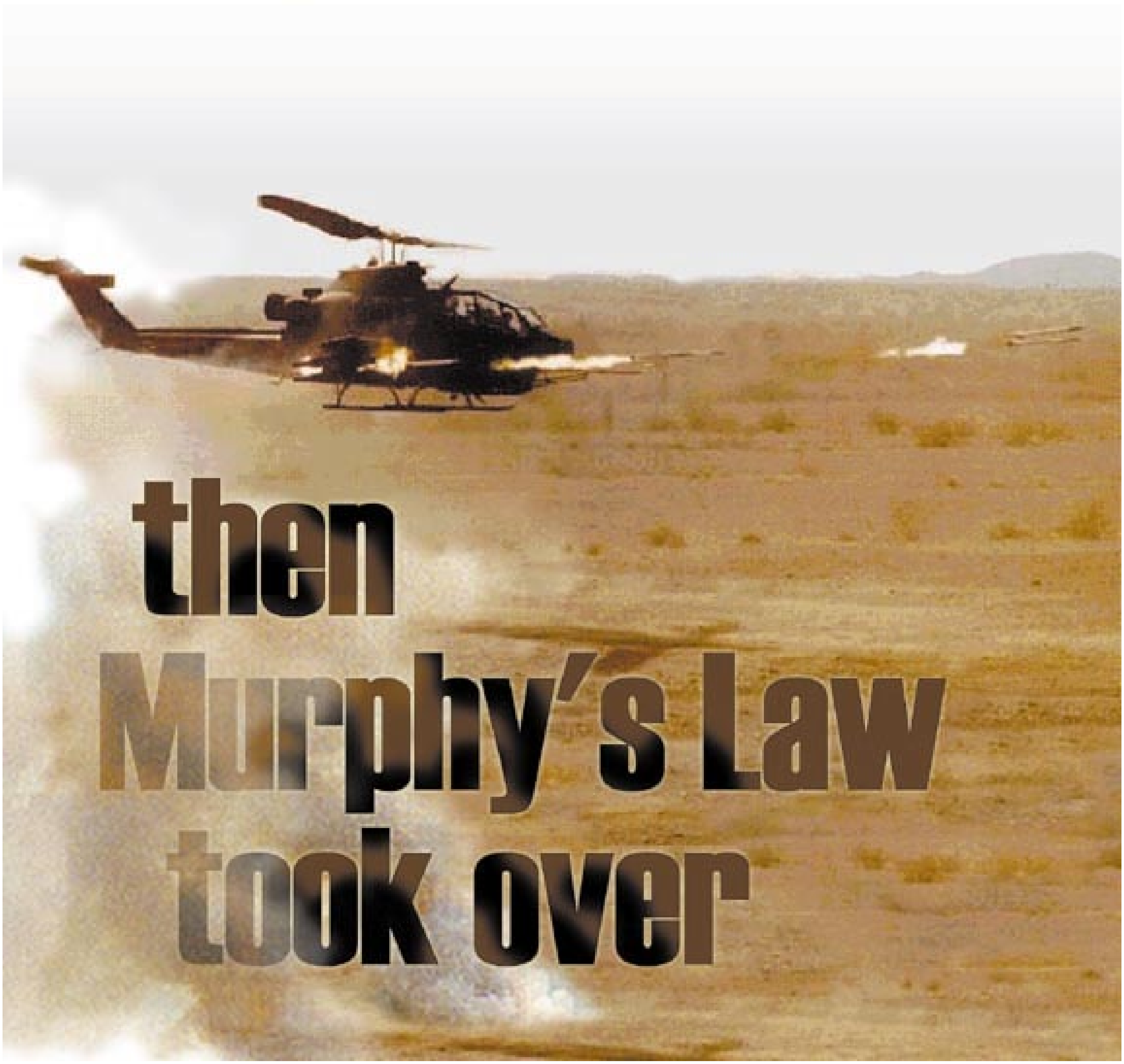
Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

NOVEMBER 1998 ◆ VOL 26 ◆ NO 14

http://safety.army.mil

One range condition went undetected as a hazard . . .



Not-so-ready on the firing line

Just when you think you've seen it all, life throws another scenario into the mix.

Our squadron was deployed to Fort A.P. Hill, VA, for annual aerial gunnery qualification and other training requirements as part of our "summer camp." The range facility was well-equipped, and all the logistics (commo, ammo, maintenance, etc.) had been accomplished by the armament section, range OICs, range safety officers (RSOs), and other unit personnel.

At the outset, things were running smoothly. Even the weather was cooperating. Instead of the usual mid-August temperatures (mid to high 90's), we were enjoying low to mid 80's that week.

As we continued operations through the week, we found that our risk-reduction worksheet was working as advertised, and the controls we established to reduce high-risk conditions were effective. However, one range condition—dry vegetation from several weeks of no rain—went undetected as a hazard that could affect our operations. This would prove to be a critical oversight.

We had two active rearm pads; adjacent to them were three pads for parking and troubleshooting (figure 1). The first firing point (FP1) was located 300 meters east and in front of the two rearm pads; the other firing point (FP2) was 500 meters northeast of the tower. We were using both firing points for rockets and 20mm; for TOW, we used only FP2.

Small fires are not unusual on ranges; they are, in fact, anticipated and expected during annual gunnery. As the days progressed, small fires appeared in the target area 1000 to 3500 meters downrange. These fires were reported as required to range control, and they were monitored by tower personnel. The fires burned themselves out as they reached areas without grass or other vegetation.

On the fifth day, FP1 was being used for rocket engagements during coordinated firing with the aircraft positioned in FP2. During one rocket launch from FP1, a hot ignition wire or similar component caused a small fire at the point. The winds were in a westerly direction that day and, initially, the fire was significant neither in size or proximity to the rearm pads.

Then Murphy's Law took over.

