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REPORT of ARMY AIRCRAFT ACCIDENTS

November 1995 ◆ Vol 24 ◆ No 2

Breaking the 1.0 mark in aviation safety

Congratulations aviation team. What a fantastic year it was in aviation safety! By achieving a Class A aviation flight accident rate of .83 per 100,000 flying hours, you have put a new aviation safety mark on the wall.

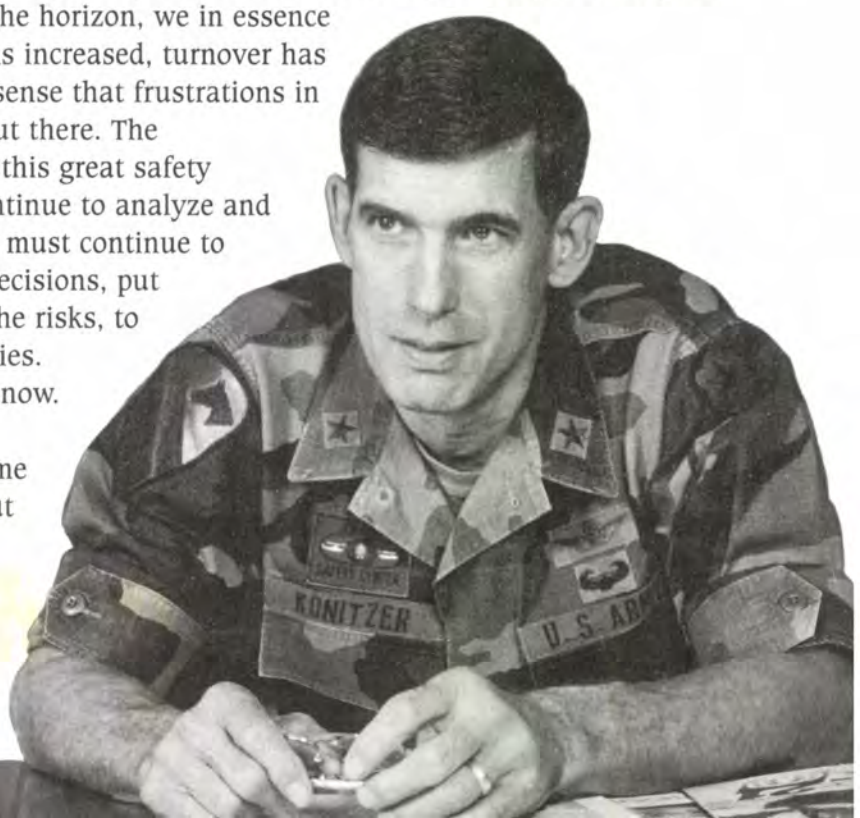
Simply saying that FY 95 was a banner year for Army aviation with only 10 Class A accidents, seems somewhat an understatement when you consider how long it took to make the vision of breaking 1.0 a reality. Our Class A flight accident rate for FY 94 was 1.64. So we made a major leap forward in safety performance during FY 95. I think this tremendous safety performance can be attributed to the quality of soldiers, civilians, and leadership that we have in today's Army. You truly have your head in the game and are sensitive to the environment, the equipment you are operating and its capabilities and limitations, as well as your own capabilities and limitations. Every individual working hard and doing the right thing is what gave us the outstanding successes we had in FY 95. And we just need to continue to do that!

But almost before I can get the congratulations out of my mouth, I have to stand back in the reflective mode and issue a caution. We must not let euphoria cause us to lose sight of the hard work it will take to preserve that safety accomplishment and build on it for future years, specifically FY 96.

We must be realistic in our approach toward the Army today and how much change is truly affecting us. While we have seemingly decreased the threats on the horizon, we in essence have increased our missions. Not only have missions increased, turnover has increased, leader inexperience has increased, and I sense that frustrations in the field are increasing. All the warning signs are out there. The environment is ripe with conditions waiting to turn this great safety achievement in a negative direction if we do not continue to analyze and determine a course of action to take us forward. We must continue to identify hazards, assess risks, make the right risk decisions, put controls in place, and supervise. We must manage the risks, to do less is to fail in our force protection responsibilities.

We have a new aviation safety mark on the wall now. But we must never lose sight of one thing: any accidental loss is an unacceptable loss. We have some major challenges in our Army for this fiscal year. But with the quality people and leadership in our total Army force, and I want to emphasize total—Active, National Guard, and Reserve soldiers and civilians—all working together, safety will happen.

—BG Thomas J. Konitzer, Director of Army Safety



Making safety happen

The mission of our Army is to fight and win our Nation's wars. A study of statistics from our past major conflicts reveals that we have two enemies on the battlefield. One is *them*, but the other is *us*. In every modern war except Korea, the Army has lost more people and equipment because of accidents than due to enemy action. Accidental losses impose a drain on our combat capability that we simply cannot afford. We have got to deal with the "us" and reduce the hazards and risks to soldiers in order to preserve our warfighting abilities.

We recognize threats to our soldiers in combat and deal with the enemy through our capabilities and dynamics of combat power that we apply in the battlefield operating systems. Just as important is the integration of risk management into a closed-loop process starting with the planning process throughout execution and all the way through postoperations.

Becoming proactive

We have traditionally had a reactive approach toward safety. That is, we analyze statistics, gather information during accident investigations, and provide information to the units so they can go out and make sure that type of accident doesn't happen again. Over the years, an image of a pencil-necked geek with a clipboard looking at compliance as an external force and approach to safety has evolved.

We must transition to a proactive approach to safety in which we truly internalize the risk-management process and integrate it into everything we do. When we make risk management an intuitive way of thinking and personalize it by making it a way of life for every soldier and civilian, we can then look toward a future where safety is embedded in the Army's culture. Safety professionals will be an integral part of the warfighting team. They will be welcomed because they are not there in a compliance mode but are there for continuity and to assist in every way possible in the oversight of risk-management integration into all unit activities.

We have a responsibility to inculcate into the hearts and minds of every soldier and civilian their own responsibility to make safety happen. And if we can get everybody to fully embody the true meaning of risk management as a way of life and not as an afterthought, then we will have accomplished a major cultural change in safety. We are not there yet, but we are continuing to move in the right direction as individuals willingly begin accepting personal responsibility for making safety happen.

