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

Flightfax
March 1994 Vol 22 No 6
REPORT OF ARMY AIRCRAFT ACCIDENTS

Risk Management FOR COMMANDERS

I knew from the look on my safety officer's face as he walked in the door that I was about to hear the news that every commander dreads most. "Sir, there's been an accident; one of our Cobras has gone down!" he said. I felt my stomach twist into knots; my worst nightmare as a troop commander had happened. "Fatalities, injuries?" I muttered as I tried to grasp this painful news. "Yes sir, both crewmembers are dead."

"What happened?" I stammered, still trying to accept that this could really happen in my unit. "Apparently, they went inadvertent IMC, lost control of the aircraft, and crashed into the trees," the safety officer replied as he turned away to begin executing the pre-accident plan.

I hadn't called the battalion commander earlier for mission approval because it was only a medium-risk mission. Now I had to call and tell him about the accident, but first I needed a minute alone. I must somehow be responsible. It was a simple mission . . . *I thought.*

The mission

The mission was a multiship (two aircraft) NVG cross-country flight, point A to point B and return after refueling. How easy could it get? The weather wasn't all that great—but nothing the crews couldn't handle . . . *I thought.* My new, aggressive AH-1 instructor pilot was flight lead; how could there have been any problems? I know the crews did their mission planning because I signed the mission brief sheet and reviewed the risk assessment. I didn't evaluate their assessment, but everything seemed in order.

The risk assessment showed that it was just another medium-risk mission, and it was assessed as medium risk rather than low risk primarily because it was an NVG mission with a newly assigned aviator as part of the crew. I'm the approving authority for medium risk, and I didn't concern myself with that too much since it was just a cross-country flight.

It was a low-stress mission; the crew was in no hurry to get there and back. We didn't violate any procedures or policies that I knew of. The aircraft was in top shape—no reported deficiencies, not even on the dash 14. What could have gone wrong?

Focus on commander's role

As the commander agonizes over what went wrong, let's look at the accident from another perspective. Rather than dwell on any individual errors made by the crew, let's focus on the role the commander played or should have played in applying risk management in the unit.

Applying risk management

By now, just about everyone in America's Army should know about and understand the five-step risk management process. People in the field seem to have a good grasp of the risk management steps and are doing a good job in accomplishing some of them; but more work is needed on some of the others.

■ **Identify the hazards.** In Army aviation, we're doing this well. The process by which hazards may be identified include brainstorming, METL assessments, reviewing exercise lessons learned, experienced-aviator recommendations, and accident reports as well as unit hazard matrices and ones from similar units.

■ **Assess the hazards.** We need to do a lot more work in this area. This is where we can reduce the hazards identified by asking the hard questions and getting the right answers to help us make smarter risk decisions. This takes thought and vision before attempting the mission. Commanders must decide what constitutes a low-, medium-, high-, or extremely-high-risk mission beginning with their METL assessment. And they must ensure the assigned risk level accurately reflects all risks associated with the mission. In other words, don't let the high-risk mission slip through the cracks and be assessed as only medium or low risk.

■ **Make risk decisions.** Decisions become more obvious if the hard questions are asked first. Will the benefits to be gained from doing this mission outweigh the potential costs? Is there any single identified hazard that could of itself cause this mission to be a higher risk than is reflected on the risk assessment? Perhaps an independent assessment by the commander would bring this to light. If the mission is, in fact, a higher risk than identified on the risk assessment, then the commander should elevate the risk decision to the next level in the chain of command.

■ **Implement controls.** This is where we begin to make money in risk management. Leaders must take steps to eliminate or reduce the risks that have been identified for every mission regardless of the risk level. If the risks cannot be eliminated, then we must look for ways to control them.

■ **Supervise.** Leaders earn their pay in this step of the risk-management process. You must ensure your subordinates are carrying out your directives so that the unit can successfully execute the mission without an accident or injury.

Risk-management principles

The word is getting out on force protection and safety. It's being taught in the classrooms to officers and NCOs. On the flight lines, in the briefing rooms, and in the maintenance hangars, people are talking about how to identify, assess, and manage the risks associated with the task they are about to perform. But before commanders can effectively use risk management as an accident-prevention tool, they must remember to—

■ Integrate risk management into planning.
■ *Accept no unnecessary risk.*
■ Make risk decisions at the proper level.
■ Accept the risk if benefits outweigh the cost.

The probability is high that the accident in the scenario would have been prevented if the commander had made better decisions by more aggressively and effectively managing the risks within the confines of the stated rules and steps.

How could the accident have been prevented?

In the accident scenario, the commander briefed the mission, reviewed the risk assessment sheet, saw that it was in order, and signed as the approving authority. Because it was only a medium-risk mission, he signed off on the assessment without giving any further thought to altering the mission profile to lower the identified risks. In his mind, he fulfilled the requirement by filling out the necessary forms so his crews could train.

Remember the risk management principle: *Accept no unnecessary risk.* Although the risk assessment showed that the mission was only medium risk, the following identified hazards could have been eliminated or

controlled to further reduce the mission to a low risk one:

■ **The weather was forecast marginal VFR throughout the night.** Was this a necessary mission? Did it have to be done that particular night? Probably not. Rescheduling the mission for a time when the forecast weather would have been better was an option the commander could have considered.

■ **The crew had fewer than 700 hours each of total time and fewer than 100 hours collectively under goggles.** Were these crewmembers ready for this mission—even as simple as it seemed? Considering the weather conditions, the commander could have given extra thought to the fact that the mission was going to be performed by a newly assigned pilot and instructor pilot rather than two fully trained pilots. Perhaps there were other crew mixes the commander could have selected for the mission. And if the mission was readiness level training, why did they need to push the weather?

■ **The mission was not part of the unit's METL.** Were both crews trained to routinely execute this mission under the identified conditions? Was the training necessary? Performing a non-METL task may include additional hazards not previously identified; for example, inadvertent IMC formation breakup procedures. The risk may automatically be higher when performing a non-METL task. If any question existed, the commander should have notified the next higher level in the risk decision-making chain.

■ **The route of flight was over large areas of low or very poor contrast (large bodies of water coupled with low ambient light). The moon was just on the horizon at takeoff time and there was an intermittent cloud deck at 1,000 feet AGL.** Since there was no urgency to complete the mission, it could have been rescheduled for a time when light levels would have been higher. Rather than hoping that while en route the weather would improve, the commander could have had the crews delay their takeoff or change the route.