The prevailing winds suddenly shifted back to the southwest, and wind velocity increased from 2 to about 10 knots. The fires grew in size and began moving from the firing point toward the rearm pad and the ammunition supply point.

As firing was discontinued at FP1 and the last aircraft was rolling into FP2 hot for engagements, I (acting as the RSO) left the tower upon hearing dudded ammo "cook off" in the fires, which were now only 150 meters in front of the rearm pads. I drove down to the rearm points to discuss the situation with the NCOIC. By the time I arrived, I could hear duds being cooked off directly in front of the rearm pads.

We decided it was time to evacuate ammo, personnel, and aircraft from the area. As the Rearm NCOIC and I directed movement of the ammo and personnel from the range, aircrews began to scramble toward the aircraft parked adjacent to the rearm pads. Smoke became more dense as the fires grew

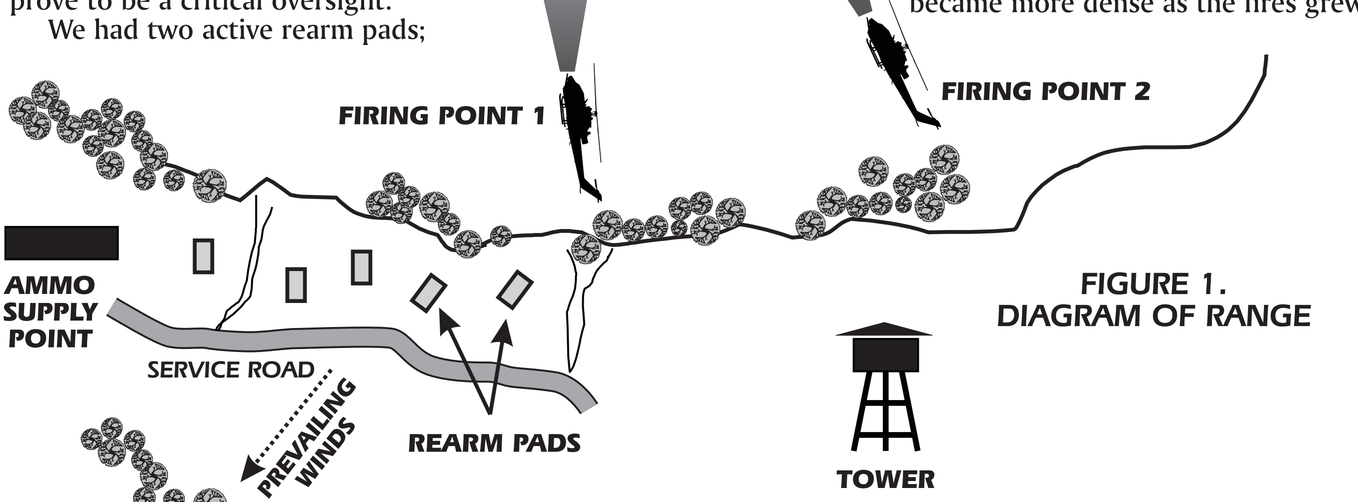


FIGURE 1. DIAGRAM OF RANGE

in intensity and speed. The last of the ammo was withdrawn a safe distance, and personnel were directed to leave the area. Range Control and the fire department were notified and began to respond to the training area.

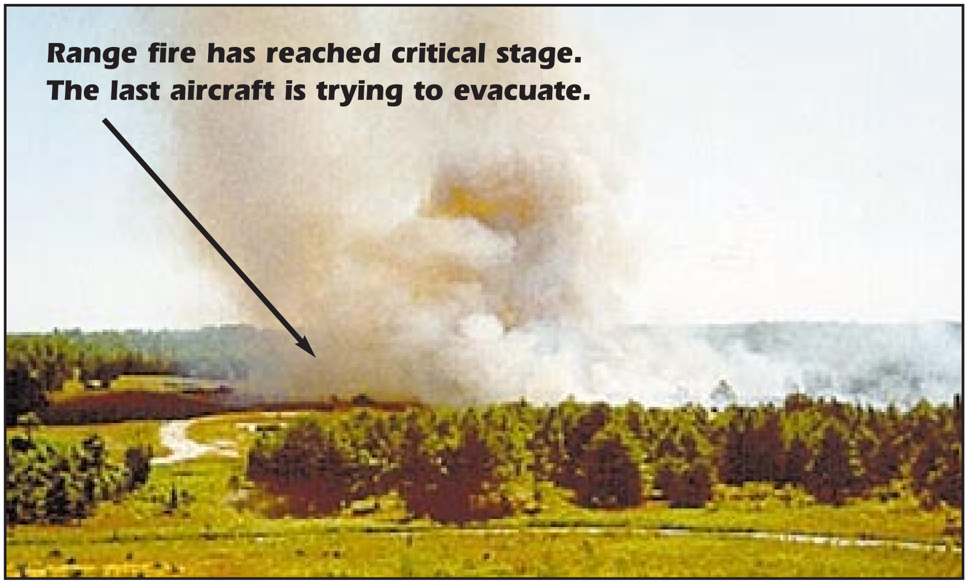
As the last two aircraft began to run up and accomplish their through-flight checklists, the fires were within 25 meters of the pads. The last aircraft to depart the area actually had to wait for a window of opportunity to present itself within the flurry of smoke in front of the pad. The aircraft departed with only minutes to spare before the fire covered the grass around that pad.

