Number 33 January 2014

Flightfax®

Online newsletter of Army aircraft mishap prevention information

Happy New Year!! In January's edition of Flightfax, we are adding in a new column called the "Flightfax Forum" which will serve to generate professional discussion. The Forum will be published approximately quarterly and will serve to expand our thought process into the "why" instead of just the "what" when covering topics that influence the safety of aviation operations. Please provide us feedback on the new feature or send us topics that are of professional interest to the community.

As many have said, "There are no new lessons, just new Soldiers", and this adage is very evident in the lessons communicated by BG Konitzer in our Blast from the Past article, "The Challenges of Change". The opening paragraph states, "The Army's gone through a lot of it in the past five years. We've become a new force, a smaller force, a force that not only defends the nation militarily but also takes on new, nontraditional missions. And much of the time, we conduct operations as part of a joint and combined force. We've transitioned from a forward-deployed, forward-defense, major-land-war Army to a CONUS-based, contingency-force-oriented, crisis-response Army that must prepare to react to uncertain threats." If we change the wording in this paragraph slightly from a "forward-deployed, forward-defense, major-land-war Army" to "an Army concluding a decade of persistent combat", this article might as well have been written this year. We need to continue the cultural change described in the article where we have clear communications in the chain of command about levels of risk, understanding necessary risk and the approval levels required, and adherence to training standards so that all of our aircrew are proficient at their tasks.

The BG Konitzer's comments compliment perfectly CW4 Edgette's article, "Does the Risk Assessment Worksheet Help You Forecast the Future?" CW4 Edgette outlines best practices for implementing an effective risk assessment and mitigation program with the ERAW as a tool. As always, the ERAW is only the starting point for a risk conversation, and Mission Briefing Officers and Mission Approval Authorities must be actively involved in the process for it to work properly.

Thank you for your selfless service and dedication to this Nation's freedom. Until next month, fly safe and manage your risk levels!

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Does the Risk Assessment Worksheet Help You Forecast the Future?

CHIEF WARRANT OFFICER 4 TIM EDGETTE
Central Accident Investigation/Recorder
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Recently I heard the statement: "This was an unavoidable situation for which the crew could not have planned," effectively implying that the accident itself was completely unavoidable. This statement generates the question then, "Where could have or where should have the crew planned for this particular situation/accident?"

According to AR 385-10, The Army Safety Program, all accidents, that are not the result of human error or environmental conditions, must be the result of material or mechanical failure. In these situations (material or mechanical failure) one would tend to agree that the 'crew' or the 'pilots' may not have been able to plan, forecast, or suspect a materiel failure that would result in an accident. However, how could and how does the 'crew' plan/look into the future for human and environmental factors that could cause a situation which ultimately results in an accident?

Currently, Army aviation units utilize a 'Risk Assessment Worksheet' (RAW) to qualify or quantify the level of risk associated with a particular flight/mission. The purpose is to 'mitigate' the risk associated with the particular flight/mission. Mitigating risk is a term where the crew, after listing or checking their associated risk, provide some level of associated risk, either numerically or via a matrix hierarchy, to the briefing officer and ultimately the risk approval officer for flight/mission approval; and, depending on the mission complexity, necessity, and purpose, the briefing and approval officer implement steps or measures to reduce the risk, thereby mitigating the risk to the lowest level possible.

With just about every Combat Aviation Brigade having their own RAW, there are several different versions being utilized within the Army aviation community. Some people believe there should be a standardized RAW to encompass all airframes and all missions, but, this would not allow the 'commander' to manipulate and or modify his/her RAW to accommodate their unit's capability, operational location and mission set. So, as a result, we are left with several different styles of RAWs all aimed at 'mitigating risk.' Or, to say it differently, RAWs are an attempt to look into the future and reduce the risk associated with the mission, paying particular attention to human and environmental conditions that could affect the mission. Yet, how could one forecast the future and mitigate all hazards associated with human and environmental conditions?

A RAW capable of this could potentially be in excess of 50 pages. Since most environmental conditions can generally be forecast and are therefore 'known' (because in order for environmental factors to be causal to an accident they must <u>not</u> be known or forecast) mitigating a mission due to environmental conditions is actually more feasible than not. The mission can be adjusted around the weather conditions or 'rolled' to a later date. This then leaves human factors as the last mitigation item that must be viewed and forecast as potentially occurring in the future on the RAW.

Since human factors are associated and causal in more accidents than are materiel and environmental conditions, it would make sense that we as a community pay particular attention to these factors. If you believe that a RAW capable of depicting all possible future human factors would have to be very lengthy, then how is it that our current RAWs are generally no more than a

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page or two in length?

For one thing, most items on a RAW are and have been derived from lessons learned or as the result of time-proven risk reduction measures. For example, minimum weather categories were originally derived from AR 95-1 legal weather and have been modified to create varying levels of risk: low, medium, and high based on ceiling and visibility.

