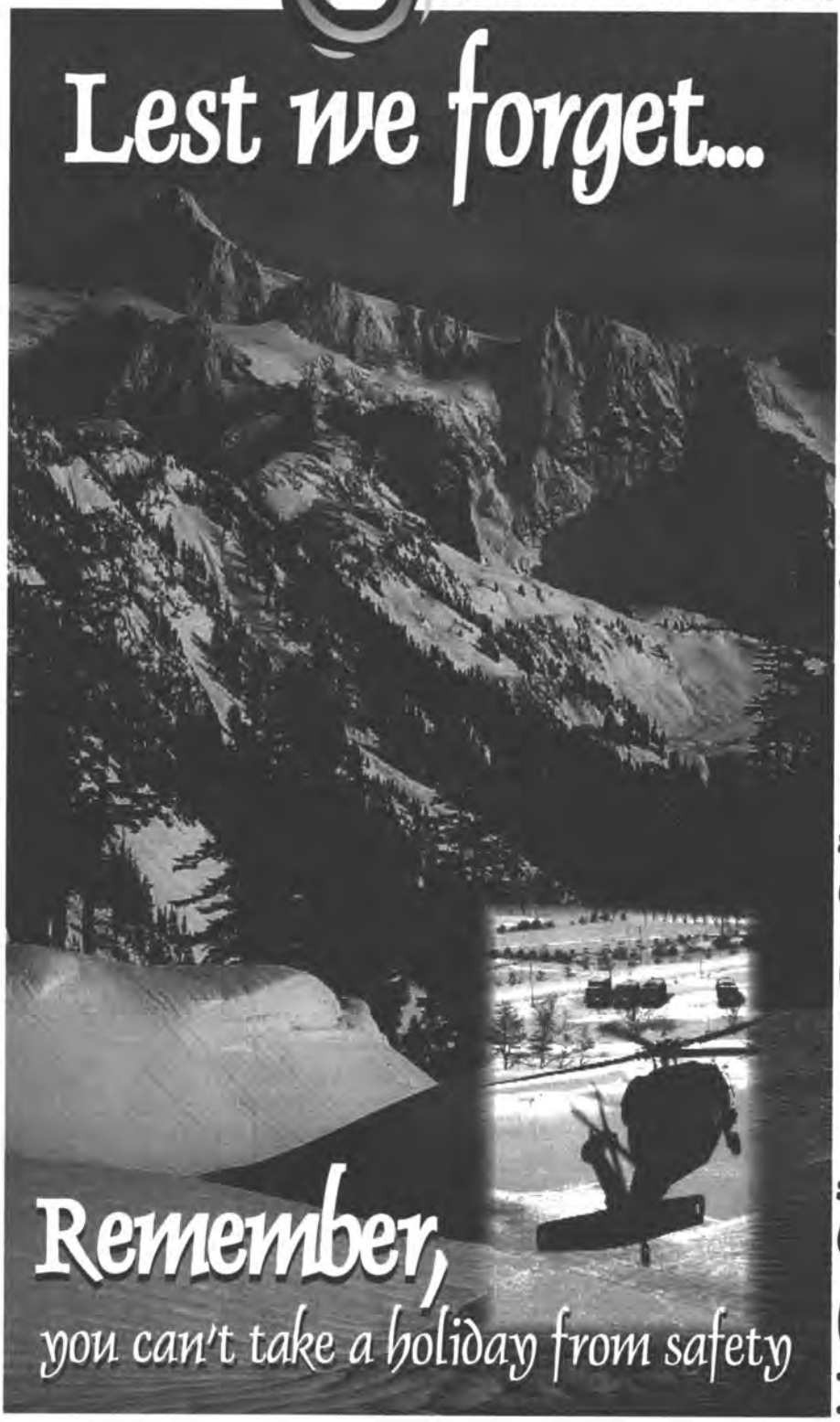
Property of U.S. Army Aviation Technical Library
Fort Rucker, AL 36362-5163

FlightFax
REPORT of ARMY AIRCRAFT ACCIDENTS
November 1994 ◆ Vol 23 ◆ No 2



Soldiers die in accidents both on and off duty that could and should have been prevented. Unfortunately, there are no instant replays when dealing in ultimate reality—life and death. The only way to prevent tragic accidents is to learn to manage all risks as we encounter them daily.

The winter season is already upon us, bringing with it cold-weather hazards that soldiers haven't confronted in months. Soon the holiday season will be upon us, too, bringing with it a special group of hazards that require extra caution—alcohol, fatigue from partying a little too hard, and stress from hurrying to wrap up last-minute details before heading home to family, friends, and others.

As we approach the traditional jolly season of the year, let's ensure it remains jolly. Don't accept any unnecessary risks: don't speed; don't drink and drive; leave a day later if you have to. The happy spirit of the season can quickly change to one of sadness when carelessness leads to an accident. If you become lax and lose sight of your safety focus, the price could be much higher than you are willing to pay.

Sometimes just being human gets in the way and it becomes easy to give in to temptation, especially when others are doing so. Let's be careful out there as we enjoy the holiday festivities. Remember, you can't take a "holiday" from safety. □

Three pieces of the safety puzzle

As I reflect over 25 years of aviation experience, I want to share some of my thoughts and lessons learned on aviation safety with my fellow aviation commanders.

Until I became a brigade commander, I had never had to fix a broken safety program. I guess it was luck that I was always assigned to units that had an extremely high level of safety consciousness, so I only had to emphasize steady-state safety maintenance. When I assumed brigade command, I encountered an entirely different situation.

I thought that if I shared my safety philosophy with all of the officers and NCOs, they would embrace it as their own, and I could reverse the brigade's devastating accident trend of the previous couple of years. Wrong! Unfortunately, it took several mishaps, one by each of my four battalions/squadrons, culminating in a Class A before I woke up and decided that a more aggressive approach was necessary.

In the development of my new attack on preventable accidents, I recognized that there are three necessary parts to a world-class safety program. While some will argue that there are more than three, and perhaps there are, if any of the three prime factors are absent, your program will fail. I therefore am of the firm opinion that there are three major pieces to the safety puzzle: command involvement, organizational responsibility, and constant focus.

