Number 1 May 2011

Flightfax®

Online Report of Army Aircraft Mishaps

Back by popular demand is an online version of Flightfax. The intent of Flightfax Online is to provide Army aviators a monthly publication with a look at near-term accidents, aviation safety issues and a blast from the past out of the "old" Flightfax.

Take note that we now include aerostats under aviation accidents. Also worth noting is that unmanned Class A aviation accidents are currently outpacing our manned assets. "Knock on wood," Army aviation is having a pretty good year when it comes to manned accidents. Given the operating environment of some of our units and a sustained high OPTEMPO, this is truly a remarkable achievement. Yet, if you take a look at the trends that currently exist, operating in degraded visual environments (DVE), such as dust, IIMC or overwater at night, is our biggest challenge in terms of executing operations safely. The obvious question becomes, "are we adequately training our crews to operate in these environments?" If the answer in your unit is no, consider ways to add rigor to your training process in order to build crew proficiency when it comes to operating under DVE conditions. This type of focused training at home station leads to better readiness.

Next month we will discuss the pros and cons of developing a formal hazard reporting system for Army Aviation. It is **"a way"** to get at the large percentage of accidents involving human error. Programs such as this have been in use by the airline industry for some time.

Until then, stay safe.

LTC Dave Fleckenstein, Director, Air Task Force, USACR/SC

Report on first half FY11 aircraft accidents

In the **manned aircraft** category there were 42 Class A - C aircraft accidents during the first half of the fiscal year. These accidents resulted in four Army and three civilian fatalities. Six of these accidents were Class A's, five were Class B's, and thirty-one were Class C's. Seventy-one percent of these accidents involved human error, seventeen percent involved materiel failure, and five had unknown or suspected causes. Dust landings were associated with seven aircraft mishaps. There were three ground taxi mishaps, one wire strike, and two spacial disorientation/IIMC. Also included were four reported overtorques/overspeeds and one whiteout incident. Materiel failures included two FADEC failures, two strut failures, one engine drive shaft failure, and a reported compressor stall.

Synopsis of selected accidents:

Manned Class A

* MH-47G contacted a sand berm during a NVG training mission. Damage to both fuel cells, front landing gear, and undercarriage antennas.

* UH-60L experienced dust conditions while landing to a non-standard LZ and drifted into a bulldozer.

* OH-58D crashed during Stage 1 NVG Advanced Combat Skills gunnery training. Aircraft was consumed in post-crash fire. Suspect materiel failure. One fatality.

* UH-72A crashed into the ocean waters during poor weather. Suspect spacial disorientation. Six fatalities.

* OH-58D engine failure during maintenance test flight. Aircraft damaged during landing to unimproved area.

* UH-60L upon touchdown at an LZ featuring rising terrain, passenger rose to the upright position and moved rearward into the moving rotor blades.

In the **unmanned aircraft systems**, there were twenty-seven Class A – C incidents with eight Class A's, nine Class B's, and ten Class C's. The Class A's included four Aerostat balloons, three MQ-5Bs Hunters, and one MQ-1C Gray Eagle. High winds and tether breakage were the prominent cause factor in the Aerostat incidents. RQ-7Bs comprised thirteen of the nineteen Class B and C mishaps with cause factors relating to engine failures, landing problems, and lost link.

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UAS Class A

* MQ-5B missed both sets of arresting gear during night landing sequence. The air vehicle operator attempted a go-around but the UAV failed to gain altitude and crashed. Front section of UAV and payload were destroyed.

* MQ-5B lost link during flight. UAV crashed after attempts to regain control failed. System was recovered with significant damage.

* MQ-5B impacted terrain during flight. Suspect altitude programming error.

* MQ-1C crashed during test flight. Suspect software error.

* Aerostat was ripped from platform due to high winds.

* Aerostat broke from mooring point due to high winds.

* Aerostat suffered possible lightning strike.

* Aerostat broke away due to high winds.

Major Accident Review (MAR)

RMIS Case # 20101124001

U.S. ARMY COMBAT READINESS/SAFETY CENTER

The crew of a UH-60L executing an approach to a partially improved HLZ stopped their descent at approximately five feet AGL as they lost visual reference with the ground. The aircraft began drifting to the left, struck a small dirt berm with the main landing gear and rolled left striking an armored bulldozer with the main rotor blades.

While conducting a daytime battlefield circulation mission in a high desert environment, the pilot on the controls lost visual reference with the ground during a dust landing to a partially improved HLZ. After losing visual reference with the ground, the pilot on the controls stopped the descent at approximately five feet AGL. The pilot in command did not ensure the approach was continued to the ground or direct the landing be aborted by executing a go-around. The aircraft, while engulfed in a dust cloud so severe the crew was unable to read the cockpit instruments, began to drift to the left. As the aircraft continued it's left drift, the left main landing gear made contact with a small dirt berm near the edge of the HLZ. The contact with the berm initiated a left rolling moment immediately after which the main rotor blades struck a D7 bulldozer stopped next to the HLZ. All main rotor blades were destroyed, the last 1/3 of the tail cone separated from the aircraft and the bulldozer was damaged. The aircraft came to rest on its left side with it's roof leaning against the blade of the D7.

Findings:

- Pilot on the controls did not complete a VMC approach to the ground
- Pilot in command failed to act in a timely and appropriate manner

Recommendations:

- Develop environmental training areas that accurately reflect the environmental conditions under which missions are anticipated to be conducted.
- Develop environmental training programs that utilize a crawl, walk, run approach to training, in regards to the task level of difficulty
- Develop role reversal scenarios for the Pilot in Command training program to improve PC response in demanding situations

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Access the full preliminary report on the CRC RMIS under Accident Overview Preliminary Accident Report
https://rmis.army.mil/rmis/asmis.main1 AKO Password and RMIS Permission required

Selected aircraft mishap briefs

Information based on Preliminary reports of aircraft mishaps reported in March/April 2011.

Utility helicopters

UH-60

- L series. Passenger walked up slope and was struck by main rotor blade. (Class A)

- L series. Aircraft started with engine inlet cover installed. (Class C)

- L series. During supply drop, tip caps were damaged. (Class C)

- L series. Normal maintenance procedures following the aircraft's last flight mission revealed damage to Section 4 drive shaft cover, one tail rotor paddle, and the APU door was missing. Separation is suspected to have occurred during the last leg of the final flight. (Class C)

- M series. Crew experienced smoke in the cockpit in conjunction with #1 Engine Generator failure indication. Aircraft was still on the airfield and landed and an emergency shutdown was accomplished. (Class C)

UH-1H

- Aircraft experienced compressor stall and descended into trees. (Class C)

Attack helicopters

AH-64D

- Four AH-64 helicopters were conducting a multi-ship cross country flight. The lead aircraft struck a cable resulting in aircraft damage, one fatality, and one injury. (Class A)

- Crew experienced smoke in the cockpit accompanied by main transmission CHIP and OIL warning indications. Crew reported experiencing loss of collective input response and executed an emergency landing. (Class A damage reported)

- During mountain training, #2 engine drive shaft failed. (Class C)

- Aircraft experienced an overtorque condition (132%) as crew was climbing to clear rising terrain. Acft was returned to home base without further incident. (Class C)

Observation helicopters

OH-58D

- Engine failed during test flight. Aircraft landed hard. (Class A)

- Crew received an MMS Fail instrumentation reading in conjunction with a 'smoke' odor in the cockpit. Crew landed aircraft and extinguished the onboard fire and returned the aircraft to the base for a one-time recovery flight. (Class C)

MH-6M

- Overtorque during infil mission (Class C)

TH-67A

- Aircraft encountered spike knock following autorotation. (Class C)

Cargo helicopters

CH-47

- D series. Aircraft struck wires departing from LZ. (Class B)

Fixed Wing

KA300

- Damage to camera turrent found on post-flight. (Class C)

UAS

MQ-1C

-UAV crashed during engine test flight. (Class A)

RQ-7B

- On landing UAV veered off landing strip. (Class B)

RQ-16A

- UAV inverted and crashed (Class C)

Silver Fox

- Generator belt broke, battery lost power resulting in crash. (Class C)

Aerostat

- While lowering in high winds, cable snapped. (Class A)

- Tether broke during wind shift, payload damaged. (Class B)

- Lost due to high winds, limited info reported. (Class B)

FY 11 UAS Class A – C Mishap Table									
	FY 10 UAS Mishaps					FY 11 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		1		1	2
MQ-5	3			3		3		1	4
RQ-7		14	21	35			7	10	17
MQ-18A	1								
SUAV			1	1				3	3
Aerostat		2	2	4		5	6		11
Total Year	6	16	25	46	Year to Date	9	13	15	37

As of 24 May 11

FY 11 Manned Aircraft Class A – C Mishap Table										
	Month	FY 10					FY 11			
		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	4	1	3	1		1		3	
	November	1		5	2		1	1	13	
	December		1	4			2	1	4	4
2nd Qtr	January		2	3					7	
	February	2	2	9	5			2	2	
	March	2		4			2	1	4	
3rd Qtr	April	2	1	5	1		2		11	
	May	1	2	2	1		1	1	2	
	June	6		5	1					
4th Qtr	July	1	2	4						
	August	2	2	5						
	September	2	1	5	5					
	Total for Year	23	14	54	16	Year to Date	9	6	46	4

As of 24 May 11

Blast From The Past

articles from the archives of past Flightfax issues

Thurman emphasizes safety to Aviation Officers Advanced Course graduates. (From 14 November 1984 Flightfax)

Safety was a major point of emphasis when General Maxwell R. Thurman, Vice Chief of Staff Army, addressed the first class of officers to graduate from the Aviation Officers Advanced Course at the U.S. Army Aviation Center, Fort Rucker, on 24 October 1984. The VCSA briefly recapped for his audience the history of Army aviation from the time 75 years ago when Wilbur and Orville Wright conducted the first military aviation flight. The Wright brothers were given an order to provide the United States Army with one airplane, two pilots, the necessary spare parts, and two crewmen to repair the aircraft. LTG James M. Gavin wrote in an article entitled "Calvary, and I Don't Mean Horses," published in Harper's magazine more than 30 years ago, of the potential of the helicopter and air assault tactics on the modern battlefield. As G3, DCSOPS, General Gavin was able to lay some of the early groundwork for this new type of cavalry. General Thurman spoke of other pioneers who in 21 years of Army aviation brought the airmobile concept into being, developed air assault tactics and doctrine, participated in the research and development of aircraft, and became the first leaders of air cavalry units forged in the crucible of Vietnam.

"You must be the most professional and professionally demanding branch in the Army. Your responsibilities on the modern battlefield – in fighting the Airland battle – far exceed those duties that aviators have shouldered in the past," General Thurman told the graduates. "Part of the professionalism for which you must strive is in aviation safety. Aviation safety has two important aspects: flight safety and reliable maintenance. No branch operates in a more dangerous environment…and there is no branch in the service in which the lives of its officers are more in the hands of the soldiers, the crew chief and aviation mechanic, than the Aviation Branch." Paraphrasing a statement by a journalist in Southeast Asia, general Thurman added, "Planes have wings and want to fly; a helicopter has ten thousand parts trying to tear themselves apart."

"Kick the tire. Light the fire. First one off is lead. We'll brief on guard. That's an old saying in the Air Force about aviation procedures. That was a 'seat of the pants' kind of flying operation in an environment where equipment was cheaper, flying was less dangerous, and the world in which we and our adversaries lived was much more forgiving. Those days are gone forever – if

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they were ever here at all for Army aviators," General Thurman warned. He compared the position of the Advanced Course graduates to that of earlier aviation pioneers. "Your challenge is integration of Army aviation into the heavy forces. You will have the chance to develop the tactics and procedures, the standards and values, and to establish the enduring traditions of the Aviation Branch." At the same time that there is the onrush of equipment to the heavy side, the VCSA emphasized that attention will still be given to insure that the United States Army has the world's best light forces. General Thurman told his audience that they must be not only aviators but the most technically and tactically competent of all the Army's leaders. "Technically you must know more about the mechanics of slight and flying than those whom you will lead....You must also be tactically competent, able to plan and execute support of an Armored brigade in a 30km deep counterattack, using M1/M2/M3 with multiple launch rocket systems in support."

Aviation accident reports are among the significant events on which the VCSA is briefed every day. Invariably, investigations show all too many of these accidents are the result of pilot error – usually because a pilot was flying beyond his own capabilities or outside the safety envelope of his aircraft. "Aviation flying hours will increase up to 40 percent in the next 2 years. You officers of the first advanced class will be going into the force at a time when flying hours will be as high as 2.4 million. You understand that the more you fly, the more risk there is associated with it. We need your very best efforts on safety," General Thurman emphasized. General Thurman related some of the things he was asked when as the DCSPER he was the Army's chief safety officer. One of them was to let units remove seats from the Black Hawk so that the aircraft could carry 23 troops. His answer was a resounding "No!" "That aircraft was designed with seats that would be crashworthy so that people riding in them might live if there was an accident. If we had wanted an aircraft to hold 23 people without seats, we would have designed it that way." Similarly, people have asked why a pilot-in-command must fly the aircraft from the pilot station. "because it was designed to b flown from the pilot's station – that's why." "Everybody doing their own thing is simply not in the cards, so get your head straight and those of your subordinates straight about what your obligations are on the way the equipment is designed to operate." The VCSA added, "Last December, when I took stock of the first quarter FY84 accident data, I directed a stand-down for a day for aviation safety. I asked people, 'Is one day too much for aviation safety?' Of course it's not and when you take command of whatever unit you get, remember rule number 14 – 'When in charge, take charge.' That means you can stand down your unit anytime you choose to in order to have an aviation safety day so that it can be

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rammed home to every single member of your organization what your standards are in aviation safety." Accountability from people who give briefings is another Thurman initiative. He directed the Army Safety Center to report to him the names of individuals who briefed each Class A aviation mishap. (Class A mishaps involve a fatality, $500,000 in damages, or a destroyed aircraft.) "The final point is we must hold ourselves accountable. . . . You must not permit yourselves the luxury of not holding people accountable. You must do that; it's part of your job as an officer. You understand that no one has an inherent right to fly an aircraft. I repeat, **no one has an inherent right to fly an aircraft.** They have to demonstrate their competency to fly it. Bear that in mind, and that's true in any job we have in the United States Army. I ask your support in that. . . . We can't do otherwise. Equipment is expensive, but most important of all is the loss of life. That is the greatest price of all."

General Thurman concluded, "Equally important to being technically and tactically competent is developing your skill and potential as leaders. You must care for your soldiers. Today's Army has dynamite kids – whom you will lead – and dynamite equipment – which you will fly. But never forget the soldier and his sacrifices and aspirations."

If you have comments, input, or contributions you would like to make, feel free to contact the Air Task Force, U.S. Army Combat Readiness/Safety Center at com (334) 255-3530; dsn 558

U.S. ARMY COMBAT READINESS/SAFETY CENTER

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Number 2 June 2011

Flightfax®

Online Report of Army Aircraft Mishaps

Last month we brought back and launched Flightfax on line with the intent of getting more accident information out to the field in a timely manner. Accidents that occurred in late April and in May serve to high light two issues that we are facing which need to be corrected. The first involves the mission approval process. The mission approval process as described in AR 95-1 is meant to mitigate risk through a three step process: initial mission approval, mission briefing and final mission approval. Inside of that framework are the requirements to train and designate personnel to carry out the process. Ideally, units will establish and maintain training for briefers and approvers as well as air mission commanders. Furthermore, the commander should designate in memorandum format who is approved to do what so that there is no question as to who can brief and approve missions and who can serve as an air mission commander. The documents should then be placed in the unit's reading file for all to see.

What must be avoided is the temptation to skip steps in the mission approval process or to remove the intended rigor of the process by turning it into a check the block drill before you go fly. An example of the appropriate level of rigor is a mission briefing officer (MBO) who conducts a face to face with each PIC or AMC to determine if he or she is fully prepared by going over the details of the mission along with all of the supporting information (flight routes, com. cards, risk assessment, weather, PPC, SPINS, etc) in order to go out and execute the flight safely. This type of rigor applied to the mission approval process as opposed to checking the block will truly assist the unit in mitigating risk.

The second issue that was brought to light out of recent accidents is maintaining discipline. For Aviation, there is discipline involved in planning for a mission as well as discipline to be maintained while in the cockpit. Both in and out of aircraft, we are governed by standards that dictate the appropriate way of doing business on a daily basis. "Follow the rules and you'll be OK" is a prudent way of conducting aviation business. If you choose not to follow the rules, you assume the risk involved. So if we choose not to prepare a PPC prior to the flight or if we choose to fly below published altitude restrictions, as examples, we assume the risk. What's not always understood is that we have rules and procedures for a reason. PPCs and altitude restrictions are examples of tools and procedures that were put into place to aid us in the conduct of a

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mission and to keep us out of trouble. Nine times out of ten they originated due to a mistake in the past. Following those rules is a big part of maintaining good discipline in a unit. If you have a problem with a rule, talk to your leadership. It might be time for a change or modification for allowances to meet operational demands. Otherwise, take the disciplined and professional approach in planning and executing aviation operations.

As a part of last month's issue we opened up the idea of developing an on line tool for aviation hazard reporting. Our sister services and the commercial airline industry already use online systems for hazard reporting under the name of the Aviation Safety Action Program (ASAP). The safety center is currently preparing to conduct a test of an ASAP system for use by Army Aviation. The intent is to give aircrews, maintainers, fuel handlers, flight operations personnel, air traffic controllers…etc the opportunity to identify a hazard that they feel needs to be addressed. Reporting a hazard can be accomplished either anonymously or by name via SMART phone, a computer with internet connectivity or by filling out a few lines as part of the mission debrief sheet. Once a hazard is identified, the BN Safety Officer will track and work the hazard until complete. More to follow as we begin testing this system for possible use within Army Aviation, but we look forward to any feedback or ideas that you might have so drop us a note or give us a call.

Major Accident Review (MAR)

RMIS Case # 20101220001

U.S. ARMY COMBAT READINESS/SAFETY CENTER

While flying NVGs along a dark coast line, the aircrew encountered severe weather. The aircraft descended from 400' AWL, accelerated to 112 knots ground speed and turned towards open water. Eight seconds after beginning the turn, the aircraft disappeared from radar and impacted the water. Debris was found in the water by search and rescue personnel.

The aircraft departed the airfield under NVGs in a light rain, intercepted the nearby coastline flying an off-shore route following the coastline at 300' to 400' AWL and 90 – 100 KIAS. The planned route of flight followed the coastline and passed through an area with little or no cultural lighting. A company OH-58A was on the same flight route two or three minutes ahead of the accident aircraft and radioed to the crew of the accident aircraft a comment that the weather was getting worse. The crew of the accident aircraft acknowledged the radio call. Air Traffic Control (ATC) then warned the crew they were overtaking the OH-58A, and asked if they could see the traffic at their two or three o'clock position. The flight crew did not respond to ATC. Radar indicated the aircraft descended from 400' AWL, accelerated to 112 knots ground speed and turned left towards open water. Approximately 8 seconds after beginning the left turn, the aircraft disappeared from radar contact and soon after, impacted the water with significant force. Aircraft debris was found in the water by search and rescue personnel. Weather radar indicated a significant storm cell in the vicinity of the crash site at the time of the crash.