Originally, you would have seen a category on a RAW that would have assigned a numerical value to a crew/pilot based on night unaided flight and the requirement to carry a flashlight. If the flashlight was present, then the value assigned would be low, but if the flashlight was not available, then the value assigned would be higher. This was probably first added to an initial RAW from lessons learned, night unaided, single pilot, and the inability to read instrumentation during an electrical or battery failure. Eventually though, these types of requirements, like the flashlight, were added to minimum equipment lists or AR 95-1 or to unit SOPs and therefore the need to add to the RAW became unnecessary since it was addressed as a flight requirement elsewhere. This is how we as an aviation community has been able to reduce the human factors/conditions on a RAW to something more manageable than a 50+ page document.

There are implied factors that reside within AR 95-1, SOPs and TTPs that are intended to be followed with regards to human factors and conditions. Still, a regulation, a SOP and/or a TTP are only valuable as guidance and/or a requirement for flight, if everyone knows, understands, and follows the guidance. To simply assume that the SOP and its requirements are known by everyone is incorrect. Human beings forget, confuse one requirement with another and may not even have read the SOP. So to assume that the regulatory requirements and guidance are going to be followed because an SOP or a regulation requires it, and, therefore there is no need to address it on the RAW, sets bad precedence. The professional aviator will make every effort to comply, always, with known rules and regulations and the majority of aviators will make sound decisions based on guidance and regulatory requirements.

Why, then, do human errors and factors account for the vast majority of aviation accidents? Does the RAW help you forecast the future? The answer is no, not always. But the RAW should not be a mere paper shuffle, the swipe of a pencil, or a flight requirement drill. Material factors are difficult to determine and forecast and they account for a small percentage of aviation accidents. Environmental factors are easier to forecast and understandably, by Army safety standards, account for even fewer causal factors contributing to aviation accidents. So what's left is the human factors as expressed on your particular RAW. The ultimate intent for the RAW, as stated above, is to mitigate risk and since the ability to forecast the future is almost an impossibility, just don't pass on the opportunity to interact, on a personal level with your aviators, crews and planners.

Know the mission, intent, and operational necessity from concept to conclusion. Ask tough questions; integrate changes and triggers that have a realistic expectation of mitigating human error and risk. With the advent of the 'eRAW', electronic risk assessment worksheet, we have almost taken the personal interaction out of the equation. Maybe the reiteration of the commander's intent or the value of the mission accomplishment with regards to the bigger picture may be enough to cause a decision to be made during the conduct of mission execution that makes the difference between execution and accident.

Don't try to forecast the future. But don't pencil whip the RAW either. Treat the RAW as a living document. Modify it for your particular mission situation and continually change factors that could affect safe and risky operations. Continue to interact with crews on a human/personal level and pass on experiences from one generation to the next. ◆

STACOM Information

DAC Charles W. Lent
Directorate of Evaluation and Standardization
U.S. Army Aviation Center of Excellence
Fort Rucker, Ala

ATZQ-ES 30 January 2014

MEMORANDUM FOR ALL CONCERNED

SUBJECT: Active STACOM Listing

1. The Directorate of Evaluation and Standardization (DES) publishes Standardization communications (STACOM) to provide guidance to the field and which may precede formal staffing and distribution of Department of the Army official policy.

2. In an effort to ensure the field has the most current information a review of all active STACOMS was conducted. On a recurring basis DES will review and publish a listing of current STACOMS and publish the listing on the AKO portal.

3. The following is a list of active STACOMS:

STACOM #	Date Published	Title
09-01	Apr 09	H60 ATP Guidance
09-03	Aug 09	CH47F ATP Guidance
10-01	Jan 10	LUH PPC and ATM Tasks
10-07	Aug 10	H-60M Series Transition
10-10	Sep 10	Clarification of FM 3-04.11
11-02	Aug 11	SUAS Master Trainer
12-01	Apr 12	UH72 SI FI Qualification Requirements
12-03	Dec 12	AH-64E Series Transition
13-01	Jan 13	CBRN Requirement
13-02	Mar 13	CH47 F Qualification Guidance
13-03	Apr 13	C-12 Torque Limitations
13-05	Jul 13	OH-58D FADEC Training Guidance
13-06	Dec 13	UAS FAD Clarification
14-01	Jan 14	FAC 4

4. All previously published STACOMS not listed above have been rescinded.

5. The POC for this action is DAC Chuck Lent at (334) 255-9098, email charles.w.lent.civ@mail.mil.

PAUL F. DRUSE JR.
CW5, AV
Chief of Standardization

Mishap Review: NTC QRF Support Training

During the conduct of a night emergency landing approach following a suspected fire in flight, the AH-64E encountered brown-out conditions. The aircraft touched down with a right roll resulting in the main rotor blades striking the ground. The aircraft came to rest on its right side with major damage and no injuries to the crew.

