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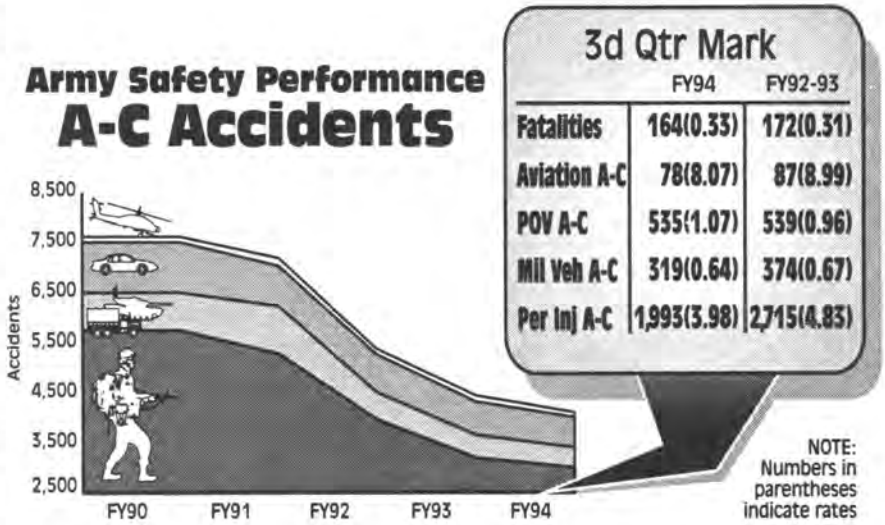
"SAFETY leads the way"

In February of 1994, BG Thomas W. Garrett became the Director of Army Safety and took command of the Army Safety Center. In the 5 months since, he has had an opportunity to see firsthand the complexities of the Army's safety program and to evaluate its strengths and weaknesses.

In this issue of Flightfax, BG Garrett shares with us his observations about the Army safety program and the progress the Army has made in incorporating force protection (safety) and risk management into doctrine and training. He also gives us his assessment of our aviation safety performance thus far in FY 94. As the man at the controls, he discusses initiatives to ensure that safety leads the way as we move into the 21st Century, and his ideas on how the Army can move to a new level of effectiveness in applying risk management to everything we do.

Moving out with safety

As the new Director of Army Safety, I am impressed by the effectiveness of the overall safety program in the Army. All of us—in the units, at the installations, in the MACOMs, and at the Safety Center—cannot help but be proud of our safety record. The last two fiscal years, FY 92 and 93, were the Army's two best years on record.



3d Qtr Mark	FY94	FY92-93
Fatalities	164(0.33)	172(0.31)
Aviation A-C	78(8.07)	87(8.99)
POV A-C	535(1.07)	539(0.96)
Mil Veh A-C	319(0.64)	374(0.67)
Per Inj A-C	1,993(3.98)	2,715(4.83)

FY 92 was our best aviation year ever, and FY 93 was our second best aviation year of record for Class A flight accidents. It was vice versa for ground accidents, with 92 being our second best year ever, followed by 93, our best year ever for Class A and Class A through C accidents. We have to be proud of that record and have to know that the tremendous efforts underway within our Army safety program are working.

Although the results have been dramatic, we're not going to let up on our efforts. It's not a zero-defects world, but no one will be satisfied as long as we continue to injure soldiers and civilian workers and destroy valuable equipment. Therefore, as the new Director of Army Safety, my challenge is to keep up the momentum of things that have been working and continue to look for new ways to protect our force.

I have been very fortunate to take command of an extremely talented organization that has made a really major breakthrough in the way safety is viewed in the Army. And we will continue to work hard to ensure that as the Army moves out into the 21st Century that safety will not only be included but will lead the way.

A new view of safety

■ ***Value added.*** At some point in the last few years, we moved beyond just inspecting units and saying, "Do this better, do that better, paint white lines, be sure your fire extinguishers are up to date and your fire lanes are posted." While these are all necessary requirements, they aren't the kind of stuff that will protect soldiers when units are called upon to perform the Army's main mission—warfighting.

Safety is now viewed as value added to the warfight. The Army has recognized that it isn't just safety for safety's sake. This paradigm shift is symbolized in the fact that force protection (safety) is now captured in our latest capstone manual FM 100-5: Operations as one of the four major elements of combat power. And it is now in the draft version of our staff procedures manual FM 101-5: Command and Control for Commanders and Staff. Adding force protection to our doctrine is a big signal that the Army has, in fact, embraced safety in the name of force protection and is moving out with it.

■ ***Pull versus push.*** Just a few years back, the Army Safety Center was trying to push safety. Today, the Safety Center is scrambling to meet consumer (customer) demand. People in the field are asking for training, examples, briefings, books—the how-do-you-do-this stuff, how does it apply to my situation, and where has someone else done it successfully? We're in the midst of a culture change—safety is "in" with America's Army.

Initiatives to ensure safety leads the way

■ ***Risk management.*** The tool of risk management has been our primary agent of change. Soldiers and leaders have, for the first time, an understandable and elegantly simple method of analyzing a situation and making decisions that not only makes an operation safer but also enhances the chances for mission success. The process is more art than science and therefore requires practice and experience. We will continue to refine risk-management methodology and training as we get the process integrated into all of the other Army planning and decision-making processes.

■ ***Partnership.*** Commanders are responsible and accountable for executing the Army's missions and taking care of soldiers. By keeping commanders informed of what's going on and providing them with trends and analyses and other useful tools, we can help commanders—our primary-focus customers—accomplish their missions and do them safely.

While we do play an honest broker role in investigations, evaluations, and independent safety assessments, we also want to be partners with commanders and project managers by helping them with any problems or weaknesses that are discovered. A good example of "partnering" is a renewed sense of teamwork between the Aviation and Troop Command (ATCOM) and the Safety Center in terms of resolving accident problems. For many of the problem areas we discover during an accident investigation, especially in aviation, ATCOM must take the lead and develop corrective actions. Working together as partners from the very beginning of an investigation will help us arrive at a solution or at a series of steps to take that are well coordinated, well thought out, and built on each other's ideas.