Individual responsibilities

There are some intangibles that we don't usually think of as safety related. But I think they are. Even if you are not directly responsible for people or equipment, you are responsible for three things: your appearance, your performance, and your conduct. All three have safety implications.

Appearance. Your appearance is not just how you look in a uniform or civilian clothes. It is your ability to maintain your readiness—both physical and mental—to perform your job.

The Army has fitness tests and other requirements to maintain and check the speed, strength, and stamina dimensions of soldier physical readiness. Our civilian work force needs to take physical readiness more seriously. There are health-risk appraisals and other programs to help them do that. But mental readiness is not so easily measured. It is an attitude that can be more powerful than the physical. It is what causes ordinary soldiers to do heroic deeds—or not. Mental readiness is what determines one's choice of fight or flight. The essence of mental readiness is an individual's beliefs, values, and attitude. This is the human dimension that causes people to behave in a disciplined, mature, and commonsense manner—or not. The warrior spirit is alive and well in every soldier. Some are moved by the spirit more than others. Soldiers need to temper the spirit that says "I can do anything" with self-discipline and sound judgment.

Soldiers, particularly those of you in the 18-to-25 age group (40 percent of our Army), tend to think you are invincible. "It will happen to anybody but me." My message to you is that you need to really understand the human dimensions and what you are physically capable of, realizing that we can't leap tall buildings in a single bound or step in front of locomotives or any other things that are physically unrealistic. As mere humans, we do have limitations that we need to recognize. We must learn to take our capabilities and limitations into consideration and do a match before every event on and off duty.

Performance. Proficiency in our technical and tactical skills is an individual responsibility. It is through knowing our strengths and weaknesses that we can best progress through the crawl-walk-run stages of performing tasks to safe standards. We sometimes lose sight of the axiom that "currency is not proficiency" and think that if we have done it once, we can do it again without preparation.

Conduct. We all are responsible for our actions 24 hours a day both on and off duty. Yet soldiers are falling short in fulfilling their responsibility to conduct safe operations. The leading cause of accidental death is attributed to failing to recognize hazards, underestimating personal risk, and overestimating personal ability.

Know yourself. Know your own strengths and weaknesses and then be able to temper the warrior spirit with a commonsense approach to life. You are a responsible individual expected to be able to apply judgment and sound decision making to whatever you do, integrating and applying risk management at the lowest levels. The five steps of the risk-management process can and should be applied to everything we do.

Leader responsibilities

Warrior leaders motivate soldiers and bring out the warrior spirit. Warrior leaders, therefore, have a responsibility to make safety happen by setting the conditions for their soldiers to crawl, walk, and run based upon capabilities, environment, METL, and METT-T. We have absolutely superb soldiers in the field, soldiers who will respond to great command leadership, but we have to make sure their "can do" is tempered with the proper approach: commonsense and proper risk-management integration.

Accepting responsibility

We have got to think with our heads . . . and we've got to think with our guts. Thinking with our head, we tend to look, we see, we smell, we hear, we put brainpower to work. But there is an intuitive factor as well. If something doesn't *feel* right, it probably isn't. And somebody ought to do something about it. Therefore, take time to listen to your gut as well.

Now this next thought is almost counter to the culture of our Army today in which we are a very disciplined organizational structure. We want soldiers to be disciplined and respond to leadership. But at the same time, we want soldiers to understand that accidents don't respect rank. Accidents can happen to anybody, including generals. Murphy lurks around every corner. Therefore, if a private is standing out there seeing a senior officer or NCO about to do something without having considered all the hazards/controls, then we want our soldiers today, regardless of their rank, to be able to step in, take action, and prevent an accident from happening. Now that is an interesting dynamic in relation to the culture under which we currently operate. When we achieve this type of situational awareness, we will also achieve the goal of embedding risk management as a way of life.

My responsibilities to you

I owe you a vision, along with inputs and outputs. My vision or focus for the Army's safety program is to mature what has been started: to take the risk-management process that is in the field, generally accepted yet not fully understood, and integrate it as a way of life for all of us.

We can no longer afford for safety to be an afterthought. It must be a part of everything we do: warfighting, doctrine, training, leader development, materiel development, personnel assignments, everything. Therefore, the Safety Center and the Army Safety Office are working on a short- and long-range strategy to effect a cultural change in the way the Army approaches safety through the integration of the risk-management process into all that we do.

My next responsibility to you is to listen to what you want from *your* Safety Center. By taking your accurate and timely inputs in the form of 285s and 2397s and analyzing them, we can best perform my other responsibility of providing you useful outputs in the form of products such as *FlightFax, Countermeasure,* and leader's guides. For example, one product for warfighters that is just off the press and ready for distribution is the *Leader's Guide to Force Protection Through Risk Management*, a comprehensive reference for the force-projection Army.

We also need to do a better job of capturing the good news stories and good ideas that are at work today, but we need your help. Please send us your safety ideas, close calls/near misses, and lessons learned.

My final commitment to you is to do a better job of getting out the word about emerging safety issues and insights gleaned during accident investigations. I intend to start using safety alert messages as a means of providing a warning order to the field. The purpose is not just to say that an accident has taken place but to rapidly communicate the emerging insights about what we have gathered from that accident that are useful to you in the field.

As the Director of Army Safety, I'm also going to inform the proponents and appropriate Army staff agencies of our emerging insights as they apply to their respective areas so that they in turn will be able to take corrective actions to fix identified problems. In essence, I am planning a two-pronged attack for the future to be able to ensure that we are getting information out as quickly as possible on safety issues so that we can help you, our customers, do your jobs better and eliminate or reduce as much as possible the second enemy on the battlefield.

We've made major accomplishments in safety. But we still have a lot of work to do. We are going to bring about a total safety cultural change, but not all at once. We are going to accomplish this goal by swallowing the elephant one toe at a time. We all have a responsibility, and, together as a team, we are going to **Make Safety Happen!**

—BG Thomas J. Konitzer, Director of Army Safety

Recap of FY 95 Class A flight accidents

■ **OV-1D**. The crew experienced VHF radio failure. The PC removed his O2 mask a couple of times to try to reseat his microphone and recycle the radio. When these attempts were unsuccessful, the PC, in accordance with the unit SOP, made a decision to discontinue the mission. He turned south and reduced engine power to 23 percent torque. While in a wings-level, 1,000- to 1,500-feet per minute rate of descent from 16,000 feet MSL with the power on both T53-L-701A engines reduced to 23 percent torque, the PC and technical observer (TO) saw the master caution light and numerous segment lights illuminate. When the PC advanced both power levers to the full forward position and did not hear, feel, or see any engine response, he determined that neither engine was producing power. Unable to find a suitable landing area, the PC decided the crew would eject. Both crewmembers safely ejected from the aircraft: the TO at approximately 1,200 feet, followed by the PC at approximately 800 feet. The aircraft continued its descent and impacted the ground. A postcrash fire consumed most of the fuselage, including the main fuel cell and the cockpit. It is suggested that the fuel cell sealant material clogged the engine fuel barrier filters and caused the engine to fail.