History of flight

The mission was a two-ship QRF standby in support of night force-on-force training. The two QRF crews reported for duty at 1230L. The AMC conducted an air mission brief followed by aircraft pre-flight and run-up. The crews assumed standby duties at 1500L. The mission risk was moderate with the task force commander as the final mission approval authority. The weather forecast was for broken sky conditions at 21,000 feet and seven miles visibility. Winds were out of the northwest at 2 knots. Moon illumination was 19 percent with a moonset of 2014L. No watches, advisories, or warnings were in effect.

On its first mission set, the flight departed at 1550L and conducted QRF support missions until returning at 1925L. At approximately 2100L, the team launched again to conduct additional support missions with the accident aircraft in lead position. At 2140L, the lead aircraft experienced a MTADS failure requiring the CPG to fly with NVGs. Additionally, the team conducted a lead change with the accident aircraft moving to Chalk 2. The team continued their reconnaissance mission until 2230L when they broke station to return to home plate.

At 2233L, the crew smelled smoke in the cockpit area accompanied by a severe vibration in the tail rotor pedals. The crew notified their sister ship of the possible fire and began the process of identifying a landing area. Shortly thereafter, the #2 generator failed followed by failures in the night vision systems to both crew stations, loss of the Flight Management Computer (FMC), BUCS, and the pilot displays in both crew stations.

The PC, flying unaided, with degraded flight controls, conducted the approach to a flat, dusty, unimproved area with sparse vegetation. Dust engulfed the aircraft as it touched down. The main rotor blades contacted the ground resulting in the aircraft rolling on its right side. There was extensive damage but no injuries.

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Crewmember experience

The PC, sitting in the back seat, had just over 1,000 hours total flight time, 875 in the AH-64 (135 E model) with over 600 hours combat time. He had accumulated 295 NS hours, 190 NG and 10 night unaided hours. The PI had 288 total hours with 207 in the AH-64 (88 E model); 69 NS/6 NG and 2.4 night unaided.

Commentary

The accident investigation determined the #2 generator malfunctioned due to an internal generator bearing and spline adapter failure. This failure introduced the tail pedal vibrations and produced smoke, which penetrated the crew station through the air particle separator blower. The crew suspected an aircraft fire, anticipated a tail rotor malfunction and began an immediate descent for landing. Additional complications arose when the electrical system failed to complete transfer to the #1 generator power supply resulting in loss of the FMC, night systems, and BUCS. During the night, unaided landing to a dusty environment, the aircraft landed with excessive right cyclic input resulting in the aircraft's main rotor blades striking the ground.

Preliminary Loss Reports (PLR)

ARMY PRELIMINARY LOSS REPORT 14024

AVIATION MISHAP CLAIMS TWO SOLDIERS' LIVES

Two Task Force Odin, USFOR-A, Soldiers and a civilian contractor were killed in a Beech King Air 300 mishap that occurred on 10 January 2014 at approximately 0005 local in Afghanistan. The two Soldiers (CW2 and SGT) were part of the crew of three who were on approach to land when the aircraft crashed. None of the crew survived the crash. A Centralized Accident Investigation (CAI) team from the US Army Combat Readiness/Safety Center is investigating.

These are the 1st and 2nd Class A **Aviation** Soldier fatalities in FY14 compared to **0** for the same time frame in FY13. 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

Mishap Review: NVG Training Flight

During the conduct of a NVG training mission, the OH-58D experienced a low rotor RPM condition. The aircraft lost altitude and impacted with trees during landing. The aircraft was destroyed from a post-crash fire with no significant injuries to the crew.

History of flight

The mission was a single ship NVG RL Training/Evaluation flight. The instructor pilot reported to work at 1030L. The PI had a show time of 1300L. The IP completed the mission brief/Risk Assessment Worksheet (RAW), which was signed by the mission briefing officer. The mission was assessed as low. The commander approved the mission brief/RAW. Weather was sky conditions broken at 15,000 feet with unrestricted visibility; winds 360/03 knots; temperature 6˚C and the altimeter setting was 30.19 in/Hg.

At 1630L, the PI completed the preflight. The crew brief was conducted at 1740L followed by the aircraft run-up, communications check with flight operations, and take-off at 1810L.

Following departure, while en route to the training area, the IP directed a test of the infrared (IR) laser, also known as IZLID. The PI attempted to activate the IR laser three times without success. Due to the concentration of man-made lighting in the area, it was decided to troubleshoot the laser when they arrived in the training area.

