

Flightfax

ARMY AVIATION
RISK-MANAGEMENT
INFORMATION

FEBRUARY 2005 ♦ VOL 33 ♦ NO 2

The **NEW**

COMBAT READINESS CENTER

is Headed Your Way!

U.S. ARMY

Flightfax

ARMY AVIATION
RISK-MANAGEMENT
INFORMATION

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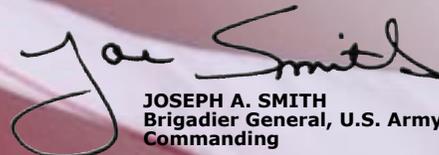
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 JOSEPH A. SMITH
 Brigadier General, U.S. Army
 Commanding



DEPARTMENT OF THE ARMY
WASHINGTON

31 JAN 2005

MEMORANDUM FOR Commanding General, United States Army Safety Center, Fort Rucker, Alabama 36362-5363

SUBJECT: Transformation of United States Army Safety Center

1. Personnel and equipment losses adversely affect the combat readiness of our Army. The loss of even one member of the Army Team -- Soldier, civilian, or supporting contractor -- is unacceptable.
2. Transformation is a multi-dimensional process that requires significant organizational, technological, and cultural changes to keep the Army relevant and effective for the future. As we adapt new technologies to war-fighting and business operations, we must also develop better joint operating concepts and business processes that use these technologies. We must integrate our functional initiatives and shape relevant information and trends into actionable knowledge that will preserve combat readiness.
3. To these ends, we are directing the United States Army Safety Center to transform and redesignate itself as the United States Army Combat Readiness Center (CRC) to advance the principles, understanding, and practice of Composite Risk Management (CRM). CRM will focus on sustaining readiness and managing all risks -- those posed by the enemy, the environment, materiel and systems, and human error -- logically shifting from accident-centric to Soldier-centric.
4. As with the United States Army Safety Center, the CRC will function as a Field Operating Agency of the Chief of Staff, Army. The Army Safety Office will continue to exist but will expand its responsibilities in Washington, DC, focusing on compliance, policy, and field liaison with Headquarters, Department of the Army. The Commander of the CRC will also retain the role of Director of Army Safety, reporting to the Director of the Army Staff. The CRC will be the Army's focal point for analyzing accident, serious incident, and combat loss reports, identifying lessons learned and tactics, techniques, and procedures (TTPs) to mitigate and prevent future losses. Accident investigation processes remain unchanged. The CRC will establish new processes leveraging information from Army organizations to collect, distill, and distribute knowledge about losses that affect our combat readiness. The prerogative of commanders to investigate losses and other incidents remains unchanged. The CRC mission will include:
 - a. Primary responsibility for investigation of Army accidents, subject to command, criminal, and other investigatory functions;

SUBJECT: Transformation of United States Army Safety Center

- b. Coordination on selected combat loss investigations;
 - c. Focal point for instigating the necessary cultural changes and developing the processes, structure, and training necessary to implement CRM Army-wide;
 - d. Support to Functional Proponents to develop policy and doctrine for loss prevention through CRM;
 - e. Development, coordination, and facilitation of a single-entry, multiple use automated reporting system for processing loss reports;
 - f. Development of predictive trend analysis using digital technology and data mining (with due regard to protecting private and privileged information) in order to identify loss trends and preventive measures;
 - g. Analysis and prompt dissemination of situation reports to the Army leadership;
 - h. Interaction with other military services; federal, state, and local agencies; and industry to identify best practices and loss prevention strategies.
5. The expanded scope of the new Combat Readiness Center and safety transformation will enable our Army to preserve combat power and enhance combat readiness with cutting edge effectiveness.


Peter J. Schoomaker
General, US Army
Chief of Staff


Francis J. Harvey
Secretary of the Army

CF:
The Director of Army Staff
Assistant Secretary of the Army (Installation and Environment)

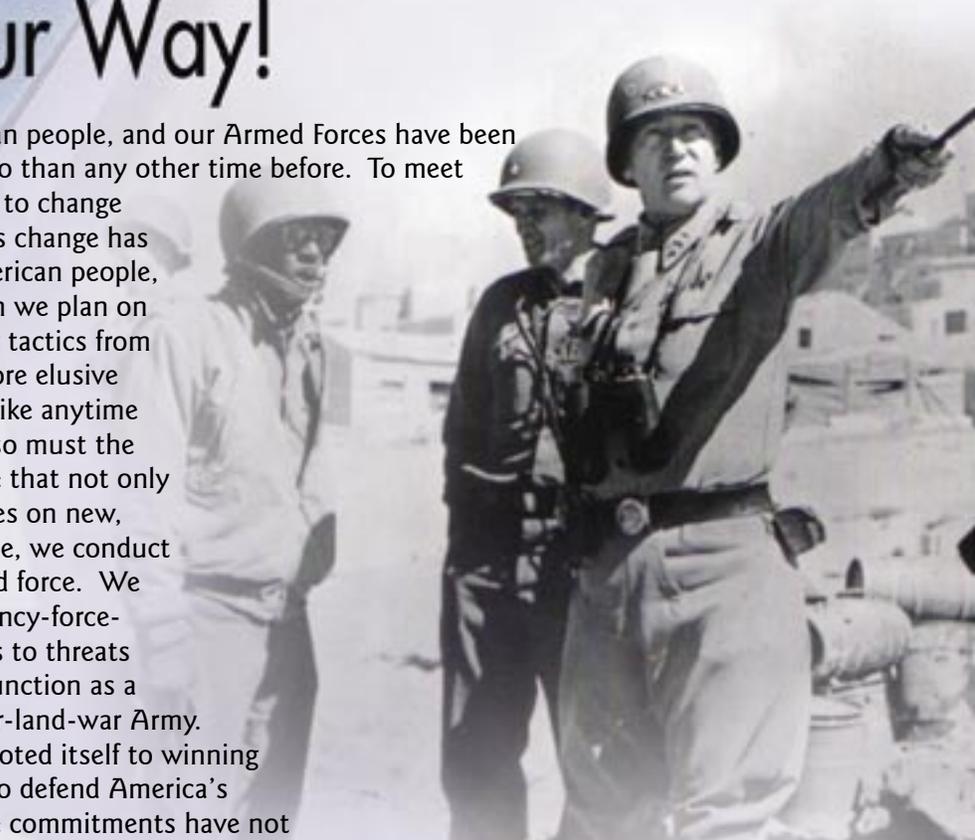


The NEW Army Combat Readiness Center is Headed Your Way!