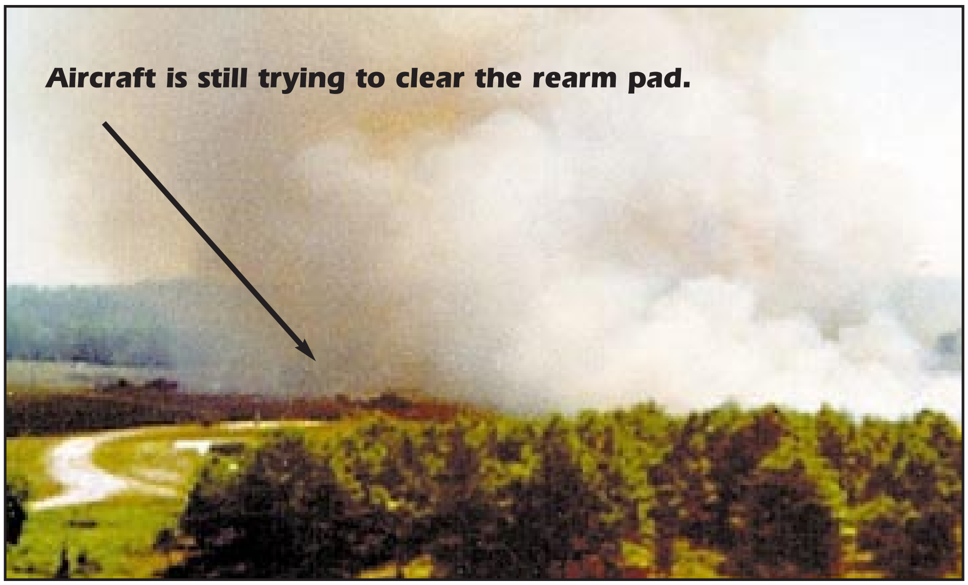
The fire continued to increase in size and intensity and was now moving toward the ammo supply point and the vegetation surrounding it. Personnel there were evacuated; a decision was made to leave the ammo in harm's way. As firefighting personnel were deciding whether to fight the fire or evacuate, the winds shifted again. The fire began to burn itself out and move away from the ammo supply point. Only 20 meters were left between the scorched earth and the ammo.

All the scenarios, circumstances, and inherent risks we thought we had covered and prepared for didn't consider this particular risk. Soldier endurance, supervision, planning levels, ammo handling, personal protective equipment, aircraft misfires/malfunctions, communication, time constraints, and site recovery were all considered and controlled to reduce the risk levels. As it turned out, the most critical risk was the one that was ultimately overlooked. Catastrophe had been averted only because of a little luck.

Will our unit learn from this? You bet. And it is our hope that telling this "war story" here will help others learn as well. Remember, nothing is too insignificant or too unrealistic to include as a risk when planning operations. Use your best imaginations and always include Murphy's Law in your planning. One other suggestion: Identify the most pessimistic person in the unit and include him or her in the planning and risk-reduction brainstorming effort.

—CW4 Tom Clarke, ASO, Troop E, 1/104th Cavalry, PA ARNG, DSN 757-2248 (301-757-2248), clarketc.nimitz@navair.navy.mil


Range fire has reached critical stage. The last aircraft is trying to evacuate.


Aircraft is still trying to clear the rearm pad.


Aircraft finally clears the range.

Camouflage face paint

Once again aircrew concern about wearing camouflage face paint while performing flight duties has reared its ugly head—and for a valid reason. Aircrews take great care to minimize the hazard of burns in aircraft-related fires. We wear special fire-retardant clothes, boots, gloves, and helmet with visor. We fly helicopters with crash-worthy fuel systems that reduce the potential for postcrash fire. Then we smear camouflage paint on our faces. Seems like a conflicting idea, doesn't it?

Our friends at Natick Research, Development, and Engineering Center (NRDEC), in coordination with Mr. Richard Angerhofer, Office of The Surgeon General, checked out the ingredients of the face paint before approving it for use. Mr. Jim Fairneny at NRDEC identified the contents: in compact form (NSN 6850-01-262-0635), the face paint contains ceresin wax, caster wax, mineral oil, talc, and pigments. In stick form (NSN 6850-00-161-6202, green, light, or sand; NSN 6850-00-161-6203, loam or white; NSN 6850-00-161-6204, green, light, or loam), it contains hydrogenated castor oil, carnauba wax, mineral oil, lanolin, talc, and colorants. Review of the Material Safety Data Sheets (MSDS) for the face paint shows its melting point to be 158°F or above and its flash point to be 400°F or above. Health hazards are listed as "None."

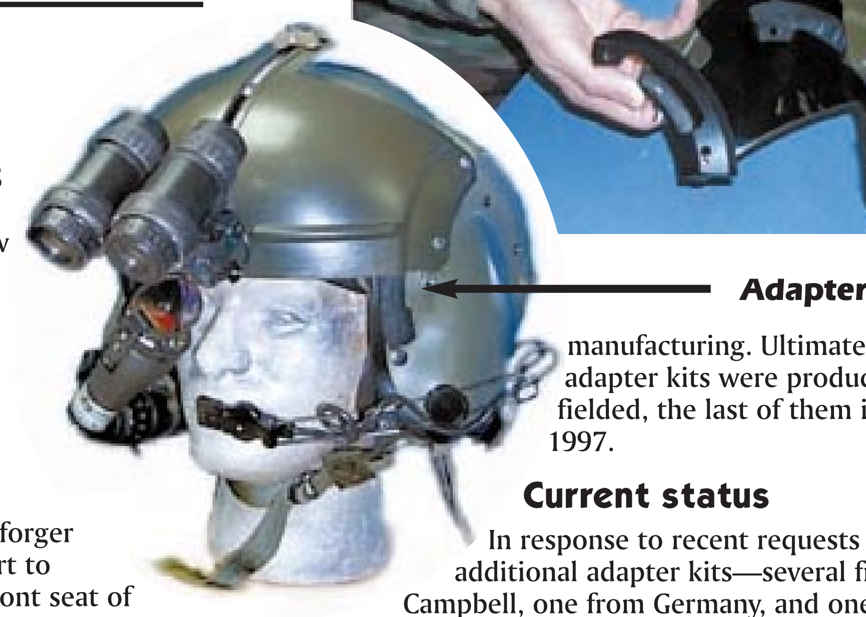
Some aviators reportedly use insect repellant as a base before applying camouflage face paint. According to the MSDS for insect repellants listed in the FEDLOG, their flash points range between 74°F and 200+°F, depending on the type. Be sure to read the label.