At 1833, shortly after turning left to avoid a no-fly area, the accident crew first noticed the aircraft's rotor indicating below 98%. The next indication of a low rotor condition was the sounding of the low rotor audio warning. The IP directed a transfer of the flight controls and reduced collective to restore rotor RPM. The accident crew checked the engine throttle to ensure it was full open. The IP then paused to listen for engine noise, noted the engine was still running, and started searching for a landing area. The rotor RPM then stabilized, but did not returned to 100%. The accident IP then increased collective to arrest his rate of descent and started searching for a landing area. The low rotor audio warning sounded again with the collective being lowered for the second time. The aircraft's rotor system made contact with several trees branches before striking a larger tree as the aircraft settled and came to rest suspended approximately five feet off the ground. From onset of the emergency to contact with the trees was approximately 40 seconds.

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Crewmember experience

The IP, sitting in the left seat, had over 2,500 hours total flight time, 2,300 in the OH-58D with over 800 hours combat time, 600 NG, and 400 IP. The PI had 250 total hours, 170 OH-58D and 39 NG.

Commentary

The accident investigation suspected that during the initial IZLID test, the engine's RPM trim switch was inadvertently activated resulting in a decreased engine RPM reference outside of acceptable limits. In responding to the engine underspeed emergency procedure, the engine trim switch – increase step was not accomplished prior to the aircraft settling into the trees.

Preliminary Loss Reports (PLR)

ARMY PRELIMINARY LOSS REPORT 14025

AVIATION MISHAP CLAIMS ONE SOLDIER'S LIFE

A 160th Special Operations Aviation Regiment, USASOC, Hunter Army Airfield, Georgia, Soldier was killed in a MH-60M Black Hawk helicopter mishap that occurred on 15 January 2014 at approximately 2330 local on Hunter Army Airfield. The aircraft struck the ground during a routine training flight. The CPT died in the crash and two other Soldiers were injured. Details of the crash are not available at this time. A Centralized Accident Investigation (CAI) team from the US Army Combat Readiness/Safety Center is investigating. USASOC News Release

This is the 3rd Class A **Aviation** Soldier fatality in FY14 compared to **0** for the same time frame in FY13. 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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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

Class A – C Mishap Tables

Manned Aircraft Class A – C Mishap Table as of 30 Jan 14

	Month	FY 13 Class A Mishaps	FY 13 Class B Mishaps	FY 13 Class C Mishaps	FY 13 Fatalities		FY 14 Class A Mishaps	FY 14 Class B Mishaps	FY 14 Class C Mishaps	FY 14 Fatalities
1st Qtr	October	1	0	7	0		0	1	2	0
	November	0	1	5	0		3	0	5	0
	December	2	1	0	0		1	0	3	0
2nd Qtr	January	0	0	6	0		3	0	0	3
	February	0	0	2	0					
	March	2	1	5	6					
3rd Qtr	April	1	1	6	2					
	May	0	0	6	0					
	June	1	1	4	0					
4th Qtr	July	0	0	7	0					
	August	1	1	9	0					
	September	0	1	1	0					
	Total for Year	8	7	58	8	Year to Date	7	1	10	3

UAS Class A – C Mishap Table as of 30 Jan 14

	FY 13 UAS Mishaps Class A Mishaps	Class B Mishaps	Class C Mishaps	Total		FY 14 UAS Mishaps Class A Mishaps	Class B Mishaps	Class C Mishaps	Total
MQ-1	5	1	0	6	W/GE	1	1		2
MQ-5	2	0	3	5	Hunter	1			1
RQ-7	0	4	10	14	Shadow		5	1	6
RQ-11					Raven				
RQ-20	0	0	6	6	Puma			1	1
YMQ-18									
SUAV					SUAV				
Aerostat	2	3	1	6	Aerostat	1			1
Total for Year	9	8	20	37	Year to Date	3	6	2	11

The challenges of change Oct 96 *Flightfax*

Change. The Army's gone through a lot of it in the past five years. We've become a new force, a smaller force, a force that not only defends the nation militarily but also takes on new, nontraditional missions. And much of the time, we conduct operations as part of a joint and combined force. We've transitioned from a forward-deployed, forward-defense, major-land-war Army to a CONUS-based, contingency-force-oriented, crisis-response Army that must prepare to react to uncertain threats.

The new reality

All this is now reality. It's not just coming, it's here. The radical changes we're dealing with as well as those we have yet to face require corresponding changes in the way we look at doing our business. Why? Because one thing has not changed: accidents are still a major threat. And, as the Army has shrunk in size even as our missions have grown, every accident has become more expensive not only in terms of manpower and money, but also in terms of readiness. Today, more than ever before, every mission requires precise evaluation, precise planning, and precise execution.

