


Flightfax

ARMY AVIATION
RISK-MANAGEMENT
INFORMATION

MARCH 1997 ♦ VOL 25 ♦ NO 6

visit our web site • <http://rucker-usasc.army.mil>



In Army aviation, we devote a lot of paper and a lot of ink to crashes and the errors that caused them. We do this so that other Army aviators can learn hard-bought lessons without experiencing them first hand.

But there are also lessons to be learned from inflight emergencies that have a happy ending—those that could have ended in disaster but didn't because of the way the crews responded.

These are lessons in crew coordination and maintaining aircraft control.

They're lessons in good judgment, good execution, and performing to standard.

They're lessons about crews staying calm and thinking clearly and working together and using exceptional skill to recover from the unexpected.

They're the best kind of lessons—those we learn from

catastrophic accidents that didn't happen...

19970319 191

DTIC QUALITY INSURED ♦

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

Broken wing awards

The Army Aviation Broken Wing Award recognizes aircrewmembers who demonstrate a high degree of professional skill while recovering an aircraft from an inflight failure or malfunction requiring an emergency landing. Requirements for the award are in AR 672-74: Army Accident Prevention Awards.



- CW4 William D. Scoles, pilot in command
- CW3 Robert D. Petty, copilot
- SGT James R. Seiders, crewchief

Aviation Company, 1st U.S. Army Support Battalion, Multinational Force and Observers, Sinai, Egypt

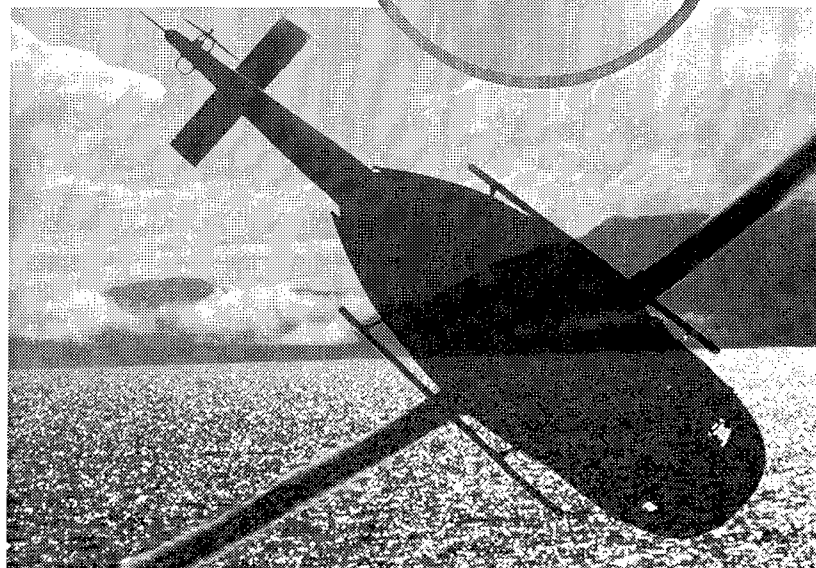
The UH-1H was one of three medevac aircraft en route to the scene of a vehicle accident with multiple casualties. The crew was under NVGs as they flew over water 1.5 miles off the coast. They were 1070 feet AHO at 110 KIAS when CW4 Scoles heard what he thought was the hydraulic pump cavitating. He decelerated and began a shallow left turn toward shore in preparation for imminent hydraulics failure.

SGT Seiders, on a monkey harness, checked the transmission area and confirmed that the noise was coming from the vicinity of the hydraulic pump. CW4 Scoles then felt feedback in the controls and, within 2 to 3 seconds, an unexpected and violent cyclic hardover to the right occurred. He advised CW3 Petty of the hardover and requested his assistance. CW3 Petty immediately got on the controls and placed the hydraulic-control switch into the off position.

The aircraft, now in a severe nose-low and right-hand attitude, began a rapid descent (>500 feet per minute) and a steep, uncontrolled turn farther out to sea. Application of collective aggravated the nearly uncontrollable bank.

Both pilots fought the cyclic hardover for the next minute or so. CW3 Petty had to use both legs, hands, and arms to apply adequate counterpressure on the cyclic to help maintain aircraft control. He was able to notify flight following of the hardover and subsequent loss of control, but little else was said due to the situation at hand. SGT Seiders had the passengers immediately assume the crash position.

To this point, execution of published emergency procedures had not corrected the cyclic hardover. With a crash into the water in an unusual attitude at high airspeed imminent, the crew decided that cycling the hydraulic switch (immediate-action steps for control stiffness) was necessary. CW3 Petty



attempted numerous times to recycle the hydraulic switch, but each time he took his left hand off the cyclic to do so, the aircraft quickly turned further right and came rapidly closer to an unrecoverable attitude/roll rate.

Seeing this situation, SGT Seiders, disregarding his own safety, unbuckled from his seat and climbed over the two rear-facing jumpseats (medevac configuration) to cycle the hydraulic switch himself. Just as he reached to do so, CW3 Petty managed to very rapidly cycle the switch on then off. The hardover ceased and normal hydraulics-off flight was restored at 500 feet.

CW4 Scoles initiated an immediate shallow left turn towards shore, and the crew began discussing where to land. They all agreed that they needed to get the aircraft on the ground as soon as possible to avoid another hardover condition, but the nearest airfield suitable for a running landing was 35 miles away. A low recon over the open desert did not reveal a suitable area. CW3 Petty then mentioned a helipad with a short run-on capability that was 3 miles away.

CW4 Scoles opted for this scenario and set up for an approach using shallow left turns because of the potential for another right-cyclic hardover. CW3 Petty kept lightly on the controls to assist in case another hardover occurred and notified the other medevac aircraft of their intentions. CW4 Scoles instructed the passengers to remain in the crash position. He briefed CW3 Petty to call out airspeeds continuously, to assist in reduction of collective when braking was

required, and to under no circumstances let airspeed go below 30 KIAS. SGT Seiders, acting as a critical part of the crew, called altitudes and rate of closure.