Did the risk assessment accurately reflect the true risk of the mission? Using the "prudent man" concept, flying a newly assigned pilot under goggles in formation and in marginal weather conditions would constitute a high risk within itself. In cases such as this one, would it hurt to notify the boss, just so he is aware, even if it is only a medium-risk mission? If it doesn't feel right, talk to your boss. Perhaps it's actually a higher risk than your assessment shows. Your commander may be able to provide some insight. **Numerical values on a risk assessment are not the end all.**

The commander in the accident scenario saw that his crews had accomplished the requirement for the risk assessment; however, he failed to apply sound *risk management*. He did not get actively involved in the risk assessment by thoroughly reviewing it or doing any further evaluation of the assessment. And his decision-making process did not include the steps to eliminate or control the known risks. The fact that he was the approving authority for a medium-risk mission meant he could sign off the mission. However, he still had an additional responsibility to aggressively pursue ways to reduce the identified risks.

This is perhaps the crux of many of our accidents: leaders are failing to complete the risk management (decision-making) cycle and in some cases are failing to become actively involved. Commanders are allowing crews to simply identify the hazards, assess the risk, get a numerical value on the assessment, decide who is the approving authority, get it signed, and off they go. *This is a leadership failure.*

Leader responsibility

Leaders are responsible for ensuring soldiers are not placed in situations where the risk is higher than the payoff. The risk management process is an integral part of leadership. "I thought it was a simple mission" has killed far too many people.

...be prepared for your worst nightmare.

Doctrine demands leaders do all they can to protect the force. Skillful risk management is the way to do just that. However, risk management does not end with the risk assessment; the terms are not synonymous. Risk assessment is a two-step process: identify the hazards associated with the mission and assess the hazards.

The risk assessment of those hazards is where leaders need to get more involved. While we review many hazards associated with a particular mission profile, it may be that only one or two hazards in that profile would be considered risky. The problem occurs when crews finish their assessment and come up with a numerical value that is assessed as low or medium risk even though there are one or two hazards that could pose a high risk. Using good judgment, commanders should review the assessment and upgrade the mission to a high risk because that one hazard that is risky could taint the whole mission unless steps are taken to eliminate or reduce that high-risk factor.

Heightened awareness of risks is a good tool for reducing accidents. If you believe numerical values are the end all to identifying and assessing the risks, then how do you explain the startling fact that most accidents happen during numerically defined low-risk missions? Accidents are not happening in the high-risk missions

because of awareness. The more aware crews are of the possible hazards, the more prepared they are to execute the mission successfully.

The risk assessment is completed before the mission begins. It can be a quick mental process or a detailed formal document. However, managing the risks is a continuous process. As new hazards are encountered during the mission, crews must continually apply the rules and mentally reassess the situation to determine if the risk level has changed.

All commanders have a responsibility to ask the hard questions of their mission planners, crews, and themselves. "Have we looked at every single identified hazard to determine if it could reasonably cause this mission to be a higher risk than is reflected on the risk assessment? Have we done everything possible to reduce or control the identified hazards?" If the answer is "No," be prepared for your worst nightmare.

Short of losing a loved one, losing soldiers under your command may be the most painful emotion you'll ever experience. Just imagine feeling somehow responsible for someone losing their life or suffering a disabling injury when you could have prevented it . . . if you had effectively managed the risks.

POC: MAJ Richard Young, Aviation Branch, DSN 558-3712, commercial 205-255-3712

ASO Corner

The **ASO Corner** is a new addition to *Flightfax*. It's being developed by the U.S. Army Safety Center (USASC) and the Aviation Branch Safety Office (ABSO) and is designed to provide quarterly professional updates to aviation safety officers (ASOs) in field assignments. Items of special interest to ASOs—such as information derived from recent Aviation Resource Management Survey (ARMS) inspections, current developments in the Army Safety Program or in Army aviation that affect the ASO (the Aircrew Coordination Program, Commander's Accident Prevention Program, risk management, reviews of new or modified regulations [AR 385-40 and DA Pam 385-40]), and so forth—will be included.

Aviation safety officer refresher training

Changes to the 6-week Aviation Safety Officer Course were addressed in the August 1993 issue of *Flightfax*. The course, as expected, continues to evolve, but the overwhelming response is that the change in focus has hit the mark. Recent graduates are proving they have the requisite skills to organize and operate a unit safety program.

In fact, the feedback from ARMS inspections and comments from experienced ASOs in the field are that the "old guys" need some of this training too. Based on this feedback, in November 1993 the Commander of the U.S. Army Aviation Center, MG John D. Robinson, requested that the USASC determine what measures could be taken to keep the unit ASOs up to date. The Director of Army Safety and Commander of the USASC, BG R. Dennis Kerr, directed the implementation of the **ASO Corner** in *Flightfax* to provide ASOs timely information. At the same time, BG Kerr gave the go-ahead for the development of a program of continuing education for aviation safety officers.

The USASC Training Division sent a survey to brigade- and higher-level ASOs in the Active Army and to ASOs in the state safety offices of the National Guard and in the Army Reserve Command. Additionally, the survey is being provided to each graduating ASO class and has been hand delivered during ARMS visits and during conferences attended by Safety Center and ABSO personnel.