While the face paint available through the Army supply system doesn't pose a fire hazard, petroleum-based face paint obtained from commercial sources might. Therefore, be sure to use only the Army-supplied version for aircrew duties.

—CW5 Daniel W. Medina, ALSE Officer, USASC, DSN 558-9847 (334-255-9847), medinad@safety-emh1.army.mil

Attention Apache users

Adapters again available



More ANVIS/IHADSS adapters, the systems that allow ANVIS to be used in the front seat of the Apache, are now available from CECOM's Night Vision & Electronic Sensors Directorate (NVESD).

Background

While getting ready for Reforger '87, there was a great effort to make the lighting in the front seat of the Apache ANVIS-compatible. Additionally, there was a need for a way to mount ANVIS on the IHADSS. NVESD developed an adapter and made up a few by hand. In response to requests for more, they pursued an injection-mold approach to manufacturing. Ultimately, 1350 adapter kits were produced and fielded, the last of them in August 1997.

Current status

In response to recent requests for additional adapter kits—several from Fort Campbell, one from Germany, and one from Korea—NVESD located the original mold and contracted and received a quote to manufacture additional kits. These kits are now available. To order, contact Mr. Clinton Thacker at NVESD, DSN 654-1328 (703-704-1328), cthacker@nvl.army.mil.

Lower that visor!

Researchers at the U.S. Army Aeromedical Research Laboratory (USAARL) surveyed aviators at Fort Hood, Fort Campbell, Fort Bragg, and Fort Rucker to determine the effectiveness of helmet visors. Here's what they found.

■ **Are we using our visors?** Survey responses revealed that 71 percent of all aviators questioned wore their visors during day flights. More than 75 percent of those responding did not wear their visor during night flights, mostly due to the use of ANVIS.

■ **How are we using visors?** Aviators appear to use visors much more frequently during the day, with tinted visors being preferred over clear. Dual visor assemblies are preferred over single.

■ **Are visors worth the hassle?** Yes. It is true that there are some gripes about visors. Nearly three-fourths of those questioned reported some type of mechanical problem with their visors. Sticking in the tracks (49%), difficulty locking and unlocking (29%), and coming off the track (22%) were the most commonly reported visor problems. Problems affecting visor deployment were reported by 43 percent, with inadvertent retraction (particularly with IHADSS) being the most common. In spite of all this, 85 percent of all aviators questioned reported that, when problems occurred, visor repair was easily accomplished and replacement parts were readily accessible.

When visors are used, they make a critical difference. A study of 1990-96 accident data collected from the ALSE Retrieval Program at USAARL revealed that the majority of accident victims (71%) experienced some degree of head, neck, or facial injury. Only 14 percent of the individuals studied were wearing their visors down at the time of the mishap. (Some visor-position data were unknown due to postcrash fires and other traumatic events.) For those whose visor position was known, it was of interest to note that the *frequency* of head, neck, and facial injuries experienced by both groups (visor up and visor down) was identical; however, they varied drastically in *severity*. Frequently, those who wore their visors down sustained minor injuries caused by the visor (often due to the visor edge impacting the cheek), but this group experienced fewer fatalities. In similar data collected from the Army Safety Center for the same period, the use of visors was credited with preventing or reducing injury severity in approximately 25 percent of the accidents in which visor position could be verified.

Due to advances in aircraft design, crashes are becoming more survivable. Aviation life support equipment also plays a key role. Unfortunately, the best equipment, even equipment with a proven record for reducing injuries, is effective only if it's used.

Where is your visor?

POC: Mr. Ed Rash, Research Physicist, USAARL, Fort Rucker, AL, DSN 558-6814 (334-255-6814), rash@rucker-emh2.army.mil

Cleaning your visor

Everyone's visor gets dirty. What should you do about it? According to the manufacturer's recommendation, visors are best cleaned with soapy water and a soft cloth. No special cleaning products. No paper towels. Nothing fancy.

Improper cleaning can contribute to scratches, and dirt in the tracks can keep the visor from coming down smoothly. Dirt may even cause the visor to come off its tracks. If your visor becomes badly scratched or will not deploy, see your ALSE technician.

And remember. Visors work only when they're worn!

Battery shelf-life management: A word to the wise

It's come to our attention lately that the shelf life of batteries doesn't get much respect. The result is that many units' readiness may be dependent on batteries whose shelf life has expired. Many of these won't last as long as expected, and some won't work at all. Some of them shouldn't even be used. It's time to fix the problem by screening your batteries for remaining shelf life. Determine the condition of expired batteries, and get rid of those you can't count on for your mission.

The first thing to do is to check your stock of batteries for expiration. If they're within their expected shelf life, you're okay. If they're not, check to see if the battery is coded with an extendible shelf-life code (Type II, noted by a numeric code) or a nonextendible code (Type I, noted by an alpha code). All expired Type I's must be disposed of. Period. No exceptions. Type II's are extendible, but they must be evaluated first. For lithium batteries, check out the shelf-life-extension data base through CECOM's LRC Home Page (http://www.monmouth.army.mil/cecom/lrc/index.html) or go straight to it (http://134.80.11.9/web/batterysl.nsf). At these sites, you can check out extension information by battery type, contract, and date code. If an extension is posted, you can use it. If it failed testing, it's out; process it for disposal. If you don't find the date code you're looking for, you still have two options: test them yourself or pay CECOM to test them for you.

U.S. Army Supply Bulletin SB 11-6 has the information you need to perform a shelf-life evaluation on your own. In addition, you can check out CECOM's Power Sources Home Page for the latest about new test sets (http://www.monmouth.army.mil/cecom/lrc/lrchq/power.html).