CW4 Scoles made a teardrop approach—using a series of left turns to avoid several large towers, a resort area, and palm trees on final—and set up for a perfect shallow approach. On short final, the crew realized that large rocks, gravel, and barricades on the landing area further limited the 110 feet of available run-on capability. The pilots continued the approach into the wind and just above effective translational lift airspeed, touching down only 2½ feet past the threshold of usable landing area. On touchdown, the two pilots reduced collective simultaneously for more rapid braking action and maneuvered the aircraft to the right during the skid to avoid striking large rocks. The aircraft slid to a controlled stop after only 90 feet of ground run.

CW3 Petty performed a normal shutdown and notified the sister aircraft that a safe landing was terminated with no further damage or injury to passengers. The sister aircraft landed, picked up the medical personnel and equipment, and continued the medevac mission.

Postflight inspection found that the line from the check valve to the hydraulic filter was completely sheared, which had resulted in immediate and total loss of all hydraulic fluid. The cyclic hardover resulted from failure of the irreversible valve in the right cyclic servo. The suspected cause of this failure was that air was introduced into the system during the rapid loss of hydraulic fluid.

■ *Mr. John D. Edmunds, Jr.*

UNC Aviation Services, Fort Rucker, AL

During contact flight training in a UH-1H, Mr. Edmunds initiated a simulated engine failure (SEF) task. His student identified the task correctly and executed the proper emergency procedure, including selection of a suitable forced-landing area. At 400 feet agl, Mr. Edmunds called for a power recovery to end the task. This recovery altitude would prevent the aircraft from descending below the minimum task altitude of 200 feet agl.

The student began to apply engine power and collective pitch to establish a climb back to altitude. At about 250 feet agl, a sudden left yaw occurred, and engine speed began dropping below 6600 rpm.

Mr. Edmunds took the controls and made a quick check of the throttle position to ensure it was full open; it was. A rumbling noise began to fill the cockpit, and the sound coming from the engine compartment became unmistakable: The Huey was experiencing multiple compressor stalls, and they were becoming progressively worse.

The aircraft would not climb or maintain altitude,

and the forced-landing site selected for the SEF task was well behind them. Mr. Edmunds initiated a 150-degree downwind turn toward the only other forced-landing site available, a wheat field. The helicopter was now about 100 to 125 feet agl.

A line of 70- to 80-foot-tall trees formed a barrier across the near side of the field. Mr. Edmunds executed a slight flare and, with minimal remaining engine power, cleared the trees by 10 to 20 feet. Clear of the tree line and at about 50 feet agl, the engine made a pinging sound and went silent. It had seized.

Mr. Edmunds put the aircraft into full autorotation and began a gentle deceleration to fly over a wire fence and a large sloping agricultural terrace before touching down. Several days of heavy rain had made the soil extremely soft and adhesive. Mr. Edmunds brought the aircraft to zero forward velocity before touchdown and cushioned the aircraft as it settled onto the face of a left-to-right downsloping (10°) terrace. The Huey sank into the soft soil but was undamaged by the landing forces. No one was injured.

■ *CW3 Timothy W. Harper*

A Company, 2nd Battalion, 227th Aviation Regiment, 1st Armored Division, Fliegerhorst, Germany

At 120 feet agl while conducting a simulated rocket engagement, the AH-64 crew heard a loud explosion from the left side of the aircraft. This was followed by immediate and complete failure of the No. 1 engine. CW3 Harper, the PC, realizing that he could not obtain single-engine airspeed, quickly lowered collective and entered an autorotation with only 120 feet to regain Nr to cushion impact. At about 5 to 10 feet, he applied collective to cushion the landing. Descending at the rate of more than 1000 feet per minute, the aircraft landed hard on an 8- to 10-degree slope. CW3 Harper maintained positive control of the aircraft, avoiding the possibility of dynamic rollover. Damage was limited to the left main landing gear and tail wheel strut; no one was injured. The emergency was caused by catastrophic failure of the No. 1 engine's GG rotor.

■ *CW2 Paul M. Dean*

U.S. Embassy, Cairo, OMC/AV Apache TAFT, Cairo, Egypt

CW2 Dean was conducting day RL progression training for a rated Egyptian Air Force aviator, who was in the front seat of the AH-64. During gunnery switchology training at a stabilized 370-foot OGE hover over rugged desert terrain, the EAF pilot

announced that he had a master-caution light. Simultaneously, CW2 Dean noticed that he, too, had a master-caution light and an engine-out light as well. Cross-check of his instruments verified that the No. 2 engine Ng and Np and rotor rpm were decreasing. He immediately lowered collective and applied forward cyclic to gain single-engine airspeed. About 7 seconds after the No. 2 engine failed, while at 200 feet agl and slightly above single-engine airspeed, the No. 1 engine also failed. CW2 Dean immediately entered autorotation and began to evaluate the available landing area, which was covered with 2- to 3-foot-high hard sand mounds and berms. He noted a small, flat area ahead of the aircraft and attempted to reach it. With little time to plan or react, he began his deceleration at about 100 feet agl. As the aircraft descended, he realized that the aircraft tail wheel would not clear the last berm. He used the collective to minimize the impact of the tail wheel and cushion the touchdown of the main landing gear. After touchdown, he brought the aircraft to a stop using the wheel brakes, and the crew exited the aircraft. Elapsed time from onset of the first engine failure until termination was less than 30 seconds. The only damage to the aircraft was a collapsed tail landing gear shock strut.

■ **CW3 Randall M. Rushing**

Operations Group, Combat Maneuver Training Center Aviation Detachment, Hohenfels, Germany

CW3 Rushing was the instrument examiner on an instrument training mission in a UH-1H. The aircraft was at 6000 feet and 90 KIAS, and the

outside air temperature was -8° when forecast light-rime icing began accumulating on the WSPS and wiper blades. After about 20 minutes, CW3 Rushing noticed that airspeed had deteriorated to 70 KIAS and told the pilot, who adjusted controls to correct it. Within a few seconds, CW3 Rushing saw airspeed at 60 knots and told the pilot, who again indicated he was correcting it.

Within seconds, airspeed dropped to zero and the aircraft was completely iced over and began to vibrate severely. Torque was 60 psi and the aircraft was entering an excessive right bank; N2 was 6000 rpm. CW3 Rushing took the controls, leveled the aircraft, and attempted to climb above the cloud deck. He adjusted torque to 45 to 50 psi but was unable to climb or initially regain N2, and the aircraft continued to descend. He then established a controlled descent and requested and received immediate radar vectors to the nearest forecast VMC and clearance to a lower altitude. He then requested assistance from the two pilots in the back to help monitor instruments and call out any significant indications. He asked the controller to compute aircraft ground speed and notify him if airspeed varied below 70 or above 110 knots.