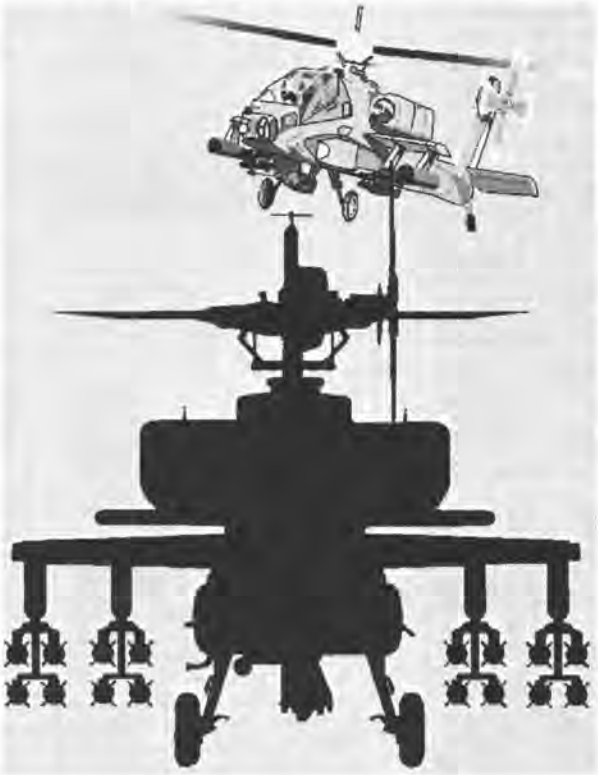
The survey asks aviation commanders and ASOs to identify the method of instruction they would prefer for the refresher training—print media, videotape, video teleconference, resident training at Fort Rucker, or an exportable training course. The course may even be tied to the Warrant Officer Education System. The survey also asks for input on the subjects that need to be included in the refresher training program.

The USASC has received unanimous support for ASO refresher training and very enthusiastic responses to the survey. Nearly 200 responses have been received to date. The information collection process is nearly completed; however, the data analysis and course development will continue through the summer. The target date to implement refresher training is first quarter of FY 95.

Remember, **ASO Corner** and refresher training are programs to support you. For these programs to be successful, ASOs in the field like you who have developed practical solutions to the safety problems we have all faced must become involved. If there are any topics you would particularly like to see in **ASO Corner**, please let us know. Take an active part—contribute.

POC: CW4(P) Stephen V. Rauch, Aviation Safety Officer, USASC Training Division, DSN 558-9868/2376, commercial 205-255-9868/2376

"There we were . . ." —a crew coordination success story



I'm in an AH-64 battalion, and we were at gunnery. The mission was to move an aircraft from the rearm pads to a holding area—a simple 30-second flight. My stick buddy was in the front seat and flying the aircraft as we departed from the rearm pads and headed for the holding area—a long, narrow open spot in the trees. The aircraft in the holding area were parked nose to tail, and he set up for an approach between two of the parked aircraft. As we came down on final, we lost view of the parked aircraft to our front, nothing unusual in an AH-64. But I noticed that he was shooting the approach to the parked aircraft instead of to the open spot to the aircraft's rear. I asked him, "Do you have the helicopter?" No response. I asked again, "Do you have the helicopter?" Still no response. I announced, "I have the controls," and executed a go-around. As we came around the second time I said, "You have the controls." He didn't say anything. Instead, he held up his hands to indicate that I should keep flying.

It was strange that he wouldn't talk to me. I thought perhaps he was mad. When we landed, I asked if he could hear me. He gave me a thumbs-up. I asked if he could talk. He gave me a thumbs-down. His microphone had failed.

In the span of about 5 seconds, our routine, 30-second flight had almost become a major accident. We could have destroyed two expensive helicopters, injured or killed ourselves, and injured or killed a crew chief who was working on the parked helicopter. Instead, we salvaged the situation.

Crew coordination techniques worked

The crew coordination techniques we had learned in previous training saved the day. Specifically, we used our crew briefing, standard cockpit operating procedures, and the two-challenge rule. We also managed to avoid problems with complacency and excessive professional courtesy.

My stick buddy and I have both been flying Apaches for a while. He is an IP and was the pilot-in-command on the flight. I believe he's a great pilot, and admittedly, there's a tendency on my part to trust him a lot more than I would a less-experienced or skilled pilot. In other words, it would have been easy for me to be complacent. Fortunately, that didn't happen. I was paying attention and I reacted accordingly.

Less-experienced aviators might be reluctant to question an IP or a senior-ranking person. This is a problem with excessive professional courtesy. My stick buddy and I are peers, so it was really not an issue in this case. Additionally, during our crew briefings, he made it clear that we should speak up if anything made us uncomfortable.

Standard cockpit operating procedures were helpful because when his microphone failed, I knew immediately that we weren't doing things the way we normally would. The simple fact that we weren't following our normal procedures indicated to me that there was something wrong, although I had no idea what it was until later.

The most beneficial technique we used that day was the two-challenge rule. If you ask the other crewmember about something twice, and he or she doesn't respond, you take the controls. This guards against subtle incapacitation of the other crewmember and, more practically, keeps you from hitting things. We briefed the two-challenge rule thoroughly when we started flying together. It's simple, but it worked as advertised. In this case, I asked him twice if he saw the helicopter. When he didn't respond, I took the controls.

Fortunately on that particular day, we were able to apply some of the things we had learned about crew coordination to help us operate as an effective crew and prevent a disaster. We also relearned the lesson that there are no routine flights, even for experienced crews.

—CW2 Kevin M. Purtee, C Company, 4-229 AHR, APO AE 09140

Follow oil-sample procedures

At approximately 75 feet AGL, the instructor pilot (IP) noticed that the engine torque and oil pressure gauges indicated zero. He took control of the aircraft and landed as soon as possible. Maintenance personnel advised him to keep the engine running after landing, which the IP did for about 5 to 7 minutes.

Inspection revealed that the torque indications and loss of engine oil pressure were caused by a foreign object restricting the flow of oil to the engine-driven oil pump.

Oil-sampling procedure

The foreign object entered the oil supply line because of improper oil-sampling procedures. A 2-inch-long clear plastic tip of a 2-ounce catheter tip syringe was sucked into the oil supply line as an engine oil sample was being taken.

Use of a syringe is not the approved oil-sampling method outlined in TB 43-0106. Section IV and Appendix A of the TB identify the tubing and drain methods as the proper ways of obtaining oil samples.