■ ***ASIST (Army Safety Information Services and Technology).*** It's a tough time to grow in the Army in terms of personnel, budget, and so forth. Therefore, it is imperative that we leverage information-age technology to assist us in our accident-prevention efforts. We are currently working to change the Safety Center's significant technical accident data base into a force protection information system accessible by users throughout the Army and even other services. Doing so will provide users with hazard-identification and then hazard-management information as opposed to just accident data.

■ ***Proactive.*** The Army Safety Center has trained, standby, ready-to-go accident investigation teams. When there is an accident, a team deploys to find out what happened and to help the unit fix any identified problem areas to keep it from happening again. But that is reactive.

Obviously, we will continue to do that because that is how we gain a lot of accident-prevention information, but we need to take it further. And this is where ASIST will help us. We need to take information gleaned from the investigations and move from the reactive into the proactive by getting more involved in the acquisition, design, and other Army processes. By getting risk management into the Army processes early on, a soldier will never have to face a hazard identified in earlier accident investigations or will already have procedures developed and in place to control that hazard by the time he or she is married up with a piece of equipment, given an execution order, and hits the field to accomplish a mission.

■ ***Human performance.*** About 80 percent of all accidents over the last 5 to 7 years are categorized as human error, meaning that it wasn't an environmental condition that overwhelmed the individual who had the accident or that it wasn't something in their equipment that failed or broke. That doesn't mean, however, that the individual wasn't overcome and unable to handle the situation because of a lack of training or the complexity of the equipment. Human error does not always mean human fault.

There is a lot of room for growth in the field of human-performance engineering. In our own organization, we are combining the skills of our engineers and research psychologists to once again try to move into the arena of human performance. So we're trying to understand accidents not necessarily as human-fault accidents but as human-performance accidents or individual performance inadequacies or shortcomings.

We must get designers, acquisition and concept folks, and trainers involved whenever there is what appears to be a human-error accident. Doing so will help us see what in the design of that piece of equipment or what in the training of that individual could be improved as an Army process so that the individual will be better able to handle the situation. The Comanche is a good example of this concept of human-performance engineering.

The Comanche—the digital quarterback of the battlefield—provides information-processing capabilities so that information reaches the pilot in ways that can greatly increase his or her performance level. Early on in the development of the Comanche program, the Army put aviators in the factory with designers. Because the Comanche program has paid attention to and had human-performance parameters involved in designing the cockpit and setting up the displays, figuring out how much information an individual pilot can handle, how to split the workload between the two pilots, as well as reducing pilot workload overall, Comanche crews will have more energy to focus on conducting the fight instead of operating their machine. The Comanche will be a leap ahead in terms of human-performance engineering. We must continue to expand our efforts in this critical area.

By continuing to expand our thinking about safety in the form of force protection and reaching out in a partnering effort, we will all be working together to not only preserve but to enhance our warfighting capabilities. Safety is not only a moral obligation; it makes you better—it is value added.

—BG Thomas W. Garrett, Director of Army Safety

Safety performance review

During the last 134 days of FY 93, not a single flight fatality occurred, and we were 77 days into the first quarter of FY 94 before we lost a crewmember in an aviation flight accident. Closing out FY 93 and getting well into FY 94 with a record-setting 211 days without a flight fatality was a major accomplishment. In fact, the first half of FY 94 was one of the safest on record for Army aviation.

Much to the concern of all within Army aviation, we experienced seven Class A aviation accidents that resulted in two fatalities during the third quarter of FY 94.

- A UH-60 crashed during a command and control mission.
- An AH-64 flew into the ground during deteriorating weather conditions.
- An AH-64 caught fire and was destroyed during hot refueling operations.
- An OH-58 lost power and crashed during operations in mountainous terrain.
- An OH-58 struck power lines and crashed.
- An OH-58 tail rotor struck the ground, and the tail boom separated.
- A UH-1 landed hard during an autorotation

In early FY 93, we experienced eight Class A accidents within a 45-day period. We were able to reverse the alarming Class A accident trend that developed in early FY 93. Command emphasis on safety across the force and solid risk management helped us get safety back on track and close out FY 93 on a positive note.

We must do it again: we must get the rise in accidents that has occurred during the third quarter of FY 94 under control. We cannot afford the reduction in our warfighting capability that these preventable accidents are causing.

Commanders must take every opportunity to make sure that safety is fully integrated into their unit's policies, procedures, and techniques. Make sure that your risk-management program is correctly identifying, assessing, and controlling hazards. And take a closer look at some of the following more common "red flags" to see if any could be present in your unit.

Red flags for commanders

- ***Medium-risk syndrome.*** A review of several accidents shows that although some high-risk factors (deteriorating weather, night/night vision device, multiship) were present, the mission was still assessed as medium risk. If the mission includes any potential high-risk hazards or any combination of hazards that would constitute a high risk, make sure the mission is assessed as high risk. Don't get caught in the medium-risk syndrome.

Relook your unit's risk-assessment worksheet to ensure that the true risk level associated with the mission is reflected when the assessment is completed. If you're using a numerical-values type worksheet, make sure the numerical values themselves are appropriate for the hazard being considered.

- ***Human-performance error.*** The accidents so far this year seem to be the same kind we have experienced previously in terms of our two highest accident aircraft:

AH-64s, our most complex aircraft, and OH-58s, our most complex mission (scout mission). And that's been a steady trend over the last 5 years. Again, this comes back to human performance. In some cases, the human error in our complex aircraft or complex mission accident is, in fact, human-performance error. The real culprit could be task overload. Considering the complexity of the aircraft, carefully evaluate the mission to ensure that you aren't putting your aircrews in situations that could lead to task overload.

