreational boaters forget that a boat is a vehicle and that safe operation is a legal and personal responsibility.

Boating, fishing and other water sports are fun in their own right. Don't let alcohol turn a great day on the water into the tragedy of a lifetime.◀



**Family engagement kit**

<https://safety.army.mil>

Army Safe is Army Strong and that starts with a Soldier's Family. Have the information to help you and your Family stay SAFE.



# CONTROLLING

## Power Management Errors

HAATS COMMAND AND INSTRUCTOR PILOTS  
High-Altitude Army Aviation Training Site  
Colorado Army National Guard  
Gypsum, Colo.

**The trend over the last year demonstrates power management errors are occurring more frequently. With deployments into power-limited mountainous environments becoming the main effort, Army aviation must train to a higher power management standard. It is imperative we maintain the capability to conduct full-spectrum aviation operations while deriving maximum utility from every airframe in theater, all while protecting our greatest national treasure — our Soldiers and crews on board. The environmental enemy is ever-present in power-limited mountainous terrain. This patient and lethal enemy can be defeated through tough realistic training.**

As aviation commanders, we are challenged to protect Soldiers and aircraft while effectively balancing risk to achieve victory on the battlefield. The demand on Army aviation as a full-spectrum enabler and member of the combat arms team will continue well into the future. We must understand our role in preparing our aviation formations to defeat the human enemy, as well as the environmental enemy. The following should prompt discussion between you, the commander, and your pilots based on observed trends from rated student pilots of all components attending the Colorado Army National Guard's High-Altitude Army Aviation Training Site (HAATS).

**Know Your Limits — Personal, Aircraft and Environmental**

Each aviator should be conscious of power margin needs at every

point of flight. Arguably, if we operate within our personal, aircraft and environmental limits, we should have very little chance of having an accident. Let's begin with the basics. In today's complex environment, we must push aircrews to master the visual meteorological conditions approach while at home station, regardless of pressure or density altitude (DA). Mastery of this maneuver is the foundation of power management. When aircrews can smoothly land their aircraft, using +/- 1 percent from hover power and within +/- 3 feet of their intended landing spot, they have begun to manage power.

Furthermore, by predicting translational lift points while using no more than hover power during takeoff, they begin to develop a maximum gross weight mentality. (Most aircrew training manuals have simulated maximum gross

weight tasks.) When conducted over varying terrain with variable winds and gross weights, every takeoff and landing becomes a real-world simulation for maximum gross weight operations. Mastering vertical and horizontal speed and power to a specific point on the ground will virtually eliminate brownout/whiteout (BOWO) accidents, which are linked to power management accidents.

Current simulators can aid in this regimen; however, none of our simulators produce wind and terrain interaction. Practiced frequently in BOWO conditions, the simulator can be a useful tool for initiating changing wind direction, speed and aircraft gross weight in a timely manner. Use every flight and flight environment to lock this data into each crewmember's cerebral hard drive for future reference. Practice these same maneuvers to other than in-ground effect (IGE) locations to learn when and how to bridge power for out-of-ground effect (OGE) and partial-OGE landings.

An engaged commander will encourage his aircrews to grow beyond the rote memorization of the performance planning card

(PPC). Demonstrate how correlative learning must be inculcated into the performance planning process. This basic building block goes a long way in establishing aircraft and environmental limitations and provides safety in predictive measurement. For example, when conducting a near maximum gross weight landing into a mountainous area where the maximum torque available will be 84 percent and landing numbers are 82 percent, you don't have much room for error, so good situational awareness is essential, meaning everything else must be perfect. Crews cannot fail to accurately assess the wind and terrain and have a high degree of mastery for managing speed and power (remember the aforementioned +/- 1 percent). Power profligates have no hope of conducting this scenario safely if they cannot land at sea level within +/- 5 percent, nor will they take off safely if they always use +10 percent above hover power for every takeoff. Aircrew skills at sea level are predictive of their ability at altitude; perfect practice builds competency and will keep them within limits and prevent accidents.

Lashed together — precise execution and performance planning (tabular data) — the training process quickly helps match personal limitations with aircraft limitations. To complete the triad, practice in a mountain training area where crews can learn the most complex component, environmental mastery in mountainous terrain. Orography, better known as wind and terrain interaction, requires both science (performance planning, aerodynamics) and art (interpretation, extrapolation and pilot technique) to understand and master power management.