Still don't know if your batteries can be extended? One last option: Get CECOM to test them for you. You'll need to let us know what batteries you have, how many you have, and how old they are. We'll figure out how many samples are needed. There's a minimum fee of $390 for the testing; it could be more, depending both on how many lots and how many samples need to be tested. Extensions granted as a result of testing are for either 1 or 2 years, depending on how well the batteries perform.

Keep in mind that there's always a chance that the samples may not meet extension criteria. If that proves to be the case, how do you get rid of them? Refer to U.S. Army Technical Bulletin TB 43-0134, ask your local environmental office, or visit http://www.monmouth.army.mil/cecom/safety/spub/tb430134.htm.

How can you avoid the headache of expired batteries in the future? Rotate your stock. Issue them according to their expiration dates, with batteries with the soonest inspection date getting used first. It's also important to do the same with War Reserve or Contingency stock. If you don't use them, they will eventually expire, and you'll be stuck with disposing of them, costing your unit money.

Rotating your stock is something you can do all the time without extra effort, unlike the work required to determine if expired batteries can still be used. If you don't rotate your stock, it will cost you both time and money to evaluate your expired batteries.

Remember, "first in, first out."

—Mr. Patrick Lyman, CECOM LRC Power Sources Team, DSN 992-2270 (732-532-2270), lyman@doim6.monmouth.army.mil

Protective clothing for rearm and refuel personnel

What cold-weather thermal-protective clothing is authorized for rearm/refuel personnel?

Let's look at what's available. There's a nomex/gortex version of the Army's Extended Cold Weather Clothing System (ECWCS) parka and trousers, but it's expensive at $1200 to $1500 for each piece, depending on size. Unit commanders with a mission requirement—and the money—for the nomex/gortex clothing items must first obtain authorization to purchase and use it. Such authorization must come from Fort Rucker's Directorate of Combat Developments (POC: Mr. Bernie Roberson, DSN 558-9130, 334-255-9130).

For units that can't afford—or don't need—these expensive clothing items, Mr. Al Dassonville, PM-Soldier, reminds us that the Aircrew Cold Weather Clothing System (ACWCS) is currently being fielded to FP1&2 units. PM-Soldier expects the ACWCS to be available for requisition in FY00. The ACWCS consists of combat vehicle crewman balaclava (NSN 8415-01-111-1159), jacket (NSN 8415-01-394-3513s) with liner (NSN 8415-01-394-3816s) and hood (NSN 8415-01-394-5401); nomex liner (NSN 8415-01-448-4250s); overalls (NSN 8415-01-111-5020s); and mounted crewman intermediate cold weather gloves (NSN 8415-01-446-9247s). (NOTE: The "s" following the NSN indicates a separate NSN for each size.) The ABDU, a component of the ACWCS, already has been fielded.

Another option is identified in FM 1-111: *Aviation Brigades*. Annex J, FARP Operations, identifies rearm/refuel clothes as flight suit or battle dress uniform, helmet, gloves, goggles, and leather boots. This reference and FM 10-67-1: *Concepts and Equipment of Petroleum Operations* identify some of the hazards and recommended controls. This is likely the best option for most in the near future.

Static electricity as an ignition source remains a serious hazard with most clothing items. Personnel involved in rearm/refuel operations must develop and use controls to minimize fire hazards.

TRADOC recently approved a change to the Common Table of Allowances (CTA) 50-900 authorizing ABDUs for MOS 77F10, Petroleum Supply Specialist, "when authorized by the commanding officer." The flyers coverall (LIN F32055) or combat vehicle crewman's coverall (LIN C31189) was approved as alternative items for the ABDU.

Having said all this, the original question remains: Is there cold-weather thermal-protective clothing authorized for rearm/refuel personnel? The answer is, "Maybe." The nomex/gortex clothing items discussed earlier is one option, but it's expensive. Nomex underwear is another option (undershirt, NSN 8415-00-485-6547s, and drawers, NSN 9415-00-467-4075s). A third option is 100-percent-cotton underwear, which was approved for aviation use several years ago (CW drawers, NSN 8415-00-782-3226s, and CW undershirt, NSN 8415-00-270-2012s).

—CW5 Daniel W. Medina, ALSE Officer, USASC, DSN 558-9847 (334-255-9847), medinad@safety-emh1.army.mil

Words of wisdom from old aviators OR Lessons learned the hard way

"Fly it until the last piece stops moving."

"The only time you have too much fuel is when you're on fire."

"Scan, scan, scan; there's always something you missed."

"It's best to keep the pointed end going forward."

"Takeoffs are optional; landings are mandatory."

"Learn from the mistakes of others; you won't live long enough to make them all yourself."

What you've forgotten about aerodynamics can kill you

We rotary-wing aviators often take aerodynamics too lightly. Our fixed-wing counterparts tend to be sensitive to the laws of aerodynamics because their aircraft are more restricted by aerodynamics than are helicopters. Most of the Army's modernized rotary-wing aircraft have much higher structural and aerodynamic loading limits than legacy fleets such as the UH-1 Huey. However, several UH-60 Black Hawk accidents in the past few years resulted from aviators not fully understanding the relationship between aerodynamics and power-performance limitations. A complete and thorough understanding of aerodynamics and power management might have prevented these accidents.

Let's review basic aerodynamics.

Tilting the rotor system in the direction of the turn creates a coordinated turn (no descent). In a coordinated turn, horizontal thrust is the turning force, and vertical thrust is equal to opposite weight. Therefore, steeper bank angles produce greater horizontal force but require more power to maintain a constant altitude.

A direct correlation exists between angle of bank for turns and power required. Today's dual-engine helicopters can give aircrews a false sense of "power to spare." As aviators, we must understand how changes in angle of bank can affect power requirements. For example, entering an excessive bank angle at low altitude can have catastrophic results unless sufficient power is available to maintain that altitude.

In a coordinated level turn, an increase in collective pitch increases both the angle of attack and horizontal and vertical forces, requiring additional power to maintain altitude. Placing an aircraft in a level turn does not by itself change the amount of lift. The division of lift into horizontal and vertical components reduces the amount of lift supporting the weight of the aircraft. Therefore, altitude will be lost when horizontal force is increased unless lift is increased by increasing collective pitch.