■ **UH-60A**. The aircraft was returning to the airfield at the end of an aircraft qualification course flight period when it experienced an abrupt, severe pitchdown of the nose. The crew was unable to fully recover from the near-vertical, nose-down descent, and the aircraft crashed into trees within seconds. The crewmember in the jump seat received fatal injuries and the front-seat occupants were seriously injured.

■ **AH-64A**. The PC, flying unaided, was transitioning from an air taxi to a hover taxi off an active runway in an area with limited contrast. During the transition, the aircraft impacted the ground in an 85-degree left-yaw attitude (nose of the aircraft was 85 degrees left of the direction of travel). The main rotor blades struck the ground and severed the tail boom. The aircraft came to rest upright with major damage to the fuselage, main rotor blades, and weapons systems. Both crewmembers sustained minor injuries.

■ **CH-47D**. During a maintenance test flight for completion of Phase 2 maintenance, one of the aft rotor blades contacted the upper cabin area, initiating an in-flight breakup. The aircraft was at about 140 knots and 1,100 feet AGL when the in-flight breakup began. A bushing had not been installed, and a drive arm assembly bolt failed due to fatigue. All five occupants received fatal injuries, and the aircraft was totally destroyed.

■ **OH-58A**. From a 3-foot hover, short of an inverted "Y," during a night orientation flight, the aircraft descended as it moved laterally to the right. The descending lateral movement continued to ground contact. The main rotor blades struck the ground, and the aircraft rolled onto its right side. The IP was fatally injured, and one of the two pilot trainees received minor injuries. The aircraft was extensively damaged.

■ **OH-58C**. During a night low-level flight at 500 feet AGL using AN/PVS-6 NVGs, the aircraft began a rapid climb in excess of 1,000 feet per minute. After climbing to approximately 2,000 feet AGL, the aircraft was observed in a rapid, near-vertical descent with zero or near-zero forward airspeed and low rotor RPM. The aircraft impacted the ground in a near-vertical descent. Both pilots were fatally injured, and the aircraft was destroyed by the impact and postcrash fire.

■ **AH-64A**. The aircraft was lead in a flight of five AH-64s conducting night-aided terrain flight at approximately 200 feet AGL when the tail rotor struck a set of power lines. The tail rotor drive shaft was severed, and the aircraft impacted a nearby building and

semitrailers, causing extensive damage to the aircraft and major damage to the building and semitrailers. A minor postcrash fire was extinguished by another aircrew. There were no major injuries.

■ **UH-60A**. The aircraft was in straight and level NVG flight over water when the No. 2 engine suffered an internal materiel failure. The crew failed to maintain single-engine flight. The aircraft crashed into the water about 3 miles off the coast. All four crewmembers sustained fatal injuries. (See UH-60 writeup in "Investigators' Forum.")

■ **OH-58A**. While providing aerial security for a day counterdrug operation, the PC flew the aircraft into a known set of power lines. The main rotor blades struck the ground wire, resulting in sudden stoppage that sheared the mast and separated the main rotor system from the aircraft. The aircraft impacted the ground in a nose-low attitude, fatally injuring the PC and a law enforcement agent. (See OH-58 writeup in "Investigators' Forum.")

■ **OH-58D**. While at a 60-foot stationary OGE hover, the pilot was attempting to locate OPFOR infantry with the mast-mounted sight. Without announcing his intentions, the PC began engaging OPFOR with 2.75-inch rockets and allowed the aircraft to begin drifting rearward. The tail rotor contacted a tree, and tail rotor control was lost. The PC initiated an autorotation from an OGE hover into several trees. The aircraft impacted the ground and came to rest on its side. The crew received minor injuries. ❑

Aviation spare parts

Over the last year, the Army aviation team has achieved the best safety record ever. In order to continue this outstanding record, we want to make you aware of a situation that has just surfaced for the rotary wing fleet and that we are attacking head on.

Recently completed engineering testing of specific spare parts produced unacceptable results. We have looked in detail at about 196 flight safety parts (FSPs) to determine if there are any other parts that may be similarly affected. Based on our analysis, only one potential safety issue has been uncovered, and it is being worked through the safety-of-flight process. A safety-of-flight message was released on 3 November 1995 on the UH-60 forward bellcrank support assembly. (See message summary on page 11 of this issue of *FlightFax*.)

Additionally, the Aviation and Troop Command and PEO-Aviation, with assistance from the Aviation Center and Army Safety Center, are continuing an in-depth analysis of each part in order to be certain that our aircraft are safe. Our initial analysis included a historical search of all mishap data, which confirmed that there have been no accidents related to any of the 196 parts currently under investigation.

Additional information will be needed from your aircraft records to fully assess some of the parts involved. Your help in providing quick responses to requests for information from either the ATCOM logistics assistance representatives (LARs) or the program/product managers is needed to finalize this assessment as quickly as possible.

We are working an extended-hour 7-day-per-week schedule until we complete a risk assessment on each part involved, and we will immediately alert you through the safety-of-flight process of any safety issues discovered. I hope to have the risk assessment program completed in the next 4 to 5 weeks, depending on the availability of required parts data. I will keep you informed of our progress.

I want to assure you that we are taking every action to ensure the highest standard for aviation safety. If you have any questions, concerns, or information that you wish to communicate to us, please contact me direct at DSN 693-1002 (314-263-1002) or call the ATCOM command operations center at DSN 693-2066 (314-263-2066).

My personal thanks to each of you for your assistance in resolving this important safety issue.

—MG John J. Cusick, Commanding General, U.S. Army Aviation and Troop Command, adapted from message dated 032258Z Nov 95

The "Investigators' Forum" is written by accident investigators to provide an accident synopsis and major lessons learned from recent centralized accident investigations.

