FlightFax

REPORT of ARMY AIRCRAFT ACCIDENTS

September 1996 ◆ Vol 24 ◆ No 12

Before the first snow flake falls . . .

Prepare for the harsh winter conditions ahead.

Proficiency training in winter operations should already be on every crewmember's agenda because the warm days of summer will soon give way to the snow, ice, and freezing winds of winter.

Operating and maintaining aircraft in cold weather can be physically demanding and hazardous. Regardless of winter's adverse environmental conditions, the Army must continue to defend our Nation's interests around the world and train future warfighters. To do so safely requires taking cold-weather training seriously and applying risk management effectively.

Now is the time to start brushing up on winter flying techniques, maintenance procedures, and survival skills. Review the known hazards associated with cold-weather operations, identify any hazards specific to your unit's mission or area of operation, and develop effective control measures that will reduce the risks.

Advance preparation and effective risk management won't keep the snow from falling or the cold winds from blowing, but they will help you prevent costly accidents and cold-weather injuries when winter descends upon us again.

Winter hazards cut flight short

Even a highly experienced crew on a bread-and-butter mission can get into trouble fast when "Dusted" with snowflakes.

Our evening's mission at the Combat Maneuver Training Center (CMTC) was to provide observer-controller (OC) coverage for a single AH-64 that was to screen forward and help ground cavalry squadron troops identify any vehicles they found. Simply put, we were to follow the AH-64 around the maneuver "box," observing their tactics and procedures as well as reporting their position to a computer analyst for battle tracking. We also were to provide flight following for the player aircraft. Normally, we stay 500 to 1,000 feet above them, depending on weather. This OC mission was our bread and butter—a mission we had all done numerous times before with many other units.

The weather brief

We got our initial written weather brief 3 hours before the planned takeoff time. Although we knew the brief wouldn't be valid at takeoff, we used it for planning purposes (PPC, risk assessment, and so forth) and had all intentions of getting an update just before we went to the aircraft.

About 20 minutes before departure, we got a weather update: "The initial brief remains unchanged." This gave us a ceiling of 1,000 feet and visibility of 4 kilometers or greater and no weather warnings. Full cloud coverage and no moon guaranteed a dark flight. Flying out to the field site that night, we discussed the fact that the visibility was excellent but that the ceiling was probably only 600 to 800 feet above the hills.

The aircraft

The CMTC aviation OC team had recently transitioned from the OH-58 to the UH-1. Our UH-1H was fully instrumented, modified for NVGs, and had 150 gallons of auxiliary fuel on board.

The crew

Since we had just recently transitioned from the OH-58 to the UH-1, our Huey experience wasn't exactly high. But the overall crew experience was. The PC was an AH-64 instructor pilot and an aviation safety officer (ASO) with more than 2,600 hours total time. The PI was an OH-58 IP and an instrument flight examiner with more than 3,300 hours' experience. The rated observer also was an OH-58 IP and IFE with 3,100 hours. Combined, we had more than 9,000 hours of flight experience. We also had more than 2,700 hours of NVG and NVS experience.

The flight

Although we knew it had started snowing, it appeared to be just a "light dusting" and we still had excellent visibility under ANVIS down the valley. After the 2350 takeoff, I accelerated to 25 to 30 knots and was preparing for a climbing 180-degree left turn when things got ugly. First, the light dusting turned into a very heavy snowshower, which greatly reduced visibility. This didn't help the fact that seeing out the left side from the right seat under goggles in the UH-1 was difficult.

As I completed the turn, visibility got worse and everything appeared darker as both the left seater and observer mentioned a clump of trees I had turned toward. I saw the trees and had added some power to fly over them when I picked up the Apache's cockpit lights. The cockpit lights verified what we thought: we were in heavy blowing snow.

With my visibility cut to approximately 200 meters, I quickly decided to land near our takeoff point. I was using a treeline out my right door as a reference. At 20 feet and 20 knots, I experienced total whiteout. Before I could tell anyone, I regained contact with the ground and heard the observer yelling "Power, power!" During the second in which I had lost contact with the ground, I had entered a slight nose-low right turn. I immediately turned left to again parallel the treeline, executed a slow NOE deceleration to a 5-foot hover, and quickly landed. As we recovered from the initial shock of what had just happened, we shut down the aircraft and prepared for an examination of how we got into a situation that could have resulted in a serious accident.

The after-action review

Except for the split-second whiteout, I never felt out of control. But I'll be the first to admit that this 1-minute flight truly scared me. I realized that another 1 or 2 seconds in that nose-low right turn would have led to impact with the ground, definite damage to the aircraft, and possible injuries.

In the 5 minutes that followed our near mishap, we figured out what went wrong and why. Three factors led us into this frightening predicament. Individually, none of the three would have been cause for alarm. But combined, the stage was set for them to "snowball" into disaster.

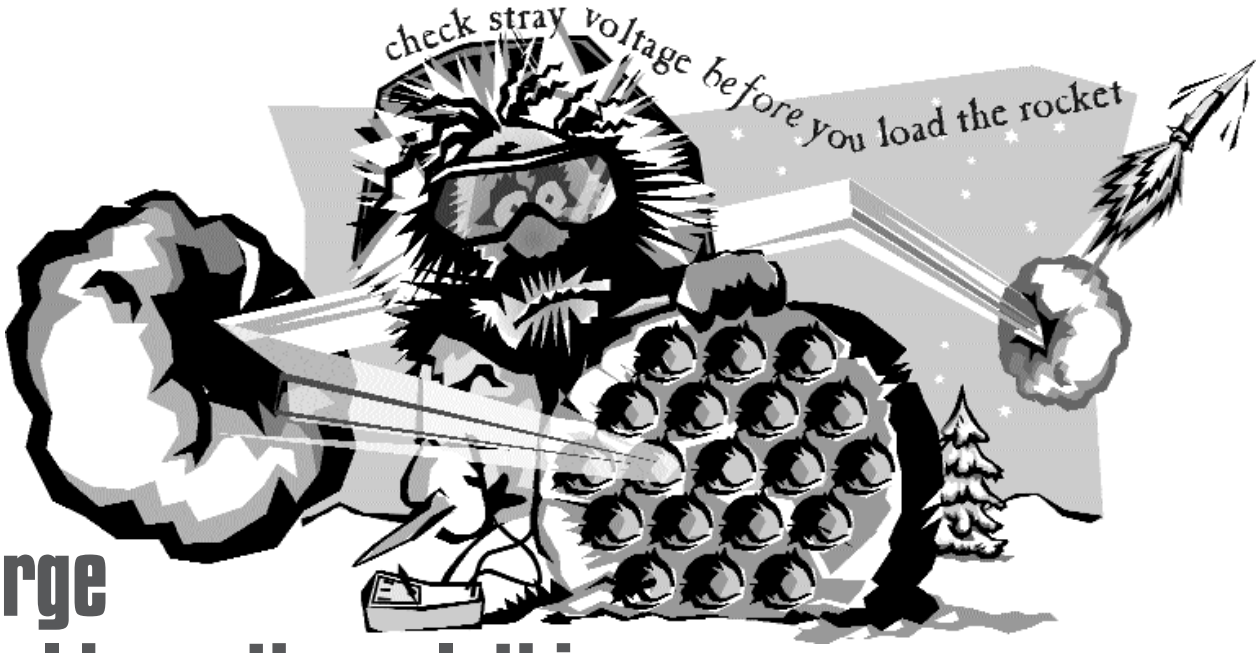
- Two kilometers away, in the direction of takeoff, was a small village that was giving off enough reflected light to give us a false sense of the true conditions. Looking toward the town, the NVG picture was sharp and bright; however, once we turned away from the light source, things got darker and visibility appeared to drop drastically.
- I made a left turn from the right seat. Normally this isn't a big deal but, considering I was confined by a valley and was depending totally on my crew for obstacle avoidance, this wasn't a good choice. I should have set up for a right turn or, better yet, transferred the controls to the left seater who could see! He also had the red position lights on his side, which we all know provide a better picture under goggles. In fact, he had maintained contact

