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FLIGHTfax

Army Aviation Composite Risk Management Information

"There I Was..."

Army Aviators tell their story

and how it has affected them physically and mentally.

U.S. ARMY

CSA Sends: Leader Accountability in Reducing Accidents

In March 2003, the Secretary of Defense challenged the Services to reduce accidents by 50 percent by the end of Fiscal Year 2005. Our target was 101 mishap fatalities, but we actually suffered 302 Soldier deaths due to accidents. These losses represent a significant impact on our combat power, and many could have been prevented with good leadership.

In the most dangerous environments—those in theater—we have a much reduced accident rate relative to exposure levels. This is due to involved, engaged leaders who properly plan and then closely supervise their Soldiers' missions. Leaders are the key to preventing unnecessary loss. In recognition of this fact, we are strengthening the performance evaluation system on leader responsibility for risk management.

All leaders will include safety programs and tasks in their evaluation report support forms and counseling sessions. An excellent bullet example is: "Effectively incorporating Composite Risk Management in all mission planning and execution to include quarterly training briefs and quarterly safety council meetings." Open and continuous communications between Soldiers and leaders on this critical topic will work to achieve that mission.

LEADERS AT ALL LEVELS MUST LEAD THE WAY IN CHANGING BEHAVIOR TO REDUCE ACCIDENTS.

Leaders at all levels must lead the way in changing behavior to reduce accidents.

All senior raters will pass their support forms down two levels. For example, division commanders will pass their support forms with safety objectives down to battalion commanders, who then will pass their support forms with safety objectives down to platoon leaders. The noncommissioned officers' (NCO) chain of supervision is linked in a similar fashion through their rating officials. Regular counseling in support of military evaluation systems is an already established requirement and practice. An oversight process for this requirement is in place as part of evaluation counseling.

We cannot afford to let this become a check the box requirement. Leaders must determine how their unit and Soldiers fit into programs and campaigns organized and promoted by the Army Combat Readiness Center. Leaders should take these broad agendas and translate them into specific tasks and objectives suitable for their unit and mission. This safety accountability focus at the leader level, along with counseling to see it placed squarely into all officer and NCO development, is vital to preserving our most precious resource —our Soldiers.

—GEN Peter J. Schoomaker became the 35th Army Chief of Staff on 1 August 2003. This was adapted from his message to all general officers dated 1 February 2006.

CRC's Answer

The Army Combat Readiness Center (CRC) has many valuable tools leaders can use to meet the requirements of the Chief of Staff, Army (CSA), directive to include safety in evaluation reports. These programs, initiatives, and metrics were developed to help leaders at every level integrate Composite Risk Management (CRM) into all facets of their units' operations and training. They also were designed to help leaders determine the value of their unit safety programs as a whole, while individual Soldiers can use the programs and metrics for inclusion into their support forms and counseling checklists.

(1) Army Readiness Assessment Program (ARAP). ARAP is a Web-based, battalion-level commander's tool used to evaluate unit climate and culture on issues, including safety, risk management, command and control, and standards of performance. The program consists of an online assessment followed by proposed courses of action to improve the unit's effectiveness. ARAP was developed for battalion commanders as part of their command inspection program but is also now available to all Headquarters, Department of the Army and major command staffs. More information on ARAP can be found on the CRC homepage at https://crc.army.mil or by going to https://unitready.army.mil.

(2) Preliminary Loss Reports (PLRs) and "Got Risk?" posters. PLRs and "Got Risk?" posters are distributed to commanders via e-mail to raise awareness of the latest accidents. PLRs are generated by a team at the CRC for each Army accident involving a fatality and include tactics, techniques, and procedures (TTPs) to help prevent similar accidents from occurring. The "Got Risk?" posters highlight the basic facts of accidents occurring during specific 7-day intervals. All PLRs and "Got Risk?" posters are available on the CRC homepage at https://crc.army.mil.

(3) Army Safe Driver Training (ASDT). ASDT consists of hands-on accident avoidance training in several key areas, including braking, skids, and high-speed maneuvering. This training can be performed on both conventional vehicles and HMMWVs. Commanders can request this program by contacting the CRC G-5 at (334) 255-2461 or DSN 558-2461. More information on the ASDT program can be found online at https://crc.army.mil/RiskManagement/detail.asp?iData=56&iCat=454&iChannel=25&nChannel=RiskManagement.

(4) POV Toolbox. The POV Toolbox was designed to help leaders fight the number one killer of Soldiers outside combat—private vehicle crashes. This Web-based program includes the CSA's 6-Point Program, a POV inspection checklist, tools for trip planning and accident trend analysis, an accident review guide, options available to commanders in dealing with unsafe drivers, and leaders' guides. The POV Toolbox can be found online at https://crc.army.mil/RiskManagement/detail.asp?iData=26&iCat=516&iChannel=25&nChannel=RiskManagement.

(5) Onsite CRM training. The CRC's Mobile Training Teams (MTTs) provide 3-day commander/leader courses and 5-day NCO courses on CRM for brigade- or division-sized units free of charge at the requesting unit's location. The MTTs also provide a CRM train-the-trainer course on request. Commanders can schedule one of these courses by contacting the

CRC G-7 at (334) 255-0242 or DSN 558-0242. More information on MTT visits can be found online at https://crc.army.mil/Training/cat.asp?iCat=519&iChannel=16&nChannel=Training.

(6) Assistance visits. Commanders can request a white-hat team to conduct an onsite study of their units' operations and make recommendations to improve their CRM processes. These visits can be scheduled through the CRC G-5, (334) 255-2461 or DSN 558-2461. More information on assistance visits can be found online at https://crc.army.mil/Training/detail.asp?iData=43&iCat=519&iChannel=16&nChannel=Training.

(7) Commander's Safety Course. This course is a mandatory requirement for all commanders and can be found on the Combat Readiness University Web site at https://safetylms.army.mil/librix/loginhtml2.asp?v=usasc.

(8) Magazines. The CRC produces three full-color publications geared toward hazard identification and CRM: *Flightfax* (aviation), *Countermeasure* (ground), and *ImpaX* (driving). Electronic copies of each publication and subscription information can be found online at https://crc.army.mil/MediaAndPubs/cat.asp?iCat=59&iChannel=19&nChannel=MediaAndPubs.

(9) Commander's Toolbox. The Commander's Toolbox is an online package derived from best practices in the field and includes checklists, briefing formats, sample SOPs, training materials, automated risk assessment worksheets, etc. To access the Commander's Toolbox link, go to the CRC homepage, https://crc.army.mil, and then click on the "Combat Readiness University" icon. Use your AKO to login, and then go to "My Courses."

(10) Guardian Angel. The Guardian Angel program is a national campaign that pairs family members, churches, schools, and other interested persons and groups with individual Soldiers to help keep them safe during off-duty activities. This program is especially useful during a Soldier's post-deployment phase. More information on the Guardian Angel program is available online at https://crcapps.army.mil/guardianangel/index.html.