OH-58A+. While providing aerial security for a day counterdrug operation, the PC flew the aircraft into a known set of power lines. The main rotor blades struck the ground wire, resulting in sudden stoppage that sheared the mast and separated the main rotor system from the aircraft. The aircraft impacted the ground in a nose-low attitude, fatally injuring the PC and law enforcement agent (LEA).

■ ***What happened.*** The OH-58A+ was part of a flight of two and was proceeding ahead of the UH-1H to locate a marijuana plot. The PC identified the wire hazard to the UH-1H aircrew. As the UH-1H was inserting LEAs, an individual moved to the marijuana plot, pulled up the plants, and proceeded to flee on foot. The PC observed this activity, and as he informed the UH-1H, he maneuvered the OH-58 to maintain visual contact with the individual and subsequently struck the wire.

■ ***Lessons learned.*** This scenario reemphasizes the importance of maintaining situational awareness, especially when operating an aircraft single pilot without a qualified observer on board.

UH-60A. While conducting NVG overwater flight at 700 feet, one engine failed. The aircraft crashed into the sea, fatally injuring all four crewmembers and destroying the aircraft.

■ ***What happened.*** The crew selected for this mission was not appropriate because they were not NVG current, and the chain of command failed to perform risk management for the mission. The pilot had not flown NVGs for 75 days and had only 1 hour of NVG flight during the previous 117 days. The intent was to "sign the pilot off" during the first hour of straight and level flight as this courier mission was conducted. The flight required a high degree of proficiency as it was identified as imminent danger, requiring precise low-level urban and overwater flight on a zero illumination night. Two other crews who could easily have performed the same mission were available. When the accident crew encountered a malfunction on one engine, they failed to maintain single-engine flight and essentially flew the aircraft into the water at a high forward airspeed.

■ ***Lessons learned.*** Risk management is not merely a key word that commanders and inspectors want to hear regurgitated during visits. It is a process by which hazards are identified **AND** steps taken to reduce or minimize the risks. The latter is vital and equally important. In a message dated 27 July 1995, the Chief of Staff of the Army, General Dennis J. Reimer, wrote "The nature of our business will not allow for either complacency or a cavalier acceptance of risk."

Leaders must understand and actively participate in the risk reduction process and make all reasonable efforts to minimize unnecessary risks. In this instance, the chain of command identified the risk of using a non-NVG-current crew on a critical mission and had several options with other flight crews available but did nothing to reduce or eliminate the risk. The mission commander simply obtained the appropriate signature for the risk-assessment form. ❑

BOTTOM LINE:

Risk assessment does not equal Risk management

Tips on being an effective ASO

Before being assigned to the Army Safety Center, I was the unit aviation safety officer (ASO) for a small flight detachment. Prior to my departure from that unit, the Department of the Army assigned a young CW2 right out of the ASO course as my replacement. With no experience as an ASO, he asked me to draw upon my experiences as an "older and wiser" safety officer and give him some tips that would help him in his new job.

After carefully considering the young ASO's request, I jotted down the following tips that assisted me in effectively managing the commander's accident prevention program and kept me going in the right direction to help my unit reduce accidental losses.

■ **Be loyal to the command.** Keep your commander informed of what is going on in his or her accident prevention program. Inform the command of all regulatory requirements and give them options that will allow them to accomplish the mission safely and still comply with these requirements. By doing so, you maintain your credibility and the command is quick to support any ideas you have for improving safety in the unit.

■ **Set the example.** As the ASO, your subordinates, peers, and superiors will watch you to ensure you are practicing safety in everyday tasks. Be a soldier who always does the task "by-the-book," even when you think no one is watching. You can't expect everyone else to follow by-the-book procedures if you don't.

■ **Be a professional.** Don't let personalities get in the way of progress or doing your job. Treat everyone professionally, and don't display any unprofessional behavior. Remember to "praise in public, criticize in private." Alternative methods are available for dealing with individuals who are not receptive to safety or refuse to comply with safety requirements.

■ **Be a part of your unit.** Be visible in the unit area by continually talking to the soldiers and officers. Attend training meetings so you will know what is going on in the unit and have an opportunity to provide input to ensure unit training is executed safely. Soldiers in your unit need to know that you are *their* safety officer, and they need to know where to find you if they identify a safety issue or need help. With all the paperwork required, it's very easy to get into a rut of staying in the office.

■ **Be proactive, not reactive.** Don't wait until an accident happens before you take action to solve a problem or correct a deficiency. Actively applying risk management to everyday situations can help you identify, assess, and control hazards before they result in an injury or damaged equipment.

■ **Conduct professional and realistic safety training.** The easiest way to lose an audience and damage the safety program along with your credibility is to conduct training that is boring and puts everyone to sleep. Use guest speakers to give classes and demonstrations. Talk to higher-level safety personnel, your training officer and NCO, and your local training aids support center for ideas and support. Many resources are available that can assist you in providing exciting and informative training.

■ **Document everything.** The job's not done until the paperwork is complete. This includes documenting inspections, observations, and all accident and incident data. It will help you identify trends and initiate corrective action and prevention measures.

■ **Be familiar with everyone's job.** If you are familiar with everyone's job in the unit, it will be easier to determine the task error when an accident happens.

■ **Maintain and enforce a high standard.** Enforcing a high standard may prove to be difficult initially. But the sooner you begin enforcing the standard without compromise, the sooner it will become second nature for unit personnel to maintain the standard. Also by maintaining a high standard yourself, it will be easier to enforce the standard with unit personnel.

■ **Sell safety.** Talk about safety to someone in your unit every chance you get: when someone visits your office, as you walk through the hangar, or on the ramp. Explain the benefits of the safety program in terms of accident prevention, resource conservation, and mission accomplishment.

■ **Maintain an effective safety awards program.** This is one of the most important programs you maintain for your commander. By the unit commander recognizing those individuals whose performance meets or exceeds requirements with appropriate awards, the unit safety program becomes very visible and very important to unit personnel. It then becomes a contest to see who in the unit will receive the next safety award.

As you have considered these suggestions, you may have determined that being an effective safety officer requires being somewhat aggressive. It does. It is no easy task; it takes an enormous amount of hard work. But there is great personal reward and satisfaction in knowing that you played an active role in preventing someone from being killed or injured or unit equipment from being destroyed or damaged.

