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Online Report of Army Aircraft Mishaps

Merry Christmas, Aviation Commanders and Leaders! As you and your families gather to celebrate the holidays, we want to take a moment to send greetings from the Aviation Directorate staff. We appreciate all you do to keep our Soldiers safe. Let's make 2012 one of the best years in reducing accidents.

We recently looked at the October and November 2011 Risk Management Information System (RMIS) data, and discovered a continuation of trends in 2012 that we noted in FY11. Of the 17 Class A through C mishaps, 82% involved human error as a cause factor. To reduce human errors in your formations, we have provided a second article in a series of human factors articles (page 2) on how communication errors occur and how to mitigate those errors. Also in this issue on page 10 is the second part of last month's article in Blast from the Past. The article "There are NO new Accidents" explains the subject very well; we don't have any new accidents, just repetitions of the old ones. As we work toward the reduction of Aviation Class A through C accidents this fiscal year — specifically by enforcing the three-step mission approval process — let's look at how we are doing.

For October and November of FY12, Army Aviation had a total of 17 Class A through C manned aircraft mishaps. This compares to 20 for the same period in FY11. Of the 17 so far this year, three were Class A and three were Class B (FY 11 had no Class A and 3 Class B). There has been one flight-related fatality this fiscal year in comparison to none last year at this time. Human error was the cause 14 out of the 17 cases, or 82%. Three of the mishaps were associated with dust landings and 8 out of the 17 occurred under NVG/NVS.

With unmanned systems, there was one Class A (MQ-5 Hunter), two Class B's (RQ-7 Shadows), and six Class C's (4xRQ-7, 2xSUAV) reported. The 9 mishaps this fiscal year compares to 11 for the same reporting period last year.

The DES article on page 7 highlights a continuing challenge of fully integrating unmanned aircraft systems. Bill Tompkins points out that "Sadly, 7 years later, we have made only minimal progress in maturing safety and standardization programs for unmanned aircraft systems." Similar to our experience with manned aircraft accidents, we learn with unmanned systems that sometimes our challenges are repetitions of previous mistakes. Regardless, we need to embrace UAS safety, standardization and maintenance since these systems are part of the Aviation Enterprise. It is our responsibility to ensure UAS units complete their missions safely and successfully.

Good risk management, a sound and effective unit safety command climate and, perhaps most importantly, informed leaders in the right place at the right time are what prevent accidents. Our goal with what is written here is to help Aviation Leaders identify those risks and provide information to assist you in avoiding some of the mistakes others have made.

Until next month, fly safe!

LTC Christopher Prather USACR/SC Aviation Director
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Communication is the Key

Dr. Patricia LeDuc, Human Factors Director, USACR/SC

During Fiscal Year 2011, the errors most often made by aviators involved overconfidence/complacency, aircrew coordination failures, inadequate mission planning and assumption of "low risk" missions when, in fact, the missions ended up being high risk. In a previous article, I discussed complacency and overconfidence, the most common human errors cited in Army aviation accidents, and compared the similarities of errors attributed to aircrews and aviation maintenance crews. Within this article, I'd like to discuss another important similarity in the groups, the absolute necessity for good crew coordination. Many aviation and aviation maintenance accidents stemmed from poor crew coordination because people involved in the process were not communicating effectively. They weren't on the same page.

The Army defines crew coordination as a set of principles, attitudes, procedures and techniques that transform individual pilots into an effective crew. Substitute "aviation mechanic" for pilot and everything else still applies. According to our FY11 accident statistics, the lack of good crew coordination between pilots contributed to 28% of the Class A and B aviation accidents. If we had the ability to look in-depth at all aircraft maintenance errors — not just the ones that contributed to aircraft accidents — the error rate due to poor crew coordination would probably be similar.

How do communication errors happen? There are many ways. Critical information doesn't get passed from one shift to another because someone assumes they already have the information. A distracted crewmember may not glean all the necessary information out of a conversation. Some people may be afraid to speak up because the person they need to address is senior to them and doesn't respond well to being questioned by a junior. A very common reason for poor communication, as cited in the literature and in many accident reports, is fatigue. It could be something as simple as a crewmember being exhausted because a new baby cried all night and they didn't get any sleep.