■ *Accident history.* One of the things discovered in early FY 93 was that the best indicator of who's going to have an accident is that he or she has already had one. In 50 percent of the accidents that happened in the first half of FY 93, one or both pilots had previously been involved in an "at fault" Class A-C accident. That's a startling fact and a good reason to review your crewmembers' records.

■ *Experience level.* The activity level in the Army is a concern of the leadership right now. We're all so gung ho, leaning forward, and trying to get so much done in such a short period of time that we may be our own worst enemy in terms of trying to do too much too fast. All commanders need to be aware of and take an honest view of the state of training and experience level of their unit.

You're going to have some individuals who just walked in the door and some who are very experienced. When you're employing your entire unit in complex operations (night, task force, combined arms), you've got to know at what level you can operate, realizing that you have some individuals who are brand new and some who are more experienced. Getting into that level of detail and watching who's doing what within your organization and what missions you've assigned within your organization that are actually doable at any given time are musts for safety-conscious commanders.

■ *Routine missions.* Although we have some problems occasionally, normally it is not the major complex, big operation with lots of oversight, supervision, and commander involvement that goes wrong. Most often, it's the individual flight, the routine mission, that doesn't get the attention and the focus it should that goes badly. Remember, there are no routine missions. Every mission requires careful planning and attention to detail.

■ *Complacency.* Another big problem in aviation is complacency. Complacency isn't a bad attitude, and it isn't just that people's "care factor" has gone bad. Complacency creeps in when people have gotten so used to the danger, so used to the risk of the envelope or environment that they find themselves in that it becomes a natural situation for them. You let your guard down; you relax a little bit rather than "flying a little scared." You get used to the danger; therefore, you lose your edge, and then in that one bad instance, it gets you because you're not at that heightened state of awareness where you should be.

That's happening to our experienced pilots. For example, it's our test pilots who hour after hour, day after day are out there flying maintenance test flight after maintenance test flight—I've yet to be in a unit that has enough test pilots. It's our IPs who are out there night after night trying to keep their unit trained, current, and at the right RL progression that get themselves in that position.

So that's a hazard, that's a big red flag for commanders. Watch your key people; watch the people that you trust and have confidence in; watch those you rely on and make sure they're not getting overextended. Make sure they're not getting put in a situation where complacency could catch up with them. Remind your crewmembers that on those single-aircraft, routine-type missions, danger lurks.

Crew coordination

Make sure your crewmembers understand the importance of talking to each other. In many accidents, a lack of crew coordination is a contributing factor.

Units that have gone through the Crew Coordination Training Program will sign up for it in a heartbeat. In the beginning, we had a lot of IPs saying "Oh, this is just another requirement. We've got enough to do already." But now that they have gone through the program, they are the biggest believers in crew coordination training.

Crew coordination training is one of our best training tools, and it pays great dividends. It is in the process of being fielded, and we've begun to teach it in flight school.

Making the Army safer

The struggle to remain combat ready in the midst of the tremendous changes in the Army and the world situation makes the commander's force protection job harder. But since we began the "risk-management campaign," we have had ample evidence of just how dramatic an effect it can have. We're not just on a short-term record-setting pace. Over the past 5 years, we've been on a real solid line of driving accidents down. And I fully believe that it's all due to the Army's embracing the concept of risk management and incorporating it into all its activities.

I recently talked with a unit commander about the actions he took after he had a tragic OH-58 accident earlier this year. They did a top-to-bottom scrub of their procedures, their risk-management techniques, their crew-coordination procedures, and how they went about doing business. With command emphasis like that, we'll get there. We'll absolutely get there.

As we continue to learn to apply the risk-management process, our Army will be a safer place for our soldiers to live and work. We must keep the emphasis on safety. Working together, we can preserve our warfighting force and still make FY 94 the best year ever in aviation safety.

—BG Thomas W. Garrett, Director of Army Safety

Learning to apply risk management

Commanders have always cared about their soldiers and cared about safety. But it's a long way from saying "Be safe," and being able to make it happen. Because risk management provides commanders with a useful tool they can apply to help them ensure the safety of their soldiers, it is now the primary tool for force protection. Risk management is an orderly, progressive way of looking at a very complex situation and helping individuals make appropriate decisions in order to accomplish the mission safely—a thinking process that fits very well with the way the military mind works.

Simplicity is an art form that's tough to achieve. It's easy to come up with complex processes, but a simple, straightforward process is harder to develop. Risk management, conceptually, is very straightforward. However, applying it takes experience, judgment, perspective, and training. It takes practice.

At this point, we've got people talking risk management, we've got people accepting risk management. Now it's time to move the Army to a new level of being able to effectively apply risk management. Incorporating the risk-management principles and process into training is already underway in all of the leader development training in the Army. The goal now is to make risk management as user friendly as possible by providing examples that show individuals how to identify hazards and develop control measures and by helping them internalize the process to the point that it becomes intuitive.

Providing examples

Expanding a person's experience base without their actually having to personally experience the situation builds into intuition. And that is definitely a worthwhile goal. Soldiers don't have to personally experience everything. They can learn from vicarious experience what hazards other people have encountered. Those hazards will then be in their data base. In turn, they can spot the hazard and apply controls to it. In effect, they have applied the risk-management process by recognizing and controlling the hazard that they know has caused someone else problems and prevented mission accomplishment.

So we want to continue to tell people what's going on out there. We must try to help people learn how to do risk management better by providing them not just negative examples but positive examples as well. In addition to showing commanders what didn't work in a specific situation, where it broke down, and what might have been done, we are also developing examples to show situations in which risk management was used successfully, what the commander ran into, actions taken, and the results. This is one way to use examples to help commanders learn to apply risk management.

When trying to teach people how to apply risk management, we've got to show them how not to do it and how to do it. The Wartime Accident Realism (WAR) project is a dramatic example of the effectiveness of showing commanders how to apply risk management to their mission essential task list (see following article for details on the WAR project).