POC: CW4 Gary D. Braman, Investigations Division, USASC, DSN 558-9855 (334-255-9855)

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

■ **CW3 Danny W. Cordell, E Company, 1st Battalion, 212th Aviation, Aviation Training Brigade, Fort Rucker, AL.** CW3 Cordell was conducting night/night vision goggle training in a UH-1H with two initial entry rotary wing students. While turning from base to final on the approach to Lowe Army Heliport with a student pilot on the controls, the engine RPM began to increase rapidly above 6600 RPM. Turbine speed (N1) and engine exhaust temperature indicator (EGT) also began a rapid increase. The RPM warning light illuminated, and the aircraft began a rapid right yaw. The aircraft was at 500 feet AGL over a swampy area with large trees on all sides and no forced landing areas available. CW3 Cordell immediately took the controls and simultaneously increased collective pitch and reduced the throttle in an attempt to regain control of the engine RPM. The RPM fluctuated rapidly between 6000 and 6400, causing the aircraft to yaw left to right numerous times. Unable to regain control of the RPM with the governor in the AUTO position and with the aircraft descending through 300 feet AGL, CW3 Cordell placed the governor switch in the EMER position. (The student pilot was unable to assist CW3 Cordell with aircraft control or governor switch placement due to the student's low flying-hour level and minimal experience in a darkened cockpit.) Placing the governor switch in the EMER position resulted in an RPM fluctuation between 5800 and 6000 RPM and reduced the severity of the yaw rate. Using coordinated throttle and collective adjustments, CW3 Cordell maintained aircraft control and landed with minimum power.

■ **CW3 James T. Heater, 3d Military Intelligence Battalion (Aerial Exploitation), 501st Military Intelligence Brigade, Unit #15217, APO AP 96271-0153.** During an OV-1D night mission, mission equipment malfunctioned and CW3 Heater made the decision to return to home base. The forecast for home-base weather was 1¼ miles' visibility and a scattered cloud layer at 500 feet. After executing the ILS approach down to the published decision height of 243 feet, the crew was unable to identify the airport runway environment. CW3 Heater applied power and initiated a successful go-around. At about 500 feet MSL on climbout during the go-around, the crew started to feel, hear, and see cockpit instrument indications of multiple engine surges and erratic operation. Still flying under IMC, the crew confirmed rapid fluctuations in engine oil pressure, engine oil temperature, torque, and EGT on the No. 1 engine. The surges continued and resulted in adverse asymmetric thrust and uncommanded yaw excursions. The technical observer assisted CW3 Heater by calling out checklist items and interpreting engine indications. In an effort to smooth out erratic engine operations and possibly save the engine from damage, CW3 Heater decided to retard the No. 1 engine power lever to flight idle and retard the No. 1 engine propeller RPM to minimum RPM. CW3 Heater declared an emergency and for the remainder of the flight operated single engine. The crew received radar vectors for another ILS approach. The second approach was also flown to the decision height, and the crew still could not visually acquire the runway. The crew initiated a single-engine go-around with 2 hours of fuel remaining. The intensity of rainshowers was increasing, and the aircrew was still IMC. During climbout after initiating the second go-around, CW3 Heater noticed that the RMI and the directional gyro had failed and were not moving to correspond with his control inputs. Faced with a compounded emergency situation and decreasing weather conditions, CW3 Heater leveled out at assigned altitude and attempted to place the No. 1 engine back on line to match up with the No. 2 engine. The same indications of surges and erratic operations persisted, and CW3 Heater secured the No. 1 engine. The crew then determined to make a no-gyro precision approach radar at another base. Still in IMC with increasing isolated thunderstorm activity, CW3 Heater advised approach control of their engine out and loss of gyro emergency situation. CW3 Heater initiated a single-engine no-gyro approach. At 400 feet above decision height and 1 mile from the threshold, the runway environment came into sight. The crew completed a successful single-engine landing. Maintenance inspection revealed problems with the electrical system and multiple malfunctions in the vertical instrument display system. Test pilots suspected that the unexplained surges were possible compressor stalls caused by the compressor ingestion of heavy rain. ❑

STACOM
Standardization Communication

Exportable training packets

The CH-47D nonrated crewmember exportable training packet (ETP) (2C-011-0002-A) has been published and mailed out to all Active, Reserve, and National Guard CH-47D TO&E units. The packet was mailed during August 1995 and consists of four books: an instructor book, student handout, training aids index, and the *CH-47D Theory of Operation Manual.*

Only 50 of these ETPs were printed, and 43 of them have been distributed to the units. If you have a copy that was sent to your unit, don't take it with you when you PCS. Just a reminder: TC 1-216 paragraph 2-1b requires units to use these ETP POIs and lesson plans to conduct their nonrated crewmember qualification training.

If your unit has not received a copy of this ETP, send an inquiry or request for the ETP to Commander, U.S. Army Aviation Center, ATTN: ATZQ-ESC, Building 5112, Lucky Star Street, Fort Rucker, Alabama 36362-0609 or contact SFC Robert D. Hagen, DSN 558-3475 (334-255-3475).

The utility aircraft ETPs are currently in the editing phase and should be printed and mailed in January 1996.

STACOM 166 November 1995

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.

William H. Bryan
Colonel, Aviation
Director of Evaluation and Standardization

ShortFAX
Keeping you up to date

TC 1-210 changes

The philosophy of the 1995 revision of TC 1-210: *Aircrew Training Program, Commander's Guide to Individual and Crew Standardization* is simplification and the elimination of ambiguity and "interpretation." The intent is to define the minimum requirements that must be met and then let commanders command. TC 1-210 will help commanders, trainers, and evaluators establish the unit aircrew training program (ATP) and individual aircrewmember training folders (IATFs) used by all crewmembers.

Focus

The focus of TC 1-210 is on individual training and evaluation. It establishes standards for individual training, and it also addresses crew and collective training to point the commander toward combined arms training. Although TC 1-210 does not establish training or evaluation standards for crew or collective training, current crew coordination training philosophy is incorporated.

Record-keeping procedures

The major change to the Commander's Guide is in record-keeping procedures. Blank, generic IATF forms are now found in TC 1-210 only. The forms section will be deleted from all future individual aircraft ATMs. Forms may be reproduced from TC 1-210 or requisitioned, and many will be available for electronic reproduction from CD-ROM or a 3.5-inch disk.

Central to the new record-keeping system is the Crew Member Training Record. This form will be handwritten in ink and will record significant events in the crewmember's career. It will be a permanent part of the IATF and will not be altered or removed.