Army Oil Analysis Program

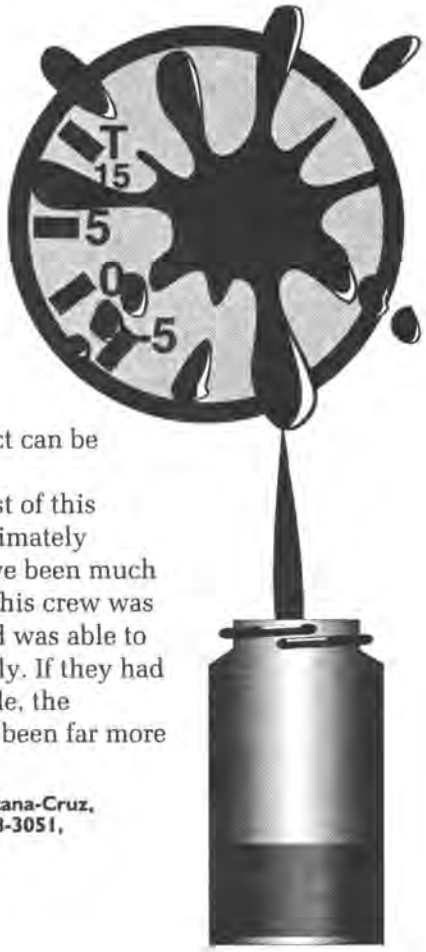
The history of the Army Oil Analysis Program (AOAP) clearly shows that proper sampling procedures by the operating unit are essential to obtaining a true evaluation of the condition of a component. For that specific reason, each commander whose unit participates in the AOAP should designate one or more individuals to monitor and control the program.

The individual designated to supervise the AOAP must—

- Monitor requisitions to ensure that a sufficient supply of sampling kits and supplies are available at all times.
- Ensure that users of selected equipment are properly instructed in the correct procedures.
- Ensure that routine and special sampling requirements are accomplished as prescribed in the technical manual.

Unless the oil sample is truly representative of the oil circulating in the oil system, it will be useless as an indicator of defects or condition of wear in a component. In order to ensure that samples of the highest integrity are submitted to the laboratory, the following precautions should be taken:

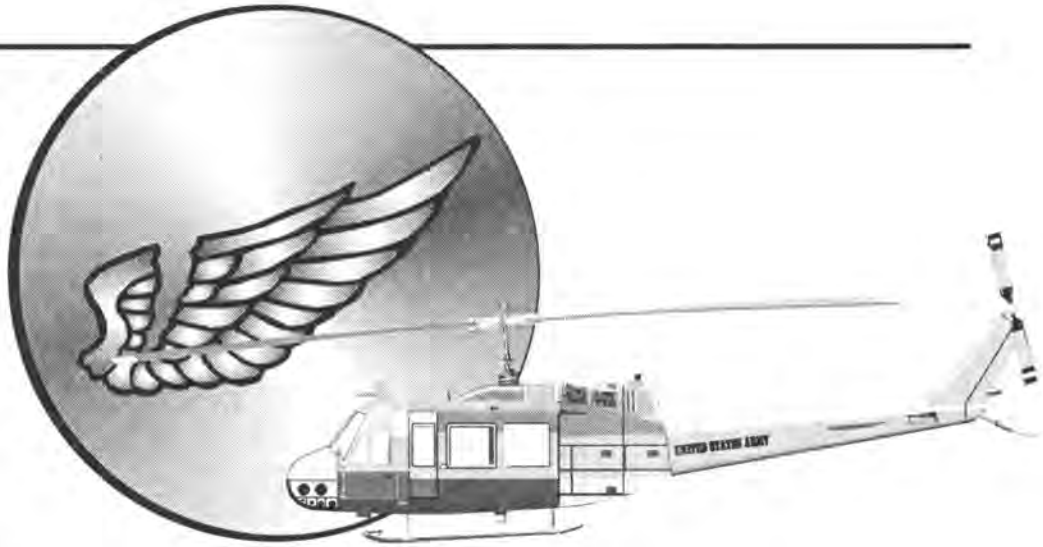
- Always take the samples while a component is still warm. Samples must be taken within 15 minutes of an engine shutdown or aircraft landing. If a sample is to be taken from an aircraft that is cold, run the system until it reaches normal operating temperature, then shut off the system and take the oil sample. If it is impossible to operate the system, as in the case of an aircraft that is down for maintenance, indicate that the sample is a "cold" sample on the accompanying DD Form 2026 and explain the circumstances.
- Store unused sampling supplies in a clean, closed container. Remove them only when you are going to take a sample. Avoid contamination of cut tubing and the inside of caps by keeping them sealed until needed.
- Use a new sampling tube to fill each sample bottle. Discard the tube after sampling.
- Take the sample from approximately the same depth in the reservoir each time.
- Do not use mouth suction to draw oil into a sampling tube. Some lubricating oils are highly poisonous.
- Avoid letting the sampling tube touch the sides and bottom of the oil reservoir to prevent contamination of the oil sample.
- Take special precautions at all times to avoid dropping sampling equipment into oil reservoirs where it can damage and possibly cause the component to fail. If you do drop anything into the reservoir, do not keep quiet and hope that nothing happens. Immediately, tell your supervisor so that the foreign object can be removed.



Although the cost of this accident was approximately $25,000, it could have been much worse. Fortunately, this crew was only 75 feet AGL and was able to land the aircraft safely. If they had been at cruise altitude, the outcome could have been far more costly.

POC: SFC(P) Alcides Santana-Cruz, Aviation Branch, DSN 558-3051, commercial 205-255-3051

Broken Wing award



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.