Hazards and controls

Being able to spot hazards in all their various forms and then to put controls on those hazards are key elements of the risk-management process. However, identifying hazards and then developing controls for those hazards is quite an art form. Identifying what could go wrong and keeping that hazard from affecting the operation is the challenge. If you haven't identified the hazard, you can't manage it, but once the hazard is identified, you still have to have the talent, skill, practice, and judgment to come up with practical controls. Our goal is to help leaders at all levels learn how to identify and spot hazards and then also show them effective and practical ways to control those hazards.

■ ***Hazards.*** People aren't used to walking around looking at things in terms of "it's a hazard." And that's the first critical step. When you learn to recognize hazards, then you can do something about them—eliminate them or put control measures on them. Some hazards are a lot more obvious than others; some are pretty tough to spot. There are some subtle things that are significant hazards that we have to learn to identify, and once we identify them, then manage them. For instance, movement and turbulence in the Army caused us some problems in early FY 93, but nobody sat down and said, "This is a hazard, I'm not ready to do this."

■ ***Controls.*** Developing controls is another art form. You can't always control every hazard that you identify. But even if you can't control a hazard entirely or you can't control it at all, you know it's there and then you can make a risk decision. At least you know the hazard exists, and you're making a decision to take the risk as opposed to not even having identified the hazard. That's the difference between gambling—not even attempting to identify the dangers and just going for broke; damn the torpedoes, full speed ahead—and managing the risks. Of course, if you have identified that you've got torpedoes coming at you, at least you've identified the hazard.

Units develop ways to manage hazards and work that up through their chain until they become acceptable procedures. That's how we establish go/no-go criteria. However, assessing the risk is only the first part of risk management. If you identify a hazard as a potentially

catastrophic one during the risk-assessment process and don't follow through with controls, then you haven't managed the risk. Just saying, "It's a tough night out there guys, be careful," is not risk management. For risk management to be effective, we must carry through with implementing the controls we've identified and following up (supervising) to see that our directives are carried out.

Internalizing risk management

Risk management is not yet fully internalized and an intuitive process for all of our aviators. It is well developed in the planning part of the flight. However, the planning part is just that, the planning part. Filling out a risk-assessment form, stapling it to a briefing sheet, and sticking it in the flight ops box does not mean that the risk management is finished.

The most important part of risk management is in the actual execution of the mission, in having internalized the process to use as situations change. No one expects anybody to fly along and go "risk management step 1, ready 1; step 2, ready 2." But we must get crews thinking about what can go wrong in the next leg of flight—the weather's coming down, it isn't what I got in my weather briefing, I'm under goggles, it's worse out here than it was, and this is the part of the training area that gets worse first—now what can I do about it?

Thinking about what could go wrong and what your actions will be if it does—anticipation of problems—that's risk management. A unit in Panama calls it "risk management on the go." It's identifying hazards (what can go wrong) and controls (what can I do about it). As you see a situation start to develop, you can divert, turn around, go up, go down, turn on your light, call somebody. You can do something about it—and that's where we need to go. As the mission unfolds, keep risk management involved in your decision-making process as you fly.

We all operate in a high optempo environment and our plates runneth over with things to do in a resource-constrained Army. That's the world we live in, that's the Army way. But that's what makes it an exciting place to serve our country. The more we as an Army think in terms of identifying and controlling hazards, the safer our operations will become. When we have internalized the risk-management process to the point that it becomes as common as the five-paragraph field order and soldiers everywhere can talk about it in those terms, we'll be there.

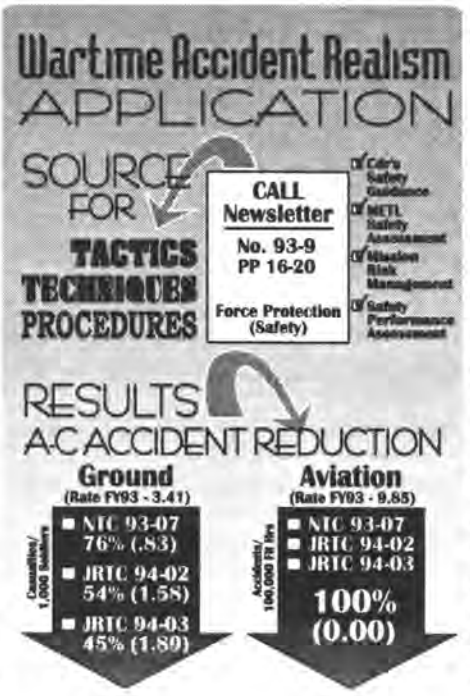
—BG Thomas W. Garrett, Director of Army Safety

WAR prevents accidental losses

Historically, in every war with the exception of the Korean War, we have lost more soldiers to accidents than to enemy action. Repeatedly, we experience the same kinds of accidents for the same reasons. To reduce these accidental losses, we must get safety into the METL business. And that is the goal of the Wartime Accident Realism (WAR) project—to integrate force protection (safety) into doctrine, training, and operations.

The WAR project best exemplifies methods of teaching units how to conduct operations safely. Training starts with developing the unit's METL. WAR was designed to integrate into that process by applying risk management to a unit's METL and then working risk management back down through their training program.

About 180 days before a selected unit is scheduled for a training center rotation, Safety Center personnel perform a METL safety assessment, test unit knowledge of safety requirements, administer the Next Accident Assessment to unit personnel, conduct observations of unit training, and provide a report addressing weaknesses in the unit train-up plan to the commander.