with the ground throughout.

■ I used a treeline out my right door for a visual reference. Although this seemed like a good idea at the time, I now believe that I created a barrier for the snow I was blowing and actually increased the whiteout. Had I left myself more room to the right, much of the snow may have blown out and away from the aircraft and given me continuous visual contact with the ground.

Even if you are flying with an experienced crew that has thousands of flight hours, spending some extra time before the flight asking a few more "what ifs" to identify all the potential hazards could keep you from having to spend time after the flight (or worse, the accident) figuring out what went wrong. Think about our experience, and don't get caught in a similar situation. Obviously, you can't stop Old Man Winter from "dusting" you with snowflakes or dropping any other cold-weather hazards on you. But if you practice solid risk-management techniques, you can prevent things from getting ugly and prolong your flight beyond 1 minute. **Train to Win!**

POC: CW3 Theodore W. Hazen, A Company, 3-101st Aviation Regiment, Fort Campbell, KY, DSN 635-9219/9291 (502-798-9219/9291). (CW3 Hazen was an assistant observer-controller at the CMTC when he wrote this article.)



Static discharge from cold-weather clothing

The Commander of the Soldier Systems Command (SSCOM) has issued a ground precautionary message (GPM-SSCOM-96-01) to alert users of possible static discharge from the camouflage cold-weather parka, NSN 8415-01-228-1306 (series) and camouflage cold-weather trouser, NSN 8415-01-228-1336 (series), worn as the outer garments of the extended cold-weather clothing system (ECWCS).

The synthetic fabrics used in these items have the ability to develop a static electrical charge that does not dissipate readily. Synthetic fabrics generally develop greater static charges and maintain these charges for a longer period of time. This problem is increased in cold, dry climatic conditions. Unexpected release of the static charge during static-sensitive operations, such as ammunition and fuel handling and electronic circuitry maintenance, may present an immediate operator hazard or delayed adverse effects upon systems.

Users of these fielded clothing items must identify their static electric sensitive operations and implement established procedures in the following references:

■ FM 10-68: *Aircraft Refueling*.

■ FM 10-69: *Petroleum Supply Point Equipment and Operations*.

■ FM 10-20: *Organizational Maintenance of Military Petroleum Pipelines, Tanks, and Related Equipment*.

This includes, but is not limited, to engineering controls such as grounding, bonding, and ventilation of vapor/air mixtures.

USASSCOM will work with user proponents to determine the extent of the hazard and eliminate the potential for static buildup in 100-percent synthetic fabric used in field clothing.

Proponents for development of munitions, POLs, and electronics systems should attempt to minimize the sensitivity of their systems to adverse effects of static electrical discharge.

Points of contact

■ **Technical**—Mr. Neil E. Smedstad, DSN 256-4032 (508-233-4032).

■ **Safety**—Mr. Paul G. Angelis, DSN 256-5208 (508-233-5208).

INVESTIGATORS' FORUM

Lessons Learned

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

UH-60L. As the flight of three UH-60s approached the drop zone (DZ) for a Fast Rope Insertion/Extraction System (FRIES) live-fire exercise (LFX), the main rotor blades of Chalks 1 and 2 meshed. In the subsequent crash, 39 personnel were injured, 6 of which sustained fatal injuries. Both aircraft were destroyed.

● ***What happened.*** The flight crews rehearsed the mission six times that morning with the FRIES masters aboard the aircraft. During the last three rehearsals and the actual mission, all aircraft were flown with the left-seat pilot on the controls. During the first rehearsal, the decision was made to move the aircraft left approximately 20 meters because of the uneven terrain at Chalk 1's original drop point. This deviation from earlier missions reduced the rotor separation of Chalk 1 and Chalk 2 from 3 rotor disks to approximately 1½ rotor disks when the aircraft were stabilized at their hover points.

During the after-action review following the rehearsals, the crews discussed the hazards associated with the size of the DZ and all agreed that the DZ was still suitable for the mission. The en route formation was briefed, to include the altitude, airspeed, and rotor separation. However, except for the discussion about the DZ being "tight," aircraft separation within the DZ for the FRIES operation was not briefed.

