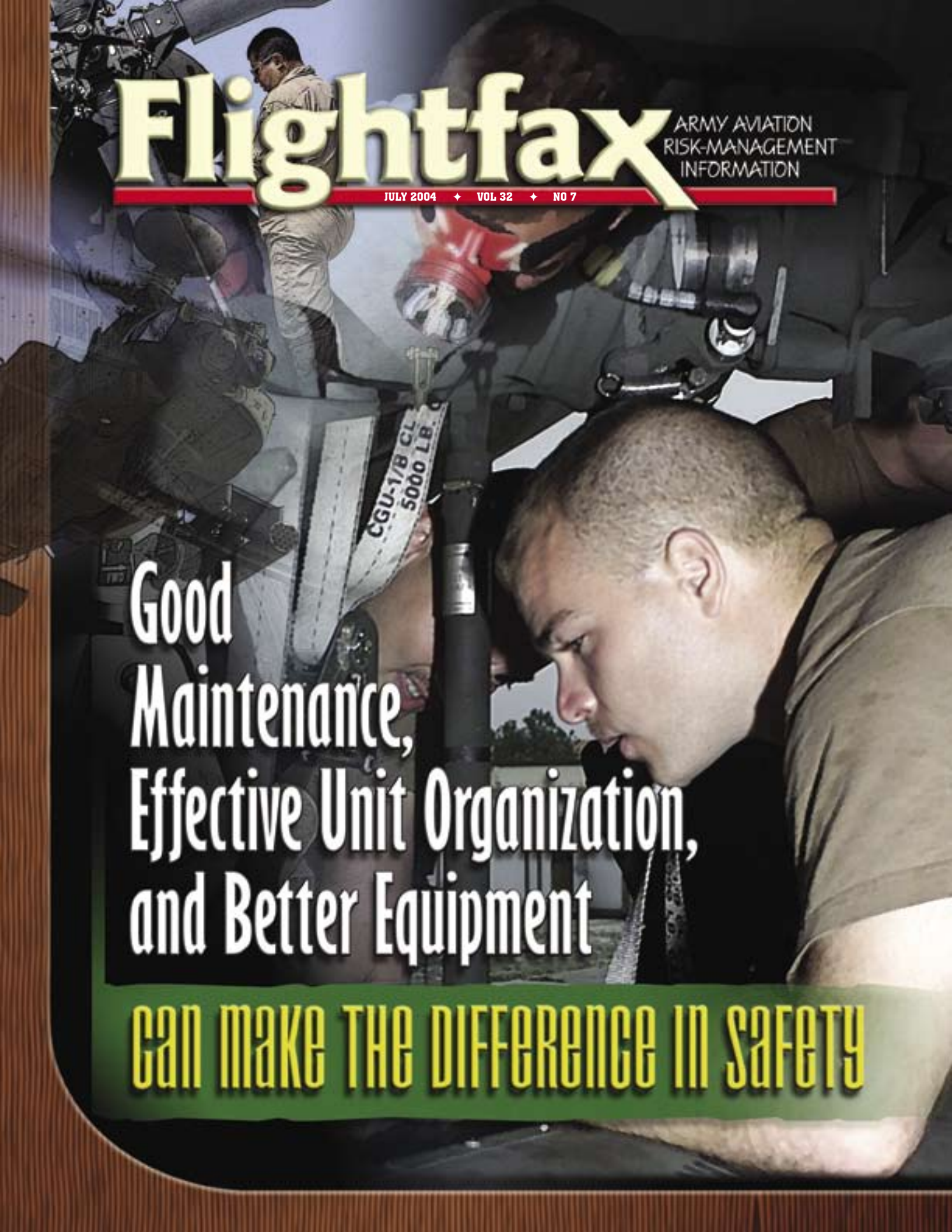


# Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

JULY 2004 ✦ VOL 32 ✦ NO 7

## Good Maintenance, Effective Unit Organization, and Better Equipment

## Can make the difference in safety

# Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

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U.S. ARMY SAFETY CENTER

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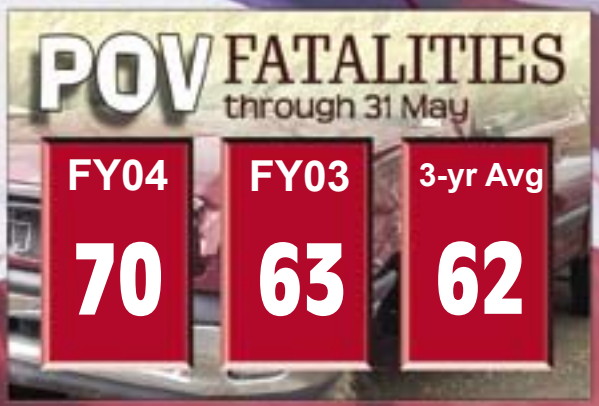


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Joe Smith

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

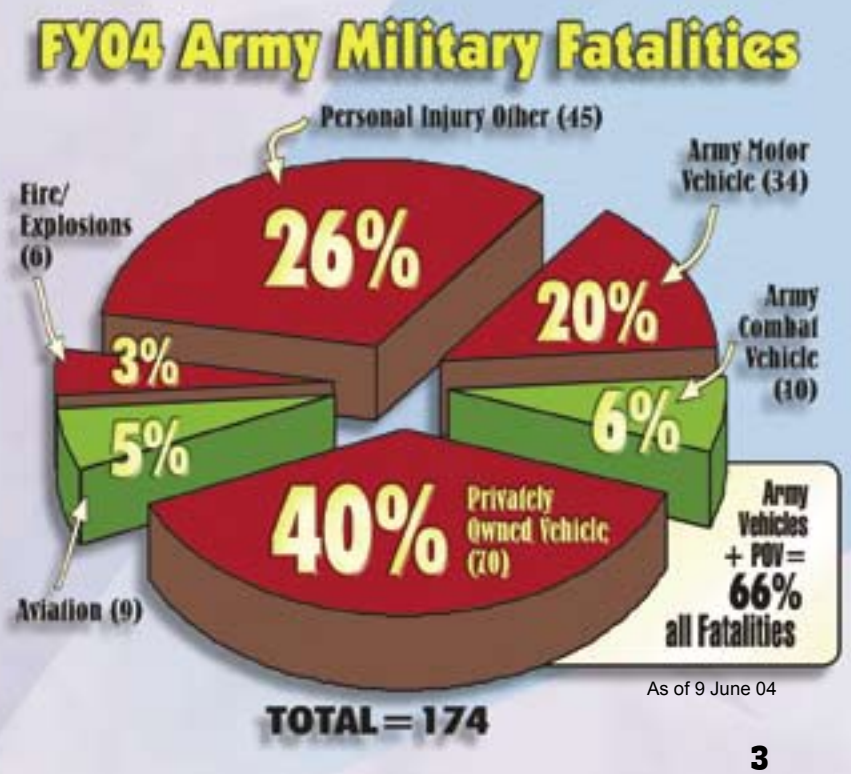
## DASAF's Corner
FROM THE DIRECTOR OF ARMY SAFETY