Power management is not only knowing how much power is available; it's knowing when and how to use the power available at the correct time. High DA and complex winds are pervasive in the mountains, and Leaders must train aircrews to understand and mitigate the deadly duo's detrimental effects. Approach angles, speed and escape routes all become the normal lexicon of the mountain pilot. The insidious environmental enemy challenges and conspires against all aviators through the fickle nature of wind speed and direction variation. While most simulators can provide adequate visuals for mountain-type landings, orographic interaction and true DA relationships cannot be replicated. This doesn't mean simulators have no value. If aircrews cannot attend formal training at



the HAATS, where challenging and varied landing zones range from 6,500 feet to more than 14,000 feet, the simulator can help commanders develop training exercise periods that focus on approach angles, speed and escape route planning while perfecting speed and power management. Use simulators when aircrews cannot operate in a truly power-limited mountainous environment to begin building new concepts and crew confidence about nonlinear approaches that are required to maintain safe escapes when the environment doesn't afford a safe, straight-in approach.

Army aviators self-inflict power management accidents when they demand more from the aircraft than the power plant can produce. Whether through aggressive combat maneuvering or lack of situational awareness, exceeding power available (Note: This is not settling with power) will cause crews to crash. When this happens, the environmental enemy claims another aircraft and the human enemy claims victory without a shot fired.

Restating the PPC alone does not teach power management. The PPC and tabular data are predictive planning tools. Without environmental mastery and pilot execution, no level of planning or



risk assessment worksheet (RAW) will prevent accidents. Continual integration of PPC and tabular data with dogmatic training are Leaders' most effective weapons to prevent losses to the environmental enemy.

The PPC and tabular data are not used exclusively for takeoff and landing. This data is extremely relevant for en route operations. Numerous aircraft and crews have been lost during en route operations for a myriad of reasons. Again, the environmental enemy is patient and omnipresent. If a pilot flying en route encounters bad weather with rising terrain, his innate tendency is to slow down using aft cyclic while unintentionally increasing torque. Crews flying at altitude frequently find they have neither OGE nor IGE capability. In essence, they have become an airplane. If they slow below effective translational lift, they stall and crash. This condition is exacerbated when the aircraft is in a turn or tailwind condition. UH-60s lose 16 to 18 percent power with the anti-ice on, and crews are frequently surprised when the low rotor audio announces the environmental enemy's presence!

Leaders and mission briefers can help develop a better understanding of PPC results by asking pilots about power requirements while reviewing

their mission brief. Ask to see what they have computed, talk about the changes in mission, talk about the 14,000-foot pass they must cross, ask if they have the power to land at that altitude if needed and for all environmental conditions. Having all the answers isn't necessary; the correct solution is attained as a team. Nonetheless, critical learning will take place for everyone.

Only through a thorough knowledge of aircraft limitations and the aerodynamics of maneuvers, coupled with how to use a PPC and tabular data, can a pilot make an effective decision when presented with a power-critical situation. Understanding how wind, descent rate, temperature and turbulence affect those numbers is also important.

Crew coordination is a critical enabler at high altitude. Crews must cross-monitor performance and cockpit indications, as well as protect airspeed, especially when power available does not afford an IGE landing.

It is impossible to explain the vast array of techniques used to defeat the environmental enemy in the length of this article. HAATS has published several power management articles in Knowledge and Flightfax magazines to help expand the concepts



associated with these techniques. Those articles can be found in the U.S. Army Combat Readiness/Safety Center's multimedia archive at <https://safety.army.mil/>.

#### Risk Assessment Worksheets

In Operation Enduring Freedom, we learned that limiting operations to OGE weight plus 500 pounds minimum or a ceiling of 6,000 feet PA is not a realistic or effective way for commanders to manage risk. If used correctly, the RAW has become a great way to assess the cumulative risk of recurring factors affecting aviation safety. Leaders need to continue to emphasize learning points from this tool and not let it become another paper task before flying.

Aviators have many requirements, all of which are necessary. But the best way Leaders can help with power management concerns is to prompt them to think of issues they might have missed. The RAW helps aviators think about these issues and their consequences. If a low power margin risk factor is included on the RAW, ensure pilots use the worst-case scenario for the duration of the flight. What risk value do you assign a low power margin? As commanders, we have freedom to assess the risk using our best judgment; but consider how much room for error a 3 to 4 percent power margin leaves. Also, consider the crew mix for this mission. Does this change the amount of risk you, as the commander, are willing to accept in a power-limited environment?