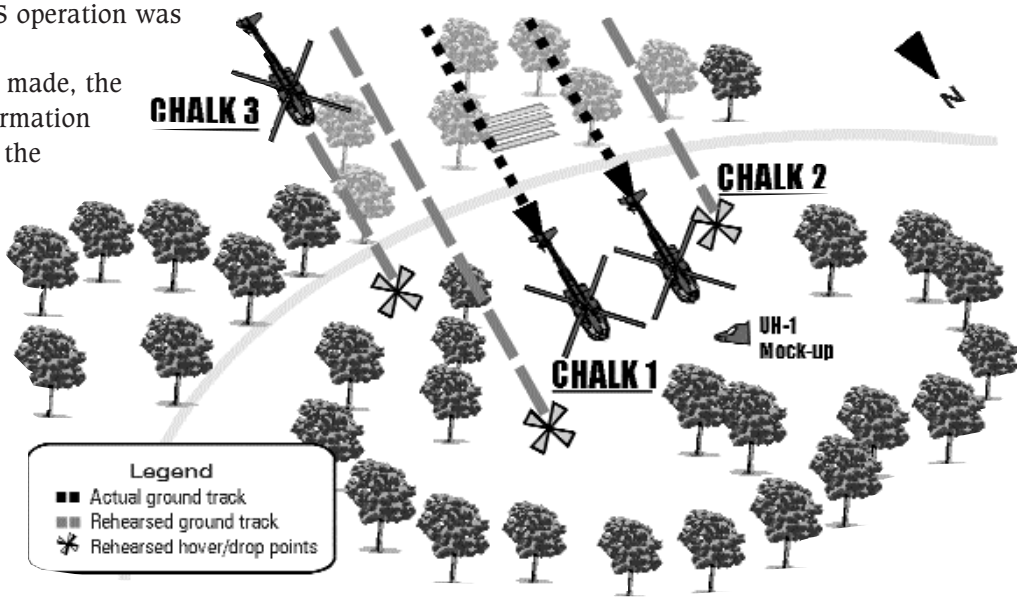
As the 30-second inbound call was made, the aircraft began to decelerate and the formation began to tighten up in preparation for the FRIES drop. As Chalk 1 and Chalk 2 cleared the final barriers into the DZ, Chalk 1 was approximately 15 to 20 meters left and Chalk 2 was approximately 10 to 15 right of the rehearsed ground tracks. Chalk 2 overtook Chalk 1 in the DZ, the main rotors meshed, and both aircraft crashed.

● ***Lessons learned.*** A combination of overconfidence among the crews and lack of situational awareness led to this accident. During their earlier briefing, the crews had acknowledged the need to stay on the rehearsed ground track because of the size of the DZ. However, as a result of the successful rehearsal flights, the crews were confident in their own abilities to maintain the rehearsed ground track and thus maintain aircraft separation.

Although the risk-assessment worksheet for this mission had been completed as required, it left several "holes" in the mission planning. The LFX and each individual task—multiship operations, FRIES, gunnery, terrain flight, and ATM training—were assessed as low risk. When considered individually, each of these tasks may have been assessed properly. However, when complex tasks are combined, the need arises to consider the cumulative risks involved. And while the individual aviation and infantry units completed separate risk assessments for their respective missions, no formal assessment was completed to determine the appropriate risk level for the overall mission.

As the formation entered the most critical portion of the flight (the final approach into the DZ and coming to a stabilized hover for the FRIES drop), the crews of Chalk 1 and Chalk 2 diverted from flying multiship to single-ship operations. The crews of both aircraft shifted their focus from flying a multiship operation to clearing the aircraft of trees around the DZ, scanning inside the cockpit, and picking up their individual cues needed to bring the aircraft to a stabilized hover. No one aboard either Chalk 1 or Chalk 2 was scanning to provide clearance between the two aircraft. This was compounded in Chalk 1 where the right-side crew chief was tasked with performing live-fire aerial gunnery, clearing the aircraft of obstacles, and conducting duties as a FRIES instructor for the left-side crew chief.

Even though the unit had an excellent training program and complete SOP requirements for both multiship operations and single-ship FRIES, the hazards of combining the two complex missions had not been



identified. While crews are expected to have a high level of confidence in their ability to perform complex missions, relying on that confidence in themselves and others is not enough to ensure the safe completion of any mission. This is especially true in today's aviation units, including the accident unit, where even "experienced" crews consist primarily of senior CW2s and 1LTs or CPTs.

Crews must maintain acute situational awareness of not only what is happening within their aircraft but also what is happening outside their aircraft, particularly during multiship operations. According to the ATM, the pilot on the controls is responsible for focusing outside the aircraft to clear and keep track of other aircraft and the pilot not on the controls and the crew chief will provide adequate warnings to avoid traffic and obstacles. Each crewmember is responsible for announcing loss of visual contact with the other aircraft in the formation or that their attention is focused inside the aircraft.

Preparing for the NTC

"There I was . . ." echoed through the tent after the missions. Although this experience had all the trappings of combat and required all the pilot and crew skills we could muster, this was not combat. It was an NTC rotation—the closest we can get to combat conditions in a training environment. Thanks to a lot of home station training we did in preparation for the rotation, it was a successful one.

If you haven't been to the NTC before, you can rest assured that the experience will be demanding and combat-realistic. To ensure your first, or next, is an accident-free NTC rotation, focus your training before deployment on the following:

■ ***Brownout NVG landings.*** You cannot do enough of these.

■ ***Rough terrain NVG landings.*** Practice landing on rough terrain so pilots and crewmembers can learn to recognize obstacles, such as rocks (and believe me there are **many** of them at the NTC), under NVGs.

■ ***Crew coordination.*** Crew coordination is essential for every mission but especially so for missions flown in the low illumination, very dark NTC environment. Have crewmembers learn to recognize what various altitudes look like and to advise pilots constantly on any significant deviations.

Identifying hazards is every crewmember's responsibility. Emphasize to soldiers that this includes stepping out of their lane to identify and take action on hazards if necessary. Encourage crewmembers to speak up if they recognize a hazardous situation; lives may depend on what just one crewmember sees.

Other suggestions and lessons learned

■ Develop a sleep-management plan and make it a priority. Segregation of day and night crews is recommended. An aggressive fighter-management program is necessary and should facilitate mission support, not impede it.

■ Procure and train with a global positioning system (GPS). Using the GPS will reduce the stress level when navigating in low illumination and ensure accuracy.

■ Develop a severe weather plan before deployment. Winds at the NTC often exceed 50 knots; therefore, a plan for protecting personnel and aircraft is required. Enough aircraft field-mooring kits should be available to moor the aircraft in multiple tactical assembly areas. Procuring reinforced bars for tent-staking also will help to ensure security.

■ Allocate planning time for crews to plan the missions thoroughly and to study the map properly. With today's complex missions, time must work for you, not against you.

■ Don't try flying UH-60s in low illumination without the HUD. The less time you spend looking inside the aircraft, the better off you will be.

■ Use the *Risk Assessment and Control Options Program for Army Night Rotary Wing Missions* software. It works and will provide the commander with another risk-management tool.

■ Maintain tactical situational awareness. Getting distracted or focusing on one factor exclusively is easy to do. Know the enemy situation. Don't be predictable. Maintaining tactical situational awareness may keep you from sleeping in your aircraft overnight or running for your life to the nearest downed-pilot pickup point.

Thorough home station training and aggressive risk management can improve your unit's performance during an NTC rotation. Creating an environment where all personnel are empowered to identify unsafe conditions and provide the leadership with control options and countermeasures will ensure a realistic measure of success—all personnel and equipment returning home safely.

