AIRCRAFT MAINTENANCE: THE ACCIDENT THAT SHOULD'VE HAPPENED

KNOWLEDGE

VOL 6 OCTOBER 2012

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

COLD WEATHER CONSIDERATIONS

- MOTOR POOL SAFETY
- DROWSY DRIVING
- HIGH-ALTITUDE TRAINING

+

BRAKING BASICS

U.S. ARMY

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ARMY SAFE IS ARMY STRONG

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We welcome your feedback. Please email comments to **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, email christopher.frazier4@us.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 website at https://safety.army.mil.

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> **THE PLAIN TRUTH** is we are **IN CONTROL**, accidents aren't inevitable and while **RISK MAY BE EVER-PRESENT,** there's certainly a lot we can do to **MITIGATE, REDUCE AND EVEN ELIMINATE IT.**

EVERYBODY'S BUSINESS

Everyone has pet peeves, and one of mine is litter. I can't pass by a piece of trash, no matter how big or small, and just let it continue lying on the ground. I have to pick it up and find a garbage can, even though it's not technically my "job" to do so. I look at it like this: We all share the same common spaces, and everyone should do their part to take care of it. Rank and position don't matter — it's about doing what's right for the greater good. Besides, it's what, 10-20 seconds out of my day?

It's the same with safety. Just because you have unit safety officers doesn't mean you should overlook safety violations or breaches of standards, thinking it's their job to handle the issue. One of our most fundamental duties as Soldiers is executing our missions at minimum risk. When you see your fellow Soldiers violating standards, whether intentionally or unintentionally, and don't speak up, you miss the opportunity to maintain standards and prevent a needless accident; at worst, the situation ends in the tragic loss of life.

This is where a discussion of culture becomes relevant. Our Army culture is defined by the Warrior Ethos and our seven Army Values, with many other subcultures at play (for example, Aviation doesn't have the same culture as Infantry, and so on). Safety, I believe, is at its core an unspoken "eighth" Army value that affects every branch, every MOS and every person. We should be building a safety culture that motivates everyone on the team to do the right thing all the time, for both themselves and their fellow Soldiers.

The term "safety culture" was born from the Chernobyl nuclear disaster, the first time in modern history that attitude, at both the individual and organizational level, was recognized for directly impacting not only safety, but also efficiency and accuracy. Private industry soon adopted the safety culture model, and our nation's military has taken a special interest in it during the last decade or so. The Army's sustained downward trend in accidents during the past several years shows our safety culture is evolving in the right direction.

But that doesn't mean we don't have room or the obligation to grow. There are still "pockets" where safety is seen more as an externally applied mandate that comes from the top and trickles its way down to the lowest level. Studies from both the private and public sectors have shown, however, that safety culture fully matures only when change comes from the top and bottom simultaneously. In effect, we have to make every Soldier a safety leader with ownership of not only their personal safety, but the Army Safety Program, and give them a voice in the safety process. That means leaders will have to listen, and those charged with safety functions within their units must realize safety isn't proprietary — it's everyone's business.

We've also got to move away from a compliance-based mindset. Those "check the block" requirements outlined in regulations and directives provide only a framework for safety programs. Commanders who fail to look within and allow their Soldiers a say in safety are building a very shaky house, one that cannot stand up to the tests of hazards and risk. Filling in the gaps between those directives with thoughtful, proactive mitigation strategies tailored to the unit's unique circumstances provides the best foundation for Soldiers to stay safe 24/7, whatever their duty status or activity.

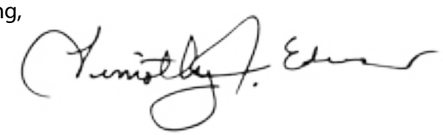
Finally, I believe we need to rethink the way we look at "accidents." The term itself suggests we're not in control of anything going on around us. Combined with the generally accepted notions that accidents just happen and a certain amount of risk is to be expected, we've set up our Soldiers for failure. The plain truth is we are in control, accidents aren't inevitable and while risk may be ever-present, there's certainly a lot we can do to mitigate, reduce and even eliminate it. As leaders, fate can play no part in establishing a proper safety culture, and we must not approach our safety programs believing it does.

I said in my introductory column here a couple months ago that I don't have all the answers. I'm still learning, and from what I know right now, I truly believe there is no end to the progression of our safety culture. It will change with the times and be affected by countless external factors, like whether our Army is at peace or war or how funding shortfalls affect every aspect of operations. What's important is that we keep up and evolve right along with it.

I welcome your feedback on this subject and any problems or concerns you have. To do my job effectively, I must know your needs first. Please let me know how I can help and how the USACR/Safety Center is or isn't assisting you and your Soldiers in meeting your safety goals.

You all do a remarkable job every day for our Soldiers, their Families and our Civilian workforce. I thank you for that and hope you have a wonderful fall season. Remember that many of your Soldiers will be taking advantage of the cooler weather for long motorcycle rides or celebrating with friends at tailgates and football parties. Looking out for one another and treating safety as an absolutely imperative part of your job will do a lot to ensure everyone makes it home alive.

Army Safe is Army Strong!



TIMOTHY J. EDENS
Brigadier General, USA
Director of Army Safety

The Good Rider- Braking Basics

DAVID L. HOUGH
http://soundrider.com

Editor's note: David L. Hough has authored several popular books on riding safety and served as a columnist for Motorcycle Consumer News, BMW Owners News and Sound RIDER! magazines. To support Soldier riders, Hough and Sound RIDER! publisher Tom Mehren have granted reprint permission to Knowledge for Hough's "The Good Rider" series. This issue features his article on braking basics.

Riding on public roads exposes us to all sorts of hazards. The key to avoiding crashes is to maintain your awareness of what's happening ahead so that you can make simple corrections to not be at the wrong place at the wrong time or the wrong speed. In city traffic, braking gives you options for quickly getting out of the way of other vehicles. Out in the country, braking gives you options for avoiding hazards such as stalled vehicles or wandering animals. Once in a while, you need to brake very aggressively to avoid a hazard that suddenly pops into view. For such situations, it's important to develop the correct muscle memory to brake without losing control.

Novice riders in training courses are often reminded of concepts such as "the front wheel does 70 percent of the braking." That's good advice for novices, but at some point, a rider needs to move beyond novice techniques. Braking is a skill worth developing. Even if your bike has an anti-lock brake system, there are more than a few situations where ABS can't save you from bad habits or undeveloped skills.

The Tires Stop the Bike

We might come to believe that it's the brakes that stop the bike, but really, it's the tires. Brakes can stop the wheel from turning, but it is the tire's traction against the road surface that forces the motorcycle to slow down. That means we need to be aware of the condition of the road surface as well as our tires. The situation determines our braking technique.

For purposes of braking technique, let's define "braking force" as the deceleration force applied by the tires, not the force pressing the brake pads against the disc.

Traction is a Function of Weight

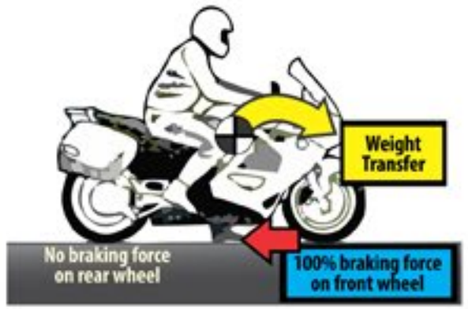
The braking force that a tire can supply is directly proportional to the weight pressing the tire onto the roadway. Let's imagine a motorcycle and rider with a combined weight of 800 pounds, equally supported on both wheels. The load on each wheel would be 400 pounds, so each tire could provide 400 pounds of braking force to slow the bike. That's the braking force available at the start of braking, but the situation changes quickly.

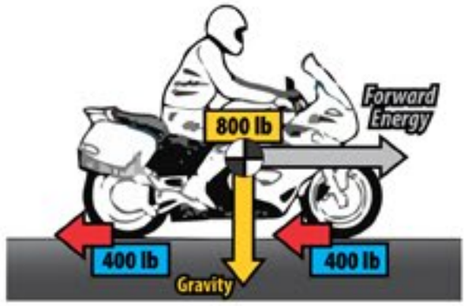
Weight Transfer

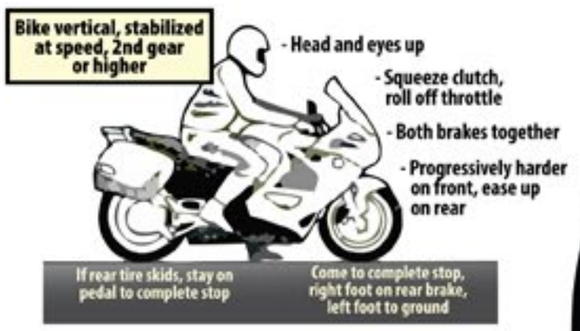
At rest, a motorcycle's inertia resists movement. To accelerate a motorcycle up to highway speed, engine power is required to overcome inertia, wind resistance, etc. The flip side of inertia is that once up to speed, the motorcycle wants to keep moving straight ahead at the same speed. So, to decelerate the motorcycle, the brakes must overcome the machine's inertia. The kinetic energy of the speeding motorcycle is converted to heat as the brakes are applied.

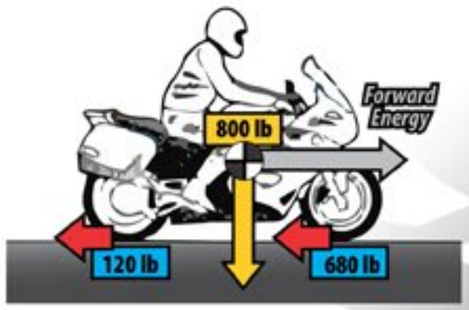
Although the motorcycle, rider and load are composed of many bits and pieces, we can pretend that the whole collection has a center of mass, and that gravity and inertia act on that single point. The COM will probably be somewhere in the middle of the heaviest parts, perhaps midway between the rider's knees.