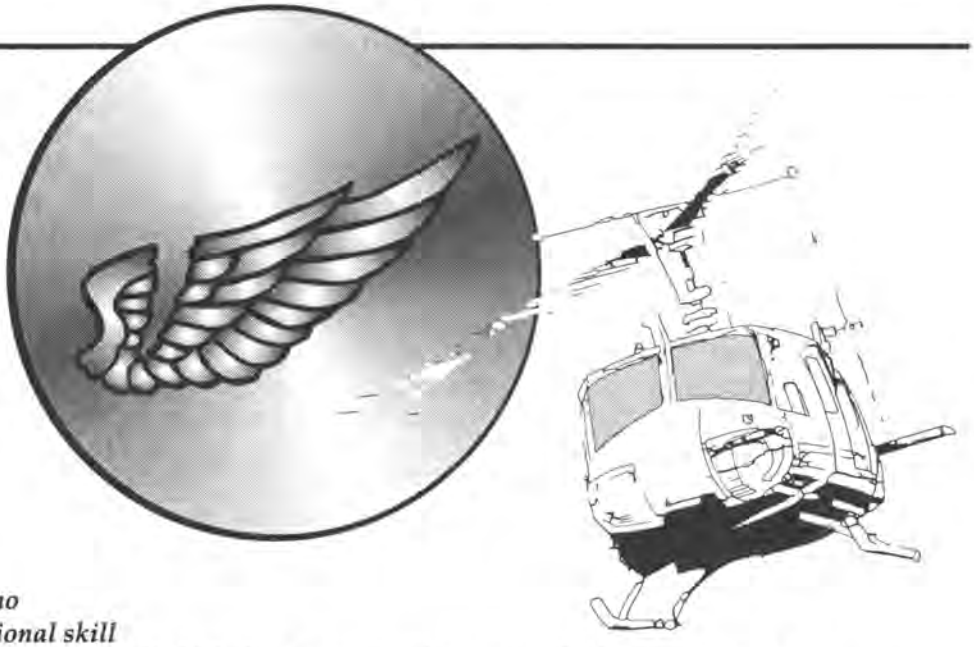


Before the scheduled rotation, the team also goes to the appropriate training center to brief the observer/controllers on the WAR project and to train the observer/controllers on what to look for to fully evaluate the unit's safety performance. During the rotation, the team also works with observer/controllers to assess unit safety performance and assists the unit in integrating risk management into its staff/operational processes. Finally, after the rotation, the team provides a full report to the unit and the training center commander.

WAR is a striking example of the effectiveness of the risk-management process integrated into a unit's training program before and during an NTC, JRTC, or CMTC rotation. As illustrated by the dramatic Class A through C accident reduction achieved during recent NTC and JRTC rotations, incorporation of risk management in all operations is paying big dividends.

—BG Thomas W. Garrett, Director of Army Safety

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.

■ **DAC Jerry A. Burton, 1st Battalion, 223d Aviation Regiment, Aviation Training Brigade, Fort Rucker.** While on final approach during an instrument flight evaluation, the UH-1H was at 2,000 feet MSL in VFR conditions when a violent vertical bouncing began. Mr. Burton immediately took the flight controls. He attempted to autorotate, then slowed his airspeed, but the intensity of the severe vertical bouncing did not change. Mr. Burton reduced the engine RPM to approximately 6000 but still no change, so he returned the engine RPM to 6600. Mr. Burton remembered that a collective servo had been replaced and a test flight performed and signed off in the logbook. It seemed to him that the cyclic control was having minimum effect on aircraft attitude. At that point, Mr. Burton was about 500 feet AGL and making minimum movements of the cyclic in hopes that the rotor system would remain intact long enough to reach the ground. The bouncing was so severe that Mr. Burton had difficulty keeping his feet on the antitorque pedals, the instrument panel was barely readable, and his voice was distorted as he instructed the two students to brace themselves for the landing. During the powered approach and landing to an open field directly in front of the aircraft, Mr. Burton was unable to get off of the flight controls to lock his harness. The student in the jump seat reached forward and locked Mr. Burton's harness for him. Mr. Burton made a successful touchdown and performed an emergency shutdown. When the blades stopped turning, Mr. Burton saw that one of the trim tabs had delaminated and was pointing 90 degrees to the blade.

■ **CW2 Michael S. Harder and 1LT Anderson L. Mann, 377th Medical Company (Air Ambulance), Unit # 15248, APO AP 96205-0021.** The UH-60 was on a slingload mission during the redeployment phase of a company-sized field training exercise. The aircraft had flown about 10 minutes from the field site along the return air route when the No. 2 engine unexpectedly went to idle. The aircraft was at 350 feet AGL and 70 KIAS at a narrow passageway along the return route. This cramped flight area was further constrained by an electric power station with numerous high-tension wires running perpendicular to the route of flight. As the No. 2 engine power decreased, CW2 Harder, the pilot-in-command, verified the malfunctioning engine by cross-checking the systems. The No. 2 engine torque indicated zero percent, oil pressure was about 30 PSI, and the No. 2 Ng was dropping. CW2 Harder took the controls and told 1LT Mann to arm the cargo release hook but decided the load should not be jettisoned due to numerous houses in the vicinity and a set of high-tension wires immediately to the front of the aircraft. Using the No. 1 engine's maximum available power, CW2 Harder maneuvered the aircraft over the wires, clearing them by 30 to 40 feet. This maneuver required 107 percent of the No. 1 engine's available power and caused the rotor RPM to drop about 87 percent. After the wires had been cleared, CW2 Harder reduced power to regain rotor speed and told 1LT Mann to place the No. 2 engine power control lever in ECU lockout and maintain torque at 10 percent below the No. 1 engine. While 1LT Mann backed up the emergency procedure for decreasing percent RPMR with the checklist, CW2 Harder started a slow descending right turn toward a suitable landing area about 2 kilometers away. With 1LT Mann maintaining the 10 percent torque setting, CW2 Harder initiated an approach to an asphalt hover area northwest of the control tower. The approach terminated with both the slingload and the aircraft being set down without further incident or damage.

Change to TC 1-216

The U.S. Army Aviation Center recently published a message, 021200Z Jun 94, to implement changes to TC 1-216: Aircrew Training Manual, Cargo Helicopter, CH-47 with May 93 pen and ink change. Units should make the following pen and ink changes to TC 1-216:

■ **Page 6-3, paragraph 6-1k**. Delete the word "terrain" from the first sentence. Add the following after the first sentence: "If the IR band-pass filter or pink light becomes inoperative during a mission, the PC will evaluate the impact on mission accomplishment. PC actions may vary from a minor mission adjustment to termination of the flight."