Findings:

- Crew failed to maintain aircraft orientation
- PC did not follow applicable regulations
- Leadership failed to perform adequate pre-mission planning and risk management

Recommendations:

- Focus continuation training on gaining and maintaining NVG instrument proficiency
- Accurately assess crew currency and proficiency prior to flight
- Establish procedures for use of low altitude bug during flight
- Conduct refresher training on crew selection and mission approval procedures with all leaders and mission briefers
- Conduct training on mission planning requirements with all aircrews
- Enforce mission briefing process IAW AR 95-1

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https://rmis.army.mil/rmis/asmis.main1 AKO Password and RMIS Permission required

Selected Aircraft Mishap Briefs

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

Utility helicopters

UH-60

- A series. Crew experienced engine over-torque and rotor RPM over-speed. Post landing inspection revealed #2 engine high-side failure. (Class B)

- L series. During approach to landing aircraft rotorwash caused a civilian to fall resulting in a broken arm. (Class C)

Attack helicopters

AH-64D

- During multi-ship combat mission aircraft crashed with one fatality. CMI team dispatched. (Class A)

Observation helicopters

OH-58D

- Np overspeed to 121% occurred during FADEC training. (Class C)

Cargo helicopters

CH-47

- D series. On shutdown main rotor blade contacted the fuselage. (Class B)

MH-47

- G series. During aerial refueling training main rotor blade contacted refueling line. Aircraft landed with damage. (Class A)

Fixed Wing

C-12V

- During collision avoidance maneuver engine parameters were exceeded. (Class C)

Unmanned Aircraft Systems

RQ-7B

- System initiated uncommanded full throttle upon landing and came to rest off the runway. (Class C)

- System experienced a generator/engine failure approximately 20 minutes into flight. Recovery chute was activated and system was recovered with damage. (Class C)

RQ-11B

- Signal and visual contact with the UAV were lost. Not recovered. (Class C)

Aerostat

- Tether broke during winds. Payload damaged. (Class B)

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If you have comments, input, or contributions you would like to make, feel free to contact the Air Task Force, U.S. Army Combat Readiness/Safety Center at com (334) 255-3530; dsn 558

Class A - C Mishap Tables

	FY 11 Manned Aircraft Class A – C Mishap Table									
		FY 10					FY 11			
	Month	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	4	1	3	1		1		3	
	November	1		5	2		1	1	12	
	December		1	4			2	1	4	4
2nd Qtr	January		2	3					7	
	February	2	2	9	5			2	2	
	March	2		4			2	1	4	
3rd Qtr	April	2	1	5	1		2		8	
	May	1	2	2	1		2	1	*	1
	June	6		5	1		2		*	2
4th Qtr	July	1	2	4						
	August	2	2	5						
	September	2	1	5	5					
	Total for Year	23	14	54	16	Year to Date	12	6	40	7

As of 10 Jun 11 *Note: 4 class C incidents pending input into RMIS

FY 11 UAS Class A – C Mishap Table									
	FY 10 UAS Mishaps					FY 11 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	1		1	2
MQ-5	3			3	Hunter	3		1	4
RQ-7		14	21	35	Shadow		7	10	17
RQ-11					Raven			1	1
RQ-16A			1		T- Hawk			3	3
MQ-18A	1								
SUAV								1	1
Aerostat		2	2	4		5	6		11
Total Year	6	16	25	46	Year to Date	9	13	17	39

As of 10 Jun 11

Blast From The Past

articles from the archives of past Flightfax issues

Wartime safety (From 12 June 1986 Flightfax)

Safety professionals report that in spite of today's emphasis on safety by the Army's top leadership, there is still a perception among some young Army leaders that safety is something you have to consider in peacetime missions, but in wartime, safety becomes a luxury. If that is true and if it is also true that when things get tough the first things to go are the luxuries-then when war comes, we can no longer afford safety. The question really is, "can we afford not to consider safety during wartime?"

One military officer who recognized the importance of safety in aviation operations was General William H. Tunner, who was responsible for the India-China airlift in the last year of World War II. In an article published in *Flying Safety* in April 1986, Dr. Richard W. Huling, an Air Force historian, tells about General Tunner's experiences during one of the first attempts to supply an army by air.

The airlift had been in existence for about 2 years when General Tunner took command in 1944. It had been reluctantly called into existence by a ground-oriented command because a deadly combination of Japanese and geography made moving supplies over the Burma Road all but impossible. Those supplies were crucial because they meant the Chinese forces in Western China could continue to keep 2 million Japanese troops tied down and out of action against U.S. forces in the Pacific.

The same treacherous geography that plagued ground troops was also a problem for pilots who were trying to keep the Chinese supplied. The high peaks and jungles of the Himalayas weren't the only problems, however. In his book, *Over the Hump*, General Tunner describes what he found when he arrived in India in the summer of 1944.

"Here, in a strange land far from home, on the fringes of a mysterious backward civilization, were all the conditions that bring hazardous flight: Fog, heavy rains, thunderstorms, dust storms, high mountains, a necessity for oxygen, heavy loads, sluggish planes, faulty or no radio aids, hostile natives, jungles, and one-way airfield set in mountainous terrain at high altitude."

In January of 1944, the accident rate for the airlift was *1.97 per 1000 flying hours*. Every 200 trips over the Hump cost one airplane; for every 100 tons of supplies flown into China, 3 Americans died. Most of the accidents were total losses. Aircraft either hit mountain peaks or were lost in the jungle, and the few crewmembers that were able to parachute simply vanished and were never seen again.

General Tunner soon found that all efforts had been directed toward increasing tonnage the airlift could transport, but as tonnage gradually increased, so did the mishap rate. Safety had been ignored. Night flying had been introduced, although radio communication and navigational facilities were nonexistent except at the terminals. Weather was virtually ignored and many planes flew in violation of standard Air Corps specifications.

General Tunner issued a challenge: increase tonnage *and* lower the accident rate. Even today, in peacetime, some people will tell you that you have to choose between the mission and safety, yet General Tunner's command managed to meet both of those seemingly contradictory actions in a wartime environment.

What did they do? The safety program they instituted consisted of the basics, still being used in safety today, and distilled into four main points:

* Analysis of existing flight and maintenance procedures and practices.
* Statistical investigation and analysis of accidents.
* Recommendations for the correction of faults revealed in the foregoing analyses.

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* Prompt action and follow-up on that action.

General Tunner and his staff also investigated pilot training and made up for any gaps before sending them over the Hump. They began to take weather and communications seriously, attacking conditions such as icing and turbulence, and becoming more familiar with navigational equipment and how to best deal with its absence.

Another major area was pilot discipline. General Tunner was very specific about the importance of using the checklist. Exact procedures, from starting the engines to cutting them off at destination, were emphasized.

"Briefing and debriefing proved to be of the greatest importance. Briefing involved not only a thorough preparation of the pilot for the route he was to take, but a check to make certain that the crew was competent to make the proposed flight safely. Debriefing would show up incompetent flight procedures, indicating the necessity for corrective action and additional training. Debriefing also provided our best weather reports."

Did all of this work? In August of 1944 (just before General Tunner's arrival), 23,000 tons were airlifted over the Hump to China. The accident rate hovered around 2.0 per 1,000 flying hours. In January 1945 with close to 40,000 tons airlifted, the accident rate dropped to .301. By July 1945, total tonnage jumped to 71,042 with an accident rate of .239. During August 1945, the last big month of the airlift, 20 planes were lost during 135,000 flying hours; bring the accident rate down to .154 per 1,000 flying hours. General Tunner makes the statistics come to life by looking at them another way:

"If the high accident rate of 1943 and early 1944 had continued, along with the great increase in tonnage delivered and hours flown, America would have lost not 20 planes that month, but 292, with a loss of life that would have shocked the world."

Thirteen years after World War II ended, Army aviation was still in its infancy. That year, 1958, was the first that Army wide aircraft accident data was collected and those numbers are also shocking. There were 54.3 accidents per 100,000 flying hours. But by the first half of FY 85, the Army had cut its class A-C rate to 9.80. The Class A-C rate for the first half of FY 86 was 9.22. These reductions have been achieved while Army aviation mission profiles have become increasingly demanding and overall inherent risks have risen.

Many of the stratagems used to achieve these reductions are the same as those used by General Tunner in 1944: analysis of flight and maintenance procedures and practices, statistical investigation and analysis of accidents, recommendations for corrections of faults revealed in the analyses, prompt action and follow-up on that action, improved training emphasis on pilot discipline, and thorough mission briefing.

We have seen vast improvements in Army accident rates, but what would these rates have been like under wartime conditions? In Vietnam, aviators flew in conditions not unlike those on the India-China border, and again losses were high. By the end of 1968, Department of Defense reported 2,228 aircraft had been lost through enemy action, but during the same period, 2,540 aircraft were lost through accidents. Can we afford the luxury of a safety program during wartime? History tells us we can't afford not to have one. Safety has to be part of the mission, in wartime and in peacetime. We simply can't get the job done without it.

-Portions of this article on the India-China airlift were taken from the article by Richard W. Huling, Ph.D.,AFISC Historian.

Preliminary Loss Reports (PLR)

ARMY PRELIMINARY LOSS REPORT 11083

AH-64D CRASH CLAIMS ONE SOLDIER'S LIFE

A 4th Combat Aviation Brigade Soldier was killed in an AH-64D crash that occurred on 26 May 2011 at approximately 1100 local. The 28-year-old CW2 co-pilot was flying in the aircraft in support of combat operations when contact was lost. After a short time of searching, the crashed aircraft was located in a wadi. The two pilots were evacuated to a medical facility where the CW2 was pronounced dead and the CW5 was treated for injuries sustained during the crash. A Centralized Accident Investigation (CAI) team from the US Army Combat Readiness/Safety Center is investigating. Local News and Video

This is the 5th Class A **Aviation** fatality in FY11 compared to **10** for the same time frame in FY10. This PLR does not identify specific root causes of this incident as the investigation is ongoing. Further details will be available at a later date on RMIS (RMIS Login Required).

Preliminary Loss Reports (PLR) are ***For Official Use Only*** and are to provide leaders with awareness of Army loss as we experience it and to point out potential trends that affect our combat readiness.

Our Army depends on you to use these PLRs to help Soldiers understand the impact of decisions made on and off duty.

ARMY PRELIMINARY LOSS REPORT 11086

OH-58D CRASH CLAIMS TWO SOLDIERS' LIVES

Two US Forces – AFGH/South Soldiers were killed in an OH-58D crash that occurred on 5 June 2011 at approximately 1100 local in Afghanistan. The pilots (35-year-old CW2 and 31year-old CW3) were flying in support of combat aviation operations when the helicopter crashed. The two pilots were evacuated to a medical facility where they were both pronounced dead. A Centralized Accident Investigation (CAI) team from the US Army Combat Readiness/Safety Center is investigating.

These are the 6th and 7th Class A **Aviation** fatalities in FY11 compared to **10** for the same time frame in FY10. This PLR does not identify specific root causes of this incident as the investigation is ongoing. Further details will be available at a later date on RMIS (RMIS Login Required).

Preliminary Loss Reports (PLR) are ***For Official Use Only*** and are to provide leaders with awareness of Army loss as we experience it and to point out potential trends that affect our combat readiness.

Our Army depends on you to use these PLRs to help Soldiers understand the impact of decisions made on and off duty.

Number 3 July 2011

Flightfax®

Online Report of Army Aircraft Mishaps

Last month we focused on the mission approval process and the issue of maintaining good order and discipline as professional aviators. This month we'll discuss the criticality of performance planning and the use of performance data during mission execution.

Performance planning is a requirement for every flight as stipulated by AR 95-1. However, with the advent of our modernized aircraft, performance data can now be derived from several sources to include the performance charts out of the applicable aircraft operator's manuals (-10s), approved digital performance planning programs, as well as aircraft performance (PERF) pages found on the UH-60M, CH-47F and AH-64D model aircraft. It's essential that performance planning is conducted, considered and discussed prior to each and every mission. Additionally, if the temperature, pressure altitude or gross weight of the aircraft changes significantly during the mission, to continue operating safely, aircrews should know when to re-compute and discuss the performance data as a crew.

Why the emphasis this month on aircraft performance data? Over the course of the last three months, a number of accidents have occurred wherein accident investigators discovered errors in how performance data was prepared or utilized during the flight. These findings ranged from not conducting before take-off power checks to confirm the performance planning data to not locating any referenced performance data at all for the flight. Given the environments in which our Aviation units repeatedly operate, performance planning cannot be overlooked or disregarded.

Historically, the summer months come with an increase in accidents for Army Aviation. As of this date, there have been four (4) Class A accidents in the month of June alone. Calculating and discussing PPC data, conducting before take-off power checks to confirm that data and when appropriate, recalculating and referring to the data while in flight is one of the top preventative measures to help us safely get through the hot summer months.

Take a look at the quote from this month's *blast from the past.* BG Gene M. LaCoste, former Director of Army Safety, was "spot on" concerning his comments on "proper aircraft power management procedures."

Until next month, fly safe! LTC David Fleckenstein, Dir., Air Task Force

Aviation Trends

- **Overconfidence/Complacency**
  - 83% of accidents involved overconfidence
  - 13% of accidents involved complacency
- **Assumption of Low Risk Missions**
  - 61% of accidents occur during the day
  - 30% of accidents happen during training
- **Aircrew Coordination Failures**
  - 28% of accidents involved crew coordination failures
- **Inadequate Mission Planning**
  - Failure to adequately plan for obstacles
  - Power management awareness

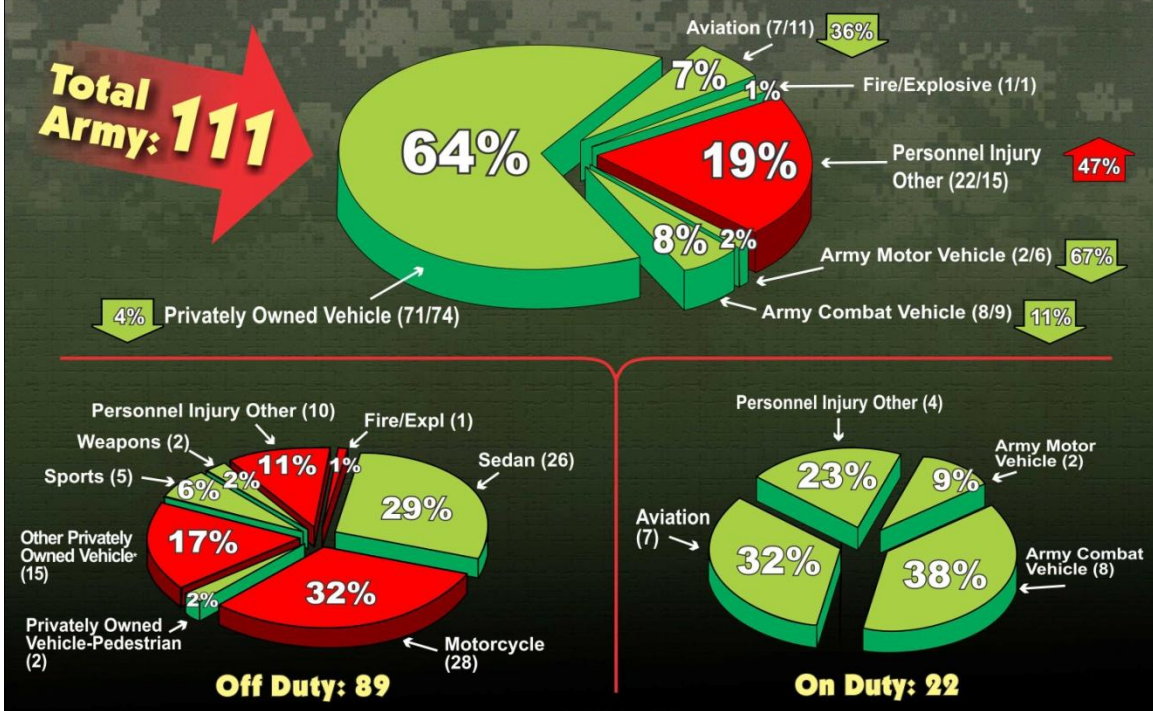
Manned Aircraft Accidents

( ) = Army Fatalities

As of 29 June 2011

TF11-06E

FY11 Soldier Accidental Fatalities



* Other POV includes ATV, SUV, Truck, & Van

As of 29 June 2011

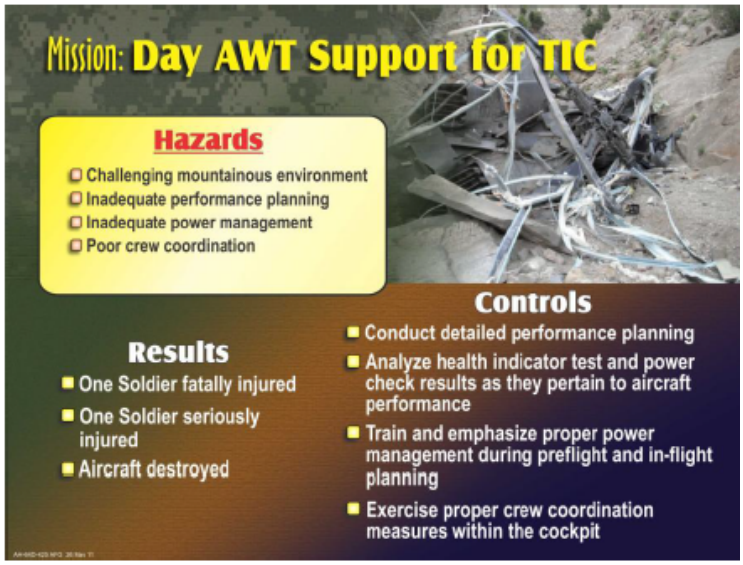
PCC11-12

Major Accident Review (MAR)

RMIS Case # 20110526002

U.S. ARMY COMBAT READINESS/SAFETY CENTER

When encountering restrictive rising terrain at approximately 34 KTAS at 70' AGL, the PC initiated a tight left turn exceeding 50 degrees of bank to escape the rising terrain. During the turn, the rotor drooped to 93%. The PC was able to recover the rotor RPM to 99% before bleeding the rotor again and striking the ground.



Two AH-64D aircraft departed a FOB in support of troops in contact. While en route the ground force passed NAIs located in a number of wadis. The AMC decided to split the team to cover the NAIs as quickly as possible. The lead AH-64D continued up one of the subject wadis into a steep walled, restrictive wadi in rising mountainous terrain at an airspeed of approximately 75 KTAS and at an altitude of 300 to 500 feet AGL. Focused on the reconnaissance mission, the PC allowed the aircraft to slow to approximately 34 KTAS. The aircraft's AGL altitude decreased to 70 feet due to the terrain rising faster than the aircraft could climb. At that point, the PC decided to execute a steep left-hand turn exceeding 50 degrees of bank in an attempt to escape the rising terrain. During the left turn, the aircraft's rotor RPM drooped to 93%. The PC briefly recovered rotor RPM to 99% by establishing a rate of descent he subsequently could not arrest. Approximately 10 seconds before impact, the rotor slowed below 86% causing the generators to drop offline. The aircraft impacted the rocky ground, tearing apart the underside of the aircraft, then impacted a steep rock wall nose first, finally coming to rest on its right side. There were no witnesses to the accident and the trail AH-64D only initiated a search after the accident aircraft did not respond to a radio call.

Findings:

— PC failed to conduct proper in-flight planning
— Aircrew failed to use proper crew coordination
— Aircrew failed to conduct proper preflight planning

Recommendations:

— Emphasize importance of proper power management in preflight and in-flight planning.
— Utilize ACT-E while conducting crew coordination training and emphasize to crewmembers that overconfidence in each other's abilities can adversely affect mission accomplishment.
— Conduct thorough performance planning before flight and maintain vigilance to the effects of changing environmental conditions during the flight.

All information contained in this report is for accident prevention use only. Do no disseminate outside DOD without prior approval from the USACRC.
Access the full preliminary report on the CRC RMIS under Accident Overview Preliminary Accident Report
https://rmis.army.mil/rmis/asmis.main1 AKO Password and RMIS Permission required

Major Accident Review (MAR)

RMIS Case # 20100630001

U.S. ARMY COMBAT READINESS/SAFETY CENTER

An AH-64D was conducting a mountain landing at 12,200' when rotor RPM decreased. The aircraft crashed on the mountainside.

Mission: Mountain Training Flight

Hazards

- ❑ Power Limitations
- ❑ Night
- ❑ Pinnacle/Ridgeline Ops

Results

- Two Injuries
- One helicopter destroyed

Controls

- Closely monitor aircraft performance limitations
- Adherence to standards in approach criteria

Accident Summary: An AH-64D was conducting an NVS approach to a mountain HLZ located at 12,200 ft MSL as part of a high-altitude mountain environment training program. On short final to the pinnacle/ridgeline HLZ with only IGE power margins available, the aircraft slowed below ETL. This resulted in an increase in required power which exceeded the available engine power for the environmental conditions. As a result, the aircraft rotor rpm decreased and the aircraft settled and impacted the mountainside while trying to execute an escape plan.

Findings:

- PI failed to maintain airspeed above ETL while still in an OGE condition in contravention to task 1058 in TC 1-251 which resulted in the aircraft exceeding its performance capabilities.

- IP failed to initiate corrective action in a timely manner to avoid the hazards associated with a slow VMC approach in OGE conditions to a pinnacle/ridgeline IAW Task 1058 in TC 1-251.

Recommendations:

- Ensure aircrews operate aircraft within the required aircraft performance capabilities and flight limitations.

- Ensure all pilots in a leader or supervisory role take appropriate and timely actions to prevent or stop violations of safe operations.

- Update the unit risk assessment worksheet to reflect the varying increased risks associated with mountainous operations.