I don't know about you, but when I'm tired, I get a smidge grumpy. I tend to be short-tempered and don't want anyone to bother me. For those of us who have worked graveyard shift or pulled a double shift, you know what I'm saying. It's tough to interact with people when your brain is not as sharp as it could or should be. If you're really tired, let the rest of your crew know. There is no sense trying to hide it or tough it out alone, because you are just asking for trouble in the form of a human-error accident. I'm not saying that you need to make excuses, but if you give your crewmembers a heads-up, they can be a bit more vigilant for you.

As those examples show, we are human and can be influenced by many work and non-work related issues, so it's important to actively work to keep the lines of communication open. Sometimes it's not easy to talk with a person who just ticked you off. In circumstances like that, just stop, take a deep breath and think about what you are going to

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say and why. If you verbally slam someone because you're a bit miffed, don't be surprised if you get back what you gave or get completely shutdown. We all know it's not always easy to diffuse a situation headed in a bad direction, but sometimes you need to be willing to walk away and cool off.

If you notice a crewmember is not doing something correctly, you can offer your assistance, but do it without being smug, condescending or confrontational. You can also challenge a superior, like that 06 who hasn't flown for a long time, but suddenly wants mission time, or that shift supervisor who hasn't used avionics repair equipment for a decade, but now wants to jump in because a big deadline is fast approaching.

The key is to point out errors in a way that avoids a bruised ego. Rather than telling your boss that he/she is a moron, open a TM or AR and say something like, "Hey, I guess we got confused about that. It says here in the TM that (fill in the blank)?" In addition to preventing an error, this option lets your boss save face and doesn't make you look confrontational. Again, we have all been there when our boss has had a "brilliant" idea. Rather than telling him that he's an idiot — even though you really want to — act like you're the "slightly challenged one." Ask him to describe the idea more thoroughly. You can then use the parroting technique by repeating back the information, just so you can be clear on the issue. Many times when people hear their ideas verbalized by someone else, they discover the looming flaws for themselves. Even if you don't care about your boss's personal well-being, you can't stand by and watch the mistakes happen. This is a time for tactful action.

Advancements in technology have revolutionized the ways we communicate. It has crept into both our work and our personal lives. Electronic communication, for example, can literally be done from anywhere at any time. While these types of communication are convenient, their use can put us at a bit of a disadvantage. How? Electronic communications remove our ability to see or hear an individual, and without the opportunity to "read" the other person, we lose valuable information in the process. As an example, you send a text saying, "How r u?" You get one back that says, "FINE." What does that really mean? In cyber language, you use all caps to shout. Is the cap lock stuck? Is that person really mad at you and "FINE" is not fine at all? If the person were standing in front of you, his or her body language and facial expression would probably give you those answers. At work, after you e-mail the third response to the same question, you realize that it would've been faster, easier and less frustrating just to walk to the other person's office. The simple act of walking over to someone's office and asking them about a situation can resolve potential conflicts and help clear up the "muddy waters" that can develop when transferring information. Sometimes it is better to speak face to face with people.

Advances in technology have also made our aircraft true technological marvels, but with the advanced capabilities has come increased workload. This is true for both the operators and maintainers. You have to pay attention to more things at the same time. When something out of the ordinary distracts you or tunnel vision develops because you're trying to

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concentrate, communication starts to suffer. Research has shown that the average human can only process seven (plus or minus two) bits of data at a time. That's why we originally had 7-digit phone numbers. That limitation includes our communications with each other, which might be why we're starting to see distraction/fixation errors show up more and more in our accidents. You need make a conscious effort to avoid letting these situations shut down your communications.

You must have personal interaction on all flights and maintenance projects. If you intend to do something, clearly announce your actions and acknowledge the actions of others. Just because you have flown or wrenched together for hundreds, if not thousands of hours, it doesn't mean those people can actually read your mind, even though it may often feel that way. Provide updates during flights or maintenance processes so that everyone stays on the same page. It's easier for someone to coordinate their actions if they have current information and know what you plan to do. The one time you don't say it out loud may be your last.