Risk management integration into all three is the key to protecting the force. We have a simple risk management process that we can apply to everything we do. All we have to do when we receive a mission is work the hazards and controls in the five-step process:

Step 1. Identify hazards.
Step 2. Assess hazards.
Step 3. Develop controls and make risk decisions.
Step 4. Implement controls.
Step 5. Supervise and evaluate.

Simple, right? So how come we're not all doing it? It has to do with our culture.

Our cultural dilemma

Some aspects of Army culture effectively exclude the risk management process. After all, risk management leaves no place for:

- The 'Hooah Factor,' the 'We can do anything, anywhere, anytime, at any cost' attitude that's so much a part of our Army culture.
- The need to 'do more with less' mindset.
- Our inbred reluctance to say 'No.'
- Making decisions based on the way we've always done it.
- Letting 'somebody else' worry about the hazards involved in our missions.
- Doing only what we *have to do* and not giving a thought to what we *ought to do,* such as wearing flak jackets in all live-fire training even when it's not required by regulation. In other words, doing the harder right versus the easier wrong. The solution to this cultural dilemma seems to be pretty straightforward: change the culture.

Can we change our culture?

Absolutely we can. And it doesn't have to take forever. We've made some huge changes in our culture during the relatively recent past. We've seen:

-Yesterday's macho image of the hard-drinking, hell-raising soldier replaced by today's image of the responsible, self-disciplined soldier.
- Yesterday's attitude that accidents are simply the cost of doing the Army's business replaced by today's attitude that accidents are neither necessary nor acceptable.
- Yesterday's attitude that high risk is inherent in hard, tough, realistic training replaced by today's

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attitude that risk management enables us to train harder, train tougher, and train even more realistically with less risk.

- Yesterday's acceptance, even celebration, of a Class A accident rate of 5, 8, and even 10 accidents per 100,000 flying hours replaced by today's attitude that a rate of less than 1 is still too high.

So, no, cultural change is not impossible. But it's not going to be easy for a number of reasons.

Barriers to cultural change

Certain of today's realities stand in the way of our easily changing the way we do business. For example:

- **Smaller Army with more missions.** Doing more and more with less and less results in little or no time to learn the lessons of the last mission or to adequately prepare for the next. Leaders and their staffs are so busy that they are off planning the next mission while the troops are executing the current one. There's so much to do, we stay with what we know, '*the way we've always done it.'*
- **Personalities.** We have leaders at all levels whose style it is to say, "I don't want to hear excuses; if you can't do the job, I'll find somebody who can." And there are soldiers of all ranks who simply don't have it in them to tell the boss something he or she doesn't want to hear. And so we are encouraged to stay with what we know, '*the way we've always done it.'*
- **Competition.** It's a hard thing to point out a problem, especially when nobody else is complaining. Doing so could be perceived as whining and give our peers an edge over us. So we go along, staying with what we know, '*the way we've always done it.'*
- **Career aspirations.** Today's Army consists of quality competing with quality. May heaven forbid that leaders become more concerned about their careers than about their troops, but the opportunity exists. We all have career aspirations and, therefore, walk a cautious line. As a result, we tend to stay with what we know, '*the way we've always done it.'* The Army has experienced significant change, creating a cultural dilemma we must overcome.

How do we do it?

Leaders at all levels are responsible to protect the force. They are required to make unencumbered, *conscious* (vice *unconscious*) decisions to either eliminate hazards or accept risks. The mindsets previously discussed are encumbrances to clear decision making. A standard process linked to proactive leadership can be the effective means to overcome our cultural dilemma. Risk management is that process. When it comes to payoff versus effort, consistent use of the five-step risk management process offers an unparalleled win-win opportunity, a way to get any job done with a clear focus on hazards and controls to mitigate risks. The risk management process gives us a standard procedure, regardless of mission or force mix or location, to deal with today's realities of uncertainty and high optempo, which demand that.

- We know and perform to established standards, every time, in everything. Using our standard five-step risk-management process is a credible way to challenge and eliminate the 'That's the way we do it in *this* unit' mentality and get everybody doing things right to Army standards.
- We make effective communication the norm up and down the chain of command. A by-product of the risk management process will be improved communication as we make it not only *acceptable* but *expected* for everyone involved at every level to articulate to the boss the hazards, controls, and resources required to mitigate the risk of every mission. Risk management becomes the standard way of doing business. It is linking a process with leadership; that's capturing the power of risk management. Consider how it is in the cockpit, where we stress aircrew coordination and cockpit communication. Every crewmember is *expected* to speak up, which eliminates many of the inhibitors to effective communications: rank, age, experience, job, and so forth. Combining this idea with the risk

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management process outside the cockpit would improve communications throughout the chain of command.