■ **Page 6-4, paragraph 6-1m**. Add the following: "(14) Dual generator or dual transformer rectifier failure."

■ **Page 6-11, figure 6-4**. Change the term "Move aft" to "Move back."

■ **Page 6-14, Task 1000, Standards, paragraph 1**. Change sentence to read: "Without error, brief the mission items detailed on the DA Form 5484-R and a crew briefing checklist."

■ **Page 6-43, Standards, paragraph 1a(2)**. Delete "hover altitude ±3 feet" and replace with the following: "10 feet aft gear hover height ±3 feet unless mission requirements dictate another altitude."

■ **Page 6-57, Task 1028, Night or NVG Considerations.** Paragraph 1, delete second, third, and last sentences. Paragraph 3, delete.

■ **Page 6-60, Task 1029, Night or NVG Considerations.** Delete all after the first sentence. Add the following after sentence one: "P* will determine the need for artificial lighting prior to descending below the obstacles or 100 feet."

■ **Page 6-74, Task 1075, Standards, paragraph 1f**. Delete the word "ETL" and replace with "40 KIAS."

■ **Page 6-74, Task 1075, Description, paragraph 1, line 13.** Change "45 KIAS" to "40 KIAS."

■ **Page 6-80, Task 1078, Description.** Add the following: "e. Returning the aircraft to desired cruise airspeed and altitude after re-establishing aircraft control."

■ **Page 6-109, Figure 6-8, first column**. Change "Aft" to "Back."

■ **Page 2-4, paragraph 2-2b; page 3-1, paragraph 3-1; and page 4-1, paragraph 4-1b.** Add the following note to the end of the paragraphs. "NOTE: Commanders may authorize RL 1 flight engineers to conduct crew chief training. Flight engineers authorized to conduct this training must demonstrate their proficiency and ability to conduct training to an SI."

■ **Page 5-4, Figure 5-1, Task 1099**. Add a footnote three (3) to this task. Reason: NCMs do not need to be evaluated annually on this task.

Points of contact

■ Directorate of Evaluation and Standardization, CW5 Frank Murray or CW5 Richard O'Connell, DSN 558-3475.

■ Aviation Training Brigade, CW4 Bernard Agnew, DSN 558-3801.

Change to TC 1-210

The current TC 1-210: Aircrew Training Program, Commander's Guide to Individual and Crew Training was intended to require all NVG RL 1 aviators and DACs assigned to NVG-designated positions or NVG PCs not assigned to a designated position to meet continuation sustainment criteria listed in paragraph 4-3c. Confusion exists because of the heading of paragraph 4-3c. To clarify the intent of this paragraph, replace paragraph 4-3c in TC 1-210 dated 20 May 1992 with the following paragraph:

"c. **NVG Continuation Training.** A crew member begins NVG continuation training after completing qualification or refresher training and any required mission training.

(1) An NVG RL 1 aviator, AO, or DAC assigned to an NVG-designated position or an NVG PC not assigned to a designated position must maintain the NVG semiannual flying hour and sustainment requirements described below.

(a) Aviator—Nine hours of NVG flight, which must be flown at night from a crew position with access to the flight controls. These hours may not be reprogrammed. (AH-64 crew members are exempt from these requirements.) Those aviators who have access to a compatible visual flight simulator may substitute up to three hours toward the nine-hour semiannual requirement.

(b) AO—Six hours of NVG flight, all of which must be flown at night as a crew member in the left seat. AO training requirements are listed in TCs 1-209 and 1-215.

(2) Minimum annual task and iteration requirements are specified in the appropriate ATM. These requirements consist of one iteration of all NVG tasks indicated by an "X" in the NVG column of the task list and any mandatory mission tasks identified by the commander.

(3) Aviators not assigned to a designated NVG position or not designated as an NVG PC need only maintain currency as indicated in paragraph 4-4."

The new TC 1-210 scheduled for distribution in the first quarter of FY 95 will reflect this change. Headquarters USAAVNC published a message, 061800Z Jun 94, to implement the change.

Points of contact

■ Directorate of Evaluation and Standardization, CW4 Jim Helton, DSN 558-2442.

■ Aviation Training Brigade, Aircrew Training Manual Section, CW4 Bernard Agnew, DSN 558-3801.

■ Aviation Training Brigade, Night Vision Devices Branch, CW5 Rodney Rowe, DSN 558-9545.

STACOM 161 **July 1994**

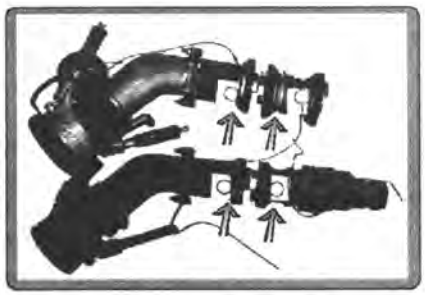
Prepared by the Directorate of Evaluation and Standardization, USAAVNC, Fort Rucker, AL 36362-5208, DSN 558-1098/3504. Information published here generally precedes the formal staffing and distribution of Department of the Army official policy. This information is provided to all commanders to enhance aviation operations and training support.

Russell E. Adams
Colonel, Aviation
Director, DES

ShortFAX
Keeping you up to date

Restriction of use of the emergency breakaway connector

The emergency breakaway connector (EBC), P/N 00624AE88039R, TM 4930-237-10, was designed to prevent damage to the aircraft refueling port in the event the aircraft departed from the FARP before the refueling hose had been disconnected. It is a frangible valve that is installed between the refuel hose and the D-1, closed-circuit, or open-port refueling nozzle.



Installation of the EBC

When installed according to the technical manual, both ends of the EBC are locked into place. At the hose end, there is a spring-loaded cam pin that seats into a recess on the hose coupling as well as a positive lever-lock that prevents fuel flow when the coupling is not properly seated. On the nozzle end, there is only a spring-loaded pin that seats into a recess on the EBC. When the EBC is installed correctly, it can easily become inadvertently disconnected, creating a dangerous situation that could lead to disaster.