During pre-mission performance planning, determine your angle-of-bank limitations at cruise flight based on power available. Sufficient power to sustain a steep turn may not be available at very low or very high airspeeds. For example, a 60-degree bank angle creates 2 G's of acceleration (doubling the load factor) and will require a 100-percent increase in power to maintain altitude.

The following chart below illustrates the correlation between angle of bank and increases in power required to maintain altitude.

Bank angle	Increase in power
0°	0.0%
15°	3.6%
30°	15.4%
45°	41.4%
60°	100.0%

Next time you are in the flight simulator, at 1000 feet agl make a coordinated turn with a bank angle of 45 degrees for a total 360-degree turn. Be sure to maintain selected airspeed, and note the increase in power required to maintain altitude. Then have the I/O increase your gross weight to a heavy mission load, descend to 200 feet agl, increase airspeed to normal cruise airspeed, and establish a bank angle of 60 degrees. Unless immediate corrective action is taken, a crash is imminent.

During terrain flight, a steep turn that results in a sudden loss of altitude can be catastrophic. Remember your aerodynamics, and don't let it happen to you.

—MAJ Edward McKee, Aviation Safety Officer, National Guard Bureau, DSN 327-7735 (703-607-7735), mckeee@ngb-arng.ngb.army.mil

Army Safety Center Aviation POCs DSN 558-xxxx (334-255-xxxx)

Accident investigation
LTC Herb Burgess 9552

ARNG liaison
LTC Tom Shea 1186

Attack helicopters
MAJ Mark Robinson 1253
CW5 Mike Moorehead 3712
CW5 Mike McGee 3754

Aviation life-support equipment
SFC Mac McDonald 3650

Cargo helicopters
MAJ Don Presgraves 9858
CW4 Keith Freitag 3262
MSG Ruben Burgos 3703

Digital source collector
Mr. Gary Rasponi 2194

Director of Operations
COL Carl Merkt 2461

Engineering
Mr. Gary Rasponi 2194

Flightfax
Ms. Sally Yohn 2676

Fixed wing aircraft & UAVs
MAJ Don Presgraves 9858
CW4 Wes Hedman 9855

Ground systems
LTC Pete Simmons 2926

Human factors
Mr. Glen Davis 2990

Legal
MAJ Cindy Gleisberg (CJA) . . 2924
Ms. Vicki Hendrix (FOIA) 2373

Media and marketing
Mr. John Hooks 3014

Medical
COL Ed Murdock 2763

Night vision devices
CW5 Bill Altman 2785

Observation helicopters
MAJ Joe Blackburn 9852
CW5 Bill Altman 2785
SFC Mac McDonald 3650

Operations
CW3 Stew Milligan 2539

Publications distribution
Ms. Sharrel Forehand 2062

Research and analysis
Ms. Charisse Lyle 2091

Special ops
CW4 Keith Freitag 3262

Statistics
Mr. Bud Gill 2970

Training
CW4 Butch Wooten 2376
CW4 Paul Mahoney 9579
CW4 Gary Braman 9197

Utility helicopters
MAJ Harry Trumbull 9854
CPT Stace Garrett 9853
CW5 Rick Thorpe 9847
SFC Pat Stoker 9857

USAR liaison
MAJ Mark Smith 9864

Web site
Mr. Jason Harlow 2101
http://safety.army.mil

Shortfax
Keeping you up to date

New fuel-card procedures

Phase two of the Aviation Into-plane Reimbursement (AIR) Card Program began on 1 October. Government aircrews will now present their AIR Cards at DESC Into-plane contract locations in lieu of the blue and white Identaplates formerly used to process payment. The AIR Card also can be used to purchase authorized ground services as well as fuel, eliminating the need for aircrews to use manual Standard Form 44. Information on Into-plane locations is available on the web at www.avcard.com or www.desc.dla.mil. Identaplates are being phased out from use at commercial airports worldwide; however, they must be retained for use at military installations. In addition, units using WEX/Multi-Service cards under the GSA bridge contract are reminded that those cards expire in November.

—Mr. Philip Richards, U.S. Army Petroleum Center, DSN 977-7040 (717-770-7040), aircard@usapc-emh1.army.mil

Clarification of reporting requirements

Current reporting requirements for block 47 of DA Form 285: *U.S. Army Accident Report* imply that an incorrectly performed activity or task leading to an accident (block 46) can have one, and only one, root cause. This implication does not reflect the intent of the requirement or the reality of accident causation.

Effective immediately, block 47 may contain up to three of the most important root causes of the incorrectly performed activities or tasks identified in block 46. However, if more than one root cause is identified, the causes must be numbered in order of importance.

—Mr. John Crossette, Policy Branch, USASC, DSN 558-2643 (334-255-2643), crossetj@safety-emh1.army.mil

Accident briefs

Information based on *preliminary* reports of aircraft accidents

AH1

Class E

F series

■ During main rotor track and balance, main rotor pitch change links were adjusted 2 inches longer than nominal settings, causing main blades to have a negative pitch angle of incidence. When aircraft was subsequently run up to 100-percent rpm with negative pitch, "TT" straps were damaged. Aircraft was shut down without incident, and "TT" straps were replaced.

E series

■ All gauges became erratic during flight, and crew heard a loud tone, and saw battery acid in the cockpit. Aircraft was landed and shut down. Battery, which had overheated, was replaced.

AH64

Class C

A series

■ Postflight inspection after numerous landings to improved and unimproved areas revealed bent transponder antenna mount and damage to three tail-rotor blades.

Class D

A series

■ Crew heard noise and felt bump in pedals during climbout, and left pedal stuck. After verifying that nothing was jamming pedals in cockpit, pilot applied additional pressure, and SPAD sheared. BUCs came on, pedal control returned, and crew made roll-on landing at airport. Postflight revealed that left-side transmission panel had come loose and jammed antitorque control tube.