Selected Aircraft Mishap Briefs

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

Utility helicopters

MH-60L

- Aircraft sustained damage to the FLIR turret, PLS antenna, and undercarriage as the result of rapid descent. (Class C)

Attack helicopters

AH-64D

- Crew experienced an in-flight emergency during cruise flight at 11,300 feet MSL, 85 KTAS, and was able to land with major damage. (Class A)

Observation helicopters

OH-58D

- Crew reportedly experienced a control malfunction during hovering flight and aircraft descended to ground impact. (Class A)

- Aircraft crashed during combat operations. (Class A)

Cargo helicopters

CH-47

- D series. Aircraft was conducting a combat night insertion of ground troops into a non-standard HLZ in support of a deliberate operation. Aircraft was chalk 2 of 2 in the second lift of the operation when the aircraft suddenly descended while on short final and had a hard landing. (Class A)

- F series. The aircrew experienced severe brown-out conditions and upon touchdown, the aircraft contacted a ditch causing significant damage to the forward portion of the aircraft. The front right main landing gear was sheared off with suspected damage to the structural members and airframe buckling. (Class B)

- F series. Rotor wash damaged the rotor blades of a parked UH-60. (Class C)

Unmanned Aircraft Systems

RQ-7B

- The UA experienced instability during landing attempts and was allowed to expend fuel before descending with the recovery chute. (Class C)

- The UA descended during training flight due to suspected ignition/generator failure. The recovery chute was deployed and UA was recovered with damage. (Class C)

- During a recon mission, the UA experienced engine failure and crashed resulting in damage. (Class C)

- The UA experienced engine failure and crashed. UA was recovered. (Class C)

- The UA experienced overtemp conditions. FTS was deployed and UA sustained damage. (Class C)

PUMA

- The UA was flying recon and lost link with ground control station. UA was not recovered. (Class C)

Aerostat

- The tether broke while lowering in gusty winds. Payload damaged. (Class B)

- Five additional aerostat reports pending.

- One RQ-16 report pending.

Class A - C Mishap Tables

FY 11 Manned Aircraft Class A – C Mishap Table										
	Month	FY 10					FY 11			
		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	4	1	3	1		1		3	
	November	1		5	2		0	2	12	
	December		1	4			2	1	4	4
2nd Qtr	January		2	3					7	
	February	2	2	9	5			2	2	
	March	2		4			2	1	5	
3rd Qtr	April	2	1	5	1		2	1	8	
	May	1	2	2	1		2	2	2	1
	June	6		5	1		4	1	1	2
4th Qtr	July	1	2	4						
	August	2	2	5						
	September	2	1	5	5					
	Total for Year	23	14	54	16	Year to Date	13	10	44	7

As of 29 Jun 11

FY 11 UAS Class A – C Mishap Table									
	FY 10 UAS Mishaps					FY 11 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	1		1	2
MQ-5	3			3	Hunter	3		1	4
RQ-7		14	21	35	Shadow		7	15	22
RQ-11					Raven			1	1
RQ-16A			1		T- Hawk			2	2
MQ-18A	1								
SUAV								1	1
Aerostat		2	2	4		6	5		11
Total Year	6	16	25	46	Year to Date	10	12	21	43

As of 29 Jun 11

Blast From The Past

articles from the archives of past Flightfax issues

DASAF Safety Alert: Power Management

Article from September 1999 Flightfax

As a result of a number of recent Class A aviation accident investigations throughout the Army, U.S. Army Safety Center (USASC) personnel have noticed an increased number of mishaps caused by a lack of proper aircraft power-management procedures. Army aviators have become conditioned to the benefits of seemingly unlimited power from modern multi-engine aircraft often operated at low pressure/density altitudes and temperatures.

An organization may find itself deployed to an area very environmentally different from home base, operating in both high pressure/density altitudes and temperatures. These conditions, along with the high gross weights associated with many mission profiles, may result in less power available to the aircrew. The process of confirming power requirements with power available requires continual awareness and constant performance planning.

Aircraft performance is predictable for any given environmental condition provided the planning data is accurately calculated and applied through appropriate power checks. However, performance planning is not enough. Aviators must also understand exactly how power-limited aircraft will perform during all phases of the assigned mission.

Training is the key to success in preventing mishaps involving power-management procedures. Instructor pilots and unit trainers need to emphasize the importance of proper aircraft performance planning as well as the application of that data to the mission. Aviators brought up on the latest generation aircraft must be made aware of the limitations of the aircraft they are operating. In the end, it is incumbent upon leaders to ensure timely, effective training and rigorous enforcement of standards.

-BG Gene M. LaCoste, Director of Army Safety, (Sept. 1999)

U.S. ARMY COMBAT READINESS/SAFETY CENTER

Report of Army aircraft mishaps published by the U.S. Army Combat Readiness/Safety Center, Fort Rucker, AL 36322-5363. DSN 558-2660. Information is for accident prevention purposes only. Specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition.

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

Number 4 August 2011

Flightfax®

Online Report of Army Aircraft Mishaps

Last month we highlighted the criticality of performance planning and the use of performance data during mission execution. This month's edition highlights the importance of adherence to standards and discipline in the application of regulations and standing operating procedures that permeate our formations. We will focus specifically on standards and discipline in maintenance and mission planning.

First, though, let me introduce myself. I transitioned from 2-1 GSAB in 1st CAB and joined the Air Task Force (ATF) team as the Director at the beginning of this month. In command, I found the emails outlining accident trends and, more specifically, the highlights and suggestions from LTC David Fleckenstein to be engaging, and each month applied the knowledge gained from reading the ATF's Flightfax to better protect my formation. I will continue this excellent tradition!

The ATF's first priority is to collaborate with operational commanders to provide *timely* and *relevant* information to assist you in protecting your formations. We do this by identifying causes of Army Aviation accident trends, identifying programs that enable aviation units to reduce losses, and engage Army, DoD and other government agencies to develop initiatives that prevent further aviation accidents and preserve aviation combat power.

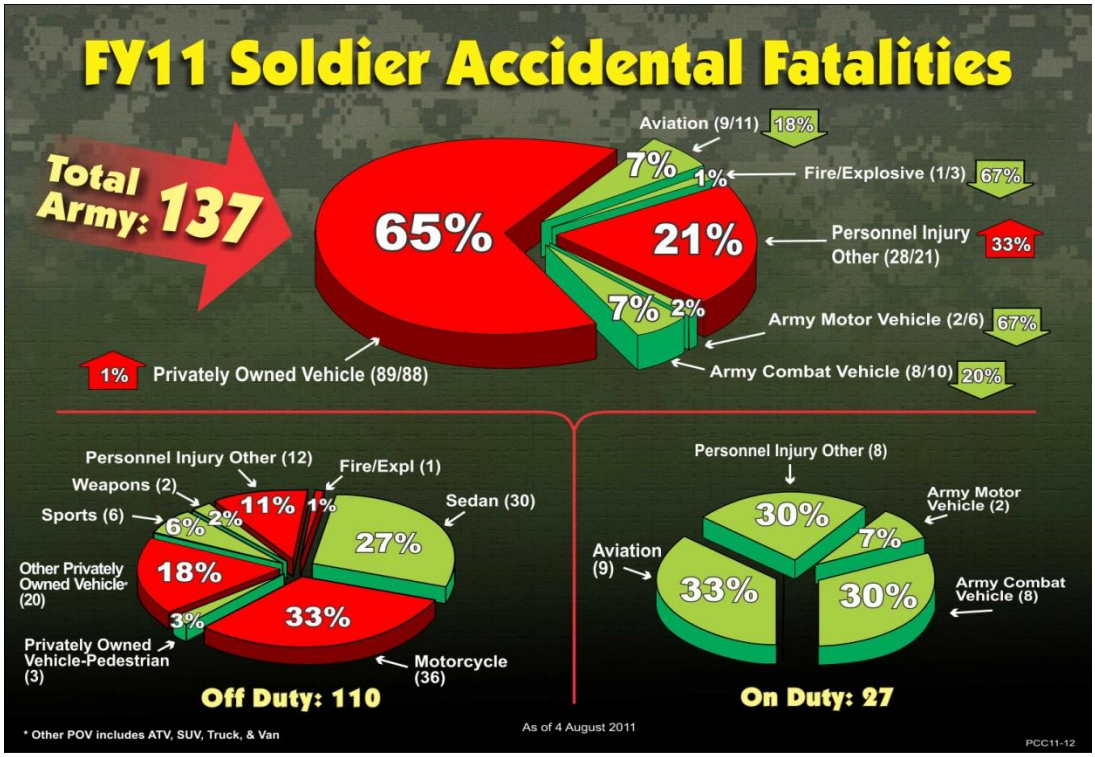
An initiative that began beta testing this month is the Army Safety Awareness Program (ASAP). The ASAP program is designed to enhance aviation safety through the prevention of accidents and incidents. It is an anonymous, self-reporting system modeled after systems currently in place at many airlines under auspices of the Federal Aviation Administration (FAA). These systems encourage the voluntary reporting of operations and maintenance safety issues and events. It is designed to provide a non-punitive environment for the open reporting of safety concerns and information that might be critical to identifying precursors to accidents. These safety concerns may be either observed or experienced by the submitter. The goal is to prevent mishaps by addressing those unintentional errors, hazardous situations and events, or high-risk activities not identified and/or correctable by other methods or through traditional safety reporting sources. The reported information is used to reduce mishaps through operational, maintenance, training and procedural enhancements. Due to its capability of providing early identification of needed safety improvements, ASAP offers significant potential for avoiding mishaps. Thanks are extended to 1-223rd Avn and its A 1-223rd and B 1-223rd companies participating in the project which will run through August. A follow-on operational test is slated for next fiscal year with a larger contingency in the Army Aviation community.

Continued next page

Continued from front page

In Flightfax this month, you can see that we are diligently working the timely aspect of information flow. We'd like to strengthen collaboration to provide relevance to the "How can Flightfax help me?" One of the daily challenges I confronted over the last couple of years was strategically looking forward, and enhancing effective ways of doing business to keep our formation safe. To assist in meeting this challenge, we request your input and feedback on how to make this publication better for you, and how the ATF can better assist your unit. We would like to hear your success stories of how you have met operational challenges, changed the way you train, and provided mission support that reduced risk and facilitated safe aviation operations. Share your stories by providing a short article in Flightfax. The process you applied to successfully meet operational challenges may be the very practice, if shared, that could keep your Aviation comrades safe and alive in the coming months. This month's Blast from the Past says it best with what constitutes a terrific brigade – "Once upon a time it all came together….and it can happen again and again. In this brigade, the state of training was high, as was the state of discipline, morale, maintenance and readiness. What made this brigade unique? Leaders. It had Leaders who had genuine concern for their mission and Soldiers - and for the safety of those Soldiers."

Until next month, fly safe! LTC Christopher Prather, Director, Air Task Force, email: christopher.prather@us.army.mil



C1 to August Flightfax pages 3 & 4. Due to an editing error, the pictures and crew experience accompanying the original review were inaccurate. The corrected version is below. Please replace with the corrected pages.

Mishap Review: AH-64D Maintenance Error

Synopsis

The AH-64D was conducting an escort mission. Eleven minutes into the mission, the aircraft experienced violent vibrations with a left yaw and nose down rotation, accompanied by a rapid descent. The crew was able to establish a level attitude and controlled descent to the ground with a roll-on landing. Significant damaged occurred during the hard landing but no crew injuries.

History of flight

The accident crew conducted their morning brief at 0900 hours, followed by situation and weather updates, aircraft prep and crew briefs. At 1233 hours, the attack team of two AH-64Ds departed the FOB on their assigned escort mission. At 1244 hours, the accident aircraft, flying approximately 85 KTAS at 11,300 feet MSL / 3000 feet AGL suddenly experienced severe vibrations, followed by a left yaw and nose tuck. The crew was able to make a controlled forced landing to an unimproved area, resulting in significant damage to the aircraft but no injuries.

It was determined the severe vibrations caused the failure of the lower rod end bearing of a PC link. The bearing failed by becoming unstaked, allowing the rod end to slide against the rotating swash plate. This action resulted in the lower bearing becoming fixed in one position. With the upper bearing not having enough bearing movement to accept the torsion load, the PC link failed by snapping due to torsion twisting.

Continued next page

Crewmember experience

The pilot-in-command (PC), occupying the backseat, had more than 900 hours total flight time with over 500 combat hours and 16 hours in theater. The co-pilot had 960 hours of flight time with 580 hours combat time and 38 hours in theater.

Commentary

It was determined that errors in maintenance procedures had allowed a suspected unserviceable part to be installed on the aircraft. The PC link in question had been removed from service more than a year prior to the accident with a DA Form 2410 indicating a failure code 710 (bearing or bushing failure). At the servicing AVIM, the PC link was taken to the repair shop. While in the repair shop, the part received a TI stamped yellow tag (serviceable), but the DA Form 2410 was not updated to indicate repair to the part. The part was put back into the Tech Supply system. Subsequently, the PC link was installed on the accident aircraft and failed 144 hours after installation. QC personnel failed to properly verify the serviceability of the PC link prior to installation. It is critical that all maintenance records be maintained accurately in order to ensure all required maintenance and inspections are being completed on time and to the proper standards. A breakdown in maintenance procedures allowed a suspected unserviceable part to be installed on an aircraft.

FY 11 Manned Aircraft Class A – C Mishap Table

	Month	FY 10					FY 11			
		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	4	1	3	1		1		3	
	November	1		5	2		0	2	12	
	December		1	4			2	1	4	4
2nd Qtr	January		2	3					7	
	February	2	2	9	5			2	2	
	March	2		4			2	1	5	
3rd Qtr	April	2	1	5	1		2	1	8	
	May	1	2	2	1		2	2	2	1
	June	6		5	1		4	1	2	2
4th Qtr	July	1	2	4			2	2	3	2
	August	2	2	5					5	
	September	2	1	5	5					
	Total for Year	23	14	54	16	Year to Date	14	12	53	9

As of 4 Aug 11

Mishap Review: OH-58D Diving Fire

Synopsis

While engaging enemy combatants during a quick reaction force mission, the accident aircraft impacted the ground at high airspeed. The impact fatally injured the two pilots and destroyed the OH-58D.

History of flight

The accident crew conducted preflight for their QRF mission between 0430 and 0530 hours, followed by the battalion pre-mission brief in the TOC and team brief at the company CP. Weather was VMC with light winds at 06 knots, temperature of 28 degrees C, and PA of 3,883. The crew was familiar with each other and had flown together on numerous occasions.

The team executed an aerial security mission starting at 0730 which lasted approximately four hours. At 1253, the team launched a QFR mission to a site where suspected enemy combatants were emplacing an IED. Upon arrival at the site six minutes later, the team lead engaged the identified enemy with rockets. Following lead's break, the accident aircraft, in trail position, initiated an engagement with .50 cal using diving fire from 800 feet AGL and 83 KIAS. During the engagement sequence, the aircraft pitched down 25 to 30 degrees and increased indicated airspeed to 114 KIAS, firing three bursts by the end of the run. During the break, the airspeed continued to build to 120 KIAS. Two to three seconds later, the aircraft impacted the ground at high airspeed and a nose-high attitude. The aircraft tumbled and rolled, coming to rest 118 meters from the initial impact point. Both crewmembers were fatally injured.

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Crewmember experience

The PC had more than 2500 hours total flight time with over 1600 combat hours in three deployments. The co-pilot had over 1300 hours flight time with 800 hours combat in two deployments. Each pilot had 400+ hours in theater during the current deployment.

Commentary

While engaging enemy combatants, the crew became fixated on the targets and failed to maintain a proper scan during the diving fire engagement. With factors such as the steep angle, out-of-trim condition, slight tail wind, high DA and high gross weight of the aircraft, the PC maneuvered the aircraft at a high airspeed/rate of descent below a recoverable altitude. Due to the excitement and haste to engage the enemy, a breakdown in crew coordination contributed to this event in that the PC did not effectively communicate his decisions to the PI or seek supporting information. The PI did not cross monitor the PC's actions, resulting in the aircraft being maneuvered below a recoverable altitude. The crew coordination remains pertinent for all crews, regardless of the experience of the crewmembers. Discipline, in execution of crew coordination for a mission, begins with mission planning and continues throughout the mission.

FY 11 UAS Class A – C Mishap Table									
	FY 10 UAS Mishaps					FY 11 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	1		1	2
MQ-5	3			3	Hunter	3		1	4
RQ-7		14	21	35	Shadow		6	23	29
RQ-11					Raven			1	1
RQ-16A			1		T- Hawk			2	2
MQ-18A	1								
SUAV								1	1
Aerostat		2	2	4		6	6		12
Total Year	6	16	25	46	Year to Date	10	12	29	51

As of 4 Aug 11

https://safety.army.mil/atf/

Selected Aircraft Mishap Briefs

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

Utility helicopters

MH-60K

- During post-flight inspection, the crew found damage to the bottom of all four main rotor blades caused by contact with the ALQ. The crew reported no maneuvers that might have caused the damage – hard landing, maneuvers, etc. (Class C)

UH-60A

- Crew experienced high dust conditions during landing for MEDEVAC pick-up and aircraft sustained damage on touch-down. (Class B)

- Crew experienced 'abnormal' vibration during short final approach. Emergency shutdown was executed and initial inspection revealed the #3 section of the drive shaft was missing as a result of main rotor blade contact. (Class B)

Attack helicopters

AH-64D

- During approach the tail rotor separated from the aircraft, resulting in a hard landing and damage to the aircraft. No injuries reported. (Class A)

- Aircraft struck a PGSS aerostat tether. The aerostat separated from the tether and was unable to be recovered. Damage to the aircraft's blade tip was discovered on post flight. (Class B)

- During MTF, the aircraft experienced an overspeed (132%) to the #2 engine. (Class C)

Observation helicopters

OH-58D

- Aircraft experienced an NR droop and subsequent overspeed during RL progression simulated engine failure autorotation. (Class C)

- Aircraft was lead in a flight of two when it struck wires and crashed into remote rising terrain. Both crewmembers fatally injured. (Class A)

- Aircraft experienced engine and rotor overspeed conditions during manual FADEC operations. Engine replacement required. (Class C)

- Aircraft exceeded its mast torque limitation during a low power condition demonstration. Drive train replacement required. (Class C)

Cargo helicopters

CH-47F

- CE inadvertently fell through operator's hole during sling load opns, resulting in injuries to shoulder and ribs. (Class C)

- Just prior to sling release, the crew heard 'pop', followed by extreme aircraft yawing. Aircraft was landed. Damage occurred to three antennas and a large crack to the ramp. (Class C)

Fixed Wing Aircraft

C26E

- Aircraft struck a mobile fire extinguisher when taxiing for take-off. Emergency engine shutdown was accomplished and passengers were evacuated. Damage reported to the right prop, window, door and fuselage. (Class C)

Unmanned Aircraft Systems

RQ-7B

- The UA experienced an engine failure approximately one hour into the flight. Operators deployed the recovery chute and UA landed with damage. (Class C)

Continued from previous page

RQ-7B cont

- UA experienced an uncommanded descent during climb-out. FTS was deployed and UA landed with damage. (Class C)

- Crew experienced a console HUMS oil pressure system warning during flight and initiated RTB. On return leg, the system had indications of a high rotor temp, followed by Ignition FAIL and Engine FAIL indications. Chute was deployed and UA landed with damage. (Class C)

- UA experienced rising operating temperatures and loss of altitude during flight. It crashed during an attempt to return to base and was recovered with damage. (Class C)

- UA descended during flight, following a generator failure and earlier HUMS alert for oil pressure. Crew deployed the landing chute and the UA was recovered with damage. (Class C)

- UA experienced a drop in engine RPM during climb-out. Controllers deployed chute and UA landed with damage. (Class C)

- UA experienced a hard landing, bounced over the retaining net and struck barriers. (Class B)

Aerostat

- UA deflated prematurely while being lowered and the aerostat fell to ground contact sustaining damage to include payload. (Class B)

Selected mishaps presented in order occurrence.

Preliminary Loss Reports (PLR)

ARMY PRELIMINARY LOSS REPORT 11113

OH-58D CRASH CLAIMS TWO SOLDIERS' LIVES

Two Tennessee Army National Guard Soldiers were fatally injured in an OH-58D Kiowa Warrior crash that occurred on 9 July 2011 at approximately 1730 local near Knoxville, Tennessee. The pilots (41-year-old CW4 and 26-year-old 1LT) were on a training flight when the helicopter crashed. The helicopter reportedly hit power lines at some point during the aviation accident, which caused brief power outages in the area. A Centralized Accident Investigation (CAI) team from the US Army Combat Readiness/Safety Center is investigating. Local News

These are the 8th and 9th Class A Aviation fatalities in FY11 compared to 11 for the same time frame in FY10. This PLR does not identify specific root causes of this incident as the investigation is ongoing. Further details will be available at a later date on RMIS (RMIS Login Required).

