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ON THE COVER

PAID ADVERTISEMENT: ABOUT THE COVER – Boeing pilots conduct flight tests on a new CH-47F Chinook in Ridley Township, Pa.

Photo Credit: Fred Troilo, Boeing

Caption provided by the advertiser.

Briefings ...

LATE-BREAKING NEWS ANNOUNCEMENTS NOTES

Branch Chief and PEO Nominated for Second Star

U.S. ARMY PHOTO

BG Crutchfield

U.S. ARMY PHOTO

BG Crosby

Secretary of Defense Robert M. Gates announced on Nov. 17 the nomination by the President of BG Anthony G. Crutchfield and BG William T. "Tim" Crosby to the rank of major general.

Crutchfield is presently serving as the chief of the Army Aviation Branch and commanding general of the U.S. Army Aviation Center of Excellence and Fort Rucker, AL; Crosby is serving as the Army program executive officer for aviation at Redstone Arsenal, AL.

Experimental Test Pilot Board to Meet

Human Resources Command is accepting applications through Jan. 18 for consideration by the annual Army Experimental Test Pilot Training Program selection board scheduled to meet in mid-February. Applicants must be captains or chief warrant officers who are rated aviators of the Army Competitive Category. Commissioned and warrant officers selected will attend an 11-month course at the Naval Test Pilot School in Patuxent River, MD. Commissioned officers who successfully complete the training will be branch transferred to the Army Acquisition Corps for the remainder of their career.

For more information, commissioned officers may contact MAJ Ryan Zachry at *ryan.zachry@conus.army.mil* / (502) 613-6199; warrant officers contact CW4 Scott Bonner at scott.bonner@conus.army.mil / (502 613-6095. Deadline for submission is Jan. 18, 2011.

Branch Chief and Command Sergeant Major Visit Afghanistan

U.S. ARMY PHOTO BY SPC AMANDA BROWN

BG Anthony G. Crutchfield, the Army Aviation Branch Chief and commanding general of the U.S. Army Aviation Center of Excellence and Fort Rucker, AL and CSM Tod Glidewell, command sergeant major of the branch and USAACE, visited Regional Command-East to meet with command teams and aviation Soldiers. Pictured above: Crutchfield visits with LTC Dennis J. McKernan, commander, 3rd Bn., 10th Cbt. Avn. Bde. at Bagram Airfield, Nov. 18 as part of a visit with aviation leaders in Regional Command-East, Afghanistan.

Standing with Glidewell on the Bagram

U.S. ARMY PHOTO BY SPC AMANDA BROWN

Airfield flight line on Nov. 18 is CSM Patrick Blair, outgoing 3rd Combat Aviation Brigade (Task Force Knighthawk) command sergeant major; CSM Ronald Dvorsky, incoming Task Force Phoenix command sergeant major; and 10th CAB (Task Force Falcon) CSM Kenneth Patton.

Thanksgiving

U.S. ARMY PHOTO BY SPC ROLAND HALE, 1ST CAB PAO

LTC Scott A. Spradlin, Enhanced Combat Aviation Brigade, 1st Infantry Division, prepares a plate while working as a food server at the dining facility on Camp Taji, Iraq, Thanksgiving Day. In keeping with an Army tradition, Spradlin and other senior Army leaders on Camp Taji served food to their troops.

Corrections:

Several readers have called into question the Nov. Art's Attic entry, "Inter Service Cooperation." Reference is to the CH-53 Super Stallion helicopters as "Army Aircraft." Readers are correct. They are "Marine Corps" helicopters. The in-flight refueling was a Marine Corps show, not Army.

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A Strong Finish and Renewed Commitment

As the year comes to a close I would like to give you my perspective on how we are meeting the AAAA mission: "AAAA Supporting the U.S. Army Aviation Soldier and Family."

First, we are just finishing up a very busy quarter in which AAAA sponsored three forums on Aircraft Survivability, Maintenance, and Unmanned Aircraft Systems; national board meetings; and, the AAAA Senior Executive Associates meeting under the leadership of its chairman, GEN Jack Keane.

At these gatherings, I witnessed a climate of healthy exchange in which issues and solutions were brought to the forefront where in the future they can be translated into action.

For example at our forums, our warrant officers and enlisted troops were so professional, passionate and articulate in providing feedback on the current happenings in the field to the key decision makers.

I have no doubt the issues that were raised from the audiences to those briefers on stage during the question and answer periods are going to be addressed. I am proud of the role AAAA had in providing the platform to make this happen.

AAPI PHOTO

Participants interact during a break at the Aircraft Survivability Professional Forum in the Von Braun Convention Center, Huntsville, AL, Nov. 15, 2010. See page 51 for full story.

AAPI PHOTO

Participants mingle in the exhibit area at the 2010 Luther Jones Summit at the American Bank Center in Corpus Christi, TX, Oct. 12-14.

Secondly, a record amount of $280,000 was granted in scholarships to 187 AAAA members, soldiers and their families this year.

Throughout the year, AAAA contributed over $60,000 to our chapters to support local events like 'Welcome Home' ceremonies and to make local chapter events more affordable for our soldiers.

In addition, AAAA waives, upon request, the renewal dues for deployed soldiers and limits membership costs to under $30, which is half of what other military associations charge in fees.

These monetary supplements are AAAA's way of expressing our thanks and are designed to reach as many soldiers and their families as possible.

Bottom line, we have increased membership by 1019 to 17,564 members as of 30 November. This record level of support in membership and revenue is a direct result of AAAA teamwork among our military, civilian, industry and retired alike.

I am very proud of what our association does to support U.S. Army Aviation missions in a real and tangible way.

Thank you for all that you do for this country and our organization.

God bless our troops and families and have a safe Holiday Season.

I look forward to 2011 — 'Supporting the U.S. Army Aviation Soldier and Family.'

My door is always open!

BG Rod Wolfe, Ret., President
rod.wolfe@quad-a.org

Apache Block III Achieves a Critical Milestone

By BG Anthony G. Crutchfield

The Longbow Apache Block II – recognized as the premiere attack helicopter around the world – is in danger of losing its top ranking. Soon to enter fielding and to replace all other versions of the Apache is the Apache Block III.

The Apache Block III capabilities leverage off and build upon its distinguished lineage, starting with the A model Apache in 1984, and progressing through the Longbow Block I and Block II updates.

Shortfalls in the attack helicopter capabilities to support the future Modular Force, together with lessons-learned and operational needs statements (ONS) from current combat operations in the field formed the basis for the Block III attack helicopter requirements and resulting capabilities being delivered.

A few of the capabilities that the Block III will bring to the field include:

Performance. The Apache Block III takes advantage of the full capability of the 701D engine to allow it to perform at mission weights in the high/hot environment (6k/95). A new transmission, drive system, and composite main rotor blades ensure growth capability to accept more powerful engines in the future. The threat will no longer find safe sanctuary in the mountains or the high elevations. We will be able to go where they hide, find them, and kill them.

Manned / Unmanned Operations. The Apache Block III is the first Army Aviation platform to bring to the fight on-scene control of unmanned aircraft systems (UAS) sensors and its flight path (level of interoperability (LOI) 3-4). LOI 2 has been in the field for the past couple of years in the form of the Visual User Interface Tool (VUIT) on Apache.

Valuable MUM operations feedback from the warfighters in the field has greatly enhanced and expedited the development and refinement of the tactics, techniques and procedures (TTPs) that the Block III crews will employ for level 3-4 MUM operations.

TOMRA COURTESY PHOTO

AH-64D Longbow Apache Block III

We have just scratched the surface in learning the value of off-board sensors and MUM operations and the power they bring to the fight and mission success. MUM operations will become an integral and key part in Army Aviation reconnaissance and attack operations.

Link-16. Another first for Army Aviation is the incorporation of Link-16 into an Army Aviation platform. Apache Block III will lead the way in providing our warriors with joint connectivity with our sister services.

Link-16 will dramatically enhance our air picture of the battlefield as the Airborne Warning and Control System (AWACS) and the Joint Surveillance and Target Attack Radar System (JSTARS) share with us what they have enjoyed for years. By the same token, our Block III Apaches will vastly improve AWACS, JSTARS, and the Navy's ground picture via Link-16.

Link-16 will bring all the joint services one step closer to seamless collaboration in striking at the enemy while avoiding friendly and non-combatant casualties, and minimizing collateral damage.

The Apache Block III Program achieved a critical milestone this fall – Milestone C.

This allows the programs to enter low rate initial production (LRIP) to field the first units and provide aircraft to be tested in an operational environment at the National Training Center against a realistic threat while the Block III crews conduct doctrinal reconnaissance, security, and attack missions, including missions utilizing manned-unmanned operations with the Gray Eagle UAS.

This test will be the culmination of the program development, and its success rests on the results of this test.

It will be used to inform senior Army leadership on how well the Block III meets or exceeds the requirements established and informs the Defense Acquisition Executive that the program is ready to proceed to full production.

The first unit to get the Apache Block III is scheduled to reach full-up go-to-war capability in 2013.

Once trained up and checked out, that first unit will be immediately deployed to combat.

Those first Apache Block III crews will be on the leading edge, expanding the envelope of attack helicopter support to the ground commander and his combat troops while also increasing the battlefield situational awareness/situational understanding to a new level.