(11) Safety Awards Program. Commanders can find policy, guidance, and samples of how to run their own safety awards program online at https://crc.army.mil/CRC/detail.asp?iData=80&iCat=544&iChannel=13&nChannel=CRC.

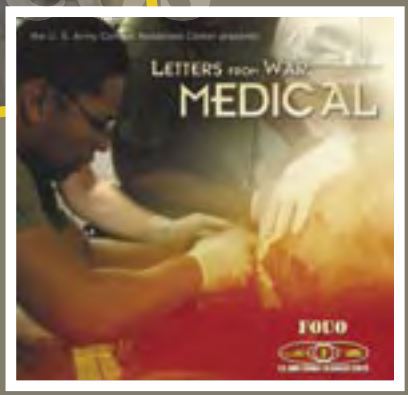
In addition, the CRC offers tools for individual officers and NCOs:

- **ASMIS-1 Aviation Risk Assessment Tool.** This module of the ASMIS-1 system guides the user through the risk management process during aviation mission planning and can be found online at https://crcapps.army.mil/. (Note: ASMIS-2 Aviation is being developed and should be available soon.)
- **ASMIS-1 Ground Risk Assessment Tool.** This module of the ASMIS-1 system guides the user through the risk management process during ground mission planning for operations such as convoys and can be found online at https://crcapps.army.mil/. (Note: ASMIS-2 Ground is being developed and should be available soon.)
- **ASMIS-2 POV Risk Assessment Tool.** This updated version of the original ASMIS pairs individual Soldiers with their supervisors to help them plan POV trips and make appropriate risk decisions in their planning. At the end of the assessment, Soldiers are provided with a full itinerary, a map with directions, and an automated DA Form 31. ASMIS-2 can be accessed online at https://crcapps.army.mil/.
- **Additional Duty Safety Officer Course.** This is a mandatory course for all additional duty safety personnel and is available online at https://safetylms.army.mil/.
- **Composite Risk Management Course.** This is an online course that provides policy, practice, and tools on CRM. To access the CRM course material, go to the CRC

homepage at https://crc.army.mil, and then click on the "Combat Readiness University" icon. Use your AKO to login, and then go to "My Courses."

• **Videos.** The CRC has produced a wide range of videos that can be used during training. Subjects range from driving POVs, explosives safety, HMMWV rollovers, aviation, and others. To access the videos from the CRC homepage, go to the Media & Magazines channel at https://crc.army.mil/MediaAndPubs/detail.asp?iData=75&iCat=58&iChannel=19&nChannel=MediaAndPubs, click video index link, and then after choosing the one(s) you want, click to view or order them.

videos



• **Deployment Safety Guide.** The V Corps Safety Office developed this extensive manual that provides safety guidance, policy, and tools for many phases of deployment and can be found online at https://crc.army.mil/Guidance/detail.asp?iData=207&iCat=371&iChannel=15&nChannel=Guidance.

• **Confined Space Guide.** This guide provides instructions on how to protect personnel who work in permit-required confined spaces. For more information, go to the confined space guide link on the CRC home page at https://crc.army.mil/Guidance/detail.asp?iData=205&iCat=456&iChannel=15&nChannel=Guidance.

• **Up-Armored HMWWV Rollover Procedures.** GTA 55-03-030, *Up-Armored HMMWV Emergency Procedures Performance Measures*, consists of step-by-step emergency procedures for rollovers, water egress drills, MEDEVAC requests, and training suggestions. More information on this training aid can be found online at https://crc.army.mil/Tools/detail.asp?iData=58&iCat=547&iChannel=17&nChannel=Tools.

The following metric examples are for officers and NCOs to support active safety measures within their formations. Under no circumstances is the intent to foster a zero-defect environment; rather, the goal is for units to quantify safety requirements, programs, and policies across the full spectrum of command in order to set the conditions for Soldiers, leaders, and Commanders to own the edge. Each unit is highly encouraged to create and tailor metrics specific to their individual missions and requirements, showing linkage and continuity across every echelon from top to bottom.

• Effectively incorporated CRM in all mission planning and execution, to include quarterly training briefs and quarterly safety council meetings.

• Achieved 100 percent compliance of ASMIS-2 POV use by unit personnel.

• Achieved 100 percent reporting of all accidents IAW Army regulations, using the Accident Reporting Automated System (ARAS).

• Within 90 days of assuming command or responsibility, executed all safety awareness and risk management programs, to include ARAP, the Additional Duty Safety Officer (ADSO) course, and CRM training.

• XX percent of my Soldiers are enrolled in Combat Readiness University online programs.

• XX percent of my Soldiers participated in Army Safe Drivers Training programs to include ASDT, Motorcycle Mentorship, and the Accident Avoidance Course.

• XX percent of my aviation crews completed Aircrew Coordination Training-Enhanced (ACT-E).

• Developed unit-specific safety and accident avoidance training classes using CRC-developed products presented in the form of officer and NCO professional development training sessions.

• Received, reviewed, and distributed both "Got Risk?" posters and PLRs across my formation(s) to preclude similar events from occurring within my formations.

• Conducted thorough after-action reviews (AAR) in order to capture best practices and TTPs that were then shared across the formations to improve communications and refine/standardize SOPs to further mitigate risk.

• Never walked by an unsafe act or procedure by making on-the-spot corrections to ensure compliance with approved standards.

• Provided subordinates with the maximum planning time possible (1/3-2/3 rule) in order to minimize shortcuts and enhance the potential for overall mission success.

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My Memor

The Push

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Many aviators have been killed in accidents resulting from unplanned entry into inadvertent instrument meteorological conditions (IIMC). In many cases, they made a decision to continue flight in deteriorating weather conditions, even when their mission did not warrant the risk. In this story, the author, a U.S. Army UH-60 Black Hawk pilot, gives a personal account of her experience with IIMC that occurred on a deployment to Bosnia-Herzegovina in 2001.

At the time, I was a 470-hour UH-60L Black Hawk pilot in an assault unit deploying to Bosnia. Our port was located at Rijeka, Croatia, and I was part of the advanced party. We had the mission of "rebuilding" the aircraft as they were off-loaded from the ship and flying them to Comanche Base in Bosnia-Herzegovina, our new home for the next 6 months. It is normal procedure for aviators to receive maps, flight publications, and local area orientations before being released to fly unrestricted in a new area of operations. Because this training was to occur after arriving at Comanche Base, the outgoing unit had to send their own aircraft and/or flight crews to assist us in flying there from Rijeka.

We were a couple of days ahead of schedule and received word that one Black Hawk was coming to lead a flight of OH-58Ds and UH-60s to Comanche. An instructor pilot (IP) on board the aircraft would replace a crewmember from our aircraft and be flight lead, while the Black Hawks would lead the OH-58Ds. We had been there for

able Flight: to Accomplish the Mission

5 days already and were eager to begin our mission. We flew three of our UH-60s to the airport on the island of KRK to stage them and wait to see what would happen with the weather. The OH-58Ds had already canceled because of reported turbulence.