CW4 Lawrence E. Oakley, Company A, 1st Battalion, 158th Aviation Regiment, Grand Prairie, TX. Before landing at a downed-aircraft site, the UH-1H crew circled the area to determine the best approach and departure path. The crew then advised the tower of their intentions before landing. As soon as the maintenance recovery aircraft arrived and the maintenance officer assessed the situation, the UH-1 crew was released to depart. Although their approach had been on a westerly heading, the crew had determined before landing that their best departure path would be to the north over two large fields separated by a tree line running from east to west, thus avoiding a row of houses immediately west of the landing zone. After conducting the pre-takeoff checks, CW4 Oakley brought the aircraft to a hover and taxied around the two stationary aircraft and out into the middle of the open area just west of their location. Positioning the aircraft into the wind and the intended departure path at a 5-foot hover, the crew noted that their hover power required had decreased from 29 pounds of torque at the start of the flight to about 25 pounds. This was due not only to the fact that they were down to just over 400 pounds of fuel remaining but also because the density altitude and temperature had been decreasing throughout the day as the result of a cold front passing through that morning. After reviewing the pre-takeoff checks again, CW4 Oakley initiated a normal takeoff from a hover and started climbing out to the north. At about 100 feet AGL and 40 to 50 knots, the crew heard a sudden, tremendous increase in engine noise coupled with the unmistakable sound of rotor RPM increasing. A quick look at the engine instruments revealed that although the rotor RPM was increasing rapidly above the normal operating range with the high RPM warning light illuminated, the needles had split and N2 RPM was decreasing. Instantly, CW4 Oakley decided to disregard the dropping N2 indication. He fully believed the aircraft was experiencing a high-side governor failure. The engine was obviously still running, and CW4 Oakley knew it would soon drive the rotor RPM right off the scale if he didn't take immediate corrective action. CW4 Oakley started increasing the collective and simultaneously decreasing the throttle to flight idle while applying left pedal to compensate for the nose of the aircraft starting to yaw right. Engine noise immediately began to drop off in response to the throttle reduction. As rotor RPM returned to the normal operating range, CW4 Oakley lowered the collective to maintain rotor RPM and establish an autorotational glide. Although the altitude and airspeed were not optimum for initiating an autorotation, the aircraft was high enough to clear a small tree line ahead and make it to the open field beyond. CW4 Oakley again quickly looked at the engine instruments and saw that the rotor RPM was in the green and N2 was zero but N1 appeared to be decreasing normally in response to the throttle reduction. He decided to execute the emergency governor operations procedure in an attempt to accomplish the landing with power while still being prepared to land with the power off from the autorotation. During the flare, CW4 Oakley increased the throttle, noted a corresponding increase in N1, and coordinated the throttle to maintain rotor RPM while terminating the approach to the ground with power. As soon as the aircraft touched down, he rolled the throttle back to flight idle, noted an engine chip detector warning light had illuminated, and completed an engine shutdown. It is suspected that the N2 spur gear failed, resulting in an N2 overspeed governor failure.

PRAM problems

The Army Safety Management Information System (ASMIS) contains over 20 years of Army aviation accident and incident data and is a valuable safety resource for the aviation community. Among other things, the ASMIS is used for hazard identification and trend analysis. Information obtained from the analysis is then provided to the U.S. Army Materiel Command and U.S. Army Aviation and Troop Command as well as major command, installation, and unit safety personnel. One way aviation unit personnel contribute to this data base is by reporting aviation accidents and incidents, using the Preliminary Report of Aircraft Mishap (PRAM).

Problem areas

PRAMs have been around a long time and until recently were sent to the Army Safety Center via electronic message through tactical communication centers (TCCs) or by mail. Changes in communication technology and various problems regarding TCC use have prompted changes in the authorized means of transmitting these reports. However, some old problems still exist and some new ones have emerged with regard to complete, clear, and concise data.

■ The information in the original PRAM and information forwarded in.the supplemental PRAM often

> *Aircraft was carrying a slingload for use as a target. The load began to spin and wrapped the slings around each other. The PC slowed the aircraft and prepared to land. While at 125 feet AGL, the sling snapped and load dropped. There was no damage to the aircraft, and the crew continued the flight.*

do not match. For example, the following is a summary received in an original PRAM:

A supplemental PRAM received sometime later stated that the transmission was replaced and the aircraft was released for flight. In this instance, the supplemental PRAM was received for the same aircraft, but it was for a different incident entirely. Because the time of occurrence entered in the supplemental PRAM matched that of the first incident, the supplemental information was added to that incident. Actually, the two incidents occurred 15 minutes apart. The wrong time had been entered on the supplemental PRAM.

■ Another problem occurs when querying the data base for materiel trends. Too often the PRAM component information is only partially entered or not entered at all. This gives inaccurate data regarding specific part number/national stock number queries on component anomalies.

■ Faxing of PRAMs to the USASC (as is now authorized under the new submission procedures) saves time for the sender and provides timely information for the Safety Center. However, the purpose is defeated when USASC personnel have to call the PRAM POC and request that the PRAM be resubmitted because of illegible handwriting, missing information, or garbled transmissions.

■ Unit-generated PRAM worksheets have been arriving at the USASC that do not conform to the format required by AR 385-40. In other words, they do not maintain the information sequence and/or they omit data entries altogether.

■ Failure of units to report incidents is a continuing problem. Without the information from Class D and E incidents, there may not be enough information in the data base for identification of hazards or trend analyses.

Although the benefits from completing PRAMs are often not immediately seen at the unit level, they do provide an invaluable service to all of Army aviation. We owe it to our fellow soldiers to make Army aviation as safe as we possibly can. And you can contribute to that goal by taking the time to complete and submit PRAMs correctly. The end result will be that force protection effectiveness will be enhanced. Help us help you.

POC: SFC John M. Morthole, Aviation Branch, DSN 558-2119, commercial 205-255-2119

ShortFAX
Keeping you up to date

Systems managers

The Army Safety Center has recently been switched over to the new Fort Rucker, AL, "single-line concept" telephone system. Aviation systems managers and their phone numbers are listed below. DSN is 558-XXXX; commercial is 205-255-XXXX. The FAX number for all members of the Aviation Branch is 9478.

- Branch Chief—LTC(P) William A. Tucker, 3756
- Utility Aircraft—MAJ Richard C. Young, 3712; MAJ Carl T. Brooks, 3034; or MSG Robert E. Price, 3754
- Attack and Observation Aircraft—MAJ Mark F. Newton, 9856; CW5 Robert A. Brooks, 3703; or MSG Alcides Santana-Cruz, 3051
- Cargo and Fixed Wing Aircraft—CW4 Daniel O. Baxter, 3774; or SFC John M. Morthole, 2119
- Night Vision Devices—CW5 Robert A. Brooks, 3703
- *Flightfax*—Ms. Jane D. Wise, 3770

The address for members of the Aviation Branch is Commander, U.S. Army Safety Center, ATTN: CSSC-PMA (individual's name), Building 4905, 1209 5th Avenue, Fort Rucker, AL 36362-5363.

Attention medevac commanders and standardization officers

The new Medical Service Corps (MSC) advisor for the Directorate of Evaluation and Standardization (DES) at the U.S. Army Aviation Center is CPT Gordon Mayes. Any questions concerning aircrew training programs, standing operating procedures, aircrew training manuals, field manuals, training circulars, regulations, night vision goggles, environmental programs, or enlisted standardization programs should be addressed to CPT Mayes. Questions concerning DES visits for aviation resource management surveys, assistance visits, or equivalency evaluations should also be addressed to CPT Mayes at DSN 558-2770/3325, commercial 205-255-2770/3325, or FAX 558-3113, commercial 205-255-3113.