--Dr. LeDuc can be contacted at the United States Army Combat Readiness/Safety Center, (334) 255-2233.

Manned Aircraft Class A – C Mishap Table

	Month	FY 11					FY 12			
		Class A Mishaps	Class B Mishaps	Class C Mishaps	Army Fatalities		Class A Mishaps	Class B Mishaps	Class C Mishaps	Army Fatalities
1st Qtr	October	0	1	3			2	1	5	1
	November	0	2	14			1	2	6	0
	December	2	1	4	4					
2nd Qtr	January	0	0	8						
	February	0	2	2						
	March	2	1	5						
3rd Qtr	April	2	1	11						
	May	2	2	2	1					
	June	3	1	3	2					
4th Qtr	July	2	2	8	2					
	August	2	2	9	2					
	September	0	1	5	0					
	Total for Year	15	16	74	11	Year to Date	3	3	11	1

As of 5 Dec 11

Broken Wing Awards

The Army Aviation Broken Wing Award recognizes aircrew members who demonstrate a high degree of professional skill while recovering an aircraft from an in-flight failure or malfunction, requiring an emergency landing. Requirements for the award are in DA PAM 385-10, Para 6-3f.

CW2 Jeremiah Johnson
1-1 Attack Reconnaissance Battalion, Combat Aviation Brigade, Camp Taji, Iraq

CW2 Johnson demonstrated extraordinary judgment and skill while on a maintenance test flight at 9,200 feet MSL when he noticed a burning smell. At that moment, the first sign of thick white smoke began to appear in the pilot station and quickly spread throughout the cockpit. CW2 Johnson initiated an immediate descent and contacted Taji tower requesting landing to Bravo taxiway, knowing that an emergency on the active runway would shut down combat operations for the UAS and fixed-wing aircraft for a considerable amount of time. As he descended through 7,000 feet, the visibility became severely restricted and breathing difficult as smoke filled the cockpit. With the aircraft on fire, losing hydraulic fluid, and both canopies filled with smoke, CW2 Johnson executed a successful roll-on landing.

CW3 Trent Johnson
CW3 Richard Nielsen
A Company, 2-160th SOAR (A), Fort Campbell, KY

CW3 Johnson and CW3 Nielsen demonstrated extraordinary judgment and skill after receiving significant battle damage from heavy machine-gun fire and RPG shrapnel to the forward pylon and left side of the aircraft. This resulted in multiple emergencies consisting of: (1) utility hydraulic system failure leading to unlocking of the rear wheel swivel locks prior to a single engine landing; (2) No. 1 flight control hydraulic failure; (3) No. 2 flight control hydraulic fluid leakage, making continued control of the aircraft improbable; (4) No. 1 engine malfunction which led to the engine being shutdown without single engine hover capability, thus requiring a roll-on landing; and (5) an attempt to start the APU to regain electrical power ignited a fire (fluids that had drained from battle damaged components) in the cabin requiring smoke and fume elimination.

Mr. Morgan Douglas McLeod
1-223rd Aviation Battalion, 110th Aviation Brigade, Fort Rucker, AL

While conducting fixed-wing upset recovery training in a single engine Zlin 242L, Mr. McLeod experienced an engine failure following a recovery from spin training at an altitude of 4,200 feet above ground level. He immediately assumed control of the aircraft and selected a relatively flat field as his emergency landing site. During the approach, he maneuvered powerless to avoid wooded areas and power lines. Mr. McLeod made a flawless landing, keeping the wheels in the furrows of the field. Additionally, after touchdown, he noted a depression in the field and maneuvered the aircraft to glide over the depression successfully, avoiding any damage to the aircraft, property, or crew.