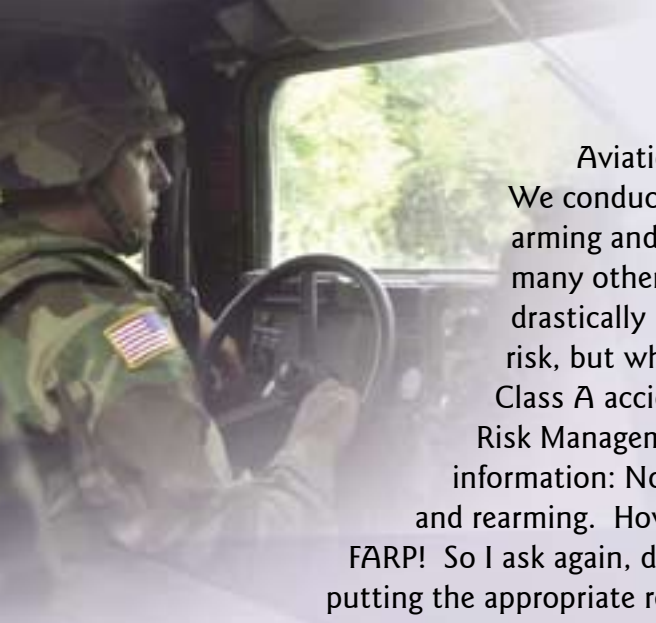
# Where Are You at Risk?

In my 30 years of service, I've never seen the Army as busy as it is right now. This spring we completed a series of rotations in the Central Command (CENTCOM) area of responsibility (AOR) that totaled over 250,000 Soldiers coming in and out of theater—the highest number since World War II. The challenges of the Global War on Terrorism, especially those in Iraq, have gripped the attention of our Army and our Nation.

Whether in theater or at home, our Soldiers and leaders stay focused on accomplishing their part of the mission. We train, we deploy, we fight, we redeploy, and we prepare to repeat the cycle in 12 to 18 months. Leaders at all levels understand that safety is important to their unit's welfare and combat readiness. But do we know what our leading hazards are? Or are we concerned only with the hazards that we might confront in theater? Do we truly understand what is going to get us hurt or killed? Do we spend the appropriate amount of time and resources toward preventing accidents?

Accidents have always been a significant concern. Since World War I, 55 percent of Americans killed in combat died because of accidents. As aviation Soldiers, we know the danger of accidents and spend significant resources to reduce the risks of our aviation operations. That is why over the last 30 years, the percentage of Army Aviation accidents has declined significantly. This year is no different, with only 5 percent of the Army's accidental fatalities attributed to aviation accidents. The raw numbers are also lower, which is why aviation is one of the only areas of the pie chart reflected in green. You wouldn't know it from listening to the press, but to date, Army Aviation's safety statistics are a great success story!





Aviation units do much more than just conduct aviation operations. We conduct convoy operations, motor pool operations, forward arming and refueling point (FARP) operations, weapons handling, and many other common tasks in which we continue to lose Soldiers at a drastically high rate. We always talk about FARP operations as high risk, but when I had my aide (a former III/V platoon leader) pull the Class A accident statistics on FARP operations using the Safety Center's Risk Management Information System (RMIS), we found some interesting information: Not a single Soldier on record has died while actually refueling and rearming. However, we have lost several Soldiers driving to or from the FARP! So I ask again, do you really know where you are at risk, and if so, are you putting the appropriate resources toward lowering those risks?

If you are in the CENTCOM AOR, your hazards lie in two major categories: Army motor vehicles and personal injuries. If you are in a HEMMT or HMMWV driving too fast for the road conditions or riding without a seatbelt, you just became your own worst enemy—more dangerous than any terrorist or improvised explosive device (IED). If you don't effectively enforce proper weapons clearing procedures and muzzle awareness in your squad or platoon, your own teammates will be more of a danger to you than any brownout approach under goggles.

What about when you're not deployed? This year alone, 72 percent of fatalities were caused by automobile or motorcycle accidents at home. This is tragic. There is honor in facing death while fighting for your country. There is no honor, however, in dying on a 3-day pass because you were too stubborn to wear your seatbelt, pull off to the side of the road when you were tired, or wear your motorcycle helmet.

So now that you know where the hazards lie, I ask another question. Do we spend the appropriate amount of time and resources to ensure our Soldiers and battle buddies drive defensively on America's roadways? We must train hard to be ready to fight, but all that training is wasted if Soldiers don't make it to the fight.

As an Army Aviation organization, we need to take the same safety approach we use for our big air assaults and apply them to our small convoy operations and POV trip planning. The Safety Center has provided two Internet tools to help you identify and assess hazards specific to your mission, whether you're at home or in theater. RMIS, available on the Safety Center Web site at **http://rmis1.army.mil**, can tell you the leading accident causes for any specific piece of Army equipment, installation, or type of mission. The ASMIS-1 POV Risk Assessment Tool, also located on our Web site at **https://safety.army.mil**, will assess a Soldier's travel plans and simultaneously inform the first-line supervisor what the greatest risks are for any driving trip.

Internet and multimedia tools enhance the risk management process, but there is no substitute for good leadership. We need our leaders to understand where they are in time and place, correctly identify their unit's risks, and take appropriate action to reduce those risks. Whatever the leader emphasizes gets done. Tough, caring leadership is not always popular, but our Soldiers count on their first-line leaders to make the tough calls and ensure they make it home safely.

**Our Army at War: Be Safe and Make it Home!**

Joe Smith

# Good Maintenance, Effective Unit Organization, and Better Equipment

## can make the difference in safety

The Army expends a lot of time, money, and manpower to improve safety at the lowest level and prevent accidents. This is especially true in Army Aviation. Every effort is made to provide good maintenance, effective unit organization, and better equipment to the Soldier in the field.

Two organizations featured in this issue are on the cutting edge in this regard. The Directorate of Combat Developments (DCD) has a significant safety role to play as the Army reorganizes or transforms to combat threats to our Nation. DCD is developing unit organizations and materiel requirements to bring Soldiers, leaders, and equipment together into efficient combat-ready organizations that can safely accomplish their missions. Aviation maintenance and supporting Soldiers are especially important when units deploy to harsh environmental conditions. While unit organization and materiel all have a role in safety, it's the actions of Soldiers and their leaders that actually, reduce risks where the rubber meets the road.

The U.S. Army Aviation Technical Test Center (ATTC) at Fort Rucker, AL, is also contributing to safety. Its ongoing Lead the Fleet (LTF) program is assisting Army Aviation with its transition to a condition-based maintenance program. LTF is gathering data and information designed to identify aircraft and aviation systems problems before Soldiers encounter them in the field. Evaluation of the safety and health characteristics of each item and system is conducted throughout the life cycle of a test. The LTF program provides insight into personnel hazards, as well as materiel and aircraft problems. It also provides conclusions regarding equipment maintenance hazards and any associated operational hazards inherent in the system.

*Editor's note:* Both DCD and ATTC are making it easier for Soldiers to be safe in our Army. I challenge other organizations to take an active role in supporting and promoting safety throughout the Army. Let us hear how your organization is taking an active role in promoting safety.

# Aviation Unit Maintenance Transformation

LTC Rob Sanders
Directorate of Combat Developments
Fort Rucker, AL

The new aviation brigade, or Aviation Unit of Action, is designed to be modular, scalable, and tailorable, and can task organize as required to conduct reconnaissance, security, air assault, close combat attack, mobile strike, and maneuver sustainment support. All units are designed to be modular, tailorable, and standardized to the extent possible, both between echelons and components of the force. In addition, each supported brigade combat team (BCT) Unit of Action has an organic brigade aviation element (BAE) that provides integration and synchronization of aviation into the BCT commander's scheme of maneuver.