Fly safe. And remember that modernization will get you there, but only standardization and safety will get you home. Thank you for 2 great years and the education of my life.

—CPT Leonard W. Bowley, MSC Advisor, DES

Caution—wake turbulence

The Federal Aviation Administration has issued an "all pilots" letter warning of recent accidents/incidents involving aircraft following a Boeing 757 under visual flight rules. It is suspected that these incidents may have been caused, in part, by an encounter with wake turbulence from the preceding Boeing 757.

To reduce the possibility of these kinds of occurrences, air traffic controllers will now issue wake turbulence cautionary advisories to aircraft following Boeing 757s under visual flight rules.

All aviators are urged to take the time to reeducate themselves on wake vortex characteristics and avoidance procedures starting on page 7-3-1 of the Airman's Information Manual dated 6 January 1994. With proper emphasis and education, wake turbulence incidents can be avoided.

—SFC John M. Morthole, Aviation Branch, DSN 558-2119, commercial 205-255-2119

Keep doing what you're doing

Comments from the field indicate that some units have misinterpreted information contained in the crew coordination article featured in the December 93 issue of *Flightfax*.

Many units presently have successful crew coordination training programs. Units are encouraged to continue crew coordination based on guidance in TC 1-210: Commander's Guide and individual ATMs until their personnel have been trained in the Army's Aircrew Coordination Training Program.

Hypobaric chamber operational

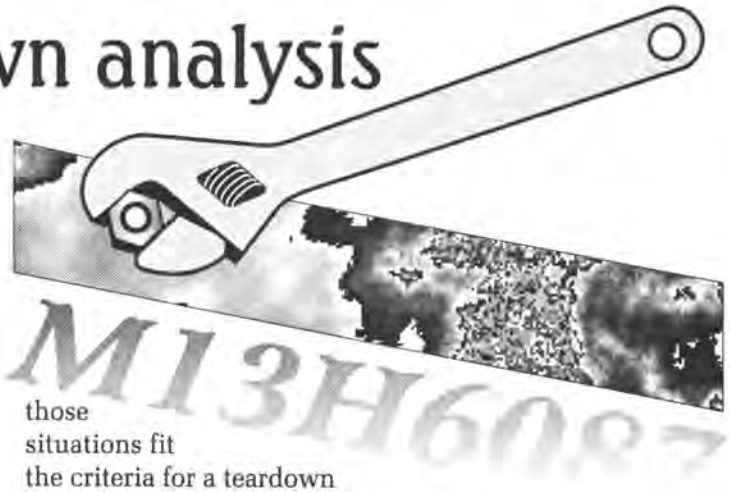
The hypobaric (altitude) chamber at the U.S. Army School of Aviation Medicine (USASAM), Fort Rucker, AL, has been restored to full operational status. Rapid decompression profiles are available.

For information concerning the hypobaric chamber training schedule, contact the USASAM Operations Division at DSN 558-7460/7467, commercial 205-255-7460/7467.

Flightfax readers

With this issue, we're making some changes in the way we look. You may have noticed some difference in layout, typefaces, and the way we present information. We want Flightfax to be user-friendly so that we can better serve you. If you have comments or suggestions, write to: Commander, U.S. Army Safety Center, ATTN: CSSC-IME, Bldg 4905, 1209 5th Ave, Fort Rucker, AL, 36362-5363 or call DSN 558-2140/2073, commercial 205-255-2140/2073.

Requesting teardown analysis control numbers



DA Pam 385-95: Safety: Aircraft Accident Investigation and Reporting, chapter 6, paragraph 6-22b states that "requests for teardown and analysis will be made in the interest of establishing aircraft or materiel deficiencies for use in accident prevention or to establish causes of aircraft accidents." Quality deficiency reports (QDRs) are required by chapter 3 of DA Pam 738-751: Functional Users Manual for the Army Maintenance Management System—Aviation (TAMMS-A).

The Safety Center issues teardown analysis control numbers for flight safety items and to support installation centralized accident investigations. However, some confusion about whether to request teardown analysis control numbers or QDR control numbers exists among the people in the field who are involved in installation-level accident investigations. Most confirmed or suspected materiel failures require submission of a QDR (DA Pam 738-751) but not all of those situations fit the criteria for a teardown analysis control number (DA Pam 385-95).

The Safety Center and Aviation and Troop Command (ATCOM) require that units obtain an ATCOM QDR number (not the unit quality-control-generated number but a specific QDR number issued by ATCOM) before contacting the Safety Center to obtain a TDA control number. Requesting and obtaining a QDR control number will keep ATCOM funding, materiel, and project managers informed too.

POC: SFC John Morthole, Aviation Branch, DSN 558-2119, commercial 205-255-2119

Accident briefs

Information based on preliminary reports of aircraft accidents

Utility

UH-1 Class A

H series - While at 8- to 10-foot hover in preparation for day VFR external-load training, aircraft began left roll that continued to ground impact in left-side-low, nose-high attitude. Crew sustained minor injuries, and aircraft sustained extensive damage. 9411

UH-1 Class C

V series - During second test flight for adjustment of TT straps, with hydraulics off, N2 drooped to 5700 and Nr to 280. Pilot lowered collective and initiated right turn into wind. N2 and Nr remained unchanged with collective in full-down position. Pilot then placed governor in emergency position and engine oversped (7400/370 rotor RPM) for 7 seconds. Postflight inspection revealed that engine was damaged beyond repair.

UH-60 Class C

A series - During ground taxi for takeoff, No. 1 engine V-band broke. Exhaust cone slipped backward, and engine exhaust was forced forward, scorching engine cowling and components. Crew completed shutdown without further damage.

A series - While hovering into POL, turbine gas temperature on No. 2 engine fluctuated in the red and then went to 1,000°C for about 3 to 5 seconds. Crew performed emergency engine shutdown. Investigation and teardown analysis are in progress.