Now, when the brakes are applied, the braking force is way down at the contact patch of the tires, while kinetic energy (forward energy) is acting much higher on the bike. The result is that under braking, everything pitches forward, applying more weight onto the front tire. We sometimes call this weight transfer. The point is, as the front tire is pressed more onto the surface, it gains traction, so it's capable of more braking force. If the front tire has sufficient traction, aggressive front braking can lift the rear tire off the surface (a stoppie). In that situation, 100 percent of brake force would be on the front tire and nothing on the rear. The rear brake could be fully applied with









the wheel locked, but with the tire waving in the air, it can't apply any braking force.

However, in the interests of keeping the bike pointed straight ahead, it would be good to have some weight on the rear tire. So, a more realistic maximum braking situation for an 800-pound motorcycle would be something like 680 pounds braking force on the front, 120 pounds on the rear.

There have been some serious real-world motorcycle braking tests in the past few years, and the results suggest that more aggressive braking is possible. You can get on the front brake very quickly without the tire skidding — if you are very smooth in squeezing the lever progressively harder to match the weight transfer. If you haven't practiced aggressive stops for a while, I suggest you squeeze the lever progressively over one second, the time it takes to say, "one thousand and one." As you gain skill, you can gradually get that time down to a half-second. The goal is to be fully on the brakes as quickly as possible without skidding either tire.

Braking Technique

Regardless of the brake system on the machine you're riding, the same general techniques will apply. First, squeeze the clutch when braking aggressively to separate engine compression braking from the equation. If you just roll off the throttle without using the clutch, engine braking may exceed available traction and cause a rear-wheel skid. Squeezing the clutch lever as you brake makes it easier to control the rear wheel.

I suggest applying both front and rear brakes simultaneously. Then immediately ease up on the rear brake pedal as you squeeze harder on the front lever. If you can't seem to avoid skidding the rear tire, ignore the rear pedal and concentrate on the front brake. Sport bikes, because of the short wheelbase and powerful front brakes, make it much easier to loft the rear wheel. ABS won't help prevent a stoppie, since the front wheel isn't locking up. Cruisers and sport touring bikes, with longer wheelbases, have more of a rearward weight bias that helps keep the rear wheel on the ground.

Off the Brakes

It's also important that when you get off the brakes, you ease off rather than just let go of the lever. That's especially important if you are braking aggressively to slow down, but you're not making a complete stop. Remember that during hard braking, the front tire is loaded more. Suddenly popping off the brake lever will cause the front tire to unload, reducing traction. So, smooth on the brakes, smooth off the brakes.

Practice Makes Perfect

You can't expect to be skillful just by reading about it. The only way to improve your skills is to practice. The point is to make braking so familiar that you do it automatically without having to think about it. To put this another way, you want to develop the muscle memory to brake correctly for any situation. The way to develop muscle memory is to practice the correct skills over and over.

I suggest finding a quiet area away from traffic and making a series of quick stops, preferably at the start of your riding season. Perhaps you can borrow a vacant portion of a parking lot early on a Sunday morning. If it's your first time practicing quick stops, spend two or three hours honing your braking skills.

Lay out a straight "braking chute" about 100 feet long, with lots of run-out room at the end. You can mark the chute with small cones or tennis balls cut in half, with double markers for the point where you will start to brake. Be cautious at first, making your first run at no faster than 18 mph. If you slide the rear tire at that speed, you need to correct that problem before bumping your speed up. But if you ride at 70 mph, shouldn't you eventually work up to initiating an aggressive stop from 70 mph?

Regardless of your experience level or the braking system on your bike, there is a big difference between slowing from 70 mph to 40 and making a controlled stop from 40 mph to 0.

Do us both a favor and wear your best abrasion-resistant riding gear — just in case you make a mistake. I've seen more than a few experienced riders who crashed while attempting their first quick stop — typically a result of an inflated image of their not-so-good braking skills. Even if you think you're very good at braking, I advise you to start conservatively and gradually work up to higher approach speeds as you demonstrate to yourself that you have the techniques down.

Rear Wheel Skids

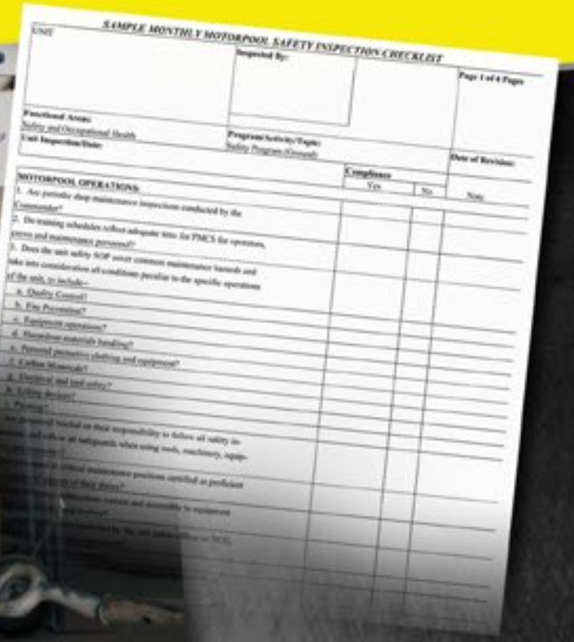
Be aware that as your approach speeds increase, forward energy increases, and that tends to decrease rear wheel traction during an aggressive stop. The danger is that if you skid the rear tire into a slideout and then panic and pop off the pedal, the bike is very likely to snap back to center and throw you over the "high side." To avoid a high side crash, you need to know if you're sliding the rear tire, and that's not easy to detect from the saddle. I advise you to find a riding partner who can take turns practicing and observing stops, and provide some feedback to each other on what's happening.

Front Wheel Skids

Front wheel skids result from grabbing the lever too quickly, or holding a death grip on the lever even as the tire begins to slide. An impending front tire skid causes steering to feel light and unresponsive. If steering suddenly feels rubbery under aggressive braking, you should ease up slightly on the lever. And if the front tire suddenly begins to slide, ease off the brake lever to restore traction and then squeeze again — more smoothly.

If the mere thought of practicing quick stops makes you break out in a cold sweat, I suggest signing up for a training course where you can build skill under the watchful eye of an instructor. The big advantage of practicing braking at a training course is getting immediate feedback from an instructor who is observing your technique.

SAFETY SENSE IN THE MOTOR POOL


SAMPLE MONTHLY MOTORPOOL SAFETY INSPECTION CHECKLIST

Unit:

Inspected By:

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Functional Areas:
Safety and Occupational Health

Program/Activity/Topic:
Safety Program (General)

Unit Inspection Date:

Date of Revision:

	Compliance		
MOTORPOOL OPERATIONS:	Yes	No	Note
1. Are periodic shop maintenance inspections conducted by the Commander?			
2. Do training schedules reflect adequate time for PMCS for operators, crews and maintenance personnel?			
3. Does the unit safety SOP cover common maintenance hazards and take into consideration all conditions peculiar to the specific operations of the unit, to include:			
a. Quality Control?			
b. Fire Prevention?			
c. Equipment operations?			
d. Hazardous materials handling?			
e. Personal protective clothing and equipment?			
f. Carbon Monoxide?			
g. Electrical and load safety?			
h. Lifting devices?			
i. Parking?			
Are personnel briefed on their responsibility to follow all safety in-			
and refer to all safeguards when using tools, machinery, equip-			
ment?			
Are critical maintenance positions certified as proficient			
by supervisors in their duties?			
Are tools inspected and accountable to equipment			
and personnel?			
Are			
Are			
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CHIEF WARRANT OFFICER 4 MARC ASSUMPCAO
Ground Directorate
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Equipment maintenance is a necessary and inherently dangerous task. To ensure the safety of our Soldiers and Civilians in maintenance facilities, we're required to use risk management as well as acknowledge the potential health and safety hazards present in the workplace. We also need to determine where and how personnel are likely to become injured or killed. The path to success starts with the application of the five steps of risk management outlined in Field Manual 5-19.

The benefits of maintaining a safe workplace are many, but what should remain at the forefront of your mind is this: Safety is about protecting Soldiers and equipment, whether in garrison or on the battlefield. A solid unit safety program allows leaders and supervisors to protect their best resources — Soldiers, equipment and facilities — as well as reduce the costs and time spent with avoidable injuries, accidents and damage to equipment.

The overall effectiveness of a safety program is measurable through leadership engagement, personal involvement and supervision. Leaders must insist on adherence to established safety rules and standards. At the same time, they should continually evaluate their mission for innovative preventive measures to enhance the unit's safety program.

To ensure the safety of personnel during maintenance operations, leaders and supervisors must develop and implement safety standard operating procedures and policies. In addition, they must educate personnel on existing Department of Defense, Department of the Army, Occupational Safety and Health Administration and National Fire Protection Association regulatory requirements. Implementing and adhering to good safety practices while conducting maintenance operations is a force multiplier, and Soldiers and leaders alike should continue to follow established safety procedures. Here are some tips and considerations that might just prevent the next mishap in a maintenance facility or motor pool:

- Keep maintenance bays clean, neat and free of fire hazards at all times.
- Maintain vehicle speeds at a minimum, usually 5 to 10 mph, or as posted, when operating within the limits of a maintenance facility. Always use ground guides!
- Create and post a safety board in an easily accessible area.
- Ensure eyewash stations and emergency showers are available in areas where personnel use hazardous chemicals.
- Store petroleum, oil and lubricant products in approved containers and in well-ventilated and marked areas. Frequently inspect storage areas where hazardous materials are stored. Ensure the proper disposal of contaminated POL products.
- Only allow trained and authorized personnel with appropriate personal protective equipment to apply chemical agent-resistant coating.
- Ensure spill clean-up supplies are available, to include shovels, dry sweep, brooms, empty containers and protective clothing.
- Store and secure gas cylinders to a wall or fixed surface to prevent tipping, falling or rolling.
- Post and observe floor load-bearing capacities.
- Clearly mark designated smoking areas.
- Operate power tools away from explosives, flammable liquids, gases or dust. Power tools create sparks, which may ignite dust or fumes.
- Store battery packs away from other metal objects.
- Place large, bulky or heavy items away from doors to facilitate easy movement in the event of an emergency.
- Gasoline/gasoline byproducts or items containing these (rags, pans, brushes, etc.) will not be stored inside any maintenance facility or storage room at any time.
- Maintain all lifting devices (jacks, jack stands, hoists, cranes) in serviceable condition. Inspect these devices periodically in accordance with equipment maintenance manuals and SOPs.
- Stencil the max load capacity on both sides of the support assembly of overhead cranes and hoists so it is visible to personnel.
- Conduct refueling operations in a safe manner and under supervision.
- Only allow fully trained and qualified personnel to weld. Ensure there is adequate shielding and ventilation.
- Close off battery shops from the general maintenance area and make sure the shop is clearly marked.
- Ensure fire extinguishers are serviceable and readily available.
- Use lubrication pits for servicing military vehicles only. Pits must be well illuminated. A cover must be used at all times when a vehicle is not over the pit.
- Ensure serviceable PPE is readily available and worn as required by all personnel.