CW3 Rushing continued flying the aircraft toward the destination airport, primarily using heading, attitude, and torque information to maintain level flight. While descending through 3500 feet msl, the vibrations began to subside as the ice began to melt. Visual flight was established at approximately 500 feet agl. The airspeed indicator remained inoperative as the ice began to clear from the windows. CW3 Rushing landed the aircraft without damage at the airport 20 minutes after onset of the emergency. No one was injured.

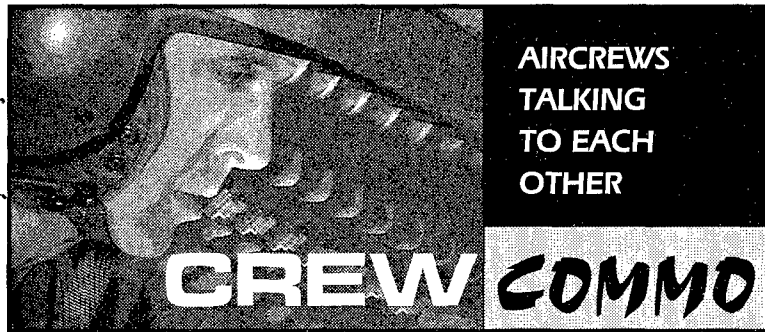


... to train in the mountains of north Georgia. What's in it for them? An opportunity to conduct actual day and night air-assault operations, aerial resupply missions, and cadre airborne operations in mountainous terrain.

Camp Frank D. Merrill, located near Dahlonega, GA, is home to the 5th Ranger Training Battalion and the location of the mountain phase of the U.S. Army Ranger School. In the past, the battalion has received outstanding aviation support from Fort Benning. However, due to crew shortages and crew-rest requirements, Fort Benning can no longer single-handedly support the monthly 10-day field exercises.

The 5th Ranger Training Battalion can provide a tactical scenario, missions, billets, mess, and most logistical needs. Mission requirements and fuel capacity at Camp Merrill make four to five UH-60s the ideal aviation support for a Ranger class.

For more information, please call SFC Sanchez or SSG Finney at DSN 797-5770 (706-864-3367), ext. 199 or 114.



The three C's still work

The Army has some of the best low-level pilots in the world, but there is one thing we need to occasionally be reminded of: Almost all fatalities occur when the aircraft impacts the earth's surface. Remember this: When you are flying low with no place to safely land and you lose forward visibility because of fog, dust, snow, rain—whatever the reason, CLIMB! Do not hesitate. Get on the gauges and climb. Immediately.

If you stay below 1200 feet agl, which in most areas is uncontrolled—Class G—airspace, you can settle down, relax, and enjoy still being alive. When you have regained your composure, you can proceed to an area of known VFR conditions or you can contact air traffic control and let them know you are in Class G airspace operating IFR and request an IFR clearance into Class E airspace and to the nearest facility you can use.

14 CFR Part 91, section 173, states: "No person may operate an aircraft in controlled airspace under IFR unless that person has (a) filed an IFR flight plan, and (b) received an appropriate ATC clearance." You, however, are flying by instruments in uncontrolled airspace with no flight plan or ATC clearance, alive and perfectly legal (unless you or the aircraft are not qualified for IFR flight or you fly out of Class G airspace).

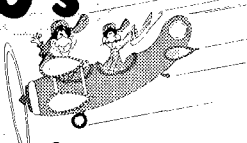
However, remaining a safe distance from rising terrain and obstacles becomes more difficult when operating in inclement weather. For many years we have taught that, when encountering

the 3 C's

Climb

Communicate

Comply



inclement conditions that do not allow continued VFR operation, you should follow the three C's: **Climb**—as high as necessary; **Communicate**—contact ATC immediately; and **Comply**—follow the instructions issued by ATC.

If you can return safely to VFR conditions while operating IFR in Class G airspace, fine. But if you can't, then get a clearance from ATC. Remember, FAR 91.3 allows a pilot involved in an inflight emergency to deviate from any rule to the extent necessary to meet that emergency. Explaining the event to the FAA or your superiors is far better, in my mind, than dying.

I have had to do this several times in my many years of flying, which includes 20 years as a rated Army aviator in the Tennessee National Guard and 30-plus years as an FAA Operations Inspector in the Nashville Flight Standards District Office. There are those who might disagree with this stay alive procedure, but it has worked for me and I feel comfortable in passing it along to others.

—CW4 William S. Whitmore, U.S. Army, Retired

More on "Recipe for Disaster"

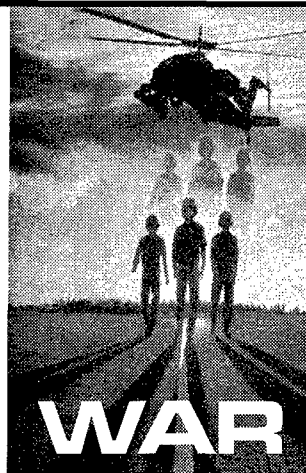
This letter is in response to the November 1996 *Flightfax* article entitled "Recipe for Disaster."

The author, being a CW4, needs to do some serious soul searching regarding his lack of action concerning the pilot referred to in the article. The author must know that this string of incidents was not the first and will not be the last. This pilot is either one who is "above" the rules or too proud to admit error. In either case, the pilot does not need to be around aircraft.

All of us make errors in judgment from time to time. No rational pilot would expect a pilot to be grounded for making a single mistake and correcting. But this pilot continued to put himself and his crew in harm's way. He either did not or would not recognize the alarms voiced by the crew. Too, after successfully escaping one problem, he continued and put himself in another critical circumstance. In any one of these cases, the fact is that this guy does not need to be in a cockpit. As a senior pilot, not recognizing the crew being audibly nervous and his total disregard for the crew is totally wrong.

The author needs to know that responsibility for this pilot is now his. He is responsible for this guy when he gets into another problem. And we all know, it's just a matter of time.

