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Army Aviation Composite Risk Management Information

"Survival Gear for Soldiers on the Edge"

U.S.ARMY

FLIGHTfax
Army Aviation Composite Risk Management Information

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JOSEPH A. SMITH
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Commanding

ALSE: Survival

LTC RICHARD KOUCHERAVY AND CW5 (RET) STEPHEN KNOWLES
U.S. ARMY COMBAT READINESS CENTER

Recent trends in Army Aviation mishaps show us that not all units are placing an appropriate level of emphasis on aviation life support equipment (ALSE). For example, in Fiscal Year 2005, there were 31 Class A aviation mishaps, during which the Army suffered 36 fatalities and had 22 aircraft totally destroyed.

Of those 31 Class A accidents, subsequent investigations revealed 11, or more than one-third, of those accidents had "present but not contributing" findings related to ALSE. There are many reasons for Army Aviators to be alarmed by this increasing trend of units failing to properly outfit crews and aircraft with life support equipment.

Gear for Soldiers on the Edge

So why should we be concerned? First, it is important to review the reason we have ALSE. ALSE generally falls into the survival recovery life support subsystem of the Army Aviation Life Support System (ALSS) as described in chapter 8, paragraph 8-2 of Army Regulation 95-1, *Flight Regulations*. The survival recovery life support subsystem "aids survival, escape, evasion, and recovery of downed aircrews and their passengers in any global environment" and includes "life preservers and rafts, anti-exposure suits, and survival kits and vests. Signaling devices such as lights, flares, beacons, survival radios, personal locating devices, and power sources are also included to locate personnel." As such, ASLE can be compared to an insurance policy; failure to maintain the policy will only affect units after accidents or downed aircraft incidents, when crews are most in need of aids to survival.

That's fairly self-explanatory. In other words, we use ALSE in the hope that we don't need it. But when we do need it, we need it pretty badly. There's an old adage that "if you want it bad, you'll get it bad." And that brings us to the first reason we should be concerned about shortcomings in ALSE: the criticality of ALSE when it's needed. Finding out your survival radio battery has no power is bad; discovering a dead radio when you've just had a mishap or have been downed by the enemy in combat is far worse, if not tragic. Two Army Aviation crews have recently discovered just that, and both had a rather urgent need for an operable radio only to find themselves "out of comms."

The second reason to be concerned about this trend in ALSE shortcomings is the increase in our operational tempo, coupled with the increasing lethality of the modern battlefield. In short, there are simply many more aircraft flying real-world missions on a large and dispersed battlefield, a battlefield populated with a decent amount of "thinking enemy" ready to engage Army helicopters. You are no longer the only game in town. You are no longer one of just a handful of Army helicopters flying through the battle space. So the likelihood that you may have to survive on the battlefield, or even to evade the enemy, while awaiting rescue or assistance after you've been downed is higher than it once was. And you can no longer point in one direction and say, "The enemy is there and the other direction is the way home" – not on the noncontiguous battlefield of 2006 and beyond. A pilot in command of an OH-58D downed by enemy fire in Iraq recently said he had a matter of seconds, all while under small arms fire, to grab what he needed from the aircraft before evading the crash site to find cover. Fortunately, his prior experience as an Army Ranger taught him to have his gear readily at hand, and he was able to evade the enemy with his copilot while another Army Aviator led rescue efforts from the skies overhead.

The last, and arguably most important reason we should consider giving ALSE greater attention is having a good ALSS program and maintaining ALSE in a ready state is our responsibility as leaders. It is one of the tangible ways we demonstrate to our Soldiers that we will not leave them behind, we will make every effort to bring them home, and we will help them to survive while they operate "on the edge." We can then "own the edge," giving our Soldiers the confidence to manage risks, knowing their unit, crew, and aircraft are ready for all eventualities.

Army Aviation units are busy, whether training at home station or deployed to combat. The demands of training and operations place great stress on leaders and, as a result, force them to prioritize efforts. Unfortunately, some units are not allocating sufficient time, resources, and effort into maintaining ALSE in a ready state. It is vital we provide crews with the right equipment, maintained to standard, so they have it when they need it most. It is also vital our crews have the right equipment to bridge the time gap between mishap or downing and the arrival of the aircraft recovery effort. And finally, we must demonstrate our resolve to get our Soldiers home by sending them into harm's way with properly prepared and sufficiently equipped aircraft. ♦

—LTC Koucheravy and Mr. Knowles work in the Combat Readiness Center Task Force-Air Office. Both play a key role in reducing Army Aviation accidents. Contact LTC Koucheravy at DSN 558-3003 (334-255-3003) or e-mail richard.koucheravy@us.army.mil and Mr. Knowles at DSN 558-3530 (334-255-3530) or e-mail stephen.knowles@us.army.mil.

ALSE: Present But

MAJ STANLEY SCHALL
U.S. ARMY COMBAT READINESS CENTER

Over the course of several aviation accident investigations I've conducted, I've noticed a common theme—aviation life support equipment (ALSE) is often identified as present but not contributing (PBNC) to the accident. What does that mean? It means ALSE did not cause the accident, but if the deficiencies are not corrected, it could lead to another accident in the future or increase the seriousness of injuries in an accident. The deficiencies are found in four areas: support personnel and operations, supervision, training, and individuals.

SUPPORT PERSONNEL AND OPERATIONS

Support deficiencies focus on three system errors in the ALSE shop: manning, supervision, and supply. To be effective, an ALSE shop needs trained and dependable technicians to track and maintain ALSE gear. They have to understand the significance of their job—the equipment they maintain is used to save lives in an aviation accident. The technicians must develop tracking systems to identify equipment due for inspection and notify crewmembers if equipment becomes overdue. This applies particularly to ALSE subcomponents. For example, once an ALSE vest is inspected, it is not due again for another 120 days; however, the medicines in the vest may expire before the next inspection date. Another common subcomponent issue is radios and batteries. Inspection dates occur at different time intervals, and a battery may become due before the radio.

SUPERVISION

Supervision for ALSE technicians is important and involves several key personnel in the unit. Commanders are crucial in they must select trained and dependable personnel to work in the ALSE shop and promote a command climate favorable to ALSE importance and operations. The unit's safety officer, flight surgeon, and supply officer also play key roles in ALSE. The safety officer must be integrated into the ALSE shop. He must know how it works and what the issues are so he can address them. The flight surgeon is important because he can help manage the Class VIII issues (medical supplies). He is the

t Not Contributing

ALSE shop's direct link to the medical community for supplies and information. The supply officer must make sure supply requests for ALSE items such as the integrated helmet and display sight subsystems (IHADSS) or vest components are ordered and tracked until delivery. An effective ALSE shop must have a positive command emphasis and the involvement of other key unit personnel.

TRAINING

I have noticed two ALSE training issues: new equipment training and continuation training. Several of the accident units investigated have received new ALSE vests but have not trained crewmembers on the vests. The vests were simply handed to the crewmembers without being inspected first per the technical manual, and the crewmembers were told to transfer the components from their old vest to the new one. A second training deficiency involves survival radios. On two recent accidents, surviving aviators were not able to communicate with other aircraft using their survival radios. In both cases, when the accident investigation board checked the radios using a test station and in actual use, the radios operated properly. Once an aircraft goes down, the primary means of communication between the downed crew and rescue aircraft failed due to inadequate training. That could spell disaster in a combat environment or training environment if crewmembers are injured. During interviews with the crewmembers, they acknowledged receiving initial training on survival radios, mostly in flight school, but had received none in the unit. Random checks of non-accident crewmembers in the course of the accident investigation further revealed a general lack of knowledge on survival radio operation. We cannot wait until we have an accident or a shoot down by enemy fire to realize we don't know how to operate a survival radio. We must train now and fix the deficiency now!