Whether working in a maintenance tent or motor pool, remember that the safety of Soldiers is paramount.

The Horseshoe Valley

CHIEF WARRANT OFFICER 3 CHAD E. STINAR
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There I was, a fairly fresh pilot in command, flying away from a place called Salerno in the eastern part of Afghanistan on a warm summer day in a fully loaded UH-60A Black Hawk (the "A" is noteworthy in this story). By fresh, I mean I had a couple hundred hours of PC time. To some, that might sound like plenty. But to me, on my first combat tour, I still felt unsure of myself.

Flying west from Salerno put us into mountainous terrain rather quickly. Many of the pilots in my battalion had received mountain flying training at Colorado's Army National Guard High-Altitude Aviation Training Site prior to our deployment. This was essential, considering the terrain in Afghanistan. I had those techniques in the back of my mind as we proceeded back to Bagram Air Base, just north of Kabul.

I was on the controls and our route was the same as usual, or so I thought. In typical complacent fashion, I had made a small error without realizing it. Instead of the pass through the mountains that I usually took — the one with the gradual increase in elevation — I accidentally took a different path that required a much more abrupt climb. What's more, I hadn't yet noticed my navigational failure. Remember when I said that the "A" would be noteworthy. Well, the A-model Black Hawks our unit was flying then were pretty old. The newer L-models had more powerful engines and better performance. I was high, hot and heavy in an A-model with a mountain ahead me and my crew acting fat, dumb and happy, paying little attention to our route. As you can see, the strikes were adding up.

I finally noticed the looming ridgeline out the windscreen. I soon realized this wasn't our usual route through the mountains and, without delay, informed my crew. I immediately started a climb, but

it seemed slow. In reality, it was slow due to all those strikes I referred to earlier. As each crewmember caught on to the gravity (pun intended) of our situation, the lively conversation we usually had while cruising diminished and then went silent. I looked down at my engine instruments and adjusted the power to the maximum I could, increasing the collective, noting limitations on engine temperature, etc. The whole time, I was also slowly reducing my airspeed to the Hawk's maximum climb rate speed. Basically, I had set up the aircraft to climb as fast as it was capable, and the distance to the crest of the mountain was steadily shrinking.

While my HAATS training was going through my head like a mantra, I noticed one last thing I hoped wouldn't turn out to be the straw that broke the camel's back. The pass we were in was shaped like a horseshoe, with us on the inside of the curve. One of the concepts we learned in our mountainous terrain flying course was to have an escape route whenever approaching a ridge. This meant I needed to turn, preferably to the right — the direction that required the least power — to avoid flying into terrain. In this situation, it didn't really matter which way required the least amount of power because being on the inside of the horseshoe-shaped pass, I couldn't turn either direction. All I could do was fly straight, keep my aircraft set to climb as fast as it could and hope for the best.

The silence was deafening as we watched the crest of the ridge slowly fall away in the windscreen. Our altitude above the ground was decreasing as we climbed, so by the time we made it over the top and were able to breathe again, we had gotten uncomfortably close to the trees. I was able to reduce the strain on the engines, transmission and rotor system and accelerate a little. Breathing again was a welcomed privilege. I don't remember who the first to speak was, but it took another 10 minutes before we had all relaxed enough to fully discuss what had just happened.

These kinds of stories always have a lesson to learn, right? Well, this one is no different. Former NASA astronaut Frank Borman once said, "A superior pilot uses his superior judgment to avoid situations which require the use of his superior skill." As pilots, we've heard the warning "complacency kills" many times, and it is especially true in aviation. Watch what you're doing. Treat every mission with the same focus and attention to detail as if you'd never flown it before because circumstances can change. No flight is ever truly the same as any other. As my drill sergeants always told us, stay alert to stay alive.

A LITTLE WISER NOW

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The speedometer needle tickled 90 mph as I headed onto an off ramp. The speed limit was only 65 mph, so, to be safe, I took my foot off the gas pedal as I entered the exit. It never occurred to me that cruising 25 mph over the speed limit might pose a problem. I was doing just fine until my pickup's rear end started sliding to the left. I thought, "Hmm … maybe it was dirt on the road or a bad angle on the ramp." Either way, I figured I was about to go flipping end over end.

That thought was scary. It was about 3 a.m., and I was in the middle of nowhere. I was headed for a ditch that looked pretty deep. I wondered if anyone would find me. Suddenly, the truck's rear end shifted back toward the right and I was going straight again. Whew — talk about pucker factor!

I stopped the truck, stepped out and grabbed a flashlight. I knelt beside my truck to check for damage and was amazed when I didn't find any. Not fazed at all by what just happened, I climbed into my truck, got back up to 90 mph and made it to the base in less than an hour. Safe and sound, I went to work late that day and never gave my close call another thought.

That was a few years ago. Back then, I was young and invincible — or at least that's what I thought. Looking back with the wisdom of a bit more age and experience, I now have a little different view of things.

> "We don't **REALIZE** the **GRIM REAPER** has an easier time **FINDING US** when we **DON'T** find time for **SAFETY**."

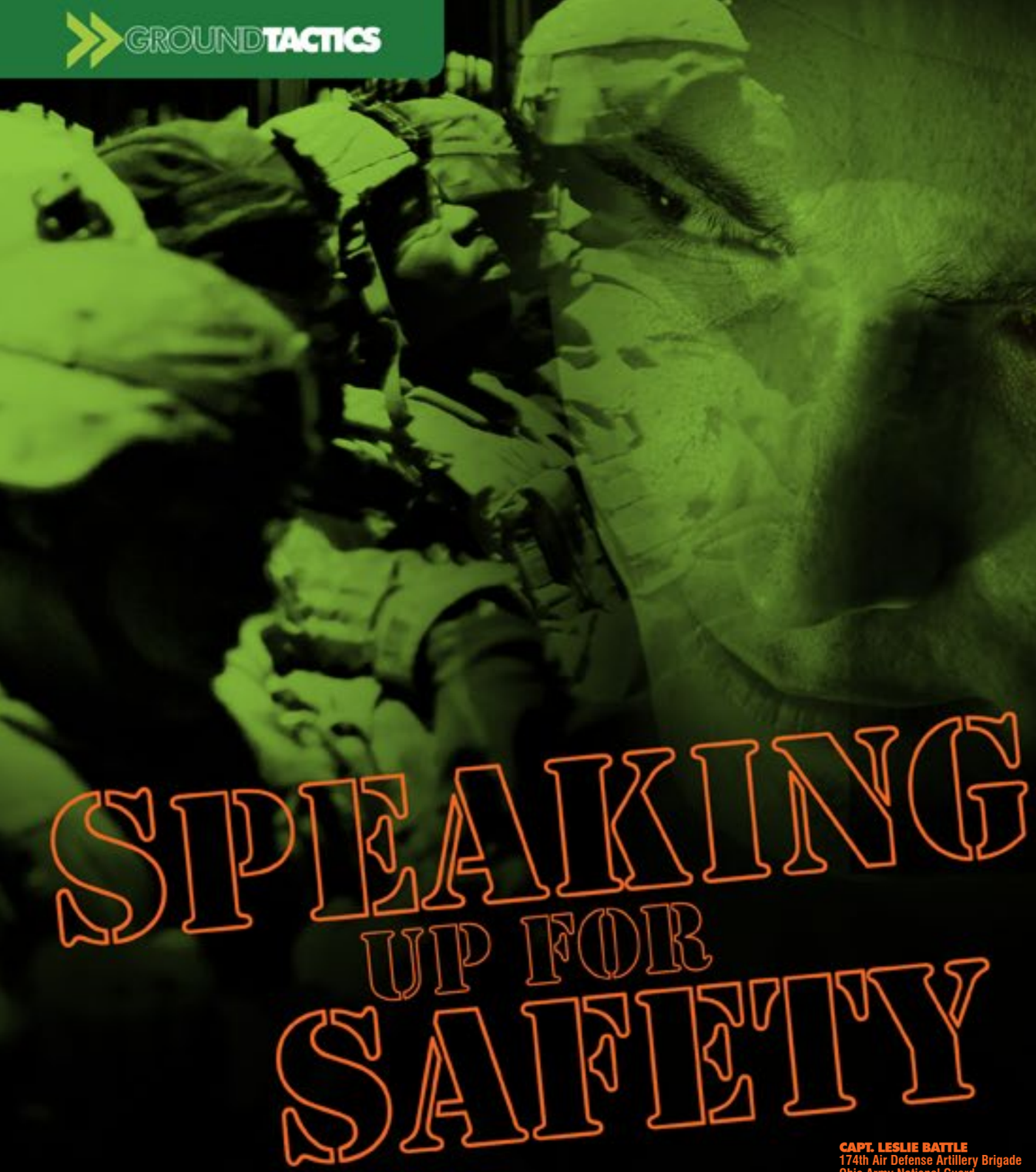
For instance, how about speeding? We don't think much about speeding because we all do it. Driving in traffic, dodging cars, trucks and the occasional police officer — it's all just part of having fun when you're young, right? Well, maybe not. On this trip, I had to cruise at 90 mph just to keep up with traffic. However, at that speed, one little slipup could lead to instant disaster. Experience taught me that slowing down makes more sense. Wherever I'm going, it will still be there whether I get there a little sooner or later.