Each of the Aviation Unit of Action's four aviation battalions, as the principal fighting component of the Unit of Action, are optimized to conduct and support tactical operations. The battalion contains the first level of staff planning, integration, coordination, and sustainment for aviation in combined arms operations. It is normally the lowest-level aviation unit that operates independently or autonomously for any extended period of time, and then only with required support from the Aviation Unit of Action. The flight company, as the primary fighting component of the battalion, is the basic building block of aviation and is also optimized for offensive actions.

Aviation flight companies are configured with 8 to 12 aircraft based on standard company building blocks. While the company is capable of limited independent action for a short duration, it normally fights as part of a battalion. Companies are normally assigned to a functionally pure aviation battalion for training, safety and standardization, leader development, sustainment operations, and the conduct of major combat operations. Depending on METT-TC, these companies may be task-organized into aviation battalion task forces, particularly for small-scale contingencies. The standardization of company building blocks across the force is fundamental to achieving modularity, tailorability, and flexibility for full-spectrum dominance.

The requirement to make aviation unit maintenance operations at the battalion level and below both more effective and efficient was a fundamental objective during this transformation redesign. Modularity was a key enabler to meet this objective. The Army Transformation Plan defined modularity as a force design methodology that creates capabilities-based unit elements that enable responsive and rapid identification, packaging, deployment, and sustained employment of fully mission-capable organizations capable

of operating in a joint and combined environment in support of combat commanders. The intent of modularity in aviation unit maintenance (AVUM) is to increase flexibility by providing right-sized, appropriately capable maintenance elements to the aviation force based on the company building block designs.

The Aviation Task Force developed small, capable maintenance modules focused toward an aircraft type and aligned with the lowest practical level while ensuring effective maintenance support to the operational commander. The new AVUM design provides aircraft and component repair maintenance sections that can be task-organized as required into platoons in support of operational companies or troops. This enhanced modularity can be achieved within current aviation personnel end strengths; however, achieving this level of modularity does require additional tools and test equipment.

The major change in the AVUM company was the addition of modular maintenance and logistics support. This redesign requires minimum changes from current aviation maintenance doctrine while increasing our ability to task-organize to support deploying units down to the flight company level. The redesigned AVUM company will now be called an aviation support company (ASC) to align aviation sustainment terminology with the Army's sustainment terminology.

The ASC depicted in this paragraph is the general support aviation battalion (GSAB) ASC, which is the most modular ASC in the Aviation Unit of Action. The ASC is modular at the section level and is capable of supporting a minimum of three separate flight company deployments. The ASC Headquarters is comprised of an HQ element; a production control element with a dedicated production control officer (MTP-trained warrant officer) and production control NCOIC, ALSE section, and tech supply section; and a modular QC element with teams to support each flight company as required. The aircraft repair platoon (ARP) has a section for each flight company and, in the case of the GSAB, has teams to support modular deployment down to the flight platoon level. The component repair platoon (CRP) has three modular teams per section, one for each flight company.

Each repair platoon is now led by an aviation lieutenant who has attended a restructured aviation maintenance manager course. This platoon leader is assisted by an MTP-trained warrant officer in the ARP and an aviation maintenance technician warrant officer in the CRP. Each of the repair platoons is authorized tools and test equipment to sustain the flight companies while conducting limited independent action for short durations, as well as indefinite battalion-level operations. In addition, each platoon has three shop equipment contract maintenance (SECM) vehicles to enable the packaging and transport of tools, test equipment, and personnel in support of the flight companies, as well as execution of maintenance tasks at these dispersed and remote locations.

As always, the most important resource in aviation sustainment is the Soldier. The training, ingenuity, and leadership of our aviation logistics Soldiers allow them to deliver readiness to the warfighter in the face of diverse threats on the battlefield. Our Soldiers are working hard toward meeting our aviation readiness requirements, and we owe them the resources, training, tools, parts, and management systems necessary to meet the combat commanders' expectations. The bottom line is that the ability to provide this modular capability requires that our Soldiers be properly trained and led, and that these modular teams are equipped correctly. ♦

**—LTC Rob Sanders, Directorate of Combat Developments, DSN 558-2220 (334-255-2220), e-mail robert.sanders@us.army.mil.**

# Leading the Fleet in Sustainment So
# Condition-Based Maintenance

MAJ Jong Lee
U.S. Army Aviation Technical Test Center
Fort Rucker, AL

Have you ever wondered why we use flight time as a factor to calculate aircraft usage? Is 1 hour of flight time really causing 1 hour of wear to aircraft components? Do aircraft A and B below accumulate the same wear on aircraft components?

**Aircraft A:** Takes off from Cairns Army Airfield, Fort Rucker, AL, and flies for 2 hours straight and level and lands at Redstone Arsenal, Huntsville, AL. Environment: Moderate temperature and no dust.

**Aircraft B:** Takes off from Baghdad International Airport and flies a combat aerial resupply mission at contour and nap-of-the-earth flight modes with several landings and takeoffs, and finally returns to Baghdad International Airport after 2 hours. Environment: Hot and extreme dust.

Using the latest on- and off-board technology and analytical processes, the Army Lead the Fleet (LTF) program is investigating the relationship between aircraft usage, vibration, component wear, environmental conditions, and maintenance. The LTF process identifies issues and collaborates among Army agencies to solve critical issues with component reliability and sustainment in the aviation fleet *before* such issues manifest themselves in the operational fleet and degrade readiness in a theater of war.

In addition, LTF is an innovative multi-year program designed to deliver information to support development of a condition-based maintenance (CBM) program for Army Aviation. LTF results have contributed to enhanced readiness, a reduced rate of growth of operating and support costs, and enhanced operational risk management. Additional cost avoidance will be achieved through a reduction in maintenance man-hours required for scheduled maintenance.

LTF collects valuable information to support the transition of aviation maintenance from calendar time and hours flown to a condition and usage basis—in other words, CBM. The G-4 has designated LTF as a pilot program for data collection and information development in support of the Army's transition to CBM. Information produced may also prove useful in supporting the analysis and development of two-level maintenance (2LM).

## What is LTF?

The LTF program is funded by the Deputy Chief of Staff (DCS) for Logistics, G4, and managed by the Program Manager (PM), Lead the Fleet, at the Aviation Missile Research, Development and Engineering Center (AMRDEC) in Redstone Arsenal. The LTF team

# lutions and Transformations to

includes:

- Aviation Technical Test Center (ATTC), Fort Rucker.
- Aviation Engineering Directorate (AED), Redstone Arsenal.
- Operational Research Center of Excellence (ORCEN), United States Military Academy (USMA), West Point, NY.
- WESTAR/COBRO Corporation, Huntsville and Fort Rucker.

ATTC at Fort Rucker operates the sample set of aircraft in carefully selected profiles that are representative of current operational mission profiles and requirements. ATTC flies at an operational tempo (OPTEMPO) significantly higher than the overall fleet average. The resulting usage and maintenance data are collected and analyzed to support development of changes in materiel, maintenance procedures, flight profiles, and training.