—Anonymous ASO



RISK
MANAGEMENT
LESSONS
LEARNED

WAR STORIES

Communication: Live by the word, die by the word

We all know that military aviation is an inherently dangerous business. Having been in the "business" for a little over 18 years, I've witnessed many of those dangers. Sometimes, however, we experience luck and the danger passes with no damage to personnel or equipment (or both). During my career in aviation, I've noticed that mishaps have a single common thread that not only links the results, but could have prevented the mishaps in the first place.

Of course, that link is communication. If you think of all the situations leading up to a mishap, you can pinpoint a breakdown (at some point) in communication. A breakdown in communication is usually the first hazard that creates a chain of events, a chain that ultimately leads to a mishap.

I'm reminded of my experiences as a junior aviator and what I've learned from many close calls while flying attack helicopters. Recently, I was going through some pictures of fellow aviators I once flew with. One of those pictures was of a brand-new pilot assigned to our unit just before we deployed for a 30-day field exercise at Fort Irwin, CA. As one of the unit's new trainers, I was assigned the new guy as a copilot. He was not only young but seemed to be somewhat of an introvert (unusual for the attack-helicopter community). Every day we flew together, I wanted to teach him something new and valuable that would make him not only good, but safe! We spent our battle drills working on crew-coordination techniques, tactics, and other tools to improve our proficiency. That one aspect of his personality, shyness, never seemed to surface during our flights. My assumption was that he left that on the flightline when he climbed in the aircraft. This assumption was the beginning of a breakdown in communication that nearly cost us our lives and the lives of another aircrew.

We were flying a Combined Arms Team battle drill. Our mission was to fly to a battle position (BP) with three other AH-1s. We had two Scout helicopters with us that provided oversight, command and control, and other routine services. As we entered the BP we had maneuver room and set about getting the best observation position for unmasking and locating the armor targets we knew would be entering the "kill zone." As we maneuvered, I was unaware that one of our Scout helicopters had landed (to our 5 o'clock) and was waiting for comms from another battle captain. My new guy (in the front seat) saw the Scout land, and he assumed that I had seen it as well. Unfortunately, my eyes were trained in the direction the enemy was expected to come from, and my scan was limited to that side of the aircraft (opposite the Scout). As we slowly hovered at 10 feet agl, something didn't feel right, and I increased power to gain about 10 additional feet. As I did, something caught my peripheral vision. The two pilots from the Scout were looking up at us as they ran away from their aircraft, *which I now saw below our own landing skids*. Our skids cleared their main rotors by no more than 5 feet as we flew directly over them! The Scout pilots knew it was too late to get our attention with a radio call, so they bailed. As I cleared their main rotor with our aircraft, my terror was replaced by sheer anger at my copilot, who seemed to be enjoying the whole ordeal. My first words to him were, "Did you see that aircraft?" He said he had and didn't say anything to me because he thought I saw it too. I was livid.

We landed and shut down our aircraft. I quickly approached the Scout pilots and apologized, explaining the problem. They were just happy I had my "psychic friends" along that day when I decided a 20-foot hover felt safer (just prior to impacting their aircraft). My new guy and I had a long talk about never assuming anything while in the cockpit. I told him that our breakdown in communication for just that single 30- to 40-second period nearly killed us and the Scout crew and nearly destroyed two aircraft.

I learned a valuable lesson that day, not only about crew coordination and communication between crewmembers, but also that personality plays a significant role in determining the thoroughness of a crew briefing. Knowing my copilot's introverted nature outside the cockpit should have sent me a signal. I should have stressed to my new guy that shy behavior and precise cockpit communication is an oxymoron. We can never assume anything about the other crewmember while flying. When we aren't as precise as possible in communicating thoughts, ideas, and directions, there is a degradation of safety and a sharp increase in potential risk.

In Army aviation, as well as in every aspect of

today's society, there seems to be a decline in understanding between individuals caused by a simple lack of or breakdown in communication. The only way to improve our skills in this area is to practice constantly. Mission pre-briefs and post-briefs are ways to identify and correct deficiencies in communication.

Writers, politicians, and some other professions "live by the word and die by the word." Believe me, aviators can be added to the list of professions that should heed that old axiom. Your life may depend on it!

—CW4 Tom Clarke, PA ARNG, DSN 664-3221, ext. 8903 (703-604-3221, ext. 8903)

"Go for the road"

On 23 October 1995, I was pilot in command of a UH-60A on a medical evacuation mission to transport a patient from the Air Force Academy to a hospital in Denver, CO. It was a cold, clear night, and, due to the many ground lights in the area, we were unaided. The mission was uneventful, as far as medevac missions go, until we were almost to our destination.

We were in straight and level flight at approximately 90 KIAS when the low rotor audio sounded. The copilot was on the controls at the time, and he immediately reduced the collective. The rotor rpm increased to the normal operating range, and I directed my attention to the engine TGTs. They were equal and in the normal operating range, so I told the pilot on the controls, "The engines are fine." There were no other abnormal indications.

The copilot then increased the collective to arrest our descent rate, and the rotor rpm immediately started to bleed down again. Our original altitude at the onset of this emergency was 900 to 1000 feet agl, so time was now extremely critical. I saw no other option than to execute a forced landing and selected the only unlit and uninhabited area I could see, which was to our front left.

The copilot turned the aircraft toward this area and turned on the landing light, which, fortunately, was already extended. The area I had selected, once illuminated, was not a

survivable forced-landing site. At that point, I yelled over ICS, "Go for the road," and came on the controls. We managed—how, I have no idea—to clear oncoming traffic and merge with northbound traffic on an overpass, get over a concrete median and under powerlines, and come to rest in the breakdown lane (how appropriate) without injury to anyone and with minimal damage to the aircraft.

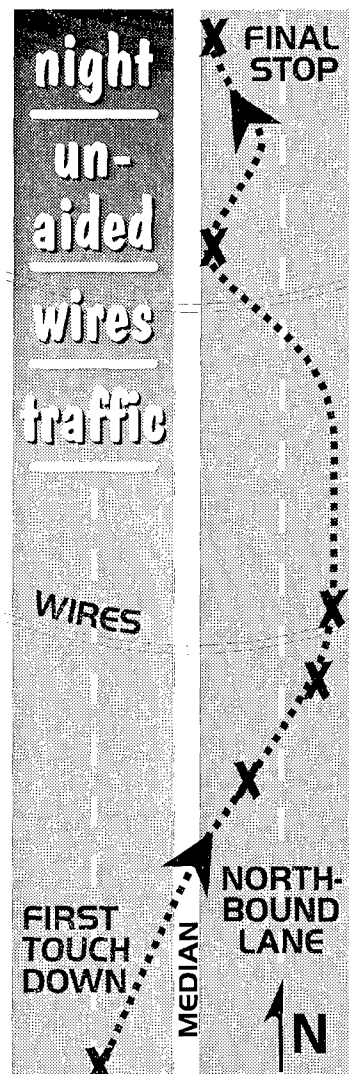
What happened?