Attack

AH-64 Class A

A series - Aircraft experienced an in-flight rotor separation. Two fatalities. 9412

AH-64 Class B

A series - Chalk 2 PC made left turn while focusing his attention primarily to the right. Pilot was also looking right. When he looked to the left, he noticed that altitude was 80 feet AGL. Pilot warned PC, and PC applied sufficient collective to droop rotor to 94 percent as aircraft struck trees. 9348

Cargo

CH-47 Class C

D series- During cross-slope landing to sod area, aircraft slid right, breaking left aft drag brace and severing several hydraulic lines. Aircraft also sustained sheet metal damage to landing gear cowling.

Observation

OH-6 Class A

J series - During dive recovery following target engagement, aircraft struck trees, damaging rotor system. Aircraft then impacted ground from vertical descent. Crewmembers sustained injuries, and aircraft was destroyed. 9347

OH-6 Class C

A series - While returning to airport in straight and level flight, engine quit. Crew entered autorotation. At 900 feet AGL,

crew performed 360-degree turn into wind to reach open field. Tail boom was severed during touchdown. Aircraft spun right and came to rest upright facing 180 degrees from landing direction.

OH-58 Class A

A series - During night-aided (AN/AVS-6) tactical terrain flight, lead OH-58 in flight of three entered instrument meteorological conditions (IMC) as they crossed over ridgeline. Crew initiated inadvertent IMC recovery procedures with climbing left turn to 4,000 feet. During climb, crew squawked emergency on transponder and was monitored by radar. At 4,000 feet, pilot allowed airspeed to drop to near zero and aircraft entered into uncontrolled rate of descent. Aircraft impacted ground in 20- to 30-degree nose-low, 30-degree roll, and 15-degree yaw attitude with forward airspeed exceeding 60 knots. Two fatalities. 9413

OH-58 Class C

A series - Aircraft was hovering downwind when gust lifted and pushed aircraft toward power line. PC reduced collective and turned into wind. As PC reapplied collective, N2 drooped to below 96 percent and audio sounded. PC twisted throttle open to see if it had backed off and N2 rejoined rotor at 100 percent. Pilot saw torque coming down from 120 percent. Crew landed and shut down aircraft.

A series - Upon approach to taxi, crew stopped aircraft following right pedal turn and aircraft experienced 125 percent engine overtorque.

C series - While following flight of AH-64s in cruise flight, aircraft yawed right, "shuttled," and torque drooped to zero. Pilot entered autorotation. When N1 stabilized at 60 percent, pilot initiated power recovery. Aircraft touched down hard and slid 6 to 8 feet.

Fixed wing

C-26 Class C

B series - Upon touchdown on patchy snow and ice-covered runway at civilian airport, aircraft skidded left. Pilot was unable to stop skid before propeller impacted snow bank. Inspection revealed damage to propeller, and sudden stoppage of engine occurred.

FOD incident

OH-58 Class D

D series - Pilot was performing aircraft ground run after main rotor blade reinstallation when he heard bang and shut down aircraft. Inspection revealed damage to leading edge of one main rotor blade. Damage was caused by strike from pliers left on top of rotor head after maintenance had been completed.

Messages

■ Safety-of-flight emergency message concerning immediate grounding of UH-1 aircraft with T53-L-13BA engines, P/N 1-000-060-10/-10A (UH-1-94-01, 182200Z Feb 94). Summary: T53-L-13BA engines, P/N 1-000-060-10/-10A, with high hours on the power turbine assemblies are subject to failure. Aircraft with -10/-10A engines are immediately grounded until replaced with a -22 engine. The repair of the power turbine nozzle was done only on the -10/-10A nozzle. In the rebuild of the -22 engine, the new power turbine nozzles were used. The high-time power turbine rotors that are in some -22 engines do not affect safety since the power turbine nozzle is "new." Disposition and requisition instructions will be sent by a followup message. The -22 engines are not grounded by this message. Contact: Mr. Brad Meyer, DSN 693-2085, commercial 314-263-2085.

■ Aviation safety action maintenance mandatory message concerning crew seatbelts in all UH-1, AH-1, UH-1, CH-47, and OH-58 aircraft (UH-1-94-ASAM-02, AH-1-94-ASAM-03, CH-47-94-ASAM-04, and OH-58-94-ASAM-06, 081705Z Feb 94). Summary: The pilot and copilot seat/lap belt has been discovered to be improperly secured to the release handle of the seatbelt assembly. If this pin falls out, the seatbelt mechanism comes apart and becomes ineffective. The purpose of this message is to require a one-time inspection of the pilot and copilot seatbelt buckle for an improperly secured pin that is located in the release handle of the seatbelt assembly. Contact: Mr. Jim Wilkins, DSN 693-2258/2085, commercial 314-263-2258/2085.

■ Aviation safety action maintenance mandatory message concerning reissue of one-time inspection to remove suspect tail rotor pitch beams on all H-60 Army aircraft (UH-60-94-ASAM-04, 011541Z Feb 94). Summary: This is a reissue of UH-60-93-ASAM-06 (TB 1-1520-237-20-136), which was issued to locate and remove from service certain serial number tail rotor pitch beam assemblies that were suspected of having dimensional discrepancies. Reporting requirements of the previous message/TB did not provide adequate instructions to ensure that all suspect assemblies were reported as located/removed. The purpose of this reissue is to obtain documentation that all suspect tail rotor pitch beam assemblies have been replaced. Contact: Mr. Jim Wilkins, DSN 693-2258, commercial 314-263-2258.

■ Aviation safety action maintenance mandatory message concerning one-time removal of tail gearboxes with tail gearbox output shaft, P/N 70358-06620-101, for rework on all H-60 Black Hawk helicopters (UH-60-94-ASAM-05, 081830Z Feb 94). Summary: An EH-60A aircraft was involved in a Class B mishap. The cause of the mishap was attributed to a low-time fracture of the tail gearbox output shaft, P/N 70358-06620-101. As a result, tail rotor gearboxes containing P/N 70358-06620-101 output shafts will be taken out of service for rework at different intervals, depending on the output shaft usage time. Tail gearboxes with P/N 70358-06620-101 output shafts with less than 800 hours' time since new will be removed within the next 100 hours. Tail gearboxes with P/N 70358-06620-101 output shafts with more than 800 hours' time since new will be removed within 500 hours. P/N 70358-06620-101 output shafts will be reworked with improved fracture resistance and will be identified with a suffix "A" in the serial number. Output shafts identified by P/N 70358-06620-102 were installed on production aircraft beginning in FY 89 and were manufactured using the improved fracture-resistant procedures. The purpose of this message is to remove tail gearboxes containing P/N 70358-06620-101 output shafts at different intervals until the output shafts are reworked. Contact: Mr. Brad Meyer, DSN 693-2085, commercial 314-263-2085.

