Flightfax

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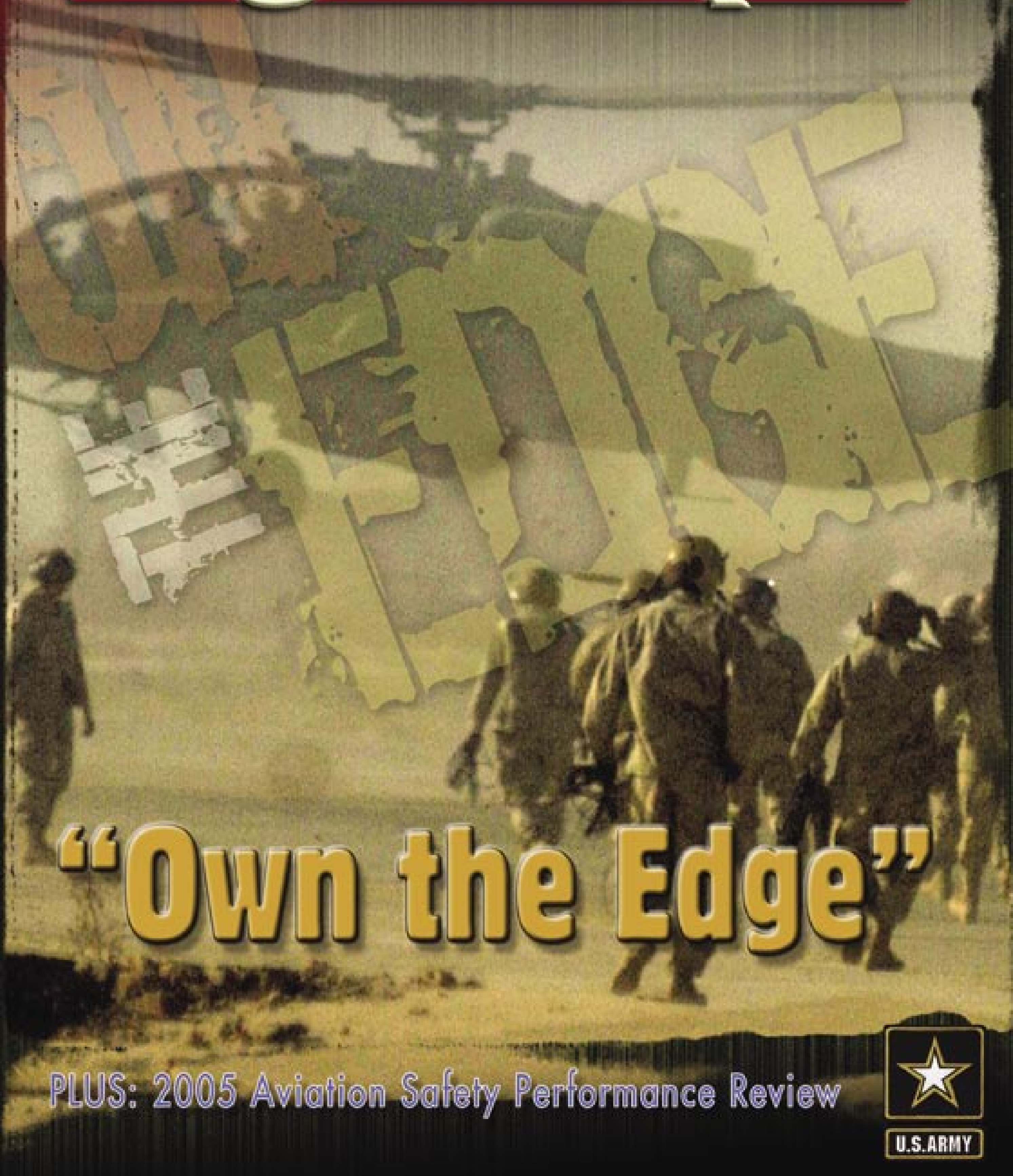

"Own the Edge"

PLUS: 2005 Aviation Safety Performance Review

U.S.ARMY

Flightfax

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U.S. ARMY COMBAT READINESS CENTER

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

DASAF's Corner
FROM THE DIRECTOR OF ARMY SAFETY

"Own the

Our Army continues to fight the Global War on Terrorism, with our Soldiers fighting two active campaigns against a determined enemy. More and more of our Active and Reserve Component forces are returning home hardened combat veterans. They've been "on the edge" in Iraq and Afghanistan and see themselves as combatants in every aspect of their lives.

This mindset has become clear to me as I've traveled and talked to Soldiers, NCOs, and officers. They don't want to be viewed as the "geeky guy on a moped who is decked out in safety gear." They are warriors. This mindset presents a unique challenge to leaders who are trying to manage risk. As leaders, we want to capture the energy and intensity that comes with being on the edge and channel it in a more constructive way. This enables warfighters to manage risk and operate in a deliberate manner so they "own the edge."

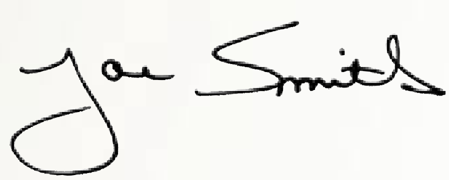
The Combat Readiness Center continues to serve as the knowledge center for all losses, helping commanders connect the dots on loss prevention and providing leaders with tools to manage risk. We know Soldiers are on the edge, but we want them to own the edge through Composite Risk Management (CRM).

As we start a new year, our Army is launching a new campaign to get the CRM message down to

first-line supervisors and individual Soldiers. CRM enables every Soldier to own the edge, no matter where they are in the fight. CRM teaches Soldiers how to think—not what to think—and challenges them to be smart about managing risk. This concept puts individual Soldiers and leaders in control of how far on the edge they can operate.

When a Soldier wakes up each day—whether in combat, training, or off-duty—we want him to ask himself one simple question: “What could take me out of the fight today?” If you are fighting in Iraq or Afghanistan, it could be the enemy. However, if you are driving home on a 4-day weekend, it could be fatigue, speed, or alcohol. Even in combat, it’s more likely you’ll be taken out of the fight by an accidental hazard than by the enemy. No matter the threat, the most effective way to counter risk is CRM.

Once Soldiers internalize CRM, they begin making smart risk decisions wherever they are—be it in theater, in garrison, at home, or on the road. Safety transcends from nothing more than a separate paragraph in an operations order or an afterthought during mission planning to something instinctive and intuitive. With CRM, Soldiers become more lethal and ready so they’re not just on the edge, they OWN THE EDGE!



CRM—Surviving the E

CW4 Mark A. Martin
Fort Bragg, NC

On a dark night in a combat environment, the last thing you want your copilot to say is, "Hold on—the hydraulics just quit!" What now? The enemy is NOT the only variable on the battlefield.

It was a dark night with almost no illumination. The OH-58D Kiowa Warrior crew was conducting routine reconnaissance and security during combat operations in support of ground forces. An hour and a half into the mission, a collective servo hydraulic fitting failed and the aircraft began losing hydraulic fluid. The controls became stiff and the aircraft pitched violently.

The crew correctly diagnosed the situation and took immediate action to return the aircraft to base. They alerted the tactical operations center (TOC) of their situation and informed the battle captain that they would be executing a run-on landing to the forward operating base's (FOB's) bomb crater-damaged, partially lit runway. The battle captain activated the pre-accident plan and notified the forward arming and refueling point (FARP) at the end of the runway. Despite the FOB having no other crash rescue assets, crew chiefs, FARP personnel, and others collected all available fire extinguishers and moved to the edge of the runway to await the aircraft's arrival.