Since 9/11 our country, the American people, and our Armed Forces have been challenged by world events more so than any other time before. To meet this challenge, our Nation has had to change the way it conducts business. This change has not only affected our Nation and the American people, but also our Armed Forces. No longer can we plan on facing a well-organized enemy force using tactics from the Cold War. The enemy has become more elusive and bolder, harder to spot, and able to strike anytime and anywhere. Times have changed and so must the Army. We've become a new force, a force that not only defends the Nation militarily but also takes on new, nontraditional missions. Much of the time, we conduct operations as part of a joint and combined force. We continue to be a CONUS-based, contingency-force-oriented, crisis-response Army that reacts to threats anywhere in the world. In addition, we function as a forward-deployed, forward-defense, major-land-war Army. In the years since 9/11, the Army has devoted itself to winning the global war on terrorism and training to defend America's interests here at home and abroad. These commitments have not diminished, nor have they been without sacrifice by Soldiers who have gone into harm's way on our behalf.

Thanks for your service to our Nation! We are a team, all working to get the job done—military, civilian, and contractor—in theater and at home. Each and every one of you is an important part of our combat power. High tempo and limited resources make it very difficult to replace you. We simply cannot afford the loss of you or your buddies, because it impacts our combat readiness.

One of the greatest leaders of World War II, GEN Patton was rough around the edges. But he fully understood the importance of protecting combat power to fight our Nation's wars. His words have more meaning when



"Take calculated risks. That is quite different from being rash ... No bastard ever won a war by dying for his country. He won it by making the other poor dumb bastard die for his country."

—GEN George S. Patton

you consider our recent statistics. Since the beginning of FY04, we've lost a Soldier every 9 hours—nearly a squad each week, a platoon each month, a company each quarter, or a battalion each year! That's combat power we cannot afford to lose. Think of the energy expended to recruit, train, and retain a battalion. We must find a way to “connect the dots” on all these losses (accident + enemy + illness + suicide, + other) and preserve our combat readiness. It will require aggressive change in our thinking, processes, and culture.

To enable this expanded approach, The Honorable Francis J. Harvey, Secretary of the Army, and GEN Peter J. Schoomaker, Chief of Staff, Army, signed a mandate directing the Army Safety Center to recast as the Army Combat Readiness Center (CRC) almost immediately. The new focus is on sustaining readiness and managing **all** risks—those posed by the enemy, the environment, materiel and systems, and human error. This broader focus is a logical shift from being accident-centric to Soldier-centric. The Army Safety Office (ASO) will remain in Washington, DC, and support the accident and safety aspects of the CRC.

Composite Risk Management (CRM) is the fundamental element of the CRC. Safety Sends #11, published in the January 2005 Countermeasure (“What It’s About: Composite Risk Management”), explains how training this concept is vital to keeping our forces ready and winning our Nation’s wars. We plan to improve and expand our interactive Web-based tools, give you more “There I was” stories through our magazines and Web site, and develop predictive analyses through data mining with other DA agencies and “close call” reporting. Within 48 hours of a reported loss, the CRC will share with the Army the five “Ws,” as well as the trends, tactics, techniques, and procedures, and lessons learned. In short, we will connect the dots to help keep you and your team alive at home and in the fight.

Our Army needs your help. We need a cultural shift for the CRC to be successful. The Safety Center’s mobile focus groups and the recent Inspector General’s report confirmed the message must change to one that counteracts the negative stigma the word “safety” now invokes. These studies emphasize that safety has become a four-letter word in many circles because it does not mesh well with the level of risk or exposure. A captain in combat told me, “The first thing that goes in combat is admin, immediately followed by safety.” We want that captain and others like him to shift from compliance to aggressive CRM—to stop thinking of safety as a constraint and use CRM as a combat multiplier. Our leaders must focus on teamwork, unity, mission, risk management for readiness, and proactive planning to preserve combat power ... CRM. This change will allow our junior leaders to say, “I know Soldiers depend on me, and I’m not going to let the unit down.”

Transformation of United States Army Safety Center to the United States Army Combat Readiness Center

★ The current Army Safety structure and policies are ill-postured to meet the challenges of a transformed Army at War and the new Soldier generation.

★ Our immediate action is needed to address the climbing fatality rate, both accident and combat, utilizing the expertise of the US Army Combat Readiness Center and other agencies in the Department of Defense.

★ Currently, there is no comprehensive threat data in a holistic manner. Lessons to be immediately applied across the Army.

★ Our focus is on working with the Army on hazard analysis, Composite Risk Management, web-based tools, and data analysis.



Safety Center (USASC)
Loss Center (USACRC)

Why Are We Changing?

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transformation will allow focus on sustaining readiness
a cultural shift to managing all facets of risk and
rds at every level by improving training in
posite Risk Management, implementing interactive
based tools, marketing personal messages,
cting mishap data and developing predictive
yses through data mining.

The Army is fortunate to have a wealth of expertise within the Improvised Explosive Device Task Force, the Army Shootdown Assessment Team, the Center for Army Lessons Learned, and various other DA agencies. However, we can no longer afford to categorize loss by individual areas such as combat, accident, and medical. The next logical step is to matrix the Army's knowledge and attack hazards at home, during training, **and** in combat. This nested information through new processes will facilitate a more comprehensive look at threats, hazards, and controls, as well as provide empirical data to support investment strategies, doctrine, and digital tools. The CRC's real mission is gaining knowledge and sharing that information. Our goal is for the Army to have a single voice when it comes to the loss of a Soldier. The CRC will consider a loss as a loss, no matter what the cause. Regardless of whether that loss was in combat or by accident, we will find out why. These new processes will require extensive teamwork and provide commanders with significantly more information about the combination of circumstances that surround our ever-mounting losses.