The EBC can easily be installed backwards and still function. When installed backwards, both spring-loaded pins will be collocated at the nozzle end and will provide a positive double lock for the EBC as long as the pins are properly seated. When installed backwards with the pins properly seated, the EBC performs the same function and it is almost impossible for the EBC to be inadvertently decoupled.

Hot-refueling accident

In a recent AH-64 hot refueling accident, the EBC was installed backwards but the locking pins were not seated. This allowed the coupling to turn as the refueler manipulated the hose from the stand to the aircraft and decouple as he attached the D-1 nozzle to the aircraft refueling port. Pressurized fuel that shot into the operating aircraft engines ignited, and the ensuing fire engulfed and consumed the aircraft. Fortunately, the two pilots escaped, but they did sustain major, disabling burn injuries. If the two spring-loaded pins had been properly seated, this accident would not have occurred.

This was the first catastrophic accident involving the EBC, but it is only one of numerous accidents involving the EBC. Previous accidents have involved major fuel spillage, resulting in soaked personnel and aircraft but no injuries or equipment loss.

Use of the EBC no longer authorized

Currently, the Army is re-evaluating the need for the emergency breakaway connector as part of the FARP. On 18 May 1994, the Aviation and Troop Command issued a message stating that "effective immediately, pending further investigation, use of the frangible coupling (emergency breakaway connector) in refueling operations using the HTARS [HEMTT tanker aviation refueling system] is no longer authorized and the coupling shall be removed from the HTARS assembly."

POC: MAJ Ernie Nagy, Investigations Division, DSN 558-3262 (205-255-3262)

Accident briefs

Information based on preliminary reports of aircraft accidents

Utility

UH-1 Class A

H series - During day VFR training flight, aircraft experienced loss of engine power. Pilot entered autorotative descent. Aircraft landed hard, causing extensive damage to aircraft and resulting in minor injuries to crew.

UH-60 Class C

A series - At 5,000 feet AGL and 80 knots during acceptance test flight, crew was performing autorotational RPM check when nose cowling blew open. Aircraft sustained damage to cowling, camera and radio equipment, and front windshield.

UH-60 Class D

L series - While making approach with external slingload, aircraft encountered brownout. PC increased altitude to about 30 feet AGL and instructed pilot to prepare to jettison load. Pilot prematurely jettisoned load and it fell 25 to 30 feet to ground.

Attack

AH-1 Class E

E series - Due to -13 writeup concerning turret drive motor, IP elected to leave turret drive motor circuit breaker out during flight. On takeoff, both crewmembers heard grinding noise of 20mm gun depressing. Company aircrew confirmed gun was full down. After recycling all gun and turret circuit breakers, IP placed weapons control in "fixed" position before landing. IP terminated to high hover while maintenance personnel disengaged gun brake and held muzzle up while IP completed landing.

E series - No. 1 FM antenna connector in vertical fin came loose during flight. Antenna connector rubbed No. 5 tail rotor, causing excessive wear to drive shaft.

F series - As crew increased collective during HIT check, they heard loud bang. After crew lowered collective, all engine indications were normal. Front-seat pilot exited aircraft to look for cause of noise. When rear-seat pilot increased collective again, another loud bang was heard and front-seat pilot saw fire through fire extinguisher access on engine cowling. Rear-seat pilot shut down aircraft, and no fire was visible after shutdown. Maintenance determined that fuel line was loose at variable inlet guide vane actuator, caused by worn threads on nipple tube on No. 1 cylinder.

Cargo

CH-47 Class C

D series - During formation landing to unimproved field site, Chalk 2 crew was anticipating brownout conditions and touched down with forward speed. Touchdown area appeared to have slight downslope with several scattered small bushes. As aft landing gear touched down, crew felt jolt in rear of aircraft. When aircraft came to stop, flight engineer was unable to lower ramp. Crew repositioned aircraft and ramp still would not lower. Visual inspection revealed right aft landing gear had sheared off when it struck large rock.

D series - Aircraft was Chalk 2 in flight of two transporting troops to mountain landing zone. While flying up narrow valley in staggered left formation, Chalk 2 was at 150 feet AGL as indicated by radar altimeter when crew felt aircraft go 30-degrees nose low and decelerate from 85 to 0 knots. In a matter of seconds, aircraft accelerated to 50 knots. Pilots saw what they believed to be a cable through chin bubble and increased power, thinking that rotor blade had struck wires. In fact, left forward landing gear had struck wires. Unaware that left forward landing gear was no longer attached to airframe, crew climbed over set of marked wires. Crew then landed on sandbar in river with 31-foot ground run and performed emergency shutdown. Crew egressed after smelling fuel and having aircraft settle on front left fuel pod and front right and aft left gear. Rotor blades came to a stop and only lightly scraped ground on last rotation. Aircraft then came to rest with left forward auxiliary fuel tank resting on ground and aft right landing gear 4 feet in air.

CH-47 Class D

D series - During descent, crew chief closed upper half of cabin door and cabin escape panel departed aircraft. Crew completed landing without further incident.

D series - Aft left work platform separated from aircraft during flight.

CH-47 Class E

D series - Flight engineer notified PC of severe hydraulic fluid leak in aft transmission area, which was confirmed by No. 2 hydraulic flight control segment light illuminating. PC initiated immediate descent and completed emergency engine shutdown upon landing. Flight engineer found leak point and tightened it. Aircraft was then serviced and APU run up. With APU and No. 2 PTU operations to purge air, aircraft would not develop and maintain pressure in No. 2 flight boost hydraulic system. No. 2 PTU was changed and system would then maintain pressure. When aircraft was run up and PTU turned off, No. 2 flight hydraulic system would not maintain sufficient pressure. No. 2 flight hydraulic boost pump was changed, which corrected pressure deficiency.