Command involvement

Command involvement is the easiest piece to set in place. When you are in charge, you dictate what will be done and how. I urge you to start early. As part of the Aviation Pre-Command Course at Fort Rucker, the Army Safety Center presents to incoming battalion and brigade commanders a synopsis of recent mishaps. A word to the wise: pay attention to that briefing, analyze it, and develop a safety action plan based on what you learn. Implement your plan from the day you take command. Don't accept what you find and think that you can fix it over time. Strike fast and hard! I didn't, and this is where I made my first mistake.

As soon as you take command, I suggest you gather all of your officers and NCOs and share with them your safety philosophy. Make sure they hear the words from your mouth. Don't write it and send it through distribution; I guarantee they won't get the message or the full impact of the message that way. Make sure your message includes the fact that "dumb" unsafe actions will result in strong punishment. If they do happen, make your words good by putting teeth in them.

Execute a full-court press on little things. Seatbelts, ground guides, proper tiedown and mooring procedures, tagging of parts, and disposition of hazardous waste are just a few of the things that come to mind. Attack with vengeance! Rip some lips if necessary, especially officers and NCOs because they are the ones who will be responsible for supervising your soldiers. Trust me when I say that the word will get out quickly. The message you want them to get is that "the old man is serious about this safety business."

Another technique I would recommend is one I inherited from one of my former brigade commanders: have your company commanders conduct mandatory Friday afternoon safety briefings. The last act of the normal work week should be the company commander talking for a few minutes to *all* of his or her people on a topical safety issue or two: drinking and driving, water safety, winter driving, slips and falls, to mention only a few. The key point is that the last thing soldiers should hear before the weekend is their leader talking safety.

My final recommendation is that you close every meeting you conduct with a personal challenge to every soldier to be safe. There are a myriad of other things you can do. What you choose to do is not as important as the fact that you do something positive. Your goal is to increase safety awareness, and personal command involvement is the only way you will be able to reach your objective.

Organizational responsibility

This is a concept that is difficult to name or describe and even more difficult to ingrain in your soldiers. The words may be misleading, so let me explain what I'm talking about.

There are some units in the Army that just don't have accidents. One that comes to mind is the former 501st AB(C), which later became the 4th Brigade, 1st Armored Division, and now is known as the Combat Aviation Brigade, 3d Infantry Division. It's the soldiers in Katterbach, Germany, to whom I'm referring.

The soldiers in this unit have had a great aviation safety record for years even though they have been through four brigade commanders, numerous battalion commanders, and hundreds of company commanders. What is it they are doing that is different? Why is their safety record better than the safety records of other units? Having been a member of this great unit on two previous

occasions and having carefully analyzed them, I think I've discovered the answer.

This organization has accepted responsibility for its safety program, and every member of the organization has "pride of ownership" in their safety records. It is not the commander's program; it is not the safety officer's program. It belongs to the organization! "Don't do anything to screw up our safety record" is the attitude that prevails. All members of the unit are safety officers. They have developed a sixth sense of safety, and they have the moral courage to make an on-the-spot correction before it becomes an accident.

I wish I had an exact recipe for "organizational responsibility" or a formula to solve the equation and find the elusive elements of organizational responsibility. Unfortunately, I don't. It's just not that easy. It is the most difficult piece of the puzzle to get in place.

Constant focus

During your tour as a commander, you'll find that sometimes you will have to fix the same problem two or three times. You'll sit in a meeting and find yourself commenting to the group that you have fixed that particular problem once before or at least you thought you had. It will then dawn on you that you are the only remaining member of the group that fixed the problem the first time. The message you should get is that we never "fix" safety permanently. At best, we only fix safety temporarily—unless there is constant focus by all members of the organization.

Borrowing from the Chief of Staff of the Army, General Gordon R. Sullivan, safety ". . . is a journey, not a destination." We never get to the objective. We never get it "fixed." If you take your eye and focus off of safety, thinking that you have solved the problem, it will kick you in the seat of your pants.

Safety is not paragraph 6 of an operations order nor is it one of the battlefield operating systems. Rather safety is a part of every paragraph of the operations order and included in every battlefield operating system. It is not one of the glass balls that commanders juggle, it is the umbrella over the commander who is doing the juggling. It must pervade our thinking! It must be part of every task we perform every day, both on and off duty. It is not a part-time thing; it is an all-the-time thing.

Summary

So there you have the three pieces of the safety puzzle. How do the pieces all fit together? The answer is synergy—combined action or operation. The action of the three pieces combined achieves an effect which each piece individually is incapable of achieving. That is why I say your safety program must have all three pieces.

Start with command involvement. Don't give your safety program lip service; work it hard, and it will lead to increased safety awareness in your unit. Individuals will begin to accept responsibility for their actions. Safety will grow if it is nurtured; if it isn't, accidents will be waiting to happen--and they won't wait long. Keep the emphasis on safety, never let up. It will take your entire command tour, but that is okay. What is not okay is waiting for tomorrow to start. Make it happen . . . today! □

—Written by COL Gregory T. Johnson in collaboration with CW4 Wayne Walker. COL Johnson was commander of the 11th Aviation Brigade in Illesheim, Germany, and CW4 Walker was the brigade safety officer at the time they wrote this article. COL Johnson is now Director of the Center for Army Leadership at Fort Leavenworth and CW4 Walker is currently the battalion safety officer for the 1-502 Aviation Regiment at Fort Hood.

Show me where it says I can't

Sound like anybody you know? Somebody in your unit? Maybe even you?

We've all known people like this. They may be smart, but they're always looking for a way out, a way to justify what they want and intend to do. The way they look at it is they know as much as the people who write regs, maybe more, so why not look for another way to do things—a way that's more in line with what they want to do. These people may see themselves as a real asset to their unit and the unit mission, but they're something of a maverick when it comes to doing things by the book. When there's somebody like this in a unit, the command may have to pull in the reins and redirect their attention.