Army combat operations have come to appreciate and rely on the awesome shock effect and delivered firepower of the Block II Longbow Apache. The Apache Block III will be a game changer for Army combat operations of the future.

These are the kind of results you can achieve when the requirements efforts are supported by the Acquisition Corps in collaboration with our industry partners. The end state is vastly improved Capability to the Warfighter which is on time and on schedule.

My thanks to all of those involved in getting us to the milestone decision. It enables Army Aviation to deliver the "Right Aviation Force" for our Army.

Above the Best!

❖❖

BG Anthony G. Crutchfield is the Aviation branch chief and the commanding general of the U.S. Army Aviation Center of Excellence and Fort Rucker, AL.

Warrant Officer Advanced "Course Correction"

By CW5 Michael L. Reese

In a previous article I discussed the importance of Professional Military Education (PME) and described PME as one of the three pillars essential for the development of a Warrant Officer. The two other critically important pillars are experience and training; experience through operational and garrison assignments and training through events such as battle drills, Combat Training Center rotations, and aerial gunneries.

The three combined provide the developmental qualities a Warrant Officer requires during the progression of his/her career for preparation for increased responsibilities and competitive skill sets for desirable duty positions.

The Wrong Audience

The status of the Warrant Officer Advanced Course (WOAC) is poor. The course itself is excellently managed and instructed by outstanding officers and civilians. However, WOAC is designed for the senior CW2 or CW2 (P) who are returning to Fort Rucker after his/her first or second duty assignment in preparation for increased responsibilities.

Instead, due to the dense backlog of non-WOAC graduates the average students enrolled today are mid-grade to senior CW3's and occasionally CW4's. This is clearly the wrong target audience and often results in poor attitudes of those attending the course.

WOCC COURTESY PHOTO

The Warrant Officer Career College, Fort Rucker, AL.

WOCC COURTESY PHOTO

Students in the Warrant Officer Advanced Course at the Warrant Officer Career College, Fort Rucker, AL.

The reason for the deficient level of WOAC attendees over the last decade is understandable; it is a result of an Army Force Generation Model (1:1 cycle) that is not kind to Army Aviation, and extremely high promotion rates that have suggested PME is not a factor for selection.

Eliminating the Backlog

To address the backlog issue the U.S. Army Aviation Center of Excellence (USAACE) initiated a program that provides mobile training teams (MTT) conducting WOAC instruction at the home station of combat aviation brigades (CAB).

USAACE also influenced CAB commanders to increase the flow of officers to attend PME; both initiatives will fall short of educating the large number of officers requiring the course.

With the resident and MTT courses running at maximum capacity there are not enough seats available to train the population of CW3's and CW4's who require the school.

To eliminate the backlog and to ensure that WOAC is targeting the correct student base, USAACE is seeking approval for constructive credit for a selected population of warrant officers who meet specific eligibility requirements.

If approved this initiative will be available for a limited time and will utilize a "Four Tier" approach for eligibility requirements.

Also, through changes in promotion guidelines and empowering the Human Resources Command mandating warrant officer PME attendance, we will ensure a sustainable education system is in place preventing future backlog issues.

Constructive Credit

Constructive or equivalent credit for PME is not new; it has been an approved means for receiving credit for courses based upon a soldier's military experience and military educational background.

Normally when a warrant officer seeks constructive credit for WOAC he/she must demonstrate, through a process outlined in AR 350-1, that he possesses the same skills and qualifications as a graduate.

With AR 350-1 as a reference and identifying specific groups of warrant officers who meet course requirements, we will assist a significant number of officers through the administrative process for receiving appropriate credit.

Our initiative for equivalency credit will classify an officer into one of four tier groups organized based upon certain individual parameters, such as: time in grade as a CW3; time in a utilized tracked position; combat experience; and level of responsibility (company, battalion/squadron, and brigade/regiment).

The tier group the officer is in will determine the requirements he/she must meet to receive credit for the course. Generally, the more experienced officer will have fewer requirements than the less experienced one.

Some of the work that will be required of an officer with less experience will be distance learning and/or completing a full TLO crosswalk in accordance with AR 350-1.

The Next Step

The intent of this initiative is not intended to marginalize the importance of PME; it is designed to correct the issue of a large population of overqualified officers attending WOAC.

Once the backlog is corrected the next initiative will be to refine WOAC ensuring the curriculum is more relevant for the junior tracked warrant officer.

As stated earlier, the target audience for this course is the CW2/CW2(P) who is newly tracked. When that target audience becomes the majority of student enrollees we can make adjustments to the course that will hone his/her skills as an instructor pilot, tactical operations officer, aviation safety officer, or maintenance test pilot in a combat aviation brigade that is consistent with common core branch specific requirements.

Once the PME backlog for warrant officers is corrected, the standard for course attendance will be one that is timely in accordance with time in grade and will be managed through revisions to regulations linking promotions to military education.

With advancement to higher grades linked to PME and promotion rates declining, warrant officers and commanders must support the military education system to ensure the most qualified are being rewarded for their performance.

Until this initiative is implemented, warrant officers enrolled in or scheduled for the WOAC should not change their plans for attendance, timing for implementation is not certain. Also, if the collective constructive credit is approved, officers may (if they choose) attend the course even though they meet criteria for equivalency credit.

"ABOVE THE BEST"

❖❖

CW5 Michael L. Reese is the chief warrant officer of the Aviation Branch with the U.S. Army Aviation Center of Excellence, Fort Rucker, AL.

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Preparing Non-Commissioned Officers for the Future

By CSM Tod L. Glidewell

It has been said that the present is the key to the past and the past is key to the future. Often our Non-Commissioned Officers Corps is responsible for training the elements that link past, present and future.

In an ever changing Army that seems at times to be moving at incredible speed we have all seen tradition, heraldry and lineage and honors lost to transformation.

We have seen issues with professional military education throughout our ranks that have resulted in backlogs. While mobile training teams (MTTs) conducted to brigade level have helped to correct some of this backlog it isn't the long term answer.

In the near future, TRADOC will enter into a new era where more training will be conducted at home station utilizing immersive environments as well as traditional methods of training.

Although these ideas provide a host of benefits we must not forget the human dimension of mentoring and growing leaders. The recent release of the Army Health Promotion, Risk Reduction and Suicide Prevention report suggests that we need to do a better job in that area.

I believe that to be true; believe that we must prepare our force for a pendulum is about to swing in the other direction on issues concerning standards, discipline and operating in a cost culture environment.

PHOTO BY SGT. MICHAEL MCGEE, FT. RUCKER NCO ACADEMY

Advanced and Senior Leadership Course students at the Noncommissioned Officers Academy, Fort Rucker, AL, react to contact with the enemy. The exercise focuses on how to exit a vehicle, command and control, and actions taken to secure their immediate surroundings while caring for the wounded.

Making It Happen

So what are we doing to prepare enlisted Soldiers for the future of our branch? Throughout the aviation training base we are embracing and preparing to implement the 2015 Army Learning Concept.

TRADOC says The Army Learning Concept for 2015 will guide all Soldiers and leaders through a continuum of learning for the duration of their careers.

We are going to cut the chaff and augment the most effective aspects of our current learning system while ensuring relevant and rigorous training and education is available and accessible, and not just on the institutional side of the Army.

This is a shared responsibility between the operating and generating force as we lead the Army into a future characterized by its persistent learning environment.

As a result we are looking at ways to train Soldiers at home station through structured self development (SSD) and possibly on technical tasks utilizing 3D technology.

Changes to the Non Commissioned Officers Academies

Starting late last year and as a result of Base Realignment and Closure Act (BRAC), the NCO Academy at Ft. Eustis was split ending the relationship with Transportation Branch in the training of NCOs.

Although the training of Aviation NCOs continued at Ft. Eustis, it was not until Oct. 1, 2010 that we had an official Table of Distribution and Allowances (TDA).

We will still have two academies as in the past; however, now they will be aligned under the Rucker Campus and have one standard.

Some of the changes you should plan on if selected to attend either NCOA are:

1. A 100% layout of packing list items will take place within 24hrs. upon arrival at the academy. Soldier will have 72hrs. to obtain any missing equipment/clothing. Failure to obtain missing items will result in the Soldier being dismissed from the academy for failure to prepare.

2. All NCOs are being trained on the Army's new physical fitness program (TC 3-22-20). ALC students are given a hands-on evaluation on how

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PHOTO BY SSG MICHAEL MCGEE, FT. RUCKER NCO ACADEMY

Students from the Noncommissioned Officers Academy, Fort Rucker, AL, head out on a 4.5 mile cohesion march at the completion of the Leader Reaction Course (LRC) field training exercise marking the end of the course.

to properly instruct PT at the platoon sergeant level; senior leadership course (SLC) students are now required to pass a written test on how to properly plan, coordinate and administer an Army Record APFT IAW TC 3-22-20 and AR 350-1.

3. SLC students are now being taught how to properly put together an Army Overweight packet IAW AR 600-9. This is done by classroom instruction and student PEs.

4. SLC students are now required to write a 1,200 word formal paper (AP standards). Students are highly encouraged to seek out a topic from their unit senior NCO leadership and should have a 75-80 percent product on one of the following topics upon arrival:

- An Army aviation leader who has contributed to Army Aviation
- An Aviation unit lost under transformation
- A tactic, technique, or procedure or lesson learned from a recent deployment that aided in the care of Soldiers or equipment.