POC: CW5 Larry Newsom, Aviation Safety Officer, 18th Aviation Brigade, Fort Bragg, DSN 236-7767/8260 (910-396-7767/8260)

Aviation Branch Safety Office

TRADOC Regulation 385-2: *TRADOC Safety Program,* Chapter 4, establishes proponency for safety in each branch. The basic responsibilities of branch safety proponency are to integrate safety and risk management into the TRADOC domains of doctrine, training, leader development, organizational design, materiel requirements, and soldiers; monitor the safety performance of branch units and school products; and develop safety lessons learned and controls for hazards identified.

Proponency for Army aviation safety is under the control of the Branch Chief and Commander of the U.S. Army Aviation Center (USAAVNC), Fort Rucker, AL, and is managed by the Aviation Branch Safety Office (ABSO). Since establishment in 1987, ABSO has constantly focused its aviation force-protection efforts worldwide and fulfilled its responsibilities for installation safety at Fort Rucker and surrounding facilities.

Although not inclusive of all its duties, the following illustrates how ABSO addresses its responsibilities for—

■ **Integrating safety and risk management.**

● *Doctrine.* ABSO reviews aviation doctrinal manuals developed by the USAAVNC for general integration of safety and specifically for integration of risk management.

The ABSO staff has direct access to the aviation doctrinal sources (USAAVNC command and directorates); therefore, questions from the field regarding aviation safety doctrine and safety program management should be directed to ABSO. Although the U.S. Army Safety Center provides some aviation safety training (such as the Aviation Safety Officer Course and the Aviation Safety Noncommissioned Officer Course); investigates all Class A and selected Class B aviation accidents; produces aviation-related media products such as *FlightFax*, videos, and posters; and researches and analyzes aviation accident cause factors, they do not develop aviation doctrine. And, because their mission encompasses accident prevention and force protection for the entire Army, they cannot focus solely on aviation accident prevention.

● *Training and leader development.* ABSO is the proponent for safety in aviation training both at Fort Rucker and Armywide. The ABSO staff provides 12 hours of risk management and aviation safety program management instruction to the Aviation Officer Advance Course and the Aviation Warrant Officer Advance Course. Training on the Army Safety Program and aviation safety is integrated into the Aviation Officer Basic Course. ABSO monitors all other professional development courses at the USAAVNC for safety and risk-management integration. The ABSO staff also provides risk-management and safety-program seminar training to aviation units worldwide.

● *Organizational design.* ABSO works closely with the office of Aviation Proponency to ensure that aviation unit TO&Es, MTOEs, or TDAs have the appropriate safety staff representation.

● *Materiel requirements.* ABSO continually analyzes aviation mishap reports for cause factors and to identify hazards. Materiel factor trends identified in this analysis are brought to the attention of the command quickly. Working closely with the Aviation and Troop Command (ATCOM), ABSO assists in developing and implementing materiel deficiency countermeasures. The ABSO staff also works closely with the TRADOC System Managers (TSMs) and aviation Program Managers (PMs) to ensure that systems safety is integrated into the aviation materiel development and fielding process.

■ **Monitoring safety performance of units and school products.** A major duty of the ABSO staff is on-site assessment of aviation units. The two active duty aviation safety officers (ASOs) on the ABSO staff also are the Branch Chief's safety representatives for the Director of Evaluation and Standardization (DES). Traveling with DES teams, the ASOs evaluate and assist all active duty aviation units and many Reserve component units around the world. ABSO is the only safety office in the U.S. Army that performs this function on a worldwide basis. This is considered a critical ABSO responsibility because these periodic evaluations ensure that viable safety programs based on risk-management tactics, techniques, and procedures continue to exist in all aviation units, Branch Chief areas of interest are understood and emphasized, and lessons learned and countermeasures are shared among units.

■ **Developing safety lessons learned and controls.** ABSO's basic mission is to assist units in integrating risk

management into all aviation operations. Hazard identification, risk assessment, and development of risk controls are a part of every task accomplished by the ABSO staff.

Points of contact

The ABSO staff is available to help you accomplish your mission safely. We are your safety officers. If you have questions concerning risk management, aviation force protection, or accident prevention, please address them to Commander, U.S. Army Aviation Center, ATTN: ATZQ-S (ABSO), Building 115, Fort Rucker, AL 36362-5034; e-mail safety@rucker-emh3.army.mil; or contact the following ABSO subject matter experts:

■ **Branch Safety Manager (Director).** Mr. Jim Rogers, DSN 558-2301 (334-255-2301).

■ **Secretary.** Ms. Sharon Manning, DSN 558-3000 (334-255-3000).

■ **Accident reporting, accident investigation, and risk-management training.** Mr. Ron Cox, DSN 558-3210 (334-255-3210).

■ **Senior Safety Specialist.** Mr. Jack Schultz, DSN 558-1877 (334-255-1877).

■ **TH-67 and awards.** Mr. George Baker, DSN 558-1833 (334-255-1833).

■ **Fixed wing, UH-60, and flight data recorders.** Mr. Walt Garner, DSN 558-1866 (334-255-1866).

■ **UH-1, CH-47, OH-58A/C, POL, NVD, medevac, and ALSE.** Mr. John Langhammer, DSN 558-1745 (334-255-1745).

■ **AH-1, AH-64, OH-58D, RAH-66, and aerial gunnery ranges.** Mr. Jerry Smith, DSN 558-9006 (334-255-9006).

■ **Senior OSHA Specialist.** Mr. Frank McClanahan, DSN 558-1027 (334-255-1027).

■ **OSHA and motorcycle safety.** Mr. Bob Conner, DSN 558-1832 (334-255-1832).

■ **OSHA, explosives, and hazmat or hazcom.** Mr. Joe Sapp, DSN 558-1950 (334-255-1950).

■ **Branch Safety Officers.** CW5 Bob Williams, DSN 558-2388 (334-255-2388) and CW5 Scott Johnson, DSN 558-1993 (334-255-1993).

POC: CW5 Scott Johnson, USAAVNC Aviation Branch Safety Office, DSN 558-1993 (334-255-1993)

Know your flight surgeon

This might seem like a ridiculous statement. Of course you know your unit's flight surgeon. But there is a major difference between knowing who your flight surgeon is and knowing what he or she can do for your safety program. Contrary to popular belief, the flight surgeon is not there just to handle sick call, prescribe medication, and complete flight physicals. The flight surgeon can be a key resource in developing a first-class safety program. Fully understand the role the flight surgeon can play in your safety program and make him or her an integral part of it.