Maybe there's a person like this in your unit, and you haven't quite made up your mind about his cumulative value. True, he occasionally comes up with a real pearl, but it takes a lot of dangerous dives and a lot of handfuls of mud before he brings up that pearl. This person may be the aviator who "shops for weather" and has squeaked through too many times. He may be someone who is always looking for a way to get over on the system or to get away with something. Worse, he may be an informal leader—the one that others might choose to emulate.

Perhaps this person fits neither example completely. Most all of us have a little of this kind of person in us. Whether such a person appears positive or negative to you may depend on how much like you they are.

We in aviation may find ourselves cringing when someone we know "shops for weather," but do we feel the same way about someone who "shops for an out" in Army regulations? If we don't, we should. To give you an example of what I mean, take a look at page 5 of AR 95-1: Army Aviation: General Provisions and Flight Regulations.

Paragraph 3-11a says, "The following U.S. Army approved clothing and equipment will be worn by all crewmembers when performing crew duties: (1) Leather boots . . . ." That is straightforward language. It says what those of us who participated in the writing of this regulation meant for it to say. First, any equipment listed must be **Army approved**. Second, the equipment **will** be worn by all crewmembers. The operative word here is **will**; it makes the strongest statement possible. We could have used the word may, but that wasn't what we meant—we meant will. When will people wear this equipment? When **performing crew duties**.

Now that we have established that the equipment must be Army approved and will be worn by all crewmembers while performing crew duties, the next thing is to specify what equipment we're talking about. The first item listed is **leather boots**. We did not include Nike Air ™ or Nylon boots, we deliberately specified **leather boots**. Why? Because experience gained from both fixed and rotary wing accidents tells us that leather boots provide optimum protection for crewmembers.

Now let me show you how you can "shop the regs" and diminish your protection. I say you, because personally I don't want to diminish my protection. Go to AR 670-1, page 34, chapter 11 Flight Uniforms, paragraph 11-2c "Accessories. The following accessories are normally worn with the flight uniforms: (1) Boots, combat leather, black (paragraph 26-4)." Now selectively read and jump to subparagraph d "Optional boots . . . Optional boots, to include jungle boots, are authorized for wear in lieu of the standard black combat boot."

Great! You've found what you wanted. Forget the intent of AR 95-1 and forget that it is the more specific regulation concerning aviators and controls this situation. Forget common sense. Don't read the whole section, you've found the "out" you were looking for. So what's the big deal? The big deal is you found what you wanted, but you may not like what you get if you use this "out" and are involved in an accident.

A recent accident cost a highly qualified Army aviator a great deal of pain and suffering and deprived the Army of his services for an extended period, if not permanently. Fire was involved, and the aviator was wearing "Hi Tec" nylon boots. The nylon boot transferred the thermal energy from the fire to the area covered by the boot, increasing tissue trauma. Leather does not transfer heat as nylon does, and a leather boot would have provided an insulation value. When exposed to the heat, the nylon boot shrank, causing trauma by restricting muscle and tissue in the aviator's foot. The shrinking caused the nylon to compress against the skin and exaggerated the thermal transfer. Leather boots may fail at the seams in extreme conditions but will not tighten as nylon boots do. The nylon boot melted and caused direct tissue trauma. A leather boot does not melt and would not have caused this injury. This aviator has had his foot injuries excised, including removal of tissue down to the Achilles tendon. Multiple skin grafts have been performed in attempts to repair the affected area. Surgeons at Brooke Army Medical Center, Fort Sam Houston, hope that he will eventually be able to fly again.

Photograph A shows the nylon boot involved in the accident described. Photograph B shows a pair of **Army approved** leather boots, also called Matterhorn boots. These boots were involved in another fire-related mishap where the wearer literally ran through burning JP-4. The thermal loads were similar, possibly even higher on the leather boots. The nylon lacing on the leather boots melted and failed. The stitching failed on one side of one of the boots, and part of the sole melted on both of the leather boots. The important thing is that the aviator who was wearing leather boots received no thermal injury in the area protected by his boots. He did receive burns on his upper thighs where the Nomex was stretched tight against his body as he escaped the flames, but this aviator is back on flight status and still a viable asset to the Army.

Why have we gone to so much trouble to tell you not to "shop the regulations" to find a way out? Because we know there are human beings who will attempt to do things like that. We have provided regulations with clear directions to protect you, but we can't protect you from yourself--only you can do that. By the way, forget about shopping AR 670-1. This regulation is being changed and this "out" has been eliminated. Army approved leather boots are the only correct wear in the new regulation. □

—POC: Mr. Joseph R. Licina, Project Officer, Aviation Life Support Equipment Retrieval Program, U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL, DSN 558-6893 (205-255-6893)

Editor's note: The following article was translated and submitted by LTC Clay Edwards, TRADOC Aviation Liaison Officer to French Army Aviation. LTC Edwards may be reached at telephone number (0033) 94 60 95 67 or E-Mail: ATFE-AV@Chievres—emhl.army.mil. Permission to reprint has been granted by the Chief of Operations, French Air Force Staff.

Les mots exacts (or "saying it like it really is")

"Thirty cars telescope on the interstate . . . the accident was caused by fog." "A car crashed into a tree . . . the accident was caused by rain." "An airplane struck the hillside . . . the accident was caused by terrain relief."

Rain, snow, terrain relief, and other natural elements are daily blamed when a dramatic accident occurs.

But this, in reality, is an abuse of the language. In truth, it is a sham because it is totally unjust to blame the weather or natural relief for an accident. In reality, the weather is either rainy or beautiful but never "bad"; the terrain, likewise, is either flat or mountainous, and if faith can move mountains . . . ! As a general rule of aviation, we accept as a law of nature that these mountains are anchored to the ground and never "just accidentally" float up into an aircraft's flight trajectory.

There is equally a misuse, or at least imprecise use, of the language when, faced with such events, we still use the term "accident." According to *Robert's* [the French equivalent to Funk and Wagnall's], an accident is defined as "a chance event, unforeseeable." In other words, it happens at random and without a possibility of warning. Well, we usually recall after the fact that an "accident" was never accidental and that all causes of accidents are already known—especially those that have to do with weather or terrain. Humans, and certainly pilots, are not at all ignorant of these natural phenomena.