In the cockpit, the pilots' training and 9 months of combat experience translated into precision and calm under pressure. The dimly lit runway came into sight as they lined up for the final approach. The crew knew they had one chance to get this right.

The emergency response team waited in silence and darkness for the aircraft to touch down. The pilot expertly aligned the aircraft on the runway to narrowly miss a partially repaired bomb crater. A small shower of sparks from the skids was the only indicator that this was not a normal landing. The successful outcome of this incident was the culmination of many well-designed systems.

■ **Training**. The pilots were trained and prepared to execute the appropriate emergency procedure. Additionally, the TOC personnel and battle captain understood the urgency of the situation and were trained in the pre-accident plan. First responders realized they lacked the required crash rescue resources to take appropriate steps to further protect the crew in the event the landing was unsuccessful. However, the lack of resources doesn't relieve the responsibility to provide the best possible opportunity for success. Realistic training starts at home station and must be re-evaluated and refined once in the area of operations.

■ **Facilities**. Forward-deployed units are faced with complex hazards that, if not adequately controlled, are likely to cause loss of combat power. Leaders in a combat zone must assess all accidental hazards, as well as combat threat. In this case, leadership assessed the hazards associated with operating from an unlit runway and provided high-quality, solar-powered lights to aid the aircrew in completing a successful approach. Continuous

nemy and More

The aircraft sustained no damage. The pilot executed a textbook run-on landing in zero illumination under NVGs to a bomb-cratered runway.

The second picture shows the 90-degree elbow coupling on the center servo that failed, resulting in a complete loss of hydraulic fluid and subsequent emergency. This failure (crack) was undetectable and would never have been found by maintenance unless the line had to be removed for some reason—which it normally isn't. Bottom line: Be prepared for any emergency.

improvements to facilities are required throughout deployment. Failure to make continued improvements or plan for remote emergency situations results in acceptance of unacceptable high risk. Prioritization of efforts and appropriate allocation of assets and resources is the key to success in this area.

■ **Operations**. The foundation for Army Aviation operations is the air mission brief (AMB). The air mission commander makes use of the AMB and integrates Composite Risk Management (CRM). Aircrews should leave the AMB with a clear understanding of the mission and commander's intent. A thorough and detailed AMB ensures crews have the necessary information and guidance to understand and manage the hazards they will face during the mission and ultimately accomplish their goal. The enemy is not the only variable on the battlefield. Aircrews must understand and manage both tactical and accidental risk while performing their wartime mission. It is the commander's responsibility to ensure staff monitors and enforces CRM during mission execution.

Summary

Combat operations require managing the hazards associated with both tactical and accidental risk. In a combat environment, the two coexist at all times. My experience in Operation Iraqi Freedom shows that a well-trained and prepared unit can manage both successfully. CRM increases understanding at every level of the dangers associated with operating in a tactical environment. A proactive safety program lays the foundation for success in times of emergency. ♦

—CW4 Martin is the Squadron Safety Officer for the 1-17th Cavalry, Fort Bragg, NC. He was assigned to FOB McKenzie, OIF3, Iraq. He may be contacted at mark.martin1@us.army.mil.

FY05 Aviation Safety Performance Review

Charisse Lyle
U.S. Army Combat Readiness Center

The Army continues to be involved in high-risk operations this fiscal year, particularly in support of Operations Enduring Freedom and Iraqi Freedom (OEF/OIF). Multi-aircraft collisions and the inability to handle inadvertent instrument meteorological conditions (IIMC) continues to be a problem; however, brownout-related accidents have dramatically declined since the start of the conflict. This can be attributed to increased aircrew experience in theater and the controls that have been implemented to decrease the risk.

Army Aviation experienced 123 Class A through C accidents in FY 2005, costing more than $228 million. According to the accident reports thus far, 39 percent occurred in OEF/OIF. There were 31 Class A aviation accidents, 7 more than FY04, and Soldier fatalities almost tripled from last year, up from 12 to 35 in FY05. Of these fatalities, 63 percent occurred in two accidents involving a Chinook and Black Hawk with multiple personnel on board. Both cases involved incorrect aircrew response to IIMC. The Class A rate was also slightly higher for FY05 (2.8 flight accidents per 100,000 flying hours verses 2.2 in FY04).

Almost half of the Class A accidents and more than half of the fatalities (65 percent) in FY05 occurred in OEF/OIF. These included two multi-aircraft collisions, a wire strike, a ground collision due to an unnecessarily aggressive flight maneuver, one IIMC-related accident, and one brownout accident.

Airframes

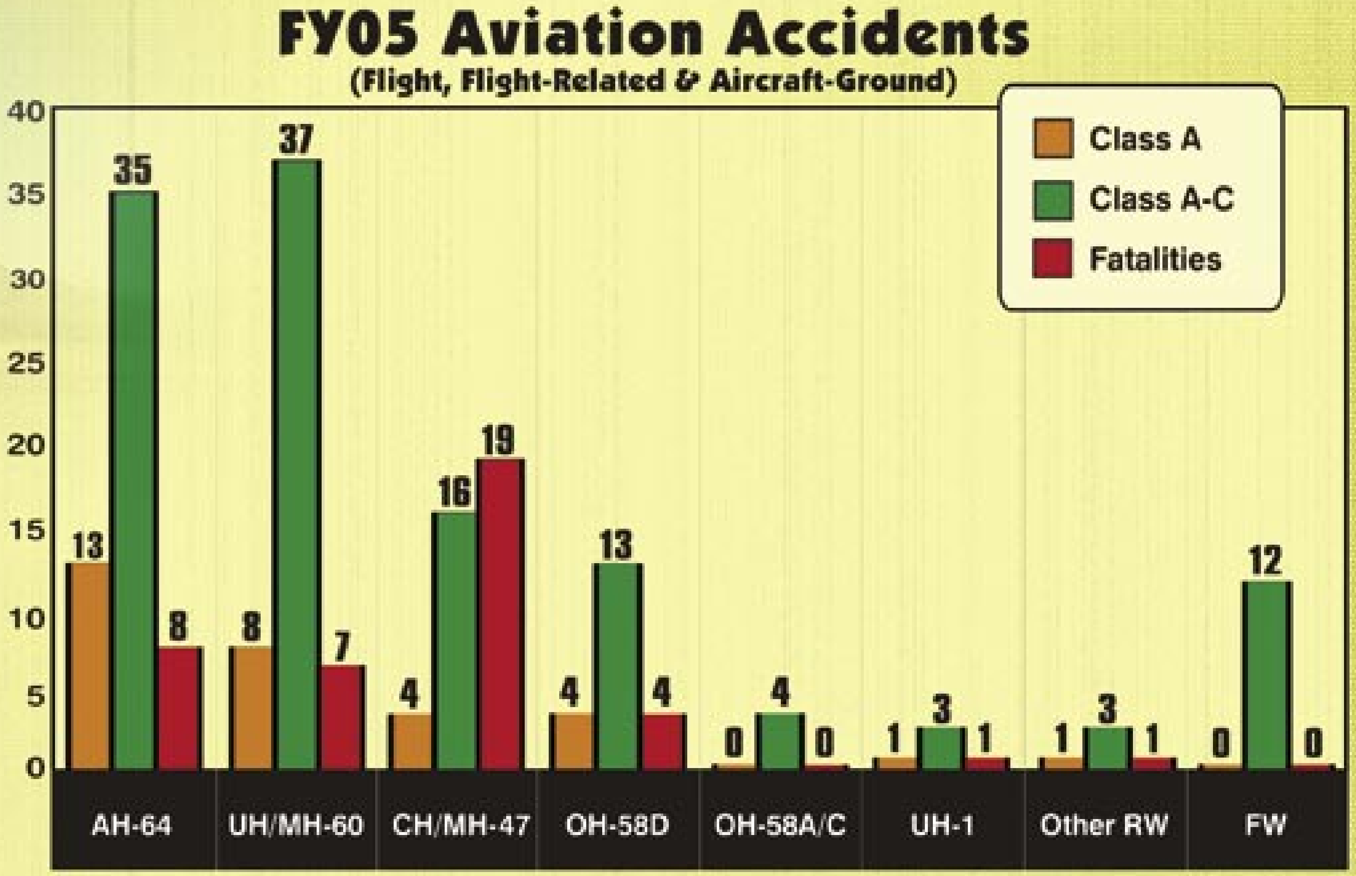
The table on page 7 depicts the accident number breakdown by accident class for each aircraft type. Highlights of these accidents follow.