INDIVIDUALS

Finally, I have noticed the most critical ALSE deficiency—individual crewmembers. Crewmembers are not taking the time to make sure their survival equipment is on-hand, current, and operational before flight. The list starts with emergency locator transmitters (ELTs). ELTs are important in locating a downed aircraft, and crews are not turning them on and/or not arming them by removing the shorting plug. We cannot depend on other aircraft, even in multi-ship operations, to know a sister aircraft went down and where it is located. The ELT must be on and armed when we fly.

Crewmembers have failed to identify ALSE deficiencies during preflight inspections, including both aircraft and individual gear. In one case, aircraft first aid kits were more then 6 months past their inspection date. In other cases, individual crewmember vests or radio batteries were overdue. It is the crewmember's and the pilot-in-command's individual responsibility to ensure all required ALSE gear is on hand and current before flight.

The ALSE deficiencies mentioned in this article are not hard to correct. If units ensure qualified technicians are assigned to the ALSE shop, systems are in place to track and inspect gear, key leaders are involved in the process, initial and continuation training plans are developed, and individual crewmembers check their equipment before flight, there will be no more PBNC ALSE findings. More importantly, when we need the equipment during an emergency, it will be there to serve its purpose—to enhance rescue and save lives. ♦

—MAJ Schall is the Operations Division Chief at the U.S. Army Combat Readiness Center. He may be contacted at DSN 558-2194 (334-255-2194) or by e-mail stanley.schall@crc.army.mil.

Investigators' Forum

Written by accident investigators to provide major lessons learned from recent centralized accident investigations.

WHY YOU SHOULD WEAR YOUR HELME

The ballistic tolerance of Kevlar® helmets has long been documented and praised. The protection offered by this important piece of equipment, however, isn't limited to high-speed projectiles and shrapnel. In some cases, it might even fend off a 20,000-pound aircraft!

The helicopter shredded its rotor system and rolled over, trapping the ejected Soldier's head under the aircraft's left side.

The combat mission involved insertion of a team by Black Hawk helicopter into a suspected hot landing zone (LZ). An intense firefight occurred only a week earlier in the same area. In that engagement, a number of aircraft were damaged by enemy fire in the LZ.

Anxious and concerned about delays in disembarking the aircraft, some of the passengers unbuckled their seatbelts 1 minute from landing. Unfortunately, the helicopter experienced a hard landing just short of the LZ. One of the unbuckled Soldiers was ejected from the Black Hawk.

The helicopter shredded its rotor system and rolled over, trapping the ejected Soldier's head under the aircraft's left side. Fortunately, he was wearing his Kevlar® helmet, which remained intact even under the weight of the aircraft (see photos). The Soldier was evacuated to a medical facility and is expected to make a full recovery.

This accident illustrates a couple of key considerations in Composite Risk Management (CRM):

• Short final to landing can be the most dangerous segment of a flight. During this time, the aircraft is susceptible to enemy fire, abrupt evasive maneuvers, brownout, and power management problems. Is this a time you'd really want to be unbuckled? Even though the aircraft rolled over, an unbuckled passenger was the only serious injury.

• When worn properly, the Advanced Combat Helmet Improved Nape Strap Assembly keeps the Kevlar® helmet where it belongs—on your head! Whether you're in an aircraft or a tactical vehicle, your helmet, body armor, and seatbelt can determine whether you wake up the morning after a battle or an accident.

CRM demands both enemy and safety risk factors be addressed in pre-mission planning. A countermeasure for one risk factor can affect the degree of risk in the other. Training, intelligence, and appropriate-level leadership determines how effective we are in sorting it all out. ♦

—Comments regarding this accident may be directed to USACRC Operations at DSN 558-3410 (334-255-3410) or e-mail OperationsSupport@crc.army.mil.

... AND YOUR GLOVES!

The Pentagon and the Army Surgeon General recently released All Army Activities (ALARACT) Message 261/2005 in response to a sharp increase in the number and severity of hand burns in the OCONUS theaters

of operation. According to the message, Soldiers in Iraq and Afghanistan are experiencing a disproportionate number of hand burns in relation to other body parts. Data from the Army Institute of Surgical Research at Fort Sam Houston, TX, show severe burns have increased from 11.9 percent average body surface area in April 2003 to 16.2 percent in April 2005.

The majority of all combat-related burns are caused by explosions from improvised explosive devices (IEDs), vehicle-borne IEDs, rocket-propelled grenades, or mines during operations on or near a military vehicle. Hand burns occur in 84 percent of vehicle-related burn patients and frequently lead to severe long-term disabilities. Extensive surgeries often are required to treat such burns and include procedures such as skin grafts or amputations. Infections also pose a grave t hreat to burn patients.

Soldiers can prevent and reduce the severity of such burns by wearing fire-resistant Nomex® or Kevlar® gloves (See the table below for approved NSNs). According to some leaders in the field, many Soldiers are taking their gloves off while on patrols and other similar missions in vehicles. Lacking the protection afforded by their Nomex® gloves, some Soldiers who otherwise would've received few or no burns are being treated and sometimes evacuated for hand injuries.

Commanders and leaders at all levels must enforce the wearing of fire-resistant gloves, particularly during high-risk activities such as vehicle operations, burning waste, and handling of munitions. Soldiers should wear gloves such as those issued under the Rapid Fielding Initiative, as some commercial gloves sold by private companies provide little or no fire protection. Additionally, Soldiers should wear their uniforms with the sleeves down at all times.

Anyone with questions concerning this ALARACT message may contact COL Paul Gause by e-mail at paul.gause@us.army.mil or by phone at DSN 761-2707 (703-681-2707).

NSN NUMBERS FOR NOMEX® AND KEVLAR® GLOVES

SIZE	NSN	
4	8415-01-482-8417	
5	8415-01-040-2012	8415-01-461-4920
6	8415-01-040-1453	8415-01-461-4922
7	8415-01-029-0109	8415-01-461-4924
8	8415-01-029-0111	8415-01-461-4932
9	8415-01-029-0112	8415-01-461-4934
10	8415-01-029-0113	8415-01-461-4940
11	8415-01-029-0116	8415-01-461-4942

Mastering the High-Frequency Radio

CW4 JAMES HOWERTON (TEAM LEADER), CW4 STEPHEN LAVKA, CW4 BURTIS VERHAAR, CW3 JOSEPH FOGG, CW3 KYLE PHILLIPS, CW3 PATRICK SCHROEDER, AND CW3 SCOTT UPTON
WOSC 05-06

When I initially received the new equipment trainer for the AN/ARC-220 and VRC-100 high frequency (HF) radio system in 2001, I had no idea it would play such an important role in my unit's deployment to Operation Iraqi Freedom 2.

The HF radio is fielded in three of the Army's four advanced helicopters and has become an exceptional tool for situational awareness and battlefield tracking. The AN/ARC-220 and VRC-100 are complicated systems that require an understanding of each separate element for reliable non-line-of-sight secure communications. The key to my unit's success was home station training, command emphasis, and support from the experts.

ARRIVAL

Soon after my unit's arrival in Southwest Asia, it became apparent the inability to quickly contact aircraft or determine their location severely hampered the mission. The operations tempo required the battalion commander to be able to quickly recall aircraft to support contingency operations. But how do you recall aircraft that are engaged in mission support beyond radio range? Doctrine states you should hold aircraft in reserve to support those contingency operations. Does it make sense to keep aircraft and crews on the ground when they are needed in the fight? In some conflicts the answer would be yes; however, in Iraq, that wasn't the case for my unit. We needed a maximum effort with the ability to quickly redirect assets as priorities changed. The answer was the HF Tracker.

The HF Tracker gave us the capability to contact aircraft at a moment's notice either by voice—a challenge on some days—or by text, which was our preferred method. We also established the following tactics, techniques, and procedures to ensure we had the ability to contact aircraft.