Class E

A series

■ Aircrew smelled burning odor, and smoke entered cockpit during low-level flight. PC felt vibration in transmission area, and made immediate precautionary landing followed by emergency shutdown. Maintenance inspection revealed that No. 2 generator internal bearing failed, causing excessive friction and heat. Generator was replaced.

■ After completing live fire, aircraft was landed at FARP and shut down. Postflight inspection revealed damage to trailing edge of one tail-rotor blade. Suspect damage came from back-blast and propellant debris while firing 2.75mm FFAR. Tail-rotor blade was replaced.

■ PI was attempting to stabilize at 400-foot OGE hover. Aircraft was at 6 knots ground speed and 350 feet agl when No. 1 engine-out light illuminated and engine-out audio sounded. IP took controls and established single-engine speed of 32 knots after checking engine. Caused by failure of No. 1 engine alternator.

■ Preparing to ground taxi, crew received radio report that smoke was emanating from catwalk area. Caused by transmission leak.

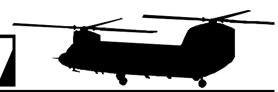
■ Aircraft was in level flight when PI heard thumping noise that soon ceased. Postflight inspection found that skin on upper surface of No. 1 main-rotor blade had debonded and was peeling. QDR was submitted.

Class F

A series

■ During engine runup for maintenance test flight, MP noticed that No. 1 engine tgt was higher than normal for the day's conditions. When he advanced power lever to fly, tgt climbed to 888° at 94 percent Np. Engine was shut down. Inspection revealed dime-sized hole on metallic scroll of inlet particle separator. Engine borescope revealed damage to internal components, and upon disassembly, main-rotor retention cover bolt was found in IPS blower.

CH47



Class C

D series

■ Aircraft with dual-point tandem load was at a hover. When it settled, soldier positioned on the load was pinned between aircraft belly and load. He suffered no significant injuries but was placed on 30 days' convalescent leave for bruising.

Class E

D series

■ During final approach for roll-on landing, cyclic gave feedback then froze and released intermittently. Cause not reported.

■ During external load operations, center cargo hook opened as load began to apply weight to hook. Hook would not properly reset after opening. Maintenance replaced cargo hook, and aircraft returned to service.

■ No. 1 engine chip detector and master caution lights came on during final approach for landing. Pilot completed landing and shutdown without incident. No. 1 engine was found to be defective and was replaced.

■ Aircraft experienced severe vertical vibrations in cruise flight. Caused by failure of dual feedback transducer.

OH6

Class C

C series

■ Engine failed in flight. PC initiated autorotation upon activation of audio and warning light, landing in a downwind condition. Aircraft landed hard, severing tail boom and damaging landing gear.

OH58

Class B

D(I) series

■ Aircraft landed hard during simulated engine failure from hover. Aircraft rocked forward, striking lower WSPS, then rearward, striking tail rotor and damaging tail-rotor drive shaft.

Class C

C series

■ During engine start, turbine operating temperature reached 1000°C for 1 second. Engine replacement required.

Class E

C series

■ During touchdown phase of standard autorotation at stagefield, aircraft tail stinger struck ground and aircraft landed hard on skids. During slide to full stop, crew heard loud popping sound. Postflight inspection revealed broken aft crosstube.

UH1

Class E

H series

■ Front crosstube broke on both sides during antitorque run-on landing. Crosstube was replaced.

V series

■ Engine failed when throttle was rolled to idle detent. Engine would not restart. Suspect failure of fuel control in main metering section. Fuel control was replaced.

■ Pilot heard pop when aircraft touched down during NVG blowing-snow landing. Postflight inspection revealed that lower WSPS was sheared. Maintenance determined that skid spread was ½-inch out of tolerance as the result of a bent forward crosstube.

UH60

Class C

L series

■ Cargo strap securing ammo boxes on armament pad separated while aircraft was still on ground with rotor rpm at 100 percent. Strap was subsequently caught in rotor wash, damaging three main-rotor blades. One blade required replacement.

Class D

A series

■ Main-rotor blades hit tree during takeoff from confined area. All four tip caps required replacement.

Class E

A series

■ Just before takeoff, sparks shot out from left-side windshield. Crew shut down aircraft and exited. Windshield internal copper wire shorted out, causing system to short and windscreen to crack. Windshield was replaced, and QDR was submitted.

■ Postflight inspection revealed damage to left fuel door and Fiberglas cover on fuselage below door. Suspect fuel door came open during flight and slipstream caused door to slap excessively. Maintenance replaced door and repaired damage to fuselage skin.

■ While conducting sling-load training under NVGs at 12-foot hover, aircraft contacted load, puncturing underside of aircraft. Damage was limited to a 5x7-inch hole in outer skin.

■ During hover check at 10 feet prior to departure, aircraft experienced uncommanded yaw input. Caused by failure of SAS actuator.

■ Aircraft was in cruise flight at 120 KIAS when hawk impacted No. 1 engine cowling. Crew made precautionary landing and found bird lodged in particle separator swirl vanes.

■ Upon landing after training flight, crew chief noticed upper anti-collision light missing all but white bulb and base. Cause not reported.

■ During roll-on landing, brakes were not released. Aircraft skidded on runway for about 20 feet before returning to hover. Aircraft taxied to parking and shut down without further incident.

■ Aircraft at 100 feet msl and 140 knots encountered flock of birds. Pilot initiated climb to avoid flock, but one bird struck right-hand window panel chin bubble, cracking it.

■ No. 1 engine chip light flickered then went out during runup. As aircraft was preparing to depart, chip light flickered again, and pilot returned to parking. Subsequent oil analysis and inspection of chip detector revealed high magnetic content. Engine was replaced.