It seems then very dangerous to attribute these "accidents" to the natural elements. Such attribution allows drivers and pilots to evade responsibility for their faults and errors. They reject responsibility for the act *they committed.*

Foggy weather and high elevations are natural occurrences, well known and identifiable ahead of time. They must be treated as such. They need to be taken into account by all responsible drivers and pilots.

As trained professionals, we should go about our business with precision, attention to detail, and vigilance. We should allow nothing to surprise us in our chosen profession. We must adapt our mission profile to the elements and their circumstances. □

—Reprinted from Bulletin de Sécurité des Vols (1993/1) Armée de l'air française

From the Translator

This article talks about natural obstacles and occurrences, but what it says applies to man-made objects and situations as well. One that readily comes to mind is failure to identify wires. Another is standing between two maneuvering armored vehicles. Still another is sleeping in an unprotected laager area. None of these is a new phenomenon, but every year soldiers are killed because they didn't follow the proper procedures or they didn't apply sound risk management principles to their situation.

Proper planning, identifying and controlling hazards, and responsible flying, driving, and so forth are the marks of true professionals. Command influence, training, risk management, and system safety are tools available to prevent these "accidents." If we in aviation want to be treated as professionals by our leaders and fellow soldiers, we need to quit telling them how professional and how soldierly we are and start quietly acting the part, without the screech of ripping metal and the screams of aircrews and their nonaviator passengers.

Attention Black Hawk crews

Correction

The September 1994 issue of FlightFax contained an article entitled "It can't work if it isn't turned on" in which a fatal UH-60 crash was linked to the failure of the pilots to turn on the pitot heat before entering freezing moisture. The resulting erroneous airspeed indications led to downward programming of the stabilator and loss of control of the aircraft. Two aspects of that article were inaccurate as pointed out by Mr. Wes Shafer of Sikorsky Aircraft.

The article stated that at 130 knots airspeed and the stabilator down 10 degrees the aircraft will pitch violently down into an unrecoverable dive. As Mr. Shafer comments, this condition is fully controllable with cyclic and will *not* result in an uncontrollable dive. Also in the article was the statement that "as long as one pitot tube is working, the airspeed data sent to the stabilator will be correct." As Mr. Shafer points out, this is not entirely accurate but the loss of only one input will not result in an unsafe condition.

FlightFax always endeavors to present the most accurate information possible, but in dealing with such complex subjects, an occasional error can occur. The main thrust of the article remains intact—the operation of the UH-60 stabilator depends on accurate airspeed data and that data requires pitot heat in conditions of freezing moisture. We encourage the exchange of information and the better-informed aviation community that results. Our thanks to Mr. Shafer. □

—LTC Robert Johnson, Chief, USASC Aviation Branch, DSN 558-3756 (205-255-3756)

Safety alert—UH-60 fuel boost pump operation now required

An accident last spring in which both engines of a UH-60 Black Hawk failed after takeoff from a pinnacle raised accident investigators' suspicions that the engines flamed out due to "outgassing."

Outgassing occurs when air in fuel is released. This released air can collect in the fuel lines, creating large bubbles. In turn, these bubbles can cause the engine boost pumps to cavitate (output pressure drops to zero), resulting in fuel interruption that can lead to engine failure.

We've known since 1992 that the combination of low-power settings and nose-down attitudes can cause air due to outgassing to be trapped in fuel lines using JP-4. In fact, we even changed the dash 10 to require fuel-tank boost pumps for all JP-4 use to prevent the problem.

Last spring's Black Hawk accident revealed that the problem is not limited to JP-4. JP-8 is also vulnerable. Here's what happened.

The aircraft sat on a pinnacle at about 4,800 feet MSL for an hour and 45 minutes with the No. 1 engine at idle and the No. 2 engine at operational RPM. After an airspeed-over-altitude takeoff, the low-rotor audio warning sounded at 50 to 75 feet AGL, and both engines failed. The PC managed to level the aircraft before it hit the ground, but the main landing gear struts and wheels were torn from the aircraft before it came to rest on its right side. Both pilots were slightly injured; the crew chief and passenger were not injured.

Preliminary examination of the engines indicated that they were operating below 100 percent and *probably* below idle speed at impact. After considering and eliminating all other possible causes, the investigation board concluded that the most likely cause of this accident was that fuel flow to the engines was interrupted, and the engines failed.

But what caused the interruption?

At first, air bubbles due to outgassing were not even suspected because the aircraft was fueled with JP-8, not JP-4. Due to its fuel characteristics, it was not anticipated that JP-8 would present the same problem.

The PI in the left seat told investigators that the fuel-tank boost pump switch was in the OFF position for the takeoff. He mentioned that the pump was not needed when they were using JP-8 fuel.

He was exactly right—or so we thought at the time.

Subsequent tests have shown that air bubbles due to fuel outgassing is a hazard in the UH-60 whether it's burning JP-4, JP-5, or JP-8 fuel. JP-4 is probably still MORE

susceptible to the outgassing problem, but the risk is also there for JP-8.

In summary, it's pretty clear now that a nose-down attitude can set up a Black Hawk for engine flameout due to outgassing, regardless of what type fuel it's burning. The Army's working on a long-term fix for this problem, which includes fuel lines that are smaller in diameter. In the meantime, an Army Safety Advisory Message has been released requiring fuel-tank boost-pump operation at all times regardless of fuel type.

Use fuel-tank-mounted boost pumps at all times with all fuels in all Black Hawk models.

For more information on outgassing in the UH-60, see the first in a new series of special video editions of FlightFax, **Safety Alert: UH-60 Fuel Boost Pump Operation** (TVT 20-1040, PIN 710601). The video has already been released to selected UH-60 units Armywide and will soon be available at all installation audiovisual service centers. □

POC: Army Safety Center Aviation Branch, DSN 558-3756 (205-255-3756)

Height-velocity-avoid region

The UH-60 with its dual engines brought a safety margin to utility helicopter operations that wasn't possible with single-engine aircraft. However, as mission demands expand and new equipment is added, Black Hawks frequently operate at higher gross weights than in the past.