AH-64 Apache (28 percent)

The Apache had the highest number of Class A accidents and second most Class A through C accidents in FY05. There were two Class A accidents in which an Apache landed on another operating aircraft.

Two more Class A accidents were caused by a breakdown in crew coordination. In one accident, neither pilot was flying the aircraft; in the other, both pilots were flying the aircraft, making opposing control inputs.

One Class A accident was caused by the pilot executing an excessively steep bank angle for conditions (low altitude, high density altitude, and high aircraft gross weight). In another Class A accident, cyclic travel was restricted by the front-seat pilot who had not buckled his lap belt. His body shifted forward in the seat and blocked the flying pilot's ability to apply aft cyclic



to complete a steep turn, resulting in the aircraft impacting trees.

Another Class A accident occurred while initiating a break at the end of a running fire attack in an AH-64D. The pilot on controls (backseat) focused his attention inside the cockpit to SAFE the weapons system at a critical stage of the maneuver. It is suspected negative habit transfer was a factor. Before his AH-64D transition, the pilot had flown the AH-64A. The ARM/SAFE button is located only in the backseat in the A-model. There were two other suspected contributing factors. First, the low terrain contrast and inadequate terrain definition degraded the pilots' ability to recognize the approaching terrain. Second, on a previous running attack, the aircrew had fired both rockets and the 30mm gun at slower airspeeds. The final attack run was much faster, and the crew hastily attempted to fire the same amount of ammunition. This resulted in less recovery time and airspace to maneuver.

Three Class C accidents involved 30mm gun failure—at least two of those reportedly due to a faulty lot of ammunition.

UH/MH-60 Black Hawk (30 percent)

The Black Hawk had the largest number of Class A through C and the second most Class A accidents. A contributing factor in two of the Class A accidents was IIMC, resulting in seven fatalities. In both cases, the crew continued flight into deteriorating weather and, upon encountering IIMC, improperly executed the IIMC procedure. In another Class A accident, the crew, upon landing, became disoriented in whiteout conditions and allowed the aircraft to drift into trees. The last Class A accident involved a brownout in Iraq that resulted in a hard landing and left the aircraft overturned on its side.

There were three Class B and C accidents in which the UH-60 main rotor blades contacted the rotor blades of a parked aircraft while taxiing—all occurring during the day.

Hard landings caused aircraft damage in seven accidents. In one accident, there was reported confusion on the proper technique for landing the aircraft in a dusty environment. The unit pilots used terms like “planting the aircraft” or “sticking the aircraft to the ground.” However, on dusty but rocky terrain, rapid reduction of collective may cause the main rotor blade to flex downward and make contact with the tail boom, which is what happened here.

There were two wire strikes—one a Class A in which the aircraft contacted a radio tower and wires during low-level flight and crashed into a nearby field, and the other a Class C that resulted only in main rotor blade damage. Both accidents occurred at night.

CH/MH-47 Chinook (13 percent)

The CH/MH-47 experienced four Class A accidents and the greatest number of fatalities with 19. All but one of the fatalities occurred in an IIMC-related accident. After encountering a dust storm, the aircrew continued flight, lost control of the aircraft, and crashed.

The remaining fatality occurred in a flight-related accident. The aircraft landed on a narrow road in a steep ravine to offload Soldiers. The Soldiers remained at the rear of the aircraft waiting for the aircraft to depart. An Afghan interpreter broke away from the group, started up the right slope, and was struck by the aft main rotor blade.

There were two instances of landing gear failure during ground taxi. Also, a cockpit door separated from the aircraft during an approach.

OH-58D Kiowa Warrior (11 percent)

Four Class A accidents and four fatalities occurred in the Kiowa Warrior (KW) in FY05. Compared to the other force modernized aircraft, the KW had the fewest Class A through C accidents.

There was one KW wire strike, resulting in two fatalities and a destroyed aircraft. The aircrew of an OH-58DR was escorting a convoy at night in Iraq that had lost a vehicle earlier in the day to a roadside explosive device. It is suspected that both pilots became preoccupied with searching for the roadside explosives and failed to detect wires in their flight path.

A midair collision between two KWs resulted in two fatalities and two destroyed aircraft. While conducting a multi-ship, night zone reconnaissance at terrain flight altitude, using AN/AVS-6(V) night vision goggles (NVGs), the pilot on controls in the trail KW lost visual sight of lead. The trail aircraft’s main rotor blades struck lead’s vertical fin and tail rotor. Both aircraft lost control and impacted the ground. It is suspected that the pilot confused the lead’s NVG position light with the surrounding ground lights, a visual illusion called “ground light misinterpretation.” There was no radio communications from trail to inform lead of the loss of visual contact.

A breakdown in crew coordination also contributed to this KW Class A accident. During a day combat recon mission, the aircrew’s .50-Cal machine-gun malfunctioned. Both pilots were focusing inside the cockpit troubleshooting the weapons system and failed to notice their descent in time to prevent ground contact.

A hard landing, which incurred Class A damage, and a Class C overtorque occurred during practice autorotations. In the former, the instructor pilot was late with power recovery.

There were three engine overspeeds during manual throttle operations and one hot start that resulted in Class C damage.

Fixed Wing (10 percent)

There were 12 fixed-wing accidents (all Class B and C), two of which were materiel failures. Both of the materiel accidents involved the C-12 aircraft and resulted from a landing gear failure and an engine failure. Two-thirds of the fixed-wing accidents involved the C-12. These included an engine overspeed and three lightning strikes. Lightning strikes comprised one-quarter of the fixed-wing accidents.

Summary and recommendations

Flight indiscipline contributed to at least four accidents in FY05. Willful violations of known standards set the stage for an accident.

Continuing a deadly trend, IIMC claimed 25 lives in FY05, with one of these fatal accidents occurring in theater. Environmental conditions in theater make it critical flight crews be proficient on instrument flight procedures. The terrain often has low contrast and little definition, and because many missions are conducted at night, flight crews may find themselves in instrument flight conditions even though there are no clouds.

Breakdowns in crew coordination are a recurring theme in these accidents. Training in effective crew coordination is essential, and it is imperative that every member of the crew stay actively engaged in identifying hazardous conditions. A crew chief may be the only crewmember to recognize cues that indicate an aircraft is encountering an unsafe condition. Mission planning for every flight should include preplanned crew coordination elements, particularly for high-workload situations.

Aviation units should use the heads-up display (HUD) with NVGs whenever possible. The additional information the HUD provides can improve overall flight crew situational awareness during limited visibility conditions. Crews must be effectively trained on the system using a crawl, walk, run methodology that is included in the unit training plan.