Grade slips for "one-time" flight, written, or oral evaluations no longer exist. The results of one-time evaluations will be entered directly into the training record.

Training and evaluations requiring multiple flights (for example, refresher training or RL progression) will be recorded on a temporary grade slip that has room for multiple flights. This makes tracking the performance of each task much easier. Once the training and evaluation are complete, the results will be entered into the permanent training record. The training grade slip may then be destroyed.

Other significant changes

- FAC 3 minimums cannot be waived.
- Duties and responsibilities have been rewritten and new positions of responsibility added.
- Rated RL 3 crewmembers must fly with an IP/SP.
- The commander no longer determines the "most difficult mode of flight." Night or NVS may be substituted for day but cannot be substituted for each other.
- The guidelines for prorating flying hours have been changed and simplified.
- Paragraph 3-10, "OTHER EVALUATIONS," covers proficiency flight evaluations (which include the no-notice proficiency flight evaluation program), postmishap, and medical evaluations.
- Since the commander determines if a proficiency flight is needed, he or she also determines which tasks will be evaluated.
- For rated crewmembers newly assigned to a unit, any element of the APART (instrument or standardization evaluation or operator's manual written exam) not completed within the past year must be evaluated prior to progression to RL 1. Graduates of the Initial Entry Rotary Wing Course on their initial tour are exempt.

If you have questions or comments about the Commander's Guide or individual ATMs, contact CW4 William "Scott" Johnson, CW4 Robb Miller, or Ms. Connie Ecker at DSN 558-3801/2864 (334-255-3801/2864) or fax DSN 558-2463 (334-255-2463). The e-mail address is ATZQATBATM@rucker-emh4.army.mil, and the mailing address is Commander, U.S. Army Aviation Center, Aviation Training Brigade, ATTN: ATZQ-ATB-NS (ATM Section), Building 2802 Division Road, Fort Rucker, AL 36362-5218. ❑

Accident briefs

Information based on *preliminary* reports of aircraft accidents

Aviation flight accidents

Utility

UH-1 Class C

H series - IP was demonstrating low-level autorotation. During touchdown, both main rotor blades contacted tail rotor drive shaft cover, severing drive shaft near 42-degree gearbox. Major drive train components replaced.

M series - Left transmission cowling came open in flight. Main rotor blades sustained damage.

UH-60 Class D

A series - In staggered right formation, flight of five was conducting NVG troop insertion. Aircraft crossed set of wires and began downslope approach to unimproved landing zone. Due to wire obstacle and downsloping terrain, angle of descent was steeper and rate of closure was faster than crew had anticipated. Just prior to touchdown, Chalk 2 noted Chalk 1 in steep deceleration. Chalk 2 PC responded by decelerating to pitchup attitude of about 20 degrees. Decelerative attitude combined with downsloping terrain resulted in Chalk 2's horizontal stabilator striking ground. Touchdown appeared to be normal and stabilator functioned properly for remainder of flight. Damage to stabilator discovered during postflight inspection.

Attack

AH-64 Class A

A series - During RL progression training mission, IP brought aircraft to 70-foot OGE hover. As IP attempted target hand-off maneuver, aircraft drifted rearward and tail rotor blades struck overhanging limb of tree. Directional control of aircraft was lost. Aircraft continued rearward until vertical stabilizer (fin) and tail rotor were located within main vertical fork of tree. Main rotor blades began striking tree limbs. Aircraft spun right and crashed into trees. Minor injuries.

Cargo

CH-47 Class C

D series - While in cruise flight at 500 feet AGL and 150 knots, CE (flight engineer) announced that clamshell doors had departed aircraft. Crew felt slight input in controls, as if encountering light turbulence, and landed aircraft to inspect for damage. No damage found other than missing doors.

D series - Aircraft was struck by lightning during cruise flight. Crew completed precautionary landing without further incident.

Observation

OH-58 Class A

D series - While at 60-foot stationary OGE hover, PI was attempting to locate OPFOR infantry with mast-mounted sight. Without announcing his intentions, PC began engaging OPFOR with 2.75-inch rockets and allowed aircraft to begin drifting rearward. Tail rotor contacted tree, and tail rotor control was lost. PC initiated autorotation from OGE hover into several trees. Aircraft impacted ground and came to rest on its right side. Two minor injuries.

OH-58 Class C

A series - During simulated engine failure at 1,200 feet AGL, aircraft experienced rotor overspeed. Rotor blades replaced.

D series - Aircraft was about 5 feet above trees in combat position during zone reconnaissance for crew validation when crew felt severe tail rotor vibration. Crew flew aircraft about 500 meters forward of combat position, landed without further incident, and completed emergency engine shutdown. Inspection revealed damage to tail rotor blades and high-frequency antenna and numerous scratches on bottom of tail boom just below and aft of horizontal stabilizer.

D series - Postflight inspection revealed wrinkling in all four main rotor blades. IP reported that rotor RPM decreased during autorotation. Upon detecting no vibration, he completed autorotation and reduced power. Main rotor blades replaced.

D series - While operating in FARP, PI applied power to avoid loose cargo parachute that had not been recovered following airborne delivery of FARP equipment. Excessive power application resulted in overtorque.

OH-58 Class D

D series - Aircraft was operating at 100 percent Np and flat pitch. As CE (crew chief) attempted to exit aircraft, his foot caught cyclic and knocked it out of PI's hand. Main rotor tilted forward and left, striking FM antenna. PI shut down aircraft. Inspection revealed minor damage to all four main rotor blades and FM antenna was broken.

OH-58 Class E

D series - Aircraft was in cruise flight about 10 miles from airfield when PC noted that fuel decreased from 158 to 100 pounds indicated in 1 to 2 minutes. Seconds later, low fuel 20-minute caution light came on. Fuel gauge indicated 97 pounds of fuel. Within about 1 minute, fuel decreased to 28 pounds indicated. PC declared precautionary landing and initiated descent from 200 feet AGL. At about 100 feet AGL, fuel had decreased to 7 pounds indicated. PC decided not to continue approach to spot initially selected and turned aircraft into wind to prepare for possible forced landing. At about 6 feet AGL, engine flamed out due to fuel starvation. PC executed forced autorotational landing without power. Aircraft was not damaged. Just prior to engine flameout, crew had noted fuel boost pump fail caution message. MP (maintenance test pilot) determined internal bulges in the fuel cell reduced fuel capacity of cell by about 45 gallons, which allowed a total fuel capacity of 67 versus the normal 112 gallons. Fuel consumption checks conducted earlier during flight indicated normal fuel consumption rate and no problems. Inspection of unit aircraft revealed three additional aircraft with same problem. QDR submitted.