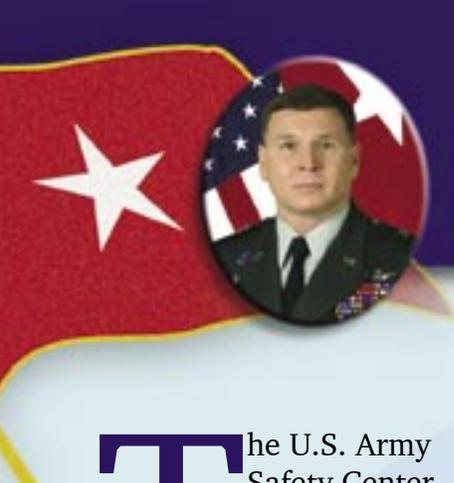
Tomorrow's mission depends on the readiness of our Army today. GEN Schoomaker has explained that our Army at war will fail without transformation. Accelerating future force capabilities and viewing Army losses holistically will enhance the current force and transform safety

culture. The CRC will play a critical role in total Army transformation and will continue to support all of you—our warfighting units, our installation flagships, and our civilian workforce.

The Army Combat Readiness Center—transforming safety processes to improve combat readiness and preserve combat power, one boot print at a time!



BG Joe Smith
Director of Army Safety
CG, CRC



Safety Sends #13: E

The U.S. Army Safety Center has transformed to the U.S. Army Combat Readiness Center (CRC). The CRC is a knowledge center that “connects the dots” on all information that pertains to the loss of a Soldier ... our combat power!

Knowledge is power. This simple truism is echoed in our adoption of Composite Risk Management (CRM), because the more you know about the total hazards you face, the more effectively you can manage the risk. Real power comes from sharing actionable knowledge from the top to the bottom of your formation.

CRM recognizes that a loss is a loss—no matter where it happens—and every loss degrades combat power. During FY04, our Army lost a Soldier every 32 hours to an accident. FY04 was our worst year for accidental fatalities in the last 10 years. You can see from the red in the FY05 chart on the next page that we are outpacing last year in almost every category.

This clearly is a big challenge for our Army. Former President Dwight D. Eisenhower said that if you can't solve a problem, enlarge

it. In our case, enlarging the problem translates to viewing accidental and other losses in a larger context ... ALL Army losses. We are developing the capabilities to take a more holistic look at how and why we are losing Soldiers. To date, no single agency collects, analyzes, and reports such holistic data to allow commanders to apply CRM and reduce or prevent losses. In recognition of this void, the CSA and SECARMY expanded our mission and redesignated us as the Combat Readiness Center on 31 January 2005.

When we look at ALL losses—accident, combat, medical, and criminal—the true impact on our readiness emerges: We are losing a Soldier every 9 hours! Not only do we lose a precious life and comrade, but we also lose combat power and are required to recruit and train a replacement. This adds to the challenge of an Army at War that is transforming.

This name change signifies our role in enhancing combat readiness and, to be frank, frees us from the negative connotation the word “safety” holds for young Soldiers—those who are at highest risk. We will retain all our core competencies in safety, but

our emphasis on CRM and readiness will increase. This strategy will be effective since all generations understand the importance of a fully functioning unit and strive toward that goal.

What does this mean to you? We are taking a more holistic look at loss and providing you with a greater awareness of its overall impact on readiness. We also are accelerating our reports to you on what we know after a loss occurs. We are gearing up as your knowledge broker and data warehouse. By collecting loss information from disparate sources to distill and pass on, and along with our data-mining efforts, we will have the capabilities to report actionable knowledge back to you. Our goal is to be fast, holistic, digital, preventive, and predictive. Knowledge is power, but sharing this knowledge is what makes it actionable and powerful.

We will gather data on all losses, but our primary attention will be on accidental and selected combat situations where the specific cause or reason for the loss is unknown. The Combat Readiness Center will apply its own assets and leverage the capabilities of other relevant

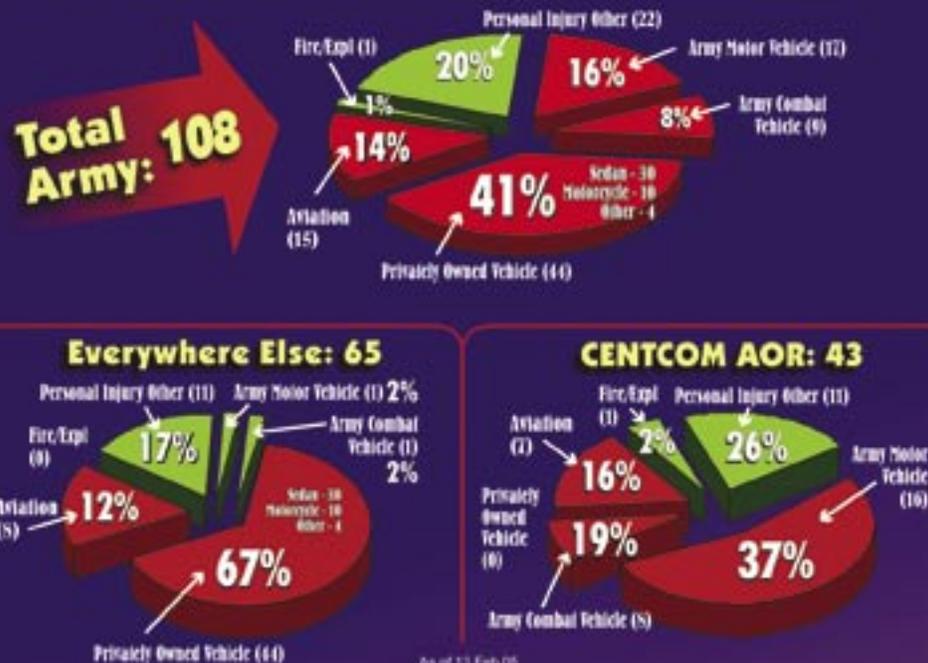
Enhancing Combat Readiness

organizations to provide you with the trends, lessons learned, applications for TTPs, and tools for your use. Two items of note: We are not throwing the baby out with the bath water—safety is still a strong component of what we do. We also are collaborating with other organizations to connect the dots, not own them or do their jobs.

Shortly, we will go hot on a new program of quick-turn SITREPs. These Preliminary Loss Reports (PLRs) will contain brief reports on losses and near real-time synopsis of what we know so you are aware of the issue quickly. Whenever possible, we will alert you to trends as well. This service is in its infancy, and I look forward to your feedback as we refine it. We have ambitious plans in the coming weeks and months to look at those things beyond fatalities that lead to lost workdays for both our Soldiers and DA civilians.