Preliminary Loss Reports (PLR) are *For Official Use Only* and are to provide leaders with awareness of Army loss as we experience it and to point out potential trends that affect our combat readiness.

Our Army depends on you to use these PLRs to help Soldiers understand the impact of decisions made on and off duty.

The U.S. ARMY COMBAT READINESS/SAFETY CENTER is interested in your comments; please click here to provide feedback on the Preliminary Loss Reports (PLR). FAQs Additional resources can be found in Knowledge, the official safety magazine of the U.S. Army.

ARMY PRELIMINARY LOSS REPORT 11115

GENERAL AVIATION CRASH CLAIMS ONE SOLDIER'S LIFE

A Fort Wainwright, Alaska, Soldier was killed in a general aviation aircraft crash that occurred on 17 July 2011, at approximately 2000 local near Delta Junction. The 28-year-old CW2 was off duty flying a Piper PA-12 aircraft that crashed on takeoff. According to statements made to police by witnesses, the non-military, single-engine aircraft began to exhibit audible engine problems shortly after takeoff before it crashed. Authorities stated the aircraft fell from an altitude of about 200 feet and crashed nose-first into the trees and ground. The Soldier was evacuated to a local medical center then died as he was being flown to Anchorage for further treatment. The CW2 was a licensed private pilot. Local News

This is the 3rd Civilian aircraft accident with Army fatalities in FY11 compared to 0 for the same time frame in FY10. This PLR does not identify specific root causes of this incident as the investigation is ongoing. Further details will be available at a later date on RMIS (RMIS Login Required).

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AEPS now extinct!

Safety notification messages are generated when users have identified a problem or concern and have asked for clarification. These messages offer solutions to problems that may affect an entire fleet or a select model of equipment. The repository which was the main source for locating these messages is no longer available. Due to recent budgetary changes the Army Electronic Product Support (AEPS) website was decommissioned on 29 July 2011.

A number of other WEB sites have assumed this role:

TACOM LCMC released Safety and Maintenance messages are available on the Safety First Web Site located on the TACOM Unique Logistics Support Applications (TULSA) portal at: https://tulsa.tacom.army.mil/safety/serviced.cfm

Access requires CAC Card authentication. You must first request access to the Safety First Web Site through the TULSA site at: https://tulsa.tacom.army.mil

For assistance, email the TULSA Helpdesk at: TACOM-LCMC-ILSC-TULSA@conus.army.mil

The Safety First Web Site has the capability to email Safety and Maintenance messages directly to your inbox. To subscribe to the mailing list, click on E-Mail Subscriptions on the Navigation bar. For other safety messages, please visit the following sites:

For Aviation and Missile Systems, AMCOM Safety and Maintenance Messages requires CAC or AKO Login ID/password at: https://asmprd.redstone.army.mil

JM&L Safety of Use Messages (SOUMs for Ammunition) requires a CAC to log into the site at: https://mhp.redstone.army.mil/

Munitions History Program (MHP) will be used to disseminate Ammunition Information Notices (AIN) and Notice of Ammunition Reclassification (NAR) and other safety messages used primarily by Quality Assurance Specialists (Ammunition Surveillance).

CECOM Safety of Use Messages (SOUM) Click on the Safety messages icon located in the System Safety Engineering area on the front page at: https://cecomsafety.apg.army.mil/

The safety notification system is an effective means for the program manager to provide immediate and worldwide information to the field about potential safety and health hazards. It is critical that everyone read and understands how the safety message system works when applied to the daily mission and avoid unnecessary injuries or accidents.

Blast From The Past

articles from the archives of past Flightfax issues

A terrific brigade reprinted from Flightfax dated 18 November 1987

There once was a brigade that could do its job. This brigade performed in such an outstanding manner, not just every day but during multiple rotations to the National Training Center and FTXs and CPXs too numerous to mention, that everybody wanted to know why. It was obvious from this brigade's performance under some really trying circumstances that something about it was different. But what?

When people looked closer at this brigade and how it was run, they inevitably came to the guy at the top – the commander. There was something different about him. "At the right place at the right time" describes this commander best. Not one knew where he would turn up next. He seemed to be everywhere – because he was. The soldiers in the shops knew him because he would stop and talk to them. When the brigade was in the field, he was there – fighting the dust, slogging through the mud, enduring the heat or cold. He might even turn up in the middle of the night where his soldiers were on patrol.

This commander paid attention to everything that affected his soldiers. When he ate breakfast with them, he waited in line just like everyone else – so he didn't have to ask how long his soldiers had to wait to be served. He might turn up at sick call for the same reason. No detail about his soldiers' daily lives was too small to escape this commander's interest.

He was tough, and corrections were made when needed, but no subordinate commander had to fear the humiliation of a public tongue-lashing. His counseling was one-on-one, and it took place privately, footlocker style. Deviations from standards were immediately corrected, but in a mature, professional manner. The command climate throughout this brigade was as extraordinarily good as its capacity to respond instantly to contingency missions – whether they were in Honduras or anywhere else in the world.

In this brigade, the state of training was high, as was the state of discipline. The state of morale was high, as was the state of readiness. The state of family involvement was high, as was the cohesion of the brigade. The level of maintenance was high, as was the level of concern for the soldiers. This just might have been the best brigade in the Army. It was a brigade that did everything well, with a commander who cared about what the brigade could do and the people who did it.

Continued on back page

Blast From The Past

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In this brigade, the accident rate involving primary mission equipment was zero for more than 2 years. Safety permeated the unit, and it was taken one day at a time. Concern for tomorrow's performance was always still a day away, but when that day came for this brigade, it was ready to meet the challenge.

Isn't it interesting that safety can be a better indicator of readiness than any other standard that can be used? That is not to say that safety is most important; the mission is most important. It does say, however, that safety appears to be the most important measure of a unit's ability to accomplish the mission. This is no idle statement. It is backed up by units as they rotate through the NTC, by first-hand observation of operations officers in tough environments everywhere, by statistics maintained at the Army Safety Center, and by good common soldier horse sense. Once upon a time, it all came together in one brigade. And it can happen again and again. It has happened again and again. It has happened, and it will happen because we have commanders who have genuine concern for their mission and soldiers – and for the safety of those soldiers.

That's one reason why, overall, 1987 was the safest year in the history of the Army.

- COL A.E. Hervey, Jr., Commander, U.S. Army Safety Center (Nov 1987)

U.S. ARMY COMBAT READINESS/SAFETY CENTER

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

Number 5 September 2011

Flightfax®

Online Report of Army Aircraft Mishaps

"For they had learned that true safety was to be found in long previous training, and not in eloquent exhortations uttered when they were going into action."
— Thucydides, The History of the Peloponnesian War, c. 404 BC

Everything on paper appears perfect. Your team has applied composite risk management impeccably, the environmental hazards have been identified, and your crew selection of experienced personnel shows a depth of leader involvement and oversight of the mission approval process. Yet, the mission still results in a mishap. How does this happen? Perhaps the support, training, or preparation leading up to the mission — sometimes stretching back for months, if not years — could have made a difference. Some recent studies suggest that standards and training are key to preventing mishaps, especially in degraded visual environments (see article on page 2).

The Air Task Force, especially in the last month, has taken a hard look at technological solutions for risk mitigation, as well as processes such as the Aviation Safety Awareness Program (ASAP). Next month, we'll describe ASAP, the results of the beta test and the way forward with an operational test that begins in January 2012.

Also in this issue, DES is providing an overview of pending changes to the "Before Landing Check" procedure (page 4). Flight crews continue to operate in a combat environment of high altitude, high temperatures and at higher gross weights. Unfortunately, we are still repeating the same mistakes, such as pilots maneuvering their aircraft into unusual attitudes or experiencing excessive drift, or contact with adjacent aircraft or obstacles. Commanders must understand that these skills are critical to saving lives in combat and when the unit returns to home station.

These initiatives take time to develop, approve, and implement. Yet, some timeless risk mitigation is available to every commander — training and preparation. Spikes in accidents at the onset of OIF and noticeable decreases thereafter may indicate the positive effects of TTPs and training for that environment.

The "Blast from the Past," which only reaches back to 2004, reminds us that for IIMC, "continuation training … is critical to building the confidence of aviators who encounter this situation." Today, we'd probably expand that to "confidence and proficiency," but the lesson is an important reminder.

The observation from Thucydides, that true safety can be found in long previous training, is also an important lesson and reminder that through training and standards, commanders can influence and reduce risk every day.

Until next month, fly safe! LTC Christopher Prather, Director, Air Task Force, email: christopher.prather@us.army.mil

Standards and Training Key to Preventing Mishaps in Degraded Visual Environments

Many lessons can be learned from a recent study of helicopter losses from 2002 - 2010. The study, which is still pending formal approval, addressed loss rates and causal factors and provided a list of candidate solutions for reducing rotorcraft losses. One lesson we learn, and that can be applied immediately in the field, is that Commanders can influence successful mission support in degraded visual environments (DVE) through training and adherence to standards.

Consider the following data points:

- From a worldwide perspective, 98 Class A and B DVE and controlled flight into terrain (CFIT) accidents accounted for 104 fatalities and a loss of $930M from FY02 through FY10.

- DVE and loss of situational awareness were the principal contributing factors to Class A and B accidents from FY02 through June FY10.

- DVE mishaps occurred most frequently in the lift and cargo fleets during sustained combat missions in a mature theater. For the Attack and Scout fleets, DVE mishaps occurred most frequently during expeditionary missions at the onset of combat operations.

Clearly when considering mishaps in degraded visual environments, especially during combat operations, additional effort is required to protect our Soldiers and preserve our combat power. There are robust ongoing efforts at the Department of Defense to find technological mitigations in degraded visual environments for all services; yet technological mitigations enhance, not replace, training and aircrew proficiency – as highlighted in an Associated Press release in August entitled "Automation in the air dulls pilot skill" which can be read at:

http://www.google.com/hostednews/ap/article/ALeqM5gdmYSGPD7TdQa-QsiKHXDoTd_uaA?docId=a4e56bdd941949d9b5f711277b56bdf5

Coupled with the following report findings that some additional focus on aircrew training and proficiency in DVE operations, this indicates room for improvement in preparation of conducting operations in new environments and Inadvertent Instrument Meteorological Conditions (IIMC).

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Analysis of aircrew training and proficiency factors revealed:

- At the onset of the 2003 offensive into Iraq, a noticeable “spike” in accidents occurred during the mobilization and initial invasion. Factors that contributed to these accidents may be linked to inadequate aircrew training for operations in new environments or expeditionary missions.

- Two-thirds of the hazard mitigation recommendations for this period include a training component on the DVE and Loss of Situational Awareness hazards identified for the Utility and Cargo fleets.

- Inadvertent Instrument Meteorological Condition (IIMC) accident case analysis reveals a consistent trend of mishaps attributed to flights into and within IMC. An astonishing fact is that flight crews often failed to properly execute the IIMC procedures correctly and commit to instrument flight.

- The accident data indicates the majority of the limited visibility (IIMC) accidents occurred during night operations under use of night vision devices.

- Currently, the use of the Heads-Up Display (HUD) is not mandatory for flight operations in the Cargo and Lift community.

These findings underscore the criticality of training and proficiency in DVE operations (for example hazard analysis). Spikes in accidents at the onset of OIF and noticeable decreases thereafter may indicate positive effects of TTPs and training for that environment. Since many garrison and home stations do not have DVE training facilities, use of simulators with DVE programs should be considered by Commanders for interim training for future operations into environments.

To better prepare your crews for degraded visibility conditions and IIMC, we recommend, based upon review of this report, placing additional emphasis on aircrew DVE training both in-flight and in simulators, focusing on training to standards, piloting in accordance with Aircrew Training Manuals, adhering to policies, and training as you fight. Continuation flight training should include additional training for Instrument Meteorological Conditions / Inadvertent Instrument Meteorological Conditions (IMC/IIMC) and the use of the Heads-up Display (HUD).

Performance Considerations – As Required

CW5 Greg Turberville
Standardization Officer
Directorate of Evaluation and Standards, USAACE
Fort Rucker, AL

In the past decade, Army aviators have responded to our nation's needs in uncertain and high-risk environments by deploying many times to Iraq and Afghanistan. Flight crews routinely perform complex tasks and missions while operating in environments of high altitude, high temperatures and at higher gross weights. Exposure to these environments has been a learning experience for our community. Unfortunately, we are still repeating the same mistakes.

One of the causal factors most often cited by accident investigation findings is crew error or complacency in power management awareness. In this context, consider power management to include the entire spectrum of factors and influences affecting the aircraft's ability to overcome gravity. This article is not intended to restate the training aspects that all Army aircrews should be aware of through routine pre-deployment training events. My intent is to explain an initiative undertaken by the Directorate of Evaluations and Standardization (DES) to address the trend in a more direct manner.

The Army is already teaching aviators how to fly confidently in Afghanistan, emphasizing power management and wind current navigation at the High Altitude Mountain Environmental Training (HAMET) and at the Colorado National Guard's High Altitude Army Training Site (HAATS). Pilots address individual and collective training repetitively in Readiness Level Progression and collective training events. However, while aviators are receiving essential and valuable training, Army aviation continues to experience an inordinate number of aircraft performance-related accidents.

DES has initiated a change to all currently fielded Army rotary-wing aircraft operators' manuals and checklists. This modification is quite simple in the broader sense, yet designed to create a mandatory crew event triggered at a critical time in the flight profile. In the next or near term change publishing cycle, the change will be an addition to the last step of the -10 checklist "Before Landing Check" for all MDS's (Mission Design Series). The text will be the same for all rotary wing airframes, in order to highlight the aerodynamic situation applies to all.

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The checklist change publications will include the addition of the step "Performance Considerations – As required." This addition will be the last step of the Before Landing Check. The goal is to serve as a standardized crew action to influence consideration or awareness of aircraft and environmental performance considerations that could negatively affect the transition from an en route phase of flight to the arrival phase. Because this additional step is now to be included in the Before Landing Check, the reminder or annunciation of the check will occur with each approach or transition the aircrew initiates to approach to land or hover.

The intent of the check is not to imply the aircrew must entirely re-compute their arrival performance planning card (PPC) data. Rather, the additional check is intended to highlight the fact that the crew should consider the situational factors affecting power management prior to arrival or transitioning below effective translational lift with each transition; such as, aircraft power available (IGE and OGE), power required, wind direction and speed, obstacles, gross weight, surface condition, rising terrain, escape or go-around plan, etc.

By augmenting this step in the operator's manual, it effectively removes it from the realm of optional training considerations or tactics, techniques and procedures. It now becomes a required crew action check. DES hopes this simple checklist modification will serve to alert future crews to apply essential consideration to performance factors prior to arriving in a compromising arrival or pre-landing situation and potential accident scenario.

The Before Landing Check does vary by MDS, but here's the AH64 with the new addition as step #5 for example:

BEFORE LANDING CHECK

1. **Weapon Systems – Safe**
2. **ASE – As required**
3. **TAIL WHEEL button – Lock**
4. **PARK BRAKE – As Required**
5. **PERFORMANCE CONSIDERATIONS – As required**

Mishap Review: CH-47F NVG Extraction

While conducting a two-ship NVG approach to extract ground forces, chalk 2 impacted the ground approximately 1 NM short of the PZ, heavily damaging the right side of the aircraft and shearing the aft pylon. The crew received minor injuries.

History of flight

The accident crew's show time was 2000 hours. The mission was an insertion of two small team units into separate locations with the aircraft staging for on-call extractions later in the evening. The crews completed aircraft preparation and conducted mission and crew briefs. Weather was VMC with 12 knot winds from the east, temperature of 23 degrees C, scattered clouds at 9000 MSL and a broken layer at 20,000. Forecast visibility was 5000 meters with zero illumination. The crew was familiar with each other and had been battle rostered together for over a month.

At 2330 hours the flight of 2xCH and 2xAH departed their FOB en route to the first objective. Insertions were complete shortly after 0100 hours and the flight moved to an intermediate location to stage for the on-call extractions. At 0325 the flight departed to extract the first element at the first objective. During the final inbound course to the PZ for the exfil at Objective 1, the PC moved the aircraft into a trail formation and began a descent from 500 feet AGL/100 kts. During the progressive deceleration, the aircraft pitch varied from an initial nose high of approximately 15 degrees to nearly 22 degrees as the airspeed zeroed out at 165 feet AGL. The aircraft descended rapidly from this low power, low airspeed OGE condition. At 100' AGL, the "low altitude" warning alerted the remainder of the crew to the conditions as the pilot on the controls initiated an aggressive thrust response to stop the descent. The aircraft continued its descent until impacting the ground, heavily damaging the right side of the aircraft and shearing the aft pylon. The crew suffered two minor injuries.

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Crewmember experience

The PC had more than 630 hours total flight time, 550 in the CH-47D/F, 260 NVG and 50 hours as a PC. This was his first combat deployment accumulating over 300 hours. The AMC/co-pilot had over 2000 hours flight time, 1900 in the CH-47D/F, 1100 NVG, 1200 hours combat time and more than 1000 hours as an IP. The experienced FEs in the left and right doors had more than 1200 and 800 hours respectively.

Commentary

The accident board determined that while conducting a hasty air assault at night in low illumination conditions, the crew of the CH-47F, in trail position of a flight of two, failed to maintain a proper scan. The PC and AMC/PI became fixated on lead and actions in the vicinity of the PZ and maneuvered the aircraft into an unperceived OGE hover condition at a low power setting with an excessive upwards pitch. The aircraft descended rapidly, impacting aft first with a significant right roll. The impact caused minor injuries to the crew and separated the aft pylon from the aircraft.

Terminology

Controlled Flight Into Terrain (CFIT). A mishap where an airworthy aircraft, under pilot control, inadvertently flies into terrain, water, or an object. This does not include incidents where there is intent to land, object/wire strikes, or the aircraft departs controlled flight.

Degraded Visual Environment (DVE). The Army defines DVE as an environment of reduced visibility of potentially varying degree, wherein situational awareness and aircraft control cannot be maintained as comprehensively as they are in normal Visual Meteorological Conditions (VMC) and can potentially be lost. This description of DVE is applicable to all regimes of flight.