The goal of this program is to capture NCO articles suitable for publishing while strengthening writing skills and preserving Aviation history. AAAA has agreed to consider publishing the best articles.

5. ALC students are now required to write and give an oral military briefing (5-7 min) on one of the following topics:

- A current Tactics and Techniques Procedure (TTP) from lessons learned during OIF/OEF
- A military battle or campaign, or a distinguished American military leader.

6. SLC students are taught and are given a hands on evaluation on how to conduct a Change of Responsibility. ALC Students are taught and are given a hands-on evaluation on platoon-level drill and ceremony.

7. All ALC and SLC students are now being taught and are conducting drown-proofing during a PT session.

8. We are reviewing the addition of these and similar to the SLC/ALC program of instruction (POI):

- Establishing and maintaining a DA Form 6 (SLC)
- Establishing and maintaining a family care plan (SLC)
- Planning, organizing and executing a small arms range basic rifle marksmanship (BRM) (SLC)
- Planning and running a company training meeting (SLC)
- How to supervise and conduct motor stables (ALC/SLC)
- Professional development luncheon with Aviation Senior NCO leadership to link mentors and solicit feedback from NCOs.
- Working on POI to incorporate the Instructor/Operator course into the 15W ALC (FY12)
- Working with U.S. Army Aviation Logistics School on the POI for the 15E ALC/SLC (FY13)

9. Change the policy which will now allow students attending ALC to be able to compete for the William T. Butts leadership award. We will now have an ALC and an SLC student leadership award per cycle at the Rucker Campus. We are looking at how to introduce a leadership award at the Eustis Campus, as well as writing awards for SLC students.

10. Guest speaker program to allow visiting senior leaders to speak to and visit NCOs attending the Academy to share experiences.

Moving Forward

As you can clearly see we have a fairly aggressive plan as we move our NCO Academy forward. We will continue to solicit new ideas from our leaders and students and inject them into the POI as necessary.

Over the last year we have significantly increased the amount of Tactical Airspace Integration System (TAIS) and Command Post of the Future (CPOF) training conducted here in the NCO Academy at Rucker in response to requests from the field.

Similar changes like the Common Missile Warning System (CMWS) and other recent additions to the aircraft have been added to POIs at the Eustis campus.

Although it may seem that we are not changing fast enough, I can assure you that we are working the best training possible and welcome suggestions on further improvements from the field.

Please feel free to email CSM Mitchell, NCO Academy Commandant or the Deputy Commandant, SGM Parmer who leads the Eustis Campus, or me. Again we look forward to shaping the present while learning from the past and looking to the future.

Above the Best

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CSM Tod L. Glidewell is the command sergeant major of the Aviation Branch and the U.S. Army Aviation Center of Excellence, Fort Rucker, AL.

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Keeping Focused This Holiday Season

By CSM Michael P. Eyer

The 2010 holiday season is upon us. One of the best things about the holidays is having time to spend with family and friends, and for many of our Soldiers, their family members and our civilians, visits like these are long overdue.

Between deployments, assignments in locations far from home and the daily rigors of Army life, the holidays are often the only time Soldiers can relax and catch up with their loved ones. This downtime greatly benefits our Soldiers and the Families who support them, contributing to the overall resiliency and well-being of our total force.

But it also provides a perfect opportunity for spouses, parents, siblings and other relatives to engage with their Soldiers and each other on safety, especially regarding driving and other off-duty hazards.

Family Involvement – A Key to Safe Holidays

During last year's holiday exodus, we lost four Soldiers to off-duty accidents. Three of these deaths occurred in privately owned vehicles during the late evening or early morning hours in parts of the country affected by severe winter weather. The fourth fatality was a Soldier, home little more than a month from a rotation to theater, who accidentally shot himself with a newly purchased handgun at his parents' house.

All four Soldiers were on leave away from their duty stations at the time of their accidents, highlighting the critical need for active family engagement when supervisors and peers aren't there to correct unsafe behavior. While every individual is different and no one approach will work with all Soldiers, parents and spouses often know what it takes to reach their loved ones.

Leaders are missing out if they don't leverage this influence every day of the year by involving Families in their safety programs and sharing information when needed, beginning with the holiday season.

The lessons learned during this critical time can pay great dividends throughout the New Year and enhance Soldier safety both on and off duty.

Leaders can find great ideas and tips for involving Families in their safety programs by checking out the Family Engagement Kit on the USACR/Safety Center website, *https://safety.army.mil*.

Watch Out For Your Comrades

Although the holidays are sure to be busy, we can't forget about our Band of Brothers and Sisters during the coming days and weeks.

Take care of your buddies and remember to look out for those who don't have holiday plans.

And for those of you continuing the mission through the holidays — whether downrange or at home station — ensure your peers and subordinates stay focused even though their minds may be somewhere else.

Be extra vigilant, watch for those Soldiers who might be having a hard time and share the ways you've coped during holidays away from home.

Never underestimate the positive impact your "war stories" and kind words can have on a struggling Soldier.

Be Prepared For The Season

Finally, arm yourself with the best knowledge available to fight the hazards of cold weather. Snow and ice make for great fun on the slopes but are extremely dangerous on roadways, and winter weather, alcohol and speed are nearly always a lethal combination.

This year's Army Safe Fall/Winter Campaign includes videos, posters, media articles and a toolkit that leaders, Soldiers and Families can use to build safety programs and enhance safety awareness. The full campaign is available on the USACR/Safety Center website via the "Campaign Corner" tab.

PHOTO BY SGT. NATHAN HOSKINS, 1ST ACB, 1ST CAV. DIV. PUBLIC AFFAIRS

Lakeland, GA native SSG Willie Grant, a fire and effects noncommissioned officer for the 1st Air Cavalry "Warrior" Brigade, 1st Cavalry Division, puts some finishing touches on a real Christmas tree in Camp Virginia, Kuwait. Grant is a part of a node that manages the movement of Warriors back to the United States.

I wish you all the best the season has to offer and many blessings throughout the coming year. Wherever you are and whatever your plans, have a happy and safe holiday!

Army Safe is Army Strong!

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CSM Michael P. Eyer is the command sergeant major of the U.S. Army Combat Readiness / Safety Center at Fort Rucker, AL.

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Crawl, Walk, Run Trainers

By Mr. Bruce Bulger

In this month's update, Mr. Bruce Bulger will discuss the training devices inherent in accomplishing integrated training in your aviation maintenance school house. COL Reeves.

Advances in the Army's UH-60 and CH-47 helicopters have challenged the training community to teach mastery of new skills, knowledge, and tasks for our avionics (15N) and electrical (15F) enlisted Military Occupational Specialties (MOS). Gone are the days of stand-alone systems that can be trained with simple desk top Training Aids Devices Simulators and Simulations (TADSS).

In the past, an instructor would teach on a part task trainer in order for the student to be able to master a task on a single system. The student would then lace together their newly acquired skills.

Each of the newly acquired skills complemented the overall skill set of the repairer similar to adding a new tool to his tool box. By the end of the course of instruction all the pieces were in place to award the MOS.

Integration Is Key

Today's integrated systems communicate as a suite within the aircraft. The interaction between systems ties them together with data signals; therefore, one system relies on the other for information.

USAALS COURTESY PHOTO

Common Missile Warning System Trainer

USAALS COURTESY PHOTO

Aviation Basic Electrical Trainer

For example, the Time of Day (TOD) and Word of the Day (WOD) are shared between systems.

Digital maps overlay multiple visual indicators derived from multiple input sources.

Many maintenance troubleshooting clues can be derived from a different system that is up or downstream of the system with the problem. Some systems no longer fail outright but degrade in capability.

All of the symptoms lead to a diagnosis that the repairer isolates and then executes a repair. However, fault isolation procedures rely on a more complex array of source data; therefore, the degree of complexity in troubleshooting increases.

Training devices have become more sophisticated as a result of system integration. The "crawl, walk, run" is still a viable method used for initial military training.

Basic Skills Training

While course throughput or annual load still determine the number of TADSS needed, the interaction and complexity of the systems make the devices more expensive and complex. The recent addition of the Aviation Basic Electrical Trainer (ABET), which replaced the AH-1 Electrical System Trainer circa 1970, is an example of one of the school's new trainers.

The ABET, a part task trainer based on the UH-60M, takes the role of the "crawl" trainer. The ABET incorporates actual basic aircraft AC/DC systems without incorporation of other systems that may confuse the student. This allows the student to practice the necessary "basic" skills used in fault

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Chinook Avionics Trainer

Black Hawk Avionics Trainer

isolation procedures.

The trainer builds the foundation necessary for troubleshooting the more complex systems used later in the course.

The Next Level

A good example of a "walk trainer" would be the Common Missile Warning System Trainer (CMT). Over 30 computer-generated faults are instructor-controlled within this device. Students master the fault isolation procedures and 96-step maintenance operational check (MOC) on this complex trainer.

Reduced dwell time on part task trainers allows for a manageable course flow. Full-up trainers or CAT B aircraft would be far too expensive in numbers required for the annual load.

Breaking up the course flow over multiple trainers is an effective and efficient way to use the building block method to cover all the critical tasks within the program of instruction.

Ready to *Run*

It is reasonable to expect future part task trainers for avionics and navigation (walk trainers) will reduce time required on the most recently acquired TADSS: the Chinook Avionics Trainer (CAT) and the Blackhawk Avionics Trainer (BHAT).