We had no way of knowing what was going on at Comanche Base at the time. The cloud ceiling was at approximately 4,000 feet above mean sea level (MSL). This would not seem to be significant unless one takes into consideration that the mountains in between the coast of Croatia and Bosnia-Herzegovina ranged from 4,000 to 5,000 feet MSL. The prevailing attitude of aviators over there was it was nearly impossible to get accurate weather forecasts for extended areas. There were just not enough observers and equipment, and the weather is unpredictable in that mountainous environment. Therefore, the usual technique is if one is given a "legal" weather forecast, continue to fly until weather conditions make it impossible to continue.

This is the logic the IP flying the Black Hawk out of Comanche Base was using that day. What we didn't know was the IP that was supposed to function as our flight lead refused to board the aircraft because he "did not have weather." Furthermore, the weather was forecast to be sunny and clear the next day! Despite this, the IP flying the UH-60 still chose to take off and continue the mission. He managed to make it through the mountains and arrive at KRK Island, but only after deviating from prescribed routes. When he landed, he learned the OH-58D helicopters he was supposed to be leading were not flying that day, so he offered to lead us instead.

We didn't have any publications or maps and we didn't know the elevation of the mountains or the route we were taking other than what the IP verbally briefed. He gave us information about refuel stops en route, frequencies, and IIMC procedures. This included instrument landing system (ILS) and approach frequencies for the international airport in Zagreb, the capital of Croatia. When we finished briefing, we got in our helicopters and took off as a flight of four.

The pilot in command (PC) of my helicopter had about the same number of hours I had, but he had never flown in a mountainous environment. I had in Korea, but never in bad weather—in or out of the mountains. I also had zero "weather" time in a UH-60. We had one crew chief onboard, and our external stores support system "wings" were our only cargo. We were

Chalk 2 in the flight. I was on the controls, and we flew the route as briefed.

As expected, once we left the coastline and entered the mountains, we encountered rain and a wall of clouds. We did a 180 and flew down the coastline and entered the mountains again. Once in the mountains, we were like ants in an ant hill. All the mountaintops were obscured and we encountered light to heavy rain. It was also very foggy. We were flying at a reduced air speed (20 to 50 knots), 10 to 20 feet above the treetops.

The visibility at times was less than a quarter-mile, and all we could see was the helicopter in front of us and the bare tree limbs directly below us. We kept running into a wall of clouds and would have to turn around and go another way. One time, our flight lead had us orbit a pond while he looked for a possible route through the mountains.

After about 30 minutes of this, our master caution light illuminated. At first, we couldn't see the accompanying caution light, but then one of the engine chip lights slowly brightened. I had been on the controls this whole time, and the PC followed the established procedure of retarding the engine power control lever for the affected engine. We announced our actions to the flight and were instructed to try to land somewhere so the maintenance test pilot (MTP) flying one of the other aircraft could check out the problem. Unfortunately, we quickly realized there was *nowhere* we could land! We were in a sparsely populated area and the mountainsides were covered with forest, with narrow roads being the only clear areas. We attempted to land at a road intersection, but the space was too narrow.

Our flight lead announced we had only one more line of mountains to cross and then we would be in an expansive level area of low elevation. Then we could land and have the MTP check out the problem. We decided on this course of action.

By this time, I was extremely paranoid of hitting something and, unable to see the obstacles in front of us, I "stacked up" some on the lead aircraft to help ensure obstacle clearance. Unfortunately, this 15 to 20 feet was all it took to break our tenuous link with our only ground reference. The sequence of events is not entirely clear to me, but I remember creeping forward to catch up with lead and he seemed to be far away at the time. What we didn't know was he had run into another wall of clouds and was at a complete stop just above the trees.

Now completely surrounded by white, I began to transition to instruments and pull in power. I'm not sure if I noticed or if someone yelled something, but almost immediately I looked up and the flight lead's aircraft, which had seemed so far away, was *RIGHT THERE*. I yanked the collective all the way up and jerked the cyclic violently aft and to the right. We flew about 20 feet directly over the top of the lead aircraft while having no other visual references.

This was our official transition to instruments—a wild evasive maneuver in the clouds. The PC took the controls, and our 60-second rollercoaster ride began. I was looking at the instruments and calling out directions periodically. At first, every movement was a gross overcompensation. I observed vertical ascents and descents ranging from 4,000 feet per minute up and then, seconds later, the same rate going down. At one point, I observed a 100-degree angle of bank.

Shortly after all this began, our most vivid near-death experience occurred. We were in a very rapid descent at about 100 knots and a nose-down attitude when the view of a forest of bare tree limbs appeared in our windscreen. I don't know if he was on the controls at the time, but I had a hold of the cyclic and yanked it into my belly. It was a blind reflex maneuver, we

were descending onto a mountain top out of a cloud, and we only knew we had not crashed because seconds continued to tick away. We had no references and probably missed those trees by only a few feet. The PC later said he was attempting to fly both visually and by instruments at the same time after that experience and was spatially disoriented.

After that, the aircraft seemed to be under control with a basically level attitude, so when it started shaking and shuddering, I could not figure out the reason at first. That's because my cross check was mostly overlooking the airspeed indicator. I looked at that instrument and saw we were at zero airspeed. I was highly alarmed and yelled, "Check airspeed!" I grabbed the cyclic and pushed it forward. However, the PC fought me and pulled back. He wanted to be at zero airspeed, figuring if we went straight up, we would not run into any of the unknown obstacles that surrounded us.

Unfortunately, this was when the seemingly endless power margin of a mostly empty UH-60L reached its limits. We were assaulted with the loud, steady tone of the low rotor alarm, coupled with complete electrical power loss, and forced to put the aircraft in a dive to get the rotor RPM back up. The PC gave the controls to me after the low rotor alarm—which we heard twice—to get the aircraft back into control, but I couldn't do it either. Finally, with him on the controls, the aircraft was calmed down and we were at a very comfortable 10,000 feet MSL. We were briefed that 9,000 feet was the IIMC minimum safe altitude for Bosnia, but the altitude we were at just felt better under the circumstances.

I programmed the transponder to squawk "7700" (emergency) and called Zagreb approach, which was already up on VHF. I declared an emergency and let Zagreb know we had the ILS frequencies and this was our first flight in country. They established radar contact, and we felt settled on what was now a normal instrument flight, which was my first half hour of logged weather time in a UH-60. We contacted the flight to let them know we were all right and to check on them. They managed to work their way back to port.

The last issue we had—the icing on the cake—was an "ice detector" light and the ice rate meter swinging all the way to the "heavy" range. We turned on the engine anti-ice and blade de-ice and were welcomed with an immediate "Tail Rotor De-Ice Fail" caution light. However, we descended to a lower altitude and had no further problems. The engine chip light had even disappeared. We later broke out of the clouds at 4,000 feet MSL and landed visually at Zagreb International Airport after completing the ILS approach we briefed.