REQUIREMENTS

- We planned missions on FalconView at the flight company and then e-mailed the route via SIPRnet to the battalion flight operations. The flight operations specialists (15P) then displayed the route in HF Tracker for flight following.
- FalconView flight routes were forwarded to the battalion tactical operations center (TOC) and liaison officer. They simultaneously battle-tracked missions through a SIPRnet network using flight operations HF Tracker. This turned out to be extremely valuable.
- All aircrews were required to establish HF communications before departure. If voice failed, a position report was acceptable. If both failed, the aircraft did not depart until the problem was resolved.
- Aircrews sent position reports crossing all air control points (e.g., arrival, destination, and departure).
- Flight operations specialists documented all text messages on the daily log (DA 1594). If a message was unclear, operations personnel notified the battle captain.
- Avionics personnel provided instructions on loading the automatic link establishment (ALE) database and KY-100. Aircrews were instructed that an inoperative HF radio rendered the aircraft

unserviceable—that was the key to keeping the radio operational.

• Radio backup batteries were never replaced unless aircraft power was applied. This plagued us at first, but the problem was solved through training.

• All flight operations specialists (both shifts) demonstrated the ability to load the VRC-100 and KY-100. This paid big dividends in the long run, as flight operations lost power regularly.

• Weather in Southern Iraq and Kuwait changed rapidly. As a result, flight operations specialists updated weather pre-programmed into the HF Tracker. When aircraft sent position reports after a long ground delay, the latest weather was sent via text.

COMPONENTS

There are several components required to reliably communicate with the HF radio. One is the VRC-100, which is the ground base station. The VRC-100 can be placed in a fixed-base station like flight operations, the TOC, or it can be operated from a vehicle such as a jump TOC. Whether or not secure communications are required, the radio is most reliable if linked to the KY-100, a digital encryption device. Secure communications are obtained when a crypto variable is loaded into the KY-100 via the CYZ-10 data transfer device. Say that 10 times fast!

VRC-100 Radio

This radio is not designed to operate in the single-channel mode. Due to radio wave propagation and changes in atmospheric conditions, the most reliable communications are obtained in the ALE mode. ALE takes the hard work out of HF communications. Once an ALE database is obtained, it is stored on a computer system (desktop, laptop, or Miltope) and becomes available to load to the CYZ-10.

How do I transfer the ALE database to the CYZ-10? Part of this radio fielding is a computer program known as High Frequency Communications Planning Software (HFCPS), the medium that transfers the ALE database to the CYZ-10. Just remember, you must have software version 2.08 installed on the CYZ-10 (V3) for all components to work correctly. Don't get hung up on all the technical jargon; it's really not that hard.

When it comes to HF antenna selection, you have a choice. The VRC-100 is fielded with a Fanlite antenna, an exceptional omnidirectional antenna. The only drawback to this antenna is it has a large footprint and can take an hour or longer to erect. My unit decided to purchase a Barker & Williamson HF antenna for use with the jump TOC. It's inexpensive and can be erected in about 20 minutes; it also has good range with omnidirectional capability. This is also the same antenna we installed on top of the Army Aviation Support Facility (AASF) for daily HF operations.

MISSION SUCCESS

The HF Tracker played a significant role in my unit's successful mission deployment. One of the most important capabilities the HF Tracker provided was the ability to send text messages to aircraft when specific mission details changed en route. I can't even begin to estimate the number of times I sent text messages to aircraft informing them of changes. Examples include pickup or drop-off times; significant weather changes; intelligence updates; airspace control measures; complete change in mission; and, most importantly, downed aircraft recovery team and personnel recovery missions. This transformation didn't happen overnight. The HF training program for the Georgia Army National Guard, specifically the 1st Battalion, 171st Aviation Regiment, based at Dobbins Air Reserve Base, started a full 3 years before our Operation Iraqi Freedom deployment.

Remember, if you want your Soldiers to become proficient with the AN/ARC-220 and VRC-100, they must use the radio. You can make this radio a valuable asset for your unit. Is it going to take some work? You bet. But like any piece of equipment in the Army, there is a wealth of information and experts standing by to make this endeavor successful. All information discussed in this article is available in the AN/ARC-220 / VRC-100 Knowledge Center at Army Knowledge Online. Good luck! ♦

—CW4 Howerton is the Standardization Officer for the 1st Battalion, 171st Aviation Regiment, Georgia Army National Guard. This article is a compilation of lessons learned while deployed to Kuwait in support of Operation Iraqi Freedom 2. Article contributors were CW4 Lavka, CW4 VerHaar, CW3 Schroeder, CW3 Phillips, CW3 Fogg, and CW3 Upton while attending Warrant Officer Staff Course 05-06 at Fort Rucker, AL.

Survival Radios . . .

JOSEPH R. LICINA, USAARL
AND ROBERT P. GIFFIN, USACRC

CSEL

Survival radios appear to be an ever-increasing issue related to aircraft crashes and survival. We have performed a brief review of accidents since CY 2000. Survival radios have been identified as a contributing factor and a "present but not contributing" factor in 18 Class A through C mishaps over the last 5 years, with 3 fatalities, 22 injuries, and more than $50 million in damages. Problems identified include radios that did not function or failed to operate on all frequencies, radios that had limited transmission capabilities, and other issues such as broken antennas, dead batteries, etc.

Within the last 90 days, survival radios were specifically noted as a negative aspect in two separate crashes in CONUS and the area of responsibility (AOR). Luck has been a saving factor in both of these incidents, as both were witnessed by other aircraft. One of these two recent incidents was attributed to a lack of knowledge of the radio (cone of silence), and the other noted both PRC-90 radios had dead batteries.

To examine the user knowledge issue, we performed a random sample of unit pilots. We found only pilots-in-command (PCs) in this unit carried radios in their vests. This is not an uncommon practice due to the recognized overall shortage of survival radios for Army aircrew across the board. When we pulled the PRC-112 from a PC's vest and handed it to the pilot (PI) next to him, that PI did not even know how to turn the radio on. Unit representatives indicated they "would be receiving the combat survivor evader locators (CSELs) prior to deployment." Ironically, just a day or two before, two instructor pilots were discussing that there were not enough hours in the day to meet all the training requirements prior to deployment. If this is the case, how and when will the CSEL training be conducted? Is that really a remedy to their training problems? The time to learn how to operate the survival radio is NOT on the ground at night when you need it.

The second crash involved the trail aircraft in a flight of two in the AOR. Both pilots received minor injuries but egressed the aircraft and


PRC-90

. Who Needs Them?

attempted to contact the lead aircraft without success. It was later determined that the batteries in both the PC's and PI's radios were dead. The lead aircraft continued to the home airfield, not realizing there had been a crash. Another aircraft in the area spotted the crash and facilitated the recovery.

Maintenance and training are consistent issues found in our accident deficiencies. Why did these pilots not pre-flight their radios and identify the dead batteries prior to operating the aircraft? Because aviation life support equipment (ALSE) in general is not included at the same level of importance as other required actions. When is the last time you had your ALSE/radio-operation competence assessed during a standardization ride? When has ALSE truly been a portion of your annual proficiency and readiness test qualification other than a "check-the-box" assessment that is often not even mentioned?

Luck only works sometimes, and your time may be running out. Know how to operate all the radios used in your unit. Commanders, ensure your pilots perform random blindfold checks to establish a level of confidence that all your crewmembers can operate their emergency equipment in an actual emergency. Perform the daily preflight checks per your respective -10s. ♦

—Mr. Licina is a Safety and ALSE Technician at the U.S. Army Aeromedical Research Laboratory. He may be contacted at DSN 558-6893 (334-255-6893), or by e-mail joe.licina@se.amedd.army.mil. Mr. Giffin is an Aviation System Safety Manager at the Combat Readiness Center. He may be contacted at DSN 558-9579 (334-255-9579) or by e-mail bob.giffin@us.army.mil.