We continue to evolve to meet the needs of our transforming Army. When asked “What can you do to enhance readiness?” we want to be there with the knowledge and tools to help. Knowledge IS power ... combat power! ♦

FY05 Soldier Accidental Fatalities



As of 13 Feb 05

FY04 to Present (13 Feb 05)
1,325 Total Fatalities
 Accident (388) 28%
 Combat (608) 46%
 Other (329) 26%

We are losing Soldiers in accidents every 32 hours. When we take a holistic look at Soldier fatalities—combat & non-combat—we find a Soldier dies every 9 hours.

“If a problem cannot be solved, enlarge it.”
 Dwight D. Eisenhower



Investigators' Forum

Written by accident investigators to provide major lessons learned from recent centralized accident investigations.

MAJ Steven Van Riper
U.S. Army Combat Readiness Center

...and then we'll go to the FARP

Many of our missions culminate with a stop at a forward arming and refueling point (FARP) to refuel and in some cases re-arm. The seemingly benign procedures involved in entering the FARP can be hazardous. Flights made up of dissimilar aircraft attempting to enter a FARP can further increase risk. Whenever flights of dissimilar aircraft are employed, knowledge of individual capabilities, FARP procedures, and aircraft equipment must be used to mitigate risk.

Although this type of thinking may sound overcautious, the fact remains that whenever dissimilar aircraft are in a flight and transition through a FARP or any other landing zone, hazards can be greatly amplified. Each aircrew must be acutely aware of each other's individual capabilities, be familiar with the FARP or landing zone procedures, and each aircrew must understand the limitations of each other's equipment; i.e., night vision devices and aircraft lighting. This level of understanding is not easy to attain. It requires command emphasis and individual discipline. The events surrounding a recent accident illustrate the importance of treating *routine* or *simple* tasks, like going to the FARP, as important mission tasks that require pre-mission planning and detailed rehearsal.

The mission was to conduct logistics and passenger transport. The flight of two, one UH-60A and one AH-64A, departed the forward operating base (FOB) at 1810 en route to another FOB with several intermediate stops. At approximately 1901, the flight departed their final intermediate stop en route to a FARP located on an airfield 2.6 kilometers to

the east. The UH-60A climbed to approximately 100 feet and approached the runway from the west on a heading of approximately 90 degrees. Once the UH-60A intersected the runway, it turned right and flew a heading of 150 degrees down the runway toward the taxiway leading to the FARP.

As the UH-60A's tail wheel touched down and the main landing gear was approximately 1 foot off the ground, the AH-64A's tail section impacted the UH-60A's main rotor system from above. The AH-64A and the UH-60A were destroyed in a postcrash fire. Both AH-64A pilots received fatal injuries. The UH-60A pilot occupying the left seat received minor injuries.

The Centralized Accident Investigation Board suspects this accident was a result of the AH-64A aircrew's failure to adequately scan while conducting a night visual meteorological conditions approach using the Apache's night vision systems. Although the Board suspects the AH-64A crew's failure to adequately scan did result in the loss of visual contact with the lead aircraft, the Board could not determine when or why the AH-64A crewmembers lost visual contact with the lead aircraft. Likewise, the Board could not determine what their actions were prior to or after losing visual contact with the UH-60A aircraft due to the extensive damage to the aircraft, fatal injuries suffered by both of the AH-64A crewmembers, and the absence of crash survivable digital source collection equipment; i.e., a maintenance data recorder or flight data recorder.

Keep in mind that although this accident occurred while the flight was approaching the FARP, the same events could have occurred during any approach to a landing zone with dissimilar aircraft.



OK. . . what does this have to do with individual capabilities, FARP procedures, or aircraft equipment?

You might be thinking the crew failed to scan; therefore, we all need to remember to use the proper scan techniques, and you are right. But, do you think every aircrew uses perfect scanning techniques during every flight? The answer is NO, we are humans and humans cannot behave like machines. Unfortunately, mistakes are going to be made. As humans, we continuously use back-up systems to compensate for our mistakes. A simple example is the speedometer in our vehicles. Very few humans can perfectly judge their speed when driving. We compensate by periodically looking at the speedometer and adjusting our speed as required. A few ways an aircrew can compensate for scanning mistakes is by knowing individual capabilities, memorizing FARP procedures, and properly employing aircraft equipment.

Individual capabilities

What are your individual capabilities? Do you take the time to personally assess your strengths and weaknesses? Now here is the hard one... Do you reveal your weaknesses to others? Are you honest with your fellow crewmembers about your aircraft knowledge, air sense, and tactical expertise? Do you know how to back-up your fellow crewmember?

Of course in the ideal situation, we would all behave like computers programmed to expertly fly our assigned aircraft with a detailed database of tactical knowledge and a complete understanding of aircraft systems. In the real world aircrews coordinate their actions, offsetting any unintentional errors and taking advantage of the synergistic effect derived from teamwork. The only way to achieve this type of coordination and teamwork, not only in your aircraft but in entire flights, is to know individual capabilities. Not only do we have to display the personal discipline to continually refine our aviation specific skills, but we must also have the courage to discuss our individual capabilities with peers.

FARP procedures

Does your pre-mission planning include review of the FARP layout and all tasks associated with using the FARP? Pre-mission planning sets the conditions for a successful mission. Is your unit, more importantly your aircrew, really dedicating enough time and effort to pre-mission planning?

You and your crews must study the unit standing operating procedures (SOPs), known man-made hazards to flight, and operational rules and requirements. Always brief actions required if visual contact is lost with other aircraft while maneuvering into the FARP.

Never overlook the possibility that non-meteorological environmental conditions (surface conditions or pad lighting) might have changed the degree-of-difficulty associated with the FARP. If you are the air mission commander (AMC), take time to brief FARP procedures. If you are one of the pilots in the flight and your AMC "glosses" over actions at the FARP, ask him some questions about the FARP with the goal of guiding him to discuss the FARP in detail.

Aircraft equipment

Are you familiar with the night vision or mission equipment employed by the dissimilar aircraft in the flight? Have you talked to your fellow aircrews about how to deal with night vision device limitations and incompatibilities; i.e., forward-looking infrared (FLIR) versus image intensification (I²)? Have you discussed the optimum aircraft lighting configurations for the different phases of the flight, including approaching the FARP? Lastly, have you discussed or briefed specific actions required due to mission equipment installed on one or all aircraft in the flight?

Address each of these areas with your unit's mission, tactical situation, and experience levels in mind. One size does not fit all. Once procedures are developed, formalize them in an addendum or appendix to your SOP and revise them as required.