Testing is conducted at a variety of sites from Duluth, MN, and Fort Carson, CO, to El Centro, CA, and the southeastern United States to ensure realistic environmental effects. The aircraft are not kept in hangars except for extended maintenance and severe weather warnings. Supporting maintenance is compliant with current Department of the Army (DA) standards. Data collection will expand to selected aircraft operating in the field on a non-interference basis. Adding operational data collection is a critical step in supporting the transition to CBM.

## LTF success examples

The LTF team has completed design and testing of a special tool for the CH-47D. When used during replacement of the drive link bearings, the tool will save 18,000 man-hours per year. This is approximately 9 man-years!

LTF has already made a significant contribution to flight safety. The LTF team identified excessive, accelerated wear on AH-64A pitch control links (PCLs) during high OPTEMPO operations. The rate of wear in a single flight period had the potential to cause catastrophic failure. The findings resulted in the item manager pulling 2,000 substandard parts out of the distribution system. The PCL action also saved 29,900 man-hours of maintenance and avoided $12 million in test flight costs.

## Warfighter support

LTF also provides an opportunity to conduct ground and flight testing using LTF aircraft. The aircraft PMs (Program Executive Officer,

### LTF CH-47 Drive Link Special Tool

- Maintenance efficiency: 9 man-years saved.
- Readiness: 19,000 hours of additional up time.
- O&S cost reduction: $1.9 million (test flights).
- Total procurement cost: $27,000 (fields all AVIM units in the Army).

## AH-64A&D Pitch Control Link (PCL)

- LTF team identified excessive, accelerated wear on PCLs during high OPTEMPO operations.
- Findings resulted in 2,000 substandard parts being pulled from the distribution system.
- 29,900 man-hours saved and $12 million in test flights avoided.

Aviation) and AED frequently use this "piggyback" capability. LTF has a rapid testing and validation capability to test critical warfighting modifications to aircraft. Examples include:

- AH-64A/D combo pack (trades ammo for fuel)–flight certified for theater.
- Hellfire missile blast fragmentation sleeve–enhanced weapons effects.
- Evasive maneuvers–tested and certified AH-64A/D maneuvers for use in theater.

The pictures at the right show LTF AH-64A and D aircraft during combat maneuvers envelope expansion testing. ATTC aviators expanded the AH-64A/D aircraft operational envelope to +/- 60 degrees pitch and +/- 120 degrees roll.

### The year 2015

By the year 2015, the Army will exploit emerging technologies to lighten support requirements, project forces faster, and change sustainment requirements. The future maintenance concept will predict equipment failures based on real-time or near real-time assessment of equipment condition obtained from embedded sensors, external tests, and measurements using portable equipment. There will be reduction of maintenance down-time and increased operational readiness by repairing or replacing system components based on the actual condition of the component as opposed to scheduled or time-phased maintenance procedures.

Current predictive trending techniques use historical data to confirm maintenance decisions that are based on expert opinion. This systemic approach and trend analysis will give the aviation logistician a basis from which to make fact-driven maintenance decisions. The Army will use these emerging technologies to establish CBM as a new framework for logistics support. LTF will establish the systems engineering framework for Army Aviation CBM. ♦

**—MAJ Lee is the Assistant Program Manager for LTF at ATTC. He may be reached by calling DSN 558-8164 (334-255-8164) or by e-mail at jong.hyuk.lee@us.army.mil.**

**AH-64A Combat Maneuvers Envelope Expansion**

**AH-64D Combat Maneuvers Envelope Expansion**

# Army Oil Analysis PROGRAM

Maintenance MATTERS

CPT R. Shane McWhorter
Army Oil Analysis Program, LOGSA
Redstone Arsenal, AL

The Army Oil Analysis Program (AOAP) is a valuable maintenance and diagnostic tool to detect impending component failures in both aeronautical and non-aeronautical equipment. The program monitors the condition of oil for contaminants and uses specific diagnostic equipment that detects physical property, oil condition, and debris analysis.

In the AOAP, the term "oil" covers all fluids used in wetted lubrication systems (such as hydraulic fluid, grease, transmission fluid, and oil). The AOAP's goal is to extend life expectancy of Army equipment components by targeting root causes of failure and/or pre-empting crisis failure management. The program also saves money by providing "on-condition" oil analysis to monitor equipment condition and extend oil drain intervals. The paragraphs below highlight some examples of how AOAP has helped the Army Aviation community when used as part of the unit's maintenance toolbox.

The Coleman Barracks AOAP Laboratory near Mannheim, Germany, notified a deploying AH-64 aviation unit that all 12 oil samples from their unit were contaminated. The Fourier Transform Infrared (FT-IR)—which detects the presence of contaminants such as water, fuel, coolant, acidity, additive level, and oxidation—discovered that the wrong type of servicing oil was present in the 12 Apaches. The FT-IR detected the presence of MIL-H-5606 servicing oil mixed with MIL-H-832822 SPEC. The unit's aviation maintenance officer was notified immediately and elected to do a full service on all helicopters. The service confirmed that MIL-H-5606 had been mixed inadvertently with MIL-H-832822 SPEC. The helicopter systems were rechecked by AOAP and released for normal sampling. The AH-64 unit sent a letter of appreciation to Coleman Barracks for their exemplary work in detecting this potential problem.

In October 2003, the Fort Carson, CO, AOAP Laboratory issued a maintenance recommendation to the maintenance officer of a nearby Army National Guard unit. Spectrometric analysis indicated a possible failure trend, and the lab recommended immediate inspection of a UH-1V's 42 degree gearbox for abnormal or excessive wear due to aluminum and iron (Al & Fe) wear detected in recent oil samples. The rapid increase in Al & Fe content indicated a possible failure trend.

Upon receipt of DA Form 3254-R, "Oil Analysis Recommendation and Feedback," unit personnel removed the aircraft's 42 degree gearbox and found that the seal-retaining pin had dislodged and fallen into the gearbox's internal workings. The gearbox was inspected thoroughly, and no damage to its internal parts was found. The Soldiers flushed out the fragments and replaced the gearbox on the aircraft. The unit then filled the fluids and took another sample as directed.

The above examples illustrate how a routine preventive maintenance program can potentially save Soldiers' lives and ensure the equipment they operate is fully mission capable. ♦

—CPT McWhorter is the Deputy for Technology and Acquisition for the AOAP-LOGSA at Redstone Arsenal, AL. He can be reached at DSN 645-6661 (256-955-6661) or by e-mail at rodney.mcwhorter@us.army.mil.

NCO CORNER

# shop talk

**Army Aviation NCOs provide the crucial link between the aircraft they maintain and the pilots that fly them, often working in adverse conditions with little support. These NCOs, equipped with their specialized knowledge and training, keep our Army's aircraft flying day and night all over the world. They know proper maintenance is a critical component of safe aviation operations. The NCOs below shared their thoughts with *Flightfax* while attending the Aviation Advanced Non-commissioned Officer's Course at Fort Rucker, AL. Read on and learn from their near misses.**

## Great Flying FOD!

My platoon sergeant and I were walking across the flight line at my first duty station when we saw an object fly in front of us at head level. The object slammed against a hangar door and fell to the ground. We walked over to the hangar and identified the object as an 18-inch adjustable wrench.

Looking across the ramp, we saw an AH-1 from another battalion running up for main rotor track and balance. Their crew chief approached my platoon sergeant and claimed the wrench. However, it wasn't going to be that easy! My platoon sergeant took the crew chief and the wrench to their platoon sergeant.