DON'T COUNT ON YOUR CELL PHONE TO SAVE YOU

Cell phones are viewed by some crewmembers as their primary means of communications in a crash or survival situation. Is this realistic? No. They are clearly effective in only some scenarios. "Can you hear me now?" is a great marketing slogan, but even in our established stateside training areas, there are an incredible number of recognized "dead spots" due to repeater tower limitations.

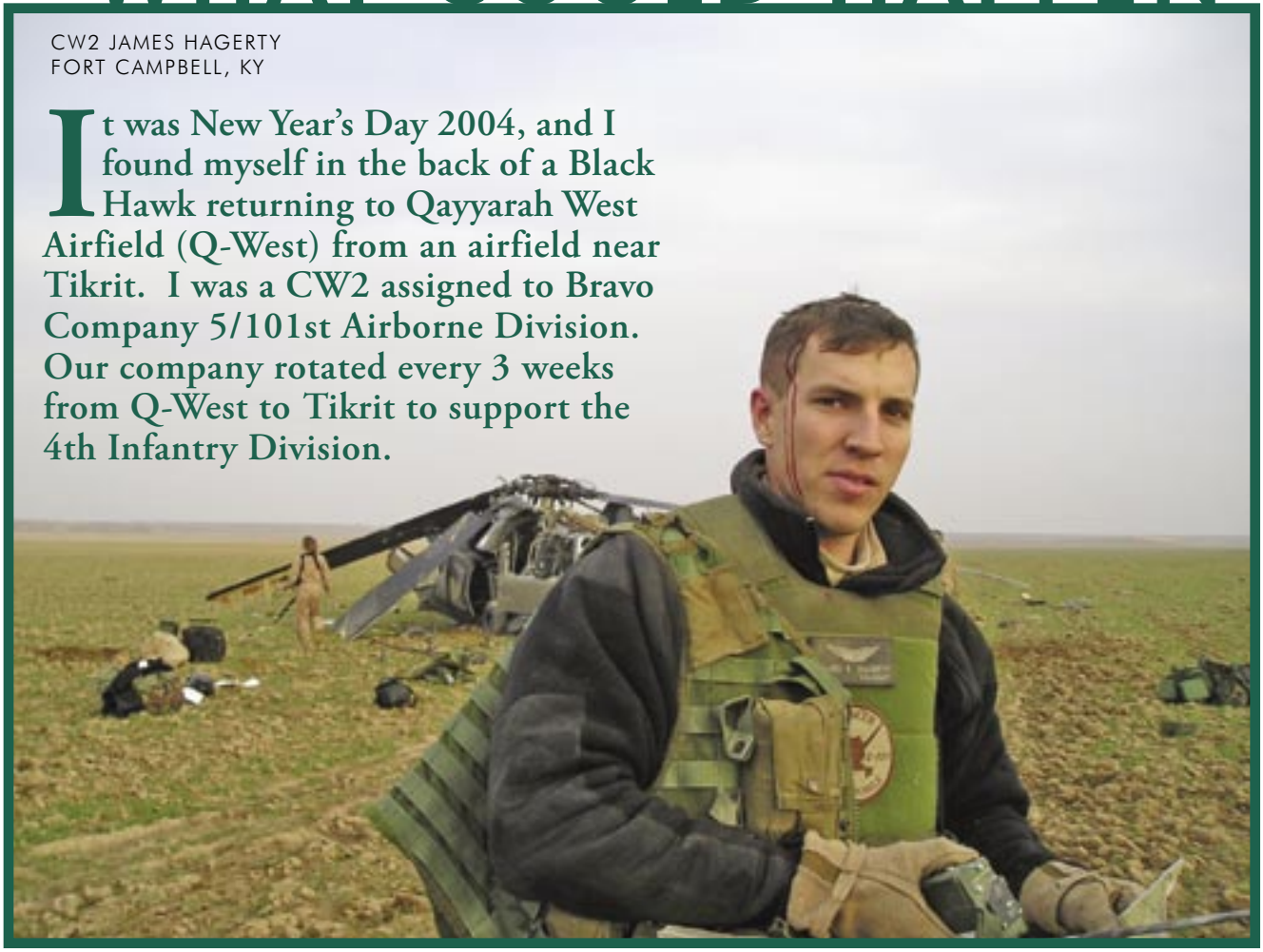
Our survival radios are line-of-sight that provide communications with other aircraft. Also, the survival radios have stringent requirements in deep-water egress. How deep can your cell phone be submerged, even momentarily, before it is inoperative? Although it is not uncommon for you to drop your cell phone from waist high, is it designed to sustain some impact and remain intact, let alone still function? Can you store your cell phone batteries for years without recharging and still guarantee instant operation? Will your cell phone operate for hours in subzero temperatures? Lastly, if a crewmember can operate and program their personal cell phones to their desired numbers and ring tones, why would that crewmember not know how to operate and perform operator maintenance on their unit's survival radios?

The best bet is to know, see, and do. Know your survival radios, see how they work, and take them with you when you're flying.

WHO KNOWS WHAT COULD HAPPEN?

CW2 JAMES HAGERTY
FORT CAMPBELL, KY

It was New Year's Day 2004, and I found myself in the back of a Black Hawk returning to Qayyarah West Airfield (Q-West) from an airfield near Tikrit. I was a CW2 assigned to Bravo Company 5/101st Airborne Division. Our company rotated every 3 weeks from Q-West to Tikrit to support the 4th Infantry Division.



Near the halfway point to Q-West, the crew landed in an open field to repair one of our door guns. The crew found a large open area to land with rising terrain in all four directions. After the weapon was repaired, we took off again and the aircraft entered an uncontrolled spin to the left. After several rotations, we impacted the ground around 18g. There were three passengers, including myself, in addition to the crew of four. We all quickly egressed the aircraft and assessed the injuries.

One person received minor back injuries, and we all had minor cuts and bruises. As directed by the pilot in command, we set up a perimeter and zeroized all equipment. Using my PRC-112 survival radio, we eventually contacted a distant C-130 and relayed the nature of the emergency and position. About 3 hours later, a Downed Aircraft Recovery Team (DART) from our battalion was onsite and we were flown to Q-West.

While waiting for the DART, we encountered one vehicle. A small pickup drove within about a half mile and then turned away. No one knows if the driver saw the crash and if he had any hostile intent. However, without the operational survival radio, we could have been stranded throughout the night. This would have given any possible enemy time to organize and return to our position.

It's not a good feeling being stranded in the middle of Iraq. But it was comforting knowing we had a means of contact and were able to use it to get us out of there. ♦

—CW2 Hagerty wrote this article while attending the Aviation Safety Officer Course at Fort Rucker, AL. He may be contacted at james.hagerty@us.army.mil.

CEPs, the Noise Countermeasure

CHRIS TRUMBLE
U.S. ARMY COMBAT READINESS CENTER

Communications Ear Plug

Since the use of motorized aircraft in battle, the hazard of noise-induced hearing loss has been a reality for all military aviators. There are two threats associated with the noisy environment aviators operate in—long-term hearing loss and decreased situational awareness. A decrease in situational awareness is caused by difficulty understanding electronic communications, discerning verbal face-to-face communications, and recognizing noises indicative of danger. In an effort to mitigate these hazards, aviators have been using the Communications Ear Plug (CEP). Many aircrew members are currently using the CEP as an integral part of their aviation life support equipment (ALSE). In order to better appreciate the technology and its impact on your performance and survivability, a discussion of the history, operation, performance, and use of the CEP may be helpful.