We stayed at a UN base camp that night, and the same IP landed in Zagreb the next day to lead us to Comanche Base. An MTP climbed in to check out, of all things, the ghostly engine chip light. I climbed in as a passenger in the lead Black Hawk, and my PC from the prior flight and the MTP flew back with us to Comanche Base. The weather (as was forecast) was beautiful. All this to be a day *ahead* of schedule!

My crew walked away from an undamaged aircraft after our memorable flight. It's a miracle the accident investigation board members were not picking aircraft debris and mangled bodies off a mountainside. I have friends and coworkers who "pushed weather" in a similar fashion and are not alive to tell the tale. By using the "3-W" method (what happened, why it happened, and what to do about it) to analyze this incident, hopefully others will be inspired to weigh risks versus benefits more carefully. ♦

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When You Lose a F

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When you lose a friend, things change. When you are involved in their death, everything changes. During a field training exercise in preparation for the Joint Readiness Training Center, that is exactly what happened to us. On the night of 12 February 2001, while conducting a difficult but routine air assault mission, two UH-60 aircraft collided, resulting in 11 injuries and 6 deaths.

The mission was straightforward and the planning was as detailed as any other I had been involved with at the time and since. The problem wasn't the planning. The problem was our overconfidence in the mission and in dealing with the changes in the mission, environment, and crew.

Our mission consisted of moving a battalion of infantry and their support items into a small landing zone (LZ). We were in a flight of four Black Hawks flying a staggered right formation using three serials. I was in the lead aircraft of the third serial. Things began to change after the air mission brief (AMB), starting with changing one of the crewmembers. Next, it was the deteriorating weather. Upon arrival at the pickup zone (PZ), we were updated that the primary route couldn't be used, so the alternate was chosen. This alternate route hadn't been completely rehearsed at the AMB. To support the ground tactical plan, we were also told to change the order in which we carried our loads. Somewhere in the decision cycle, it was determined Chalk 4 would carry the heavy load in the rear of the formation instead of the front.

AS THE LZ CAME INTO VIEW, WE HEARD CHALK 4 CALL CHALK 3 AND SAY, "HEY, THREE, CAN YOU SPEED UP?" HIS RESPONSE WAS, "NOPE! CAN'T GO FASTER THAN THE AIRCRAFT IN FRONT OF ME." THIS MADE ME WANT TO SPEED UP, BUT I WAS FLYING AS FAST AS I COULD DUE TO THE CONDITIONS. ABOUT HALFWAY THROUGH THE TURN, IT HAPPENED.

Arriving at the LZ, the clouds let loose and it began to rain heavily; visibility dropped to about 300 and 1/8. We were boxed in by mountains to the front and left, so we decided to continue to land after finally seeing the LZ. We entered a 180-degree right-hand turn to get onto a landing path at the LZ. As the LZ came into view, we heard Chalk 4 call Chalk 3 and say, "Hey, three, can you speed up?" His response was, "Nope! Can't go faster than the aircraft in front of me." This made me want to speed up, but I was flying as fast as I could due to the conditions. The wind was 25 knots, not the reported 10, and it was from the rear, not the front as briefed. As you know, this is not a good thing. About halfway through the turn, it happened.

I saw my rotor blades spark and then stop dead. The noise was deafening! Shortly after, we hit the ground with a thud. It was over in what seemed to be a second. It then got quiet

riend Things Change

in my head and I asked myself, "Am I alive, hurt, or what?" I was fine. My mouth hurt, as did my back. My face had hit the cyclic, but I was alive. I then heard the noise of the engines and what was left of the rotor blades hitting the tail section.

The infantry in the back yelled, "Get out!" That suddenly brought me back to reality, and I remembered the crew brief we did every day. "DON'T get out," I yelled, "I have to get the engines offline first." As I reached for the engine power control levers, I felt the pilot in command's hand. He was already taking care of shutting down the engines.

The events that followed changed my life forever: 11 Soldiers were injured on our aircraft, and two UH-60s and a HMMWV were destroyed. I was permanently grounded a year-and-a-half later with an incurable head injury that causes seizures. The hit on the cyclic had done more damage than first thought. Even worse, six good Soldiers—three whom I called friends—were killed on the aircraft that ran into us.

The focus on completing the ground tactical plan overshadowed the obvious potential in an elevated risk. Using today's format of Composite Risk Management (CRM) could've made us look beyond the issues at hand. Had we spent more time with CRM, maybe we would've identified the high risk and found a way to accomplish this mission without being risk averse, completing the mission and supporting the ground tactical plan, or maybe even delaying the mission until a better night.

This is just a small look into what happened that night. Many things went wrong and a lot of them were out of our control. However, if any one of them was changed, things might have been different. We were just doing our job and what we thought was right. We had the best intentions and a very experienced group of pilots and crew chiefs. Yet many lives and families were changed forever. We must continue to remember those who have died and paid that dearest price. We must learn from the past, not forget it. No training mission is worth the price we paid that night. We should've taken a longer look at the hazards. We must train, but we must train smart. Just because you do something 1,000 times doesn't mean it's right; 1,001 may be your last. ♦

—CW2 King wrote this article while attending Aviation Safety Officer Course 06-002 at Fort Rucker, AL. He may be contacted at paul.c.king@us.army.mil.

"God, If You Get Me I'll Nev

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It was Thanksgiving Day 2003 when I almost lost a perfectly good helicopter and my life off the coast of Texas. I had been flying offshore for about 5 months and this would be my first winter to fly in the Gulf of Mexico.

The guys offshore were ready to go home because it was crew change day and Thanksgiving. The radar painted a bad red and yellow squall line of thunderstorms between us and Galveston, TX, about 90 miles offshore. There was a cold front coming my way, but the squall line appeared to be stationary and west of our location every time I checked the radar. I felt it would remain that way for the rest of the day. This was my first mistake.

At the time, I didn't realize weather mass moves from the west to the east. I also underestimated how bad the weather was. Because it was west of my location, it was acting as a block that would eventually move over my location.

The guys were very disappointed they were not going to make it home for Thanksgiving. The foreman wanted to get some work done in the field, so I gave in and we headed out.

I flew two men about 30 miles east to a small "toadstool" platform, or place to land. It was called a toadstool because it had only one leg and no living facility and the only shelter was a small tool room.

It was about an hour after arriving I noticed a bad line of rain moving my way to the west. I surely didn't want to get stuck on the platform because sleeping in the helicopter wasn't fun. After I expressed to the foreman we needed to depart because of weather, he refused to go but told me to go ahead without him.

The wind changed. This is an indicator a front is about to pass or has passed, but I decided to depart anyway. I wasn't able to fly directly to the platform because of the squall line, so I adjusted my course south. I remember looking over my right shoulder and seeing the platform I had just left and it was already covered with a severe storm.

I had about 2 hours of daylight and about 1½ hours of fuel. I failed to take into account there are fewer platforms off the coast of Texas than off the coast of Louisiana, where I'm used to flying.