HAATS stands ready to provide the practical application needed to fully understand and conduct safe power-limited mountain operations. Contact HAATS at <http://www.coloradoguard.army.mil/webpages/haats.htm>.

Get the tools and information necessary to be an engaged Leader

**Leader's**  
CORNER

<https://safety.army.mil>

Keep your Soldiers safe on and off duty. Log on TODAY!





# Un-Muffling Hearing Loss

**BILL WILLIAMSON**  
Safety Division-Marine Corps Base  
Quantico, Va.

**W**e live in a noisy world. Combat military weaponry, personal and vehicle stereos and high-powered machinery are just a few of the noises Soldiers are exposed to every day. Excessive noise disrupts sleep, produces stress, impairs communication and, in high enough doses, causes significant noise-induced hearing loss (NIHL).

Roughly 25 percent of all American military veterans age 65 and older suffer hearing loss above and beyond the natural aging process. Much of the hearing loss these veterans suffered is largely due to preventable, noise-induced wear and tear on the auditory system that happened earlier in their lives.

Soldiers are required to have an audiogram conducted each year to monitor hearing loss. If the test reveals sufficient hearing loss, the medical staff attempts to identify and educate the Soldier on hearing conservation to prevent further hearing loss. Often the education process is nothing more than the issuance of combat earplugs and a pamphlet that explains how to conserve your hearing. The Soldier may attempt to arrest the hearing loss for a few days, possibly even a few weeks. Eventually, though, many fall back on their old ways until the next annual audiogram — at which time the cycle is repeated.

Numerous sources of noise in the environment have the potential to produce NIHL. Because shooting is so prevalent in our military culture, it poses the greatest risk to many Soldiers' hearing. Clinical reports chronicling hearing loss after exposure to shooting have been documented since the 1800s. Reported peak sound levels from weapons have ranged from 132 decibels (dB) for small-caliber rifles and pistols to more than 172 dBs for high-power rifles and shotguns. But what does this decibel scale mean to the Soldier?

It is difficult to grasp how much acoustic energy is in a single gunshot. The acoustic energy in a single report from a high-power rifle, pistol or shotgun is equivalent to almost 40 hours of continuous exposure at 90 decibels adjusted (dBA). In other words, one bullet equals one week of hazardous occupational noise

## DECIBEL EXPOSURE TIME GUIDELINES

The following are the accepted standards for permissible exposure to noise, according to the National Institute for Occupational Safety and Health and the Centers for Disease Control and Prevention. For every 3 dB over 85 dB, the permissible exposure time before possible damage can occur is cut in half.

Continuous dB	Permissible Exposure Time
85 dB	8 hours
88 dB	4 hours
91 dB	2 hours
94 dB	1 hour
97 dB	30 minutes
100 dB	15 minutes
103 dB	7.5 minutes
106 dB	3.75 minutes (< 4 minutes)

exposure according to the Occupational Safety and Health Administration and Department of Defense standards. Because shells are often packaged in boxes of 50, shooting an entire box without hearing protection is equivalent to working in a 90 dBA environment for a full year! A Soldier qualifying on a target range without hearing protection can produce an entire year's worth of hazardous occupational noise exposure in just a few minutes.

Currently, the only way to detect functional hearing loss is through routine hearing tests. Unfortunately, by the time functional hearing impairment is detected, injury to the auditory system is usually at an advanced stage. Therefore, the key to prevention is education.

Leaders can assist Soldiers at risk for hearing loss by teaching them to avoid exposure to unwanted noise and how to become more sensible when exposing themselves to desired sounds. For example, Leaders can recommend Soldiers avoid other noisy activities the day of and day before firing weapons or exposure to firing on a target range. Research has shown that rest periods interspersed with an otherwise hazardous exposure to noise can greatly reduce auditory damage.

In situations where noise cannot be eliminated, Soldiers should be advised to wear hearing protection. The most commonly used types of protection are earplugs or earmuffs, which come in a variety of styles and sizes. The advantages of earplugs include their small size, low cost and relative comfort. On the other hand, earmuffs fit over the ear, are heavier and provide more protection than earplugs. When kept in good condition, earmuffs can also be considerably cheaper than disposable earplugs. However, a seal must be made between the earmuff cushion and the side of the head. Any break in the seal renders the earmuff useless.