In addition, the Combat Readiness Center (CRC) has developed a number of useful tools to assist leaders and individual Soldiers in assessing the hazards found on the battlefield and at home. These tools include Preliminary Loss Reports, the Risk Management Information System, the Accident Reporting Automation System, and the Army Readiness Assessment Program, all of which can be found on the CRC Web site at **https://crc.army.mil**. Let's turn the arrow down for FY06 and OWN the edge! ♦

Editor's note: These statistics are current from the CRC database as of 8 November 2005. Delayed reports and follow-up details on preliminary reports could change the statistical data and findings.

—Ms. Lyle is an Engineering Research Psychologist at the U.S. Army Combat Readiness Center. She may be contacted at DSN 558-2091 (334-255-2091), or e-mail Charisse.lyle@us.army.mil.

Helping to Connect the Dots

John Langhammer
U.S. Army Combat Readiness Center

In May 2004, the Combat Readiness Center (CRC) stood up the MACOM Support Branch (MSB). The MSB is a highly motivated and responsive team of five safety professionals who focus on improving our partnership with the MACOM safety offices. As a proactive team, the MSB concentrates on facilitating the exchange of information and capturing issues and concepts to enhance current safety programs.

The MSB mission is to provide the Army MACOM Safety Offices and CRC a "face in the field" by assigning a single point of contact (liaison) for coordinating and tracking safety issues and requests for assistance while maintaining a forward-looking posture to enhance the Army's combat readiness.

MSB goals

■ Establish and maintain a positive working relationship between the MACOM and CRC by providing customer-focused support.

■ Provide support as the lead agency for integrating Army safety policy, programs, and initiatives into all MACOM safety programs.

■ Spotlight the Army- and MACOM-level future safety requirements 12 to 24 months in advance.

■ Institutionalize the branch mission within the CRC and the Army.

MSB core functions

■ Coordinate with MACOMs, Army staff, installation management agencies, other services and federal agencies, and the civilian industry regarding Composite Risk Management integration, safety program development, and leveraging of identified best practices.

■ Provide consultative services and develop and disseminate support materials for sustainment of base operations accident prevention programs.

■ Direct and track MACOM requests for assistance, training, and/or support.

■ Maintain a suspense database for CRC actions and reports to the MACOMs.

■ Contact MACOMs and track unreported accidents to the CRC.

All MSB personnel can be contacted by e-mailing macomsupportbranch@crc.army.mil, or calling (334) 255-3706/3576/3649/3858 (DSN 558). ♦

—John Langhammer is the MACOM Support Branch Chief. He may be contacted at hans.langhammer@crc.army.mil.

MSB needs you to:

- Tell us what support you need.
- Keep us in the loop with your issues.
- Give us up-to-date contact information.
- Submit and update your safety calendar.
- Provide us feedback on our support rendered.

MACOM SUPPORT BRANCH PHONE NUMBERS

DSN 558-3759	DSN 558-9525	DSN 558-2490
ARCENT	AMC	DA Staff
ATEC	CIDC	FORSCOM
IMA	EUSA	SDDC
INSCOM	MDW	USACE
MEDCOM	NETCOM	USARC
SMDC	NGB	USASOC
USAREUR	TRADOC	
USARSO	USARPAC	

STACOM

Standardization Communication

MESSAGE 06-02

UH-60 IP Supplemental Info for TC 1-237: Task 1082, Perform Autorotation

This STACOM provides additional information to instructor pilots (IPs) on Task 1082, "Perform Autorotation," in Training Circular (TC) 1-237, dated September 2005. The description in Task 1082 was changed to provide the opportunity for IPs to train under more realistic conditions and to coincide with procedures found in the UH-60 operator's manual. IPs are no longer required to arrest the descent during practice autorotations before reaching 200 feet above ground level (AGL), as stated in the old TC 1-212. During training, TC 1-237 requires practice autorotations to be terminated using one of three methods:

- **Power recovery**. Upon receiving the command "power recovery," the pilot on the controls (P*) will apply the collective as necessary to arrest the rate of descent while simultaneously maintaining trim with the pedals. The P* continues to apply sufficient collective to arrest the rate of descent and establish a normal climb.
- **Terminate with power**. Upon receiving the command "terminate with power," the P* will adjust the collective to arrest the descent at an altitude that will ensure the tail wheel will not contact the ground (conditions permitting; ground speed at the termination of the maneuver should be the same as for touchdown).
- **Touchdown autorotations**. Touchdown autorotations may only be conducted in an emergency or in the simulator. During touchdown autorotations, the P* will adjust the cyclic and collective to smoothly cushion the main gear onto the landing surface. After the main wheels are on the ground, the P* smoothly lowers the collective to full-down, neutralizes the cyclic, and maintains heading and ground track with the pedals. The P* will use the brakes as necessary to stop rollout.

The transition from TC 1-212 to TC 1-237 recognizes the complexity of the task and requires formal academic and flight training. Units should make maximum use of flight simulators to enforce positive crew coordination and define crew and individual responsibilities. The complexity of the task requires instructors to understand the flight dynamics and performance characteristics while conducting autorotational training. Listed are recommended topics for academic training:

- Field Manual (FM) 1-203
- Section VIII, Autorotation
- Training Manual (TM) 1-1520-237-10
- Chapter 5, Limitations
- Chapter 7, Airspeed System Correction
- Chapter 8, Transient Droop Characteristics
- Chapter 9, Engine Malfunction—Partial or Complete Power Loss
- Chapter 9, Figures 9-4 and 9-5, Autorotative Glide Distance Chart

Maneuver phases

■ **Entry:** This phase begins when the IP instructs the P* to enter autorotation. The P* begins with a smooth reduction of the collective in order to maintain rotor RPM within limits. It is a common tendency during this maneuver for the P* to decelerate at or below 80 KIAS due to lack of experience and the oculoagravic illusion. The tendency to immediately decelerate reduces the airspeed below the optimum 80 KIAS at the 50- to 75-feet AGL deceleration point. At this point, airspeeds below 80 KIAS will not be enough to effectively arrest the rate of descent. Additionally, when the airspeed system correction chart is factored in, it requires 4 knots (UH-60L clean) to be added. This adjustment is made due to airflow on the Pitot static system.

Some IPs choose to train an autorotation at 80 KIAS because it is the recommended autorotational airspeed in the autorotative glide distance chart. IPs must understand it is "recommended" because 80 KIAS results in the lowest rate of descent at the airspeed that will effectively arrest that rate of descent. This may not be the optimum airspeed immediately following a dual-engine failure.

There are many factors influencing the distance required to make the desired landing area, including winds, density altitude, gross weight, and most importantly, airspeed to glide distance ratio. Upon entering autorotation, the primary focus of the P* is manipulating the flight controls as necessary to establish an autorotational descent and landing to the most suitable area. The best course of action during a dual-engine failure may require adjusting to maximum glide airspeed, resulting in an increased rate of descent to make the landing area. The indicated airspeed needs to be adjusted to ensure a safe landing area regardless if the result is a greater descent rate than that achieved at the recommended 80 KIAS. It is much harder to regain airspeed after it has been reduced, and altitude may not be sufficient to gain it back.