I continued to fly south, looking for a hole or a break in the squall line I could fly

Out of This...

er Push Weather Again!"

through. I flew south for over 15 minutes and no platforms were in site. All I saw was a very intense squall line pushing southeast. I lost all communications with flight following—the agency that opens and closes flight plans and is in charge of search and rescue. The wind was over 30 knots and the seas were 4 to 6 feet, with lightning in and around the squall line.

Reality sat in. This was the weather I saw on the radar; this squall line is pushing me south. Oh my God, I don't have a way out of this! My mind quickly recalled the mistakes I had made: First, I behaved overconfidently and took off ahead of a severe front, I flew south for over 15 minutes to try to get around the storm and then lost all communications, and, worst of all, I didn't leave myself a way out. How could I have been so stupid? I felt humiliated as I circled at 600 feet. I thought about all the *Flightfax* articles I had read and wondered if those pilots could've prevented an accident if they had just broken one of the chains of events.

I looked at the sectional map to estimate my location and, just as I had feared, there were no other platforms around my location. I kept saying to myself, "Don't panic!" I decided to backtrack, but then I started praying, "I'm just trying to make a living God, I need a little help. I know you hear this from a lot of pilots, but if you get me out of this, I'll never push weather again!"

I continued flying along the edge of the squall line, looking for a place to land. My plan was to fly until I got the low fuel light, make my mayday call, and then set it down in the water.

Suddenly, a platform appeared on the horizon next to the squall line. I landed and started tying the helicopter down just as the squall line engulfed the platform with heavy rain and lightning. I walked down the stairs into the galley and said, "I'm Marty, a pilot. I need to stay here tonight."

During the night, the wind picked up and the waves rocked the platform. I lay awake for hours beating myself up, reviewing all my poor choices, and thinking about how I could be out there in the water, fighting to stay alive.

The next morning, the winds were more than 50 knots and the waves were over 12 feet. I didn't fly but used that day to reflect on my lessons learned:

- Always leave yourself a way out.
- Be aware if you change your plan.
- Break the chain of events that can lead to an accident.
- Never underestimate weather.
- If you see bad weather to the west, you can expect it will move your way sometime.
- Doing stupid things can destroy confidence.

It took some time to build up my confidence after that day, but it happened finally. That one night on Thanksgiving Day changed my life and the way I look at the hazards of flight forever. ♦

—CPT Jewell is currently an MH-60A pilot in command aviation safety officer at A Company, 1-185th Aviation, Jackson, MS. He has flown UH-60A with the Arkansas National Guard (NG) and UH-60L with the Texas NG. He can be contacted at (601) 313-2160 or by e-mail marty.jewell@us.army.mil. CPT Jewell wrote this article as a class assignment while attending ASOC 06-002 at Fort Rucker, AL.

When Weather and

CW3 CHRIS MILES
B COMPANY, 1-227th AVIATION REGIMENT
FORT HOOD, TX

Have you ever wondered what would happen if you went inadvertent instrument meteorological conditions (IIMC) at just the wrong time, flying a little longer than expected and dog tired? Here's what happened to us...

The flight started out with my pilot and me conducting normal flight planning, which included checking the air tasking order, special instructions, mission considerations, performance planning, threat, and weather. My pilot was experienced in the AH-64 and a former OH-58 instructor pilot, and, at the time, I was a 600-hour, front-seat AH-64A copilot/gunner. We were to be Gun 2 in a two-ship flight of AH-64s departing Comanche Base in Tuzla, Bosnia. The mission was to provide reconnaissance of weapons storage facilities and roadways leading to Brcko before the Brcko Decision.

The aircraft was fine with one exception—the automatic direction finder (ADF) was not functioning. Since the introduction of the embedded global positioning system, maintenance wasn't concerned with the ADF, especially during this time of flying missions logging danger time in good weather. All other equipment was working fine, including our auxiliary fuel tank, so we continued with a normal runup and good communications check.

Takeoff was on time, and our aircraft moved into a position to provide cover for lead. After flying 4 hours a day and having completed our mission and refuel near Brcko, the first mission change came—our relief was down for maintenance. After another hour of logging day flight, it was time to make the transition to night vision system (NVS) flight and take on a little more fuel. That's when word came that troops were massing near an old military training facility about 100 kilometers west of our position. We were directed to recon the area before returning to base.

Our reconnaissance proved the tip to be wrong, and both aircraft began the trip home. To our surprise, a radio call from our forward-deployed tactical operation center (TOC) gave us news we hadn't expected. The low weather route was not passable and we needed to proceed to a smaller valley about 5 miles to the east. As it turns out, the radio message was exactly opposite of what we should have been given. We were now at 5 hours of day flight and 2 hours of NVS flight.

As we turned into the valley, I remember telling my back seater I was feeling pretty beat. He replied he was also tired and suggested heading back to the base camp just behind us to remain overnight. Lead at this time was about a mile ahead of us. We were flying at 300 feet above ground level in a valley with ridgelines that seemed to tower over us. In the distance, there was a 4,000-foot peak.

I was on the controls and had just cleared the last set of wires in the valley when my NVS went completely green. I transferred the controls, and my pilot informed me he still had a usable NVS. In a matter of seconds, we were in

Fatique Unite

trouble. The pilot's NVS went completely blank as we hit a dense snowstorm head-on, so we committed to instruments. Neither of us had a good feeling about the peak looming a short distance away.

The pilot rolled the aircraft into a left 90-degree bank and pulled back hard on the cyclic, making every attempt to get us turned around without hitting either the mountain in front or the ridge on the side. I monitored the instruments and observed the radar altimeter quickly descending from 400 to 200 feet while in a 90-degree bank. The radar altimeter then began climbing as quickly as it descended. We climbed to our minimum safe altitude of 8,600 feet in a blustery snowstorm.

Radio calls were made to approach control, where we hoped to get precision approach radar (PAR) into Tuzla. "Tuzla is supposed to be open until we're on the ground," was muttered several times. The controller was later found in his quarters. Next, we tried the Airborne Early Warning Radar Aircraft in hopes of getting vectors to clear weather. Once again, luck was not on our side.

We were able to make contact with our TOC at the base camp. The Air Force controllers at the camp advised the tactical PAR was untested, but the nondirectional radio beacon (NDB) was up. That didn't do us much good with the malfunctioning ADF. The controllers advised they would turn the PAR on and try to bring us in.

As we waited, we noticed it was starting to take more power to hold altitude and ice was forming. We began to let ourselves down until 2,900 feet, when radar contact was established. We broke out at about 1,800 to 2,000 feet and landed.

There are a lot of things we as a crew could have done differently. I truly believe the single most important thing we did right was we kept talking and both monitored each other. Crew coordination saved our lives that night. Bad weather wasn't expected for the times we were supposed to fly, but, as our flight got longer and longer, we flew right into what we never expected. I'll let you decide for yourselves what you would have done in this scenario. We learned a lot from this; I'm just happy it worked out the way it did. ♦

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Circumstances

CW2 ERIC FRY
2/82 AVIATION REGIMENT
FORT BRAGG, NC

The mission seemed simple. We planned an instrument flight rules (IFR) flight from Fort Bragg, NC, to Frederick, MD. Based upon the forecast, we were expecting to fly IFR under visual flight rules (VFR) conditions. No problem ... until one of our Black Hawks broke and we were forced to delay our takeoff for 24 hours. The delay was just enough time for the weather to disintegrate. We were assigned an extremely high-profile mission, so we had no choice but to take off. After all, the weather was still legal!