Better planning that day would've helped out too. Unwisely, I waited until the last moment to head back from leave. It was bright and clear when I started out early that day, and the traffic was light. However, that would later change, as traffic became heavier and turned into a real bumper-to-bumper snarl. That didn't really bother me because I was young and had cat-like reflexes. I just continued on, stopping for lunch and then hitting the road to get back to base as quickly as I could. I'd tried to use as little of my leave time as possible for traveling. Not the best plan for a young guy, and I can see that now.

This is something a lot of us do when we're young and in the military. We fail to look before we leap, not considering how things like road construction and heavy traffic can eat into our travel time. Young and bulletproof, we jump into our vehicles and drive — pushing our bodies to the limit. Unfortunately, that doesn't always work out well behind the wheel. We don't realize the Grim Reaper has an easier time finding us when we don't find time for safety.

Now that I am a little older and wiser, I take a different approach to road trips. I invest time in planning the route — allowing for things like road construction — and add in a little time for accidents and traffic tie-ups. I also choose to observe the speed limit. Just because the rest of the drivers are cruising at 90 mph doesn't mean I have to drive that fast. It's the smart lemming that doesn't run off the cliff with the rest of the crowd.

I've learned to do a better job balancing vacation time and travel time when I'm on leave. How about you? Waiting to get a little older before you get wiser? Why not get wiser now? It'll improve your chances of getting older.



SPEAKING UP FOR SAFETY

CAPT. LESLIE BATTLE
174th Air Defense Artillery Brigade
Ohio Army National Guard
Columbus, Ohio

In the quest to be the best-trained, best-equipped military in the world, Soldiers and equipment are pushed to the limit during grueling exercises and operations. However, we cannot forget that safety must always be considered and integrated into any activity, both on and off duty.

> "Military professionals **MUST** be able to **EXPRESS THEIR CONCERNS** in an appropriate manner, especially when conditions **MAY RESULT IN UNSAFE OPERATIONS**."

Unfortunately, Soldiers can feel intimidated by the need to complete the mission. The source of the pressure may be personal desires or by order of a superior. Military professionals must be able to express their concerns in an appropriate manner, especially when conditions may result in unsafe operations. I personally experienced such a situation as a young sergeant during an annual training exercise for the Ohio Army National Guard.

Camp Grayling, Mich., was a popular training site for Guard commands of neighboring states. It has a well-developed cantonment area, coupled with realistic terrain in the field training sites. Soldiers earned driving hours during the trip from home station, and the available facilities made the relatively short stays fairly comfortable. However, training requirements sometimes dictated that Soldiers be shuttled between the field sites and the cantonment area to facilitate classroom instruction for certain required sessions. For units with limited access to vehicles, Soldier transport had to be coordinated with other support units. My unit was camped in our designated field-training site. Many of us were required to complete certain briefings prior to the end of AT. I have to admit, I don't even remember what the training was, but considering it was not associated with a mobilization, I can infer that it was a routine, annual requirement.

One day, we were alerted about 6 p.m. that a vehicle was on its way to return us to the cantonment area. Those affected needed to bring the necessities for an overnight stay and wait for the vehicle to arrive. After waiting for the

FOR YOUR CONSIDERATION

1. **Do you have an accurate perception of the amount of corner cutting occurring in your organization?**
2. **How does your organization monitor/correct those who cut corners?**
3. **Do Soldiers, Civilians and contractors in your organization have the opportunity to raise a flag without fear of criticism or retribution?**
4. **Is your organization over-tasked to the point that deadlines are not attainable without cutting corners? Can your higher headquarters assist (e.g., tasking, OPTEMPO, manning, resources, etc.)?**

Visit https://arap.safety.army.mil/ to learn more about how ARAP can help your organization.

vehicle for an hour or so, another noncommissioned officer asked our first sergeant if there was a change in plan. He was advised to remain ready to leave, as he really didn't know why the vehicle was late or when it would arrive. So, we continued to wait.

As darkness arrived, we remained in the pickup area with our gear. A couple of times, our first sergeant came out to tell us that someone had radioed him that the vehicle was on the way. Again, we waited as instructed. Some Soldiers expressed a desire to return to the tents for a nap until the vehicle arrived, but they were warned to not leave the area because of the risk of missing movement. And sleeping in the waiting area was deemed unsafe due to the potential of drivers not being able to see us in the dark.

About 2:30 a.m. — 8½ hours after we were first notified to be ready for transport — our battalion commander and sergeant major arrived in a truck. Evidently, they'd been advised we were still awaiting movement and our training was scheduled to begin at 7 a.m. Upon their arrival, we immediately began climbing into the cargo area of the truck with our personal gear.

In the flurry of activity, the sergeant major asked me, "Where are your drivers?" As the company safety NCO, I explained to him we had all been awake since 5 a.m. the previous morning and none of us were rested enough to safely drive the distance back to the cantonment area, which included passing through a local town. The sergeant major was insistent one of our Soldiers drive. However, I was convinced one of our Soldiers would likely fall asleep at the wheel and cause an accident with a cargo bed full of his peers.

> "As the years pass, I will **NEVER FORGET** that night when **I STOOD UP** for **MY PEERS AND MYSELF.**"

I decided to word the situation in the plainest terms I could think of: "Sergeant major, we can put one of our Soldiers behind that wheel and instruct them to drive through town. And likely it would be you or the colonel who would have to explain why he crashed into a storefront or another vehicle should something happen." He looked at me and started to respond; but after considering my hypothetical scenario, told me to finish getting our Soldiers in the truck. He ended up driving.

Can I say that I avoided an accident that night? Of course not, but I am proud to know I will never have to regret staying silent when someone needed to say something. Since that early morning, I have earned a commission in the National Guard and now serve as an additional duty safety officer for my brigade headquarters. As the years pass, I will never forget that night when I stood up for my peers and myself. Speaking up for safety might just save a life.

THE PRICE OF CUTTING CORNERS

ARMY READINESS ASSESSMENT PROGRAM TEAM
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Most of us know that cutting corners is a means of bypassing a prescribed process. Unfortunately, in our Army, some Soldiers mistakenly view procedural tasks as cumbersome, with steps that can be circumvented with no repercussions. However, these individuals probably don't understand why procedures are so important in day-to-day operations. Many times, procedures are written in blood — that is, they're emplaced after an accident.

The Army Readiness Assessment Program is a web-based tool that provides candid data to battalion and higher-level commanders regarding their formation's readiness posture. The online ARAP survey compiles Soldier, Civilian and contractor perceptions of their organization's command climate and safety, with an emphasis on safety concerns. Since its inception, more than 1.26 million Soldiers, Civilians and contractors have completed the ARAP survey.

Survey item No. 23 asks respondents to rate whether unit leaders allow cutting corners to get a job done. Surprisingly, 47 percent of respondents who provided measured responses don't perceive full compliance with procedures within their units!

Statistics show that Soldiers and organizations both cut corners. When individuals and organizations cut corners, reasons may include:

- Poor attitude
- Lack of skill or experience
- Rushing to complete a job
- Poor leader/personal time management
- Perceived/actual pressure from leaders/supervisors
- Belief that:
  - Corners can be cut without compromising safety
  - Standard operating procedures are out of date
  - There's too much "red tape" to do it by the book
  - If we didn't cut corners, nothing would get done
  - This is the way you do it while deployed
  - These are the resources I have to get the job done
- Organizational climate condones cutting corners
- "Deadlines" cannot be met without cutting corners
- Overtasked
- Poor organizational time management

So, what can be done about cutting corners? Most procedures include practical and necessary steps designed for the completion of tasks without incident or injury. If some procedures appear questionable, it's incorrect to assume they're unnecessary. Instead, individuals or units should seek clarification for the procedures from competent authorities then submit recommended changes if the procedural steps are incorrect or can be simplified. Unfortunately, an incident or mishap can occur when only one person fails to follow procedures.

THE ACCIDENT
That Should've Happened

WARRANT OFFICER JOHN CASTO
D Troop, 6th Battalion, 1st Cavalry
1st Brigade, 1st Armor Division
Fort Bliss, Texas

In 2011, during Operation New Dawn, I was serving as a Shadow unmanned aircraft system standardization operator at Forward Operating Base Warhorse. After a seemingly uneventful mission supporting my brigade combat team's collection requirements, I was called to the hangar by a ground crewmember to look at an aircraft that had just landed.

The RQ-7B Shadow has, among others, two six-inch center-wing bolts that secure the wing section to the fuselage of the aircraft. By the technical manual, once the bolt heads are flush with the wing surface, they are then torqued to 50 foot/pounds. Prior to this flight, the aircraft in question had been subjected to scheduled maintenance requiring the removal and replacement of these center-wing bolts.

The crewmember was in the process of performing a postflight service on the aircraft when he opened the aft compartment cover and noticed the two center-wing bolts were loose. The bolts were so loose that the heads were about two inches above the wing surface and only finger-tight. When the crewmember showed this to me, my initial thought was that a prank was being played, so I played it off as such. Once he convinced me he had not loosened the bolts himself and the aircraft did indeed fly for five hours in this condition, my first question was, "Why didn't this aircraft crash?"

With the center-wing bolts as loose as they were, I was able to grab one of the wings and move it about 10 degrees up and down along the lateral axis. However, during the debriefing, nothing out of the ordinary was reported by the flight crew during the mission.

The Shadow normally reaches about 70 knots at full-engine RPM and is launched from a rail using 2,000 pounds of hydraulic pressure to accelerate the aircraft to flying speed. With the excessive G-load on the aircraft at takeoff, I wondered why the wings did not fold completely off the fuselage upon launch. According to the flight crew, the aircraft performed normally with no reported indication in the control station that anything was wrong.