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CW2 Joseph Swanson
10th CAB, CJTF 1CD, Bagram, Afghanistan

CW2 Swanson demonstrated extraordinary judgment and skill while on the controls when the No. 2 pitch change link bearing became unstaked. This excessive stress on the pitch change link severed the lower half of the control rod, resulting in extreme and violent shaking of the aircraft and an uncontrolled nose-down, left turn. CW2 Swanson initiated the emergency procedure for main rotor component failure while scanning for the nearest suitable landing area. The violent shaking made it difficult for CW2 Swanson to communicate and severely limited his cyclic authority. At approximately 100 feet AGL, the aircraft was relatively level with hydraulic PSI and Utility Hydraulic PSI. To avoid large trees and rocks, CW2 Swanson maneuvered the aircraft to a dry riverbed and conducted a roll-on landing at approximately 45 knots true airspeed. The tail wheel landing gear was torn free with minimal damage to the tail boom and horizontal stabilator.

CW3 Stephen Love, pilot in command
CW3 Bryan Young, copilot
B Company, 2-160th SOAR (A), Fort Campbell, KY

CW3 Love and CW3 Young demonstrated extraordinary judgment and skill when the hydraulic flight control system locked due to air and water contamination in the hydraulic system. During zero illumination and under night vision goggles in an MH-47G, CW3 Young felt the flight controls "tightening up." The contamination restricted flight control movements over very restrictive terrain. As the pilot on the controls adjusted the flight controls to decelerate the aircraft, the flight controls then locked up completely which required both pilots to force the cyclic and thrust controls while maneuvering the aircraft with pedal inputs over a suitable landing area where an emergency landing could be accomplished.

UAS Class A – C Mishap Table

	FY 11 UAS Mishaps					FY 12 UAS Mishaps			
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Total		Class A Mishaps	Class B Mishaps	Class C Mishaps	Total
MQ-1	2		1	3	W/GE				
MQ-5	3		1	4	Hunter	1			1
RQ-7	1	11	30	42	Shadow		2	4	6
RQ-11					Raven				
RQ-16A			3	3	T- Hawk				
MQ-18A									
SUAV			1	1	SUAV			2	2
Aerostat	6	9		15	Aerostat				
Total Year	12	20	36	68	Year to Date	1	2	6	9

As of 5 Dec 11

UAS Safety and Standards

DAC Bill Tompkins
Directorate of Evaluation and Standardization
U.S. Army Aviation Center of Excellence
Fort Rucker, AL

"Standardization, as we have come to know in the manned aviation community, is in its infancy in unmanned aviation. This is primarily due to the rapid fielding of systems, outpacing the development of safety and standardization programs."

These words were the opening paragraph of an article I wrote for Flightfax in June 2004. Sadly, 7 years later, we have made only minimal progress in maturing safety and standardization programs for unmanned aircraft systems (UAS). While we've had our successes, we still have a long road ahead. We must instill the same qualities of complying with regulations and practicing accepted standards in aircraft operators and supervisors that is infused in the manned aviation community. Successes include a formal instructor operator (IO) course at the schoolhouse in Fort Huachuca, AZ, and integration of 150U UAS warrant officers into the Aviation Safety Officer Course. However, most of the UAS operators and warrant officers attending these courses will report to their units and have little or no mentorship.

To complicate the problem further, most will also face dealing with commanders who are unfamiliar and often uninterested in aviation safety and standardization programs. In the UAS community, the standing joke when it comes to aircrew training program (ATP) requirements and risk management is the saying "*shut-up and launch.*" The UAS office at DES receives frequent phone calls and emails from operators and warrant officers asking how to deal with situations when directed by members of their chain of command to violate regulations or operator's manual limitations. The best we can offer them is to clarify the requirement as best they can to the chain of command and then obtain the proper level of risk approval.