Observation

OH-58 Class C

A series - During day VFR low-level flight along riverbed, aircraft struck wires and impacted riverbed.

A series - During final phase of low-level autorotation, aircraft landed hard and bounced up about 2 feet. IP pulled remaining collective. Aircraft landed and turned 270 degrees right, remaining in upright position. IP shut down aircraft, and crew exited with no injuries.

OH-58 Class E

D series - During maintenance test flight for blade tracking run, main rotor system developed unusual vibrations. Crew completed landing without incident. Inspection revealed main rotor insert had failed. Insert failed because safety washer, P/N 406-010-412-101, had been installed above bearing, plain, P/N 406-310-403-101, instead of below bearing as shown in TM 55-1520-248-23P, figure 70, page 226.

D series - During range training, crew was firing 50-caliber machine gun and it jammed. Crew returned to FARP where armament personnel replaced broken extractor arm. During reloading, round exploded as bolt went forward. Investigation revealed that part of previously-fired casing was still stuck in chamber. There were no injuries to personnel or damage to weapon system or aircraft.

Fixed wing

C-12 Class C

F series - Maintenance discovered damage on postflight. Flight had been flown in IMC but not closer than 20 miles from any cell indicated on weather radar. Suspect that aircraft was struck by lightning while returning to home station,

although crew had no indications of lightning strike during flight.

O-5 Class C

A series - Aircraft took off from deployed base with reduced fuel and landed at another site to top off with fuel. Aircraft requires 28VDC to close-circuit refuel. Since ground power unit was not available, pilot attempted to start No. 1 engine for hot refueling operations. Engine would not start. Since fuel truck was parked behind No. 3 and 4 engines, pilot elected to start No. 2 engine. While attempting to start No. 2 engine, temperature began to rise rapidly with no further increase in N1. Pilot shut off fuel control as temperature approached 950°C. Temperature was above 800°C for 4 to 5 seconds. Inspection revealed over-temperature damage to engine components.

Messages

■ Safety-of-flight technical message concerning one-time inspection of tail rotor blade on all UH-1 series aircraft (UH-1-94-03, 141406Z Jun 94). Summary: Bell Helicopter has informed the U.S. Army that a German military UH-1 aircraft has experienced a tail rotor blade fatigue failure. The failure occurred at the bond line between the leading edge abrasive strip and blade skin approximately 2 inches outboard of the doubler forward fingers. The fatigue failure was due to a rework operation during manufacturing that caused surface scratches in a highly stressed area of the blade. Bell has identified 76 certain serial numbers that may have been reworked and thus are susceptible to fatigue failure. The purpose of this message is to require a one-time inspection of UH-1 tail rotor blades and removal of 76 certain serial-numbered blades from service. Contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

■ Safety-of-flight technical message concerning one-time inspection to locate and remove from service one main rotor stretched strap assembly, P/N 7-311411146-7, S/N 009999-B093 (AH-64-94-03, 311620Z May 94). Summary: An anomaly in the main rotor strap pack assembly process permitted delivery of a number of spares in which the outboard shoes were inadequately torqued. According to records, 51 straps were shipped on 3 February 1994 and 52 were shipped on 16 March 1994. All of the subject strap packs except one, P/N 7-311411146-7, S/N 009999-B093, have been recovered. This message requires an inspection of the historical records to locate this strap pack. AH-64-94-02 required a visual inspection of the strap pack dataplate to determine the serial number. Historical records should have been verified at this time to ensure the correct serial number. If historical records were not verified, a visual inspection of the dataplate IAW AH-64-94-02 is required. If the subject strap pack is determined to have logged any flight time, a QDR should be submitted. The purpose of this message is to locate strap pack P/N 7-311411146-7, S/N 009999-B093, and remove it from service. Contact: Mr. Brad Meyer, DSN 693-2085 (314-263-2085).

■ Safety-of-flight operational message concerning flight maneuver prohibition to include specific overhauled fuel pumps on OH-58D and improved OH-58D helicopters (OH-58-94-03, 021841Z Jun 94). Summary: An ongoing investigation has determined that the engine fuel pump may also be a contributor to the recent engine flameouts occurring during maneuvers involving rapid throttle movements. The purpose of this message is to add specific rebuilt fuel pumps to the list of overhauled components and prohibit those maneuvers listed in this message for aircraft with listed overhauled fuel pumps. Contact: Mr. Lyell Myers, DSN 693-2258 (314-263-2258).

■ Aviation safety action maintenance mandatory message concerning boresight confirmation of the air-to-air Stinger (ATAS) on all OH-58C ATAS-equipped aircraft (OH-58-94-ASAM-11, 061317Z Jun 94). Summary: A Category I deficiency report indicating possible problems with boresight retention has pointed out a need for a recurring boresight confirmation task for OH-58C aircraft with ATAS. An OH-58C aircraft with ATAS installed is an OH-58C with a pilot display unit (PDU) mount assembly, pylon assembly, ejector rack, and adapter installed. The launcher assembly consists of a launcher and adapter. The PDU, parts of the PDU mount assembly, and launcher may or may not be installed. The purpose of this message is to establish a recurring ATAS boresight confirmation and report boresight confirmation task results. The boresight confirmation will be accomplished at least every 30 days on all OH-58C aircraft with ATAS installed. Contact: Mr. Lyell Myers, DSN 693-2258 (314-263-2258).

FOR MORE INFORMATION ON SELECTED ACCIDENT BRIEFS, CALL DSN 558-2119 (205-255-2119).

In this issue:

- *Safety leads the way*
- *Moving out with safety*
- *Safety performance review*
- *Learning to apply risk management*
- *WAR prevents accidental losses*
- *Broken Wing award*
- *STACOM*
- *Restriction of use of the emergency breakaway connector*

Class A Accidents *through June*

		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	0	5	0
3D QTR	April	4	5	0	2
	May	1	1	1	0
	June	0	1	0	0
4TH QTR	July	0		0	
	August	1		0	
	September	2		0	
	TOTAL	23	17	22	6

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