UH-60 crews should be aware that operating in the height-velocity-avoid regions can be hazardous to them, too, if one engine becomes inoperative. The avoid regions vary based on gross weight and atmospheric conditions encountered.

Pilots should review the information in the operators manual on the height-velocity-avoid regions for single-engine failure and avoid flying in these danger zones as much as possible. □

—POCs: Mr. Dennis Menckowski or Mr. Michael Lupo, Utility Helicopters Project Manager's Office, Aviation and Troop Command, DSN 693-3210 (314-263-3210)

It's that time again

As the temperature drops and cold winds, rain, and snow drive all but the hardiest of us indoors, another foe waits. More people in smaller spaces and airtight buildings are a perfect setup for spreading winter illnesses. The most common illnesses during the winter months, and the ones most responsible for decreased performance and lost productivity, are those caused by viruses. And the star performer of this variety of virulent viruses is **THE FLU**.

How do you feel when you have the flu?

The first word that comes to mind is rotten. Although the flu is usually thought of as a respiratory illness, it actually affects the entire body. The hapless victim probably will have chills and fever, feel tired, and ache all over. Common symptoms are a dry cough, irritated eyes, and nausea. Needless to say someone suffering from the flu won't feel much like eating. That isn't so important, but getting plenty of fluids is. Dehydration is a real danger, particularly when nausea is present.

The fever associated with flu usually comes on quickly, usually peaks at between 102° and 104°, and then subsides over 48 to 72 hours. A case of the flu can leave you feeling exhausted for days after the worst of your symptoms are over.

How serious is the flu?

In otherwise healthy people, influenza is a moderately severe illness; most adults are back on their feet in 5 to 7 days. But for people with chronic health problems, the elderly, and children, flu can be extremely dangerous. During the 1918-19 influenza epidemic, one quarter of the world's population was infected with the flu virus and 20 million people died. So treat the flu with the respect it deserves.

How important is immunization?

In a flu epidemic year, it is reported that up to 50 percent of people who are not immunized may contract influenza. Chances may be even higher if you are frequently exposed to people who are infected; for example, health care workers and home caregivers. An annual flu immunization can prevent you from having the flu. In fact, up to 92 percent of people who receive the immunization for influenza will be protected or if they get the flu will have a lighter case.

Won't the shot give me the flu?

No. A small percentage of those who receive the immunization may get a fever within 48 hours, and there may be a little soreness or redness in the inoculated area. But even if this happens, it certainly beats having a full-blown case of the flu.

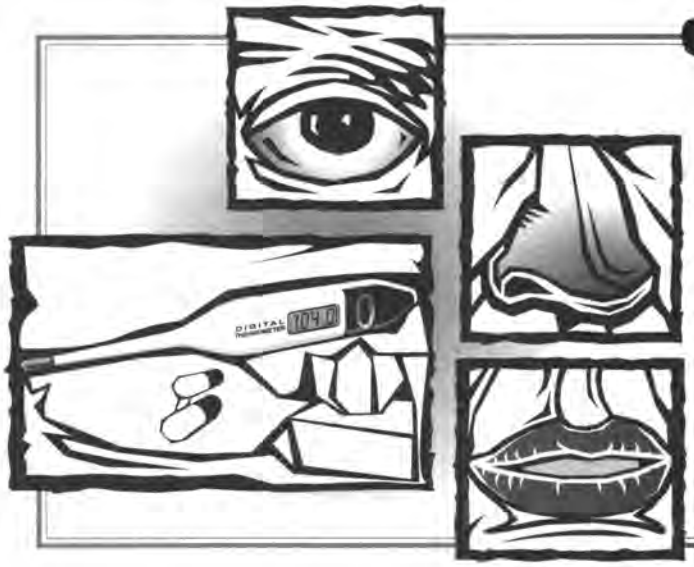
Immunization is important to you and your health, and it could prevent you from spreading the flu to your family and others with whom you come in contact.

Get your flu shot. □

—COL John Blough, Flight Surgeon, Army Safety Center, DSN 558-2763 (205-255-2763)

Flu Facts

- **Flu strikes 25 million to 50 million Americans each year.**
- **10,000 to 40,000 of these people, most of them elderly, die from flu and flu complications.**
- **Flu puts more than 172,000 people in the hospital every year in this country alone.**



If You Get the Flu

- **Go to bed.**
- **Take any prescribed medications as instructed.**
- **Take two tablets of acetaminophen three to four times daily to reduce fever and to relieve aches and pains.**
- **Drink plenty of liquids.**
- **Stay at home and rest until your temperature has been normal for 1 to 2 days.**

Broken Wing awards

The Broken wing award is given in recognition of aircrewmembers who demonstrate a high degree of professional skill while actually recovering an aircraft from an in-flight failure or malfunction necessitating an emergency landing. Requirements for the award are spelled out in AR 672-74: Army Accident Prevention Awards Program.

■ **CW3 Gary D. Richardson, Company B, 1st Battalion, 212th Aviation, Aviation Training Brigade, Fort Rucker.** During advanced combat skills training with an IERW student, CW3 Richardson was conducting NOE flight over the north side of a field landing site when the OH-58A experienced a decrease in both engine and rotor RPM. The aircraft was at about 10 knots and 50 feet AGL when the engine-out light illuminated and the low-rotor audio activated. The aircraft started to descend toward the tree line directly in front. On a 100-degree heading, the engine surged, increasing RPM momentarily, and then continued decreasing below 40 percent N1 and 60 percent N2. CW3 Richardson made an emergency radio transmission as he simultaneously maneuvered toward a logging trail, turning the aircraft about 40 degrees right. Reducing collective to maintain rotor RPM, he then entered an autorotative descent profile. At about 2 feet AGL and with almost no forward airspeed, CW3 Richardson applied all remaining collective pitch to cushion the landing. The aircraft touched down on an 8-degree upslope—the left skid only inches from a large tree stump—on a heading of 150 degrees. After only three to five revolutions, the main rotor stopped. The engine was completely out. CW3 Richardson had selected the only available landing site as was evidenced by the fact that the aircraft that was launched to retrieve the crew could not land in the immediate vicinity, and the maintenance crew sent to recover the aircraft had to cut down additional trees to load the aircraft onto a trailer.