The ASO-flight surgeon relationship is one that must be nurtured. It's up to you to see that your unit's flight surgeon is brought into the Army aviation fold. To accomplish this, acquire an understanding of what real-world Army aviation training the flight surgeon has had. For the most part, it is nil compared to yours. Don't get me wrong; flight surgeons aren't just thrown to the wolves. They're provided basic Army aviation information, but is it enough? Do they know enough about aviation operations to recognize the hazards? If not, help them fill in the blanks.

Break your flight surgeon away from the office and get him or her actively engaged in all aspects of unit operations: range briefs, FARP inspections, air mission briefs, ALSE steering committee meetings, OPORD briefs. Make the flight surgeon an active member of your semiannual survey team. Does your flight surgeon review crash-drill training, new-equipment fielding, or MTOE changes? If not, why not? You will be surprised at the input the flight surgeon can provide.

By now you might be asking yourself if this is really the ASO's responsibility? The answer is an unequivocal "yes" if you want an outstanding aviation safety program.

POC: CW5 Gerald D. Cartier, ASO, 10th Aviation Brigade, Fort Drum, DSN 341-3402/3401 (315-772-3402/3401)

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.

■ **CW4 Elmer W. Wilson III, B Company, 6 Battalion, 159th Aviation Regiment, Fort Rucker, AL.** Ten minutes after takeoff on the second leg of a direct support mission, CW4 Wilson instructed the PI to fly a direct heading and 80 percent power to establish the UH-60A in cruise flight at 600 feet AGL and 150 knots. Ceilings were lower and tailwinds less than forecast, putting the mission slightly behind schedule. With the PI on the controls, CW4 Wilson directed his attention inside to update the Doppler. As CW4 Wilson focused inside, the crew felt a vibration and heard a banging sound. The aircraft yawed slightly left, then 60-degrees right and rolled left 15 to 20 degrees. In response, the PI reduced the collective and began a deceleration. Seeing a master caution and tail rotor chip light, CW4 Wilson immediately suspected a tail rotor malfunction and announced that he had the controls. He further reduced the collective, setting up straight descending flight. CW4 Wilson initiated a left turn to a selected landing area that was closely surrounded by tall trees and scattered houses. He added power to slow the rate of descent, and the aircraft yawed right 10 to 15 degrees and simultaneously shuddered. The crew heard the low RPM audio and saw a flash of yellow on the pilot's display unit. For lack of time to secure the engines, CW4 Wilson executed a full power-on autorotative descent. While announcing his intentions to the crew, CW4 Wilson focused his attention outside and adjusted aircraft attitude and rate of closure to the landing area. As he aggressively decelerated to ensure minimum ground run, the aircraft yawed left and the stabilator contacted small trees to the right of the flight path. At 10 feet, he pulled pitch and the tail wheel contacted the ground. At 5 feet, with the aircraft rapidly yawing right in a left drift, he placed the collective full down to stop the aircraft 6 feet short of large hardwood and pine trees at the end of the landing area. CW4 Wilson executed an emergency shutdown on slightly upsloping terrain to the rear and left of the aircraft. Postflight inspection revealed that the tail rotor paddles, retention plate, and slip ring had moved outboard to the crosshead, crushing the pitch change links and leaving a 5-inch gap between the slip ring and the deice stator. Further inspection revealed that the bevel gear shaft had failed internally.

■ **CW4 Stephen R. Selby, 571st Medical Company (AA), 4th Battalion, 4th Aviation Regiment, Fort Carson, CO.** After completing a night vision goggle medevac mission, the crew departed the tactical field site and flew the UH-1V to a cantonment area landing site. Upon turning for final approach to landing, the master caution light illuminated. Approximately 5 seconds later, the N2 gauge indicated an overspeed. CW4 Selby reduced the throttle to correct the overspeed. The N2 gauge dropped to zero. At about 50 feet AGL and 60 knots, the engine failed completely as the aircraft descended for a precautionary landing. CW4 Selby entered autorotation and landed the aircraft while avoiding wires and other obstacles in the dusty landing zone.

■ **CW4 Ronald Hugh Wells, Army Aviation Support Facility, Mississippi National Guard, Jackson, Mississippi.** CW4 Wells was test flying a UH-1V when the compressor section of the engine exploded with a loud bang, followed by yaw and total engine failure. CW4 Wells properly assessed the problem and entered autorotational descent. At the time of the failure, the aircraft was on a north heading at 1,200 feet AGL in a segment of the test flight corridor that is over an urban area with very few forced landing areas. With no suitable area to land, CW4 Wells turned the aircraft left about 90 degrees to search for an area. He found no available area and turned another 90 degrees. Finding an extremely small area with numerous trees and 6-foot underbrush, CW4 Wells maneuvered the aircraft into the area and completed the forced landing with minimum damage to the aircraft.

■ **Mr. Melvin John Strobel, contract instrument instructor pilot, Fort Rucker, AL.** After 15 minutes of intersection holding in instrument meteorological conditions (IMC), the UH-1H "tanker" descended to 2,000 feet MSL while on a radar vector to Cairns Army Airfield ILS runway 6 final approach course. The nonrated student pilot intercepted the localizer final approach course approximately 3 miles outside the outer marker. Upon glideslope interception, the UH-1 began its final approach descent in IMC. Approximately 30 seconds after glideslope intercept, the master caution and engine chip detector lights illuminated. Mr. Strobel took the controls and determined that the only available precautionary landing site was a small field directly beneath the aircraft. He

initiated a steep descending left turn to keep the landing area in site and advised air traffic control (ATC) that he was making a precautionary landing. After a heading change of approximately 60 degrees, the engine made a short grinding noise, followed by a second grinding noise, and then a loud bang. The engine seized. Mr. Strobel entered autorotation and reported the engine failure to ATC. The heavy aircraft (equipped with a nonjettisonable internal auxiliary fuel bladder that still contained 300 pounds of JP-8 and a fixed 450-pound counterweight opposite the auxiliary fuel bladder) was just 800 feet above the only available landing site. At approximately 300 feet AGL, Mr. Strobel completed the 180-degree autorotational turn and aligned the aircraft with the upslope of a cotton field terrace. Upon touchdown, the aircraft skids sank into the soft muddy soil (from heavy rains the previous 2 days) and the aircraft rocked forward as the landing gear folded back. The aircraft came to rest on its folded undercarriage with the aft portion of its belly resting in the mud. After the blades stopped turning and with the engine still smoking, the crew egressed uninjured. Mr. Strobel used the aircraft's fire extinguisher to extinguish a small stack fire. ❑

Our maintenance standard

We frequently talk about and occasionally debate the subject of the Army maintenance standard commonly referred to as "10/20." Our maintenance standard consists of more than just the preventive maintenance checks and services (PMCS) contained in the 10- and 20-level equipment technical manuals. The words are in AR 750-1: *Army Materiel Maintenance Policy and Retail Maintenance Operations.* They set a standard that requires our equipment not only be capable of accomplishing the immediate mission but also be complete with components and basic issue items and with scheduled services up to date and maintained in a way that will provide this capability over an often-extended life expectancy.