Both are very high fidelity training devices with multiple instructor-induced faults on multiple aircraft systems. These are truly "run trainers." They are actually better than a real aircraft because the software within the devices allows for fault troubleshooting whereas an actual aircraft would not.

The entire suite of systems is available for testing and repairing. This is where the Soldiers "put it all together." Reinforcement of all the skills acquired on the part task trainers comes together with final troubleshooting and pre-launch MOCs.

"Box changers?" Don't think so. Once the Soldiers complete this training, they are ready for graduation and to join their first unit.

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COL Terence W. Reeves is Commander, U.S. Army Aviation Logistics School, Fort Eustis, VA.

Mr. Bruce Bulger is a Training Specialist and Course Manager, Electrical and Electronics Division, Department of Aviation Trades Training, U.S. Army Aviation Logistics School, Fort Eustis, VA.

Editor's Note: The U.S. Army Aviation Logistics School was awarded the HQ TRADOC Brigade-Level Safety Award for accident reduction on Nov. 18, 2010.

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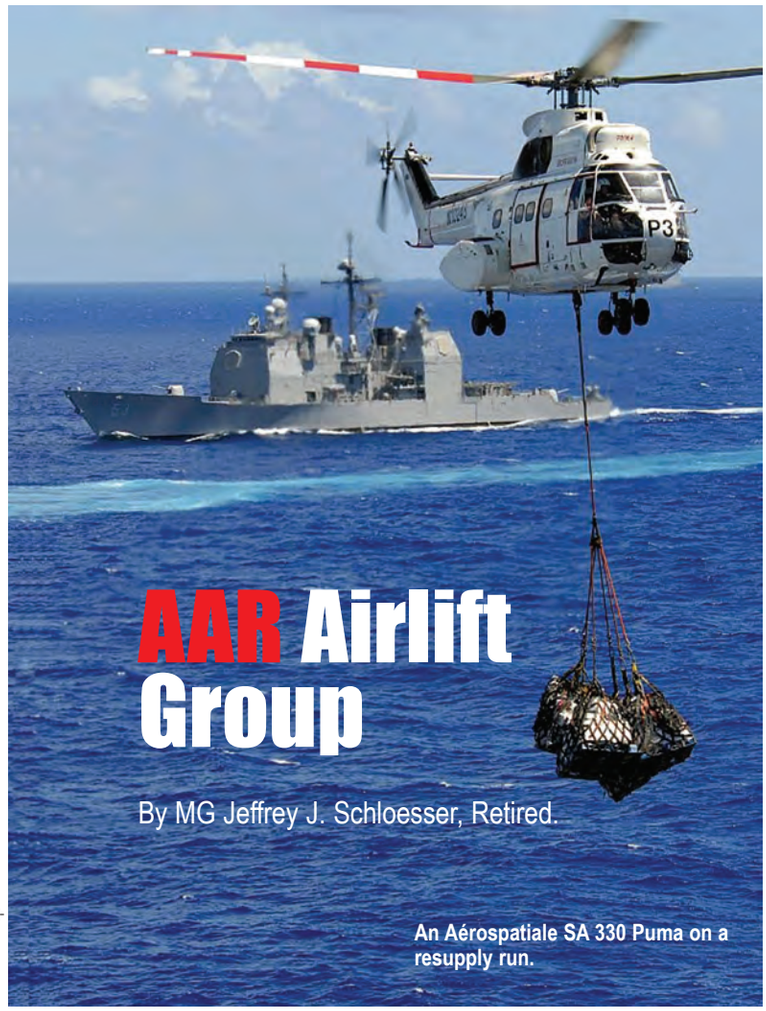

AAR Airlift Group

By MG Jeffrey J. Schloesser, Retired.

An Aérospatiale SA 330 Puma on a resupply run.

AAR COURTESY PHOTO

SPECIAL FOCUS
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Today's Armed Forces are faced with unique challenges never before encountered in modern warfare: remote locations that are difficult to access, a highly fragmented and mobile enemy, and a just-in-time deployment window that requires pinpoint accuracy to ensure our forces are effectively equipped for battle or humanitarian missions.

Meeting these challenges requires that our defense forces not only employ the latest in supply chain management (SCM) technology and techniques, but also engage private sector companies like AAR Corp. to supplement its organic capabilities and deliver specific solutions to ensure our military's readiness and responsiveness.

AAR provides specialized products and services to support national defense, homeland security and humanitarian aid operations.

Our company's field-proven pallets, containers and shelters transport troops' equipment into theaters of operations, sustain in-theater activity and provide real-time communications and situational awareness.

Our performance-based logistics programs and maintenance, repair, overhaul (MRO) services keep advanced aircraft platforms and ground equipment mission-ready and operating at peak efficiency.

Today the company manages more than $1 billion in military assets for the U.S. government.

AAR also designs and fabricates a wide range of machined and composite structures for aerospace and defense applications.

Approximately 18 percent of our employees are former military personnel who have a strong connection and a thorough understanding of the real, day-to-day challenges faced by our government and defense customers.

Today our defense and government business represents 50 percent of AAR's overall business portfolio, and earned the company a place among the Top 100 defense contractors in the world.

The Formation of AAR's Airlift Group

As our U.S. military capability has evolved and transformed itself in recent years into a highly mobilized fighting force, there has been a significant increase in the need for expeditionary airlift support in remote theaters of operation around the world.

This shift has created a growing demand for more airlift capabilities and resources as the U.S. Government has turned to the private sector to meet its ever-changing requirements.

In April of this year, AAR acquired Aviation Worldwide Services and its subsidiaries to fulfill this requirement and integrated those assets into our recently formed AAR Airlift Group.

Under a completely new leadership team, we're building upon the company's 30-year legacy of supplying specialized mobility products and services that support the movement of personnel and supplies in and out of theaters of operations.

Our Airlift Group specializes in supporting our fighting forces and humanitarian efforts with reliable, efficient and safe "turn-key" delivery of personnel, supplies, equipment/parts, food and mail to a designated site, airport, or U.S. ship in remote locations such as Afghanistan, Africa and the Pacific Rim.

These expeditionary aviation operations serve the U.S. Departments of Defense and State, and since 2005 have flown more than 75,000 missions, transported 300,000 personnel and delivered 65 million pounds of cargo and mail to theaters of operations around the world.

Our Airlift Group is currently supporting five Department of Defense contracts:

- Two as a prime contractor for U.S. TRANSCOM, providing fixed-wing and helicopter airlift and support in Afghanistan;
- A third as a prime contractor to the U.S. Navy, providing vertical helicopter resupply to and from Navy ships in the Western Pacific;
- A fourth as a subcontractor to U.S. AFRICOM, providing the DoD with fixed-wing airlift support in Burkina Faso, West Africa;
- And a fifth as a prime contractor to elements of U.S. Special Operations Command, providing fixed wing assets to support training in the United States.

These contracts are supported by 49 specialized aircraft – 20 fixed wing and 29 medium, heavy and super heavy lift rotary wing aircraft.

We also provide maintenance, modifications and engineering services on a variety of aircraft and are currently supporting the United Arab Emirates to perform 38 modi-

Warfighter Support.

Today, of the Nation's nearly one million soldiers, almost 600,000 are serving on active duty. When the request for support comes in from the field, reaction time is critical. AAR offers a broad range of products and services to keep our Army moving forward.

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A Casa c-212 aircraft makes a logistics air-drop in Afganistan

fications, many of them designed by us, on Sikorsky S-70 Blackhawk helicopters. This capability is playing an increasingly significant role as helicopters are transitioned and prepared for new deployments around the world.

In addition to four FAA operating certificates held by our Airlift Group, we are one of a select few companies with Commercial Airlift Review Board certification, otherwise known as CARB, which is required to serve as an airlift provider to the DoD.

Meeting Key DoD Logistics Objectives

As a retired commanding general of the 101st Airborne Division and Regional Command-East in Afghanistan, I've seen firsthand the mission-critical role played by the Army Aviation community and its defense contractor partners in ensuring readiness, reliability and rapid response for our fighting forces overseas.

From the safe and efficient delivery of personnel, materiel and supplies to the battlefield, to humanitarian and nation-building support efforts that protect lives, we view airlift services as a vital link to the continued success of our military forces and operational readiness. But what can we do as an industry to improve the development, delivery and support of products and services to our military customers?

First and foremost we have to be forward-looking and help our military branches identify processes and efficiencies that ensure systems or platform readiness in whatever theatre of operation they're engaged in around the world.

Whether that's developing or refining a solution for a DMS-related issue like legacy platform support or predicting the life-cycle of a specific aircraft component, we have to be focused on how we can provide the military customer with better value and lower overall program, operating and system life-cycle costs.

Another area vital to our nation's defense is how we as contractors acquire, analyze and use information that helps us collaborate more effectively with our defense customers across the array of programs and platforms we work on together.

Our former military service employees put their experience and expertise to work every day to find more efficient and effective solutions that save precious time, resources and, ultimately, lives.

As proud supporters of the Army Aviation community, AAR and its Airlift Group now have a unique opportunity to contribute our combined experience and skills to ensure our country's defense capabilities remain the best in the world.

We look forward to that challenge with great anticipation.