Most Soldiers will find foam earplugs the protection of choice because they are inexpensive, comfortable, disposable and commercially available. While each is effective and wearing both is often recommended, the most effective type of earplug or earmuff is the one that is actually used.

## CAN YOU HEAR ME NOW?

When you notice a difference between loud sounds and quiet ones, your ears are perceiving changes in sound pressure level. Intensity (or volume) is measured in decibels (dB). Zero dB is the softest sound that can be heard. Although pain is subjective, to the average person, levels above 125 dB are painful. To others, levels below 125 dB may be painful. Here are the decibel levels of a few sounds Soldiers might encounter.

Rustling leaves	20 dB
Quiet whisper (3 feet)	30 dB
Normal Conversation	60 dB
Automobile (25 feet)	80 dB
Motorcycle (30 feet)	88 dB
Subway (inside)	94 dB
Power mower (3 feet)	107 dB
Jet Plane (100 feet)	130 dB
.410 shotgun with 28-inch barrel	150.01 dB
12-gauge shotgun with 28-inch barrel	151.50 dB
20-gauge shotgun with 28-inch barrel	152.50 dB
.45 Colt	154.7 dB
.223/5.56, in 18-inch barrel	155.5 dB
.44 Special	155.9 dB
.308/7.62, in 24-inch barrel	156.2 dB
.45 ACP	157.0 dB
9 mm	159.8 dB
.357 Magnum	164.3 dB

Although there is a lot of published information on NIHL, it is usually undetected until the damage is already done. While efforts have been made to reduce noises at their source, educating Soldiers on the importance of preserving hearing into their old age is the best method for conservation. Leaders can help Soldiers understand the importance of preserving their hearing for their golden years by becoming involved and taking precautionary steps to prevent NIHL. ◀

# Nuts and Bolts: Road-rageous Driving!

SHIRLEY M. PATTERSON  
Marine Corps Recruit Depot  
Parris Island, S.C.

**A**s an American Automobile Association-certified instructor leader, I have taught driver improvement and remedial driving programs to many servicemembers, civilian employees and Family members. During those sessions, their descriptions of their own aggressive driving were almost unbelievable. Many of them were unaware they had emotional problems that were contributing to their acts of road rage. They thought it was all right to tailgate, honk the horn to force other drivers to move over, pass in a center turn lane and yell and make gestures when passing slower vehicles.

Road rage is defined in the Merriam-Webster dictionary as "a motorist's uncontrolled anger that is usually provoked by another motorist's irritating act and is expressed in aggressive or violent behavior." No matter where you live, road rage and aggressive driving are important to understand. It is up to you to do your best to prevent road rage situations and the damage, injuries and fatalities that can result. It's also important to understand your own emotions and how to channel them elsewhere than toward other drivers. If you don't, you can easily be caught up in an extremely dangerous situation.

If some of the following items sound familiar when you drive, you may be an aggressive driver in need of a behavior change:

- Expressing frustration by cursing, yelling and gesturing toward other drivers
- Frequently changing lanes
- Running red lights
- Speeding

Here are some helpful tips on how to avoid road rage incidents:

- Understand your own emotions
- Identify situations that upset you
- Plan your trips
- Expect others to make mistakes on the roadway
- Don't underestimate the other driver's capacity for mayhem

- Understand that emotions are contagious
- Direct your emotions to actions, not to other individuals
- Delay driving when upset or ask someone else to drive
- Do not make eye contact with an aggressive driver
- Do not make obscene gestures
- Avoid blocking the right-hand turn lane
- Do not take more than one parking space
- If you are not disabled, do not park in a disabled space
- Do not allow your door to hit the parked car next to you
- Do not tailgate

Of the nearly 6 million crashes recorded by the National Highway Traffic Safety Administration during 2008, how many were caused less by out-of-control cars than by out-of-control drivers? How many of them now wish they'd stayed cool, not let their emotions rule? <<

**FYI**

There is a legal difference between aggressive driving and road rage. Aggressive driving is a traffic offense; road rage is a criminal offense.



## TOPSY-TURVY TRUCKS

INSURANCE INSTITUTE FOR HIGHWAY SAFETY  
www.iihs.org

**P**ickups have an image of being sturdy, hard-working vehicles that can "take a licking and keep on ticking." But as tough as they are, they can have an Achilles' heel — roofs that crush down upon occupants during rollover crashes. This is an important safety issue because pickups have a higher center of gravity than passenger cars and are more likely to roll over in a crash.