Our aircraft had experienced a rather rare malfunction known as a "dual engine rollback." Both engines had failed to the low side. This has happened 13 times, with our accident being number 12. This is not a problem unique to the UH-60A, though. It has also happened in the UH-60L and the AH-64. Not all of these failed as low as ours did that night, and they have happened on the ground, at a hover, and during flight. What causes this malfunction is still being investigated. My intent in writing this article is to share my experience so that if this malfunction presents itself to you, you won't be asking "What's this?" and spend the rest of your life (in my case, it would have been 28 seconds) trying to figure out what's happening.

One good thing I have taken away from this accident is that I have learned an invaluable lesson. I once heard an Air Force General speak on crash survival, and he said, "If you knew that on your next flight you were going to have an emergency or crash, would you do anything different in preparation for that mission?" Now getting grounded or canceling the mission weren't options! He then said, "If you can think of one thing, you're not ready to fly."

I didn't appreciate his words as much before as I do now. Every situation we might encounter isn't necessarily going to be fixed by an answer memorized from a book. Crew coordination and situational awareness are absolutely key. The most important single consideration will always be aircraft control. And the primary consideration will always be survival of the occupants. Had I not been fortunate enough to be flying with the greatest pilot, crewchief, and medic in the world that night, it all could have turned out differently.

—CW2 Mike "Lucky" LaMee, B Co, 2/1 Aviation, Operation Joint Endeavor, APO AE 09789



A note for life-support gurus!

How long has it been since your unit's Emergency Beacon Corp. (EBC) ELTs have been returned to the manufacturer for inspection, maintenance, or repair? If your answer is "Never" or you don't know, consider sending them back to the manufacturer for an update. Glatzer Industries Corporation, the manufacturer of the EBC ELT, offers a special program that will maintain your ELTs to proper factory specifications.

Glatzer Industries has established a factory maintenance program where they inspect and repair as necessary (IRAN) each ELT on a repetitive 2-year basis. Each ELT that is "IRANed" is essentially restored to as-new condition, including new battery packs, and, therefore, receives a new 2-year unconditional warranty.

Under the IRAN program, each ELT is visually inspected and then electrically tested and measured at room temperature. It is then placed in an environmental test chamber, where the temperature

is -50°C and relative humidity is 95 percent. The ELT is again tested and measured to determine low-operating-temperature characteristics. The ELT is then warmed to room temperature and tested and measured again. Finally, the ELT is tested and measured at 70°C and 95-percent humidity. The electrical tests at each temperature include power output on each frequency, frequency stability, modulation characteristics, and receiver sensitivity for those ELTs that have voice transmit and/or receive capability. G force versus pulse duration is measured in a centrifuge in each of six positions: up, down, left, right, front, and back.

As you can see, there are many maintenance checks required to ensure your unit's ELTs are maintained in a high state of readiness. Don't we owe it to our crews to ensure their equipment is in the best possible state of repair?

For further information from Glatzer Industries, call 800-382-0079; ask for Pat.

—CW4 Andy Sickler, ASO, Fort Benning, GA, DSN 835-2425/4753 (706-545-2425/4753)

ALSE update

Two recent Aircrew Integrated System (ACIS) messages contain important information on aviation life-support equipment.

■ ACIS advisory message 052025Z February 1997 repeats an earlier message (021445Z Oct 96) that delayed (until 30 Sep 97) implementation of the AR 95-3, paragraph 7-6b, requirement for one survival radio per crewmember. PCs will continue to ensure that at least one fully operational survival radio is on board and that crewmembers without radios have other means of signaling (i.e., flare kit or signal mirror).

■ ACIS advisory message 052031Z February 1997 reminds users that the aircraft safety restraint assembly commonly referred to as the "monkey harness" is intended for use *only* to prevent soldiers from falling out of the aircraft. It is not designed to be used as a harness to suspend soldiers from the aircraft and must not be used for this purpose. This message also outlines inspection procedures for and limitations on the use of safety restraint assemblies.

The ACIS POC is SSG Stan Marmuziewicz, DSN 693-3573 (314-263-3573). If you are greeted by a voice-mail message and require immediate assistance, you may call DSN 693-9142 (314-263-9142).

Notes from Black Hawk PMO

In the January/February 1997 issue of "Black Hawk Newsletter," Mr. Joe Hoover cautions users to carefully review every message:

"I know we have been burdening Black Hawk users with a lot of Aviation Safety Action Messages (ASAMs) lately. But please be careful and take the time to review each message. As most of you know, as of 24 January, there have been nine ASAMs issued for fiscal year 1997. As some may not know, there has been

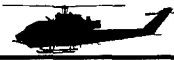
one Safety of Flight (SOF) issued this year. Note the difference. In message UH-60-SOF-97-01, I am trying to locate 18 specific serial-numbered swashplate assemblies. To date, I have received reports for eight. Using the 2410 data base, I located a couple more. The problem is the similarity in the message numbering system. Some people look at the ending part of the message, see "-01," check the records and see "-01," and automatically assume the message is complied with. Don't make this mistake."

Mr. Hoover's phone number is DSN 693-0484 (314-263-0484).

Accident briefs

Information based on preliminary reports of aircraft accidents

AH1



Class E

F series

■ Engine quit while bringing N1 up to 68 to 72 percent during engine start. Maintenance could not duplicate. Suspect interruption of power to fuel valve before start.

■ Aft fuel boost pump caution light came on during cruise flight at 80 knots and 1500 feet agl. Caused by faulty fuel boost pump cartridge.

■ During engine runup, forward fuel boost segment light came on. Maintenance replaced pump.

■ Fuel gauge began fluctuating 300 to 400 pounds during cruise flight. Inspection revealed that forward fuel probe connector was loose.