I often hear commanders and others refer to the "10/20" standard as "cosmetic maintenance" and as something that we should not be doing and cannot afford. The torn seat cushion is an example frequently used. A torn cushion would not be found in the "not ready" column of any of our PMCS charts nor will it keep a tank or truck from performing the immediate mission. But it is important.

The bedrock of our maintenance standard is the operator who performs PMCS on his or her vehicle. Every time one of our soldiers enters a shortcoming on a 2404 and an appropriate corrective action is taken, we reinforce our maintenance standard and our soldier. Every time the seat cushion stays torn, we set a new, lower maintenance standard.

We certainly do not need to order a new seat cushion each time we find a tear, but we do need to repair it. The 15 minutes spent with a canvas repair kit or 5 minutes with a roll of tape is time well spent. Our maintenance standard must become a "mindset" and PMCS a way of life.

Our maintenance standard is also our equipment transfer standard between MACOMs. This transfer process also seems to foster misunderstandings about the Army maintenance standard. Our maintenance standard does not call for a freshly painted vehicle, but it does require spot painting to prevent corrosion. It does not require new tires or track pads, but it does require that they meet the tread or wear criteria in appropriate 10- and 20-level technical manuals and in our safety regulations. A few judgment calls that cause disagreement are probably inevitable, but make sure that your inspectors at both the losing and gaining units are inspecting to our maintenance standard, not to a lower standard nor to a depot-level condition code B (that is, "like new") standard.

At the HQDA level, we truly believe that we resource the field with the necessary funding to maintain our equipment to our maintenance standard. We do this through a set of models that include usage data from your unit level logistics system (ULLS) and supply and maintenance data from your standard Army maintenance systems (SAMs) uploaded to the work order logistics file (WOLF). I ask you to take an interest not only in the timeliness of this data but in its quality as well.

Although dollars are certainly important, our soldiers, as always, are the most important link. We teach our maintenance standard in all of our TRADOC schools as part of the common core. However, shorter courses have inevitably forced a corresponding reduction in time devoted to formal maintenance training. This means that first-line leaders must teach and supervise maintenance checks and standards in the motor pool and on the flight line. In order not to waste our most precious resource, our soldiers' time, we must have an organized process that identifies and corrects equipment that does not meet our maintenance standard. I solicit your attention to processes. Measure them, set standards, enforce the standards, and use your measurements and insights to improve your processes.

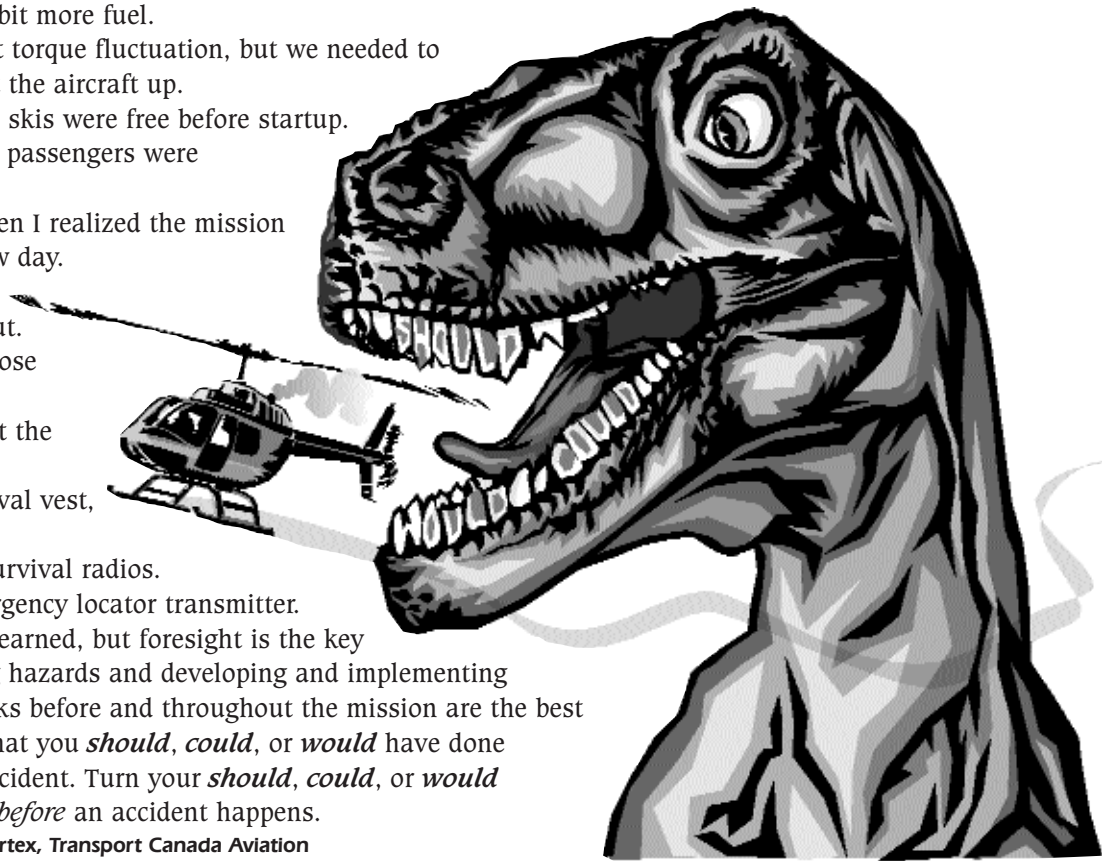
Every month, *PS Magazine* asks us, "Would you stake your life right now on the condition of your equipment?" Meeting our maintenance standard with good quality PMCS, property accountability, timely application of required modification work orders and safety-of-use or safety-of-flight messages, spot paint, and yes, repairing the torn seat cushion means that we can confidently answer "yes" to this question now and in the future.

—Adapted from Deputy Chief of Staff for Logistics message

I *should* have but . . .