I inspected the logbooks and found where the scheduled maintenance was annotated by the crew chief and then reviewed by the technical inspector. I pressed the TI for some feedback about the scheduled maintenance performed on the aircraft prior to this flight. (A TI is tasked with physically verifying the proper setting on the torque wrench as well as visually inspecting the crew chief's work upon completion before he signs off on the work in the logbooks.) After some tap dancing, the TI admitted he had trusted the crew chief to supervise himself and took his word that the work had been completed to standard before he signed it off. This was where I began to understand the systemic failure and cause of the issue since the center-wing bolts don't back themselves out after they have been properly torqued.

I then engaged the crew chief, who, after some more tap dancing, admitted he had been in the process of torquing the center-wing bolts in place before something distracted him. Whatever the distraction, it caused him to inadvertently skip the entire step before moving on to other maintenance on the aircraft. Simply put, the crew chief forgot a critical step in the maintenance checklist and the TI took his word that it had been completed properly.

After forming a complete picture of where and how the defects occurred, I reported the incident to the platoon sergeant and platoon leader. The crew chief's and TI's defense was that the aircraft operator was just as at fault for not performing a complete preflight according to the checklist. In fact, the preflight checklist, even today, requires the operator to inspect the aft compartment cover, ensuring it is fully latched. At the time, the operator was not required to open the aft compartment cover to inspect anything inside, although nothing prevented the operator from doing so.

Human beings are prone to error. However, in aviation, errors typically result in injury and/or some form of damage to the aircraft. Due to this incident, the crew chief received corrective training and required immediate re-certification. The TI lost his authority and designation orders for the duration of the deployment. In addition, I added a step to our standing operating procedures requiring the aircraft operator to open the aft compartment and visually inspect the center-wing bolts for security.

This incident served as a valuable training tool for my platoon and an eye-opener for all involved in the operation. This was the first opportunity I had to perform any kind of "post-mishap" investigation. My unit never had another incident like this again and maintained a flawless incident record afterward. However, I still cannot explain why the aircraft held together not only during launch, but also for the entire duration of its flight.

Cold Weather CONSIDERATIONS

CORY KROLL
1st Brigade Combat Team, 82nd Airborne Division
Fort Bragg, N.C.

It's that time of the year when cold weather is upon Afghanistan. For those in theater, everyone should possess a working knowledge and understanding of the basic cold injury prevention methods. Cold weather is no joke back at your home station, and it's certainly a serious matter while performing combat duties in Afghanistan.

FYI

You Know

As most of us know, the weather conditions change drastically throughout Afghanistan in the summer, and winter is no different. We, as leaders, must remain cognizant of the weather conditions and identify any significant factors that will complicate our mission. Leaders at all levels can identify factors that will leave Soldiers more vulnerable to cold weather injuries. We should recognize and pay special attention to any of the following:

- Soldiers and Civilians with little experience or training in cold weather
- Personnel with previous cold injuries or other substantial injuries
- Individuals who use tobacco products/nicotine
- Any person who skips meals or has poor nutritional habits
- Anyone with a low level of physical activity
- Someone experiencing fatigue or sleep deprivation
- Anyone drinking little or no water

Junior leaders and others will look to senior leaders for sound guidance and advice. Therefore, we should teach them how to assess the hazards of living and working in cold environments. Some examples of questions we could ask to help prepare for the approaching cold weather include:

- Will Soldiers have adequate shelter and clothing during the mission?
- Is clothing clean and serviceable?
- Are tents, stoves or other approved heating sources available during the operation?
- How often will meals be consumed?
- Will meals be warm?
- Has the temperature and weather been reviewed for the operation?
- Will Soldiers be working with bare metal or fuel?
- Is the environment wet?

DID YOU KNOW?

The Ground Risk Assessment Tool is an interactive, automated online system developed to augment risk management and decision-making for ground operations. GRAT assists users in identifying, assessing and controlling hazards associated with specific missions or tasks and it also produces a risk management worksheet (DA Form 7566). Check GRAT out today by visiting https://grat.safety.army.mil/GRAT (AKO login required).

- Will Soldiers use the buddy system to prevent cold weather injuries?

Once we've identified and assessed the cold weather hazards, we can develop controls to mitigate the severity. The more time a unit spends fighting the terrain and its elements, the less time it has to focus on the enemy. Units must take into consideration the effects of extreme cold weather and its impact on their personnel and equipment. Proper risk management gives the unit conducting cold weather operations an excellent means of identifying and mitigating risks. Leaders must use this tool to be successful in any operation, and the cold weather environment will usually render a high on the risk assessment matrix. Prior planning for movement over frozen or icy terrain must not be taken lightly. Units must have recovery assets along with a solid medevac plan.

The majority of the movement conducted in the mountainous regions of Afghanistan comes in the form of air insertion. After completing the insertion, the rest will be done on foot, with Soldiers carrying anywhere from 80 to 100 pounds of equipment. During Operation Anaconda, infantry platoons were not acclimated to the high altitude where they were inserted. As a result, some Soldiers experienced shortness of breath, dizziness, decreased physical performance and vomiting. This can increase non-battle casualties, decrease the effectiveness of weapon systems and create problems for unit mobility. Soldiers need to ensure they consume the proper amount of water so they don't become dehydrated and eat at least three cold weather rations. These rations double the calorie intake from a normal Meal, Ready to Eat.

This winter, ensure your Soldiers are prepared. Understanding cold weather and the potential for injuries are key components to overcoming austere conditions and accomplishing the mission.

When RISK Rides the Road

RODERICK JOHNSON
Marine Corps Recruiting Depot
San Diego, Calif.

I was a drill instructor stationed at Marine Corps Recruit Depot, San Diego. Recently divorced and financially burdened, I couldn't afford a car. Instead, I purchased a red and silver Suzuki 750 motorcycle so I could get out and enjoy the San Diego weather and activities. The Suzuki was the first motorcycle I had ever ridden, so I began by riding it around base to get accustomed to it.

After I got comfortable — and a bit cocky about my riding abilities — I began venturing off base to test my riding skills in traffic. At that time, I hadn't notified my command of my purchase, nor told any of my leadership I was riding the motorcycle on and off base. Also, I had no idea what personal protective equipment was at that time. Months went by and I was still riding and carrying on without being concerned about safety precautions. Sometimes I rode very fast and reckless, while other times I just cautiously cruised the beach and other areas.

One Sunday, I was riding back to the base after cruising all day. I was tired, so I wasn't speeding or riding recklessly. I was on Interstate 5, headed back to the base and exited onto the Pacific Highway. I was in the number one lane with a city bus about 15 feet ahead of me and a Cadillac following me. Suddenly, a white Volkswagen driven by a woman with a cellphone resting on her shoulder started merging into my lane. Unable to accelerate because of the bus in front of me or slow down because of the car behind, I beeped my horn. She didn't hear me, so I

LIFE LINK

What does it take to protect you on the highway and keep you squared away with Army riding safety requirements? Go online to https://safety.army.mil/povmotorcyclesafety to dive into a rich resource of valuable, life-saving information.

moved as far left in the lane as I could. However, she crept closer to me and got so close that her side-view mirror was almost touching my hand. I hit her window and she swerved toward me, pinching me and my bike between the guardrail and her driver-side door.

My left leg was jammed against the guardrail and I could feel my skin burning from the friction. I hit her window again, this time shattering it. She responded by swerving to the right and accelerating away. Now I was in serious trouble. My front tire shook so badly I could barely control my bike. I panicked and down shifted into second gear as I saw the road was about to curve to the right, driving me even harder into the guardrail. I prayed the driver behind me was paying attention because I knew I'd have to get off the bike before it rolled. I hit the throttle, raising the bike's front enough for me to fall onto the freeway before the curve. When the bike came down, it rolled several times and slid along the blacktop for what seemed like forever.

I had on a helmet and gloves and was wearing running shoes, a T-shirt and a warm-up suit. When I finally stopped sliding, I jumped up and began looking at my clothes, which were shredded. In shock, I just stood in the curve, ignoring the stopped traffic and blaring horns. The Volkswagen's driver never stopped.

After the highway patrol arrived at the accident scene, I was taken on base for medical treatment. Fortunately, nothing was broken but my pride. However, I did suffer road rash on my left forearm, left hip, lower left shin and my entire back. The following weeks were very painful as I recovered from my injuries.

I haven't ridden since that accident. I learned how dangerous riding a motorcycle can be even if you're not doing anything crazy. I also learned there is a price to pay for riders who teach themselves rather than getting proper training. The highway is an unforgiving place for the unprepared rider and not everyone gets a second chance. I'm fortunate to be alive and would encourage anyone wanting to ride to attend the Motorcycle Safety Foundation Basic *RiderCourse* before buying a bike. After all, if you can afford to invest in a motorcycle, you can afford to invest in the training to ride it safely.

YOUR THOUGHTS

The author was very open in describing his riding experiences. Having read the story, what would you have done differently as a beginning rider? How would you have handled a distracted driver trying to merge into your lane? Also, what are your thoughts about the difference what you wear makes in an accident? Do you have a story to share of how personal protective equipment helped you? If so, please email your comments to robert.vanelsberg@us.army.mil. Your story may well reach other Soldiers in a future issue of Knowledge.

FIGHTING FATIGUE

MICHAEL DAHLE
2nd Brigade Combat Team, 101st Airborne
Fort Campbell, Ky.

We were in Mosul, Iraq, with an OH-58D unit. The operational tempo was high due to recent activity in the area and the need for constant air support. This weighed heavily on our maintenance crews that were working 12 to 14 hours a day without time off for weeks on end.

We had moved to Mosul from another post a few months prior and set up operations at the south end of the airfield. After being there for a month or so, we moved again farther up the airfield to be on concrete and have a more stable area to work on the helicopters. We also set up two small clamshell hangers to conduct our maintenance.

We kept up our missions and the maintenance schedules for the helicopters during the high operational rate. A few aviation safety action messages came down through the production control office regarding the helicopters. We changed out the tail booms on most of the fleet because of cracking near the tail rotor gearbox. This strained the aviation maintenance shops and armament section.