■ During correlation check, pilot and gunner N1 gauges differed by 4.4 percent at 100-percent rpm and by 3.7 percent at engine idle. Maintenance replaced pilot's N1 tachometer.

■ When IP entered descending left turn at 110 KIAS, PI (back seat) observed torque at 105 percent. Aircraft was landed without incident, and overtorque inspection was completed. Main-rotor trunnion bolts (P/N MS20006-20) were replaced.

■ Aircraft began to settle toward trees during right-hand turn in gusty winds. PC pulled 110 percent torque for 3 seconds to arrest rate of descent and continued turn toward downsloping terrain. Aircraft landed with no further incident.

■ Engine/transmission oil cooler fan bearing seized during runup. Engine oil temperature reached 130°C for 5 minutes. High engine oil temperature inspection is in progress. Oil cooler was replaced.

AH64



Class A

A series

■ While flying between trees, crew noted aircraft vibration and buffeting. Crew landed at first available landing site, where inspection revealed extensive damage to airframe and main-rotor system. Suspect tree strike. Accident is

under investigation.

Class C

A series

■ While in level flight at 700 feet agl and 120 to 130 knots in loose trail formation about 10 to 12 rotor disks behind lead aircraft, crew of Chalk 2 heard loud bang. No warning lights illuminated. On landing, inspection revealed damage to PNVS turret assembly, three main-rotor blades, pilot's windshield wiper, and center windscreen WSPS. Cause reported as "suspected object strike."

■ **Aircraft-ground accident.** During runup, power levers were advanced to fly. At 89-percent NP/NR, MP felt shudder and retarded power levers to idle. All indications were normal, and a normal shutdown was completed. Postflight revealed significant damage to No. 4 tail-rotor drive shaft next to utility hydraulic manifold and surrounding components. Cause not reported.

Class E

A series

■ At 400 feet agl during autorotation to runway, backseat pilot noticed decreasing NP on No. 1 engine. IP on the controls confirmed No. 1 engine failure and transitioned to roll-on single-engine landing. Master caution light flickered, and No. 1 engine oil pressure segment light came on. No. 1 engine completely shut down during landing. Cause not reported.

■ Main transmission light came on during runup. Maintenance replaced main transmission chip detector.

■ No. 1 engine fire handle flickered on and off during final approach for landing. Caused by electrical short.

■ Transmission oil hot light came on in flight. Cause not reported.

■ APU failed to start on two attempts. Maintenance determined that APU controller sensed low-oil condition and prevented start. Oil was added, and APU started. Maintenance later replaced APU after several days of monitoring determined that it was losing oil.

■ During cruise flight at 500 feet and 100 knots, PNVS picture quality began deteriorating and became unusable. Maintenance replaced PNVS.

■ During normal runup, crew heard

pop and APU shut down, causing a hard shutdown. Cause not reported.

■ During NVS deliberate attack, PNVS would not lock in position for more than 30 to 40 seconds at a time. Cause not reported.

■ On short final for landing at night, shaft-driven compressor light came on with no interruption in pressurized air system airflow. No other information reported.

■ No. 2 general caution/warning light came on during startup procedures. Fault detection and location system indicated that GCU had failed.

■ Shaft-driven compressor light came on during runup. Maintenance replaced hose and clamp.

■ Oil psi accessory pump caution light came on during climbout. Pressure switch was replaced.

■ No. 2 engine NP failed on climbout. Electrical control unit was replaced.

■ Postflight inspection revealed that ADF sensing antenna was missing, aft mount was bent, and lower IFF antenna was loose and bent at mounting point. Crew had felt no unusual movement during flight. Cause unknown.

■ Oil low primary light came on and primary hydraulic pressure fluctuated during cruise flight. About 15 seconds later, primary hydraulic psi light came on and pressure gauge went to zero. BUCS fail light came on, and DASE yaw channel disengaged. DASE pitch and roll channels then disengaged, and ASE light came on. Aircraft landed and hose assembly was replaced.

■ Damage to one outboard tail-rotor blade was discovered during postflight. Suspect damage resulted from rotorwash from other AH-64s and CH-47s during FARP operations at unimproved landing area. Tail rotor blade was replaced.

Class F

A series

■ While on ground at flat pitch, crew heard popping sound from No. 1 engine. PC identified No. 1 engine tgt had reached 917°, reduced power lever to idle, and tgt reduced to 580°. As he began advancing power lever back to fly, tgt began to rise rapidly and engine began to pop. He shut down engine. Inspection revealed internal engine damage, and engine was replaced. Suspect FOD.

CH47



Class D

D series

■ While landing to snow-covered terrain, aircraft started to slide backwards with brakes applied. Aircraft was picked up to hover and repositioned. Postflight inspection revealed VHF antenna had contacted the ground and cracked. Antenna was replaced.

Class E

D series

■ No. 1 torque needle on P and CP gauge fell to zero during takeoff and would not respond to normal engine trim adjustment. It initially responded to emergency engine trim, but stopped after about 30 seconds. Flight was terminated, and aircraft was shut down without incident.

■ Ramp tongue separated from aircraft after external load was delivered. Cause not reported.

OH58



Class B

D series

■ Aircraft drifted rearward during OGE hover at night, and tail rotor struck treetops. Both pilots were under NVGs and had "come inside" the cockpit for 10 to 15 seconds while conducting airborne target handover system training.

Class C

D series

■ Before flight, aircraft doors had been taken off and secured to Hesco basket with heavy-duty bungee strap. At completion of mission, aircraft was at 2-foot hover over landing pad when one of the doors came loose. Rotor wash lifted door into main rotor blades, destroying door and damaging two rotor blades.

Class E

A series

■ On start sequence, PI opened throttle at 13-percent N1 and closed the throttle before reaching 927°. TOT continued to climb during abort and reached 960° for 1 second. Hot-end inspection revealed damage to engine.

C series

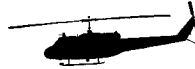
■ PC was starting aircraft after refueling at intermediate stop. When he opened throttle to engine-idle position after reaching 15-percent N1, he noticed

rapid rise in TOT and began emergency shutdown procedures. Idle detent did not release initially, but second attempt to roll throttle off was successful. TOT had momentarily reached 998°.