HISTORY

During the 1990s, the CEP was developed by the U.S. Army Aeromedical Research Laboratory (USAARL) at Fort Rucker, AL, to meet the challenges of protecting aviators' hearing and enhancing auditory performance in noisy environments. Tests were conducted in operational environments that Army Aviation units were routinely deployed. These tests fully demonstrated the ability of the CEP to protect and enhance an aircrew's hearing. From this effort, Communications & Ear Protection of Enterprise, AL, was founded in 1998. They have been providing state-of-the-art communications equipment that enables messages to be easily understood, even in the noisy environments of Army helicopters.

Many aircrew members are currently using the CEP as an integral part of their aviation life support equipment (ALSE).

OPERATION

The CEP provides hearing protection via an expanding foam earplug while passing a clear speech signal through a hollow tube to the ear. The coupling of a miniature transducer with a foam earplug yields a lightweight, high-quality communications device that is capable of being used alone or with circumaural hearing protection.

The CEP's foam tip is attached to the transducer using a threaded hollow tube. The tube provides an unimpeded pathway for sound to travel from the transducer to the occluded ear canal. Used eartips are easily replaced because of the threaded design. Foam eartips are manufactured in three sizes—standard, short, and slim—by Hearing Components (Minnesota) in packages of 12 or cases of 60. See NSN chart below.

CEP PART NUMBERS AND NSNs

SIZE	CEP	NSN
STANDARD	199-ESTP	5965-01-504-0071
SLIM	199-ESLP	5965-01-504-0072
SHORT	199-ESHP	5965-01-504-0073

(12 ear tips per package)

TESTS OF THE CEP CONDUCTED BY USAARL DEMONSTRATED REDUCTIONS OF MORE THAN 30 DB IN LOW-FREQUENCY NOISE ENVIRONMENTS PREVALENT IN HELICOPTERS.

PERFORMANCE

A high-quality receiver located within the CEP generates the speech signal to the aviator. The helmet ear cup, in concert with the CEP, reduces the ambient noise of the cockpit from reaching the ear. The combination of cockpit noise reduction and the CEP's high-quality receiver results in improved speech intelligibility. Tests of the CEP conducted by USAARL demonstrated reductions of more than 30 dB in low-frequency noise environments prevalent in helicopters.

The combined weight of the CEP headset and interface cable is less than 10 grams. The CEP is placed within the ear canal of the user, which is approximately the center of gravity (CG) of the head. The low weight and positioning of the CEPs in relation to the CG of the head makes head support mass issues negligible.

USE

As with most pieces of safety equipment, proper fitting is critical to getting the best performance. Not properly following CEP use instructions will affect performance and can jeopardize user comfort. The CEP is comprised of two primary components: the screw-on foam tips and the CEP. The wires attached to the CEPs are of two different lengths (fig. 1). The short wire is for the CEP worn in the right ear. The longer wire permits the CEP for the left ear to be routed either behind the head or under the chin.

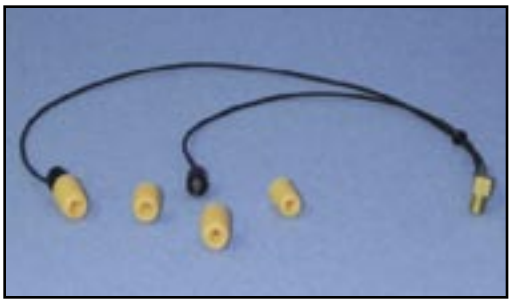


Figure 1. CEP with different cord lengths

Before wearing the CEP, the foam eartips are screwed onto the threaded tubes of the CEP until the foam touches the CEP housing. At the point the foam just touches the housing, tighten an additional quarter turn. This seats the inner portion of the eartip with the recessed area of the transducer base. Take the foam tip and the CEP between the thumb and first two fingers (fig. 2) as one unit and roll the foam portion down to a small diameter (just like a typical foam earplug).

Figure 2. Foam eartip being compressed

Once the foam is compressed, insert the eartip into the ear canal until the transducer body is inside the external ear. To get the eartip properly inserted in the ear canal, it is important you pull your external ear up and out to the side with your free hand while inserting the eartip (fig. 3). This straightens the ear canal and eases insertion of the foam tip. Very little foam should be visible at the ear canal opening if correctly inserted (fig. 4). **NEVER FORCE OR SHOVE THE TIP INTO THE EAR CANAL**. Position the transducer housing during the insertion so the wire will exit comfortably.

Figure 3. Pulling external ear to straighten ear canal

Figure 4. CEP properly positioned

The procedure is then repeated for the other ear. At this point, you are ready to put on your flight helmet. When donning the helmet, spread the ear cup areas slightly. Pulling the helmet straight down over the ears may cause the CEP to be moved.

The CEP connector is inserted into the mating connector located on the lower right back edge of the helmet (fig. 5). The connectors are coaxial and easy to connect and disconnect. When the SMB plug on the CEP is lined up with the SMB jack on the helmet, push the plug until it is fully seated.

Figure 5. HGU-56/P with CEP installed

Before inserting the helmet connector into the aircraft intercommunication system (ICS), turn the volume settings of your ICS/radio to a lower position and then connect as usual. When the mission is completed, disconnect the CEP before removing your helmet to reduce wear and tear. To remove the CEPs from your ears, just slowly pull the housing while lifting the side of your external ear out to the side to straighten the ear canal. The CEP should not be left attached to the helmet when not in use. To extend the life of the tips, they should be inspected for blockage through the center channel of the foam. The CEP should then be stored in the hinged-lid plastic container until the next mission. Care should be taken to ensure the tip ends do not catch on something and get pulled off the wire ends. It is estimated a pair of foam tips will last approximately 1 month.

CONCLUSION

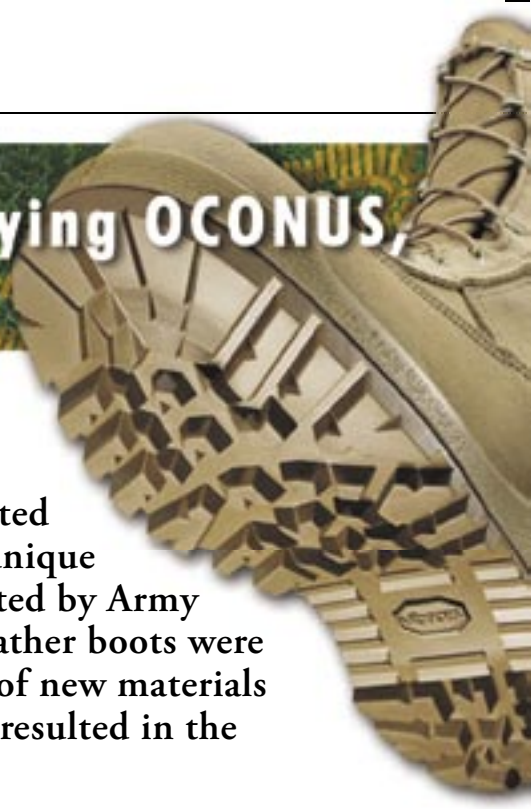
When worn in conjunction with ear cup hearing protection, the CEP reduces noise exposure to minimal levels while enabling the user to achieve extremely high speech intelligibility in the noisiest environments. This capability is just one of the reasons Army Aviators "Own the Edge." ♦

Editor's note: Another excellent article, "Too Much Noise" by Dr. Jane S. Durch and Dr. Larry E. Humes, regarding hearing loss and tinnitus can be read at http://www.military-medical-technology.com.

—Mr. Trumble is a System Safety Engineer at the U.S. Army Combat Readiness Center. He may be contacted at DSN 558-2372 (334-255-2372) or by e-mail christopher.trumble@us.army.mil.