It later came out that neither the crew chief nor the maintenance test pilot did a proper FOD check after making adjustments during the track and balance. As the aircraft ran up, the wrench flew off the aircraft and shot through the air. Considering that the wrench missed my platoon sergeant and me by only 10 to 15 feet—and at eye level—I think we were pretty lucky! ♦

***—SSG James McMinn***

## Maybe It'll Do

We were preflighting an aircraft when someone noticed the tail wheel tire pressure was low. The crew chief quickly went to get the nitrogen cart and tire fill kit. Our unit was using an Air Force unit's tool room at the time, and the type of nitrogen cart they had was a model the crew chief wasn't familiar with. To make matters worse, their tire pressure check and fill kit was signed out, but the person who signed for it was on pass.

This probably sounds like a recipe for disaster, and someone should have known better. Even so, the Air Force NCO working the tool room assured the crew chief the nitrogen cart could be used without the check and fill kit. He also gave the crew chief brief instructions for using the cart and kit.

The crew chief, armed with this newfound knowledge, came back and began to fill the tire. When the pressure reached 125 psi, he tried to cut off the cart's fill pressure. However, turning off the pressure was a lot harder than he thought. By the time he was able to cut the pressure off, 1,100 psi had been pumped into

the tire. The tire blew up, and everything from the tail strut down had to be replaced.

***Editor's note:*** *Since 1990, there have been five accidents and two fatalities between the Army and the Navy involving aircraft tire or wheel explosions. This crew chief was lucky he didn't get hurt; but unfortunately this same scenario killed a Soldier in Iraq last year while he was servicing a Black Hawk tire (see March 2004* ***Flightfax*** *for story).* ♦

***—SFC John Bazzano***

## Where One Door Opens...

I was on my last check ride for standardization flight engineer instructor designation on a UH-1H. Before flight, our crew of four verified all forms and records for completed inspections and performed the pre-flight and checks by the checklist. The cargo doors were locked and pinned to the open position.

The first 1.5 hours of flight progressed normally. We were on our way home at about 200 feet AGL and at 110 knots when the left-side cargo door swung forward from the rear—still attached to the door lock pin. The door then separated from the aircraft with a loud "bang" and flew up toward the main rotor blades. Fortunately the door didn't hit the blades, but it did come down and fly past the aircraft's rear, barely missing the vertical fin and tail rotor.

I was sitting on the floor, attached to a harness, when I realized what was happening. As I was trying to inform the crew of the situation, the instructor pilot began asking about the noise. After a few minutes, we landed at our airport without anything else happening.

During post-flight inspection, we discovered the aircraft's lower cargo door tracks and slider strip were worn beyond repair. Both were to be inspected during phase maintenance, but since the doors were installed, there wasn't much room to see between the tracks and sliders. Our crew, as well as our maintenance teams, made a grave oversight. Luckily we didn't lose an aircraft or—most importantly—our lives!

Maintenance procedures, inspections, and aircraft restrictions for our aging UH-1 fleet were incorporated into our unit's SOP shortly after this incident. We all learned our lesson that day, and now others can benefit from our experience. ♦

***—SFC Raymond Daugherty***

## Mercury Rising

We had just completed the preflight checks on our aircraft and were doing the health indicator test check. The pilot gave me the exhaust gas temperature (EGT), but it was about 40 degrees over our target. I relayed the temperature we were looking for, but we looked at the book again and decided to go with the next-highest outside air temperature.

The EGT was now 35 degrees over the one specified. The pilot in command finally asked what temperature we were looking for, and when I told him he gave me a number exactly 20 degrees above the target. Then he said, "Let's go."

We were a few minutes into the flight when the copilot noticed the EGT was climbing in excess of 600 degrees. I told him we needed to go back to our home airfield immediately. When we got there and inspected the aircraft, we discovered the bleed band bolt was installed incorrectly at the actuator. The aircraft had just returned from maintenance. This error was missed by not only the technical inspector and the pilot that completed the preflight, but also by the crew chief that performed the maintenance and daily inspections.

Little mistakes can have big consequences. We were lucky some serious damage wasn't done that day. We never should've taken off in an aircraft that was exhibiting signs of trouble on the ground. Pay attention and don't compromise when it comes to safety! ♦

***—SSG Fred Brooking***

# No Rings, No Kidding!

CW4 William F. England
Kansas Army National Guard

I've heard it said my whole aviation career: "Take off your rings!" Your supervisor and safety officer aren't kidding when they say, "No rings will be worn when you're involved in aviation operations!" I nearly lost my left-hand ring finger once because I forgot to take off my wedding ring.

I was on a 6-month stabilization force rotation in Bosnia-Herzegovina and working as part of a night quick-reaction force (QRF) UH-60 crew. I always wore my wedding ring, except when I was performing flight-related duties. Many aviators and crewmembers did the same thing. For the QRF, I would take off my ring when I went to preflight and run up the aircraft at the beginning of my shift. Once the aircraft and crew were "cocked and locked," I would put my ring on again. This was the way I did business at home, throughout my unit's train-up, and up to this point in the rotation. It hadn't been a problem so far, but that was about to change.

**I was in transition from the step to the ground when I realized that my ring was caught. As I continued my descent, the ring dug into the palm side of my finger and tore a section of skin about a half-inch long. The ring also tore a smaller gouge on the other side of my finger.**

I was about halfway through my week-long night QRF shift. Our crew had completed the preflight, run-up, and commo checks, and the other pilot and I were relaxing in the company operations office. We were alerted around 2200 to go to the task force operations office for a possible mission. After a lot of waiting and several false starts, we finally got our briefing. We rushed out to the aircraft, loaded our troops, and got underway. Things were pretty rushed because of the earlier delays, but we launched and dropped our troops at their designated location.

We then headed to a nearby base operated by another nation and waited for the call to pick up our troops. Upon arrival at the base, we hot-refueled and repositioned the aircraft for shutdown. The refuel, reposition, and shutdown were uneventful. As I was preparing to exit the aircraft, I took off my gloves and noticed that I still had on my wedding ring. "I always take that ring off!" I said to myself. "Well, no point in taking it off now since I'm done flying."

I took off my kneeboard, unfastened my seatbelt, and began to climb out of the right seat. As I stepped down, I was holding the doorframe with my right hand and resting my left hand on top of the seat's armor panel. I let go of the doorframe and continued toward the ground, with my left hand still on top of the panel. When my hand began to slide across the panel, however, my ring caught on a screw that was sticking up from a panel mount. I was in transition from the step to the ground when I realized that my ring was caught. As I continued my descent, the ring dug into the palm side of my finger and tore a section of skin about a half-inch long. The tear went from where the ring naturally rested up to the bend point under the first knuckle. The ring also tore a smaller gouge on the other side of my finger.

I was able to dislodge the ring from the screw before I reached the ground. Immediately after stepping down, I gingerly pulled the ring off of my finger. Man, did that hurt! I determined the extent of my injury and alerted the other crewmembers to what I had done. One of them applied a couple of bandages to cover the tears and help stop the bleeding. The next day I went to see the flight surgeon. Although I didn't need stitches, she lectured me about how lucky I was not to have lost my finger.

What did I learn from this experience? Never, ever climb on an aircraft—or anything else—while wearing a ring. Take it off, and don't forget! It's just not worth the pain. ♦

—CW4 England is a UH-60 pilot with A Company, 1/108th Aviation, Kansas Army National Guard. He may be reached by calling (785) 862-0774 or by e-mail at william.england@us.army.mil.