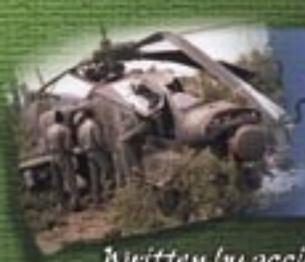
Conclusions

Think about how Composite Risk Management (CRM) might have influenced the events surrounding this accident. Remember, CRM is the process of blending hazard-based risk and tactical-based risk to achieve an accurate representation of overall risk. This accurate representation of the overall risk can then be mitigated through relevant and effective control measures.

In this accident, the tactical portion (threat-based risk) of the mission was well defined and briefed. For example, the crews discussed en route flight formations and tactical separation during pre-mission planning. Hazard-based risks were not addressed in detail. Individual capabilities, FARP procedures, and aircraft equipment can be categorized as hazard-based risks. It is unknown if CRM would have prevented this accident, but inclusion of CRM would have alerted the crews to potential hazards and set in motion mitigation procedures.

Include CRM in your pre-mission planning. Don't let yourself, your crew, or other members of your flight think they have mitigated all applicable risks just because they have addressed the *traditional* risk areas.

—MAJ Steven Van Riper is the Chief of Attack/Scout Branch, Accident Investigation Division, at the U.S. Army Combat Readiness Center. He may be contacted by calling DSN 558-2131 (334-255-2131) or e-mail steven.vanriper@us.army.mil.



Investigators' Forum

Written by accident investigators to provide major lessons learned from recent centralized accident investigations.

MAJ Steven Van Riper
U.S. Army Combat Readiness Center

This Flight Is Boring ...

Let's Spice It Up!

Sure, many of our missions get a little monotonous and some seem downright boring. Go ahead, have a great time and perform some wild maneuvers ... take the aircraft to its limits. The events surrounding a recent accident illustrate this alarming trend and reveal a lack of aircrew coordination and pre-mission planning.

Although this type of thinking may sound crazy to many of you, some of our aircrews are not only thinking this way but are actually following through and putting these thoughts into practice. Recent months have shown a trend of aircrews performing *unnecessary flight maneuvers*. This is the technical term for what is commonly called "hot dogging." We are not addressing bona fide evasive maneuvers to deal with hostile fire or evade potential threats. These maneuvers are not necessary and are far outside the flight tasks included in our aircrew training manuals.

The flight, consisting of two UH-60As, was flying at 115 KIAS and 50 to 60 feet AGL when the pilot in command (PC) of Chalk 2 unexpectedly initiated an aggressive 50 to 60-degree uncoordinated, decelerating left turn to look at some sand dunes to break up the monotony of a boring flight. The aircraft turned approximately 270 degrees and decelerated to 0 KIAS in 5 to 10 seconds. This maneuver resulted in a high bank angle and rapid deceleration, causing the aircraft to descend vertically and impact the ground. Both the PC and pilot (PI) had over 2,000 flight hours each. There was no hostile fire or any other form of

threat. The aircraft was severely damaged and the crew and passengers sustained minor injuries.

Wait a second; we're good at this...

Interviews conducted in the course of this investigation revealed the existence of an attitude that aggressive maneuvering is not only acceptable, but also preferable due to the combat environment. Several interviewees expressed admiration for the skill with which the pilots of the accident aircraft "flew the aircraft as it was meant to be flown," or took the aircraft past the "cushiony limits." Conversely, there were opinions critical of Vietnam-era pilots for flying too conservatively, as though every flight were an instrument flight or flying back home.

The investigation board determined this attitude toward overly aggressive flying stems from flight practices used by cavalier pilots widely acknowledged as the most experienced and capable in the unit. In general, reactions from interviewees ranged from tacit approval of aggressive flight to open admiration for it. The battalion standardization pilot (SP) had counseled the company SP (acting as the PI in the accident aircraft) on at least one occasion for his attitude regarding aggressive flying. The company

commander, widely described as the best company commander in the battalion and perhaps the task force, seems to have been unaware of the degree to which this attitude was ingrained in some of the company's crewmembers. The unit platoon leaders seemed aware of the aggressive flying, but because of their inexperience, in comparison to pilots who were flying aggressively, they failed to recognize it as inappropriate.

Think about it...

Think about what this crew did. Is this what aircrews are trained to do? Is it OK because the unit is in combat? Let's look at two lessons we can learn from this accident: the importance of aircrew coordination and pre-mission planning.

Aircrew coordination

The PC took the controls just prior to initiating the left turn that resulted in the accident without clearly alerting the crew of his maneuver. Performing evasive maneuvers is often a necessity, but every effort should be made by the pilot flying the aircraft to communicate his intentions before or during the maneuver. During interviews following the accident, none of the other crewmembers were entirely clear about why they were turning. During the turn, G forces and wind coming in the right door of the aircraft interfered with the intercommunications system (ICS) to the degree that none of the other crewmembers were clear about what the PC was trying to communicate over the ICS, though all agreed it was something about power. There was so much wind coming in the right cockpit door that the PI said his ICS microphone was rendered useless.

Since the rest of the crew did not understand the degree of or purpose for the maneuver, effective aircrew coordination was impossible. Adding to the confusion, one of the crew chiefs thought the PI was the PC of the accident aircraft. A review of flight records revealed that none of the crewmembers had received mandatory aircrew coordination refresher training. Receipt of the required training is no guarantee that the accident could have been prevented; however, it does indicate the unit placed insufficient emphasis on aircrew coordination.

Pre-mission planning

Aviation operations require extreme situational awareness and a full understanding of how to effectively employ your crew and aircraft. Pre-mission planning sets the conditions for a successful mission. Is your unit, more importantly your aircrew, really dedicating enough time and effort to pre-

mission planning? Have you and your crew studied the expected threat? Do you know your aircraft's limitations given the expected environmental conditions (PPC)? Remember, you and your crew should be well prepared for the majority of missions you are required to perform. The crews must study the expected threat, known man-made hazards to flight, unit standing operating procedures, operational rules and requirements, and become intimately familiar with their areas of operation. Complete knowledge of these subjects, coupled with a clear and executable mission statement, constitutes satisfactory pre-mission planning. By identifying the accidental hazards (man-made hazards including wires, towers, etc., and environmental conditions) and the tactical risk (expected threat and operational requirements), proper pre-mission planning allows crews to implement Composite Risk Management. (For more information on Composite Risk Management, see the DASAF's Corner in the December 2004 issue of *Flightfax*, as well as MAJ Ron Jackson's article in January 2005).