How many times have you heard someone say, "I ***should*** have done this or I ***should*** have done that" after they had done something else or done nothing at all? Too often it's heard after an accident occurs. The same applies to ***could*** and ***would***. Before reality raises its ugly head to bite you, think a bit the next time you hear or say—

- I ***should*** have checked the weather more closely before I left.
- I ***should*** have taken a bit more time checking the condition and rigging of the slingload.
- I ***could*** have cleared the trees coming out of that confined area if I had had a bit more power.
- I ***would*** have planned the flight differently if the "old man" hadn't put pressure on me to get the mission accomplished.
- I ***could*** have made it with a bit more fuel.
- I ***would*** have written up that torque fluctuation, but we needed to complete the maintenance and get the aircraft up.
- I ***should*** have made sure the skis were free before startup.
- I ***should*** have made sure my passengers were appropriately briefed.
- I ***should*** have spoken up when I realized the mission would extend well beyond my crew day.
- I ***should*** have known the loose snow would cause a whiteout.
- I ***should*** have known that loose net would get airborne.
- I ***should*** have told him about the rotor blades.
- I ***would*** have worn my survival vest, but it was just a routine mission.
- I ***should*** have checked the survival radios.
- I ***could*** have armed the emergency locator transmitter.



Hindsight is great for lessons learned, but foresight is the key to accident prevention. Identifying hazards and developing and implementing controls to eliminate or reduce risks before and throughout the mission are the best ways to avoid lamenting about what you ***should***, ***could***, or ***would*** have done following the painful bite of an accident. Turn your ***should***, ***could***, or ***would*** statements into control measures *before* an accident happens.

—Concept courtesy of Aviation Safety Vortex, Transport Canada Aviation

FlightFax has new writer-editor

Beginning with the October issue, Ms. Sally Yohn will be the *FlightFax* writer-editor. Please submit material for publication, questions, and comments to her at—

U.S. Army Safety Center
ATTN: CSSC-RSA (FlightFax)
Bldg 4905, 5th Avenue
Fort Rucker, AL 36362-5363

DSN 558-2676 (334-255-2676)
FAX 558-9478 (334-255-9478)
e-mail yohns@rucker-safety.army.mil

STACOM
Standardization Communication

Correction to STACOM 167

Instructor/operator of aircraft simulators

STACOM 167 was published in the July 1996 issue of *FlightFax*. The last sentence in the second paragraph **incorrectly** reads, "Simulator operators are not authorized to administer checkrides, certify readiness level progression, fill out gradeslips, or impart **informal** flight instruction or evaluation to flight crewmembers." It should have said **formal** rather than **informal**. We apologize to DES and our readers for any confusion our error may have caused.

The STACOM point of contact at DES is Mr. Craig Cameron, DSN 558-9029/9098 (334-255-9029/9098).

Accident briefs

Information based on *preliminary* reports of aircraft accidents

Aviation flight accidents

Attack

AH-64 Class E

A series - While in cruise flight, "Oil PSI Acc Pump" light illuminated intermittently. IP returned aircraft to base and completed normal landing and shutdown. Inspection revealed that pressure switch had failed.

A series - During straight and level flight, crew observed oil low primary hydraulic and primary hydraulic PSI lights. Crew executed power-on descent and landed aircraft without further incident. Inspection revealed hole in hydraulic pressure line.

A series - During cruise flight, heading and attitude reference system (HARS) came off line and digital automatic stabilization equipment (DASE) disengaged. HARS would not restart in flight. Crew landed and tried another unsuccessful restart.

A series - APU fire caution light illuminated in flight. Crew landed aircraft in accordance with dash 10 emergency procedures. Maintenance replaced fire sensing element.

A series - At 100 feet AGL and 50 knots on NOE route, aircraft was crossing over ridgeline and starting descent down a drainage when No. 2 nose gearbox chip caution light came on. Crew attained single-engine airspeed and pulled No. 2 power lever back to idle. Caution light went out. Crew returned aircraft to airfield and completed roll-on landing without further incident.

A series - During cruise flight, utility hydraulic PSI caution warning light illuminated. Crew completed landing without further incident. Maintenance replace utility hydraulic pump.

A series - While conducting NVS flight operations, TADS slewed too far left and remained fixed in that position. Crew terminated flight and shut down aircraft. Maintenance replaced TADS turret.

A series - During terrain flight training, No. 2 generator caution warning light illuminated. Crew moved No. 2 generator switch to off/reset position and then back to on position several times without success in bringing No. 2 generator back on line. Crew flew aircraft back to airfield and completed landing without further incident. Maintenance replaced spline adapter.

A series - During maintenance test flight autorotational check, crew heard loud bang. Master caution and shaft-driven compressor caution warning lights illuminated immediately. PI in back seat executed landing in field and performed emergency shutdown. Maintenance replaced shaft-driven compressor.

Cargo

CH-47 Class C

D series - While en route to home station, crew landed for fuel and discovered that clamshell doors covering C-box area were missing. Doors were not recovered. Suspect failure of latching mechanism.

Observation

OH-6 Class C

C series - During standard autorotation, blades flexed and contacted upper anticollision light. All four main rotor blades sustained damage.

H series - During postflight inspection, crew noted overtorque reading of 86.2 on instrument monitor system. Investigation ongoing.

J series - During VFR night multiship training mission, Chalk 2 was practicing high gross weight formation takeoffs and landings when aircraft experienced overtorque.

OH-58 Class C

C series - While performing engine shutdown, PI who was sitting in left seat but using right-seat collective throttle inadvertently rolled throttle to full-off position prior to 2-minute cool down. Realizing his error, he rolled throttle back on. Hearing increase in engine noise, PC assumed control of throttle, started motoring engine, and rolled throttle off. TOT exceeded 1,000 degrees.

OH-58 Class D

C series - During IERW standard autorotation, aircraft touched down with low rotor RPM and encountered spike knock. During his left seat familiarization, PI had pulled initial collective too high and continued descent in nose-high attitude. IP took controls and leveled aircraft. Aircraft touched down with low Nr, resulting in pylon whirl and spike knock.

Fixed Wing

C-12 Class C

G series - Postflight inspection revealed lightning strike damage to HF whip monopole antenna, right lower dipole antenna, right elevator, and support beam and attached hardware.

OV-1 Class C

D series - During postphase emergency unfeather procedure, propeller RPM overspeed occurred. Crew secured engine and landed aircraft without further incident.

Flight-related accident

CH-47 Class C

D series - Flight engineer (FE) was performing fireguard duties during engine shutdown. Witnesses report that FE was beneath rotating aft rotor system and lightning bolt appeared to hit the ground nearby. FE was knocked to ground. Emergency services were contacted. FE was transported to medical facility and retained overnight for observation and treatment of minor injuries. Aircraft sustained rotor blade and bonding damage. Local weather advisory was in effect at time of accident.