Recently, the Insurance Institute for Highway Safety (IIHS) tested five compact pickups to see how well their roofs would protect passengers. The trucks tested were the 2010 models of the Nissan Frontier, Ford Ranger, Dodge Dakota, Toyota Tacoma and Chevrolet Colorado. Of that group, only one, the Frontier, earned a "good" rating. By comparison, the Ranger earned an "acceptable" rating, while the Dakota, Tacoma and Colorado earned "marginal" ratings.

The IIHS tests involved pushing a metal plate against a corner of the pickup's roof at a constant speed while measuring how much pressure was needed to crush the roof downward. The resulting measurement was expressed as a ratio of how many times the vehicle's weight it took to crush the roof 5 inches during the tests. To earn a good rating, a roof must withstand a force four times the vehicle's weight. For an acceptable rating, that ratio changes to 3.25. A ratio of 2.5 is considered marginal, and anything lower is rated as poor.

Here are the ratings for the five trucks tested:

- Nissan Frontier: 4.11
- Ford Ranger: 3.32
- Dodge Dakota: 3.23
- Toyota Tacoma: 3.08
- Chevrolet Colorado: 2.86

For information on how these vehicles fared in other types of crash tests, visit the IIHS's website at <http://www.iihs.org/> and look under the More Headlines tab.

Accidents occurred between Feb. 1-28, 2010



# LOST



**CLASS B**

During taxiing into the refuel point, the aircraft initiated a spin during braking and the tail boom contacted the refueling boom. Both the refuel boom and the

aircraft tail-wheel assembly were sheared by the impact.

**CLASS C**

The maintenance crew detected smoke coming from the target acquisition and designation system assembly during the auxiliary power unit (APU) run-up procedures. The crew shut down the APU without further incident.



**CLASS B**

During training, the pilot felt feedback from the controls, followed by a loss of control. The aircraft incurred a hard landing and rolled on its side, resulting in damage.

**CLASS C**

The aircraft struck wires during confined area training. All main rotor blades (MRB) sustained damage.



**CLASS C**

The crew experienced an uncommanded right yaw during an out-of-ground-effect hover at 250 feet above ground level (AGL), followed by a loss of tail rotor effectiveness. The aircraft rotated five times before touching down. The overtorque reading was 118 percent for five seconds.



**CLASS A**

The crew declared a full-authority digital electronic control emergency and crashed during landing to the forward operating base runway. Both crewmembers suffered fatal injuries upon impact.

**CLASS C**

The crew experienced a bird strike during terrain flight training. The post-flight inspection revealed MRB damage.



**CLASS A**

The flight crew was conducting an instrument approach while operating under instrument flight rules when the aircraft suddenly disappeared from the radar. After radar contact was lost, other aircraft in the vicinity were alerted and identified the crash site. All three personnel onboard suffered fatal injuries.



**CLASS B**

The aircraft main rotor system struck a parked Mine Resistant Ambush Protected vehicle while landing. All four MRBs sustained damage.

**CLASS C**

The crew experienced an engine failure during short final. The aircraft subsequently entered a rapid descent and struck the ground, resulting in damage to the aircraft fuselage and landing gear.



**CLASS C**

The crew experienced smoke in the cockpit at 26,000 feet AGL, followed by loss of the No. 1 engine torque. Inspection revealed engine oil leak.

# ARMY AVIATION LOSSES

Fiscal 2010 as of May 6, 2010



ATTACK	1 / 1
RECON	2 / 4
UTILITY	5 / 5
CARGO	1 / 0
TRAINING	0 / 0
FIXED-WING	2 / 0
UAS	3 / 0

**TOTAL 14/10**

# ARMY GROUND LOSSES

Fiscal 2010 as of May 6, 2010



AMV	9 / 5
ACV	7 / 6
PERSONNEL INJURY <small>includes weapons-handling accidents</small>	13 / 14
FIRE/EXPLOSIVE	1 / 0
PROPERTY DAMAGE	0 / 0

**TOTAL 30/25**

**UAS**



**CLASS C**  
 The unmanned aircraft (UA) struck an RC-12N during taxi, resulting in damage.



**CLASS A**  
 The UA crashed shortly after launch and impacted the ground due to loss of control input.



**CLASS C**  
 The aircraft operator experienced RPM fluctuations and the UA was programmed to return to home base. The engine failed and the UA impacted the ground.