# Where's This ELT Go?

## emergency locator transmitter

Numerous accident reports contain this statement: "Rescuers were led to the aircraft accident site after receiving a signal from an emergency locator transmitter (ELT)." The ELT is a survival device installed on Army helicopters to expeditiously locate crew and passengers involved in aircraft accidents, thus saving lives. An airworthiness release (AWR) authorized the installation and operation of the Emergency Beacon Corp. (EBC) 302H-series ELT on Army Black Hawk helicopters.

The EBC 302H ELT was specifically designed and adapted for military operations. It has a line-of-sight range of 1,200 miles and can withstand an impact of up to 1,000 G-forces (Gs). The 302H will operate up to 200 hours after activation in temperatures ranging from –20ºF to 160ºF, and up to 20 hours fully submerged in salt water. Additionally, it simultaneously transmits on both UHF and VHF emergency frequencies.

In May 1995 AWR 543 was published, authorizing installation of the EBC-302HM ELT on all standard UH-60A/L helicopters. The latest revision to this AWR was in February 1999. It contains specific and detailed installation, operation, and testing instructions for the EBC-302HM ELT. The 302HM is a non-standard piece of equipment, and thus not required for normal operation. However, the AWR authorizes the installation of the 302HM if your organization so desires. Additionally, another AWR was published in December 1999 addressing ELT installation and testing procedures on all U.S. Army aircraft incorporating ELTs. The concern of the Utility Helicopter Project Management Office (UH PMO) safety staff is the proper installation location of the device.

In the UH-60A/L, the ELT is to be mounted on the stowage box assembly on the back of the copilot's seat. This stowage box assembly is also known as the "Gunner's Ammunition/Grenade Stowage Compartment" (see figure 2-4 [sheet 2 of 2], page 2-8, Technical Manual 1-1520-237-10). This is a non-stroking portion of the seat frame.

Depending on the terrain and weather conditions, improper installation of the ELT can drastically lower your chances of survival. A 5 to 7 G-force is required to activate the ELT. During an accident sequence, the seat strokes to absorb crash forces. If the ELT is installed on a stroking portion of the seat, the purpose of the ELT is defeated. Please read and adhere to the installation, operation, and testing procedures contained in AWR 543. ♦

**—Submitted by Mr. Gary D. Braman, CAS Inc., Huntsville, AL, DSN 746-4177 (256-876-4177), e-mail gary.braman@uh.redstone.army.mil.** **Reprinted with permission from the "Black Hawk Newsletter."**

*If you have questions or require a copy of AWR 543, please contact Mr. Gary Trotter, Aviation Engineering Directorate, Redstone Arsenal, AL 35898. His telephone number is DSN 897-2350, ext. 9693 or (256) 705-9693. He may also be contacted via e-mail at gary.trotter@rdec.redstone.army.mil.*

# HIRTA Messages: Keeping Flying Interference Free

Unacceptable system anomalies can occur in aircraft that fly too closely to high-powered emitters such as radio, television, radar, satellite, and microwave systems. To counter this threat, High Intensity Radio Transmission Area (HIRTA) messages are issued for a specific aircraft or groups of aircraft to ensure they don't get too close.

The affected systems include the primary communication, navigation, identification, flight control, and vehicle management systems, as well as the pilotage displays and sensors and instruments. Unacceptable anomalies can cause safety issues such as inadvertent dispensing of ordnance or inaccurate navigation while in instrument meteorological conditions (IMC). They do not include anomalies involving mission equipment such as mission radios, mission displays and sensors, and non-safety issues associated with weapons systems.

HIRTA messages provide generic standoff distances pilots should use to avoid all identifiable high-powered emitters. The distance is chosen to provide the least restriction possible and still keep the message at a reasonable length. The messages contain specific emitter locations (latitude and longitude), followed by a standoff distance for each specific site. Some messages have standoff distances based on visibility and flying conditions (day or night, VMC or IMC). These distances allow for reduced restrictions when certain flight systems are not required. Some messages also include shipboard guidance and standoff distances. All messages contain guidance for exiting a HIRTA area if one is entered inadvertently and anomalies are encountered, including required information for reporting HIRTA incidents.

There have been numerous cases in the UH-60 where filter pin adapters have failed and are not readily available for replacement. The UH-60 HIRTA messages provide guidance and standoffs for those aircraft that have to fly without specified adapters.

All HIRTA messages are classified. Forces Command (FORSCOM) and the National Guard Bureau currently distribute HIRTA messages. Both organizations have unclassified information on their Web sites instructing units how to access the messages, which are posted on classified sites or news groups and are accessible via SIPRNET. The FORSCOM SIPRNET news group is **news://fcsmwww1.force1.army.smil.mil/FORSCOM.DCSOPS.Aviation**. ♦

*For additional information on HIRTA messages, contact Mr. Frederick T. Reed III at the Aviation Engineering Directorate, AMSRD-AMR-AE-S, Redstone Arsenal, AL 35898; phone (256) 705-9745; or e-mail* fred.reed@rdec.redstone.army.mil.

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U.S. Army Safety Center

# A Song to Save Soldiers

Recording artist Mark Schultz has joined with the Army to help launch the new safety awareness campaign, dubbed "**Be Safe – Make It Home**." Schultz' song, "*Letters from War*," deals with a Soldier returning from war and was inspired by diaries the singer's great-grandmother kept while three of her sons fought in World War II. As the centerpiece of the safety awareness campaign, the song will be used in a music video, training video, and in public service announcements. The goal is to educate Soldiers and the general public about the Army's high number of fatal accidents.

"Statistically, this has been a rough year for Army accident casualties," said BG Joseph Smith, Director of Army Safety. "In an attempt to reverse this trend, the Secretary of the Army initiated the '**Be Safe**' campaign to educate Soldiers, with the end result of keeping them alive and well. We want our troops to be safe and make it home when participating in everyday activities that can lead to accidents, such as driving, swimming, and biking."

The campaign's "Letters from War" video and other materials are available to all Soldiers, Department of the Army civilians, defense contractors, and family members. For more information, visit the Army Safety Center's Web site at **https://besafe.army.mil/**.

# Aviation Safety Officer Refresher Course

**The Aviation Safety Officer (ASO) refresher course isn't mandatory; however, it is an excellent opportunity for ASOs to develop professionally by reviewing current safety issues and initiatives that will allow them to better safeguard their organizations. The next ASO refresher course is scheduled for 13-17 September 2004. Please coordinate for attendance through your command and ensure your unit enrolls you in the Army Training Requirements and Resources System (ATRRS). Hope to see you there!**

## New ASO Course Prerequisites

Attention future ASOs! New ASO course prerequisites have been published in DA PAM 611-21 and ATRRS as of January 2004. The prerequisites reflect experience and academic requirements that must be met before attending the course.

## Experience

All Army Aviators attending the course must have at least 50 hours of pilot-in-command (PC) time in an Army aircraft. PC status establishes credibility as a pilot, mission planner, and risk management integrator. Students must produce a copy of their last flight record closeout with the PC hours annotated or a memo from the commander stating that their flight experience requirement has been met.