Our Aviation Brigade Is Deploying OCONUS,

CHRIS TRUMBLE
U.S. ARMY COMBAT READINESS CENTER



The Army Aviator traditionally has unique equipment requirements to those of their mounted and dismounted Soldier brethren. This philosophy and the aviator's unique operational environment led to footwear choices being dictated by Army Regulation (AR) 95-1. This regulation stipulates only all-leather boots were approved while performing flight duties. The development of new materials and the efforts of military equipment developers and testers resulted in the "all-leather boots" requirements of AR 95-1 being waived.

AIRCREW ALL-LEATHER BOOT REQUIREMENT WAIVED

In November and December 2002, MG Mark Curran, the former U.S. Army Aviation Branch Chief, issued memoranda to Active and Reserve Component aviation brigade commanders specific information allowing the wear of both the new, black U.S. Army Infantry Combat Boot (ICB) and the U.S. Air Force Tan Flyer's Boot (TFB). Both boots have an upper construction of nylon and leather, as well as integrated safety features such as limited flame resistance, conductive heat resistance, and liquid penetration resistance. The boot design not only passed the required safety criteria for aviation use, but it provides better protection than the all-leather boot.

The August 2003 issue of *PS Magazine* stated Army Aviators were authorized to wear two non-all-leather boots: the Belleville model 700 (black) and 790 (desert). Times change and the Army acquisition system evolves to meet the warfighter's needs. While the Belleville boots are still approved, they are no longer the only game in town.

BG E.J. Sinclair, U.S. Army Aviation Warfighting Center Commanding General, issued an updated memorandum in February 2005 to Active and Reserve Component aviation brigade commanders allowing the wearing of the tan-colored Army Combat Boot (Temperate Weather) (ACB(TW)), in addition to the black U.S. Army ICB previously authorized in December 2002. Again, times change and the USAF TFB boot is no longer authorized. If you attempt to order that boot style, the order will be canceled.

WHAT IS APPROVED FOR THE AVIATOR TODAY?

Currently, only two non-all-leather boots are authorized for aircrew use. One is the U.S. Army ICB–Type I (black); the other is the ACB(TW). Confusion exists over the black ICB and the ACB(TW) primarily because they are both manufactured by multiple contractors. The black ICB has been manufactured by three separate contractors (Bates, Belleville, and Rocky), while the ACB(TW) has been manufactured by five separate contractors (Addison, Bates, Belleville, Rocky, and Wellco). While all of these boots are required to meet the same specifications, each contractor has separate internal/commercial names or model numbers for the military ACB(TW) boots.

To request the black ICB or ACB(TW), you need to use the appropriate national stock numbers (NSNs). For the desert tan-colored boot alone, there are 126 different NSNs; space in this article precludes listing these. The Combat Readiness Center (CRC) will be posting the NSNs on its Web site at **https://crc.army.mil**, while the U.S. Army Aeromedical Research Laboratory (USAARL) will be posting the NSNs on its Web site at **www.usaarl.army.mil.**

COMMERCIAL BOOTS VS. MILITARY BOOTS

If you requisition the ACB(TW) using the NSNs, you will get a boot authorized for aircrew use. If you chose to order ACB(TW) boots commercially, the table below shows the commercial names or model number designations:

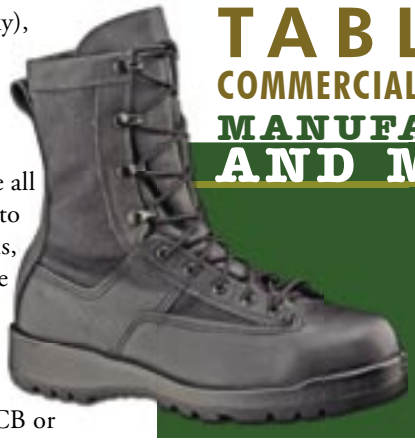


TABLE OF COMMERCIAL *ACB(TW)* BOOT MANUFACTURERS AND MODELS

MANUFACTURER
ADDISON
BATES
BELLEVILLE
ROCKY
WELLCO

What Boots Can We Wear?

GETTING MORE FROM YOUR BOOTS

The condition of your boots can often determine whether your feet will have a pain-free day. This fact, combined with the difficulty of replacing your boots, especially while deployed, should prompt one to ask, "Are there ways to extend the life of my boots?" As with almost everything, there are maintenance techniques you can use to extend the serviceable life of your boots. Your combat boots are designed to be easy to care for. The nylon quarter side panels are as strong as leather and will last if cared for properly. When cleaning leather or Cordura nylon, it is recommended to first use a damp towel or even your socks to wipe off the majority of the loose dirt and debris on the outside of your boots after each use. Second, you should brush the outside surface with water and a stiff nylon bristle brush to remove the embedded soil or dust. An old toothbrush works well for this; however, you should not scrub the boots harder than you would your own skin. If additional, more stringent cleaning is necessary, only water-soluble cleaning products should be used, as oil- or alcohol-based cleaning products may damage your boots.

During routine wear, perspiration permeates the boot material. Your boots should be allowed to dry at room temperature. If the boots are not permitted to dry, bacteria can form within the boot. Having a second pair of boots will allow you to rotate your boots so you never wear the same pair 2 days in a row. Socks need to be worn in your boots, with the best materials for socks being either a wool or wool blend. Avoid cotton socks because the hydroscopic properties of cotton can result in blisters and/or cold, wet feet.

THE FUTURE

Realizing approximately one-quarter of all bones in a Soldier's body are in his feet, the Army spends a considerable amount of money and effort to ensure you are supplied with the best boot available. Due to continual improvements in technology, the aircrew-approved boot list is subject to change. We will attempt to report any changes as they take place. For now, this review of aircrew-approved boots, national stock number (NSN) information, and maintenance tips will assist you in making informed decisions regarding boot acquisition and care, making you combat ready. ♦

Author's note: Special thanks go to Mike Holthe (Footwear Project Engineer PM-CIE), John Jolly (PM-Air Warrior), Joe Licina (USAARL), and John Popovich (DCD) for their assistance with this undertaking.

—Mr. Trumble is a System Safety Engineer at the U.S. Army Combat Readiness Center. He may be contacted at DSN 558-2372 (334-255-2372) or by e-mail christopher.trumble@us.army.mil.

DESERT MODEL	BLACK MODEL
ICT	NOT APPLICABLE
E01129	E01500
790	700
790G	NOT APPLICABLE
ACBTW	ICB BLACK

ACB(TW) Boot Desert Color

Footwear Manufacturers

ADDISON SHOE COMPANY
POB 38, 1421 N. Falls Blvd.
Wynne, AR 72396
PH: 800-201-2511
PH: 870-238-2331
FAX: 870-238-5942
www.addisonboot.com
EMAIL: dstark@addisonboot.com

BATES FOOT WEAR
Wolverine World Wide, Inc.
9341 Courtland Drive
Rockford, MI 49351
www.wolverineworldwide.com
www.batesfootwear.com

BELLEVILLE SHOE COMPANY
100 Premier Drive
Belleville, IL 62220
PH: 800-376-6978
PH: 618-233-5600
FAX: 618-233-5617
www.bellevilleshoe.com

ROCKY OUTDOOR GEAR
39 East Canal Street
Nelsonville, OH 45764
PH: 740-753-1951
www.rockyboots.com

WELLCO ENTERPRISES INC.
150 Westwood Circle
Waynesville, NC 28786
PH: 800-840-3155
PH: 828-456-3545
http://wellco.com
EMAIL: sales@wellco.com

Authorized repairs and resole of Wellco boots:
ABERDEEN SHOE & REPAIR
17 Howard Street
Aberdeen, MD 21001
PH: 866-266-8349
PH: 410-272-0383
Fax: 410-272-2627
www.aberdeenshoe.com
EMAIL: info@aberdeenshoe.com
MILITARY BOOT REPAIR
7134-B Lineweaver Rd.
Warrenton, VA 20187
PH: 800-876-7463
www.militarybootrepair.com
EMAIL: info@militarybootrepair.com

News and Notes

Keeping crewmembers informed...