Additional successes since 2004 include the publishing of Training Circular 1-600, *Unmanned Aircraft System Commander's Guide and Aircrew Training Manual,* and Army Regulation 95-23, *Unmanned Aircraft System Flight Regulations (Rapid Action Revision, 2 July 2010)*. These publications are updated continually to ensure compliance with FAA and host nation requirements, while not compromising the ability to complete the mission. This is increasingly difficult, given the current operational environment. While some publications have been revised to facilitate UAS operations, other applicable publications still lag behind and tend to cause confusion. For example, should the AR 40-8 restriction of not flying for 24 hours after SCUBA diving really apply to a UAS operator? Since UAS operators fly aircraft, are they rated or non-rated crewmembers IAW AR 600-105 or AR 600-106? As we all know, revising publications is an arduous task, but the only way to complete the task is to identify the issues and work the problem.

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Many of the challenges faced by UAS IOs are similar to those that continue to plague the manned community. UAS operators maintain individual flight records folders (IFRFs) and individual aircrew training folders (IATFs) just like the manned community, and use standard DA Forms 7120, 7122, and 4507. The TC 1-600 does provide guidance on how to maintain these forms just like the TC 3.04-11 does for the manned side. However, consider for a moment, the difficulties we have in the manned community with properly maintaining forms and records. Now imagine the same problems in the unmanned community, only without the benefit of years of institutional knowledge and experience. Most UAS units do not have an organic flight operations section. This leaves maintenance of IFRFs to the unit's IO. While CAFRs has made this process much easier, some units have difficulty convincing their leaders to provide a computer that will operate CAFRS. By the way, did I mention that the unit IO is likely a senior E-4 or E-5? Another major problem in the UAS community is being able to develop and maintain a base of institutional knowledge at the unit level. Under normal circumstances, by the time an operator really starts becoming the "subject matter expert," the Soldier becomes a platoon sergeant and is designated FAC3.

Now that I have painted this somewhat dismal picture, let me say this. The vast majority of our UAS operators really want to do the right thing and try hard to maintain the standard. The problem is you don't know what you don't know. The other key to a successful program is a knowledgeable and supportive chain of command. Training and familiarization at all levels of UAS command is required. So once again, I make this request to aviation safety and standardization officers: Look around you. Is there a UAS unit near you? If so, seek them out and lend them a hand in the development and maintenance of their programs. Not only is it in your interest — after all, they are sharing your airspace — but it's in the best interest of our Army. Just like their manned counterparts, UAS units must complete their missions safely and successfully.

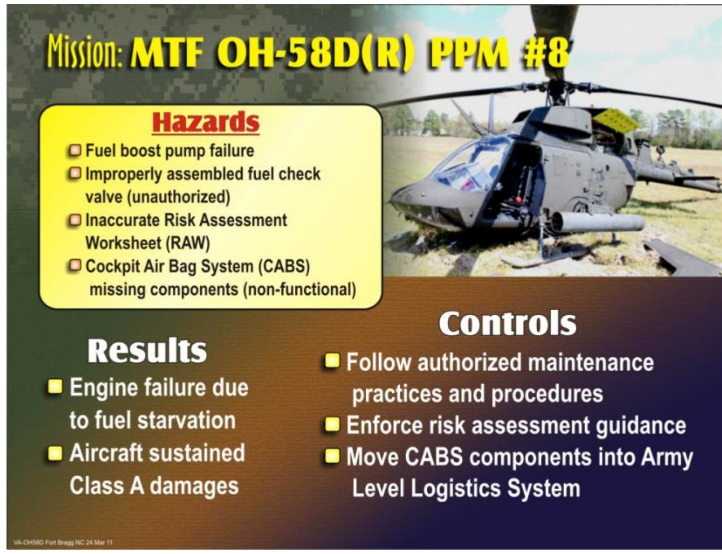
--CW5 (Ret) Tompkins is a DAC working in the DES Standardization Branch. He may be contacted at DSN 558-2532 (334-255-2532) or by e-mail at william.tompkins@us.army.mil.

A Note on Aircrew Coordination: Digitization of the crew compartments has expanded and redefined the lines of responsibility for each crewmember. The enhanced ability for either pilot to perform most aircraft/system functions from his or her crew station breaks down the standard delineation of duties and has added capabilities and potential distractions, in training and in combat. This could mean that during an unforeseen event, one pilot may attempt to resolve the situation rather than seeking assistance from or even communicating that action with the other crewmember. It is essential for the pilot in command (PC) to brief specific duties prior to stepping into the aircraft. Effective sharing of tasks relies on good crew coordination and information management.