**GROUND**



**CLASS A**  
 Several Soldiers in a three-vehicle convoy movement were injured when their M1126 Stryker lost control on a snow-covered improved tank trail and slid nose-first down a ditch into a creek bed. The trail vehicle then rear-ended the second vehicle. Two of the vehicles sustained Class A damage.



**CLASS A**  
 A Soldier was killed when the M978 HEMTT fuel tanker he was riding in shifted on uneven terrain and overturned. The

driver of the vehicle, who was wearing a seat belt, suffered minor injuries.

**Personnel Injury**

**CLASS A**  
 A Soldier was found unresponsive at the bottom of a hotel pool. Attempts to resuscitate the Soldier were unsuccessful.

**DRIVING**



**CLASS A**  
 A Soldier was speeding with another Soldier riding as a passenger when their vehicle went off the road, struck a guardrail and became airborne. The unbelted driver was ejected and landed on a dirt embankment. The car then landed on top of him, trapping him beneath its burning engine compartment. The driver and passenger were transported to

a hospital, where the driver later died. His seat-belted passenger suffered non-life-threatening injuries.

A Soldier moved into the oncoming lane to pass a tractor-trailer and was unable to return to his lane before colliding head-on with an oncoming tractor-trailer. The unbelted Soldier was thrown from the vehicle and killed.

A Soldier was riding as a passenger in a vehicle driven by a civilian when they were struck head-on by another vehicle that crossed into their lane of travel. The accident resulted in the Soldier's death.

A Soldier was traveling northbound on an interstate when he veered off the road and struck the rear of a tractor-trailer parked on the side of the road. The Soldier was wearing his seat belt, but died from his injuries.

Two Soldiers died when the vehicle they were riding in crossed the road and struck another vehicle head-on. The Soldier-driver survived, but his two Soldier-passengers died. All Soldiers were wearing their seat belts.

A Soldier died when he rear-ended a stopped tractor-trailer on the side of the road. The tractor-trailer was transporting propane, and the collision sparked a fire that engulfed the Soldier's car.

A Soldier was driving a borrowed car when he was broadsided by a drunk driver at an intersection and killed. The Soldier was wearing his seat belt.



**CLASS A**  
 A Soldier was riding his motorcycle at an excessive speed when he collided with a minivan in a T-type intersection. The Soldier, who is reported to have been wearing his helmet, eye protection and gloves, survived the initial impact but died 11 days later while under medical care. The Soldier had not received Motorcycle Safety Foundation (MSF) training.

A Soldier was riding his new sport bike in the company of another rider when he lost control, struck a guardrail and was thrown from his motorcycle. The Soldier had taken MSF training 18 months before the accident and was wearing his full personal protective equipment (PPE).

**POV DRIVING LOSSES**  
 Fiscal 2010

as of May 6, 2010 Class A/Fatalities

<b>CAR</b>	<b>23/24</b>
<b>SUV/JEEP</b>	<b>5/6</b>
<b>TRUCK</b>	<b>3/3</b>
<b>MOTORCYCLE</b>	<b>15/15</b>
<b>PEDESTRIAN</b>	<b>7/8</b>
<b>OTHER*</b>	<b>1/1</b>

**57 TOTAL DEATHS**

Fiscal 2009: **62** 3 year average: **67**

\*Includes: vans and ATVs



**Have fun while helping your battle buddy!**

**MMP**  
 MOTORCYCLE MENTORSHIP PROGRAM

Check out the USACR/Safety Center MMP Web site for some examples of active mentoring programs.  
<https://safety.army.mil/mmp/>



# AVOID THE HAZARDS

There is no question the Mine Resistant Ambush Protected (MRAP) family of vehicles provides increased protection for our Soldiers against improvised explosive devices, mines and small-arms fire. However, this increased level of protection does not come without some unique hazards and risks.

# MRAP SAFETY AWARENESS

Address the hazards associated with the operation of MRAPs. Implement effective composite risk management, comprehensive training, situational awareness and effective leadership to keep Soldiers safe and avoid loss and damage to equipment.

<https://safety.army.mil/MRAP>

**BE AWARE.**



ARMY SAFE  
IS ARMY STRONG