Commanders may request a waiver to this requirement by contacting the ASO Course Director at U.S. Army Safety Center, Bldg 4905, 5th Ave, Fort Rucker, AL 36362, FAX to DSN 558-9528, or e-mail hedmanw@safetycenter.army.mil. Please justify why the prerequisite cannot be met.

## Academic prerequisites

All ASO course attendees, except foreign officers, must complete the Commander's Safety Course, the Action Officer Course, and the AMMO 45 Course prior to attending the ASO resident course. The Commander's Safety Course and the Action Officer Course may be accessed through the Army Distance Learning Web site at **https://www.aimsrdl.atsc.army.mil/secured/accp_top.htm**. The AMMO 45 Course must be ordered online from the Defense Ammunition Center Web site at **https://www3.dac.army.mil/AS/products/p_45.asp**. Students must provide a copy of the computer-generated end-of-course certificate or a copy of their unofficial ATRRS transcript, which may be obtained through the AKO portal when inprocessing the course.

## The future

The new prerequisites are only the beginning of a more comprehensive ASO training program that is currently under development. The plan calls for a three-tiered approach to develop ASOs over several years rather than providing one 6-week course for a career in safety.

The first tier will consist of an Additional Duty Safety Officer (ADSO) Distance Learning Course that is currently under development for those officers and NCOs that are assigned as safety officers in any Army unit. An additional module covering ASO duties and responsibilities, based on AR 385-95, will follow. Both of these courses will become prerequisites for the ASO resident course and provide the fundamental skills and knowledge required to manage a unit safety program.

The ASO Resident Course, or tier two, will then focus on more advanced tasks and practical hands-on training oriented toward managing a safety program at the battalion level and above. The third tier includes advanced safety track training conducted as a part of the Aviation Warrant Officer Advanced Course. A critical task list for this tier of training has already been developed and will focus on specialized duties of a senior ASO. Although these efforts take some time to develop, they are on the fast track for completion. The future is so bright for ASOs, you'll have to wear shades! ♦

—CW5 Wes Hedman is the Chief of the Aviation Safety Training Division at the U.S. Army Safety Center. He may be reached by calling DSN 558-2376 (334-255-2376) or by e-mail at hedmanw@safetycenter.army.mil.

# Honing the Edge of the Aviation Safety TEAM

CW4 Mark W. Grapin
State Aviation Safety Officer
Kentucky Army National Guard

In each of the last several years, the Kentucky Army Aviation Support Facility (KYAASF) has conducted an in-house, week-long refresher course for aviation safety officers (ASOs) and non-commissioned officers (NCOs) assigned to one of its several supported units. Recently, this training was expanded to include operations personnel, commanders, aviation life support equipment (ALSE) technicians, maintainers, and a wide variety of other affected and interested personnel.

"During the last two courses, we extended the invitation to aviation units outside the state and have been very pleased with the reception and participation," said COL Benjamin F. Adams III, State Army Aviation Officer for the Kentucky Army National Guard (KYARNG) in Frankfort, KY.

During this year's course, the number of personnel from outside the state more than doubled and even included participants from the active component. COL Adams was quick to point out that the structure and content of the training has outgrown the "refresher" label.

"The U.S. Army Safety Center (USASC) Training Division has been very supportive in sharing information they use in the formal ASO Refresher Course offered at Fort Rucker, AL," he said. "Both teams–the KYARNG and the USASC Training Division–worked hard to ensure the workshop wasn't merely a duplicate of the course already offered at Fort Rucker." As a result, the workshop was clearly structured as a unique event, and the USASC Training Division benefited from shared research that was updated and forwarded back to them.

Refresher training for ASOs is by no means new. USASC has been conducting refresher training for years. In fact, Army Regulation 385-95 talks about the importance of training for ASOs and aviation safety NCOs, and NG Circular 385-95 further emphasizes this. In Kentucky, COL Adams added state-level influence to this need by insisting on excellence in the material covered and timeliness of the subjects. For instance, one KYARNG fixed-wing aircraft recently experienced a lightning strike, so emphasis was placed on the actions required during the first moments and hours following a mishap, particularly when away from home base.

Interest in the Aviation Safety Workshop, as it's officially known, also garnered a request from the U.S. Army Aeromedical Research Laboratory at Fort Rucker to present a block of instruction

on the ALSE Retrieval Program. The program of instruction for the workshop took the participant from understanding why they're there–actually *doing* aviation safety–to very practical and logical subjects they'll use every day. Participants showed up with their unit or facility safety files, and two of the blocks of instruction dealt with organization of those for the current year and setting up files for the next year.

The Frankfort City Fire Department Crash and Rescue Team joined the class during the third day for a dry run of the pre-accident plan rehearsal conducted on day four. The dry run was conducted over a specially-constructed, three-dimensional terrain board in the classroom, during which several scenarios were examined. The class was in the field on day four and participated in a very realistic rehearsal of the facility pre-accident plan.

**Workshop participants consider several accident scenarios over a terrain board in the classroom.**

**Workshop participants apply what they learned during a full rehearsal of the pre-accident plan.**

"We hand-receipted a crashed and de-mil'd OH-58D and laid it out as it appeared in the original crash," said CW2 Matt Willey, ASO for the KYAASF. "The Frankfort Fire Department brought out a smoke generator, and we placed it in the aircraft. When the firefighters pulled up in response to our having activated the crash alarm, they saw a smoking aircraft and two pilots posing as injured aircrew members in the front seats."

Simply by following the pre-accident plan, this portion of the workshop gave a "come-as-you-are" look at strengths and shortcomings in the critical steps of pre-accident planning. During the full rehearsal in the last workshop, firefighters and Army aircrew members weren't the only ones in attendance: Both city and county fire agencies were on hand, and the Frankfort City Emergency Management Office, two local newspapers, and even the Mayor of Frankfort turned out to learn about pre-accident planning.

The workshop this year also included a discussion of the KYARNG's newly-developed family safety pamphlet. As an inter-service publication, it is likely the first of its kind developed as a joint effort between the Air Guard and Army Guard teams at the state level. The pamphlet includes such timely subjects as privately owned vehicle safety and unexploded ordnance, in addition to dozens of other off-duty factors that affect those in uniform, civilian employees, and their families.

"Working with the Air Guard team in joint operations such as program development and training are an inherent part of our relevance to our transforming forces," said COL Adams. "A great indicator of our success is when a member of a sister service or another state calls and asks how they can be a part of it. We're all too glad to share it."

Several people have already asked for seats in the next workshop. Subjects are sure to be relevant, practical, and timely. And, participants will no doubt include a number of Air Guardsmen seated alongside members of the KYARNG and those from several surrounding states–all honing the edge of the Aviation Safety Team. ♦

**—For more information on the Aviation Safety Workshop, contact CW4 Grapin at DSN 667-1534 (502-607-1534) or e-mail mark.grapin@us.army.mil.**

# ACCIDENT BRIEFS

*Information based on preliminary reports of aircraft accidents*

## CH-47

### D Model

■ **Class C:** Aircraft suffered Class C damage after the ramp contacted the ground during FARP operations. The aircraft landed to the FARP with a reported tail wind when the ramp hit the ground.

■ **Class E:** A loud grinding noise was heard from the aircraft's forward pylon area during start-up. The #1 FLT boost pump was replaced.

■ **Class E:** The aircraft's fuel gauges indicated 3,800 pounds while the aircraft was on the ground. In flight about 15 minutes later, the gauges showed 4,700 pounds. The right main needle then began spinning. The aircraft landed and was shut down without further incident. Maintenance replaced the indicator and completed a fuel quantity calibration.