Major Accident Review (MAR)

U.S. ARMY COMBAT READINESS/SAFETY CENTER

During the conduct of a general maintenance test flight at 1000 feet AGL and 80 KIAS, the Fuel Boost Fail caution light illuminated, followed by a Low Fuel Pressure warning. Shortly thereafter, the engine failed. The crew executed an autorotation to an open field.



Approximately one hour into a general test flight at 1000' AGL and 80 KIAS, the Fuel Boost Fail Caution message illuminated indicating a failure of the fuel boost pump. The MTP cycled the fuel boost pump ON-OFF switch and started to return to the airfield. Approximately 12 seconds after the Fuel Boost Fail caution message, a Low Fuel Pressure warning message illuminated, followed shortly (6 seconds later) by engine surges and a Low RPM Rotor warning. The Engine Out warning activated 3 seconds later when the engine Ng dropped to 55%. The MTP lowered the collective, turned the aircraft into the wind and looked for a landing area. He directed the OR to put the FADEC switch to manual to see if the engine would respond. With no response, he put the switch back to Auto. At an altitude of 980 feet, 61 KIAS, and a rotor RPM of 67% with the collective at a mid-position, the MTP further reduced the collective. increasing rotor RPM to 82%. As the aircraft descended through 400 feet AGL, it slowed to 50 KIAS, maintaining a rotor RPM of 82%. The MTP initiated a deceleration of five to six degrees at approximately 200'. The aircraft touched down in an open field at approximately 20 knots in an 11-degree nose-high attitude with the collective near full up and a rotor RPM of 61%. The aircraft bounced into the air with forward momentum, landing in a right roll pitch-down attitude before settling on the main landing gear.

Findings:

— Fuel Check Valve Failure
— Improper installation of the fuel check valve
— Fuel shut-off lever maintenance procedure
— Single pilot risk assessment

Recommendations:

— Ensure maintenance procedures are performed at the appropriate level.
— Complete maintenance and inspection procedures to the published standards.
— Ensure unit policies are clear and followed regarding mission and risk approval authority.

There are NO New Accidents (Part 2)

Reprinted from September 2005 Flightfax

Author's note: There is a saying among the investigators that "There are no new accidents, just repetitions of the old ones." I hope by reviewing these accidents, you can avoid the next repetition. This is the second article that discusses aviation accidents that I investigated.

There are reasons we memorize Chapter 9

Any safety officer can tell you that 80 to 90 percent of accidents are caused by human error. A search of the Combat Readiness Center (CRC) database confirms that. That doesn't mean that aircraft never break. They do. There are rare occasions when the failures are so catastrophic that the crew can only hang on and hope. But there are other times when it's up to the crew to memorize and apply Chapter 9. Here are two cases where knowledge of aircraft emergency procedures and the application of common sense saved four aviators from injury or worse when their aircraft failed them:

- An OH-58D Kiowa Warrior (KW) was Chalk 3 in a flight of four aircraft (three OH-58Ds and one SH-60) 40 miles offshore at approximately 90 KIAS when things began to go wrong. The crew heard a bang, followed by a high-frequency vibration. Moments later, there was another bang, and the aircraft yawed right and tucked its nose. The crew accurately identified the problem as loss of tail rotor components. They first tried to keep the aircraft in forward flight to maintain the slipstream. This was not possible because one of the components lost was the vertical fin. The more experienced crewmember then took the controls, rolled off the throttle, and executed what was later described as a perfect autorotation to the water. Both crewmembers swam out and were rescued within minutes. This crew did everything right from the onset of the emergency. They knew exactly how to respond to the situation and were rewarded with no injuries and a pair of Broken Wing awards.