■ **WO1 Raymond E. Huot, Company A, 5th Battalion, 158th Aviation Regiment, APO AE 09096.** While on a service mission, the UH-1H was in cruise flight at 1,000 feet AGL. The pilot placed his hood on his helmet to practice basic instrument maneuvers. During his cross-check, he noticed that the torque gauge had dropped to zero. Seconds later, the engine-oil gauge began to fluctuate, followed by erratic indications of the systems instruments. WO1 Huot took the controls and initiated an approach to the only available landing area. The pilot removed his hood and prepared to back up WO1 Huot's actions with the checklist. As the aircraft descended, the crew noted that the engine oil temperature gauge was at the maximum reading and smoke began to fill the cabin area. As WO1 Huot began his termination, the aircraft experienced a total loss of power, accompanied by numerous explosions similar to compressor stalls from the engine area. WO1 Huot completed a power-off landing into a corn field, executed an emergency shutdown, and evacuated passengers from the aircraft. Although the engine area was smoking, no flames were visible until about 20 minutes after landing. Inspection revealed that the start fuel line was loose at the fuel control and an oil scavenge line was loose in the forward lower area of the engine.

■ **CW2 Edward C. Kime, DPTMS Aviation Division, Fort Polk.** CW2 Kime was returning from a single-pilot OH-58A mission to Polk Army Airfield. In level cruise flight at 90 knots and 60 percent torque, CW2 Kime attempted to initiate a descent for final approach to the runway then realized the collective pitch control would not move up or down. CW2 Kime notified ATC that he would be performing a missed approach because of a possible flight control malfunction and requested an orbit area clear of parked aircraft, buildings, and personnel on the ground. CW2 Kime then called the unit maintenance officer and standardization instructor pilot (SIP) on a discrete frequency. They were made aware of the malfunction and directed CW2 Kime through various checks of the flight controls in an effort to remedy the problem. Unable to free the stuck collective, CW2 Kime declared an emergency with ATC. The unit SIP and CW2 Kime determined that a shallow approach combined with retarding the throttle would be necessary to land safely. CW2 Kime then reduced the governor to 90 percent N2 and allowed the aircraft to descend to 200 feet AGL at an airspeed of 65 to 70 knots. CW2 Kime terminated this approach because it was too high and fast. He initiated a second attempt at an extremely shallow approach angle and about 40 knots. He reduced the N2 governor to 90 percent, and on 1-mile final, slowly retarded the throttle to 85 percent to lose more altitude. He again terminated his approach because it was also too high and fast. CW2 Kime initiated a go-around, heard a loud bang, and felt a vibration throughout the airframe. On his third approach attempt, CW2 Kime once again reduced N2 governor to 90 percent and retarded the throttle to 75 percent N2. Altitude was decreased, and the aircraft crossed the runway threshold at 10 feet and 60 knots. The skids contacted about midfield at 50 knots. CW2 Kime continued to reduce the throttle slowly, applied aft cyclic, which momentarily caused the aircraft to lift 2 to 3

feet. When the aircraft once again touched down, the collective moved down 1 to 2 inches and the aircraft skidded safely to a stop, sustaining no damage. Although the exact cause of the malfunction could not be isolated, maintenance replaced the swashplate and support assembly, collective servo, and main rotor hub assembly.

■ **CW2 Philip J. Cancienne, Company A, 1-244th Aviation, Louisiana Army National Guard.** Following completion of a general maintenance test flight, the UH-1H was in cruise flight at 1,000 feet and 100 knots. While scanning the engine gauges, CW2 Cancienne noticed that the engine torque pressure was 2 pounds. Because the area over which he was flying was not suitable for landing, he made a turn to the south toward a suitable area while looking for other abnormal indications. He also began making a radio call to his base operations to inform them that he had a potential problem and might have to make a precautionary landing. At this point, the engine chip light illuminated, along with the master caution light. After spotting the first available landing area, CW2 Cancienne began setting up for an approach while simultaneously performing a high reconnaissance. CW2 Cancienne and the maintenance observer began to smell smoke in the cockpit. Within seconds of smelling smoke, the crew saw the fire warning light illuminate. CW2 Cancienne completed the approach without delay and made a mayday call. Just prior to landing, the aircraft began to yaw due to impending failure of the drive shaft, but CW2 Cancienne was able to control the aircraft until touchdown. After landing, CW2 Cancienne performed an emergency shutdown and the crew exited the aircraft. As they did so, they saw that the engine compartment was engulfed in flames.

■ **CW4 James R. Beauman, Army Aviation Support Facility No. 1, Hangar A, L. I. MacArthur Airport, New York Army National Guard.** The UH-1H departed the airfield on a southwesterly heading direct to the test flight area. CW4 Beauman had just leveled off at 1,300 feet AGL when the engine RPM began to decay through 6200. He lowered the collective, but the N2 RPM continued to decay. CW4 Beauman then placed the governor switch to the emergency position, but the engine RPM continued to decay. He entered an autorotation, and the engine quit completely. CW4 Beauman maneuvered the aircraft toward a golf driving range, heading generally into the wind. As he was descending, he noticed that the driving range was completely surrounded by an 80-foot-high fence. At about 150 feet AGL, it became apparent that the area was unacceptable: ruts in the ground, mounds of dirt, people on the ground in that area, and it didn't look as though he could stop the aircraft before contacting the fence on the other side of the driving range. As CW4 Beauman was descending through 150 feet, he noticed a small school yard to the left of the driving range, made a 90-degree left turn, and maneuvered the aircraft to clear the driving range fence. He immediately noticed a group of children standing and sitting around the 30-foot-high school fence directly in his flight path. CW4 Beauman performed an exaggerated deceleration, which slowed the aircraft's forward movement significantly, and landed the aircraft in the center of the field. CW4 Beauman successfully completed the autorotation with no damage to the aircraft, its occupants, or any of the children. Before the rotors came to a stop, the crew chief got out of the aircraft and stopped the large group of children who were running toward the aircraft. Inspection revealed that the coupling assembly on the main fuel line to the fuel control had sheared the alignment/locking pins and had backed off sufficiently to activate the check valve, stopping all fuel flow to the fuel control and causing the engine to flame out. □

ShortFAX
Keeping you up to date

Wire bundle chafing can be hazardous

During approach at approximately 50 feet AGL, the AH-64 crew saw the fuel PSI light on number 2 engine illuminate. A couple of seconds later, the number 2 engine-out light illuminated, the audio sounded, and number 2 engine flamed out. The PC performed a single-engine roll-on landing. During rollout, the electrical system experienced a hard shutdown, and the number 1 engine also flamed out.