C12

Class C

F series

■ Aircraft propeller and main landing gear struck deer during takeoff roll. Aircraft engine will require sudden-stoppage inspection.

N series

■ Damage to both engines was found during postflight inspection. Suspect lightning strike.

Class E

R series

■ When power was applied for takeoff, No. 2 engine did not produce power. Torque indicated 20 percent, and N1 was around 60 percent. During taxi back to ramp, prop rpm slipped back to about 300 to 400 rpm. Caused by fuel control failure.

F series

■ Crew found evidence of lightning strike during postflight. Further inspection by maintenance revealed damage to No. 1 prop, left outboard flap, and right elevator tip.

■ During engine start, pilot saw fire developing in engine exhaust stack and in burner can. He place condition lever in fuel cutoff, closed firewall shutoff valves, and continued to motor starter. Fire continued, seeming to receive fuel even after all fuel had been shut off. In an effort to save the engine, pilot continued to motor starter until battery ran down. Cause not reported.

C23

Class E

B series

■ Anti-skid system on left main gear failed on rollout after landing, causing left brake to lock up. Left main tire was damaged.

■ During control checks prior to takeoff, rudder pedals were extremely stiff and hard to move, and binding was felt throughout full range of movement from pilot and copilot station. Flight was terminated. Suspect failure of locking mechanism.

C26

Class E

B series

■ Left engine started to make squealing sound as aircraft was being vectored for approach at 4000 feet and 180 knots in light to moderate icing with all anti-ice systems on. Engine gauges appeared normal, and aircraft landed with no further problems. Postflight revealed bent No. 1 compressor blade to left engine. Suspect FOD induced.

O5

Class B

DHC-7

■ Manhole cover gave way under weight of right landing gear as aircraft was being towed by maintenance personnel. Sustaining damage were right and left landing gears, nose gear, right aileron, and various antennas and sensors.

For more information on selected accident briefs, call DSN 558-2785 (334-255-2785). Note: Information published in this section is based on *preliminary* mishap reports submitted by units and is subject to change.

Aviation messages

Recap of selected aviation safety messages

Aviation safety-action messages

AH-64-98-ASAM-07, 171521Z Sep 98, operational

The Apache operators manual warns of turning off the hover augmentation system (HAS) in the description of attitude/hover hold, but it is not addressed in any of the before-landing check sections. If the HAS is activated on the ground, uncommanded aircraft attitude changes may occur. The purpose of this message is to outline and direct insertion of redline changes into AH-64A/D operators manuals, checklists, and maintenance test flight manuals.

AMCOM contact: Mr. Howard Chilton, DSN 897-2068 (256-313-2068), chilton-hl@redstone.army.mil

CH-47-98-ASAM-05, 171543Z Sep 98, maintenance mandatory

The purpose of this message is to rescind practice roll-on landing restrictions imposed by CH-47-98-ASAM-02. It has been determined that the likelihood of a rotor-blade/fuselage strike is improbable if a landing gear drag link failure occurs during a roll-on landing.

AMCOM contact: Mr. Teng Ooi, DSN 897-2094 (256-313-2094), ooi-tk@redstone.army.mil

UH-60-98-ASAM-07, 151518Z Sep 98, maintenance mandatory

The purpose of this message is to remove from service all left tie rods, P/N 70400-08115-043, NSN 1560-01-083-2954, manufactured by Argencord. A visual inspection is required.

AMCOM contact: Mr. Ed Goad, DSN 897-2095 (256-313-2095), goad-er@redstone.army.mil

Safety-of-flight messages

OH-58-98-SOF-01, 251912Z Sep 98, technical

Due to cracking of the OH-58D tail boom in the area of the gearbox support assembly attachment, safety-of-flight message OH-58-96-01 required a fluorescent-penetrant inspection every 10 hours after installation of vibration-reducing hardware. The purpose of this message is to supersede that requirement and increase the inspection interval to 10-hour visual and 40-hour fluorescent-penetrant inspection.

AMCOM contact: Mr. Ron Price, DSN 788-8636 (256-842-8636), price-sf@redstone.army.mil

OH-58-99-SOF-01, 071257Z Oct 98, technical

See OH-58-98-SOF-01 above. This message supersedes OH-58-95-SOF-02 and OH-58-96-SOF-01 and adds four part numbers to paragraph 6 of OH-58-98-SOF-01.

AMCOM contact: Mr. Ron Price, DSN 788-8636 (256-842-8636), price-sf@redstone.army.mil

UH-1-98-SOF-08, 171531Z Sep 98, technical

This message establishes a 60-day limitation for compliance with the correction procedures of UH-1-96-SOF-03. It also extends recurring AVA inspection intervals.

AMCOM contact: Mr. Robert Brock, DSN 788-8632 (256-842-8632), brock-rd@redstone.army.mil

POV fatalities: FY98 vs. FY97

Speed • Fatigue • No seatbelt

No new causes, just new victims

FY98	FY97
117	93

IN THIS ISSUE

Class A Accidents

FY97 vs. FY98

		Class A Flight Accidents		Army Military Fatalities	
		97	98	97	98
1ST QTR	October	0	2	0	0
	November	0	1	0	0
	December	1	2	0	2
2D QTR	January	2	1	2	0
	February	0	1	0	0
	March	2	1	1	0
3D QTR	April	2	0	2	0
	May	1	1	1	0
	June	3	2	0	4
4TH QTR	July	1	1	8	0
	August	0	0	0	0
	September	0	0	0	0
	TOTAL	12	12	14	6

U.S. ARMY SAFETY CENTER

Flightfax is published by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident-prevention purposes only and is specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. Address questions about content to DSN 558-2676 (334-255-2676). Address questions about distribution to DSN 558-2062 (334-255-2062). To submit information for publication, use fax 334-255-9528 (Ms. Sally Yohn) or e-mail flightfax@safety-emh1.army.mil Visit our website at http://safety.army.mil

Charles M. Burke
Brigadier General, USA
Commanding