So what does aircrew coordination and pre-mission planning have to do with aggressive flying?

Simply put, aircrew coordination and pre-mission planning injects discipline and flexibility into our aviation operations. When you and your crew properly coordinate your actions and conduct detailed planning, you will see there is no time or need to perform "hot dog" maneuvers but you will be ready to respond to threats as the situation dictates. If you don't believe this, talk to the "old" guys in your unit and ask them about successful missions where things went well even when the weather didn't cooperate or the threat didn't work as planned. The common denominators will always be aircrew coordination and pre-mission planning.

Conclusions

It is your responsibility to prepare yourself and your crew for missions. This preparation includes a clear understanding of crew duties and responsibilities as described in aircrew coordination standards and proper pre-mission planning. Yes, combat operations are different from peacetime training missions but no SP, IP, PI, or any other crewmember has the right to endanger property or lives by disregarding aircrew coordination or ignoring pre-mission planning requirements. ♦

—MAJ Steven Van Riper is the Chief of Attack/Scout Branch, Accident Investigation Division, at the U.S. Army Combat Readiness Center. He may be contacted by calling DSN 558-2131 (334-255-2131) or e-mail steven.vanriper@us.army.mil.

A Practical Appl

Brett Blount
U.S. Army Combat Readiness Center

The Army is experiencing an alarming trend of increased combat and accidental fatalities. Since FY04, accidents and non-combat losses caused 54 percent of all Army fatalities, while combat-related activities accounted for the remaining 46 percent. Soldiers and Army civilians understand combat loss is a potential outcome during war. Accidental fatalities are a different matter altogether. We must consider accidental loss of life as preventable without purpose or merit. The Army experiences a decrease in combat readiness whenever a Soldier or civilian is killed or injured, regardless of whether the loss is

What are the Hazards?

COMPOSITE RISK MANAGEMENT



Figure 1. CRM gathers both combat threats and accidental hazards into one package. Remember, the CRM process uncovers potentially overlooked threats and hazards when focused on any endeavor that could expose our Soldiers and civilians to risk.

Application of CRM

due to accident or combat. Does it matter if the death or injury was the result of combat or an accident? No, we only see the turmoil that accompanies the loss.

Composite Risk Management (CRM), if used, can protect our readiness. CRM gathers all hazards into one package and enhances combat power by enabling leaders and individuals to identify risk in *all* endeavors that could cause injury or death. The Army adopted the 5-step risk management program years ago and incorporated this process into our warfighting curriculum. This process produces excellent results and serves us well. However, we must emphasize the need to assess all risks associated with any given mission. CRM does that and builds upon the risk management process by including combat threats with accidental hazards as illustrated in Figure 1.

How can identifying composite risk aid our aviation unit leaders during mission execution? Let's look at a combat scenario involving a UH-60 troop insertion (Figure 2). The timeline shows the air mission commander (AMC) conducts pre-mission planning, leads the formation flight to the objective, conducts the troop insertion, and continues to the destination. The AMC and unit leadership may choose to assess only the combat threats, such as Man-Portable Air Defense Systems (MANPADS) and small arms fire, while failing to assess accidental hazards such as wire strikes, inadvertent instrument meteorological

conditions (IIMC), or brownouts. Mitigating existing hazards is not possible if they are not first identified. Soldiers are a vital part of this process. CRM presents the question: "What's going to kill me and my buddies—the enemy or an accident?"

CRM allows the AMC to choose another course of action when faced with excessive composite risk. The essential element of the mission is troop insertion, where the flight may encounter small arms fire (combat threat) during the descent to the objective and brownout conditions (accidental hazard) when rotor wash from the aircraft begins to disturb loose sand and dirt. The AMC may choose to alter the route to the objective to avoid areas of reported small arms fire, thus reducing the combat threat. If the mission demands insertion at a particular area conducive to brownout, the AMC can mitigate the accidental hazard by altering crew mix to

ensure maximum use of pilots experienced in those conditions.

A core concept of CRM allows the AMC to focus attention on mission conduct following actions at the objective. In this case, the AMC discovers a deadly combination of combat and accidental risks toward the end of the mission timeline. He can either select another landing area free from loose dirt and sand, reducing the likelihood of brownout; or if friendly forces control the landing area, unit operations could pour water on the surface to reduce the consequences of aircraft rotor wash.

Composite Risk Management (CRM), if used, can protect our readiness. CRM gathers all hazards into one package and enhances combat power by enabling leaders and individuals to identify risk in all endeavors that could cause injury or death.