Training

TH-67 Class C

A series - During hover flight with student pilot on controls, aircraft drifted rearward and tail stinger contacted sod. IP took controls and landed aircraft under full power. All controls functioned properly. After shutting down aircraft, crew noted that vertical fin assembly had totally dislodged from tail boom (vertical fin struck no other component). Inspection revealed visible damage to upper and lower fairing and tail boom support assembly with minor damage to vertical fin.

A series - During sixth hovering autorotation, aircraft touched down nose low as student applied forward cyclic. Tail boom was wrinkled, spike plate dislodged, transmission on aft cowling was struck by push/pull tube, and isolation mount sustained damage.

Fixed wing

O-5 Class C

B series - During cruise flight at 15,000 feet MSL in icing conditions, crew observed bright flash and heard loud bang. Navigation systems were temporarily interrupted and then brought back on line. Crew suspected lightning strike and returned to base. Postflight inspection revealed mission equipment antenna had delaminated and other damage due to lightning strike.

Safety messages

Safety-of-flight messages

■ Safety-of-flight technical message concerning one-time inspection of lift link assembly on all AH-1 series aircraft (AH-1-96-01, 121752Z Oct 95). Summary: A procurement of the lift link assembly, P/N 212-030-104-5, was made, and during inspection prior to issuing, one of the assemblies was found to have not been heat treated and missing large amounts of cadmium plating. The purpose of this message is to conduct a one-time inspection of the lift link assembly to find and remove any suspect parts. Contact: Mr. Brad Myers, DSN 693-2438 (314-263-2438).

■ Safety-of-flight operational message concerning firing restriction for 2.75-inch folding fin aerial rockets (FFARs) with MK66 motors on all AH-64A/D aircraft (AH-64-95-02, 181620Z Sep 95). Summary: ATCOM has seen serious gas ingestion issues when firing the 2.75-inch FFAR with the MK66 motor on AH-1 and OH-58 aircraft. In these aircraft, gas ingestion has caused engine surges, compressor stalls, and catastrophic drive train failures. Regarding the AH-64A aircraft, no comprehensive testing of 2.75-inch FFAR with MK66 motors has been accomplished for this issue. In addition to the above concerns, this message results from two incidents where ingestion of exhaust gas from MK66 motors has been suspected in causing engine surges and/or compressor stalls on AH-64 aircraft. The purpose of this message is to restrict the firing of 2.75-inch FFAR with MK66 motors per paragraph 9B of this message pending the results of rocket firing tests. Contact: Mr. Jim Wilkins, DSN 693-9089 (314-263-9089).

■ Safety-of-flight technical message concerning change in retirement life of forward bellcrank support assembly, P/N 70400-08116-048, manufactured by Hicksville Machine Works and removal of specified serial-numbered forward bellcrank support assemblies on all UH/EH/MH-60 aircraft (UH-60-96-01, 032028Z Nov 95). Summary: Data from fatigue substantiation testing of the subject part has dictated that all UH/EH/MH-60 aircraft with the 70400-08116-048 forward bellcrank support assembly manufactured by Hicksville Machine Works (Cage 59384) will have their retirement life reduced from the currently published life of 1,800 hours to 500 hours. Additionally, specified serial-numbered support assemblies contained in this message will require removal due to a deficiency in shot peening after their repair. The purpose of this message is to inform users of the change to the published retirement life of the forward bellcrank assembly, P/N 70400-08116-048, manufactured by Hicksville Machine Works (Cage 59384) and removal of specified serial-numbered supports for return to depot. (Also see "Aviation Spare Parts" article in this issue of FlightFax.) Contact: Mr. Lyell Myers, DSN 693-2438 (314-263-2438).

Aviation safety action messages

■ Aviation safety action maintenance message concerning verification of solid pins in shear pin activated decoupler (SPADs) and servocylinder installation in all AH-64 aircraft (AH-64-95-ASAM-06, 131500Z Sep 95). Summary: Due to incorrect serial number effectivities listings in TM 1-1520-238-23P, it is possible that incorrect pin and servocylinders may have been installed on certain AH-64A helicopters. A recent mishap investigation revealed that a shear pin, P/N 7-211514082, was incorrectly installed in a non-BUCS active AH-64 aircraft that should have had a solid pin, P/N 7-232310078-3, installed. If a shear pin has been installed in lieu of a solid pin on a non-BUCS active aircraft, a sheared pin could disable the axis. In addition, if a BUCS active servocylinder containing shear pins is installed on a non-BUCS aircraft, a sheared pin could disable control of the axis. TM 1-1520-238-23P contains incorrect serial number effectivity for pins and servocylinders and is currently being changed. Only solid pins, P/N 7-232310078-3, are authorized on aircraft S/N 82-23355 (PVO1) through 88-00199 (PV529). BUCS shear pins, P/N 7-211514082, are authorized only on aircraft S/N 88-00200 (PV530) and subsequent. BUCS active servocylinders are usable only on aircraft S/N 88-00200 (PV530) and subsequent. The purpose of this message is to require a one-time inspection of affected aircraft to ensure that the correct configuration of pin and servocylinders is installed. Contact: Mr. Brad Meyer, DSN 693-2085 (314-263-2085).

■ Aviation safety action informational message concerning gas generator turbine rotor blade information for all UH-60A, EH-60A, and AH-64A with T700-GE-700 and T700-GE-701 engines (UH-60-95-ASAM-08, AH-64-95-ASAM-07, 191751Z Sep 95). Summary: This message is prompted by a recent in-flight single-engine shutdown in austere conditions. Initial indications are that shutdown occurred due to an undamped stage 1 or 2 gas generator (GG) turbine rotor blade failure. Although stress-reducing blade dampers have been introduced into production and installed when GG rotors and engines go through depot repair, there are still engines that have not been modified or that were modified with used blades. The purpose of this message is to emphasize the need for reviewing single-engine operation during flight planning, provide information to identify engines with undamped GG turbine blades or engines damped with used blades installed, and provide risk-reduction information. Contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

■ Aviation safety action maintenance mandatory message concerning replacement of 70400-08159 series bolts on all EH/UH/MH-60L and MH-60K aircraft with the improved flight controls installed (UH-60-96-ASAM-01, 181408Z Oct 95). Summary: Because of dissimilar metals, specific 70400-08159 series bolts and attachment nuts located in the flight controls to swashplate linkage of aircraft with the improved flight controls are susceptible to galvanic corrosion. The purpose of this message is to require mandatory replacement of specific 70400-08159 series control system pivot bolts and attachment nuts peculiar to those aircraft with the improved flight controls installed at production. Contact: Mr. Lyell Myers, DSN 693-2438 (314-263-2438).