Selected Aircraft Mishap Briefs

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

Utility helicopters

UH-60

- A series. Crew was landing for patient pickup when the left landing gear settled into soft terrain, resulting in the main rotor blades contacting rising terrain. (Class B)

- L series. Post-flight inspection revealed that the APU door was missing, presumably separating in flight. Damage was observed to the No. 1 engine cowling, No. 1 HIRRS cowling, and blue and black main rotor blades. (Class C)

Attack helicopters

AH-64D

- Aircraft experienced a No. 1 engine failure during takeoff. Crew executed a forced landing, touching down on a dirt berm. Aircraft sustained minor damage to the L330 panel and antenna. (Class C)

- Crew encountered rising terrain and diminished visibility. During landing, aircraft touched down on rocky terrain, damaging the tail boom and stabilator. (Class B)

- Aircraft experienced an over-torque condition (135%/5 sec) during single engine operation. (Class C)

- On post-flight inspection, damage was discovered to main rotor tip cap and tail rotor following range operations. (Class C)

Observation helicopters

TH-67A

- Crew experienced a chip detector light, followed by engine failure during climbout. IP conducted an autorotation to the stagefield and the aircraft made ground contact, resulting in separation of the aft portion of the tailboom, vertical fin, and the tail rotor gearbox. (Class C)

OH-58D

- Crew experienced a bird strike on final approach for landing. Damage incurred to the MMS, transmission, driveshaft, tail rotor gearbox, and all four main rotor blades. (Class C)

AH-6M

- Aircraft descended into trees and crashed during range training. Both crewmembers sustained fatal injuries as a result. (Class A)

Cargo helicopters

CH-47

- D series. Aircraft contacted a dirt mound during a roll-on landing and sustained damage to the left rear landing gear, hydraulic lines, and surrounding sheet metal. (Class C)

- D series. During landing to unimproved area, the left forward main landing gear struck a large rock, causing damage. (Class C)

- F series. On short final of an NVG approach, aircraft entered an uncontrolled descent and landed hard, resulting in separation of the aft rotor assembly/transmission. (Class A)

- F series. Aircraft sustained damage from forklift forks during hot cargo load operations. (Class C)

Unmanned Aircraft Systems

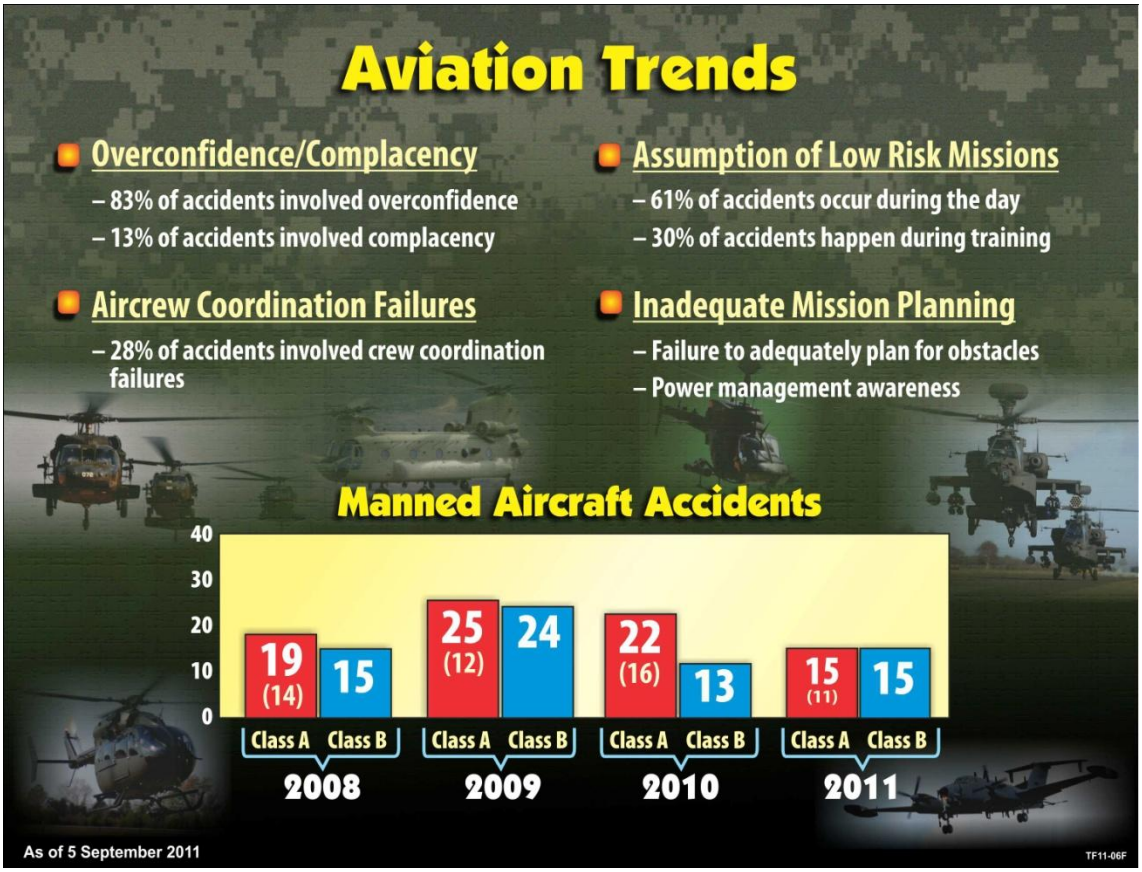
RQ-7B

- The UA experienced an ignition and generator failure at 9,000 feet MSL. The UA descended to ground impact and was recovered. (Class C)

- UA experienced engine temp and RPM spikes. Crew elected to return the UA to base. During landing sequence, the generator failed and the UA crashed. (Class C)

- While in a holding pattern, the UA collided with a C-130. Damaged was incurred to both aircraft. (Class A)

- UA's landing gear collapsed upon touchdown with the payload and undercarriage sliding off the runway and impacting terrain. (Class C)



	FY 11 Manned Aircraft Class A – C Mishap Table									
	Month	FY 10					FY 11			
		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	4	1	3	1		0	1	3	
	November	1		5	2		0	2	12	
	December		1	4			2	1	4	4
2nd Qtr	January		2	3			0	0	7	
	February	2	2	9	5		0	2	2	
	March	2		4			2	1	5	
3rd Qtr	April	2	1	5	1		2	1	9	
	May	1	2	2	1		2	2	2	1
	June	6		5	1		3	1	3	2
4th Qtr	July	1	2	4			2	2	7	2
	August	2	2	5			2	2	9	2
	September	2	1	5	5					
	Total for Year	23	14	54	16	Year to Date	15	15	63	11

As of 1 Sep 11

Preliminary Loss Report (PLR)

ARMY PRELIMINARY LOSS REPORT 11130

AH-6M CRASH CLAIMS TWO SOLDIERS' LIVES

Two 160th Special Operations Aviation Regiment, Fort Campbell, Kentucky Soldiers were fatally injured in an AH-6M helicopter crash that occurred on 8 August 2011 at approximately 1500 local at Fort Benning, Georgia. The pilots (30-year-old CPT and 37-year-old CW3) died after their AH-6M Little Bird helicopter crashed while conducting training. The pilots were evacuated to a local medical center where they passed away from their injuries. A Centralized Accident Investigation (CAI) team from the US Army Combat Readiness/Safety Center is investigating. USASOC News Release

These are the **10th** and **11th** Class A **Aviation** fatalities in FY11 compared to **14** for the same time frame in FY10. This PLR does not identify specific root causes of this incident as the investigation is ongoing. Further details will be available at a later date on RMIS (RMIS Login Required).

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FY 11 UAS Class A – C Mishap Table									
	FY 10 UAS Mishaps					FY 11 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	1		1	2
MQ-5	3			3	Hunter	3		1	4
RQ-7		14	21	35	Shadow	1	8	25	34
RQ-11					Raven			1	1
RQ-16A			1		T- Hawk			2	2
MQ-18A	1								
SUAV								1	1
Aerostat		2	2	4		6	9		15
Total Year	6	16	25	46	Year to Date	11	17	31	59

As of 1 Sep 11

A Failure to Communicate + IIMC = Tragedy reprinted from Flighfax Feb 04

Inadvertent instrument meteorological conditions (IIMC) break-up procedures are often one of the most overlooked aspects of air mission planning and rehearsals. Whether a unit is conducting a mission or continuation training, IIMC break-up procedures seldom receive the emphasis necessary to ensure the safe and successful return of flight crews.

The mission was to conduct night extraction training of four six-man teams from a long-range surveillance (LRS) unit preparation. The concept of the operation was for two UH-60As, under night vision goggles (NVGs), to conduct a link-up with a two-man LRS control team. After the link-up and final coordination, the aircraft would depart with the two-man control team en route to a notional landing zone (LZ). After completing the insertion, the aircrew would loiter at a predetermined location until it was time to extract the teams. The unit that assigned the mission was a command aviation group company, with the primary mission of command and control, VIP support, and personnel recovery. The crew received the weather forecast from a weather briefing flimsy approximately 4 hours prior to the flight. The forecast called for minimum ceilings at 3,000 feet, minimum visibility 2 miles, and winds 120 degrees at 20 knots, gusting to 22 knots, with blowing dust and isolated thunderstorms for the planned area of operation. However, unknown to the crew, their weather flimsy had been replaced but wasn't on file in the tactical operations center. The flimsy forecast of minimum ceilings and visibility remained largely unchanged, with the exception of light rain showers and thunderstorms were added as a visibility restriction. In addition, the incidence of thunderstorms was changed from isolated to few.

Prior to departing for the mission, the airfield's tactical tower received a pilot weather report (PIREP) from a CH-47 flight that informed them they had encountered IIMC and declared an emergency. After landing, the pilot in command (PC) of the lead Ch-47 submitted a PIREP to their weather detachment at 2315 of ceilings reported at 400 feet above ground level (AGL). The PIREP was recorded by weather personnel, but was not disseminated to the Joint Army/Air Force Weather Information Network or to the accident aircraft's weather detachment. Additionally, a returning AH-64D transmitted a PIREP to the tactical tower indicating that instrument flight rules (IFR) conditions existed in the local area. While the UH-60 flight was taxiing to the runway, they heard the AH-64D crew relay the PIREP and were notified by tower that the field was operating under

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IFR. The lead UH-60 requested a special visual flight rules (SVFR) departing to the south.

At 0010, the flight of two UH-60As departed the airfield. Approximately 10 minutes into the flight with an en route altitude of 100 feet AGL, Chalk 1 began to enter decreased visibility and announced to his aircrew that he was initiating IIMC procedures. The lead aircraft began a climbing left turn; however, Chalk 2, unaware of what Chalk 1 was doing, continued along the route of flight. Shortly after Chalk 1 initiated IIMC break-up, Chalk 2 impacted the ground. The aircraft was destroyed, and all personnel were fatally injured.

Lessons Learned

The preliminary investigation revealed support, training, leader, and environment as contributory factors to this accident; planning and communications were critical to the outcome. Although all factors contributed, one might have prevented the accident – briefing and rehearsing IIMC break-up procedures.

* **Support.** The weather distribution process must be linked for all operational units, regardless of boundaries. In this case, two separate aviation brigades had weather reporting assets; however, weather information from one aviation brigade weather team was not being disseminated to other weather detachments. As such, critical PIREPs were not relayed to the flight crew. In areas with remote weather reporting capability, it is incumbent upon aircrews to provide the necessary observations to assist weather personnel in updating weather conditions. However, the chain does not stop there. Aviation flight operations elements must ensure that all weather data is received from all sources of information, and this information must be available to the aircrews.

* **Training.** Continuation training that incorporates IIMC procedures is critical in building the confidence of aviators who could encounter this situation. Too often, IIMC can be viewed negatively; a common remark when discussing IIMC procedures is, “Don’t go IIMC!” Unfortunately, it is not that easy. Single- and multi-ship IIMC procedures should be incorporated into all training plans and missions. In this accident, the unit was accustomed to operating single-ship missions; consequently, the aircrews were not proficient in multi-ship operations, let alone IIMC break-up procedures.

* **Leader.** Leaders at all levels must be part of the planning process through mission execution. Without this involvement, leaders are unable to make informed risk decisions that can affect the outcome of the mission. In this case, company and battalion leaders were not involved in the air mission brief. They both received an overview of the mission, but were more than likely unaware that IIMC break-up procedures were not planned or briefed.

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Blast From The Past

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*** Planning.** As with any mission, planning and performing rehearsals are a crucial element to facilitate the successful outcome of the mission. The key element that was lacking in this mission was the IIMC break-up plan.

*** Communication.** In three separate incidents, two single factors – vague instruction and a lack of communication – contributed to the outcome of this mission. In the first incident, the lead CH-47 PC informed the tactical tower of the weather conditions and submitted a PIREP to their weather detachment. Although the PIREP was recorded by weather personnel, a vital communication breakdown occurred when the PIREP was not passed on to the accident aircraft's weather detachment or the Joint Army/Air Force Weather Information Network.

Shortly afterward, the AH-64D crew submitted a PIREP to the tactical tower and assumed the weather information would be relayed to the following flights. However, tower operators misunderstood this request and never relayed the weather situation to the UH-60 crew.

The last communication breakdown occurred when the UH-60 flight lead announced his intentions to initiate IIMC procedures to his aircrew only. At no time was the execution of IIMC break-up ever relayed to Chalk 2.

-MAJ Ron Jackson, USASC, February 2004 issue of Flightfax

U.S. ARMY COMBAT READINESS/SAFETY CENTER

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Number 6 October 2011

Flightfax®

Online Report of Army Aircraft Mishaps

Welcome to our first edition of Flightfax for Fiscal Year 2012. This means, of course, we will provide a very preliminary overview of the FY11 aircraft accidents (pages 2-3). Our Blast from the Past this month comes from Gerald M. Bruggink's 1999 graduation address to Dutch pilots at USAACE, and imparts his wisdom to all aviators:

"The development of your judgment is not only governed by your own experience, but also by the experience of others, negative as well as positive. Those who learn the most at Happy Hour are the ones who keep their mouth shut and their ears wide open. In addition, read every mishap report you can lay your hands on with this question in mind: *At which point would I have done things differently*?"

When we pause and review mishaps without judgment or prejudice, perhaps the greatest lessons we learn is when we ask ourselves, "At which point would I have done things differently?" With this in mind, we've reviewed Army aircraft accident data and trends for FY11 and have seen an increase in Class A-C accidents since FY10. However, we've seen significant improvements in Class A accidents and in preventing fatalities. The increase in Class C with the corresponding drop in Class A and B accidents may be a strong indicator of healthy learning organizations are applying lessons learned from lesser incidents, thereby using effective risk mitigation.

Within the aviation realm, it is common to hear the statistic that 80% of accidents are due to human error. Once again, in reviewing the FY11 aviation mishaps, human error was the unsurprising trend. In the past few editions of Flightfax, we've highlighted the criticality of performance planning, adherence to standards and discipline, and mitigating risk through a 3-step mission approval process. In this edition, we spotlight the Aviation Safety Awareness Program (ASAP) on page 5. This operational test starts in January 2012 and will provide Aviation Commanders the capability of identifying crew failures in advance to avoid significant potential mishaps – especially those targeting human error.

ASAP truly has the potential to be a tool that enables Aviation leaders to understand the risks in their formations and gives them the ability to *do something differently* before a mishap occurs. The ASAP article provides an overview, and you can find more information on our web page at https://safety.army.mil. There's been some interest already expressed by some tactical unit personnel. If you're interested in evaluating and using this fully-funded tool for your active duty CAB, National Guard battalion, or fixed-wing formation, let us know soon.

Until next month, fly safe!

LTC Christopher Prather, Director, Air Task Force,
email: christopher.prather@us.army.mil

Preliminary Report on FY11 Aircraft Accidents

In the **manned aircraft** category, Army Aviation experienced 104 Class A-C aircraft accidents over FY11. This is an increase from the 94 Class A-C aircraft accidents in FY10, but a significant improvement in Class A incidents and in preventing loss of life.

	2010	2011
CLASS A	23	15
CLASS B	13	16
CLASS C	58	73
TOTAL	94	104
FATALITIES	28	15

Note: All fatalities include all of DoD, Allies, and Civilians. U.S. Army Soldier fatalities were 11 in FY11 in comparison to 16 last fiscal year.

CLASS A Summary: Fifteen of the 31 Class A and B mishaps occurred at night. Materiel failure or suspected materiel failure was contributing in 8 of the 31 mishaps with human error being associated with 23 (74%).

Operational Assessment Concerns:

DVE: Dust landings were contributing factors in 2 Class B and 10 Class C aircraft mishaps with one additional Class C whiteout event.

Human Factors: There were two UH-60 ground taxi mishaps, four wire/cable/tether strikes (two Class A, two Class B), one spatial disorientation (Class A) and one IIMC (Class C).

Materiel Failures: Examples of materiel failure for the 104 events included four FADEC failures, three engine failures, one control servo failure, four electrical system malfunctions/fires, and a tail rotor separation. (Note: Materiel failures from the aircrew's perspective: some bad parts were installed on the aircraft due to human factor failures).

2011 Breakdown by Aircraft Type:

	Class A	Class B	Class C
UH/MH-60	1	7	19
AH-64	4	3	15
CH/MH-47	3	4	16
OH-58D	5	0	12
LUH-72	1	0	1
TH-67/OH-58C	0	2	2
AH/MH-6	1	0	3
UH-1H	0	0	1
C-12/KA300	0	0	3
C-26	0	0	1

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Synopsis of selected accidents (APR – SEP 11) ** denotes night mission:

Manned Class A

** AH-64D. The crew reported loss of collective input response and executed a hard landing. Suspect materiel failure.

- AH-64D. The aircraft struck a ferry cable during cross-country flight training. Front seat crewmember sustained fatal injuries upon impact with the cable and the rear seat pilot successfully landed the aircraft.

** MH-47G. During initial aerial refueling qualification training, the main rotor blade made contact with and cut the refueling hose from the MC130 tanker. The aircraft landed with damage.

- AH-64D. The aircraft crashed during a high-altitude combat mission. One fatality.

** OH-58D. The crew experienced a control malfunction during hovering flight. The aircraft descended to ground impact. Suspect failure of a flight control servo.

- OH-58D. During a combat engagement with diving fire, the aircraft impacted the ground. Two fatalities.

** CH-47D. During NVG insertion, on short final, the aircraft descended rapidly and landed hard.

** AH-64D. On final approach, the tail rotor assembly separated from the aircraft. The aircraft landed to an unimproved area with damage. Materiel failure.

- OH-58D. The aircraft crashed following a wire strike while conducting terrain flight training. Two fatalities.

** CH-47F. The aircraft entered a rapid descent on final approach for troop extraction, resulting in a hard landing. The aft rotor assembly and transmission separated from the airframe.

-AH-6M. The aircraft descended into trees and crashed during range training. Both crewmembers were fatally injured. Materiel failure (FADEC).

In the **unmanned aircraft systems**, there were 66 Class A–C incidents with 12 Class A's, 20 Class B's, and 34 Class C's. The Class A's included six Aerostat balloons, three MQ-5Bs Hunters, two MQ-1s and one RQ-7B. High winds and tether breakage were the prominent cause factor in the Aerostat incidents. The RQ-7Bs comprised 39 of the 54 Class B and C mishaps with cause factors relating to engine failures, landing problems, and lost link.

Synopsis of selected accidents (APR – SEP):

UAS Class A

- RQ-7B and C-130. While in a holding pattern, the RQ-7B had a mid-air collision with a C-130 that was landing. Both aircraft sustained damage.

- MQ-1C. While on mission, an increase in engine operating temperature with leaking fluid was noted. During RTB, the engine failed and vehicle crashed.

Class A – C Mishap Tables

	Manned Aircraft Class A – C Mishap Tables									
		FY 10					FY 11			
	Month	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	4	1	3	1		0	1	3	
	November	1		5	2		0	2	14	
	December		1	4			2	1	4	4
2nd Qtr	January		2	3			0	0	8	
	February	2	2	9	5		0	2	2	
	March	2		4			2	1	5	
3rd Qtr	April	2	1	5	1		2	1	11	
	May	1	2	2	1		2	2	2	1
	June	6		5	1		3	1	3	2
4th Qtr	July	1	2	4			2	2	8	2
	August	2	2	5			2	2	9	2
	September	2	1	5	5		0	1	4	0
	Total for Year	23	14	54	16	**Year to Date**	15	16	73	11

As of 6 Oct 11

UAS Class A – C Mishap Tables									
	FY 10 UAS Mishaps					FY 11 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**	2		1	3
MQ-5	3			3	**Hunter**	3		1	4
RQ-7		15	25	40	**Shadow**	1	11	28	40
RQ-11					**Raven**				
RQ-16A			1	1	**T- Hawk**			3	3
MQ-18A	1			1					
SUAV					**SUAV**			1	1
Aerostat		2	2	4	**Aerostat**	6	9		15
Total Year	6	17	29	52	**Year to Date**	12	20	34	66

As of 6 Oct 11

BENEFITS OF THE AVIATION SAFETY AWARENESS PROGRAM (ASAP) TO ARMY AVIATION

Consider a program that would allow your unit to immediately and effectively:

- Prevent mishaps by addressing unintentional errors, hazardous situations and events, or high-risk activities not identified and/or correctable by other methods or through traditional safety reporting sources

- Enable this reported information to develop mitigations to reduce mishaps through operational, maintenance, training and procedural enhancements

- Give an aviation commander the capability to continuously be provided *early identification* of needed safety improvements that enabled significant potential for avoiding mishaps

Would you like to have this program in your unit? Our feedback has been positive and it is one that you would want. The good news is just such a program is being developed.

The purpose of this article is to provide information about the Aviation Safety Awareness Program (ASAP) since its operational test commences 17 JAN 12 through 30 JUN 12. This fully-funded (no cost to the units involved) test will assess if the program is effective in identifying and assisting command teams in mitigating risk in their formations.

DEFINITION AND BACKGROUND

The emerging definition from the Department of Defense defines the Aviation Safety Awareness Program as a "program that encompasses the proactive analysis and trending of threats, errors, and hazards as reported by those associated with flight operations, used to detect precursors to aviation mishaps. ASAP uses the investigation of underlying latent factors and related unsafe acts to identify mitigation strategies. ASAP allows commanders to identify previously unrecognized risks inherent in flight operations."

Department of Defense studies identified ASAP as a pro-active safety tool that has proven to identify hazards and mitigate risk for the civilian aviation industry and NASA. ASAP has shown promise in Naval Aviation operations and in a limited test within Air Mobility Command (AMC) within the United States Air Force. Its expansion has potential to reduce mishap rates to the comparable civilian rate level, thereby saving lives and preserving aircraft. ASAP has proven in civilian industry, NASA, the USN and the USAF to enhance the safety culture among pilots, aircrews and ground personnel. At the same time, ASAP has the potential to build and institutionalize the safety culture in the growing UAS community, where a small investment will show positive returns for all Services. Previous ASAP research highlights that the program can potentially reduce accidents caused by human error.