D series

■ A single loud compressor stall occurred while crew was conducting an engineering test flight profile and performing a target acquisition OGE hover at 1800 feet agl. There was no damage.

UH1



Class C

H series

■ Wrench was inadvertently left on vertical fin after tail rotor adjustment. Test flight was accomplished without incident, but damage to tail rotor was found during postflight inspection.

J series

■ Aircraft experienced overtorque in flight. Adverse environmental conditions suspected to have contributed. Local investigation in progress.

V series

■ Aircraft encountered blowing snow during approach and drifted left into tree line. Both main-rotor blades contacted 3- to 5-inch-diameter trees. Aircraft landed without incident. Investigation continues.

Class E

H series

■ During runup, PC detected increase in engine noise. N2 had been set to 6600 rpm but was passing through 7000. Just as PC reduced throttle, transmission chip detector light came on, so torque indication was not observed. Engine and main rotor hub assembly was replaced.

■ During normal climbout after takeoff, pilot heard loud popping noise from rear of aircraft and felt yaw. He observed torque oscillations and egt fluctuations, then reduced power and returned to takeoff point. Cause not reported.

■ During MOC ground run for engine component change, large amount of smoke was emitted from engine exhaust and bleed air system. Aircraft was shut down. Maintenance found that two small O-rings had become dislodged during N2 gearbox installation and were severed during assembly. This caused engine oil to be pumped into bleed air system.

■ During MOC runup after engine

replacement, linear actuator would not increase or decrease. Aircraft was shut down. Maintenance could not duplicate problem after warming aircraft in hangar. Suspect that actuator was frozen from -20°C temperatures.

V series

■ The crew had completed five simulated engine failures from altitude with normal indications during external fuel system qualification. However, when the sixth was entered, N2 and rotor needles did not split as normal. Power recovery was initiated and aircraft was landed. Suspect failure of transmission input quill.

UH60



Class D

A series

■ While in cruise flight, crew saw a concentration of large birds and altered course. As pilot took evasive action by entering descending right turn, bird flew into left-side nose cowling of aircraft.

Class E

A series

■ Low rotor rpm master warning light came on, low rotor audio horn sounded, and both PDU indications of rotor rpm went to 0 percent during IFR training flight. No. 1 and No. 2 engine rpm remained at 100 percent. Low rotor rpm audio horn could not be deactivated, and pilot requested and completed instrument approach to minimums with low rotor rpm audio horn on until aircraft landed. Caused by system sensor failure.

■ Pilot felt slight yaw left and right during IFR cruise flight then noticed No. 1 tail rotor servo caution light, backup pump on advisory light, No. 2 tail rotor servo advisory light, and master caution light on. Suspecting failure of No. 1 tail rotor servo with No. 2 tail rotor servo operational, crew elected to return to home base for precautionary landing.

■ During cruise flight at 1000 feet msl and 70 KIAS, load of 2 empty 500-gallon fuel blivets became unstable. Airspeed was reduced smoothly, and as it approached 60 KIAS, load began to oscillate. As load started swinging out, IP entered a turn and added power in attempt to stabilize load. One blivet swung around and hit right side of aircraft tail cone, then both settled under aircraft and became stable again. Aircraft landed safely.

■ During IFR flight at 5000 feet msl and 120 KIAS, APU fire light came on. Crewchief checked for smoke, but found none. IFR flight plan was canceled, and aircraft proceeded direct to landing area without further incident. Photo cell was found to be shorting out. Wire was repaired and aircraft was released for flight.

■ During cruise flight at 120 KIAS, pilot felt boost off control forces in cyclic pitch axis with no accompanying caution/advisory lights. He turned off both SAS and FPS, then executed precautionary landing at nearby airfield. MTP could not duplicate condition and released aircraft for flight. During return flight to home base, pilot again noted boost off control forces in cyclic pitch axis for about 5 minutes before returning to normal. Cause not reported.

■ Tip cap was found damaged on preflight. Last flight had been 2 weeks before and involved multiple approaches to unimproved landing zones. Suspect damage was caused by flying debris. Tip cap was replaced, and aircraft was released for flight.

■ Passenger discharged a training round into floor of aircraft while exiting at landing zone during FTX. Crew was unaware of incident until 2x2-inch tear in floor and bow in floor stringer was found after mission completion. Investigation is in progress.

■ Chip accessory module came on during climb. Aircraft landed and maintenance cleaned module. During landing after return flight to home station, second illumination occurred. Special oil sample was taken and module was replaced.

■ In level flight at 1500 feet agl and 130 KIAS, aircraft suddenly started to vibrate as if something had struck it or a cowling had come off. When aircraft slowed to 80 knots, vibration decreased. As power was applied prior to landing, vibration increased. Cause not reported.

■ No. 2 engine oil filter bypass light came on intermittently during cruise flight. Outside air temperature was -30°C, and No. 2 engine temperature was between 30° and 40°C. Light went out on landing when temperature rose above 40°C. Suspect extreme cold temperatures combined with inflight wind chill caused engine oil temperature to fall below 38°C, causing filter bypass to occur.

L series

■ While climbing to cruise altitude of 10,000 feet, PI noticed 4-inch crack in

bottom right-hand corner of windshield. Within 30 seconds, the crack grew to the full length and width of the windshield and the anti-ice connector began sparking. Crew turned off anti-ice and returned to takeoff point without further incident. OAT at 9,000 feet msl during climbout had been noted at 3°C.

C12



Class E

C series

■ During postflight, IP found a nick on one propeller blade of left engine. Suspect FOD.

F series

■ At about 40 knots on takeoff roll on ice-covered runway, aircraft began to fishtail and slid off left side of runway into snow-covered sod. No damage.

■ No. 1 engine torque, fuel flow, and tgt gauges began to fluctuate 45 minutes into flight. As crew evaluated indications, fluctuations increased and engine power changes could be heard. When power was reduced to 60 percent, all indications returned to normal. Crew aborted mission and returned to home station. Cause not reported.

R series

■ During runup, right fuel flow was inoperative and signal generators were crossed. Cannon plugs to signal generators were switched and right fuel flow transmitter was changed out, correcting the problems.