■ **Descent:** Upon entry of the maneuver, there are a couple of key tasks that must be completed by the IP. First is rotor RPM management. The IP must monitor and maintain the rotor RPM within Chapter 5 limitations. During the maneuver, the aircraft is in a powered-on state, and the rotor RPM limits of 91 to 95 percent transient, 95 to 101 percent continuous, and 101 to 107 percent transient apply. During training, the IP is responsible for monitoring rotor RPM and adjusting the collective as necessary to maintain the rotor RPM within limits. This is even more imperative during autorotations with turn due to the tendency of the rotor RPM to rapidly increase. Prior to the maneuver, applying good crew coordination principles, the IP will announce his actions to the P* before making any control inputs.

The operator's manual states maintaining the rotor RPM at 100 percent will provide a good rate of descent, and rotor RPM above 100 percent will result in a higher rate of descent. Allowing the rotor RPM to increase above 100 percent may offset any advantages gained by using the 80 KIAS to effectively arrest the rate of descent. The operator's manual also states during the deceleration, an increase in rotor RPM is desirable in that more inertial energy in the rotor system will be available to cushion the landing. An increase in rotor RPM can be obtained by descending faster than 80 KIAS and trading off airspeed during the deceleration rather than maintaining a higher rotor RPM and higher rate of descent.

Secondly, throughout the maneuver the IP must call out altitude, airspeed, and trim and ensure the steady state factors of rotor RPM, airspeed, and aircraft trim. Every aviator must understand high-rotor RPM, aircraft out-of-trim, and airspeed faster or slower than 80 KIAS will result in an increased rate of descent and an increase or decrease in the glide distance. It is at the discretion of the IP to terminate the maneuver at any time by commanding "POWER RECOVERY" due to the inability of the P* to achieve a steady state autorotation or the inability to reach a safe landing area.

■ **Deceleration:** The 50- to 75-feet AGL deceleration is the most critical part of the maneuver. Due to the high rates of descent in the UH-60, an IP must give the command of "DECELERATE" to allow the P* adequate reaction time to establish a decelerative profile by 50 to 75 feet AGL. It is critical the IP be in a position to decelerate the aircraft at no lower than 75 feet AGL to ensure a safe margin for the termination phase of the maneuver. IPs must realize it takes approximately 2 to 3 seconds for the P* to react to the command of "DECELERATE," during which time there will be a significant loss of altitude. It is critical for IPs to take into account turbine lag and transient rotor droop characteristics and plan for the application of power at the deceleration point. IPs must maintain awareness of the power requirements necessary to execute a termination with power or a power recovery. It will be necessary for the IP to match rotor RPM with engine RPM at some point during the aircraft deceleration. Applying torque levels of 15 to 20 percent during the deceleration will allow the engines to spool up and keep transient droop at a minimum. Again, the IP should manage the collective inputs, keeping the P* informed of his movements, but try to alleviate negative habit transfer to the P*. The IP should use a combination of deceleration and power to terminate the maneuver with power. IPs must be aware that decelerating to airspeeds below the maximum endurance/rate of climb airspeed during a power recovery or below 80 KIAS for a termination with power will result in a higher power requirement and may not stop the rate of descent.

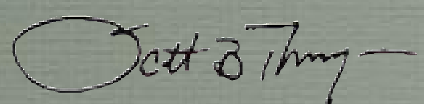
■ **Termination:** The IP must be prepared to recover the aircraft and prevent the tail wheel from touching the ground during the "termination with power" portion of the maneuver. To accomplish a proper termination, IPs must ensure aircraft attitudes are sufficient to bring the aircraft to a stop at the desired termination point. During terminations, special attention must be given to maintaining an aircraft attitude that prevents the stabilator from making ground contact. To alleviate rotor droop caused by the rapid loading of the rotor system with low Ng speed and low torque levels, aviators must lead with collective inputs.

Summary

The description in Task 1082 was changed to provide the opportunity for IPs to train under more realistic conditions and to coincide with procedures found in the UH-60 operator's manual. Task 1082, "Perform Autorotation," is a very complex maneuver and requires effective crew coordination. Due to this, academic and flight training must be deliberate and effective. Units must develop training programs incorporating academics and the flight simulator and then culminate with practice autorotations in the aircraft.

Standardization pilots and IPs are the only ones authorized to conduct autorotational training in the aircraft per the aircrew training manual (ATM). Based on varying experience, IPs will have varying levels of comfort and proficiency in training this maneuver. However, it is critical to continue to concentrate on using sound judgment and applying proper power management principles while conducting this or any ATM maneuver. Environmental conditions and aircraft passenger and equipment loading configurations must always be taken into account during training.

Commanders must be aware of the increased complexity of this maneuver to their aircrews and apply sound risk management principles when approving this type of training. Commanders may implement risk management control measures based on crew experience level and environmental conditions; however, the goal is to train the ATM task while keeping it as realistic as possible. The technical points of contact at DES for this STACOM are CW4 Allen O'Brion, DSN 558-1797, or e-mail allen.obrion@rucker.army.mil; and CW4 Chuck Lent, DSN 558-0518, or e-mail charles.lent@rucker.army.mil.



SCOTT B. THOMPSON
COL, AV
Director of Evaluation
and Standardization

NEWS & notes

Simple Green® Is Not for Aircraft Washing

Don't use "Simple Green®" for washing aircraft or aircraft components. Ensure no unauthorized cleaning products are being used on your aircraft or in the shops as a component cleaner.

It has been brought to the attention of the AMCOM Depot Maintenance Engineering Team that numerous units are using the commercial product "Simple Green®" as an aircraft wash. STOP! This product has been through DoD testing and was determined to be highly corrosive on aircraft aluminum. It can also be a catalyst for hydrogen embrittlement in high-strength aircraft alloys.

While it's a highly effective cleaning agent for floors and non-aluminum/non-high-strength alloy vehicles, this product is not approved for aviation usage. If your unit has been using Simple Green® on a regular basis, it is recommended a thorough fresh-water wash with the approved cleaners per the appropriate airframe maintenance manuals be accomplished as soon as practicable. This should be followed by a corrosion inspection/treatment and application of approved corrosion prevention compounds.♦

—POC is Richard Cardinale. He may be contacted at DSN 861-4041 (361-961-4041) or e-mail corrosion@amcom-cc.army.mil.

Aircraft Washing Tips – No High Pressure, Please

Some units are using high-pressure washers to clean aircraft. That's a no-no. As per para 3-3.9 of Technical Manual (TM) 1-1500-344-23, *Aircraft Weapons System Cleaning and Control*, use no more than 175 psi nozzle pressure when using a water hose. Pressure washers can develop very high pressure, sometimes in excess of 1,500 psi. That pressure can harm numerous items on aircraft, including bearings, composite panels, and painted surfaces. A soft spray, no more than 175 psi nozzle pressure, is all an aircraft can handle—the softer, the better.

Here are some other targets to keep in mind when your aircraft needs a bath.

■ **Don't overdo the chemicals**. You need chemicals to clean the aircraft, but don't overdo it. The right amount cleans the area intended. Too much causes runoff that can damage wiring and bearings, as well as doing potential harm to the environment.

Start with a dampened cloth. If the dirt is stubborn, add water to dampen the cloth some more. If there's danger of runoff, you can protect the areas prone to get damaged with some waterproof paper, NSN 8135-00-753-4662, and preservation sealing tape, NSN 7510-00-852-8180.

■ **No lint, please**. Any old rag might be fine for some cleaning chores, but an aircraft needs lint-free cloths. Lint can clog a filter, ruin an electrical contact, or pollute a vital fluid. Don't take that chance.

■ **Standing water corrodes**. Any standing water left on the aircraft after cleaning needs to be wiped up.