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Aviation Safety Awareness Program and Army Aviation

The capabilities enabled by ASAP are significant given the Chief of Staff and the Secretary of the Army have provided a directive in Objective 2 of the FY12 Safety and Occupational Health Objectives (27 SEP 11) for Aviation Class A-C Accident Reduction. "Army Aviation accident rates are currently trending toward all-time lows. However, to sustain this downward trend, aviation leaders must look to reduce accidents involving human error, which continues to account for greater than 80 percent of all A-C accidents. Aviation leaders must adhere to the three-step mission approval process outlined in AR 95-1 (Flight Regulations). Initial mission approval, mission planning and briefing, and final mission approval are meant to lower or mitigate risk as the approval process moves from one step to the next. Aviation commanders must enforce the three-step process and deter any temptations to skip steps or reduce the inherent rigor involved."

Not only has ASAP already demonstrated for other agencies to reduce accidents caused by human error, it is also a proactive program that:

- is an anonymous, self-reporting system modeled after systems currently in place at many airlines under auspices of the Federal Aviation Administration (FAA)
- encourages voluntary reporting of operations and maintenance safety high risk practices
- designed to provide a non-punitive environment for the open reporting of safety concerns and information that might be critical to identifying precursors to accidents

ASAP gives commanders an additional resource to enforce the three-step mission approval process and to deter any temptations to skip steps or reduce the inherent rigor involved. It also assists in the early identification of risk by:

- Enabling textual reporting of errors, high-risk activity, or observed hazardous situations
- Providing non-punitive resolution of safety, training, and ops issues at the unit level
- Facilitating commander's risk management process
- Including analysis, trending & corrective action capability at the Army/joint level
- Tailoring report format for various users
- Augmenting, but not replacing, existing safety reporting systems

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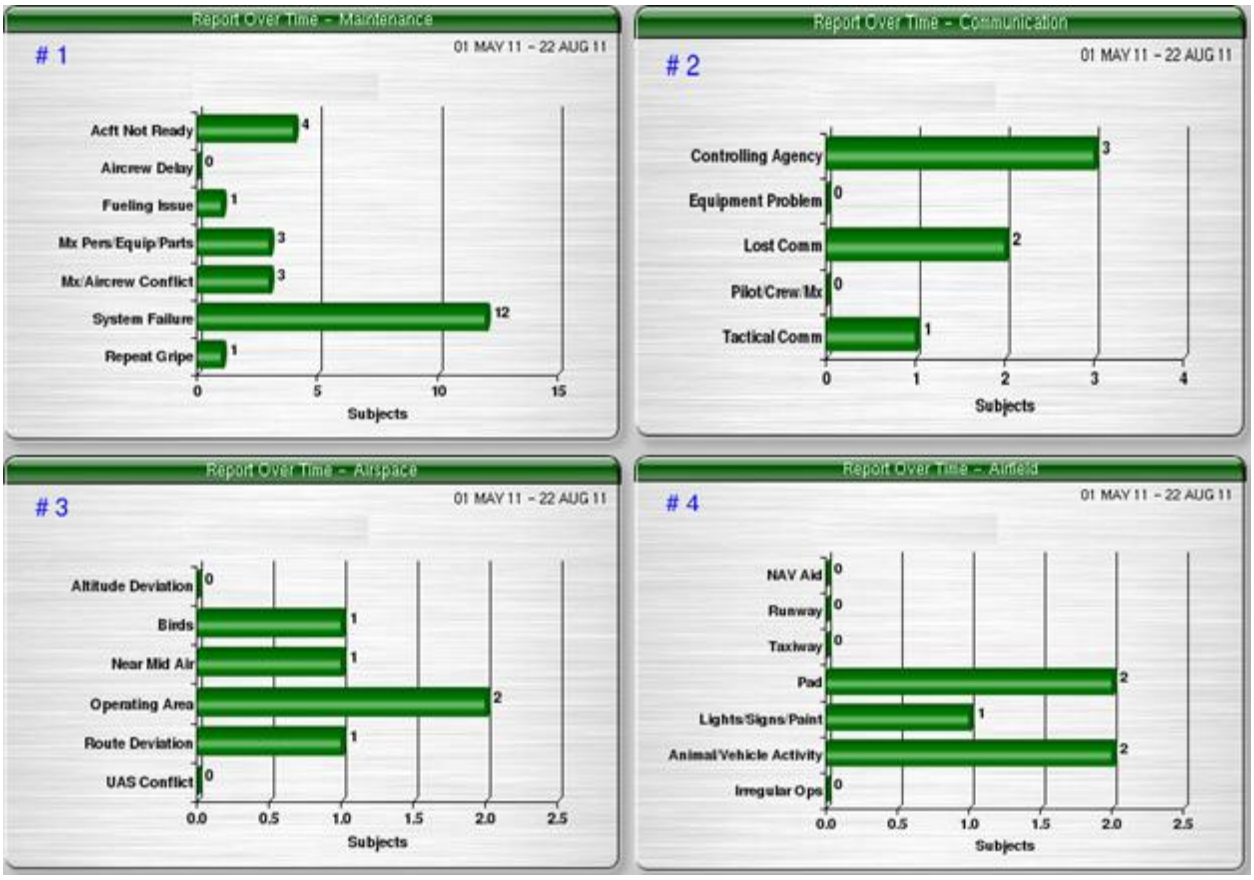

Example of one of the many real-time reports generated by ASAP. This report can be selected by a unit's ASAP manager or Commander to provide the top four most-reported mishap categories. The "high four" report is also a useful tool to determine whether a safety program or mitigation is effective, since a reduction in reports would immediately be reflected in the aggregate category and in sub-categories.

OPERATIONAL TEST OF ASAP

The Department of Defense funded an ASAP beta test and operational test to assist the Army in establishing a viable ASAP software and analysis program. The beta test was conducted with a unit at Fort Rucker in FY11. With improvements from the beta test, the operational test for the Aviation Safety Awareness Program commences 17 JAN 12 through 30 JUN 12. This fully-funded (no cost to the units involved) test will assess if the program is effective at identifying and assisting command teams in mitigating risk in their formations. The operational test is designed for implementation in a Combat Aviation Brigade, a National Guard or Reserve battalion, and a fixed-wing unit. If your unit is interested in participating in this test, contact the Air Task Force at: airtaskforce@conus.army.mil

More information about ASAP, to include a link to the ASAP demonstration web site, can be found at the Air Task Force web page at: https://safety.army.mil/atf

Aviation Trends

Overconfidence/Complacency
- 83% of accidents involved overconfidence
- 13% of accidents involved complacency

Assumption of Low Risk Missions
- 61% of accidents occur during the day
- 30% of accidents happen during training

Aircrew Coordination Failures
- 28% of accidents involved crew coordination failures

Inadequate Mission Planning
- Failure to adequately plan for obstacles
- Power management awareness

Manned Aircraft Accidents

As of 2 October 2011

TF11-06F

Aviation Losses

FY02–Present

As of 27 September 2011

	Hostile/ Non-Hostile
AH-64A/D	11/58 ($1B)
U/MH-60A/L/M	10/39 ($337M)
C/MH-47D/F/G	12/26 ($1B)
OH-58D	15/49 ($400M)

Total 220 Aircraft Removed/Pending Removal from Army Inventory: $3B in Replacement Costs **48/172**

345 Fatalities: 219 non-hostile, 126 hostile

CG11-09

Set Yourself Up for Success

CHIEF WARRANT OFFICER 4 A.J. "BUD" KENNEY
Directorate of Evaluation and Standardization
U.S. Army Aviation Center of Excellence
Fort Rucker, Ala.

Pages 2-40 through 2-42 of the latest edition of the OH-58D Maintenance Test Flight checklist outline the procedure for conducting an autorotation RPM check. This check has changed very little, if at all, since I went to the Maintenance Test Pilot Course (MTPC) in 1998. It consists of conducting a maneuver which places the aircraft in an autorotative state so that a measurement can be taken to determine the aircraft's autorotation RPM. The maintenance test pilot (MTP) performs a simple mathematical calculation, taking into account both the weight of the aircraft and the density altitude. The MTP then adjusts the main rotor pitch-change links to achieve the desired RPM if a correction is required. It's not rocket science.

As stated earlier, this check has not changed since I've been an OH-58D MTP and, as far as I know, it's the same check used since they first started building the OH-58D. However, the method of training this maneuver has changed for students going through the MTPC. DES has some key safety points for every MTP that we work with at Fort Rucker or when we are visiting units in the field. There have been three Class A accidents in recent years related to this check. If you are an OH-58D MTP, please take the following advice to heart.

When discussing this maneuver, we like to tell the Test Pilots to set themselves up for success. What this means is to plan for the worst during the check. Do not assume the engine is going to come back to life at the bottom of the autorotation just like it has hundreds of times before. I will be the first to admit that during my time as a junior MTP, I made that assumption. I can recall making the cross-country flight from Fort Carson, CO, to the National Training Center where we knew we would have to make an autorotation RPM adjustment due to the decrease in altitude. Before arriving at Bicycle Lake, we climbed over the Mojave Desert and rolled the throttle off to take the measurement. Fortunately, the engine always responded and I didn't have to attempt a successful touchdown autorotation to the desert floor.

Other than my own personal lack of experience at that time, the only excuse I can make is I was trained to do the check that way. Up until very recently, the OH-58D MTPC had always trained this maneuver on two grass strips in the south maintenance test flight area at Fort Rucker. This maneuver is now trained in the traffic pattern at Dothan Regional Airport so the student pilot can align the aircraft with an actual runway. Here's your first piece of advice: Conduct this maneuver only where a touchdown can be made to an improved landing area, if necessary.

The second piece of advice goes out to the currently deployed MTPs. This one deals with the weight of the aircraft at the time of the maneuver. Set yourself up for success by reducing the weight of the aircraft as much as possible before you do this check. That means taking the rockets out of the launcher, removing the Hellfire missiles, or pulling that ammo can

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full of .50 cal. Remember also that 300 pounds of fuel weighs the same as 300 pounds of ammo. If you are conducting a general maintenance test flight, try to save this check for last so that you are as light as possible when you do it. To give you some perspective, the “Slick” aircraft used for contact training at Fort Rucker weigh between 4,500 and 4,600 pounds with a full bag of fuel. Touchdown autos are conducted day-in and day-out on these aircraft without incident. The closer you can get to that weight, the better your chances are at surviving an engine failure.

The third and final piece of advice deals with heeding the second warning associated with this check. This requires the MTP to select an entry altitude that allows a power recovery by 500 feet above ground level (AGL). The reason for this warning should be obvious in that it allows the MTP time to plan an autorotation to the ground in the event of an actual engine failure. It could also apply to a mistake if the MTP forgot to roll the throttle back on before increasing collective to establish a climb. The “Throttle Warning” message will display at 400 feet AGL if the throttle is below 92 percent throttle position (TP). However, the MTP’s first warning indication will most likely be the LOW ROTOR audio when attempting to add power to establish the climb prior to 500 feet AGL. Regardless, adhering to the warning will give you the time you need to either fix the mistake or conduct a successful touchdown auto.

In conclusion, applying these three simple steps may someday keep you from damaging an aircraft beyond repair or even save your life. This should be the goal of every pilot. As many of you know, Corpus Christi Army Depot is in the process of building more OH-58D helicopters. Unfortunately, we continue to destroy them faster than they can repopulate the fleet. One last thing, even if you are not an OH-58D MTP, this advice still applies to all aviators conducting any type of power-off maneuver. Stay Safe!

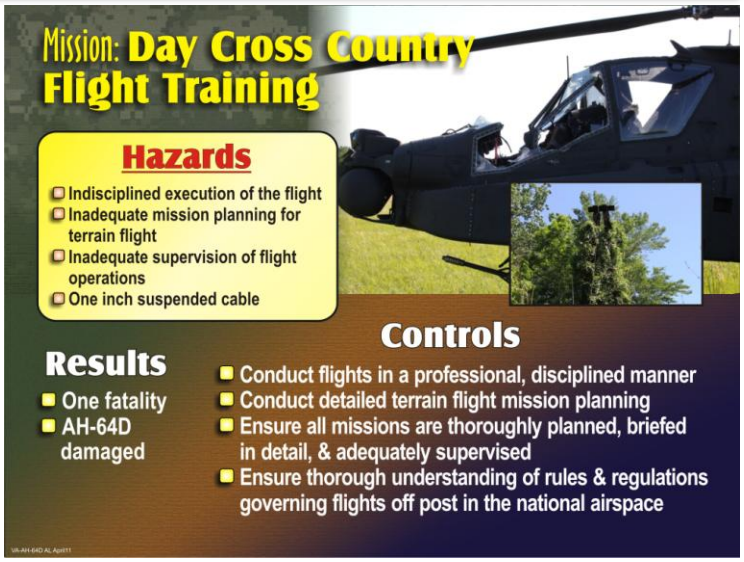
If you have comments, input, or contributions to Flightfax, feel free to contact the Air Task Force, U.S. Army Combat Readiness/Safety Center at com (334) 255-3530; dsn 558

Major Accident Review (MAR)

RMIS Case # 20110428001

U.S. ARMY COMBAT READINESS/SAFETY CENTER

Following a river at 110 knots and 50 feet above the water, the crew of the AH-64D struck a one inch ferry cable spanning the river. The cable cut thru the forward windscreen pinning the CPG to the seat before snapping and falling away. The aircraft landed without further incident.



The flight's training objective was to practice cross county navigation, formation flight, and formation flight lead changes. The accident aircraft was leading the flight of four AH-64Ds as they descended into a wide river oriented generally north-south. During the descent, the AMC instructed the flight to watch for wires. Flight airspeed and altitude was generally 100 KIAS and 50 feet AWL with airspeeds as high as 110 KIAS and altitudes as low a eight feet AWL as recorded by the digital collection system. The flight maintained a true airspeed above 100 knots while navigating up the river. The ferry associated with the cable was moored on the east side of the river obscured by vegetation. Cable stanchions on both sides of the river were overgrown with vegetation and virtually invisible. Riverbank vegetation along a bend in the river upstream of the ferry obscured the cable. Flying at 50 feet above the water and 111 KTAS, the lead aircraft struck the ferry cable slightly left of the center of the river. The cable bisected the front cockpit and broke across the armor panels of the CPG seat. The back seat pilot executed a climbing left turn, announced the wire strike and landed approximately 2 miles to the north of the ferry crossing without further incident. The CPG was fatally injured by the cable.

Findings:

- Failure to detect and avoid a one inch ferry cable strung across a river
- Flight deviated from the planned and briefed route of flight
- Inadequate mission planning, briefing and mission approval
- Inadequate knowledge and violation of local flight rules and restrictions

Recommendations:

- Ensure flight operations comply with flight rules, regulations and common practice regarding terrain flight authorized locations,operating airspeeds and altitudes
- Have a thorough understanding of the mission planning, briefing and approval roles and responsibilities of the initial mission approval authority, mission briefing officer, and final mission approval authority
- Reinforce individual aircrew members knowledge of local flying rules and restrictions

All information contained in this report is for accident prevention use only. Do no disseminate outside DOD without prior approval from the USACRC.
Access the full preliminary report on the CRC RMIS under Accident Overview Preliminary Accident Report
https://rmis.army.mil/rmis/asmis.main1 AKO Password and RMIS Permission required

Major Accident Review (MAR)

RMIS Case # 20110709001

U.S. ARMY COMBAT READINESS/SAFETY CENTER

The crew of the OH-58D conducting terrain flight navigation did not recognize their close proximity to a set of high power lines. The aircraft struck the lines, severing three power lines, rolled onto its left side and descended into trees fatally injuring both crewmembers.

During day terrain flight continuation training, the OH-58D struck a set of high tension power lines. The wire hazard was known and posted on maps produced by the Tactical Operations Officer and utilized by flight crews throughout the unit. The crew's route of flight crossed the wires within 200 meters of the wire strike location on three occasions, at one point paralleling the wires for approximately 600 meters to the north of the wire strike location. After flying southeast, parallel to the wires, the crew turned to the northeast and crossed the wires approximately 100 meters north of the accident location. The crew then made a 180 degree right turn short of the turn point they used on previous passes thru the area. On the final pass down the valley the pilot on the controls flew into the set of high power lines perpendicular to the flight path. The support stanchions were masked by vegetation, the pilot on the controls did not know his exact location in proximity to the wires, and the IP in the left seat was apparently focused inside the cockpit inputting a route change to the navigation system. Neither the PI or the IP addressed or identified the wire obstacle in their flight path. The aircraft struck the wires in a slight left bank immediately rolling hard left descending into the trees and coming to rest on its left side fatally injuring the crew.

Findings:

- Pilot on the controls did not detect the obstacles in his flight path
- Instructor Pilot did not assist in obstacle detection and avoidance

Recommendations:

- Standardize NOE routes establishing barriers and checkpoints for routine training.
- In routine training areas utilize physical hazard markings (Reflective Balls on the wires) where able.
- Research the feasibility of incorporating vertical hazards on the Multi-Function Display.

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Access the full preliminary report on the CRC RMIS under Accident Overview Preliminary Accident Report
https://rmis.army.mil/rmis/asmis.main1 AKO Password and RMIS Permission required

Gerald M. Bruggink gave this speech during the July 1, 1999, graduation ceremony for Dutch pilots at the U.S. Army Aviation Center, Fort Rucker, Alabama. Mr. Bruggink, born and raised in the Netherlands, first began his military flight training in 1939. He fought in World War II as a combat fighter pilot and became a POW of the Japanese in 1942. After the war, he returned to flying units on Java; but in 1950, he returned to the Netherlands to begin instructing. He emigrated to the U.S. in 1955, where, soon after, he became an instructor pilot in Air Force and Army schools. In the early 1960s, Mr. Bruggink started his career in safety — a career that took him through the U.S. Army Safety Center and National Transportation Safety Board (NTSB). He retired as the Deputy Director of the Bureau of Accident Investigation at the NTSB.

You Should Have Heard What the Dutch Were Told…

Reflections on the role of judgment

"Being asked to address a group of graduating Dutch pilots here at Fort Rucker is a distinct honor for an old-timer, who would like to use this opportunity to offer you more than congratulations and good wishes. However, all the smart things that can be said on such a momentous occasion have already been beaten to death many times in the past. Nevertheless, I am going to dig up an ancient piece of wisdom as it appeared in a prepared text presented by Charles A. Lindbergh at a safety conference in New York in 1928: 'A pilot's real training begins in flying, as in other professions, after he has left school.'

That was 71 years ago, and you have no reason to question the validity of that statement. As a graduate with brand new wings, you don't expect to get orders tomorrow assigning you as pilot in command of Queen Beatrix's helicopter. What makes the difference in selecting a pilot to a particular task? The standard answer is your experience level. But, is that the complete answer? Did Lindbergh have something else in mind when he used the term 'real training?'

As one of this country's most gifted pilots, he was well aware that the most critical part of a pilot's 'real training' is the development of his judgment as he gathers experience. While there is a limit to the skills you can learn in handling your aircraft, the development of your judgment in using these skills is a never-ending process. Thus, we should never look at a pilot's total flying experience in isolation. The most telling, as well as the most elusive part of a pilot's makeup, is the maturity level of his judgment. Where does that leave you now that you are stepping out of the protective school environment with limited experience and judgment? This ceremony today provides the answer. You got your wings because you have sufficient maturity of judgment to safely gain the experience that turns you into a mission-ready pilot.

As I have no business venturing onto terrain covered by the land mines of behavioral science, I won't mess with the intricacies of pilot judgment. Instead, I will remind you of your familiarity with the development of judgment and its effects on risk management in a more mundane form of transportation: driving a car. The value of this

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comparison is not reduced by the rumor I heard that it is easier to get a private pilot's license in this country, than a driver's license in Holland!

When you passed your driver's test, you convinced the examiner that you had adequate skills, knowledge and judgment to gain practical experience on your own without endangering yourself and others. As your experience grew, you found out that risk management on crowded highways requires more than driving skills and obeying traffic rules. You learned to make allowances for the unpredictable behavior of other road users without using foul language or insulting gestures. You discovered that your judgment of traffic situations and your subsequent decisions were affected by your mood, the influence of distractions, time pressures, fatigue and a host of other factors. You were also confronted with the hazards of road conditions, inclement weather and design shortcomings in your car. Finally, you probably learned the hard way that constant vigilance sets the stage for the exercise of sound judgment.