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Jeffrey J. Schloesser, retired Major General and Director of Army Aviation, currently serves as President of AAR Airlift Group. He previously spent 34 years with the U.S. Army, which included 20 years of senior-level leadership and operations experience. He was instrumental in leading the Army's recent $6 billion modernization and transformation plan for a fleet of 4,000 aircraft and 76,000 personnel.

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Figure 2

Aero Gear Inc.
Teams with US Army Helicopter Aviation Engineering to Recover Gears

By Mr. Brian Moriarty

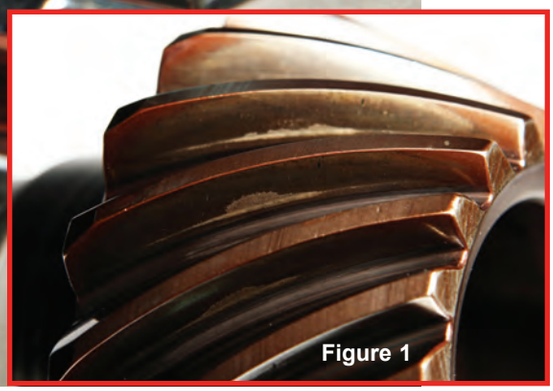

Figure 1

Aero Gear Inc. in Windsor, CT and U.S. Army helicopter aviation engineering have teamed under a U.S. congressional cooperative agreement program to develop repair methods to recover critical gears for U.S. Army helicopter drive systems.

This is a significant milestone in the effort to improve aircraft availability and reduce overhaul cost and lead time.

Preliminary results for recovering and reusing six different drive system components have shown a 70% cost reduction and a 600% to 1200% lead time reduction over procuring new replacement parts.

New From Old

Breathing new life into old aircraft is a well established practice and a fundamental mission of the U.S. military maintenance and depot system.

Aircraft that have suffered damage in the field or have reached prescribed maintenance intervals are inducted into the depot, disassembled, inspected, and rebuilt according to the maintenance manuals. In many cases, the components for the rebuilt systems must be replaced with new parts.

In the fall of 2007, faced with increasing demands to maintain aircraft availability and reduce costs, U.S. Army helicopter aviation depot maintenance and aviation engineering leadership encouraged the evaluation and development of repair methods to provide critical gear supply relief during aircraft overhaul.

At the same time, Aero Gear embarked on a cooperative agreement program with U.S. Army research laboratories for "Advanced Repair and Re-engineering Process Development for High Precision Drive Systems."

This program allowed Aero Gear to leverage its 25 years of aircraft gear and gearbox manufacturing experience to reach two goals: 1) develop methods to extend the useful life of gears and 2) re-engineer and manufacture gears for legacy platforms no longer having a manufacturing source.

U.S. Army aviation engineering engaged Aero Gear in 2008 to apply recovery methodologies incorporating new repairs and precision measurement inspection technologies to critically needed gears exhibiting common failures such as pitting, scoring, and corrosion found during depot maintenance overhaul.

The Right Technique

There are many repair techniques defined for components that extend the useful life of parts, but overhaul inspection criteria include subjective visual assessments of the physical appearance of the part.

This is especially true for drive system gears, as gear tooth surfaces have largely been excluded because of their complex, high precision geometry requiring specialized measuring equipment and engineering expertise to properly assess the condition of the gear.

More often than not, during the overhaul inspection process, artisans will conservatively err on the side of caution when examining gears, opting for "when in doubt, throw it out."

Figure 1 (inset above) shows a gear removed from service with accumulated micro pitting damage on the tooth surfaces. Aero Gear began with this U.S. Army aviation candidate gear to prove out inspection and repair processes on those features.

Typically, most minor surface blemishes on critical components can be removed through a means of localized blending in accordance to limits specified in aircraft overhaul manuals.

However, the damage in the sample gear exhibited a common failure mode found throughout a majority of the gear teeth as opposed to a single, localized area.

Even if the areas were blended, limitations currently exist in overhaul

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manuals to determine how much material may be removed while maintaining original specifications.

Gear teeth have complex surface definitions, often having tolerances in the ±.0002 inch range, and the manner in which the tooth transfers loads to its mating gear is highly dependent on tooth geometry, thickness, and surface finish.

Blending to remove gear tooth damage can affect one or more of those variables and have a significant impact on the resulting mesh with the mating gear. The challenge for Aero Gear was to demonstrate gear teeth could be reworked to remove minor surface defects and achieve the required geometry and finish.

Developing The Process

The first step in developing the repair process was to assess the condition of the gear teeth. This was performed with a detailed visual inspection followed by the use of highly specialized equipment and software to measure surface finish, tooth thickness, and map gear tooth topography.

In addition, the depth of the damage was measured in order to determine the amount of material removal needed to maintain requisite tooth form and size.

Step two involved the actual surface repair, accomplished by Isotropic Superfinishing®, a process used to uniformly remove material with high precision (see Figure 2).

The success of this experiment, precision reconditioning of an entire gear rather than individual teeth to within original specifications, paved the way to begin developing gear repair methods for overhaul manuals.

Since that time, Aero Gear and U.S. Army aviation engineering have successfully developed and approved repair processes for six different gears, with similar commercial repair work on those types of gears currently underway at Aero Gear.

Continued Development

Aero Gear, in partnership with U.S. Army aviation engineering, plans to continue pursuing repair development for more severe gear damage, with the next step being tooth regrinding using the same precision grinding methods from the original manufacturing process while remaining within the approved design tolerances for the gear.

Aero Gear is also exploring green technologies to replace existing, environmentally hazardous plating repair processes by using laser deposition to add material to the base part and then machine the material back to original specifications.

Once this technology is firmly established it will open the door to developing gear and spline repairs where substantial portions of damaged surfaces may be restored.

This investment of government and industry resources used to develop unprecedented gear repair methods has already provided benefits and will continue to improve aircraft readiness for the warfighter in the near future. Currently in commercial aviation, repair technologies such as superfinishing and tooth regrinding are being practiced with certification from the FAA. Continued cooperation between partners like Aero Gear, U.S. Army research laboratories and U.S. Army aviation engineering is essential for devising and implementing innovative solutions to the challenges of critical component repair and recovery.

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Mr. Brian Moriarty is the Vice President of Strategic Initiatives at Aero Gear Inc., Windsor, CT.

YOUR SUCCESS IS OUR MISSION

U.S. Army aviators provide vital combat mobility and firepower to the soldier on the ground. URS' services ensure aircraft – and aviators – are ready whenever needed. For decades, we've maintained and modified Army Aviation assets, enhancing the ability to get the job done. Our engineers, logisticians and technicians are committed to the same goal – your success. This is why, more than ever, the U.S. Army turns to URS.

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From left: SPC Christopher Hickey, SPC Xavier De Leon, and SGT Alexander Correa, all assigned to 3rd Brigade Combat Team, 10th Mountain Division, prepare to hook up sling loads to a CH-47 Chinook Helicopter at Forward Operating Base Altimur in Logar province, Afghanistan, Sept. 9, 2009.

U.S. ARMY PHOTO

Booz Allen Hamilton

Ready For What's Next – Elusive Enemies...Emerging Technologies... Unpredictable Threats

A Challenging Environment

Over the last decade, the United States Army has been engaged in persistent conflict and Army Aviation has been an integral part of that response.

Aircrews flying and maintaining our aircraft and unmanned systems, along with the many dedicated professionals tasked with managing, sustaining and modifying the various fleets have been equally committed and clearly key to the countless aviation successes not just in Operations Enduring Freedom and Iraqi Freedom but globally wherever the Army may be serving.

Captured in simple terms, the Army's combined helicopter fleets flew nearly 2 million hours in support of combat operations since 9-11 (excluding special operations).

Rotating through operational cycles like deployment to "Iraq – Reset – Training – Afghanistan – Reset" and back again has created situations where aircraft operational tempo (OPTEMPO) is generally four to five times greater than the planned acquisition life cycle OPTEMPO.

This, combined with the demand for greater acquisition and budget efficiencies and the need for advances in science and technology while still in conflict, has created a challenging environment.

The Response

Recognizing this dynamic environment early, the Program Executive Office, Aviation (PEO AVN) called on Booz Allen Hamilton, a global strategy and technology consulting firm, in October 2009 to begin a study on the Army Aviation aircraft service life.

PEO AVN leadership understood that such a study would not be a sprint but rather a marathon and, equally so, intuitively understood that the conflicts in both Afghanistan and Iraq had and would continue to take their toll.

The intent of the study and its detailed analysis was not to solve every single problem facing Army Aviation now and in the future but to collect and analyze data to support and assist PEO AVN in developing a better informed strategic way-ahead

U.S. ARMY PHOTO BY SPC. GEORGE WELCOME

Several OH-58D Kiowa Warrior helicopters sit on the flight line of Jalalabad Airfield in Afghanistan Feb. 17, 2008, as two others depart on a mission.

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Extending The Reach Of Freedom

U.S. ARMY PHOTO BY CW4 DANIEL MCCLINTON, 1ST AIR CAV. BDE.

An AH-64D Apache helicopter from the 1st "Attack" Battalion, 227th Aviation Regiment, 1st Air Cavalry Brigade, 1st Cavalry Division, based at Camp Taji, Iraq fires flares as it conducts an air mission April 29.

for aviation acquisition, sustainment and future investment.