On the morning of the flight, we received the -1 for our flight: the first leg was from Fort Bragg to Lynchburg, VA, and then a second flight from Lynchburg to Frederick. The terminal area forecast (TAF) for Lynchburg (LYH) read 4 nautical miles (NM) visibility with mist and overcast at 800 feet. The TAF for Frederick (FDK) read 3 NM visibility, light rain with mist, and overcast at 1,500 feet. Both TAFs were well above minimums for the airfields, so the decision was easy.

We took off in our Black Hawks with a 10-minute separation as Chalk 1 and Chalk 2 (we were trail). In flight, we checked the automatic terminal information service (ATIS) at LYH, which reported overcast at 400 feet. Upon reaching LYH and flying the instrument landing system (ILS) to runway four, we didn't break out until approximately 50 feet before decision height. This meant the ceiling was 800 feet below the TAF we had received on the –1. This should have been our cue to give a call to the fixed base operator at FDK and ask him to physically look outside. Instead, we updated our weather with Fort Bragg's weather, the Raleigh flight service station, and also by the automated surface observing system (ASOS) at FDK. We were given a TAF of overcast at 1,200 feet with 2 NM visibility. This meant we had more than enough ceiling to fly either the VHF omnidirectional radio range (VOR) or the ILS into FDK.

En route to FDK, it became very obvious air traffic control (ATC) was oversaturated in this region. They had difficulty handling all the aircraft under their control, so they extended our routing and had us hold to allow Chalk 1 to fly the approach. This added some time to our flight, but we still had enough fuel at our current burn rate.

While holding, our sister ship contacted us via internal FM and told us they didn't pick up the localizer and had subsequently flown through the approach path. They lost communications with approach and believed their VHF radio had gone bad; therefore, they critically needed a UHF frequency. They asked us to relay this information to ATC and request instructions to relay back to them. We then entered holding on the localizer intersection and called ATC again for a UHF frequency for Chalk 1. ATC never responded. Chalk 1 had been flying blind with no ATC guidance for 5 minutes. This problem forced us to hold for an extended period of time, which caused our fuel to become an issue. Chalk 1 was equipped with Robertson fuel tanks, so they had plenty of fuel.

After some time, approach called us and asked about Chalk 1 because they had not heard from them. When we tried to return the call, approach didn't pick us up. We could hear approach, but we couldn't respond to them. After being diverted, then holding for an extended period of time, our 1 hour and 35 minute flight had now been extended to 2 hours and 15 minutes. Due to this extension, our fuel low lights were flashing, and we still hadn't been given clearance to make the approach.

Chalk 1 finally regained communication with ATC and coordinated for us to make the approach since we were fuel critical at this time. During our holding, we checked the ASOS and it reported a ceiling of 500 feet with 2 NM. Though we experienced weather reporting issues all day long, this made us even more uneasy to make the decision to break out. If we did

Piled Up

break out at the ASOS-reported ceiling of 500 feet, we would only be 100 feet higher than the decision height. The biggest problem we had was we had no fuel reserve left to make it to our alternate site if we didn't break out.

As we initiated the approach, we had less than 300 pounds of fuel, with our fuel lows flashing continuously. We flew the glide slope to our decision height. Not having the ground in sight but having no choice, we continued toward the localizer at 60 knots indicated airspeed in a slow descent. We were flying blind, hoping to descend onto an airfield. As we continued, we finally saw pieces of the ground at 150 feet AGL, and the approach end of the runway appeared about a quarter-mile in front of us! We finally landed with only 190 pounds of fuel remaining.

Our sister ship then made the approach and ended up in a field a mile from the approach end of the runway! Both ships were on the ground, so it didn't matter where they were located!

Lessons learned

• Our unit has an unwritten rule to call each fixed base operation we plan to visit during a flight. Since our flight was delayed 24 hours, we didn't bother calling the second day. This was a huge mistake. The Frederick airport told us its ASOS had been reporting incorrect data all day. This turned out to be very useful knowledge we didn't have.

• The Frederick airport has no tower, but the Hagerstown, MD, airport has a tower and is only a 15-minute flight away. We should have considered the oversaturation of ATC and requested to amend our flight to land at Hagerstown, which was originally our alternate.

• The most valuable lesson learned from this experience, however, is don't become complacent when it comes to ATC. Remember, they are capable of mistakes—just like anyone else—but those mistakes could cost us our lives! ♦

—CW2 Fry wrote this article while attending Aviation Safety Officer Course 06-002 at Fort Rucker, AL. He may be contacted at eric.t.fry@us.army.mil.

C-12 Lightning S

CW3 SCOTT T. MASSEY
DET. 6, U.S. ARMY OPERATIONAL SUPPORT AIRLIFT COMMAND
WINDSOR LOCKS, CT

After having received my weather brief from Air Force Weather, the flight began as usual. My mission was to fly to Davidson Army Airfield (DAA), wait approximately 4 hours, and return to base with the passengers I had initially departed with. The weather brief showed there was a chance for isolated thunderstorms in the vicinity of Washington, DC, but they would occur after I had departed the area. I arrived at DAA uneventfully a short time later.

An hour-and-a-half before my scheduled departure, I noticed the skies to the west of the field appeared a bit ominous. I walked into the weather station at DAA, where the briefer told me there was a line of significant weather moving toward the field that should arrive about 1700 local time. My scheduled departure time was a half-hour later than the time the storms were to arrive, so I contacted my passengers to let them know if they didn't want any delays, we would need to depart 45 minutes early. They agreed and arrived at the new time. Unfortunately, so did the weather!

The winds were out of the west (as was the line of weather), but they were light, so I departed to the east, accepting a 6- to 7-knot tailwind. The weather on our departure path was instrument flight rules (IFR), but there was no significant weather on the weather radar or storm scope.

As we departed, our route of flight kept us well to the east of the line of weather we could now visually confirm as we broke out at about 17,000 feet. Our flight was just a short hour-and-a-half trip, and as we continued north, we were clear of the significant weather by 100 miles. After contacting Boston Center, we were cleared for our initial descent to FL190. I noticed some light precipitation on the weather radar that showed up about 50 miles short of our destination, but it was insignificant. As we entered the cloud layer, we found it only contained light freezing precipitation.

I turned the ice lights on to inspect the wing for any visible accumulation. Suddenly, there was a loud "crack," and I observed a lightning strike on our left wing. It appeared as a ball of white light about 5 feet in radius. There was no loss of navigational or flight control, so we continued to our destination—about 15 minutes farther. I reported the strike to Boston Center, as I had commercial traffic both ahead and behind me and wanted to give them the heads-up. I thought now would be a good time to let the passengers know we had been struck by lightning (although Stevie Wonder could have seen we were struck) and the aircraft was safe. We made a call ahead to have our maintenance personnel meet us as we arrived.