You will go through a similar, but more complex and unforgiving maturing process in aviation. As a pilot who began his military flight training 60 years ago in what now seems the Stone Age of Aviation, I could entertain you for hours with the things I got away with and those that got me into trouble. However, this is not the time or the place. Instead, I have capsulated what I learned and observed over the years in a number of thoughts that may benefit the development of your aviation judgment:

1. An unpredictable factor in any person's life is the blind role of chance, be it hostile or benevolent. Don't look at this as a form of fatalism, but as an incentive to give fate a helping hand in your favor.

2. For many years, I have tried to spread the word that one of the greatest hazards in aviation is uncritical acceptance of easily verifiable assumptions. The collision in Tenerife between two B-747s that killed 583 persons proves the point. This was the mother of all human factor accidents.

3. The development of your judgment is not only governed by your own experience, but also by the experience of others, negative as well as positive. Those who learn the most at Happy Hour are the ones who keep their mouth shut and their ears wide open. In addition, read every mishap report you can lay your hands on with this question in mind: At which point would I have done things differently?

4. Many accident investigation authorities fail to strengthen the protective role of the human element by not answering this question: What might have reduced the likelihood of the accident or the severity of its consequences?

5. Persons who survive adolescence and ownership of their first car have been exposed to the basic human factor aspects and the elements of chance in accident avoidance and causation. What they actually learned in this process is largely a matter of their perceptiveness, innate intelligence and sense of care.

6. [What is] the most simple and practical interpretation of human factors in our daily activities? Make it easier for yourself and others to stay out of harm's way.

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Blast From The Past

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7. Every form of flying has an ultimate objective, which is not safety per se. Commercial aviation has to keep its stockholders happy; military aviation is perfecting its capabilities in pursuit of the nation's objectives; and the general aviation pilot who flies just for the fun of it may have safety on his mind but not as his ultimate objective.

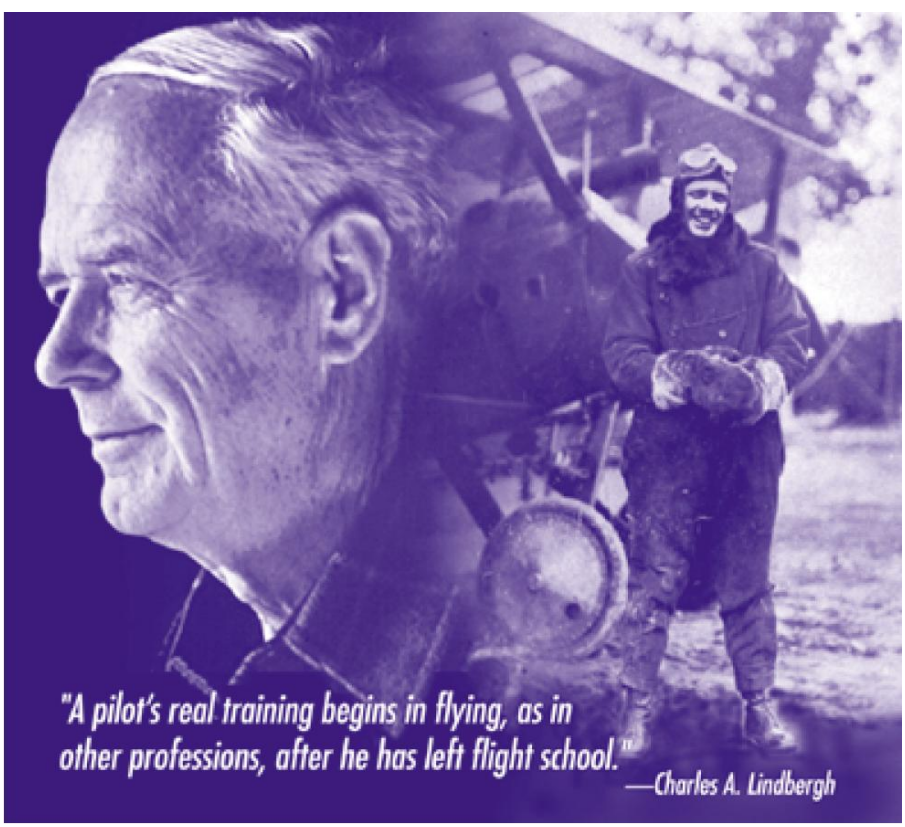
8. Even the crew of Air Force One cannot assure the President that they will complete their next trip without a mishap. They can only bend the odds in their own favor and hope that everyone involved in the condition of their aircraft and the progress of their flight does the same thing.

9. Whether you realize it or not, having confidence in your aircraft implies you have confidence in its maintenance personnel. You promote the 'Right Stuff' in those personnel by taking an active interest in what it takes to keep your aircraft serviceable.

10. Considering the uncertainties of the future, you may want to keep this thought in the back of your mind: Contrary to conventional wisdom, the principal driving force for an individual in a combat situation is not so much flag and country and similar lofty notions, but the trust and the expectations of his teammates and leader.

These thoughts may be helpful as your judgment matures. In the meantime, I have been hovering too long and I come back to earth with this wish: May sound judgment always remain your trustworthy companion in the air, on the road and at home."

-- Gerald Bruggink from the November 1999 Flightfax



Selected Aircraft Mishap Briefs

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

Utility helicopters

UH-60

-L series. The aircraft main rotor blades made contact with the tail rotor driveshaft during a dust landing. (Class C)

Attack helicopters

AH-64D

- The aircraft contacted the ground during a single-engine demonstration, resulting in damage to the turret assembly and main landing gear. (Class C)

-The crew experienced a No. 1 engine NP exceedance during an evaluation flight. The IP assumed the controls and performed a single engine emergency landing. (Class C)

Observation helicopters

OH-58C

-The aircraft engine failed during flight training while at 200 feet AGL and 70 KIAS. The aircraft touched down hard in a field following an autorotation, resulting in a severed tailboom and damage to the landing gear. (Class B)

Cargo helicopters

CH-47

-D series. The aircraft fuselage contacted an upgrade during NVG landing. (Class C)

Unmanned Aircraft Systems

RQ-7B

- The UA failed to reach optimal airspeed for takeoff and crashed. (Class B)

- The UA experienced an RPM spike upon launch and did not climb above 100 feet AGL. The crew was unable to recover for landing and the system crashed with damage. (Class C)

- The controllers experienced rotor RPM spikes and engine failure during operation. The recovery chute was launched and the UA was recovered with damage. (Class C)

- The UA experienced ignition and generator failure during flight. The recovery chute was launched and the UA was recovered with damage. (Class C)

MQ-1C

- The UA experienced operating temperature spikes and controllers attempted to return it to station when it failed to maintain altitude and descended to ground impact. (Class A)

U.S. ARMY COMBAT READINESS/SAFETY CENTER

Report of Army aircraft mishaps published by the U.S. Army Combat Readiness/Safety Center, Fort Rucker, AL 36322-5363. DSN 558-2660. Information is for accident prevention purposes only. Specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition.

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Online Report of Army Aircraft Mishaps

"Aviation leaders must look to reduce accidents involving human error, which continues to account for greater than 80 percent of all A-C accidents."

General Raymond T. Odierno and Honorable John M. McHugh

Last month we provided the preliminary assessment of FY11 aviation accident trends; we highlighted that within the aviation realm, it is common to hear the statistic that 80% of accidents are due to human error. Once again, in reviewing the FY11 aviation mishaps, human error was the unsurprising trend. This month, we will continue to highlight human factors behind these human errors and ideas on how to get at this problem.

The Army Safety and Occupational Health Objectives for Fiscal Year 2012, signed by General Odierno and Secretary John McHugh, included Aviation Class A-C Accident Reduction as Objective Two:

"Objective Two: Aviation Class A-C Accident Reduction. Army aviation accident rates are currently trending toward all-time lows. However, to sustain this downward trend, aviation leaders must look to reduce accidents involving human error, which continues to account for greater than 80 percent of all A-C accidents. Aviation leaders must adhere to the three-step mission approval process outlined in AR 95-1 (Flight Regulations). Initial mission approval, mission planning and briefing, and final mission approval are meant to lower or mitigate risk as the approval process moves from one step to the next. Aviation commanders must enforce the three-step process and deter any temptations to skip steps or reduce the inherent rigor involved."

You will see human error in play again in our accident excerpts; the mishap review this month of the August mishap where an Air Force C-130 and an Army RQ-7B had a mid-air collision indicates errors in ATC on the operation of the tower were contributing factors. DES provides an article "The Right NCO for the Job" can make a difference in a unit by reducing human error through enforcing standards across all ranks. We also provide insights from the CRC's Human Factors Directorate on complacency in aviation maintenance mirroring that of aircrews and an article about emotions in decision making that may be insightful for Aviation Leaders in considering ways of mitigating human errors.

One way to mitigate human factors, as thoroughly outlined in the June 2011 Flightfax, is through proper application of the three step mission approval process. As a reminder that assumption of a "no risk" mission can lead to an accident, this month's blast from the past from August 2005 of "there are no new accidents" outlines the value of thorough mission briefing process (see "Two of the best aviators in the unit" section).

Until next month, fly safe!

LTC Christopher Prather USACR/SC Aviation Director email: christopher.prather@us.army.mil

Human Error: Complacency

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

I was recently invited to sit in on a two day human factors class involving maintenance errors. The class was being given at Cairns Army Airfield for some of the mechanics who keep everything flying. Despite sticking out like a sore thumb in my neon blazer, the group welcomed me. I think they became more comfortable with my presence after they found out I had once (a long, long time ago) been an Army mechanic (generators and track and wheeled vehicles) in an engineer outfit. One of the things that really stuck out in my mind during this training, was that the people who fix the aircraft are making the same types of human errors as those who fly them.

Human error in aviation accounts for at least 70% to 80% of all accidents. Human factors errors, those that occur because of our design (e.g., too short, too tall), function (hearing or vision issues, fatigue) or behavior/mood (e.g., impatient, angry, or depressed), are the most frequently cited in accidents. Although they are often lumped into the categories of “pilot error” or “maintenance error”, there are always underlying issues such as complacency, poor situational awareness, inadequate training, and root causes which produce these issues. While it is a characteristic of human beings to make mistakes, when they lead to accidents it is important to understand the nature of the mistakes in order to avoid repeating them.

During FY 2011, the errors most often made by our aviators involved overconfidence/complacency, aircrew coordination failures, assumption of low risk missions, and inadequate mission planning. While the mechanics may call them something different, the same types of errors were most prevalent in their work. The words complacency, communication, expectancy and norms when spoken by an aviation mechanic pretty much equate to complacency/overconfidence, aircrew coordination failures, assumption of low risk missions, and inadequate mission planning in aviator speak.

Despite all that is known about human error, the “big questions” are still valid: Why do we see these kinds of errors and what can we do to prevent them? Take complacency/overconfidence for example. Most definitions of these words involve two major components: 1) self-satisfaction, and 2) a decrease in the awareness or regard of dangers. While fixing or flying an aircraft is not exactly an easy thing, by the time you have done the same repair job or flown the same mission for the 50th time you have become confident in your ability. You know you can do the job and you feel sure that you know all the hazards associated with the procedures or mission. So what happens next? You begin to accept lower standards of performance and start pencil whipping those check lists because you know you’ll remember to actually check everything; you’ve never missed anything before. However, when you mentally hear yourself say “I’ll grab the safety glass next time”, when you no longer feel challenged and your attention is drifting, **you have become complacent**.

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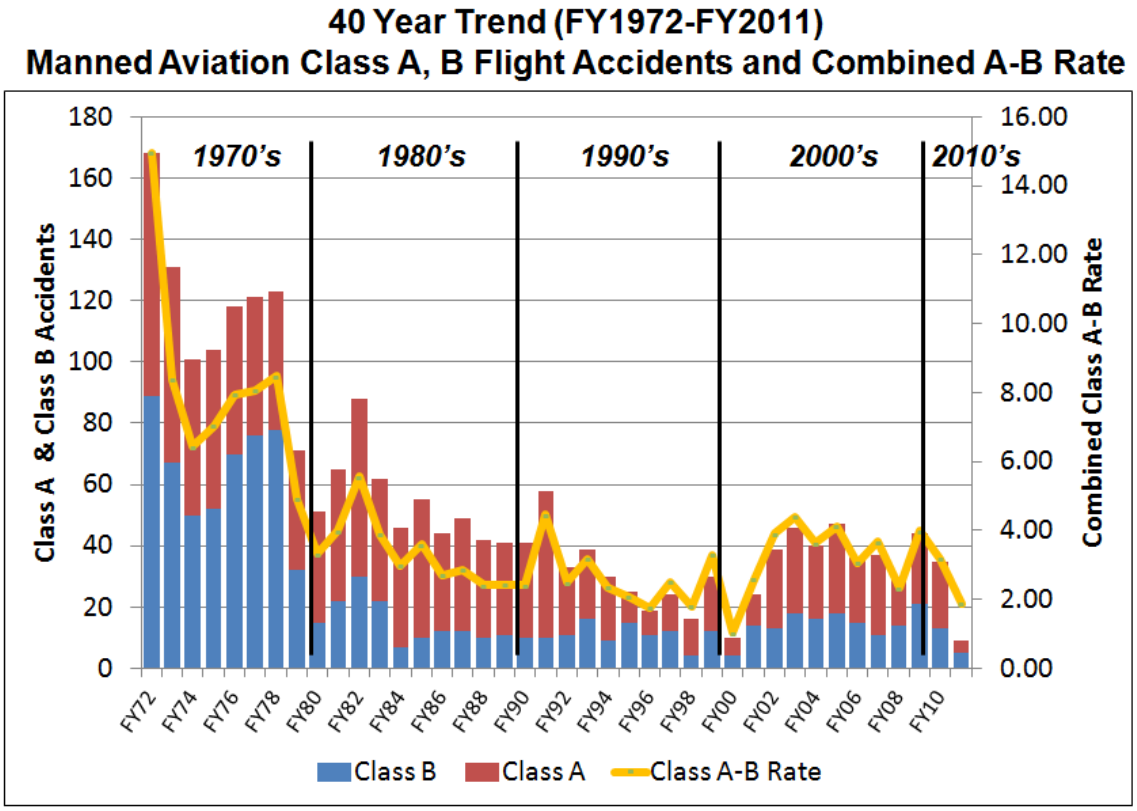
What can you do to mitigate complacency? First, be aware that it happens to everyone working in every field. Watch out for the symptoms in yourself and others around you. Don't take short cuts. Do each task in the correct order. Mark one line at a time on those checklists and only after you have really completed the check. It is far too easy to get distracted and think you have accomplished something when you really didn't. The mind is funny that way. It will fill in the gaps in our memory trying to create a complete picture based on our experience and not necessarily our most recent experience. Recalculate your numbers if you find yourself mentally drifting during the process. Take a short "brain break" if you are having trouble keeping your mind on task. Never take anything for granted and make sure that you always check things for yourself. Then let someone else double check you because two sets of eyes and two brains are better than one.

I have also been thinking about other errors that creep into the hanger and the cockpit, specifically crew coordination and communication issues, assumption of low risk missions and expectancy in maintenance processes as well as the similar underpinning seen with inadequate mission planning and acceptance of norms. In a future article, I hope to provide a bit of insight and discuss some potential mitigation strategies to help keep these types of human factors from becoming human errors.

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



Rate Per 100,000 Hours
Data as of 3 March 2011

Class A – C Mishap Tables

	Manned Aircraft Class A – C Mishap Table									
		FY 11					FY 12			
	Month	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	3	1
	November	0	2	14						
	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	2	1	3	1

As of 1 Nov 11

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		1	2	3
RQ-11					Raven				
RQ-16A			3	3	T- Hawk				
MQ-18A									
SUAV			1	1	SUAV				
Aerostat	6	9		15	Aerostat				
Total Year	12	20	36	68	Year to Date	1	1	2	4

As of 1 Nov 11

Decisions, Decisions

By Peter Zimmerman and Jennifer S. Lerner

Do emotions influence your decision-making? Should they? Do they mislead or convey important information and aid your decision-making? The answer to all these questions is yes.

In January 2003, the space shuttle Columbia lifted off from Cape Kennedy with seven astronauts on board. Eighty-one seconds into flight, a piece of foam insulation fell away from the external tank that fueled the main engine. Cameras recorded the foam striking Columbia on its left wing. Foam had struck the spacecraft on prior flights but never caused much damage. Some engineers were alarmed by this latest incident, but senior NASA managers were reluctant to check for damage. To do so, they would have had to track down satellite imagery from other agencies or improvise a space walk. Neither approach was attractive. More troubling, officials seemed unwilling or unable to face the possibility of serious damage. "I don't think there is much we can do about it," said one senior manager. The damage wasn't detected until Columbia re-entered Earth's atmosphere 15 days later. As sensors sent erratic, confusing data, the shuttle lost control, broke apart and plunged to Earth, tragically ending the lives of its crew. The investigations that followed the disaster cited many failures, from technical problems to flaws in NASA's organization and culture. Investigators identified numerous opportunities in which management decisions could have led to an assessment of the damage. Decisions based on emotion and assumptions sealed Columbia's fate.

Longtime decision-making models assume people base decisions on evidence and rational analysis of alternatives, including attendant risks and uncertainties. But scientific discoveries about the brain undercut that basic assumption. Research shows the model of rational, self-aware decision-making rarely plays out in the real world. To begin with, most human cognition is unconscious. People absorb millions of bits of data per second through the senses and then compress, screen and process this data automatically through shortcuts in the brain. Neuroscience breakthroughs show the brain's emotional pathways engage more rapidly than cognitive pathways. As a consequence, the emotional centers of the brain influence what people see hear and feel in response to an event or task well before they experience a conscious thought. What emerges in conscious awareness are snap judgments, instant recognition, intuitions and feelings of certainty that can't be fully explained. Though wondrously efficient, these processes generate biases that can result in errors.

Two types of emotion influence decision-making: integral emotions arise from the situation at hand while incidental emotions carry over from past events. Integral emotions are legitimate decision inputs. Your brain is sending you an alert. In the Columbia case, the apprehension, alarm, even fear many NASA engineers felt were integral to judgments about safety. No one knew where foam had struck Columbia or with what

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effect, and the engineers wanted to find out. Incidental emotions can be misleading. Top NASA managers harked back to past incidents of foam strikes that caused little damage. They drew false comfort from the past, diverting their attention from situation at hand and the risk to Columbia and its crew. Failure to recognize and act on integral emotions helped seal Columbia's fate.

Here are some ways managers can recognize and deal with their emotions when it's decision time.

Diagnose your feelings. A common mistake among experienced executives is to assume the types of decision-making errors seen in the Columbia case don't affect them. Yet countless studies conducted in the Harvard Decision Science Laboratory reveal incidental emotions affect everyone, whether or not they're aware of them. Any situation can trigger cognitive and emotional biases that spill over into current experience. Probe whether your emotions are integral or incidental and whether they are appropriate.

Consider other perspectives. Consultants, advisers and confidantes can help you identify how your personal history and the situations you encounter are likely to bias your thinking. Education and training also can help. When asked what prepared him for leadership in Iraq as head of U.S. Central Command, Army Gen. David Petraeus cited the diverse perspectives he encountered in civilian graduate school. Looking at problems through the eyes of others can improve your judgment.

Treat each situation as unique. Our minds are hard-wired to assume the past reliably predicts the future. In fact, the neural pathways associated with prediction mirror those associated with memory. This explains why NASA managers felt comfortable with their decision based on incidents that turned out fine. If they instead had categorized earlier foam losses as near misses worthy of investigation, rather than as successes, catastrophe might have been averted.

Emotions can lead you astray, but they are time-tested evolutionary adaptations to universal life challenges. Rather than writing off your fears, investigate them fully and carefully weigh their role in your decisions.

Peter Zimmerman is a faculty member and chairman of the Senior Executive Fellows program at Harvard's John F. Kennedy School of Government. Jennifer Lerner is a professor of public policy at the Kennedy School and co-director of the Harvard Decision Science Laboratory. Reprinted with permission from the author.

Effective 28 OCT 2011, the U.S. Army Combat Readiness/Safety Center, Fort Rucker, Ala., instituted changes to selected organizational components to better relay their roles and status.

The previous Driving, Air, Ground, Human Factors and Civilian Task Forces have been updated to:

* Aviation Directorate
* Ground Directorate
* Driving Directorate
* Human Factors Directorate
* Civilian Injury Prevention Directorate

Task forces are organized to exist for a defined period of time. We felt it necessary to make these changes as directorates have a continuing mission.