Working side-by-side with PEOAVN, Booz Allen designed a phased study approach to allow for immediate integration of results into the Aviation Investment Strategy.

The Path Forward

PEO AVN and Booz Allen began Phase I with the specified initial tasks: to aggressively research, define, categorize and analyze the rotary-wing fleet service life and determine where the helicopter fleet stood in relationship to its individual model design service life. The approach for Phase I dictated the development of a highly coordinated research and analysis methodology.

The Booz Allen team, in very close cooperation with the leadership at PEO AVN, the various aircraft program and fleet managers and supporting organizations began an intensive data gathering effort to capture where each aircraft by tail number was geographically located, the total hours flown by month since January 2002, and the general conditions impacting that particular aircraft to inform the study.

Where aircraft hours were not reported or gaps in data existed, the Booz Allen team developed a formula whereby the data was normalized in order to ensure data credibility and usability.

The research team also integrated findings from related studies by the Department of Defense and other industry sources into the Phase I analysis.

The team also developed a series of aircraft specific formulas, in cooperation with PEO AVN and the Aviation and Missile Research and Development Center (AMRDEC), that applied analytical weights designed to account for the comprehensive impacts on airframe service life the rotary-wing fleet faced while operating in combat, in garrison or a flight training environment.

The Initial Results

Phase I determined that given a normal peacetime flying environment, the same rotary-wing fleet would have flown slightly more than 4 million hours during the same period.

The 40% increase in hours flown, or approximately 1.6 million additional hours of increased OPTEMPO has had a measureable effect on the life of over 3,000 rotary-wing airframes.

Overall, the analysis showed that a larger portion of the helicopter fleet(s) prematurely aged as a result of over nine years of intense and hard-fought combat, enhanced aircrew training and overall use both in garrison and while deployed.

In some cases, many helicopters, regardless of the particular model or number of aircraft modifications, aged as much as three to five years ahead of a generally agreed to airframe designed service life of ten thousand hours flying time and twenty years of operational service.

These results potentially impact the acquisition life-cycle timeframe of those fleets, moving decision points closer.

More information would be needed to curb the left-leaning aging plot and to better posture the rotary-wing fleet for the immediate and future fighting force.

Next Steps

Shortly after the completion of Phase I, PEO AVN requested Booz Allen to immediately begin Phase II of the Service Life Study in order to obtain even more fidelity on specific criteria needed by senior Aviation planners to make the absolutely most informed decisions possible when considering results of Phase I.

As a result, Phase II of the Service Life Study was initiated in October 2010. Upon completion of Phase II PEO AVN expects to better understand how structural repairs made at the various Reset stations located around the globe might possibly have some impact, whether large or small, on extending our average airframe service life.

We also will look at how structural repairs and structural issues are impacting life-cycle cost models being used today by resource managers and planners.

Stakeholders

It's clear that several critical partnerships will ensure that our aviation fleet of today is postured to assume the duties as our operational ready fleet of tomorrow.

It's also necessary to connect our Army Aviation requirements and vital science and technology roadmaps to the future investment and procurement strategy that will place our aviation systems and rotary-winged fleet in a positive position – to be ready for what's next.

Critical organizations such as the Training and Doctrine Command (TRADOC), the U.S. Army Aviation Center of Excellence (USAACE), AMRDEC and the Aviation and Missile Life Cycle Management Command (AMCOM), along with several other instrumental aviation players will be aggressively leveraged by the Booz Allen team during Phase II in order to capture the information needed for PEO AVN to make timely

and well informed decisions for the future of Army Aviation.

Helping Clients Meet Their Mission

For more than 95 years Booz Allen has been providing consulting services to primarily the U.S. Govern-ment in the defense, intelligence and civil sectors, as well as corporations, institutions, and nonprofit organizations.

Today more than ever, our clients face increasingly complex demands from citizens, businesses, local governments, and global allies and adversaries.

Our clients must tackle such pressing challenges as protecting the homeland, combating global terrorism, providing vital citizen services, and improving cyber security.

To help clients address complex issues in ways that will endure for years to come, Booz Allen leverages its deep functional knowledge, which spans strategy and organization, technology, operations, and analytics.

We look at problems through multiple dimensions to understand our clients' real needs and to develop effective results. The results enable our clients to accomplish their missions and seize opportunities.

U.S. ARMY PHOTO BY SPC MAURICE A. GALLOWAY, 17TH FIRES BDE., PUBLIC AFFAIRS

Soldiers from 17th Fires Brigade and 2nd Brigade Combat Team, 4th Infantry Division, arrive by air and convoy to assist the Iraqi Army distribute humanitarian aid to the citizens of Faddaqhryah and Bahar in the Basra Province of Iraq, Aug. 18, 2010.

Ready for What's Next

Our work with PEO AVN is just one example of Booz Allen's commitment in supporting Army Aviation.

With independence, perspective and experience gained from battlefields to boardrooms, Booz Allen consultants help Army clients address their most complex challenges.

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Time and Choice:

Insitu UAS Solutions Respond to the Unexpected to Give Soldiers Persistent Situational Awareness

By Joseph Kaufman and Jennifer Henry

Persistent, reliable surveillance can provide game-changing information to warfighters, but the work of collecting the information that intelligence organizations need can be daunting. It can mean having the endurance to keep eyes on target through extended periods of latent activity. It can also mean collecting more information than Army staffs can process. And it can mean facing logistics challenges like re-tasking assets to follow targets traversing large expanses or other unfolding events.

Insitu's unmanned aircraft systems (UAS) and field service representatives (FSRs) are changing that.

The ScanEagle ISR Solution

Insitu Inc., a subsidiary of Boeing, first deployed its ScanEagle UAS into the Iraqi theater in 2004. Since then, the system has accumulated more than 400,000 combat flight hours. Insitu UAS are well known in theater and data from Insitu UAS are used extensively by all of the services.

Early in 2008, the U.S. Army began contracting for ScanEagle ISR services to provide situational awareness to Army ground forces in Iraq. Similar to a satellite TV service, under the contract, the Army pays to receive ScanEagle imagery.

The ScanEagle system is typically used in a hub-and-spoke configuration, where numerous aircraft are launched from a single hub location and fanned out across the countryside to smaller, tactical, spoke locations for local control.

Today, one typical ScanEagle spoke alone is contracted to provide the Army with an average of 600 hours of ISR every month. That translates to 20 flight hours per day. Unit-level route reconnaissance, pattern-of-life and force protection missions are all very routine.

Round the Clock Capability

Insitu UAS are best known for qualities like stealthy autonomous operation, high-level automation and sophistication, outstanding sensor packages and a unique SkyHook® retrieval system.

INSITU COURTESY PHOTO

ScanEagle (top) is loaded onto the catapult launcher; Integrator (bottom) builds on ScanEagle principles to give soldiers rapid seamless payload integration in a proven design.

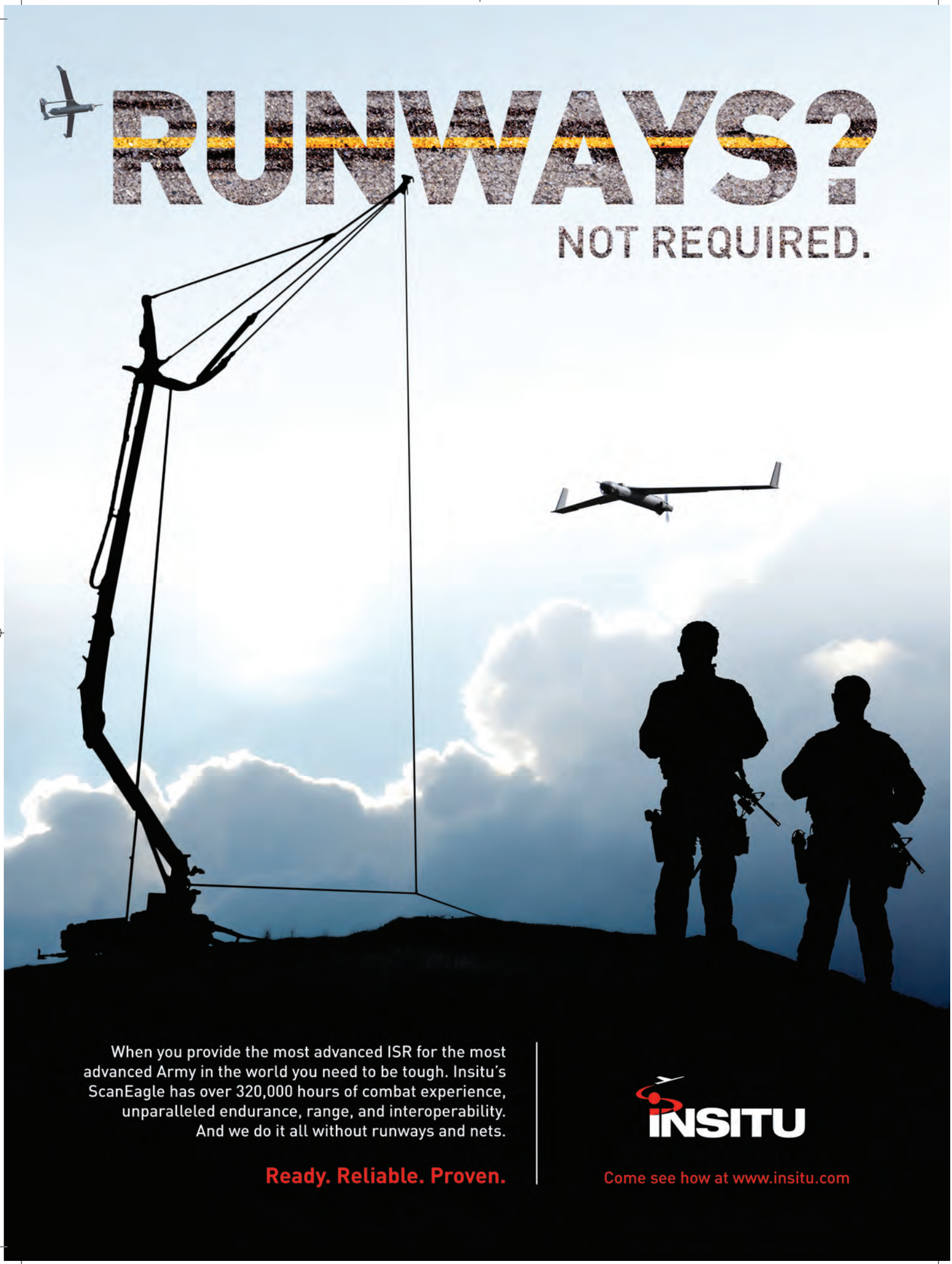
Above: Insitu's SkyHook retrieval system arrests flight without runways or nets: ScanEagle approaches SkyHook for auto-retrieval (left); a clip on the wingtip catches a suspended rope to arrest flight (center); and ScanEagle safely hangs on the rope until an operator removes the aircraft (right).