■ Aviation safety action maintenance mandatory message concerning inspection of hose assembly, hydraulic primary system for chafing, P/N 7-311830102-5, on hose clamp, P/N HS4501SS09NB, on all AH-64 aircraft (AH-64-96-ASAM-01, 051916Z Oct 95). Summary: Recent hose failure has been attributed to the chafing of hose clamp, P/N HS4501SS09NB, on hose, P/N 7-311830102-5, (primary hydraulic pressure line). The hose was chafed completely through, and hydraulic pressure was lost. The cause of the failure is that the hose clamp was too large since it had been sized for the previous hose, which had a braided sleeve. The purpose of this message

is to require units to replace the hose clamp, P/N HS4501SS09NB, with hose clamp, P/N M85052/1-7, and to inspect the primary pressure line, P/N 7-311830102-5, for chafing and damaged braid. Contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

■ Aviation safety action maintenance mandatory message concerning inspection of aft vertical shaft on all CH-47D, MH-47D, and MH-47E aircraft (CH-47-95-ASAM-08, 121859Z Sep 95). Summary: The 101st Airborne Division reported multiple aircraft that had rubbing damage to the aft vertical shafts on the surface that is adjacent to the dust seal on the top of the slider shaft. The purpose of this message is to require units to visually inspect the aft vertical shaft at the top of the slider shaft for wear adjacent to the dust seal on the shaft and inspect for proper clearance of the dust seals. In addition, a recurring visual inspection will be required at each phase. Contact: Mr. Lyell Myers, DSN 693-2438 (314-263-2438).

■ Aviation safety action operational message concerning a training maneuver restriction for all OH-58D aircraft (OH-58-95-ASAM-09, 121818Z Sep 95). Summary: A review of recent engine-related incidents indicates that sudden, unannounced throttle chops could result in a forced landing. The purpose of this message is to impose restrictions on training maneuvers involving simulated engine failure (throttle chops) at hover and at altitude. Contact: Mr. Lyell Myers, DSN 693-2438 (314-263-2438).

■ Aviation safety action maintenance mandatory message concerning inspection of door hinges on all OH-58A/C aircraft (OH-58-96-ASAM-01, 051926Z Oct 95). Summary: This message is prompted by a recent accident in which the lower pilot crew door hinge failed and the door separated from the aircraft. Investigation revealed that stress corrosion caused failure of lower pilot crew door hinge. Subsequently, the upper hinge failed due to overstress and the door separated from the aircraft in shallow (90 KIAS) climbing flight. The purpose of this message is to require units to inspect all hinges for corrosion and cracks. Contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

Aviation maintenance information messages

■ UH-1 revised message on hydraulic servocylinder purging procedure (UH-1-95-002R, 131604Z Oct 95). UH-1-95-001, 301655Z Jun 95, UH-1 Servocylinder Lockups at Fort Rucker, Alabama, requested reporting of total lockup of any UH-1 flight control servocylinder encountered during maintenance or operation of the UH-1. To date, no incidents have been reported outside of Fort Rucker. ATCOM's continuing investigation has revealed that the preservative fluid, MIL-H-6083, used to preserve new servos, P/N 205-076-056-107 only, may be a contributing factor. MIL-H-6083 contains an additive which could cause new servos to stick while in service. This MIM is to advise UH-1 users to purge new servos per instructions provided in this message. (Servos, P/N 205-076-099-7, are not affected.) This MIM applies only to new, never-installed servocylinders, P/N 205-076-056-107, from supply. Servocylinders currently installed on aircraft need not, repeat not, be removed for fluid purging. Contact: Mr. Fred Kershaw, DSN 693-1683 (314-263-1683) or Mr. Malcolm Fuller, DSN 693-5420 (314-263-5420).

■ OH-58D(I) message to correct mast torque signal conditioner setting (OH-58D(I)-95-003, 041626Z Oct 95). The current method for setting the mast torque signal conditioner is in error. The use of a translation table will be required to determine the proper setting of the mast torque signal conditioner for a given mast torsional stiffness. An incorrect setting will result in a mast torque reading that may vary up to plus or minus 9 percent. Instructions and the translation table are included in this MIM. Contact: Mr. Jesse T. Gambee, DSN 693-9888 (314-263-9888) or Mr. Stephen P. Dorey, DSN 693-5420 (314-263-5420).

■ OH-58D main rotor speed setting (OH-58D-95-004, 031449Z Oct 95). Currently the backup main rotor speed (Nr) digital readout on the multifunction display (MFD) is used as the primary reference for adjusting and maintaining the Nr by using the power turbine speed adjustment toggle switch mounted on the collective control head. Data acquired during flight testing from sensitive flight test instrumentation revealed that the main rotor speed displayed on the vertical scale indicator (VSI) and the MFD indicates approximately 1 percent higher than the actual Nr. This error is caused by the processing of the Nr signal, which provides information to both the VSI and MFD through the mast torque signal processor. The multiparameter display (MPD) Nr digital readout receives an independent Nr signal and displays the actual Nr. Testing has shown that a 1-percent increase in Nr improves transient rotor droop characteristics and benefits autorotational characteristics. Contact: Mr. Jesse T. Gambee, DSN 693-9888 (314-263-9888) or Mr. Stephen P. Dorey, DSN 693-5420 (314-263-5420).

For more information on selected accident briefs, call DSN 558-2119 (334-255-2119).

In this issue:

- Breaking the 1.0 mark in aviation safety
- Making safety happen
- Recap of FY 95 Class A flight accidents
- Aviation spare parts
- Investigators' forum
- Tips on being an effective ASO
- Broken Wing award
- STACOM exportable training packets
- TC 1-210 changes

Class A Accidents through October

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

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