■ **Preventing corrosion**. The aircraft is clean, so everything's fine, right? Hold on, the job's not finished until a corrosion prevention compound has been added to all those areas called for in your TMs.♦

—Courtesy of PS Magazine

—Submitted by CW5 William W. Williams IV, IP/SP/IE/ASO, Army Aviation Support Facility, Rhode Island Army National Guard, DSN 247-4527 (401-275-4527), e-mail william.williams@ri.ngb.army.mil.

Bogus ACUs Not To Army Standards

Chris Trumble
U.S. Army Combat Readiness Center

There are three civilian companies producing Army Combat Uniforms (ACU) not to Army Standard. These civilian companies are producing ACUs that are off-shade to the Army-authorized ACU. The Army has the copyright and is not allowing civilian companies to produce the Army-authorized, NSN-approved, stock-type ACU.

There are three main ways to detect the civilian-type ACU from the Army versions:

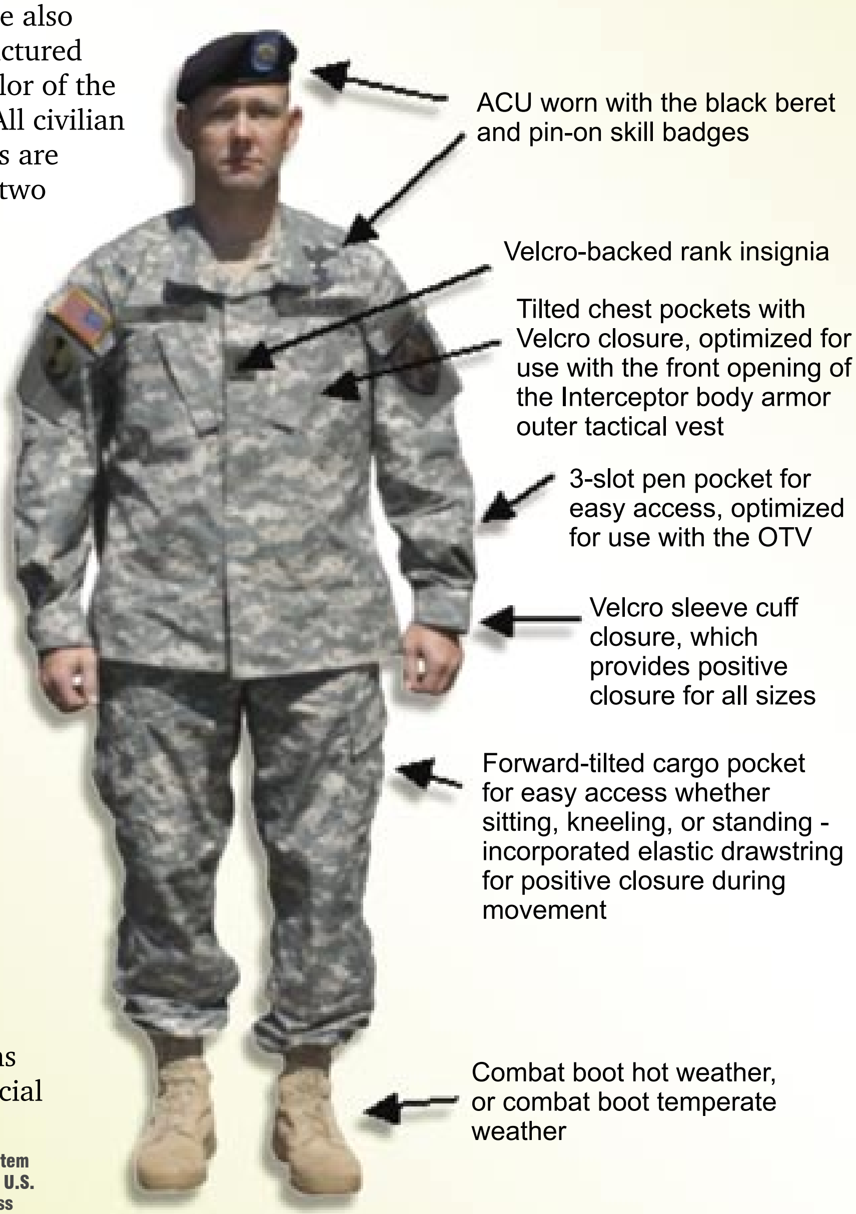
■ Company one produces a dark green Velcro zipper.

■ Company two produces the ACU with no pleat in the back of the coat.

■ Company three produces the ACU with no tab on the sleeves, a tan zipper, and the trousers don't have a drawstring in the cargo pocket.

T-shirts are also being manufactured slightly off-color of the ACU shade. All civilian stock numbers are either one or two numbers off from Army-authorized NSNs. The official Army version of the ACU goes on sale April 2006. Soldiers should not waste their money on unauthorized uniforms. This is also good information for deployed Soldiers to determine if the enemy is using uniforms from commercial venders. ♦

—Mr. Trumble is a System Safety Engineer at the U.S. Army Combat Readiness Center. He may be contacted at DSN 558-2372 (334-255-2372) or e-mail christopher.trumble@us.army.mil.



Litefax WHAT WERE THEY THINKING?!?

Chris Frazier
Staff Writer/Editor

There's no arguing it takes a good bit of smarts to pilot an aircraft. Not everyone can do it. Just ask any aviator—they'll be glad to tell you. At times, however, aviators—like the rest of us—can suffer from a mental brownout. While digging through the Combat Readiness Center's accident report database, we've uncovered several instances where aviators (yes, aviators) have had some momentary lapses in their left-brain thinking while operating aircraft. Fortunately, no one was injured in these accidents—other than maybe a few bruised egos. From time to time, Flightfax will be publishing some of these "What were they thinking?" moments in this space we're calling "Litefax." If you have a story you'd like to submit to Litefax, we'd love to publish it. We'll even do it anonymously to protect you from any more ribbing from your buddies. For more information on how to submit a story to Litefax, send an e-mail to flightfax@crc.army.mil.

What Pole?

A UH-60L crew was ground taxiing to parking on an airfield when the pilot in command (PC) noticed a wooden pole adjacent to the apron. As the aircraft got closer, the PC asked the pilot on controls if he saw the pole, and he acknowledged that he did. The pilot—apparently suffering from some form of short-term memory loss—then made two 90-degree turns, striking the pole with three of the aircraft's main rotor blades and tip caps. The crew conducted an emergency shutdown.

Investigators cited crew coordination failure as a contributing factor to the accident. Both the PC and pilot on controls visually confirmed and verbally acknowledged the hazard. The non-rated crewmember in the left rear seat also visually identified the pole but did not verbally announce it since he heard both pilots say they saw it.

Findings from the accident revealed the pole had been identified by at least two other aircrews 3 weeks prior to the UH-60L incident. However, safety officers on the airfield apparently failed to make removing it a top priority. According to Unified Facilities Criteria 3-260-01, May 2001, requirements, fixed and mobile objects such as poles are not allowed to be within 75 feet of the edge of the apron.

It was recommended all four UH-60L crewmembers conduct a post-accident evaluation and complete aircrew coordination qualification or refresher training as applicable. It was also recommended the safety officers create and manage an airfield hazard log and keep it updated.

The aircraft, which suffered Class C damage in the accident, was inspected, repaired, and released for flight.

No, Not That Handle!

Following a mission, a UH-60A passenger got a little confused when he attempted to exit the rear cabin of the aircraft. The passenger mistook the cabin door window emergency release with the cabin door handle and ejected a single Plexiglas® pane onto the landing surface.