The crew noted fuel fumes in the cockpit during the emergency sequence. The PI egressed the aircraft; the PC remained at the controls until the rotor stopped turning.

Investigation revealed that a wire bundle going to the number 2 crossfeed valve had been chafed by the main transmission mount, causing it to short out and resulting in a system malfunction of the crossfeed valves. The PI's fuel panel was also found to be inoperative and was removed for evaluation.

A Category I quality deficiency report (QDR) was submitted, recommending—

- Worldwide one-time inspection
- Securing and wrapping of the wire bundle
- Establishment of an inspection interval

This area should be given special attention by maintenance personnel while performing preventive maintenance on AH-64 aircraft. □

—POC: MSG Alcides Santana-Cruz, USASC Aviation Branch, DSN 558-3051 (205-255-3051)

ANVIS/IHADSS adapter kits

The adapters that enable AH-64 copilot/gunners to mount the ANVIS night vision goggles to their IHADSS helmets are not NSN items. Unit ALSE shops must request the kits directly from the Night Vision Directorate, ATTN: AMSEL-RD-NV-ASI-PS, Fort Belvoir, VA 22060-5806. Standard issue to new Apache units is 25 kits. Units that have experienced attrition (or are restructuring under ARI) may request additional kits. Each shipment includes a set of installation instructions. □

—POC: CPT Paul M. Steele, Night Vision Directorate, Fort Belvoir, VA, DSN 654-1392 (703-704-1392)

Accident briefs

Information based on preliminary reports of aircraft accidents

Utility

UH-1 Class E

H series - During climb to cruise for an IFR training flight, CE and IE in back of aircraft heard an unexplainable metal-to-metal flapping noise. At first intermittent, noise became more rapid when torque was decreased. Crew cancelled flight and returned to home base. Maintenance inspection revealed loose/worn transmission cowl latches. Cowl latches and rubber strips were replaced and aircraft released for flight.

H series - During engine start, CE noticed fuel leaking from top fitting at engine fuel filter. Aircraft was shut down, mission aborted, and maintenance notified. After repair of fitting at top of fuel filter, aircraft released for flight.

H series - During MTF after low RPM hover check, MP did not roll throttle to flight idle before next MTF maneuver, emergency governor operations. Aircraft was at 6000 RPM. MP switched governor switch to emergency for 1 second, causing N2 to climb to 7000 RPM, which caused overspeed of N2.

H series - During second start, aircraft would not make 14 volts by 10 percent N1. Crew aborted start and thought they shut down aircraft. About 30 seconds later, EGT was continuing to rise and rotor speed was increasing. During execution of hot start procedures, throttle could not be rolled past idle stop. EGT climbed to 800° for 10 seconds. Crew pulled fuel circuit breaker to shut down engine and notified maintenance.

V series - As aircraft lifted off to hover over parking pad, wall locker inside hangar was blown over by rotorwash. Locker hit a parked aircraft in hangar, causing sheet metal damage.

V series - PI was performing emergency governor operations. When aircraft landed from hover, PI reduced throttle and placed governor switch back into auto mode. As throttle was increased, IP realized aircraft was still in emergency mode. Aircraft was repositioned to pad and shut down. Caused by fuel solenoid.

UH-60 Class B

A series - UH-60 hovered over CH-47, causing forward rotor blades to flex, damaging all three blades and the forward head of the CH-47.

UH-60 Class C

A series - During postflight inspection following VFR cross-country flight, crew found tail rotor deice cannon plug and mounting bracket had separated from tail rotor in flight. Cannon plug impacted leading edge of main rotor blade, resulting in unrepairable damage. Caused by crack in cannon plug mounting bracket.

UH-60 Class E

A series - During 5-foot hover with about 68 percent torque on both engines, crew heard loud noise from aircraft right rear. Crew observed loss of No. 2 engine NP, torque, and oil pressure. During landing, No. 1 engine torque reached 120 percent. TGT increased to 845° for 2 to 3 seconds, and rotor RPM dropped to 90 percent. After landing, rotor RPM recovered to 100 percent, No. 1 engine stabilized at 30 percent torque and 680° TGT. No. 2 engine TGT was 690°, and No. 2 engine starter would not motor engine. Engine removed and sent to CCAD.

A series - During HIT check prior to flight, CP noted fire light on No. 2 T-handle. No master caution light noted. PC pulled T-handle and activated main fire bottle. Maintenance found no problems with fire detection system. Fire bottle was replaced, fire suppression lines blown out, and residue blown off engine.

A series - During postflight inspection, forward drive shaft cowling was found open. Closer inspection revealed 2- to 3-inch crack in drive shaft cowling with no other damage. Cover vibrated loose during flight.

L series - As PI was turning crosswind during takeoff for closed traffic pattern flight, stabilator failed with accompanying audio and warning lights. System would not reset. Manual control was used to slew up stabilator and aircraft landed. No. 2 stabilator actuator was inoperative.

L series - Aircraft was on ground at PZ, and recon team was loading. PC observed soldier approaching with a VS-17 marker panel under his arm. Before CE could reach soldier, panel was blown through rotor system. After shutdown, inspection revealed 1/2-inch hole on top and 3/4-inch hole in bottom of red main rotor tip cap.