Preliminary Loss Reports (PLR)

ARMY PRELIMINARY LOSS REPORT 12004

FLIGHT-RELATED MISHAP CLAIMS ONE SOLDIER'S LIFE

An 82nd Airborne Division, USFOR-A Soldier was killed in a flight-related mishap that occurred on 13 October 2011, at approximately 1000 local in Afghanistan. The 39-year-old SSG, a flight medic, was struck by the main rotor system of an HH-60M helicopter as he exited for a patient pickup. The aircraft had executed a landing on a slope. The SSG was evacuated to a medical center where he was pronounced deceased. Local News

This is the 1st Class A **Flight-Related** fatality in FY12 compared to **0** for the same time frame in FY11. This PLR does not identify specific root causes of this incident as the investigation is ongoing. Further details will be available at a later date on RMIS (RMIS Login Required).

Preliminary Loss Reports (PLR) are ***For Official Use Only*** and are to provide leaders with awareness of Army loss as we experience it and to point out potential trends that affect our combat readiness.

Our Army depends on you to use these PLRs to help Soldiers understand the impact of decisions made on and off duty.

The **U.S. ARMY COMBAT READINESS/SAFETY CENTER** is interested in your comments; please click here to provide feedback on the Preliminary Loss Reports (PLR). FAQs and additional resources can be found on the USACR/Safety Center website at https://safety.army.mil

What were they thinking?

Recently, a soldier was involved in a pedestrian vs. train accident. The 23-year-old SPC was struck from behind by an approaching train while walking on the tracks. The Soldier was using a digital media player with earphones at the time he was struck. The Soldier was pronounced deceased at the scene.

In evaluating this incident, and armed with Dr. LeDuc's definition of complacency cited in her article (p. 2 and 3 of this issue), how would you raise the awareness levels of individuals when it comes to combating human factor errors and the root causes which produce these issues?

Right NCO for the Job?

SERGEANT FIRST CLASS JAE S. WAHN

DES Standardization Instructor, Assault Division
U.S. Army Aviation Center of Excellence
Fort Rucker, Ala.

This month's DES article focuses on the standardization instructor (SI) within the unit annual training plan (ATP). DES has observed a discernable difference in the quality and success of the units who embrace and adequately utilize this key leader and mentor within the aviation formation. Certainly, from a safety perspective alone, the impact of standardized practices and oversight prove vital to overall mission success.

Over the last 10 years, deployments and redeployments have placed special emphasis on training crewmembers. The propensity is to train, deploy, redeploy and then train the new crewmembers. What does this mean for the new age SI? No more riding the coat tails of standardization pilots (SP). The SI must evolve to stand out and lead the way with training and enforcing the standards across the ranks. Battalion and brigade staff must realize that having a good NCO as your senior SI can reduce accidents, increase crew coordination and improve unit readiness.

The "school-trained" SI has proven to have a wealth of experience and knowledge and we have fought to get where we are today. Ten years ago, the concept of the "*backseater*" was simply "launch-recover-launch." The non-rated crewmember (NCM) was looked at more as a maintainer with little crew interaction; thus the notion that they only participated in launching the aircraft, recovering it, and prepping for the next launch. We've evolved well beyond that now and recognize the value of the NCM as part of the integrated crew for airspace surveillance, crew coordination, among other important functions. The solution however, takes leadership buy-in.

The SP is doing the same with our pilots, so to have an SI as the right hand can be the difference in having a combat-ready unit for boots on ground date. Units that are utilizing these positions are clearly distinguishable from those that are not. DES has continuously witnessed stellar crewmember training plans, gunnery programs, MEDEVAC training programs, and an overall higher academic knowledge in comparison to units without key NCM positions.

The SI provides a standardized interpretation of systems, tactics, operations and each crewmember task in the aircrew training manual. The NCM is not only the overall key trainer for crewmembers, but maintainers as well. If the instructor is able to transmit the knowledge to lower levels, the unit can effectively improve troubleshooting procedures and increase the unit's operational readiness to higher levels. This concept revolves around having the right NCO in the right position to produce, document and track the training programs, and standardize the knowledgebase of the aviation

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community. Some units have incorporated this concept not only in the assault and lift community, but, also in the attack community with positive results.

As DES routinely observes during "*assessment" visits*, the utilization of these NCOs within ATP staff and flight crew will continue to make a tremendous and overall positive difference. We see the SI position manned by the right individual as an essential element to the overall success of the unit ATP. The bottom line, standardized training enforces crew readiness, positive crew coordination elements and reaffirms the risk mitigation process. Battalion and brigade leadership can find that having senior standardization NCOs on their staff can be beneficial to all aspects of operations, as well as training. The modern battlefield is continuously changing, instructing new tactics and techniques will be imperative to mission success, and these NCOs can provide the oversight on critical unit training events, which will ensure commanders are getting the best product available for combat operations abroad.

Have you used the Commander's Aviation Risk Tool (CART) yet?

Developed to provide information to air mission planners for use in the hazard identification step of the Composite Risk Management (CRM) process, CART provides units with a standardized, yet fully customizable customizable Risk Assessment Worksheet (RAW) that does all the calculations for you. CART is located in the Aviation Mission Planning System (AMPS) and can also be installed with the Centralized Aviation Flight Records System (CAFRS). Safety and standardization officers can create multiple CART templates for use in different operating environments as well as share templates with other units. Either start from scratch and tailor the categories and values to meet your unit's needs or use proven templates from others. Don't waste time checking your logbook; CART automatically pulls in your CAFRS flight data. Commanders, this is another location to view your Soldier's flight experience. If you have some extra time, read over the provided aviation accident cases to gleam insights on what went wrong in other related flights.

Check out CART today and tell us what you think!

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

U.S. ARMY COMBAT READINESS/SAFETY CENTER

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There are NO New Accidents (Part I)

Reprinted from August 2005 Flightfax

Author's note: I wrote this article after 4 years as a board president for the U.S. Army Combat Readiness/Safety Center. During this time, I have conducted 17 investigations and participated in the staffing and report preparation of over 200 more. There is a saying among the investigators that "There are no new accidents, just repetitions of the old ones." I hope by your reviewing these accidents, I can help you avoid the next repetition. This is the first of two articles that discuss aviation accidents that I have personally investigated. Part II will appear in next month's Flightfax.

Rules are made to be followed

On the first accident I investigated, the pilot in command was a highly experienced Department of the Army Civilian (DAC) aviator who made a mistake. How highly experienced? How about 15,000 rotary-wing flight hours? That's right, 15,000 rotary-wing hours, and in broad daylight he hit a set of wires that had been in the local flying area for over 15 years. Wires he knew were there. Wires he had crossed thousands of times. Wires that were marked on his map.

How did he let it happen? First, he was navigating from memory. When you fly in the same area for 20 years, you figure you can do that. When the student pilot asked where they were, he came inside the cockpit, found a point on the map and showed it to him. This brought both sets of eyes inside the cockpit at a critical point when a set of high-tension wires appeared from behind the trees. By the time he realized they were there, it was too late. He took the controls and tried to fly under the wires but was unable to do so. Fortunately, his 15,000 hours of experience enabled him to execute a controlled crash that caused no significant injuries. However, the aircraft was destroyed.

There were standards in place to prevent this accident. The brigade SOP required no less than 50 feet above the highest obstacle while in terrain flight. It also forbade dipping into open areas surrounded by obstacles. The student pilot on the controls not only was flying below 50 feet, but he also dipped into an open field that had the wires on the far end. Had the crew been operating IAW the standard, there would not have been an accident.

Two of the best aviators in the unit

A highly experienced crew consisting of an instructor pilot (IP) and a maintenance test pilot (MTP) were scheduled to conduct an annual proficiency flight. Between the two crewmembers were over 5,000 hours of flight experience. They were two of the three most experienced aviators in the company. The chain of command considered it a near "no risk" mission and crew. These two guys never had any problems.

The crew planned the flight, which included night vision systems, instruments,

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formation, traffic pattern work, and mountain flying. They prepared a risk assessment worksheet (RAW) and were briefed by the company commander. After preflighting the aircraft and ensuring they had plenty of fuel, they took off and flew straight into the mountains to do the mountain portion of the checkride first. They selected a relatively small landing zone (LZ) at 10,500 feet and attempted an approach to a landing. After passing below the highest obstacle, the MTP in the front seat of the AH-64A elected not to land and made an attempt to climb out of the LZ. As the aircraft began to climb, the rotor revolutions per minute dropped and the crew was unable to regain it. They had run out of power. The aircraft descended into 50- to 60-foot trees, rolled, and hit on its right side, destroyed. The MTP sustained a head injury and the IP had cuts and bruises.

The performance planning done before the mission indicated there was sufficient power to execute the maneuver. So what happened? The board found that the power margin available was less than 2 percent at the time of the accident. Two percent! Why would two aviators with the experience mentioned above put themselves in a position where a wind shift on final could cause serious problems? Why did the chain of command allow them to go into the mountains with full fuel tanks? The answer to the first question is overconfidence in their abilities, one of the most common causes of accidents. The answer to the second question is at the heart of this lesson learned. The company commander who briefed them did not know they intended to go into the mountains first. He did not know they were going to the small LZ they selected. The mission brief indicated a training area and not the specific LZ. He did not know that the power margin would be less than 5 percent. The RAW indicated less than a 10 percent power margin but not the 2 percent planned. What he did know was that two of his best aviators were going out to do a checkride and they didn't need him questioning them on the mission planning. It is there that he made a mistake. He needed to ask the questions. CAPTAINS, TAKE NOTE: JUST BECAUSE YOU DON'T HAVE SENIOR WINGS DOESN'T MEAN YOU CAN'T ASK QUESTIONS. If someone had just asked questions, the crew would have realized they needed to do some traffic pattern work to burn some fuel before going to the mountains.

Perishable skills are indeed perishable

IPs always talk about perishable skills. The rest of us often roll our eyes and agree to keep from arguing. I am now a believer. Here's why. An 8,000-hour IP was conducting UH-60 night vision goggle (NVG) environmental qualifications during reception, staging, onward movement, and integration at the National Training Center (NTC). He had three aviators, two crew chiefs (CEs), and a standardization instructor (SI) in the aircraft on a moonless night with gusty winds from the west. The mission was to "hot seat" the three aviators in the right seat and for the SI to work with the CEs. The first portion of the flight went without incident, and the second PI to be trained moved into the right seat. He had flown for 30 to 45 minutes when the IP took the controls and announced he was going to demonstrate a crosswind landing and

Continued on next page

takeoff to the south. He successfully completed the landing and conducted a before-takeoff check. He applied power to execute the takeoff and began a climb. He never cleared the dust cloud and flew into the ground. The aircraft tumbled and was destroyed. The IP and one of the CEs suffered serious injuries.

The board determined that several factors contributed to the accident. There was a false horizon to the south caused by a ridgeline between the aircraft and the garrison area. It ran down from right to left. The winds were variable between 270 and 330 degrees at 20 to 25 knots. The board found that the IP on the controls began an unintentional left turn immediately after takeoff. This was probably influenced by the false horizon. The left turn and variable winds placed the aircraft in a tailwind condition that kept the IP from being able to clear the dust created by the downwash. The dust cloud was blown along with the aircraft. Lastly, the power application that had been sufficient all night when taking off into a headwind was not sufficient to maintain a climb in the tailwind condition.

The most significant finding of the board was that while the IP was current in NVG flight, he had flown fewer than 10 hours of NVGs in the previous 8 months. He had also missed a pre-deployment training exercise. The board found that he was current but not proficient in NVG flight. Combining this with the arduous conditions of the NTC led to disaster. His “perishable skills” had not been exercised sufficiently at home station to ensure his success at the NTC. There was another significant problem in this accident that leads to the next lesson learned.

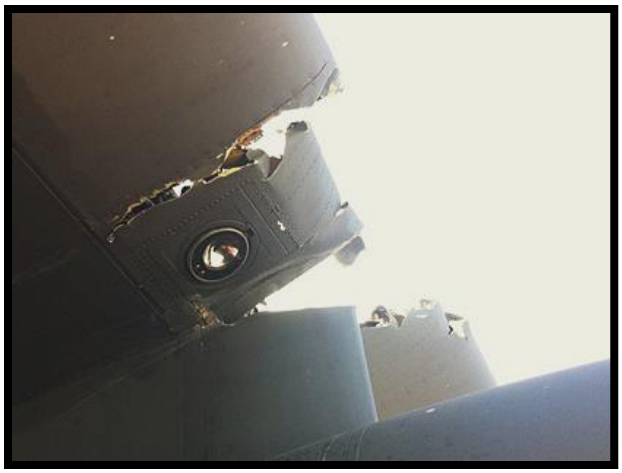
Crew coordination saves aircraft and lives

As the IP executed the takeoff described in the paragraph above, there was no help from anyone else in the aircraft. The PI and both CEs realized that the aircraft was in an unannounced left turn. They all knew they were in a crosswind condition, but no one told the IP he was turning. The board wondered why. The explanation from each of them was that they were sure the IP knew what he was doing. All of them had flown together many times before and all three trusted the IP without question. This phenomenon is often referred to as excessive professional courtesy. It occurs when a less experienced crewmember fails to question a more experienced crewmember even when he knows something is wrong. This happens often. (See Flightfax, February 2003.)

Another example occurred when an MH-6J IP flew to an elevated platform with obstacles nearby to insert troops. The PI later stated that he knew they were lower and closer to the obstacle than in previous iterations, but he didn’t say anything because he was sure the IP knew what he was doing. The rotor system struck one of the obstacles, and the aircraft crashed and was not repairable. The PI suffered serious injuries but has fully recovered. The lesson to be learned here is WHEN YOU THINK SOMETHING IS WRONG, SAY SO. There’s a reason two to six people in an aircraft are called a crew. Without help, everyone makes individual mistakes. It’s our crewmates who must help us avoid them.

--LTC W. Rae McInnis, US Army Retired, G3 Director, U.S. Army Combat Readiness/Safety Center

Mishap Review: C-130/RQ-7 Mid-air collision



Synopsis

While simultaneously approaching a FOB landing field, an Air Force C-130 and an Army RQ-7B had a mid-air collision resulting in wing and prop damage to the fixed wing aircraft and destruction of the Shadow UA.

History of flight

The RQ-7 had just completed a 5 hour ISR mission and was returning to land from the west to the airfield; the C-130 was in the middle of a 6 leg mission delivering cargo to the same airfield approaching from the east. While both aircraft were turning final (approved by ATC) the C-130 impacted the RQ-7 at the left wing leading edge destroying the RQ-7 and damaging the C-130 wing and prop. The C-130 crew landed safely with one engine shutdown.

Operation and Maintenance Procedures

All crew members were current and qualified in their respective aircraft and missions. Investigators found operations and maintenance procedures not to be contributory to this accident.

Commentary

It was determined that errors in ATC and the operation of the tower were contributing factors to this accident. The contract tower controller failed to recognize a pending conflict and approved the C-130 and the RQ-7 to proceed into the same airspace.

Note: Airfield management and operations tasks are increasingly becoming the responsibility of the Army's aviation formations – An article providing a review of airfield management resources for deploying Commanders can be found in the October 2011 edition of the Doctrine Division Newsletter located at https://www.us.army.mil/suite/page/432

Major Accident Review (MAR)

U.S. ARMY COMBAT READINESS/SAFETY CENTER

While in full autopilot mode orbiting at 14,000 ft MSL the aircraft began an un-commanded descending right turn. The operator attempted to regain control of the aircraft but was unable to do so. The aircraft continued to descend, lost command link and crashed.

Approximately two hours into a turbocharger test flight while orbiting at an altitude of 14,000 ft MSL with hold modes on, the MQ-1C aircraft experienced a left tail servo processor failure allowing the left rudder-vator to move freely. Air flowing over the flight control surfaces forced the left rudder-vator to full deflection, resulting in an un-commanded descent, left roll, right yaw and left slip. The PC turned the hold modes off and attempted to regain control of the aircraft with the operable right rudder-vator and vertical rudder. The vertical rudder motor could not overcome the aerodynamic forces being applied to the rudder. The vertical rudder was held in a position that caused an even greater right yaw. After approximately 3 minutes the aircraft descended to approximately 5,500 ft MSL and Line of Sight (LOS) communications were lost with the control shelter. Approximately 45 seconds later the aircraft impacted the ground.

Findings:

- Left tail servo processor malfunctioned
- Vertical rudder failed to operate properly

Recommendations:

- Conduct additional testing to determine exact cause for processor failure
- Conduct additional analysis to ensure Failure Modes Effects Criticality Analysis (FMECA) is accurate
- Review EP for Lost Control Prevent to determine if adjustments are necessary

All information contained in this report is for accident prevention use only. Do no disseminate outside DOD without prior approval from the USACRC.
Access the full preliminary report on the CRC RMIS under Accident Overview Preliminary Accident Report
https://rmis.army.mil/rmis/asmis.main1 AKO Password and RMIS Permission required

Selected Aircraft Mishap Briefs

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

Utility helicopters

UH-60

-A series. The aircraft main rotor blades made contact with the tail rotor driveshaft during environmental training. (Class C)

-M series. Flight medic received fatal injuries when struck by MRB during patient pick-up. (Class A)

Attack helicopters

AH-64D

- The aircraft contacted the ground during a single-engine demonstration, resulting in damage to the turret assembly and main landing gear. (Class C)

-The crew experienced a No. 1 engine NP exceedance during an evaluation flight. The IP assumed the controls and performed a single engine emergency landing. (Class C)

Observation helicopters

TH-67A

- The aircraft encountered dynamic rollover during training. (Class B)

OH-58D

- Crew experienced a LOW ENG OIL caution during contour flight with vibrations and executed an emergency landing/running approach to a tank trail. Inspection revealed cracks in the vertical fin above the stinger mounting point and axial play in the tail rotor delta hinge spherical bearing. (Class C)

AH-6M

- Engine over-torque condition occurred as crew was attempting to clear trees during gunnery operations. Post-flight revealed damage to all tail rotor blades. (Class C)

Cargo helicopters

CH-47

-D series. Sheet metal damage sustained to the aircraft fuselage during NVG sling-load mission. (Class C)

-D series. During NVG dust landing, aircraft landed hard sustaining damage to the landing gear and fuselage. (Class A)

Unmanned Aircraft Systems

RQ-7B

- During a mission UA lost link and crashed into a mountain. (Class C)

- The UA experienced a FLAPS SVO FAIL. Recovery chute was deployed and vehicle was recovered with damage. (Class C)

-After takeoff engine failed. UA was recovered with damage. (Class C)

- During approach, low airspeed indicator illuminated. UA did not respond to attempts to abort the landing. (Class B)

MQ-5B

- The UA crashed during landing. (Class A)

Number 8 December 2011

Flightfax®

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
email: christopher.prather@us.army.mil

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.

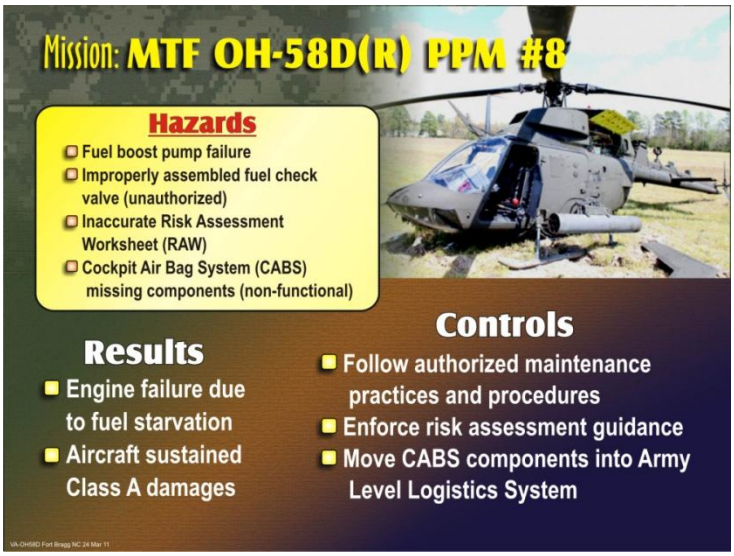
--CW5 (Ret) Tompkins is a DAC working in the DES Standardization Branch. He may be contacted at DSN 558-2532 (334-255-2532) or by e-mail at william.tompkins@us.army.mil.

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.

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Access the full preliminary report on the CRC RMIS under Accident Overview Preliminary Accident Report
https://rmis.army.mil/rmis/asmis.main1 AKO Password and RMIS Permission required

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

U.S. ARMY COMBAT READINESS/SAFETY CENTER

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