The passenger's smooth move cracked the Plexiglas®, causing Class E damage. The aircraft was able to recover to home station after the cracked pane was reinstalled on cabin door. A new Plexiglas® pane was to be installed in the aircraft. ♦

—Contact the author at DSN 558-2287 (334-255-2287), or by e-mail at christopher.frazier@crc.army.mil.

Accident Briefs

Information based on preliminary reports of aircraft accidents

AH-64

D Model

■ **Class A**: The aircraft was Chalk 2 in a flight of two when the crew reported a loss of power to one engine and a subsequent descent into the trees.

■ **Class C**: The aircraft experienced an engine overspeed during simulation of "Low NP" during flight in the traffic pattern.

■ **Class C**: The aircraft experienced a main rotor overspeed condition during a right turn with reduced collective.

CH-47

D Model

■ **Class C**: The aircraft's right cockpit door came off during a maintenance test flight.

■ **Class E**: The crew was Chalk 2 in a flight of two and on final approach to the airfield when the M-60 tail gun mount attached to the ramp broke away from the aircraft and fell to the ground. Recovery operations were initiated, and the weapon was found a half hour later. The aircraft was repaired and returned to service. *Late Report.*

■ **Class F**: As power was increased to reposition the aircraft to a hover, the No. 1 engine compressor stalled at approximately 40 percent torque. The No. 1 engine was retarded to ground. The aircraft returned to parking and completed shutdown, and the engine revealed foreign object debris (FOD) damage to compressor blades. Further inspection revealed the hinge pin missing and suspected to have caused the FOD damage.

MH-47

D Model

■ **Class A**: The aircraft became unstable during a pinnacle landing, overturned onto its right side, and descended down a slope. A post-contact fire ensued. All crewmembers onboard were able to egress with some injuries. The aircraft was destroyed.

OH-58

C Model

■ **Class D**: During initial entry rotary-wing (IERW) basic combat skills training, a student pilot was returning from a stagefield when a turkey buzzard impacted the aircraft on the left-front windshield. The bird penetrated the windshield and impacted the instructor pilot (IP) occupying the left seat of the aircraft. The IP assumed control of the aircraft and landed with no further incidents. *Late Report.*

D(I) Model

■ **Class E**: The pilot in command (PC) started the engine while the exhaust pillow was still installed. The crew chief presented the charred pillow to the PC for inspection, and the PC assumed all parts of the pillow were present. At the completion of the mission, the crew did not note any problems on postflight inspection. The next crew on shift noted on preflight inspection of the aircraft that a strap from the pillow had been tangled in the transmission driveshaft and damaged two oil lines. *Late Report.*

■ **Class E**: During cruise flight at 150 feet and 75 knots, the crew identified a flock of birds in the path of the aircraft. The PC in the left seat began a climb in order to evade the flock. Approximately 1 to 2 seconds after identification, two birds contacted the left windscreen. The first bird made a hole and then struck the face of the PC in the left seat. The second bird became lodged in the hole left by the first. The crew made a precautionary landing at the nearest airfield, where first-aid was rendered to the PC. The windscreen was replaced, and the aircraft was returned to service. *Late Report.*

D(R) Model

■ **Class A**: The aircraft contacted wires during a reconnaissance flight, and the crew accomplished a forced landing. Damage was reported to the main and tail rotor system, fuselage, tailboom, and landing gear. The WSPS did not engage the wires. The crew suffered no injuries.

■ **Class C**: The aircraft's main rotor system contacted the FM homing antenna during runup for flight.

UH-1

V Model

■ **Class D**: During a live hoist training event, one support seat of the Jungle Penetrator (JP) became lodged underneath the right-side jump door. The hoist operator did not recognize the JP was lodged and continued to raise the hoist cable. The JP support seat bent the bottom and outer frame of the jump door and broke the bottom jump door hinge. The PC directed the aircraft to land. *Late Report.*

UH-60

A Model

■ **Class A:** The aircraft overturned during landing at an unimproved/dusty landing zone in response to a MEDEVAC call. There was damage to all four main rotor blades and the tailboom.

■ **Class B:** During a multiship flight at 130 KIAS 80 feet AGL, a flock of pigeons flew up from the ground after Chalk 1 passed. Chalk 2 maneuvered to avoid the birds when it struck three pigeons. One pigeon struck the aircraft on the No. 2 engine inlet railing and was ingested into the engine. The crew did not experience any engine malfunctions during flight to indicate possible bird ingestion until postflight inspection revealed the bird remains inside the No. 2 engine inlet. Late Report.

■ **Class C:** Postflight inspection revealed damage to the tail wheel strut and stabilator (trailing edge). Damage is suspected to have occurred during landing.

■ **Class E:** While sitting on the parking ramp, the power control levers (PCLs) were being advanced to the fly position when the No. 1 hydraulic pump illuminated for more than 2 minutes. During this process, the pilot placed the PCLs to idle. After going to idle and preparing to shut down the engines, the No. 1 hydraulic light went out. The crew aborted the flight and terminated the mission. Maintenance personnel replaced the pump assembly, performed a maintenance operational check, and released the aircraft for flight.

L Model

■ **Class A:** The aircraft experienced a "settling with power" during approach to a high altitude LZ, contacted the ground, and rolled onto its side. Four personnel onboard sustained injuries.

■ **Class B:** The aircraft tail rotor contacted a light pole during ground taxi. The tail rotor and stabilator sustained damage.

■ **Class D:** During the landing phase of a night vision goggle (NVG) troop insertion to an LZ, the PC encountered brownout conditions while landing. Upon touchdown, the right-side main landing gear dropped into a hole. The aircraft noticeably leaned to the right, and the tail swung around to the left. The PC immediately increased collective to prevent a dynamic rollover. The aircraft rose in a level attitude, performed a go-around, and completed the mission. Postflight inspection revealed the tail wheel strut assembly, some sheet metal, and the lower anti-collision light had been damaged during the incident. Maintenance repaired the damage, and the aircraft was returned to service.

■ **Class D:** During an air movement of personnel, Chalk 2 of a flight of two struck a duck-sized bird. The aircraft was at terrain flight. The aircrew accomplished a successful precautionary landing. The left-front windshield was shattered and partially caved in. The aircraft suffered no other known damage. Late Report.

■ **Class D:** The crew was conducting an NVG training flight. Upon initial departure, a crewmember reported an NVG case had fallen out of the aircraft. The crew returned to the runway and recovered the NVGs.

■ **Class E:** While conducting a post-phase maintenance test flight, a controllability check was conducted before lift-off with no abnormalities noted. The aircraft was brought to a hover, and the control response was abnormal. The aircraft was immediately landed without further incident.

EO-5B

■ **Class D:** During initial climb while flying through a rain shower, a bright flash was seen in close proximity to the aircraft. There was no indication on the lightning sensor display, and there were no abnormal indications noted in the cockpit or by the equipment operators. The crew determined the weather was worse than forecasted and decided to return to base. Postflight inspection revealed possible lightning damage to an antenna. Maintainers completed the required inspection of the airframe and system equipment, and one antenna was replaced. The aircraft was released for flight.

■ **Class E:** During the startup/runup process, maintenance personnel noticed fuel leaking from the No. 4 engine nacelle. The crew shut down the aircraft in accordance with the checklist without further incident. Maintenance replaced the hydraulic pump, and the aircraft was released for flight.

■ **Class E:** During runup, the No. 1 hydraulic pump caution light illuminated. In accordance with the mission equipment list, the crew shut down the No. 2 engine and verified the No. 1 hydraulic pump had failed. The crew shut down the aircraft without further incident. Maintenance replaced the No. 1 hydraulic pump, and the aircraft was released for flight.