■ Aviation safety action maintenance mandatory message concerning cockpit standardization of pilot and copilot restraint release systems in all H-60 aircraft (UH-60-94-ASAM-06, 081900Z Feb 94). Summary: Currently, two possible operational release configurations of pilot and copilot restraint systems (either lanyard-pull or rotary-release buckles) could exist within H-60 cockpits. A recent Class A accident investigation cited cockpit crewmembers having difficulty discerning at the time of egression which type of restraint release system/buckle they were wearing. The purpose of this message is to require standardization of the type of pilot and

copilot restraint system release mechanisms within each particular H-60 aircraft. Contact: Mr. Lyell Myers, DSN 693-2258, commercial 314-263-2258.

■ Aviation safety action maintenance mandatory message concerning retirement life change for Avibank blade pins, P/N 53460-3, on all AH-64 aircraft (AH-64-94-ASAM-02, 181729Z Jan 94). Summary: Fatigue tests were conducted on a blade pin, P/N 53460-3, as a result of a crack found on a main rotor blade pin, P/N 53460-3, manufactured by Avibank Corporation. The results dictate the reduction of the life on the Avibank pin only from 8,800 to 2,350 hours. Pins manufactured by any of the other approved vendors still have an 8,800-hour life as seen in the latest issue of the interim statement of airworthiness qualification and TM. The purpose of this message is to require inspection of all AH-64A aircraft for pins manufactured by Avibank Corporation and either remove the pin or change the logbook to reflect this new fatigue life depending on the current time on the part. Note: Do not confuse the requirements of this message with TB 1-1520-238-20-39. Contact: Mr. Jim Wilkins, DSN 693-2085, commercial 314-263-2085.

■ Aviation safety action maintenance mandatory message concerning one-time and recurring inspection of certain rigid connecting links, P/N 145C3340-10, until replacement on all CH-47D, MH-47D, and MH-47E aircraft (CH-47-94-ASAM-03, 241340Z Jan 94). Summary: During ground runup, a connecting link, P/N 145C3340-10, broke. Teardown analysis revealed that the tensile strength of the connecting link was below drawing requirements. Analysis also revealed a 3-inch lengthwise scrape mark on the failed link that contributed to its failure. This scrape mark was attributed to a foreign object becoming lodged between the link and an adjacent bulkhead. The purpose of this message is to—

- Direct a one-time inspection to determine if connecting link, P/N 145C3340-10, in the subject lot is installed.
- Direct a recurring controls check, prior to each engine start, of connecting link, P/N 145C3340-10, in the subject lot until replacement.
- Direct replacement of connecting link, P/N 145C3340-10, in suspect lot when replacement links are available.
- Inform pilots of conditions that subject links to damaging forces and related changes to TM 55-1520-240-10.

Contact: Mr. Brad Meyer, DSN 693-2085, commercial 314-263-2085.

■ Aviation safety action maintenance mandatory message concerning one-time inspection of OH-58D directional control tube contained within the center post (OH-58-94-ASAM-04, 071844Z Feb 94). Summary: Army personnel at Fort Bragg have found the directional control tube in the center post broom closet on four aircraft to be damaged beyond acceptable limits. Five other aircraft have scratches on this control tube, indicating a clearance deficiency between this control tube and the broom closet. It has been determined that the clearance problem is with two screws used to install the lower broom closet access panel. These screws have been best identified as the one above and the one below the bend on the left-hand side of the broom closet access panel. The purpose of this message is to require units to conduct a one-time inspection of the control tube in the broom closet. Contact: Mr. Lyell Myers, DSN 693-2258, commercial 314-263-2258.

■ Aviation safety action maintenance mandatory message concerning bonding failure of the bellmouth assemblies on the T63A720 engine on all OH-58A/C aircraft (OH-58-94-ASAM-05, 081651Z Feb 94). Summary: A Category I deficiency report was received reporting that a bellmouth assembly, P/N 206-061-230-101, was found in a forward leaning position separated from the mount. The bellmouth assembly was found to have debonded, and the remaining adhesive was easy to remove with a fingernail. The bellmouth assembly was installed on an OH-58A with a T63A720 engine. The purpose of this message is to require field units to inspect the bellmouth assembly for separation. Contact: Mr. Lyell Myers, DSN 693-2258, commercial 314-263-2258.

■ Aviation safety action operational message concerning revised operating limits for alternate fuels for all OH-58A/C aircraft (OH-58-94-ASAM-07, 151842Z Feb 94). Summary: TM 55-1520-228-10 currently restricts operation with fuel other than JP-4 to ambient temperatures above -18°C (0°F) for all OH-58A/C aircraft. The purpose of this message is to advise operators that OH-58A/C aircraft with the T63-A-720 engines may operate down to temperatures of -32°C (-25°F) with JP-5, JP-8, Jet A, and/or Jet A-1 fuels. Contact: Mr. Jim Wilkins, DSN 693-2258, commercial 314-263-2258.

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

In this issue:

- ***Risk management for commanders***
- ***ASO corner***
- ***"There we were..." —a crew coordination success story***
- ***Follow oil-sample procedures***
- ***Broken wing award***
- ***PRAM problems***
- ***Shortfax***
- ***Requesting teardown analysis control numbers***

Class A Accidents *through February*

		Class A Flight Accidents		Army Military Fatalities	
		93	94	93	94
1ST QTR	October	6	2	2	0
	November	2	3	6	0
	December	0	2	0	2
2D QTR	January	1	1	0	2
	February	5	2	8	0
	March	1		5	
3D QTR	April	4		0	
	May	1		1	
	June	0		0	
4TH QTR	July	0		0	
	August	1		0	
	September	2		0	
	TOTAL	**23**	**10**	**22**	**4**

Report of
published by
Fort Rucker
is for accide
Specifically
purposes or
or competi
authorized
questions about content to DSN 558-2119. Address questions about distribution to DSN 558-2062.

Thomas W. Garrett
Colonel (P), Aviation
Commander
U.S. Army Safety Center