- Another crew who responded well to a mechanical emergency was flying Chalk 3 in a flight of six AH-64As over desert terrain. Shortly after leaving a holding area, the instructor pilot (IP) in the pilot's station heard a loud report, followed by a grinding noise and feedback in the pedals. There were no cockpit indications of any problem. The IP wisely decided to land and announced his intentions to the flight. The feedback in the pedals led him to execute a roll-on landing to the desert in case he lost tail rotor authority. At approximately 15 feet, the PI announced there was a fire light. The IP decided to continue to land and then fight the fire. He landed at approximately 40 knots to the unimproved surface without even breaking the tail wheel pin. He then executed an emergency shutdown, pumped both fire bottles into the auxiliary power unit (APU) compartment, and got out of the aircraft. Over the next 45 minutes, the IP was forced to watch his aircraft burn to the ground. What he didn't know at the time was that the APU clutch had exploded, sending shrapnel throughout the turtleback area of the aircraft. Hydraulic fuel or oil lines were ruptured and caught fire. It is suspected that airframe integrity was compromised within 5 minutes of the onset of the emergency and within 3 minutes of the first cockpit indication. By landing immediately and executing the emergency

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shutdown, the IP removed himself and his pilot (PI) from further danger. (Flightfax, July 2002)

Good people don't always do the right thing

Our Army, the Aviation Branch in particular, is filled with outstanding men and women who are intent on accomplishing their unit's mission. They train hard, generally abide by published standards, and are willing to go the extra mile when necessary. They are great people. So why do great people make bad decisions? Why do experienced pilots choose to violate standards they are very familiar with? The answers to those questions lie at the heart of many accident investigations. The answers that usually come up are haste and overconfidence. That is, people get in a hurry to get a mission completed or believe their skills enable them to execute maneuvers and prosecute the mission outside of published standards. Here are two such stories:

- A Cavalry Troop was executing situational training exercise (STX) lanes in support of a ground force. Three KWs were rotating on and off station when ENDEX was called. The AAR site was announced and one of the three aircraft flew down the lane to ensure that all the ground vehicles were moving. As he passed the last one, he entered a turn, during which he allowed his airspeed to drop to less than 20 KIAS. The KW began a sideslip descent that the pilot was unable to recover from. He did manage to level the aircraft before impacting the ground. The aircraft was destroyed, and the pilots were uninjured.

So what happened? Why did the aircraft stop flying? The pilot on the controls expedited the turn to follow the ground troops. The data cartridge from the aircraft indicated that the bank angle when the sideslip started was 67 degrees with less than 20 knots of forward airspeed. The KW simply did not have enough power to maintain flight. A 3,000 foot-per-minute rate of descent was established and there was no way to recover. Haste and overconfidence. The pilot wanted to expedite the turn and believed he was capable of executing a turn greater than 60 degrees, despite the restriction in the -10. (Flightfax, September 2002)

- A more tragic incident where haste and overconfidence caused an accident was when a UH-60 crew took off for home from another airfield utilizing night vision goggles (NVGs). They encountered deteriorating weather that was worse than anticipated. Rather than return to the airfield and wait out the weather, or remain overnight, the crew decided to push on. Their down time was 2100, and apparently they thought they could make it despite the conditions. Because the primary route required a greater altitude than an unofficial alternate route, the crew chose to take the alternate routing. Getting lower and lower, they tried to get through a low pass as the weather turned into downpours and occasional thunder and lightning. At some point, they lost visual reference and flew into the side of a hill at over 90 KIAS. The aircraft was destroyed and all five crewmembers were killed. In both these cases, the crews were well respected. Witness after witness said they couldn't believe that the crew had deviated from the standard. How do we stop these accidents? As individuals, we cannot let mission accomplishment override everything else. There are few commanders who would question

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an aviator for being too safe. As leaders, we absolutely must ensure our subordinates understand that there is no mission in peacetime or combat important enough to risk an accident. They must also understand that standard will be ruthlessly enforced and that mission accomplishment is not an excuse for violation.

"Objects in the rearview mirror are closer than they appear…."