C26

Class E

B series

■ During climbout, pilot attempted to reduce power on both engines. As he moved power levers aft, right power lever momentarily hung up and would not retard then operated normally. When aircraft reached cruise altitude and pilot again attempted to reduce power levers, right power lever moved a short distance and again locked up. It would increase but could not be reduced below 50-percent torque. Flight to AAF was continued at a reduced power setting of 50-percent torque. Crew made decision to shut down right engine on final and land with one engine. Landing was made without incident. Postflight inspection

revealed clevis pin was missing from lever position switch arm clevis. The pin (P/N MS203922C11) was found, and inspection showed a slight mark where the washer had gotten cocked on the pin after the cotter pin broke or wore through and fell away. The washer had apparently stopped on the remaining portion of the cotter pin until vibrations caused it to rotate and also fall away. This allowed the arm to drop its position that stopped the power lever from retarding aft. Further inspection suggested that the slight outward pressure being applied by the clevis to the washer and cotter pin could have caused the cotter pin to wear or break. During reinstallation, the clevis was "drawn" slightly to alleviate the pressure on the cotter pin.

05



Class C

DHC-7

■ During preflight, forward HF DF antenna appeared damaged. Since the flight was nowhere near thunderstorms or lightning and no mission gear system problems were reported, aircraft was flown back to home station. Maintenance inspection later revealed damage to four additional antennas and the elevator.

Class E

DHC-7

■ While starting engines, ground crew indicated problems with No. 4 engine. Simultaneously, copilot noted smoke coming from cowling, and crew aborted start attempt. Maintenance inspection revealed starter generator had failed. It was replaced, and aircraft was released for flight.

For more information on selected accident briefs, call DSN 558-2785 (334-255-2785).

"If you knew that on your next flight you were going to have an emergency or crash, would you do anything different in preparation for that mission?"

Aviation messages

Recap of selected aviation safety messages

Aviation safety-action messages

CH-47-97-ASAM-03, 041913Z Feb 97, maintenance mandatory.

A problem with the 5,000-pound tie-down rings pulling loose from the cabin floor was identified in 1993. The problem was caused by a lack of sealant on the retaining bushing threads, and CH-47-94-ASAM-5 was issued to inspect fielded CH/MH-47s and action was to be taken by Boeing to inspect production-line aircraft prior to delivery. Recently, during flight of an Australian CH-47D, the forward right-hand tie-down fitting on the ramp backed out of the adapter while the flight engineer was using the tie-down fitting to secure his safety harness. Investigation revealed the absence of sealant on the threads of the adapter and bushing, and no conclusive evidence that the aircraft had been inspected/corrected prior to delivery by Boeing. The purpose of this message is to inspect/correct aircraft and to establish a recurring phase maintenance (200-hour) inspection requirement for the fittings. ATCOM contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

UH-60-97-ASAM-06, 071647Z Jan 97, maintenance mandatory.

The lateral bellcrank assembly, P/N 70400-08150-045, manufactured by

Purdy Machine Company (cage code 15152) recently completed engineering testing. Results indicate that its endurance strength is significantly below that of the original component; therefore, its retirement life is reduced to 360 hours since new. The purpose of this message is to require removal of all subject assemblies that have 360 hours since new. ATCOM contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

UH-60-97-ASAM-07, 102105Z Jan 97, maintenance mandatory.

Tail rotor servo cylinder assemblies, P/Ns 2227000-9, -13, and -17, recently supplied by Parker Bertea Aerospace may have been assembled with O-rings that are not compatible with the hydraulic fluid used in H-60 aircraft. The purpose of this message is to require removal of the tail rotor servo cylinder assemblies whose serial numbers are listed in the message. ATCOM contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

UH-60-97-ASAM-08, 102057Z Jan 97, maintenance mandatory.

The connecting link, P/N 70400-08155-056, manufactured by Purdy Machine Company (cage code 15152) recently completed engineering testing. Results indicate that its endurance strength is significantly below that of the original component; therefore, it must be removed from the aircraft. The purpose of this message is to require removal of

all subject assemblies. ATCOM contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

UH-60-97-ASAM-09, 221453Z Jan 97, maintenance mandatory.

The main rotor shaft extensions, P/N 70351-08186-043, manufactured by The Purdy Corp. (cage code 15152) and by Fenn Manufacturing Company (cage code 82001) are undergoing testing. Until testing is complete, an interim finite life of 2100 hours has been assigned. The purpose of this message is to require removal of all subject assemblies that have reached or exceeded 2100 hours. ATCOM contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

Safety-of-flight message

C-23-97-SOF-01, 312022Z Jan 97, emergency.

Shorts Brothers Aircraft has notified ATCOM that a defect in the material thickness of the C-23B(Plus) rudder and elevator skins may not withstand loads experienced during a single-engine failure. Such a failure could have catastrophic results. The purpose of this message is to immediately ground all C-23B(Plus) aircraft with serial numbers 93-1317 through 93-1322. ATCOM contact: Mr. Jim Wilkins, DSN 693-2258 (314-263-2258).

IN THIS ISSUE

- Broken wing awards2
- Wanted: Aviation units4
- The three C's still work (cc) .5
- More on "Recipe for Disaster" (cc)5
- Communication: Live by the word, die by the word (ws) .6
- "Go for the road" (ws)7
- A note for life-support gurus! (sf)8
- ALSE update (sf)8
- Notes from Black Hawk PMO (ASAMs) (sf)8

WS • War Stories, CC • Crew Commo, SF • Shortfax

Class A Accidents

		Class A Flight Accidents		Army Military Fatalities	
		96	97	96	97
1ST QTR	October	1	0	0	0
	November	0	0	0	0
	December	0	1	0	0
2D QTR	January	1	1	0	2*
	February	0	0	0	0
	March	2	7	7	0
3D QTR	April	1	0	3	0
	May	0	0	0	0
	June	1	0	6	0
4TH QTR	July	0	0	0	0
	August	0	0	0	0
	September	1	0	0	0
TOTAL		7	2	16	2

*Excludes 1 USAF pilot trainee fatality



Flightfax is published by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident-prevention purposes only, and is specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. Address questions about content to DSN 558-2676 (334-255-2676). Address questions about distribution to DSN 558-2062 (334-255-2062). To submit information for publication, use fax DSN 558-9478/3743 (Ms. Sally Yohn) or e-mail flightfax@safety-emh1.army.mil.

Thomas J. Konitzer
Brigadier General, USA
Commanding General