REMOVAL OF ASPIRIN FROM ALL ALSE VESTS

The following aviation life support equipment (ALSE) message has been released through the Defense Messaging System. It was effective 21 October 2005, and has been forwarded to Information Management for posting under the ALSE Web site.

This is a Product Manager-Air Warrior (PM-AW) (formerly Aircrew Integrated Systems (ACIS)) advisory message concerning ALSE 05-06. Addressees are requested to retransmit this message to all subordinate units, activities, aviation life support shops, aviation safety offices, activities, or elements affected or concerned.

Aspirin will be removed from ALL ALSE vests and replaced by acetaminophen, NSN 6505-01-436-9606, or equivalent 325mg tablets sealed single or in a two-pack. This is a permanent change. ALSE techs may choose to deplete their existing inventory of aspirin before making this change.

If you have not received or need a copy of PM-AW ALSE Message 05-06, you can obtain it using the following Web site at **https://airwarrior.redstone.army.mil**, or contact Bill Grubbs at DSN 746-8492 (256-876-8492), or e-mail william.grubbs@peoavn.redstone.army.mil.

—Submitted by John Jolly, DSN 746-6538 (256-876-6538), or e-mail John.Jolly@peoavn.redstone.army.mil.

LITEfax

CHRIS FRAZIER
STAFF WRITER/EDITOR

YOU GOTTA SECURE THOSE LOADS

Failure to take time to properly secure their cargo left one careless aircrew with a half-million dollar headache.

The crew was transporting a rotor blade storage container that extended 10 feet out each side of their UH-60A. As the aircraft leveled off at 200 feet mean sea level (MSL) and 90 knots indicated airspeed (KIAS), the container began to vibrate. The flight medic informed the pilots of the vibration, and the pilot-in-command (PC) began a controlled descent to an open area directly in front of the aircraft.

During the descent, at approximately 100 feet above ground level (AGL) and 70 KIAS, the rotor blade storage container began to bend up on both sides. As the container continued to bend upward, it entered the rotor system, damaging all four main rotor blades, the engine cowlings, and the top of the cabin. The PC initiated a precautionary landing, and the pilot (PI) notified the tower of the problem. The PC was able to safely land the aircraft in an open area and, along with the PI, completed shutdown procedures. Within minutes, airfield emergency services and a security team arrived on the scene. Fortunately, the aircrew sustained no injuries.

The investigation into the accident revealed the rated (PC/PI) and non-rated (crew chief/medic) crewmembers failed to properly secure the main rotor blade storage container before departure, which allowed the lid of the container to begin vibrating while in flight. As a result, after entering a controlled descent, the increased airflow under the lid of the container forced the lid upward into the main rotor system, causing Class B damage to the aircraft.

Findings from the investigation into the accident revealed the failure to secure the container was a result of a lack of PC supervision during preflight procedures, lack of experience with non-standard internal load operations, and overconfidence in the execution of the mission. Damage related to the accident reportedly totaled nearly $500,000.

NEW HGU-56/P NSNS

SSG KEN DENNY
ALASKA ARMY NATIONAL GUARD

There is a new NSN for the HGU-56/P helmet. The new HGU-56/P helmet has the Communication Ear Plug (CEP) pre-wired and pre-installed at the factory. This eliminates the need to order and install the separate CEP MWO Kit (NSN 5965-01-488-4332).

The old NSNs are still good and will be issued until the current supply of helmets in inventory is exhausted.

	NEW NSN	ORIGINAL NSN
XXS	8415-01-522-5310	8415-01-394-8032
XS	8415-01-522-5339	8415-01-394-8033
S	8415-01-522-5344	8415-01-394-8036
M	8415-01-522-5347	8415-01-394-8034
L	8415-01-522-5348	8415-01-394-8035
XL	8415-01-522-5364	8415-01-394-6474

—Jim Hauser, HGU-56/P Project Engineer, Air Warrior Product Manager's Office, Redstone Arsenal, AL. He may be contacted at jim.hauser@peoavn.redstone.army.mil.

DID YOU KNOW?

A recent Department of Defense directive mandated chitosan dressings (NSN 6510-01-502-6938) be distributed to every Soldier currently serving in or deploying to a combat theater. The dressings are made from chitin, the stuff that makes the "crunch" when you step on a cockroach. Chitin also is found in the shells of other insects, shrimp, lobsters, crabs, worms, fungus, and mushrooms. Extremely durable and flexible, the dressings are designed to stop bleeding from traumatic injuries suffered in combat. According to the directive, each Soldier is to receive one dressing to carry in their aid bags; combat lifesavers and combat medics are to receive three and five dressings each, respectively.

LOCK UP BEHIND YOU

Not to be outdone by the careless crew mentioned above, the absent-minded aviators in this tale also allowed their inattentiveness to cause some damage to their bird.

After hooking up a radar acquisition data system (RADS) kit camera to the vent screen on the nose of their MH-60L to conduct an in-flight main rotor blade check, the crew performed two maintenance test flights. The first flight went without incident. The second flight began smoothly, as well, with the crew performing a half-hour of flight checks. That would soon change, however, as the crew began an autorotation as the final check on the main rotor track inspection.

As the pilot on the controls lowered the collective and began a right turn, the nose door flew open, smashing the center windshield and damaging the weather radar. The pilot terminated the autorotation and landed the aircraft. After securing the nose door, the crew returned to Fort Campbell, KY, without further incident. Maintenance was notified of the incident, and no structural damage was noted. However, the weather radar antenna, nose door strut, and center windshield required replacement.

The investigation into the incident revealed the PC never verified the nose door latches were secured prior to takeoff. As a result, the door came open during flight. Investigators ruled the PC's actions were a result of overconfidence and complacency. Rather than verifying the door was secured, the PC assumed it was latched.

For their part in the accident, all personnel involved were briefed on the facts and circumstances surrounding this incident. In addition, they were required to attend a class on proper preflight procedures and the risks of complacency.

Contact the author at (334) 255-2287, DSN 558-2287, or by e-mail at christopher.frazier@crc.army.mil. For more information on how to submit a story to Litefax, send an e-mail to flightfax@crc.army.mil.

Accident Briefs

Information based on preliminary reports of aircraft accidents

Class A

AH-64
D Model
Two aircraft collided while performing a night armed reconnaissance mission. One aircraft crashed and burned. Both crewmembers suffered fatal injuries. The second aircraft sustained damage to the tail wheel, but successfully recovered to the forward operating base.

HH-60
L Model
The aircrew experienced brownout conditions during a roadside MEDEVAC mission landing. The aircraft is suspected to have landed hard and rolled forward, striking an obstacle. Damage was reported to the main rotor blades and aircraft nose area.

OH-58
D(R) Model
The aircraft experienced a hard landing during a manual throttle operation demonstration. The main rotor blades and tailboom separated.

AH-64

D Model

• **Class C:** The aircraft experienced an overtorque condition following a health indicator test check.

• **Class E:** During cruise flight, the aircrew smelled smoke. The aircraft's multipurpose displays flickered on and off, and then the aircrew received indication of a No. 2 generator failure. Smoke and fumes filled the cockpit. The aircrew declared an emergency, landed the aircraft on the runway, and conducted an emergency shutdown. Maintenance replaced the No. 2 generator. Maintenance Operational Checks OK. The aircraft was released for flight.

CH-47

D Model

• **Class D:** After departure from the landing zone (LZ) approximately 200 feet above ground level (AGL) at 50 knots, the aircraft ascended into a set of wires. The aircraft returned to the LZ. The maintenance officer accessed the damage to the blades and determined the aircraft was airworthy. A one-time flight was authorized, and the aircraft returned to the airport without further incident.