But for the soldier, persistence has the largest impact on the battlefield. ScanEagle has the ability to fly for more than 24 hours, and it does so on less than two gallons of fuel. This persistence allows ScanEagle UAS to be used more dynamically than other systems.

Because aircraft are tasked to remain airborne around the clock, when counter-battery technology like radar scanning detects the approximate location of an indirect-fire weapon, soldiers can get real-time situational awareness by having operators re-task ScanEagle aircraft that are already in flight, without losing any time to the launch of another ready-alert aircraft.

But most missions aren't as adrenaline-inducing as that. A typical pattern-of-life mission might mean days or weeks of observing latent activity.

That's a lot of data to review for military imagery analysts who are already flooded with information. ISR data is only as useful as what you do with it. So how does data become actionable intelligence if imagery



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Insitu demonstrates the ScanEagle and NightEagle UAS at Fort Rucker; including showing interoperability by viewing metadata from ScanEagle on a ROVER 4 and ROVER 5.

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NightEagle's mid-wave infrared imager was introduced in 2009 in response to a mission-critical need from the warfighter; and its second generation mid-wave infrared imager, introduced in 2010, delivers near electro-optic quality imagery in night and humid environments.

analysts aren't able to conduct a real-time review of all of the video?

Providing Actionable Intelligence 24 x 7

That's where Insitu field service representatives (FSRs) come in. Contracted FSRs operate Insitu UAS as turn-key operations, relieving the warfighter from all responsibilities except the final analysis and application of the information that is developed. So it is important for UAS operators to understand what data the warfighter values.

Altogether, Insitu's force of FSRs has more than 2,500 years of prior military service, which gives them an understanding of, and a commitment to, the Army's mission. Insitu FSRs deliver UAS services with a record of 99 percent mission readiness. And they've been doing it since they first deployed in 2004.

One key to the success of the ScanEagle UAS is that because it has best-in-class endurance and because it can be commanded from the unit level, the system can serve as a tactical, unit-level asset, instead of a shared, strategic asset that must be scheduled or queued.

It should come as no surprise that a tactical response to the unexpected is especially needed at night. Insurgents often exploit the cover of darkness.

Cutting Edge Technology

At the urging of the warfighter, Insitu has worked tirelessly to provide improvements to the infrared imagery offered by the ScanEagle UAS. Pushing against the limits of the state-of-the-art to uncover or develop these technologies, Insitu has made seven evolutionary leaps in its night imagery capabilities since ScanEagle was first deployed.

To accommodate a new cooled, mid-wave infrared (MWIR) sensor, in 2009 Insitu developed a kit to convert a ScanEagle UAV to the NightEagle configuration. This new capability provides near daylight-clarity to a night, dusty or humid environment. Add to that the stealth provided by a specially tuned hush muffler, and the task of remaining unseen and unheard is no longer a goal; it is a reality.

Today's soldiers are trained to be flexible and adaptive. To follow suit, agility drives Insitu's culture. Insitu continually introduces technological advancements that ensure the soldier keeps the tactical edge in today's irregular warfare scenarios.

In a demonstration at Fort Rucker in March of 2010 Insitu demonstrated ScanEagle's airborne video stabilization (AVS) system to the Army PMUAS staff. The AVS system replaces a large processor normally housed within the ground control station with a processor the size of a deck of cards onboard the aircraft.

This means that the aircraft performs automated tracking and video stabilization computing in the air, and that means that soldiers using remote video terminals like ROVER can see exceptionally clean, stable video for the first time.

Building For the Future

Building on ScanEagle design principles proven in theater, Insitu's newest airframe, Integrator, is designed for rapid, seamless custom payload integration with plug-and-play adaptability. Integrator carries payloads totaling up to 37 1/2 pounds across multiple payload bays. If that isn't enough, payload capacity can be pushed as high as 60 pounds for shorter duration flights.

Adapting to changing missions is even easier with Integrator's multi-function, multi-spectral imaging payload carried in the nose.

Integrator's ground control station, launcher and SkyHook retrieval system are designed to be interoperable with ScanEagle and NightEagle as well, which permits Insitu systems to fly more specialized missions.

Insitu UAS have the endurance to make persistent surveillance practical in a tactical asset. And because Insitu aircraft can be dynamically re-tasked with the click of a mouse, adapting to changing mission needs is easy.

Insitu UAS provide the Army with information, options and flexibility in the face of the unexpected.

❖❖

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AAAA Hosts 2010 Aircraft Survivability Professional Forum

By CW4 (Ret.) Joe Pisano

Huntsville's Von Braun Center was the site of the AAAA annual Aircraft Survivability Professional Forum November 15-18. This event began in 1983 and has proven to be a critical asset to our warfighters.

Year after year maintainers, research and development, acquisition, training and doctrine personnel, and our operator-Soldiers seek solutions to better protect our brothers and sisters at the tip of the spear. This year's theme, *"Full Spectrum Aviation: Resilient and Adaptive for the Future Security Environment,"* explored the diversity of those efforts.

The AS professional forum was another step in achieving the Association's mission statement: "*AAAA: Supporting the U.S. Army Aviation Soldier and Family.*"

Deputy Commander and Assistant Commandant of the U.S. Army Aviation Center of Excellence, COL Timothy J. Edens, delivered the keynote address kicking off the event which featured speakers representing Army organizations and joint venues, and included sensing sessions for emerging insights in the ASE arena from recent field commanders and tactical operations officers.

Panelists (l to r) Ellis Golson, Dir., Capability Development & Integration Directorate, USAACE; COL John R. Leaphart, PM ASE; COL Grady King, TRADOC Capability Manager, Recon./Attack (TCM-RA), COL Brian Diaz, TCM-Lift; LTC Allan Baker, Chief., Requirements Determination Div., Concepts and Requirements Directorate, USAACE; and John Reilly, Electronic Warfare Air/Ground Survivability Div., Communications-Electronics Engineering, Research, and Development Center, field questions during the Future Capability Development Panel.

2010 ASE award winner, CW3 Brett A. McFarland, with, from the left, Matt Merryman (BAE), BG Kevin W. Mangum, LTC Allan M. Pepin (Cdr., 1-160th SOAR), John Nyilis (BAE), and COL John R. Leaphart (PM ASE).

AMPI PHOTOS

SGT Albleh J. Clements, 2010 Avionics award winner, with, from the left, Manuel Garza (Cubic), BG Kevin W. Mangum, and LTC William R. Wygal (PM, Avn. Gnd. Spt. Equip.).

Other featured speakers included MG James E. Rogers, Commanding General, U.S. Army Aviation and Missile Life Cycle Management Command (AMCOM), BG William T. Crosby, Program Executive Officer Aviation, Mr. Douglas K. Wiltsie, Acting PEO Intelligence, Electronic Warfare & Sensors (IEW&S), and the Aviation Branch Tactical Operations Officer, CW4 Thomas E. McClellan.

On Tuesday evening at the banquet, guest speaker BG Kevin W. Mangum, the designated first commanding general for the newly forming U.S. Army Special Operations Aviation Command (ArSOAC), assisted with the presentation of the 2010 AAAA ASE and Avionics awards.

This year the ASE award was presented to CW3 Brett A. McFarland, Company D., 1st Battalion, 160th Special Operations Aviation Regiment located at Fort Campbell, KY for the ASE program he developed which became the model for the entire regiment.

The Avionics award was presented to SGT Albleh J. Clements, Company D, 2nd Battalion, 3rd Combat Aviation Brigade (Task Force Nighthawk) Bagram Airfield, Afghanistan who was recognized for providing vital support to combat operations by Task Force Knighthawk resulting in their prominent success during Operation Enduring Freedom. The ASE award is sponsored by BAE Systems, and the Avionics award by Cubic Defense Systems, Inc.