- We make good decisions based on facts, not on fear of being perceived as weak or negative. If we all speak the same language and work the same process of risk management, everybody will understand and no one will mistake the articulation of hazards ("Here's the level of risk for this mission (or task), Boss, and I need your help to bring it down to an acceptable level and still accomplish the mission without any loss") for making excuses ("What's the matter? You can't do it?").
- We make it not just *acceptable,* but *mandatory,* to tell the boss "No, we can't do that" when risks are too high. If we work the five-step risk-management process at every level, the yes will come, but only after the risks have been controlled to an acceptable level or someone with the proper authority at the proper level makes a *conscious, fully informed* decision to accept that risk.
- We once and for all destroy the notion that we'll do things differently when the shooting starts, that we'll abandon standards and all that other 'training stuff.' Risk management is not only an enabler to realistic training, its across-the-board, methodical use will be the best method we have of making sure that the only threat we face in combat is the enemy.

Where do we start?

We start by making risk management, identifying hazards, putting controls in place, the standard way we do business in the Army. So, how do we do that? We base it on doctrine. Doctrine is the engine of change in the Army; it drives change not only in training, equipment, and organization but also to a large extent in Army culture, those attitudes and thought processes that make the Army what it is. This being the case, the catalyst for embedding risk management in our culture is already in our doctrine. FM 100-5: *Operations,* our keystone warfighting text, was significantly updated in 1993 to stress the principles we need to learn and understand to maintain the edge in future theaters of war. A key update was the addition of safety as a component of the protection element of combat power. Safety has also been included in joint-operations doctrine since 1995 (Joint Pub 3-0: *Doctrine for Joint Operations*). That doctrine specifies that protection of the force through the integration of safety into all aspects of planning and execution is crucial to successful operations. Just as doctrine and policy changes are capturing the top-down approach to risk-management integration, so too TRADOC is working the bottom-up approach through the integration of risk management into officer, NCO, and civilian schools. All that's left is for the field to shoot to the middle and *just do it*, just integrate risk management into all that we do.

Summary

The Army has done remarkably well in reducing accidents, thus saving lives, especially in the past few years even as global responsibilities have increased. A combination of factors has had a direct impact on this success. First and foremost is proactive leadership at all levels. Second is the fact that we have clear and achievable standards for every individual and collective task soldiers are required to perform. Third is teamwork. It is the essence of how we do business. The fourth is the information flow to enhance communications between decision makers. These four elements are institutionalized throughout our Army today. The fifth ingredient that needs to be institutionalized is a process, the risk-management process. Once embedded as a systems approach to business, we can consistently achieve world-class safety performance. We must embrace risk management as a sound investment in readiness, not as just another 'safety requirement' that has nothing to do with our *real* mission. The true cost of our failure to protect the force through risk management will be paid out of lives and equipment, and thus out of readiness. And that's a price we simply cannot afford to pay.

BG Thomas J. Konitzer, Director of Army Safety and Commanding General, U.S. Army Safety Center from September 1995 to June 1997

Flightfax® Forum Op-ed, Opinions, Ideas, and Information

[Views expressed are to generate professional discussion and are not U.S. Army or USACR/SC policy]

Welcome to a new feature that will appear periodically in Flightfax. The intent of *Flightfax Forum* is to provide the writers and readers of this newsletter an outlet to express ideas, concerns and/or insight to topics that are aviation safety relevant from the user perspective. We welcome your input.

An AH-64D crew experienced a NR exceedence and engine-out warning during RL progression training (DECU Lock-out procedure/task). Crew conducted single-engine landing to the runway. MDR read-out confirmed NR at 120% requiring MRS replacement. ECOD reported at $332K.

Without delving too deeply into exactly what happened in the above incident, a reasonable scenario would be that during an AH-64D DEC (digital electronic control) lockout procedure, the power lever was not retarded in a sufficient manner or time to prevent the engine Np (and associated rotor rpm) from accelerating to the overspeed trigger point. As designed, when the overspeed protection kicked in, the engine shutdown. With the shutdown you get to perform a single-engine landing, terminate training, and seek maintenance action to determine the extent, if any, of damage that may have been incurred. In the above case, it was significant.

From the AH-64D operators manual: *When an Np overspeed condition is sensed (Np meets or exceeds 119.6 ± 1%) a signal from the DEC 701C causes the Overspeed Drain Valve (ODV) to shut off fuel flow to the engine. The engine flames out and does not automatically restart.*

So what am I angling at? A couple things. First, the UH-60L, with the same 701C engine, when the overspeed is triggered and shuts down the engine, it re-lights the engine when the Np drops below the reference and continues the cycle until manual control is gained. I can't think of a good reason for not having the built-in safety capability of a re-light system on all airframes, when it is available.