OK, maybe not the rearview mirror, but there are many accidents caused when crews either drift or fly into obstacles they were sure they were clear of. Blade strikes are among the most common accidents that happen to rotary-wing aviators. One that comes to mind involves a very experienced IP who allowed his aircraft to get too close to an obstacle. As a result, the aircraft was destroyed and crewmembers received minor injuries.

This case is an AH-64 entering an attack-by-fire (ABF) position at night. Flying as Red 2 in the lead team in a flight of six, the IP in the backseat of the aircraft moved to "set" to the right of Red 1. The ABF was in a small valley that ran from right to left with tree lines separating large open fields. As the IP moved to the right of Red 1, he settled near an intersection of two tree lines. He continued to move slightly forward, leaving the T intersection of trees to his 5 o'clock position. All you AH-64 pilots know that the night vision system doesn't go back past approximately the 3 o'clock position. The PI in the front seat was wearing NVGs in accordance with the limited airworthiness release to help keep the aircraft away from obstacles. Unfortunately, both pilots became focused on the lead aircraft, and their aircraft began to drift backwards. The VTR in the aircraft indicated the aircraft was lower than the crew intended. The aft drift ended as the tail rotor struck 75-foot trees. The No. 5 driveshaft sheared and the aircraft began to spin. The pilot lowered the collective and the aircraft crashed to the ground. The crew received only minor injuries, but the aircraft was destroyed.

Why did it happen? The IP allowed himself to descend lower than he intended because he was focusing on the lead aircraft while simultaneously trying to talk to the front seater through his procedures. The drift then began and he failed to notice. The board determined the experience level of the front seater was such that the IP was virtually single pilot. This happens more often than we would like to admit and must be addressed when training young aviators. Hard decks, slant range restrictions, and crawl-walk-run philosophies are basic tools to help manage risks.

Don't depend on luck

A troubling part of being a CRC investigator is that you see the mistakes of others and they remind you of the ones you made in the past. Fortunately, my mistakes didn't lead to any serious accidents. I was just lucky. Unfortunately, I now know that you can't depend on luck to prevent accidents. Good risk management; a sound, well-understood safety philosophy; and, perhaps most importantly, leaders in the right place at the right time are what prevent accidents. I hope what is written here will help readers avoid some of the mistakes others have made without having to depend on luck.

--LTC W. Rae McInnis, US Army Retired, G3 Director, U.S. Army Combat Readiness/Safety Center, 334-255-9552 (DSN 558)

Selected Aircraft Mishap Briefs

Information based on Preliminary reports of aircraft mishaps reported in November 2011.

Utility helicopters

UH-60 

-L series. During quick stop maneuver, the stabilator contacted the ground. (Class C)

-L series. During ground taxi turn, the tail rotor contacted a cement barrier. (Class A)

Attack helicopters

AH-64D 

-The engine cowling opened in flight, resulting in damage. (Class C)

Observation helicopters

TH-67A 

- The engine failed during simulated engine failure maneuver. The aircraft conducted autorotation. Tailboom damaged during landing. (Class C)

OH-58D 

- During NVG mission, the aircraft MRB cut the tether to an aerostat balloon. (Class C)

Cargo helicopters

CH-47 

-D series. Passenger injured finger on rotating drive shaft. (Class C)

-D series. During NVG dust landing, over-torque occurred. Replaced aft transmission. (Class B)

Fixed wing aircraft

C-12 

-During traffic pattern flight, bird strike to the right inboard section of the wing caused damage. (Class C)

Unmanned Aircraft Systems

RQ-7B 

-Engine malfunctioned in flight. Chute deployed. UA recovered with damage. (Class B)

- Engine fluctuations occurred during landing, resulting in the UA landing long with damage. (Class C)

SUAV 

- PUMA. Link was lost with UA. Vehicle not recovered. (Class C)
- Silver Fox. Engine malfunctioned in flight. UA recovered with damage to engine and wings. (Class C)

If you have comments, input, or contributions to Flightfax, feel free to contact the Aviation Directorate, U.S. Army Combat Readiness/Safety Center at com (334) 255-3530; DSN 558

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