Composite Risk

UH-60 Flight Mission Profile

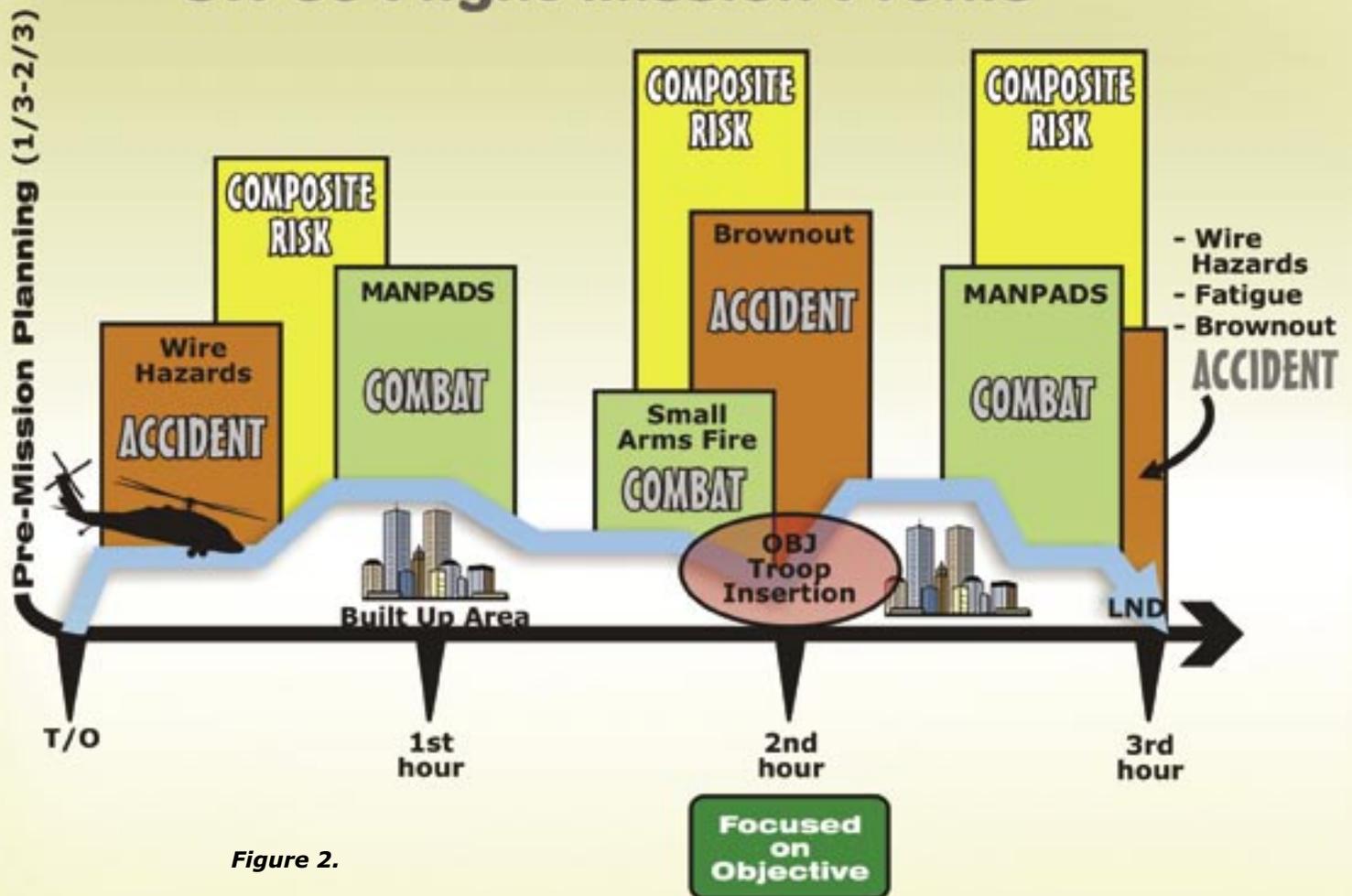


Figure 2.

When a MANPADS threat exists that outweighs the hazards presented by power lines, the AMC could alter the route to approach the landing area at a much lower altitude, avoiding the combat threat. In this case, the AMC addresses the presence of wire hazards but chooses to focus the larger share of the mitigation process on the MANPADS threat. CRM is instrumental in the mission planning process by exposing both threats and hazards. This gives leaders the ability to concentrate more on risks perceived to be the most dangerous, while still addressing residual risks existing elsewhere during the mission profile.

Leaders should not limit CRM in only the

workplace. Off-duty hazards produce death and injury every bit as catastrophic as those occurring on the job. Off duty, CRM can identify and mitigate previously unexamined hazards that exist apart from our more hazardous on-duty endeavors, thus preserving and protecting the force.

CRM is a combat readiness tool that enables leaders to have a better overall picture of risks involved in any tactical or non-tactical operation. By aggressively applying CRM to all risks (combat and accidental), we will preserve our combat readiness! ♦

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ALSE Advice

FROM USAARL

Important information on aviation life support equipment

LTC Mark Adams,
CW4 Dennis Bergstrazer,
and Joe Licina
USAARL

Wear It Right

This is Part 2 of a 3-part series. Other topics concerning ALSE will be published in succeeding issues of *Flightfax*.

ALSE has performance limits just like your aircraft. If you don't wear it or look after it correctly, it will not function correctly. The U.S. Army Aeromedical Research Laboratory (USAARL) doesn't always get the design absolutely right for every type and shape of aviator; that's why we depend on your feedback to tell us when equipment is uncomfortable or doesn't do its job. Hundreds of thousands of dollars are spent to produce the best ALSE possible to give you the best chance of survival in the event of a mishap.

Seat Harness

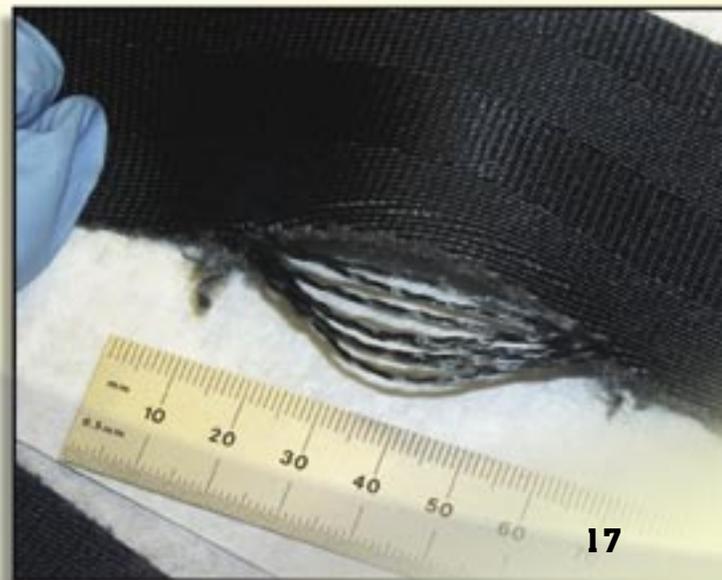
Seat harness systems are designed to retain the occupant in his or her seat, to minimize flail envelopes, and to spread accident forces widely over the body. You have the greatest chances of survival in an accident if you are properly restrained. Most military aircraft have 4- or 5-point harness systems, as opposed to the 3-point system commonly used in personal motor vehicles. Correctly fitting harnesses can distribute accident forces over the pelvis and upper torso and can

produce remarkable results. It used to be believed that the limit of human tolerance to forward deceleration was 80–100 G. However, the value of a high-quality restraint system has been shown in motorsport, where drivers have survived accident deceleration forces exceeding 200 G. Army helicopter restraint webbing is capable of surviving loads of 6,000 pounds, four times greater than

Federal Aviation Administration (FAA) requirements. But the harness systems only work well if they are worn correctly.

Let's look at specific concerns about seat harnesses, and we will explain the importance of "wearing it right."

Figure 1. Frayed shoulder harness.