During this time, we had a crew chief working on a helicopter. He was trying to chase down a transmission leak that only showed up when the aircraft engine was running. After shutdown, the air movement and oil viscosity made it impossible to locate the leak. This was compounded by the fact there were several lines in this area that carried the same or similar fluids.

The crew chief would look into the cowling while the pilot ran the engine at normal operating speeds and see the leak coming from the top of the transmission. A Soldier climbed up the side of the aircraft to see if he could see the leak. Thinking he'd spotted it, he leaned in and accidentally put his head into the rotating pitch control rods. The rods struck his head, knocking him off the aircraft. The force cut the Soldier from his brow to the back of his head. In most cases, victims are decapitated in this type of incident, but this Soldier was lucky. He was knocked unconscious and bleeding, but still alive. He was transported to the medical facility located on the airfield and, once he was stabilized, sent to Germany for further evaluation. After several weeks in Germany, the Soldier returned to theater to complete the tour with the unit. The lack of adequate rest, coupled with the high operations tempo at night, contributed to this accident.

Lessons Learned

During a rotation, you need to keep current on leave cycles, as this will tend to overburden maintenance crews while they cover down for a missing man in a flight company. Night operations are always more dangerous than daytime operations. Noncommissioned officers need to know their Soldiers and, if possible, have two troops present during regular maintenance operations to stop someone who is fatigued from suffering an accident. Leadership needs to stay involved with their Soldiers so they can recognize when they are fatigued or just having a bad day. "Be, Know, Do" is a critical part of keeping Soldiers safe.

Up in Smoke

JEANNETTE EMMANUELLI
Installation Safety Office
Aberdeen Proving Ground, Md.

Every October, fire officials and safety professionals observe National Fire Prevention Week in an effort to encourage folks to gain a greater understanding of fire's potentially devastating impact. According to the National Fire Protection Association, in 2010, U.S. fire departments responded to 369,500 home structure fires. These fires caused 13,350 injuries, 2,640 deaths and $6.9 billion in direct damage.

Smoke alarms are one of the best safety devices you can buy and install to protect yourself, your family and your home. Studies show that smoke alarms save more lives than any other fire prevention measure. Industry experts at the NFPA have determined that in a typical home fire, you only have three minutes to escape. Smoke alarms provide the earliest warning of both fire and smoke. They give you time to leave the building before your escape route is blocked by deadly smoke, heat and toxic gases.

The U.S. Fire Administration reports that the brands of smoke alarms available on the market fall under two basic types: ionization and photoelectric. Ionization alarms sound more quickly when a flaming, fast-moving fire occurs. Photoelectric alarms are quicker at sensing smoldering, smoky fires. Additionally, dual-sensor smoke alarms combine ionization and photoelectric sensors into one unit.

The USFA recommends every residence and place where people sleep be equipped with both ionization and photoelectric smoke alarms or a dual-sensor alarm. In addition to the basic types of alarms, there are models available to meet the needs of people with hearing disabilities. These alarms may use strobe lights that flash and/or vibrate to assist in alerting those who are unable to hear standard smoke alarms.

Most alarms installed today have a life span of about eight to 10 years. It's a good idea to write the date of purchase with a marker on the inside of your alarm so you will know when to replace it. Always follow the manufacturer's instructions for replacement. Some smoke alarms are hard-wired, which means they connect to a household's electrical system and may or may not have battery backup. A qualified electrician should install these alarms. It's important to test all smoke alarms monthly and replace their batteries at least once a year.

Everyone in your household should know what to do in the event of a fire. Normal exits may be blocked by smoke, heat or fire, so always plan two exits from every room and make sure Family members know all escape routes. Choose a meeting place outside your residence so you will know everyone has escaped. It's critical to practice escape plans before a real emergency.

If there's a need for immediate escape, don't waste time trying to fight the fire or stop to call the fire department on your way out. Get out immediately and call 911 from a neighbor's phone or from another safe location. Every second counts, so don't delay. You may end up paying with your life!

FYI

This year's Fire Prevention Week campaign runs Oct. 7-13. To learn more about preventing fire tragedies, visit www.firepreventionweek.org.

READY TO RUMBLE

JAMES L. JACKSON
U.S. Army Corps of Engineers
Savannah, Ga.

Are you ready to rumble? In the old days, that meant getting into a street fight. How about today? Are you ready for the rumble strip on the side of the highway? Are you ready for that kind of street fight?

It was late on the Friday afternoon of what had been a long, stressful week, and I was facing a 5½-hour drive to get home. I'd just spent five weeks on a temporary duty assignment and was eager to see my family. Tired as I was, I'd done the trip before and was willing to put myself through the paces once more to see my wife and daughter.

The trip started off without a hitch. I'd already packed, completed my Travel Risk Planning System report and was ready to go. I'd "fudged" a bit about resting six to eight hours between working and driving. All I could think of that afternoon was spending precious moments with my family. I missed them so much and wanted to create positive memories with my daughter. That alone was incentive enough to get there as soon as possible. I didn't consider the consequences of driving fatigued. I never thought how selfish I was to put myself and others in danger on the road. Research shows that 24 hours of sleep deprivation impairs someone as if they had a blood alcohol concentration of .08. That'll get you arrested for driving drunk in most states.

I was traveling down a four-lane highway that night in the rural South. I stopped to get a bite to eat at a fast food restaurant and then got back on the road. I regretted that move but, more importantly, I regretted feeling so fatigued when I was only halfway home. I tried moving my head from side to side to fight the drowsiness. I then tried looking at the mile marker signs, near and far, until they went by in a blur. I remember counting mile markers 15, 16 and 20. I saw mile marker 26 and then it happened — I fell asleep only to be suddenly shocked back into alertness by the unmistakable roaring of the rumble strip as I drifted off the right shoulder.

That snapped me back into reality and I slowed down and pulled off at the nearest exit and got three hours of sleep. When I started my journey again, I was thankful all I'd received was a scare, not a trip to the emergency room. When the reality of what happened sunk in, I realized I could've broken my wife's and daughter's hearts. I also could've hit another motorist and brought suffering to them or grief to their family. I've often wondered since then how many people chance it every day by driving mentally fatigued. I think of families being shattered by a call telling them a loved one is dead due to their own negligence or another driver's.

Soldiers go through a lot and endure many difficulties. However, the most consistently preventable tragedy that takes Soldiers' lives doesn't happen in combat, it happens on the highways at home. And it's not just Soldiers. Army Civilians are also being lost, and replacing their skill sets takes time and costs money. In addition, losing them also decreases unit readiness and cohesiveness and can affect morale. While drugs and alcohol play a major role in many of these tragedies, so does fatigue.

Getting ready to travel? Don't fudge it on your TRiPS report just because you're in a hurry to get somewhere. Time saved isn't worth a life lost. Before heading out, ask yourself if you're alert, awake and ready to roll. And if you're not — are you ready to rumble?

WARNING SIGNS AND SAFETY TIPS

The National Safety Council offers the following suggestions to keep you alert and alive on the highway:

Recognize the symptoms of fatigue

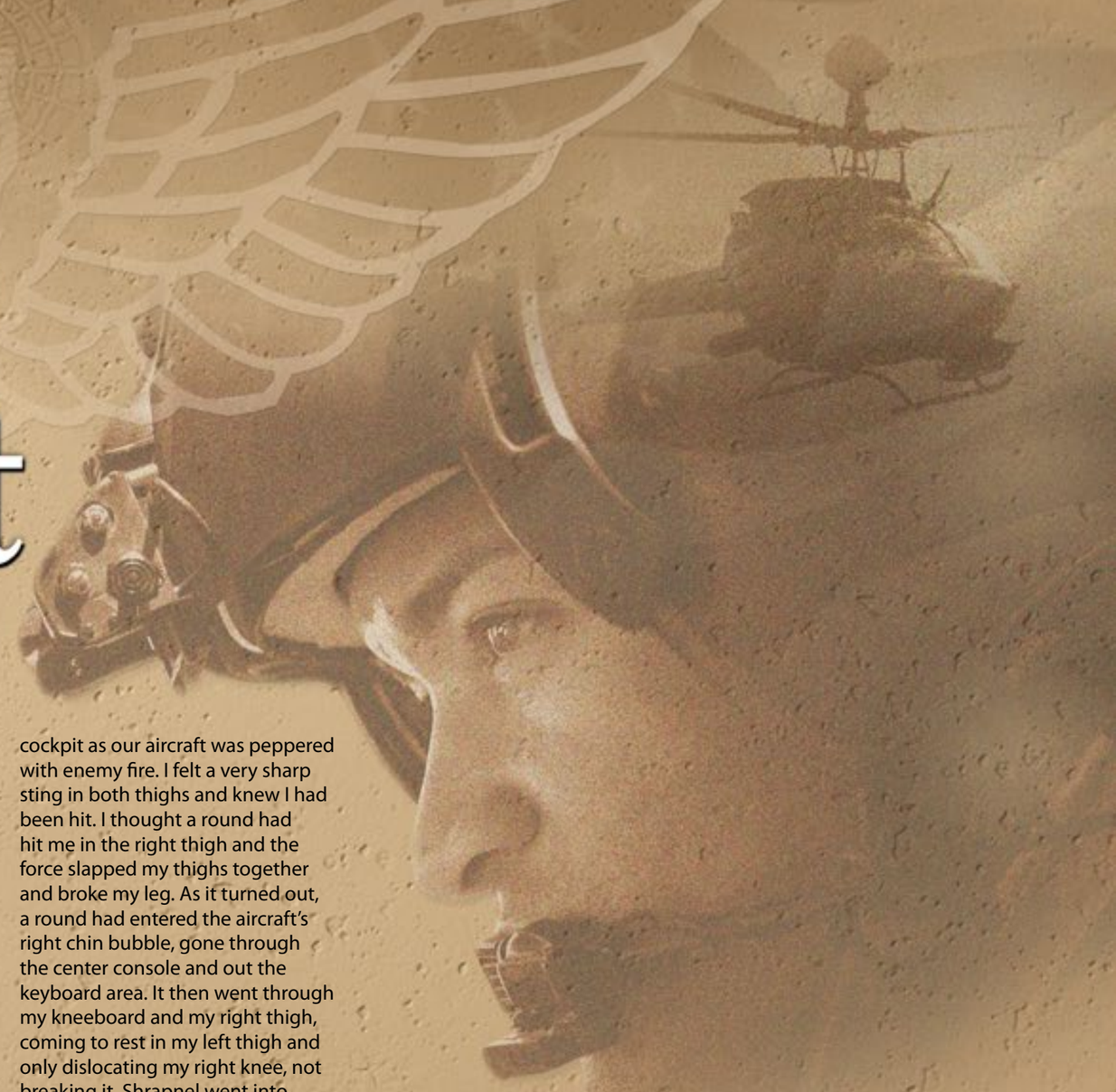
- Eyes closing or going out of focus
- Persistent yawning
- Irritability, restlessness and impatience
- Wandering or disconnected thoughts
- Inability to remember driving the last few miles
- Drifting between lanes or onto the shoulder
- Abnormal speed, tailgating or failure to obey traffic signs
- Back tension, burning eyes, shallow breathing or inattentiveness