L series - During cruise flight, No. 1 engine oil filter bypass caution light illuminated. Crew complied with emergency procedures checklist and completed a roll-on landing. Maintenance replaced oil filter bypass sensor.

Attack

AH-64 Class C

A series - During FORSCOM ORE participation, aircraft settled into tree while at 50- to 60-foot hover. Tree penetrated No. 2 engine area. Tail rotor blades were damaged.

A series - During night tactical mission operations, AH-64 departed holding area en route to battle position. About 0.8 hours into flight, transmission chip caution light illuminated. After landing and normal shutdown, crew found damage to tail rotor blades. Tail rotor blade damage was caused by striking a small tree on a berm in aircraft approach flight path.

A series - During postflight inspection, tail rotor drive shaft covers were found unsecured and open.

AH-64 Class E

A series - No. 1 engine started normally but failed after about 15 seconds. Second engine start on No. 1 engine was normal. Aircraft had recently undergone MWO, which involved removing fuel filter and disconnecting fuel lines. Investigation revealed this was the third failure of the No. 1 engine on an AH-64 in 1½ months.

A series - No. 1 engine failed during takeoff. Flight continued to maintenance recovery site. Shortly, SDC caution light illuminated. Second aircraft noticed smoke coming from first aircraft. Crew executed single-engine roll-on landing to field. Suspect failure of transmission accessory drive section. Cause of engine failure unknown.

Cargo

CH-47 Class D

D series - Sling clevis chain keeper failed, releasing load. Inspection of other sling assembly revealed improper repair of chain grab hook keeper assembly. Suspect hook assembly failed to maintain eye to roller contact during initial lift of load, allowing subsequent failure.

D series - Rotor blades of parked aircraft had been secured with one blade positioned over the tunnel cover and only two blades tied down. Rotorwash from landing aircraft caused inadequately secured blades to flex down, and one aft blade struck fuselage.

CH-47 Class E

D series - During insertion of external load (single HMMWV) into dusty LZ, crew selected clearing apart from main LZ. After load touched down, aircraft began rearward drift. CE informed crew and released load. PI on controls climbed out of LZ and clear of dust cloud. Crew noticed HMMWV had rolled onto its side.

Observation

OH-6 Class C

J series - During firing of M134 7.62mm machine guns during aerial gunnery, barrel clamp bolt came out, allowing flash suppressor and barrel clamp to come off. Bullets struck barrel clamp and ricocheted, damaging aircraft.

OH-58 Class D

C series - IP initiated hovering autorotation with forward motion. PI applied aft cyclic. Aircraft was landed on skid heels, rocked forward, and bounced/slid about 10 feet.

C series - While unmasking at OGE hover, aircraft entered uncommanded right yaw. PI applied full left pedal and transferred controls to IP. Aircraft began to settle as it yawed 180 degrees for 3 seconds. IP landed aircraft without further incident. Maintenance replaced K-flex drive shaft.

OH-58 Class E

A series - PI and CE detected fuel fumes in cockpit during cruise flight. Aircraft was landed in parking lot, and fuel was found leaking from fuel shutoff valve fitting on engine deck.

C series - During termination phase of day/night APART/currency flight, IP and PI brought aircraft to 2-foot hover from instrument approach to center sod. Logbook, which is normally kept between left heater duct and windscreen, fell between IP's feet. IP decided to land before retrieving logbook. Suspecting landing might have been too hard, IP exited aircraft to inspect for damage. Because of uneven terrain, no damage was noticed. After air taxiing to parking and shutdown on level ground, crew noticed damage to skid cross tubes.

D series - Crew noticed foul odor following liftoff. As odor intensified, pilots checked for fire. After receiving hot battery caution, pilots turned on defog blower and compartment blower and shot approach to parking. Pilots completed emergency shutdown, and crash/rescue reported white smoke coming from battery compartment. Maintenance replaced battery.

Fixed wing

C-12 Class E

D series - While passing through FL 270 and climbing to FL 280, fuel began siphoning from right main fuel cap. Aircraft was landed, and maintenance replaced stuck check valve that had allowed pressure to build up in right main fuel tanks. BASI is troubleshooting problem.

Messages

■ Safety-of-flight technical message concerning one-time replacement of MS17825-10 self-locking nuts on AH-1S/E/F/P series aircraft (AH-1-94-01, 231400Z Sep 94). Summary: A Category 1 deficiency report reported a cracked MS17825-10 self-locking nut on the power pitch change link bearing after 19 flight hours. Laboratory analysis of the nut revealed the material from which the nut was manufactured did not conform to the material specification. Suspect nuts are identified with one or more capital "Gs" on the face of the nut. Serviceable nuts will be reidentified with an inspector's stamp. Contact: Mr. Brad Meyer, DSN 693-2258 (314-263-2258).

For more information on selected accident briefs, call DSN 558-2119 (205-255-2119).

Good ships and good guns are simply good weapons, and the best weapons are useless save in the hands of men who know how to fight with them.

—Theodore Roosevelt

In this issue:

- Lest we forget . . .
- Three pieces of the safety puzzle
- Show me where it says I can't
- Les mots exacts (or "saying it like it really is")
- Correction (to Sep 1994 article on pitot tube)
- UH-60 fuel boost pump operation now required
- Height-velocity-avoid region
- It's that time again
- Wire bundle chafing can be hazardous
- ANVIS/IHADSS adapter kits

Class A Accidents through October

		Class A Flight Accidents		Army Military Fatalities	
		94	95	94	95
1ST QTR	October	2	0	0	0
	November	3		0	
	December	2		2	
2D QTR	January	1		2	
	February	2		0	
	March	0		0	
3D QTR	April	5		2	
	May	0		0	
	June	0		0	
4TH QTR	July	4		5	
	August	1		0	
	September	1		0	
	TOTAL	21	0	11	0

U.S. ARMY SAFETY CENTER

Report of Army aircraft accidents published by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident prevention purposes only. Specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. Address questions about content to DSN 558-21 distribut informa 558-947

Thomas Brigadie Comma U.S. Arm

60984 81800