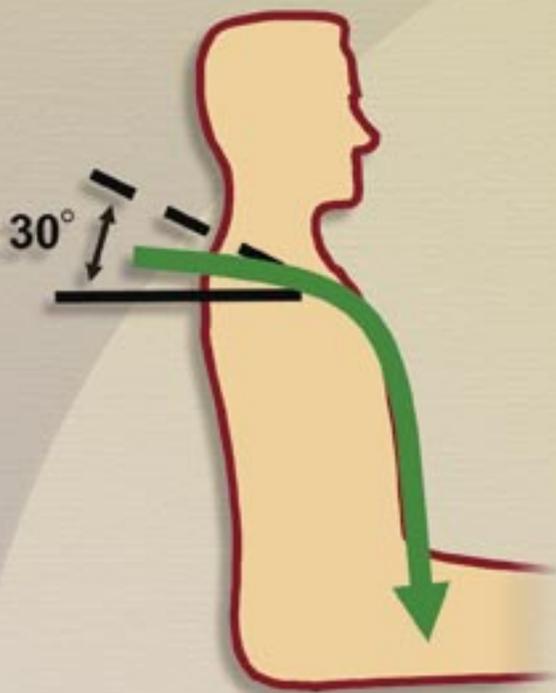


Figure 2. Correct shoulder harness positioning.

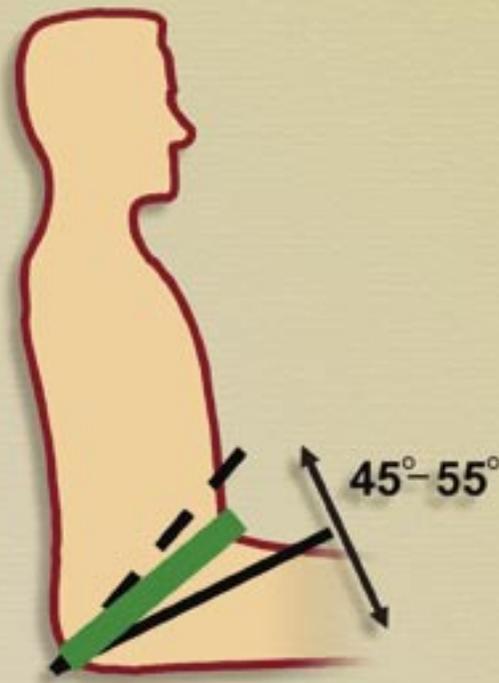


Figure 3. Correct lap belt positioning.

■ **General condition.**

Frayed, cut, or pinched webbing is not serviceable, as it may fail at a much lower load than designed. Such a failure would allow you to flail excessively in an accident or even to be thrown out of your seat. Figure 1 on the previous page shows a section of shoulder harness from an actual aircraft that was signed off as serviceable. Would you fly with a harness in this condition? USAARL would advise you to say “No.”

■ **Positioning.**

Seat harnesses will only work correctly if they are positioned correctly. In other words, they have design limitations just like your aircraft.

(1) **Shoulder harness.**

The shoulder harness should lie horizontal or up to 30 degrees above the horizontal in order to provide best restraint and to minimize

downward loading of the spine (Figure 2). The green line represents the line of the shoulder harness.

(2) **Seat harness.**

The lap belt of the seat harness should be placed low over the pelvis and, ideally, the angle in relation to the seat pan should be 45-55 degrees (Figure 3). This ensures that accident forces are directed through a strong part of the body, not into the soft parts of the lower abdomen. Also, this limits the possibility of submarining under the belt.

■ **Tightness.**

A harness will only work well if it is worn tight. Firstly, if it is too loose, you will flail excessively and may be injured by contact with other cockpit and aircraft structures. Secondly, if worn

loose, you run a higher risk of injury because your body will be exposed to greater G loads than if you are strapped in tight. The reason for this is quite simple. In an accident, the aircraft and your seat decelerate from the impact velocity to zero in a specific time, dissipating a certain amount of energy, which will be felt as a G load on the body. If you are strapped in tightly, you will decelerate with your seat (Line A in Figure 4). If your harness is loose, you

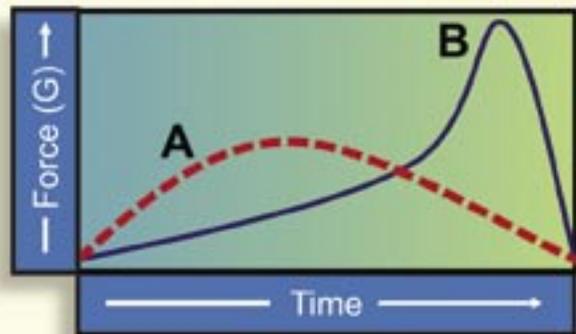


Figure 4. Dynamic overshoot.

will still be moving as the seat slows down until you hit the harness. Then, over a much shorter time, you will decelerate to zero, dissipating the same amount of energy in that shorter time. The end result is a much higher peak G force and greater risk of serious internal injury (Line B in Figure 4). This concept is called dynamic overshoot.

■ **Adjustment buckles.**

A word of caution about lap belt adjusters. Some seats have a new lower profile adjuster which can get flipped over as seen in the photographs (Figure 5). In some seats, it can be trapped in this position between your thigh and the seat. The adjuster will still appear to work correctly when you buckle up, but it will slip when under load. In an accident, this would mean that you would not be adequately restrained, increasing your risk of injury.

Remember the bottom line:

Wear It Right and Keep It Tight! ♦

—For more information contact LTC Adams, CW4 Bergstrazer, or Mr. Licina at the Aviation Life Support Retrieval Program, USAARL, Fort Rucker, AL. All can be contacted by calling DSN 558-6893/6815 (334-255-6893/6815) or e-mail Joe.Licina@se.amedd.army.mil.

Right

Figure 5.
Low profile seat buckle
adjuster position. Right and Wrong

Wrong

Seat Harness Do's and Don'ts

Do

- Check for cuts, frays, and pinches.
- Position the straps correctly.
- Wear straps tight.
- Check the lap belt adjusters.

Don't

- Fly with damaged webbing.
- Fly with loose straps.

We are
Losing
a
Soldier
every
9 nine
hours

Are MY daily activities
going to help reduce
the loss rate and
turn the arrow **DOWN**?

YOU CAN MAKE A DIFFERENCE



U.S. ARMY COMBAT READINESS CENTER