The initial inspection revealed the elevator had been misshaped and a small chunk of the left propeller had been removed by the intense heat. There were also some obvious burns on the tail section of the aircraft. Further inspection showed the No. 1 engine and propeller had to be replaced. This was my second strike in weather that appeared to be insignificant on the weather radar and showed nothing on the storm scope. There was one common denominator for each of

trike

these incidents: both times I was in a thin band of clouds accompanied by light, freezing precipitation.

After further investigation, I discovered several studies conducted by the NASA Storm Hazards Program (1980-86), USAF/FAA Lightning Characterization Program (1984-85, 1987), and French Transall Program (1984, 1988) uncovered something now known as "triggered lightning."

These studies showed triggered lightning is an electrical discharge caused by a vehicle moving through a sufficiently strong, pre-existing electrical field. It can be viewed as a compression of the ambient electric field until the breakdown voltage is reached or exceeded. It is an invisible threat that often occurs in apparently benign conditions. It can also occur in electrical fields significantly weaker than those found in and around traditional thunderstorms. Additionally, the studies proved the aircraft was capable of triggering the lightning strikes while it transited areas with a high ambient electric field.

These studies demonstrated:

- 100 percent of triggered strikes were in storms at flight levels at or above 23,000 feet.
- 90 percent of triggered strikes were at altitudes below 23,000 feet.
- Only about 10 percent of the strikes below 23,000 feet were intercepted natural strikes.

Most notably, conditions favorable for triggered lightning also exist in non-thunderstorm environments where there was light, freezing precipitation. So even if your weather brief shows there are no forecast thunderstorms for your route, if your route takes you through any freezing precipitation, there is an increased chance for a lightning strike. These strikes are almost unavoidable and most certainly unpredictable. The best defense against a triggered strike is being aware of the approaching conditions. Despite all preparations, you still may be at risk for a triggered lightning strike. Given the option, avoid prolonged flight into icing conditions regardless of how benign it appears. There may not be conditions that keep you "*terra firma*," but keeping them in the back of your mind may help prevent a triggered strike! ♦

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DID YOU KNOW?

Lightning. **It avoids the ocean, but likes Florida. It's attracted to the Himalayas and even more so to Central Africa. And lightning almost never strikes the North or South poles.**

Where does lightning strike most frequently? **Central Africa. That's because there you get thunderstorms all year round. NASA scientists say it's a result of weather patterns, air flow from the Atlantic Ocean, and enhancement by mountainous areas.**

These are just a few of the things NASA scientists have learned using satellites to monitor worldwide lightning.

All Deserts H

CW2 MARCIAL R. JAY
B COMPANY, 2-3 AVIATION REGIMENT
HUNTER AAF, SAVANNAH, GA

All aviators and most crewmembers have heard the old saying, "All roads have wires." This saying definitely still holds true. Now, I would like to add a twist. Most of us who have been deployed to the desert, either in support of Operation Enduring Freedom or Operation Iraqi Freedom, can attest to what I'm about to tell you—all deserts have wires! They are just as dangerous as road wires and, in some cases, even harder to detect or point out..

My story takes us back to the beginning of the war in Iraq. The time it occurred and the individuals involved are not relevant. Even the type of airframe involved is not important, but I will divulge it was a CH-47D Chinook for the purpose of storytelling. The 3rd Infantry Division had pushed through the Iraqi desert and had just taken Baghdad and its surrounding areas. The Chinook had been tasked to conduct an air movement of supplies and personnel north of Baghdad to a small airbase called Balad. The unit had successfully completed several air movements during the course of a few days, and the mission was almost complete.

If you've never had the opportunity to fly in the Iraq desert, let me give you a brief description of what it looks like. There are immense stretches of desert with the occasional Bedouin encampments and every now and then a small town. As you get in the more populated areas, you encounter large sets of power lines. And when I say large, I mean towers standing 200 to 300 feet high! To make matters worse, these power lines have been painted the same color as the desert and everything around it—BROWN! This is where my story comes in.

A flight of three CH-47Ds were on a routine mission to fly personnel and their equipment to Balad from Talil Airbase, which is located about 4 hours south. Everything in the flight was going well—the weather was cooperating and the sun was shining. As we neared a fairly decent-sized city, we saw power lines in the distance. Everyone in the flight acknowledged they could see the lines and we continued on. We crossed several large sets with no incident. A few moments later, Chalks 2 and 3 spotted another large set of power lines in the distance and began a slow climb to avoid them. The lead aircraft, however, did not. Both Chalks 2 and 3 assumed the lead aircraft had the wires in sight and said nothing to the lead aircraft. As the flight got closer to the wires, it was obvious the lead aircraft did not see them. Immediately the trail aircraft radioed in, "Do you have the wires at 12 o'clock?!" At that point, the aircraft

ave Wires

was too close to the wires to answer. All you could see from Chalks 2 and 3 was the lead yanking the nose of the aircraft up and barely missing the wires by a few feet!

For those of you who are unfamiliar with the CH-47D, aircrews tend to fly with the ramp on the aircraft partially down for both visual purposes and ventilation. The aircraft pitched the nose up so much that it caused several pieces of equipment and supplies to fall out. Luckily, no one was injured and nothing major was lost. When we all landed, the pilots of the lead aircraft said they never saw the wires. Due to the glare of the sun and the color of the towers, they were almost invisible until they were right on top of them. Fortunately, they were flying at an altitude that was sufficient to clear the wires with evasive maneuvers. A few feet lower and this could have been a tragic story.

The lessons learned in this story are simple. The first one is communicate! Talk to each other. Second, we need to maintain our basic flight principles at all times. And last, we need to keep our heads on a swivel and remain cognizant of our surroundings. We tend to get complacent when things become routine. But in an environment like Iraq or Afghanistan, we just can't afford to do that. ♦

—The author can be reached at marcial.jay@us.army.mil. CW2 Jay wrote this article while attending Aviation Safety Officer Course 06-001 at Fort Rucker, AL.

HAZARDS
- Unmarked wire
- Low sun angle/shadows
- Unnecessary low-level, high-speed flight

WHAT CAN WIRES DO?

RESULTS
- 3 Fatalities,
- 1 Seriously Injured
- Cost: $10M, Aircraft Destroyed

CONTROLS
- Updated Hazards Map
- Limit terrain flight to only when necessary

AccidentBriefs

Information based on preliminary reports of aircraft accidents

AH-6

M Model

• **Class B:** The aircraft engine experienced an underspeed and landed hard in a level attitude, resulting in the tail rotor blade and forward-looking infrared (FLIR) sensor contacting the ground.

AH-64

A Model

• **Class D:** The aircraft experienced an overtorque condition during departure from the re-arm pad.