• **Class E:** On the ground while unloading cargo and passengers, high frequency vibrations were felt in the rotor system. The aircraft was shut down, maintenance was called, and the mission was aborted. Maintenance replaced the forward transmission adapter and the No. 1 and No. 2 driveshafts and released the aircraft for flight.

• **Class E:** On approach to an unsecured LZ, the flight engineer noticed oil coming from the No. 1 engine. After landing, the level was checked and found to be three-quarters full. The crew decided to proceed to the forward operating base (FOB). En route, the engine oil low light illuminated. Having single-engine capability, the crew shut down the No. 1 engine and landed at the FOB without incident. The filter bowl was replaced, and the mission continued without further incident.

• **Class E:** During a quick-reaction mission to pick up troops in enemy territory, the crew executed an approach to an unimproved pickup zone (PZ). The PZ consisted of rocky angular terrain and was set up for an upslope landing. When the forward gear contacted the ground, the aircraft began to slide back. The pilot increased thrust and applied forward cyclic to level the aircraft and depart the slope. The VHF and FM antennas contacted ground, destroying both and tearing sheet metal. The crew continued the mission without further incident. The damage was not discovered until after shutdown.

HH-60

L Model

• **Class C:** The aircraft contacted the ground in a nose-low attitude due to obstacle presence and sustained damage to the forward-looking infrared.

MH-60

L Model

• **Class C:** Four U.S. Army personnel suffered shrapnel injuries from rounds fired from an Army aircraft during a fire support mission.

OH-58

D(I) Model

• **Class C:** The aircraft's main rotor system contacted the global positioning system antenna and tail rotor driveshaft during a precautionary landing. The aircraft had been experiencing engine power fluctuations during flight. The aircraft was recovered.

UH-60

A Model

• **Class B:** The aircraft was Chalk 1 in a flight of two when, on short final to the airfield, Chalk 2 noted smoke emanating from Chalk 1. Fire damage to the engine and auxiliary power unit (APU) compartment was reported. The "V-clamp" had separated from the exhaust piping, and the hover infrared suppression system (HIRSS) (the exhaust suppression system) moved aft and exhaust "ducted" into the engine compartment, subsequently burned through the firewall, spreading into the APU compartment.

• **Class C:** The aircraft stabilator contacted the ground during a MEDEVAC pickup. Damage to the aircraft was noted on postflight inspection.

• **Class C:** The aircraft contacted trees during high-altitude training. Damage was reported to the main rotor tip caps, one main rotor blade, and one tail rotor blade.

• **Class E:** While conducting slope operations, the crew noticed an unusual amount of aircraft vibrations. The crew hovered/taxied to the parking ramp for a precautionary landing. Postflight inspection revealed no aircraft deficiencies. A maintenance test flight discovered an unserviceable SAS2 yaw rate gyro.

L Model

• **Class B:** The aircraft's main rotor blades contacted a concrete barrier during ground taxi. All main rotor blades were damaged.

• **Class C:** The aircraft's stabilator contacted the ground during autorotation training (termination with power recovery).

• **Class C:** Damage to the intermediate gearbox cowling and driveshaft cover was discovered during refuel. It is suspected a hard landing and main rotor blade contact with the intermediate gearbox cowling/coupling and the driveshaft cover is the cause of the damage. Main rotor blade contact with the VHF antenna was also reported. Damage is suspected to be restricted to the skin.

• **Class C:** The aircraft sustained damage to the stabilator, chin bubble, and one main rotor tip cap after landing on uneven terrain.

• **Class C:** During a night vision goggle landing in the final phase of training, the aircraft slid forward into a rut, causing damage to the fuselage, near the search lights.

RC-12

P Model

• **Class E:** While conducting a maintenance test flight, test pilots were shutting down the No. 1 engine when smoke and fumes began to fill the cabin. The aircrew donned oxygen masks, performed appropriate emergency procedures, declared an emergency, and returned to the airfield without further incident. Upon inspection by maintenance personnel, a large oil leak was found in the No. 1 engine and wheel well area.

• **Class E:** While conducting emergency procedures training at 7,500 feet and 160 knots, blue smoke began filling the cabin. The source of the smoke could not be determined. The crew donned oxygen masks, declared an emergency, and returned to the airfield. The aircraft landed safely without incident and shut down on the taxiway. The aircraft was fully inspected and a runup was conducted by contract maintenance. The cause of the incident was not found.

U Model

• **Class C:** The aircraft engines experienced cumulative overtorque conditions (totaling approximately 399 minutes) during multiple flights, due to improperly calibrated equipment.

C-23

B Model

• **Class C:** The aircraft experienced a bird strike during cruise flight, resulting in damage to the radome, radar, left and right fairing, UHF antenna, and sheet metal on the nose section.

C Model

• **Class E:** After completing a training mission with an instructor pilot, the pilot taxied the aircraft to parking on the ramp. With ground guides in view, the crew brought the aircraft to a stop to check wing tip clearance. The FOB ground guide motioned the aircraft forward, indicating adequate clearance. The right wing tip made contact with the trim tab on another C-23. The right wing tip cap was scratched slightly with no significant damage. The other aircraft was not damaged.

ARMY AIRCRAFT LOSSES FY02 TO PRESENT*

COMBAT/ACCIDENT	COST
AH-64A/D.....5/40	$935.0M
U/MH-60L.....9/25	$231.4M
C/MH-47.....5/11	$567.6M
OH-58D.....7/21	$175.0M
Total 26/97	

*As of 4 Jan 06

Editor's note: Information published in this section is based on preliminary mishap reports submitted by units and is subject to change. For more information on selected accident briefs, call DSN 558-9552 (334-255-9552) or DSN 558-3410 (334-255-3410)

UNMANNED AIRCRAFT SYSTEM

RQ-11

• Class C: UAV control and video were simultaneously lost by the aerial vehicle operator (AVO). The UAV subsequently crashed.

• Class C: The UAV experienced battery failure while in flight. Efforts to land the aircraft before complete failure were unsuccessful. The UAV was not recovered and is reported lost.

RQ-7A

• Class B: The AVO experienced what he perceived as stability problems with the aft section of the aircraft, followed by AP SERVO FAIL warnings. Linkage was ultimately lost with the UAV, but it was recovered.

RQ-7B

• Class B: The UAV experienced an engine failure. The AVO deployed the parachute, and the aircraft drifted into a power line.

• Class B: The UAV was launched for mission with the engine at idle speed. The aircraft flew approximately 100 meters before crashing into a concrete security barrier.

• Class B: Upon launch of the UAV, the engine began to overheat and lost power. The AVO aborted the mission and attempted to land the aircraft. Due to the engine losing power, the tactical automated landing system would not allow the aircraft to land. The decision was then made to conduct a control landing. The parachute was activated, and the UAV landed adjacent to the runway.

• Class B: Approximately 10 minutes after launch, while climbing to altitude, the UAV experienced an engine failure at 4,500 feet AGL. The AVO glided the aircraft back toward the FOB and deployed the parachute at approximately 1,000 feet AGL. The aircraft fell to the ground.

• Class B: The UAV experienced an engine failure while climbing to altitude. The AVO deployed the parachute, and the aircraft fell to the ground.

• Class C: The UAV experienced engine failure during climbout. The recovery chute was deployed before the aircraft contacted the ground.

ALSE

"It's a Matter of Survival"

aviation life support equipment

It won't save you if you don't have it or don't know how to use it!

Check your ALSE gear...
Is it all there?

The time to think about and check your ALSE is before the flight, while you're still on the ground and have the opportunity to correct any deficiencies.

U.S. ARMY COMBAT READINESS CENTER
https://crc.army.mil

own the EDGE
Composite Risk Management