UH-60L operators manual: *Overspeed protection protects the power turbine from destructive overspeeds. The system is set to trigger at 120% +/- 1% RPM 1 or 2 and will result in a fuel flow shutoff causing the engine to flame out. When % RPM is reduced below the overspeed limit, fuel flow is returned to the engine and engine ignition will come on to provide a re-light. This cycle will continue until the overspeed condition is removed.*

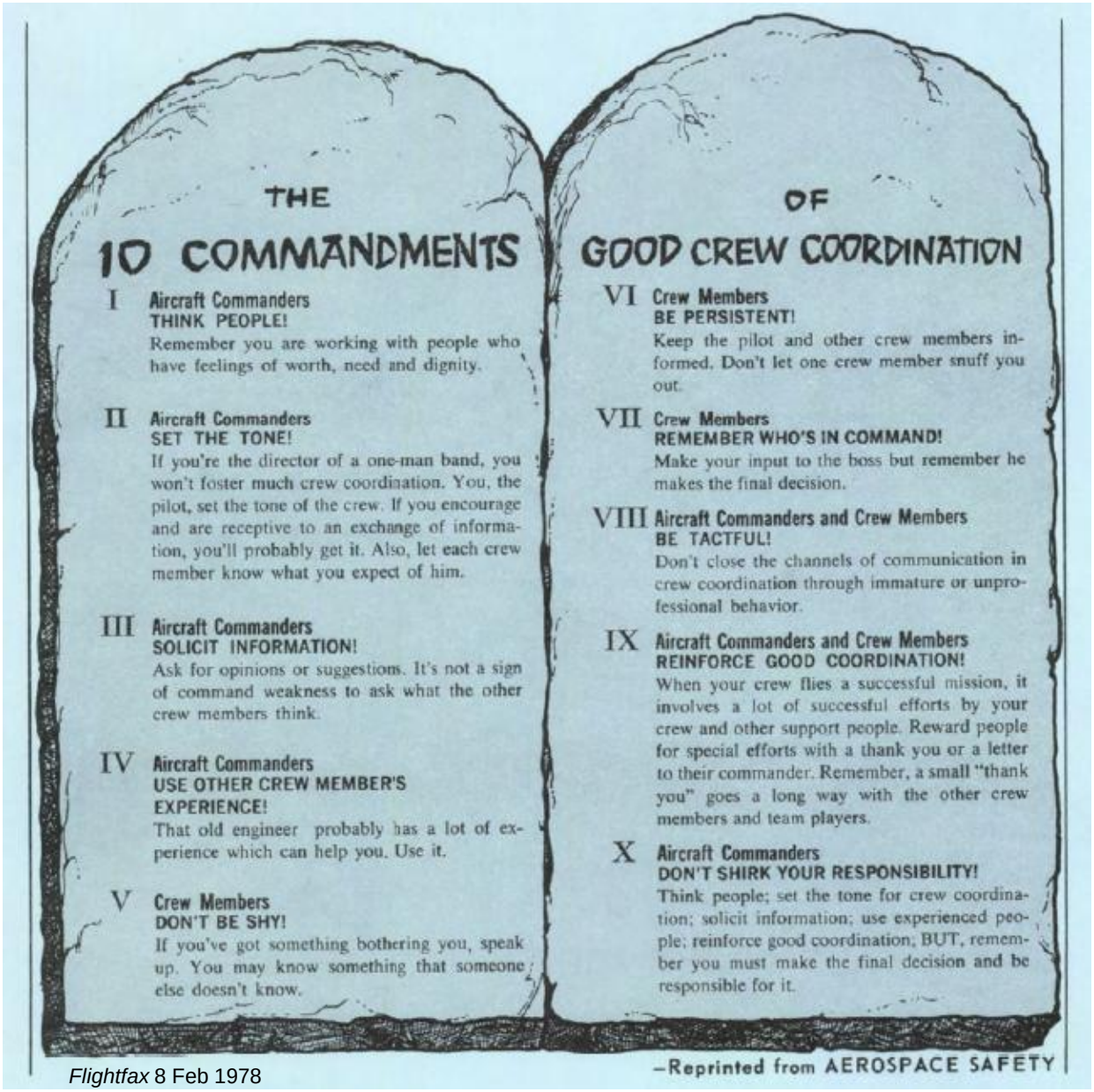
Second point. When the A model Black Hawk first came on line, it had overspeed protection set to trigger around the 106% mark. An activation of the system would not incur exceeding any Np or Nr limitations. It was a great feature. There were few worries when a power lever missed a detent and bumped the overspeed. You reset and went about your business. No harm, no foul. In the event of a real failure, the aircraft would fly fine with the Np/Nr bumping 106% until you could gain control. Here's the rub. When the UH-60A, with the -700 engine, transitioned to the UH-60L, it received several upgrades, including the more powerful 701C engine. One sidebar to the new engine was that the overspeed protection reference point was moved from 106% to the 120% mark. Now , if a Np high-side situation occurs, such as that listed in the opening of this article, the overspeed activates at the 120% mark and you get to terminate your training and complete maintenance actions because you have exceeded limitations. I've asked numerous folks smarter than me (and there are a bunch) why the reference jumped to 120% with the 701C. You'd typically get the Cav salute (that's a shoulder shrug with accompanying hand gestures, if you weren't aware) which inferred they did not know the answer. I developed my own theory based on the no re-light