■ **Class E:** The aircraft's utility hydraulic caution capsule illuminated at 200 feet mean sea level and 120 knots. The flight engineer confirmed zero pressure with no abnormal temperatures, no leaks, and no change in the utility reservoir volume. The pilot in command started the auxiliary power unit, at which time the utility hydraulic caution capsule extinguished. After landing, maintenance discovered the utility pump had failed.

## OH-58

### C Model

■ **Class B:** The aircraft yawed in excess of 100 degrees from the runway heading during a simulated anti-torque maneuver. No other details were provided.

## UH-1

### V Model

■ **Class E:** The aircraft was returning to the local airfield after a cross-country medical transfer flight when the engine chip light illuminated. The crew performed a precautionary landing to a field without injury or damage to the aircraft. Maintenance performed multiple serviceability checks and detected excessive metal chips. The engine was replaced.

## UH-60

### A Model

■ **Class B:** After landing, the aircraft's main rotor blades struck the tail rotor driveshaft just forward of the intermediate gearbox. Minor contact also was made between the main rotor blades and ALQ-144. The crew was conducting a MEDEVAC mission and making a dust landing approach at the time of the accident.

■ **Class E:** The #2 engine chip CW light flickered on during a night vision goggle readiness level progression flight. The engine power control lever was retarded, and the aircraft was flown single-engine to the local airfield. Post-flight inspection of the engine chip actuator revealed metal chips exceeding the limit. Maintenance was unable to determine which section had failed. The engine was replaced.

***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).**

## Army Safety Center Conference Canceled

The Army Safety Conference that was tentatively scheduled for 31 Aug to 2 Sep in Atlanta, GA, has been canceled. We will let you know if and when we plan to have the conference. Last year's conference offered a variety of guest speakers who addressed the Army's leading concerns in flight and ground safety. For a flavor of that conference, check out the Virtual FY04 Safety Conference at https://safety.army.mil and look under "Quick View," "Archives," and "First Quarter 2004." Stay tuned to the Army Safety Web site and the safety list servers for further details.

# Parting Shots:

"*Safety Sends*" is a new Army Safety Campaign Plan initiative to help k
Composed weekly by the Director of Army Safety, this column features
including contributing factors. Each month, *Flightfax* will feature a con
Army Safety Center Web site at **https://safety.army.mil** and the Ar

Just over 3 weeks ago, two aircraft were conducting a training mission under night vision goggles (NVGs) and in formation. As the flight approached a river in a heavily forested area, the lead aircraft radioed, "I'm in a fog bank and will be back out shortly." It was the last transmission the crew ever made.

This accident follows a trend established over the past several months. We've lost five Army aviators in three Class A accidents where inadvertent instrument meteorological conditions (IIMC) were a contributing factor. In FY03, IIMC incidents claimed 11 lives. This isn't about avoiding weather or environmental conditions—it's about being prepared for them.

As we look at IIMC, it's important to recognize this dialog is also relevant to other environmental conditions. Brownout and whiteout also cause aircrews to lose situational awareness when they lose visual reference with the ground. Clearly, there are basic crew and pre-mission planning actions common to all of these circumstances.

The Army Aviation Directorate of Evaluation and Standardization (DES) recently identified poor training in degraded environmental conditions as a problem across the Army. Now is the time to look at this issue. With many units rotating, we are "in the seam" to make an impact. Deploying aviators will go a year without simulator training, and those returning have an excellent opportunity for individual training before collective plans take precedence. There are several excellent articles in the December 2003 and February 2004 issues of *Flightfax* concerning IIMC and environmental conditions.

### Four Vignettes on IIMC:

■ An aircraft was on the second leg of an NVG training flight in mountainous terrain. The crew did not update their weather upon departure. They deviated from their planned flight route and did not initiate IIMC procedures when they flew into heavy rain showers. The aircraft impacted the ridgeline, killing all five personnel on board. Contributing factors: Failure to update weather and failure to initiate IIMC procedures.

■ A flight of two departed the airfield with a special visual flight rules (VFR) clearance using an expired weather briefing. However, a pilot in-flight weather report (PIREP) indicated the area was under IMC. When the flight encountered the deteriorating weather conditions, Chalk 1 initiated a return to base without positive communication with Chalk 2. Chalk 2 continued on course and crashed, killing all four personnel on board. Contributing factors: Failure to update weather under known IMC; failure to plan for IIMC break-up of flight; and failure to initiate formation IIMC breakup procedures.

■ Prior to takeoff, a flight of two received a PIREP from another aircraft reporting

# Safety Sends... #6

SAFE AND MAKE IT HOME!

keep senior leaders abreast of current accidents and their impact on combat readiness.
s summaries of accident trends and snapshots of accidents that have occurred recently,
densed message. The full version and past "*Safety Sends*" may be found on the
my Knowledge Online Web site at **www.us.army.mil**.

weather conditions of zero visibility and zero cloud height. Despite this, flight lead elected to take off and fly the mission. As the flight encountered deteriorating weather conditions, flight lead aborted the mission and attempted to return to base under visual conditions. Chalk 2 lost situational awareness and crashed, killing both personnel on board. Contributing factors: VFR departure in known IMC and failure to initiate IIMC breakup or recovery procedures after encountering IIMC.

■ A flight of two was conducting an NVG cross-country training flight. It was raining in the local area, and before departure the dew point was within 2 degrees of the temperature (an indication of potential fog or cloud obscuration). During flight, Chalk 1 reported entering fog, and Chalk 2 initiated action to avoid the fog. Chalk 1 crashed, killing all three personnel on board. Contributing factors: Failure to evaluate known weather conditions and failure to initiate IIMC procedures after encountering IIMC.

### Tool Kit Highlight: Environmental and IIMC Training

DES found that many units are not taking the time to plan and execute effective instrument training; therefore, aircrews are not comfortable when encountering IMC. Aircrews and leaders are failing to consider appropriately the impact of adverse weather conditions or degraded environmental conditions on the mission. In garrison, our synthetic flight training systems are powerful tools to prepare crews to respond to inadvertent weather or environmental conditions. This requires a well-planned training program. If simulation systems are unavailable in a deployed theater, enforcing good pre-mission weather planning and rehearsal can go a long way in preventing these types of accidents.

The Aircrew Coordination Training Enhancement (ACTE) Program is headed your way. Please make maximum use of this tool. It is greatly improved and will reinforce the need for well-defined responsibilities in the cockpit. Add this to a rehearsed plan for inadvertent weather or degraded environmental conditions, and you have a winning combination. I would again encourage you to visit our Web site at https://safety.army.mil to get more information on the ACTE Program. ♦

**BG Joe Smith**
**Director of Army Safety**

# Attention AH-64A/D Maintainers

**In recent months, three maintenance technicians have suffered serious finger injury from the rear face of the Load Maintenance Panel (LMP)/aft avionics bay vaneaxial cooling fan.**

Rear of the fan is not shrouded, and the front of the fan is not shrouded when the avionics bay door is open.

**Efforts are underway to provide warnings in technical manuals and the IETM/IETP and provide adequate protection (shroud/screen) to prevent contact with the cooling fan blades.**

In the meantime, exercise extreme caution when inspecting any components in the right aft avionics bay with power applied.