Safety Tips

- Maintain a regular sleep schedule that allows adequate rest.
- When the signs of fatigue begin to show, get off the road. Take a short nap in a well-lit area. Do not simply stop on the side of the road.
- Avoid driving between midnight and 6 a.m.
- When planning long trips:
  - Share driving responsibilities with a companion.
  - Begin the trip early in the day.
  - Keep the temperature cool in the car.
  - Stop every 100 miles or two hours to get out of the car and walk around; exercise helps to combat fatigue.
  - Stop for light meals and snacks.
  - Drive with your head up, shoulders back and legs flexed at about a 45-degree angle.

the Right-Now Moment

CHIEF WARRANT OFFICER 3 GABRIEL TORNEY
TRADOC Capabilities Manager for Reconnaissance/Attack
Fort Rucker, Ala.



Professional football hall of famer Darrell Green said you have to be prepared for what he called the "right-now moment." That's when they say, "What's your name? OK, you're up right now!" At that point, you have to be ready to perform. The Army has a long history of Soldiers being called upon to perform in that right-now moment. That's why it is important that leaders spend a lot of time and effort preparing their Soldiers for that moment.

In 2005, then-Col. H.R. McMaster devised a new counterinsurgency strategy with the 3rd Armored Cavalry Regiment in Tal Afar, Iraq. As this plan was unfolding, an enemy sniper had attacked for four days in a row and we hadn't found him yet. At 4 p.m., we began our quick-reaction force shift of two Kiowa Warriors and a call came on the radio for troop medical evacuation as the enemy sniper had launched his daily attack. Five minutes later, we picked up to a hover and launched to pull landing zone security for the medevac crew.

In the battle handover, the team of Kiowas coming off station told us they had spotted the sniper and gave us a building number. Unfortunately, the city was so densely packed that a number could often identify several buildings. As the medevac flight departed with its patient, the air mission commander, Pegasus 26, informed the ground QRF at the LZ, as well as another ground QRF, of the enemy's location.

The two crews in our team normally swapped seats and crewmembers every other day. That day, I was in the left seat, flying with Chief Warrant Officer 2 Dennis Hay (an instructor pilot). From outside the city, I watched in the sight as the QRFs surrounded and converged on the building with M1 Abrams tanks and M3 Bradley fighting vehicles. Earlier, while taking the controls, I noticed Dennis flew with some friction on the cyclic and asked him why. I had always preferred it completely loose. He demonstrated how I would have time to grab the controls if he were incapacitated. This later proved to be vital.

After returning from refuel, we discovered the QRF had actually captured the sniper alive and was about to begin exfiltration. This was when they were at their most vulnerable, and we could no longer provide the proper security from our positions outside the city. For us to provide security, we would have to fly low and fast very close to the objective.

I fixed the sight forward and grabbed my M4 carbine off the dash. It was summer and we flew with the doors off, as did all the Kiowas. The idea was to act as a deterrent by applying at least suppressive fire to any threat to our forces, giving them time to exfill. On the third and final pass, I heard what sounded like popcorn popping loudly in the cockpit as our aircraft was peppered with enemy fire. I felt a very sharp sting in both thighs and knew I had been hit. I thought a round had hit me in the right thigh and the force slapped my thighs together and broke my leg. As it turned out, a round had entered the aircraft's right chin bubble, gone through the center console and out the keyboard area. It then went through my kneeboard and my right thigh, coming to rest in my left thigh and only dislocating my right knee, not breaking it. Shrapnel went into my right arm, which, fortunately, largely shielded my face and eyes.

As the aircraft pitched up, I thought Dennis was preparing for a close combat attack, but that didn't make sense. I looked at him and saw him hunched over, clearly not on the controls. A round had come right through the windscreen and hit Dennis in the head, rendering him immediately unconscious and mortally wounding him.

The OH-58D does not have an automatic flight control system and our stability control augmentation system was knocked out by one of the enemy rounds. With or without SCAS, a Kiowa Warrior immediately stops flying when no one is on the controls. At this point, the aircraft's nose had pitched up nearly 90 degrees. I was convinced the situation was unrecoverable when I found myself on the controls and in a dive with no idea how I got there. The friction on the cyclic had given me just enough time to assume the controls and regain control of the aircraft. My thought was to get as much power in as I could since much of my airspeed had bled off. I flew as low as I could in an attempt to break contact.

The high-rotor audio warning went off. However, when I looked at the screen, I saw both "HIGH ROTOR" and "LOW ROTOR" warning messages. Something was clearly wrong with the messages. The aircraft was very

squirrelly, especially in the yaw, but seemed to be flying OK otherwise. Then the "ENG OUT" message appeared with the associated audio warning. My first thought was that even if I did a perfect autorotation, we would not survive. (Little did I know another Kiowa crew had accomplished a successful recovery in the same city one year earlier.)

In flight school, we memorize the seven indications of an engine failure and that we need to verify that failure with at least one other indication. However, the most important indication of an engine failure in a single-engine aircraft is also the most obvious. During a simulated engine failure in a KW, your first indication is your stomach in your throat. That happens before even the aircraft recognizes it has had an engine failure. The eighth indication is that sudden sinking sensation when the engine malfunctions and completely loses power. But the aircraft kept flying, so I ignored the warnings. If you take nothing else away from this incident, remember this — if the aircraft keeps flying, you keep flying!

I saw that lead had made it out of the city and figured if they could do it, so could I. I got on the radio and said, "We're going down, we're going down, we're going down! Dennis is unconscious." And my next words are forever burned into my memory, "Medevac, medevac, medevac!"

Dragon Company was a tank company positioned on the route north of town. After exiting the city, I made a sharp left turn, knowing if I could put those tanks between my aircraft and the city, we would be OK. As soon as I saw the first Abrams, I picked out a landing site behind the tank and made straight for it.

I could hear the AMC again redirecting the ground QRF and calling medevac to where I was landing saying, "COP Renegade!" I actually hadn't planned on this and didn't think about it until I heard him say it, but this was a brilliant idea. If I just extend my approach about 50 feet, I'll still have the protection of the tanks and I'd be inside COP Renegade's berm, which was a preplanned medevac LZ.

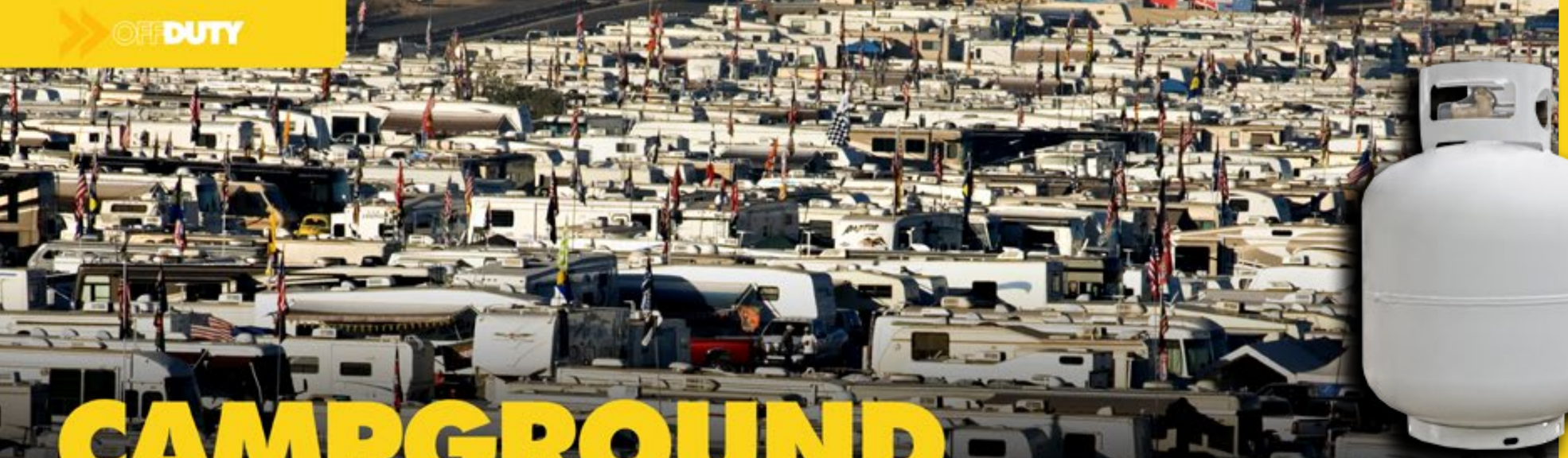
The audio warnings never stopped. As I descended, I swear every time I looked at the screen a new warning popped up. I honestly thought at the time that if I stopped looking at the screen, maybe the warnings would quit. But it didn't matter. Nothing was going to stop me from landing at COP Renegade. I put the aircraft on the ground and rolled the throttle to idle. I considered taking off again in hopes of getting Dennis back to the FOB faster than medevac could get here, but there were three very important factors that needed to be considered. First, Dennis was quickly losing blood and needed immediate treatment. Would he bleed out before I even got to the FOB? Second, I didn't know the actual condition of my aircraft. Would it even make it to the FOB? And third, I had just been shot and didn't know the extent of my own injuries. Would I pass out on the way to the FOB? The fact was that this location had security, a means to administer first aid and medevac had already been already alerted.