Continued on next page

capability of the AH-64. Having overspeed protection set at 106%, with an engine that would shut down, would not allow much reaction time for a crew to respond to a high-side failure or training glitch. So it would make sense, without re-light capability, to set the reference higher and allow the crew reaction time to gain control of an engine surging high. Thus, an overspeed trip point at 120% is born. To gain as much commonality between the 701C DECs of the UH and AH required the reset of the previously lower UH-60 reference point to the unnecessarily higher one.

So what is the food for thought? How about this for an idea that should have occurred 30 plus years ago. We put the existing re-light capability found in the UH-60 DEC into the DEC of the AH-64 AND set all the trip points to a number that does not exceed any limitations. The enhancement to safety, training, and reduced maintenance costs is worth the effort.

Robert (Jon) Dickinson



THE 10 COMMANDMENTS OF GOOD CREW COORDINATION

I Aircraft Commanders
THINK PEOPLE!
Remember you are working with people who have feelings of worth, need and dignity.

II Aircraft Commanders
SET THE TONE!
If you're the director of a one-man band, you won't foster much crew coordination. You, the pilot, set the tone of the crew. If you encourage and are receptive to an exchange of information, you'll probably get it. Also, let each crew member know what you expect of him.

III Aircraft Commanders
SOLICIT INFORMATION!
Ask for opinions or suggestions. It's not a sign of command weakness to ask what the other crew members think.

IV Aircraft Commanders
USE OTHER CREW MEMBER'S EXPERIENCE!
That old engineer probably has a lot of experience which can help you. Use it.

V Crew Members
DON'T BE SHY!
If you've got something bothering you, speak up. You may know something that someone else doesn't know.

VI Crew Members
BE PERSISTENT!
Keep the pilot and other crew members informed. Don't let one crew member snuff you out.

VII Crew Members
REMEMBER WHO'S IN COMMAND!
Make your input to the boss but remember he makes the final decision.

VIII Aircraft Commanders and Crew Members
BE TACTFUL!
Don't close the channels of communication in crew coordination through immature or unprofessional behavior.

IX Aircraft Commanders and Crew Members
REINFORCE GOOD COORDINATION!
When your crew flies a successful mission, it involves a lot of successful efforts by your crew and other support people. Reward people for special efforts with a thank you or a letter to their commander. Remember, a small "thank you" goes a long way with the other crew members and team players.

X Aircraft Commanders
DON'T SHIRK YOUR RESPONSIBILITY!
Think people; set the tone for crew coordination; solicit information; use experienced people; reinforce good coordination; BUT, remember you must make the final decision and be responsible for it.

—Reprinted from AEROSPACE SAFETY

Flightfax 8 Feb 1978

Selected Aircraft Mishap Briefs

Information based on Preliminary reports of aircraft mishaps reported in December 2013.

Observation helicopters

OH-58D 

-Aircraft was in low-level flight when it experienced a low rotor RPM warning. Crew initiated autorotation and the aircraft descended into trees. Crew egressed and the aircraft was destroyed in a post-crash fire. (Class A)

-Crew experienced a Np exceedence (120.1%/6 sec) during a maintenance test flight to adjust throttle rigging. (Class C)

Utility helicopters

HH-60 

-M Series. Post-flight inspection revealed damage to the FLIR lens due to suspected bird strike. (Class C)

Observation helicopters

MH-6M 

-Aircraft main rotor blades contacted vehicle during training. Damage reported to all blades and vehicle antenna. (Class C)

Unmanned Aircraft Systems

RQ-20A 

-Controller lost link with the system and reported as a total loss. (Class C)

RQ-7B 

-Crew experienced an auto-pilot failure and initiated recovery chute deployment. (Class B)

The principle is this: no safety check can ever be routine, no matter how often performed, when the lives of men are involved. It is an insidious temptation to slight checks on regulations when things have been going safely for days - but this is the danger - because it dulls alertness.

Major General Aubrey "Red" Newman Follow ME, 1981

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Army aviation safety professionals can now access the complete library of print and video safety products for Army aircraft at one location. The Aviation Directorate at the USACR/Safety Center has built or updated the following products:

- Crash Rescue Videos
- Crash Rescue Posters
- Danger Area Posters
- Passenger Briefing Cards
- Passenger Briefing Videos (Not yet available; currently under development)

To access these products, visit:

https://safety.army.mil/atf/GeneralResources/CrashRescueProducts/tabid/2173/Default.aspx