RC-12

D Model

■ **Class E:** While taxiing on a parallel taxiway, a pheasant flew through the No. 2 propeller. The crew performed a normal shutdown. On postflight inspection, no damage was found, and contract maintenance released the aircraft for flight.

F Model

■ **Class E:** While on a maintenance test flight with props set 1900 RPM, the aircraft yawed slightly while pitching up. All activities were stopped to determine the problem. Within 20 seconds, the aircraft repeated the movement. The only indication on the instruments was a slight decrease in RPM on the No. 2 engine. Seconds later, the No. 2 engine repeated the movement. This time the copilot saw the engine rotating on the mounts and a ball of fire coming out of the exhaust pipe. The crew shut down the No. 2 engine and conducted a precautionary landing at an airfield. The aircraft landed without further incident. Late Report

H Model

■ **Class E:** While on takeoff roll, the aircraft struck three birds. The crew performed a traffic pattern and a normal landing and shutdown. On postflight inspection, bent sheet metal, along with bird remains, were discovered around the nose gear doors and landing light. Contract maintenance repaired the sheet metal and released the aircraft for flight.

■ **Class E:** While performing a prop feather check, the pilot inadvertently placed the wrong condition lever to the feather position. The torque rose to 110 percent for 1 second and then dropped into the normal range. Maintenance suspected an overtorque condition and removed the engine for further checks. Late Report.

RQ-11A

■ **Class C:** The aerial vehicle operator (AVO) lost control and video feed with the unmanned aerial vehicle (UAV) during flight. The UAV was never located and is presumed destroyed/lost.

■ **Class C:** The AVO lost contact with the UAV during flight. The UAV was never recovered.

■ **Class C:** While conducting reconnaissance, mission waypoints were inadvertently reset. The UAV went into a power-off descent in search of the new lower altitude. The waypoints were moved back to the preplanned setting, but the UAV could not counter the computer change in altitude and crashed.

RQ-5A

■ **Class C:** The UAV experienced engine failure while being operated in the traffic pattern. After the aircraft was landed, significant damage was noted.

RQ-7A

■ **Class B:** The UAV failed to respond to command/control input and impacted the ground at an approximate speed greater than 100 KIAS. The UAV has not been recovered and total loss is presumed.

RQ-7B

■ **Class B:** During recovery operations, control of the UAV was lost on the third landing attempt and crashed.

■ **Class B:** Control of the UAV was lost during flight and it defaulted into home flight. Emergency procedures to regain control failed. The UAV was allowed to continue flight with its remaining 7 hours of fuel to buy time to regain linkage. Once engine fuel starvation occurred, the ACE box automatically rebooted and the recovery chute was deployed, but the UAV still sustained damage on impact.

■ **Class B:** The UAV experienced a generator and subsequent ignition failure during flight and crashed, bursting into flames upon impact. The wreckage, including the payload, was recovered.

■ **Class B:** The UAV launched at 50 percent throttle on a heading of 189 degrees for approximately 250 yards before impacting the ground.

■ **Class C:** The UAV experienced an engine failure following launch. The recovery chute deployed, but the UAV impacted the ground.

■ **Class C:** The UAV experienced generator and subsequent engine failure while in a holding pattern to land. The landing recovery chute deployed at 250 feet AGL, but the UAV suffered crash damage.

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

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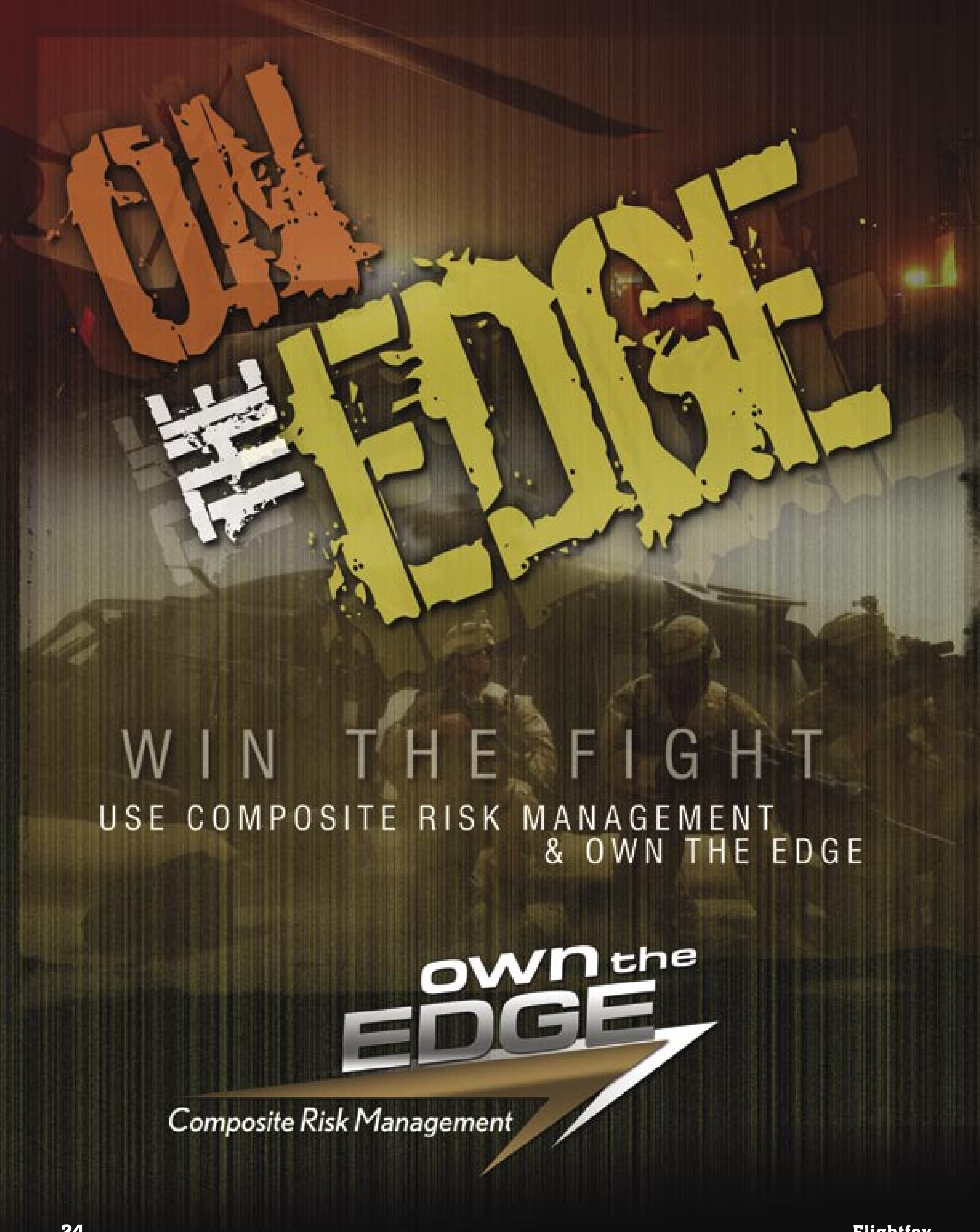
Last Flightfax this year…

We are consolidating the November and December issues of Flightfax. All personnel of the Army Combat Readiness Center wish you and your family a Merry Christmas and a Safe and Happy New Year.


ON THE EDGE
WIN THE FIGHT
USE COMPOSITE RISK MANAGEMENT
& OWN THE EDGE
own the
EDGE
Composite Risk Management