I turned on the force trim, rolled the throttle off and left the battery on. The battery maintained power to the force trim while the blades were spinning and I exited the aircraft and tried to get Dennis out with the help of the AMC's left-seater. As the medevac from the Maryland National Guard arrived, I could see and hear as they took fire as our security attempted to suppress it.

Despite the damage to the aircraft and the danger to the medevac crew, they still landed at COP Renegade to get us out. When we returned in the damaged medevac to our FOB, every flight surgeon met us the second we landed. They did everything imaginable to save Dennis' life and then some, but his injuries were too great. I was moved to another aircraft and taken to the combat support hospital while they continued to work on Dennis. Later that night, a downed aircraft recovery team was sent to our aircraft and performed the necessary battle damage assessment and repair. The troop standardization pilot and a senior maintenance test pilot flew the aircraft back to the FOB.

In the end, the counterinsurgency was a resounding success and the mayor of Tal Afar visited Fort Carson, Colo., to thank the regiment. My aircraft was repaired and returned to the fight in a matter of weeks. For me, however, it took a little longer.

Editor's note: For his actions to land his aircraft safely, Chief Warrant Officer 3 Gabriel Torney was presented with the Broken Wing Award. The Broken Wing Award recognizes aircrew members who demonstrate a high degree of professional skill while recovering from an in-flight failure or malfunction requiring an emergency landing.



CAMPGROUND COMPLACENCY

KEN MATHIS JR.
G7
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

The hot, humid days of summer are slowly giving way to the cool, breezy days of fall, signaling that football season is once again upon us. And if the seasonal changes aren't a dead giveaway, we can certainly tell something is in the air as sports fans proudly display their team's colors on their vehicles and houses. Not to be outdone, the long NASCAR season has worked fans into a frenzy, and we have only a handful of races to go. So what do football and racing have in common? Good times, for Pete's sake! And by good times, I'm talking about tailgating and camping with family and friends. Throw some meat on the heat, crack open a cold brew and relax. Oh yeah, this is living.

It was Labor Day weekend, and I had settled into my campsite at the Atlanta Motor Speedway. As I looked around at the other NASCAR enthusiasts, everything seemed normal — meaning everyone was drinking, smoking, grilling and carrying on. After all, that is what goes on during a race weekend, isn't it?

While making my rounds through the campsite, something alarming caught my eye. A group of spectators was staring at the charred remains of an RV. Heat from the exhaust of a generator attached to the back of the RV lit it on fire. I wondered how in the world it happened.

Let's assess the situation. Most NASCAR tracks have campsites available that require you to "dry" camp. In essence, this means you have what you bring with you. Utilities such as water, sewer and electric are not available unless you bring your own. So how do campers power a travel trailer or tent — with a generator, of course. And keeping that generator running for hours on end requires plenty of fuel, either diesel or gasoline. Around these campsites, there's always a surplus of fuel around, usually in excess of 20-plus gallons per site.

Depending on the race and its venue, some people arrive a week in advance and begin camping, while others might camp for the weekend or only for a night. Campers usually store their surplus fuel in portable containers on the ground next to their generators. And don't forget about propane. In addition to grilling, travel trailers and RVs use propane to operate refrigerators and hot water heaters when the generator is off. Usually there's a spare tank or two of propane lying around the campsite too. As you can imagine, there is a lot of fuel and gas scattered across a campground. By the way, did I mention that this particular campsite was in a 75-acre grass field with thousands of other campers also dry camping? Starting to get the picture? You are camped in the middle of the traditional fire triangle — fuel, heat and oxygen. The point I'm trying to make is this: Something that might appear harmless could actually be a powder keg just waiting for the fuse to be lit.

So, the next time you travel to a sporting event and camp for a few nights, have a great time but remain vigilant. Not everyone has your training or keen sense of awareness. Pay attention to where fuel is stored and ensure it's shielded from any possible source of ignition such as the exhaust of a generator, sparks from a campfire or ashes from that stogie you're chomping on.

It only takes a spark to get a fire going. Who wants to be responsible for starting a fire? Or worse, who wants to lose their life to a preventable accident? Fortunately, the campers around the charred RV were lucky … this time.

SMALL PROPANE CYLINDER SAFETY

- **Inspect the propane cylinder for cuts, gouges, dents and rusting and replace, if necessary.**
- **Check hose connections for leaks by brushing a 50-50 mixture of liquid dish soap and water onto all hose connections and valves. Bubbles indicate a leak.**
- **Always transport and store propane cylinders in an upright, vertical position so the safety release valve will function properly.**
- **Never store propane tanks indoors or near any heat source.**
- **When transporting a propane cylinder in a vehicle, ensure the cylinder valve is tightly closed; install the threaded plug or cap on the valve outlet of the tank; secure the tank in an upright, vertical position in the passenger compartment of your vehicle; open all vehicle windows for ventilation; and refrain from smoking during transportation. If transporting a propane cylinder in the trunk of a vehicle, ensure that it's well secured in an upright, vertical position and the trunk lid is left open for ventilation until your return home.**
- **Remove the tank from the vehicle immediately upon your return home — heat build-up in a sealed vehicle may cause an explosion.**

Source: Windsor Fire & Rescue Services, Ontario, Canada.

LOST

Editor's note: Information published in the accident briefs section is based on preliminary loss reports submitted by units and is subject to change. For more information on selected accident briefs, email safe.knowledge@conus.army.mil.

AVIATION

CLASS C

- The aircraft experienced a rotor overspeed condition (114.1 percent) during ground maintenance run-up (FADEC-MANUAL).

CLASS A

- A chip light illuminated and the crew was required to autorotate while en route to the forward operating base. Upon ground contact, the aircraft overturned onto its left side. Both pilots suffered injuries requiring hospitalization, and the aircraft was destroyed.

UAS

CLASS C

- The unmanned aircraft experienced an engine failure during a training iteration. The recovery chute was deployed and the UA recovered with damage.

GROUND

CLASS A

- A Soldier died after he fell from the balcony of his barracks.

- A Soldier was killed after being struck in the head by a round from a privately owned weapon. The Soldier, who was at another Soldier's residence, was attempting to manipulate the weapon's mounted light during a power outage when the accident occurred.

- A Department of the Army Civilian was killed and three others injured after being struck by a railcar while conducting track repairs.

CLASS C

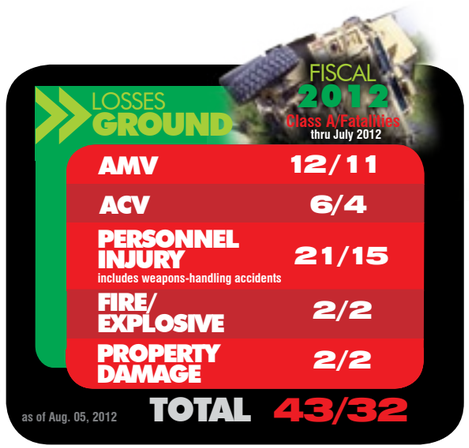
- A Soldier was injured after firing a round into his calf while cleaning his privately owned weapon. The Soldier pulled the trigger while attempting to remove the slide.

DRIVING

CLASS A

- A Soldier was killed and another seriously injured when their vehicle struck an embankment and overturned. Both Soldiers were wearing their seat belts.

- A Soldier died when he attempted to pass a vehicle and went off the left side of the road and struck a tree. The Soldier wasn't wearing his seat belt.



CLASS C

- A Soldier collided with a vehicle he was attempting to pass in the right-hand lane, lost control and struck the median. He was wearing his seat belt and not seriously injured.

POM

CLASS A

- A Soldier was killed the day after buying a new sport bike when he lost control at high speed, failed to negotiate a curve and crashed.

- A Soldier died after he drifted into the oncoming lanes and collided head-on with an approaching vehicle.

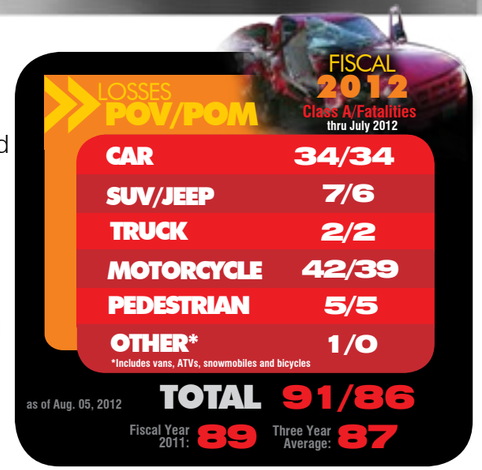
CLASS C

- A Soldier was injured when a vehicle failed to yield right of way and turned left into his path.

- A Soldier was thrown from his bike and injured when he lost control in a curve, left the road and struck a ditch.

CLASS D

- Two Soldiers were riding through a turn when the leading Soldier overcorrected and crossed into the trailing Soldier's path. The trailing Soldier then lost control and crashed, suffering a broken arm.




The discipline to verify the safe condition of hunting gear ...
YOU have it, but does your battle buddy?
The signs are all around - It's up YOU to recognize and act on them.
KNOW WHAT'S RIGHT
know the signs
DO WHAT'S RIGHT
U.S. ARMY
ARMY STRONG.
U.S. ARMY COMBAT READINESS/SAFETY CENTER
https://safety.army.mil
scan here for more information

Family engagement Kit

On the home front, a Soldier's "battle buddy" is often his or her Family. Check out the new Family Engagement Kit to learn how you can look out for the safety of your Soldier. The kit features a variety of tools, including videos, real-life stories, resources and tips to keep your Soldier safe.

https://safety.army.mil

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