E series - Soldier fell approximately 35 to 40 feet while conducting fast rope training. Soldier hospitalized with punctured lung and broken ribs.

Safety message

■ Aviation safety action maintenance mandatory message concerning increase in fatigue life of the forward support assembly, P/N 70400-08116-048, on all UH/EH/MH-60A aircraft (UH-60-96-ASAM-05, 091833Z Jul 96). Summary: Forward bellcrank support assemblies manufactured by Hicksville Machine Works, cage code 59384, serial numbers 1316HMW1 through 1316HMW560, were assigned a retirement life of 500 hours by UH-60-96-SOF-01. This retirement life has since been re-evaluated and determined to be 1,800 hours; therefore, the retirement life of Hicksville forward bellcrank support assemblies serial numbers 1316HMW1 through 1316HMW560 now have a retirement life of 1,800 hours. The purpose of this message is

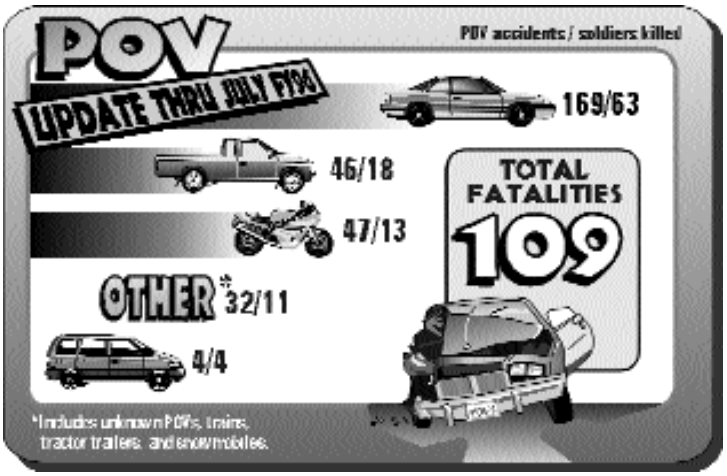
to require units to annotate the appropriate component records to reflect the new retirement life for the Hicksville forward bellcrank support assembly. Contact: Mr. Lyell Myers, DSN 693-2438 (314-263-2438).

■ Aviation safety action maintenance mandatory message concerning one-time inspection of the forward control installation for the manufacturer of P/N 114R3650-3 bolt assemblies on all CH-47D, MH-47D, and MH-47E aircraft (CH-47-96-ASAM-05, 241344Z Jun 96). Summary: The rotary wing head controls bolt assembly, P/N 114R3650-3, a flight safety part, is being manufactured by a vendor, Accurate Tool Co., that is not listed as an approved source in the U.S. Army Aviation Troop Command spares technical data package (TDP). Bolt assemblies, P/N 113R3650-3, that were manufactured by Accurate have been found in the field. Since they are not listed in TDP, none of Accurate's bolts have gone through as rigid a first-article testing as those manufacturers listed in the TDP. The purpose of this message is to require units to inspect and replace the rotary wing head controls bolt assemblies, P/N 114R3650-3, that were manufactured by Accurate Tool Co. Contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

■ Aviation safety action maintenance mandatory message concerning one-time visual inspection and records check of the upper boost actuators and pull test of swashplates on all CH-47D, MH-47D, and MH-47E aircraft (CH-47-96-ASAM-06, 271541Z Jun 96). Summary: Analysis of a CH-47D aircraft that experienced unexplained control binding has identified two potential flight control problems. The first problem is an out-of-adjustment condition on upper dual boost actuators overhauled at Corpus Christi Army Depot (CCAD), and the second problem involves swashplate binding due to increased friction. The purpose of this message is to require units to inspect and perform a one-time records check to identify the upper boost actuators, P/N 145H6600 and 145H6700, that have been overhauled by CCAD, assign a maximum of 12 months operating time for CCAD-overhauled actuators from the date of this message, conduct a forward and aft swashplate full/friction test, and require upper boost actuator blocks (P/N 114E5900-17) be installed anytime the hydraulic power is off for aircraft that have one or more overhauled actuators installed. The swashplates discrepancies will be repaired as necessary in accordance with the TM or returned to depot. All aircraft that have one or more overhauled actuators installed must have upper boost actuator blocks, P/N 114E5900-17, installed anytime the hydraulic power is off. Warning: Remove blocks when the hydraulic power is supplied. Contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

■ Aviation safety action maintenance mandatory message concerning requirement to inspect bond lines on the 114P8079-2 and -3 strap assemblies for looseness around the edges on all CH-47D, MH-47D, and MH-47E aircraft (CH-47-96-ASAM-07, 091405Z Jul 96). Summary: Following a phase maintenance inspection, the MH-47E prototype experienced a compressor stall of the No. 2 engine. The silicone rubber pad (P/N 114P8073-27) from the strap assembly (P/N 114P8079-3) had been ingested into the engine with subsequent engine failure. The strap assembly was removed and returned to Boeing Helicopters for analysis. The results of that analysis showed that a polysulfide sealant (Pro-Seal 890) had been used on the strap assembly instead of the prescribed adhesive. The purpose of this message is to require units to conduct a visual inspection to determine if the proper adhesive has been used on the subject strap assembly and corrective procedures are provided if the assembly fails the visual inspection. Contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

For more information on selected accident briefs, call DSN 558-3650 (334-255-3650).



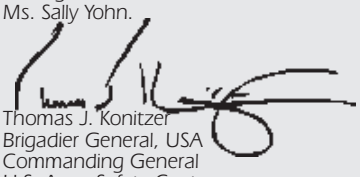
In this issue:

Class A Accidents through July

		Class A Flight Accidents		Army Military Fatalities	
		95	96	95	96
1ST QTR	October	0	1	0	0
	November	0	0	0	0
	December	1	0	0	0
2D QTR	January	1	1	1	0
	February	0	0	0	0
	March	1	2	0	7
3D QTR	April	1	1	5	3
	May	2	0	2	0
	June	1	1	0	6
4TH QTR	July	0	0	0	0
	August	2		5	
	September	1		0	
	TOTAL	10	6	13	16

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 558-2676 (334-255-2676). Address questions about distribution to DSN 558-2062 (334-255-2062). To submit information for FlightFax, use fax DSN 558-9478/3743, Ms. Sally Yohn.



Thomas J. Konitzer
Brigadier General, USA
Commanding General
U.S. Army Safety Center