D Model

• **Class D:** During a routine APART flight examination, the pilot (PI) was given an Np failed low emergency procedure. The front-seat PI correctly identified and performed the proper steps to complete the emergency procedure. Upon landing at approximately 30 to 35 KIAS, the right landing gear tire blew out when it contacted the runway, causing damage to the tire rim. The left tire was also flat-spotted. The backseat IP, realizing the brakes were still engaged, disengaged them. The crew then hover taxied to parking, performed a normal shutdown, and contacted maintenance. The damaged rim and tires were replaced, and the aircraft was returned to fully mission capable status. (Late Report)

CH-47

D Model

• **Class D:** While landing to extract personnel and equipment from an unimproved, 5,300-foot MSL ridgeline primary landing zone, the aircraft landed in a downward-left cross slope attitude and slid approximately 3 feet. The aircraft was repositioned to a more stable area 15 feet away and landed successfully. During the loading operation, the flight engineer noticed damage to the FM homing, VHF, and VCR antennas and minor sheet metal damage below the pilot's station. The aircraft returned to home station without further incident. (Late Report)

• **Class E:** Upon landing at a heliport, a wind sock broke away from its anchor and was ingested into the aircraft's rotor system. (Late Report)

UH-60

L Model

Class A

Chalk 2, of a flight of two, crashed while conducting an NVG formation flight. All crewmembers and passengers were fatally injured and the aircraft destroyed. The accident investigation is ongoing.

MH-6

J Model

• **Class E:** While conducting an autorotation as part of aircraft qualification, the rated student pilot on the controls failed to decelerate properly and pulled initial collective too soon. The IP immediately leveled the helicopter to assume a landing profile and landed hard. The hard landing resulted in the tail stinger breaking at the end of the structural doubler. The IP shut down the helicopter, notified the tower, and requested maintenance. A maintenance test pilot inspected the helicopter and flew it to base. The tail stinger was replaced. (Late Report)

M Model

• **Class B:** The pilot in command (PC) and PI were conducting proficiency autorotation training. The PC initiated an autorotation with turn, rolling the throttle to idle at 1,300 feet above the airfield on a right downwind flight path. On touchdown, the tail stinger and right skid made simultaneous contact with the runway, impacting with enough force to bend the tail stinger. After the left landing gear made contact with the runway, the aircraft pitched nose-down. The pilots heard a loud thump, and the aircraft began to spin violently to the right. After making 11 revolutions, the aircraft came to rest upright on the landing gear. After shutdown, the pilots found the tail boom severed from the aircraft. The main rotor blades and some fuselage sheet metal also sustained damage. (Late Report)

MH-47

D Model

• **Class D:** During an assault landing in brownout conditions, the No. 1 aft landing gear struck a terraced portion of ground. The aircraft touched down at 8 knots groundspeed and rolled approximately 10 feet before coming to a complete stop in terraced, hard-packed mud. Damage was sustained to the landing gear ramp area. After landing, the ramp would not go full down. The aircraft was flown to home station without further incident. (Late Report)

OH-58

D(R) Model

• **Class C:** The crew experienced a TGT spike during engine startup. The start was aborted without further incident.

UH-1

V Model

• **Class E:** A bird struck the copilot's chin bubble on approach to the airfield. The aircraft was landed and inspected, and there was no damage noted. (Late Report)

• **Class E:** On a night vision goggle (NVG) training flight, the INST INVERTER caution light illuminated as the crew was preparing for takeoff from a remote training site. The crew switched to the standby inverter and flew back to home station as planned. The main inverter was replaced and, following the maintenance operational check, the aircraft was released for flight. (Late Report)

UH-60

A Model

• **Class D:** While conducting a single-engine failure at a 10-foot hover during IERW training, the aircraft landed tail wheel and right main landing gear first. Upon contact with the ground, the tail wheel strut cracked and broke. The helicopter was shut down without further damage. Inspection revealed damage to the tail wheel strut, the tail wheel yoke, and the lower anti-collision light. (Late Report)

• **Class D:** After landing to an unimproved landing zone in a 10-degree nose-low attitude, the aircraft struck an unknown object, causing damage to the sheet metal and a UHF/VHF antenna. (Late Report)

• **Class E:** While ground taxiing the aircraft to parking, the right-side crew chief noticed a bird carcass inside the intake of the hover infrared suppressor system (HIRSS). The aircraft was immediately parked and shut down. No damage was found. (Late Report)

L Model

• **Class A:** Chalk 2, of a flight of two, crashed while conducting an NVG formation flight. All crewmembers and passengers were fatally injured and the aircraft destroyed. The accident investigation is ongoing.

• **Class C:** A passenger sustained a back injury upon ground contact after exiting the aircraft from an estimated 5 to 20 feet during landing operations.

• **Class D:** During NVG refresher training, the aircraft sustained a main rotor blade strike while taking off out of a confined area. The aircrew experienced unusual vibrations and performed a precautionary landing in a nearby open field. (Late Report)

• **Class E:** During engine start sequence, the No. 2 engine starter caution light would not illuminate. Further investigation revealed the No. 2 engine start control circuit breaker had tripped. The circuit breaker would not reset while AC power was applied. After turning off the auxiliary power unit generator switch, the circuit breaker was reset. Upon applying AC power, the circuit breaker again tripped and could not be reset. The cause of the incident was a chaffed wire, which was later repaired. The aircraft was returned to service. (Late Report)

• **Class E:** The aircraft sustained damage from ground contact during autorotation training. Damage was reported to the tail wheel, nose, and fuselage "stringer" area.

EO-5

C Model

• **Class E:** While on an instrument flight rules flight, the master caution illuminated with the No. 3 engine hydraulic pump fail light. The crew consulted the checklist and landed as soon as practical at home station. Maintenance replaced the hydraulic pump and the aircraft was released for flight. (Late Report)

UNMANNED AIRCRAFT SYSTEM

RQ-5

A Model

• **Class E:** The aerial vehicle (AV) launched for "touch-and-go" aircrew training. After a go-around, the operator brought the AV in for landing. Landing progressed normally until the AV engaged the arresting gear. The left assembly gear unit ceased unwinding before completing full rotation. The resultant torque caused the gear assembly strap to fail. The fragments were thrown forward on the runway. The remaining arresting gear decelerated the AV to a normal stop.

RQ-11

• **Class B:** The AV crashed during flight for unknown reasons and was unable to be recovered.

ARMY AIRCRAFT LOSSES FY02 TO PRESENT*

	HOSTILE/NON-HOSTILE	COST
AH-64A/D.....	6/41	$985.0M
U/MH-60L.....	8/22	$205.4M
C/MH-47.....	5/11	$567.6M
OH-58D.....	8/21	$181.2M
Total	27/95	

*As of 22 Feb 06

Editor's note: Information published in this section is based on preliminary mishap reports submitted by units and is subject to change. For more information on selected accident briefs, call DSN 558-9552 (334-255-9552) or DSN 558-3410 (334-255-3410).

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