The symposium ended with a half-day of user-group and a half-day of classified sessions held in the Missile and Space Intelligence Center at Redstone Arsenal.

These meetings included tactical operations officers from across Army Aviation and an informal sensing session hosted by COL John R. Leaphart, Project Manager, Aircraft Survivability Equipment (PM ASE).

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CW4 (Ret.) Joe Pisano is the deputy to the AAAA Executive Director and Editor, ARMY AVIATION Magazine.

The author (left) with 19 of the 21 Army National Guard instructors presently serving at the U.S. Army Aviation Center of Excellence, Fort Rucker, AL.

USAACE COURTESY PHOTO

Guard Aviators Answer A New Call:

ARNG Aviators Serve Limited Active Duty Tours on the Fort Rucker Flightline

By COL Mark W. Weiss and LTC Perry E. Jones

Preface: The call is out for Army National Guard (ARNG) aviators to serve as advanced aircraft instructor pilots on 2-3 year Title 10 Contingency Operation for Active Duty Operational Support (COADOS) tours at Fort Rucker, AL. Candidates must be currently instructor pilot (IP) qualified or meet the prerequisites for the IP course and have the endorsement of their State Army Aviation Officer (SAAO).

In the spring of 2008 the Secretary of Defense, the honorable Dr. William Gates visited Fort Rucker, the commanding general and his staff. His message was multifaceted but one of the key imperatives was that Fort Rucker as the hub of the Aviation Enterprise had to figure out how to train more pilots faster.

He stated *"Today, the primary limitation on helicopter capacity is not airframes but shortages of maintenance crews and pilots. So, our focus will be on recruiting and training more Army helicopter crews."*

Increasing Demand

As a training institution that is part of the generating force, the U.S. Army Aviation Center of Excellence (USAACE) contribution to the warfight is the training and delivery of highly qualified Aviation professionals to rapidly meet the demands of commanders worldwide.

Aviation has become the capability of choice for ground maneuver commanders; our challenge is to ensure we have the right balance of aviation to support their missions while remaining synchronized within all of the warfighting functions.

Analysis showed that the USAACE needed to increase its throughput by at least 19 percent. That need is based upon the increased demand for aviators in support of the overseas contingency operations and domestic operations and the increased Flight School XXI training requirements.

Developing Solutions

Increasing throughput was already a focus of the USAACE team. Due to the OPTEMPO over the past 9 years USAACE found itself with a backlog of flight school students.

"The delays [backlog] are due to various seen and unforeseen reasons. Aircraft availability based on maintenance, numbers of training aircraft at Fort Rucker, weather, instructor pilot availability, classroom scheduling, and even student availability – to name a few – have impacted or still impact the flow of students through the pipeline.

The good news is we're seeing very positive results based on solutions we began applying more than a year ago." – *COL Todd Z. Conyers, USAACE G3, 30 Sep 2010*

Some of those solutions were:

- Transferring 24 AH-64D and 21 UH 60A/L helicopters from the Active Component to Fort Rucker
- Increasing funding by 48%
- Via expanded programs of instruction (POIs), increasing the breadth and capacity of the Western ARNG Aviation Training Site (WAATS) and Eastern ARNG Aviation Training Site (EAATS) to include the addition of AH 64D POIs and UH-60A/L and CH47 MTP POIs respectively
- End-to-end review and modification of common core flight training and reorganization of the UH-60 POI.

Since July 2009 the training backlog, the delay a flight student experiences between completion of Initial Entry Rotary Wing (IERW) common

core training and advanced aircraft track, has been reduced by 46%. These gains are significant but are not significant enough to meet the desired end state, and additional resources must be committed.

Increasing the IP Pool

The 110th Aviation Brigade remains critically short of flight line instructor pilots and that critical shortage is having adverse impacts Army-wide. The effects can be felt on the active component, ARNG aviation mobilizing formations, as well as on States' capacity to support domestic operations.

Mobilizing ARNG or U.S. Army Reserve (USAR) IPs to improve the throughput of quality aviators directly supports contingency operations overseas by increasing the pool of available aviators and increasing the capacity of the States to support their domestic operations. Simply stated, training more pilots faster will greatly benefit all components.

By the summer of 2009, the Fort Rucker Deputy Assistant Commandant – National Guard, COL Mark Weiss, was tasked with developing a program wherein the Army National Guard would provide instructor pilots to serve on two to three year tours as flight line instructors. By the fall of 2009 the first, CW2 Justin Mack from the Ohio National Guard, was training students.

Since the fall of 2009 the program has gained both awareness in the field and true momentum. To date there are 19 ARNG IPs serving tours as flight line instructors. The program already has an additional 18 National Guardsman programmed to begin their tours through the fall of 2011.

The Process

The SAAOs are the quality control for the program to insure that anyone who is accepted into the program is their best and brightest.

The soldiers are individually mobilized and receive PCS orders. Their packets are first routed through their state chain of command and must ultimately be approved by the state adjutant general (TAG). Once TAG approval is granted, the packet is routed through the TRADOC chain of command and final approval rests with DA.

The process takes between 60 and 90 days from the time the mobilization packet is submitted until the orders are produced.

PHOTO BY RUSSELL SELLERS, ARMY FLIER

CW2 Justin L. Mack, Co. E, 1st Bn., 212th Avn. Regt., prepares to give a check ride at Lowe Army Airfield, Fort Rucker, AL.

PHOTO BY RUSSELL SELLERS, ARMY FLIER

CW4 Martha I. Murphy, Co. E, 1st Bn., 212th Avn. Regt., debriefs a student at Lowe Army Airfield, Fort Rucker, AL.

USAACE COURTESY PHOTO

Though not all states have supported the mission to date, the current pool of instructors is made up from 22 states with a desired end state of at least one from each State.

Everyone Benefits

The program provides many direct benefits for the National Guard and the Army as a whole. We improve ARNG readiness by expanding the depth and experience of our instructor pilot corps.

Unit readiness increases Army-wide by helping to increase the throughput of new aviators and getting our soldiers back to their formations faster. Every instructor pilot brought to the flight line results in an additional 4-6 new Army aviators produced each year.

Precious training dollars are better utilized and the total time it takes to produce an Army aviator from the pedestrian ranks is reduced.

Eliminating the current flight training backlog is the USAACE commander's highest priority.

The training delays will not go away quickly but this initiative exemplifies the concept of "One team: the Aviation Enterprise – Active Component Aviation partnered with the Army Reserve and Army National Guard teammates."

The multiplicative results will have significant impacts over time and once again the Citizen Soldiers will have answered the call of both their states and their nation.

POC for the IP Initiative is LTC Perry Jones | *perry.jones1@us.army.mil* | (334) 470-6653

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COL Mark W. Weiss is the deputy assistant commandant-ARNG, U.S. Army Aviation Center of Excellence (USAACE) and LTC Perry E. Jones is the point of contact for the USAACE ARNG IP Initiative, both at Fort Rucker, AL.

CW3 Chad Hove, TCM-Lift UH-60 SME, evaluates a new software build for the UH-60M at an Early User Demonstration on Redstone Arsenal.

PHOTO BY MR NICK NICHOLS

TRADOC Capabilities Manager-Lift

By COL Brian J. Diaz and CW3 (Ret.) Glen Woodard

That last 6-hour mission was finally enough. The ramp on the CH-47 was not built for long endurance manning of a machine gun, but operational considerations have made it a necessity.

The chain of command knew that the security of a ramp gunner could *increase mission success, but the toll it was taking on the health of crewmembers was* certain.

During OIF in 2008, B Co 2-4 AVN REG submitted an operational needs statement to provide a seat that would reduce injury and increase readiness.

TCM-Lift worked with the PM to assess the merits of a seat and the evaluation of potential solutions. First unit equipped will have the seat in 2011.

TCM Background

History. The TRADOC Capability Manager for Lift (TCM-Lift) was chartered in 2004 as a TRADOC *System* Manager-Lift, (TSM – Lift). Initially, TSMs were established to develop a new combat system and see it through to initial fielding.

It later became apparent that upgrades and block development were better served by a continuous user presence in the process. This occurred notably in the Apache program as it evolved to Longbow and integrated new technologies such as radio frequency (RF) missiles and concepts from Comanche.

Black Hawk and Chinook were soon to undergo major upgrades as well, and the decision was made to institute continuous user representation by major functional area (TCM-Recon/Attack, Lift, and UAS).

The TCM-Lift role is to perform centralized management for all combat developments and User activities regarding current and future cargo, utility and fixed-wing platforms.

In 2008, the organization was re-chartered TCM-Lift as part of the TRADOC reorganization creating the Army Capabilities Integration Center (ARCIC), but the mission remained the same.

Function. The most important function of the TCM is to act as the user representative. Our method is not to create new products, but to establish specific requirements for what capability a new product provides the user.

We accomplish this primarily through the material acquisition process; the TCM develops and gains approval for the basic features of all new lift platforms. However, our goal is total capability management.

TCMs follow programs through their entire life cycle and develop combat requirements based on sound

analysis across the spectrum of doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTML-PF).

We work in concert with program and project managers (PM/PdM) to integrate other capabilities necessary to support training and global deployment.

While the name change may have slowed our recognition, you will continue to see more TCM representatives showing up at units and fielding to serve as your ombudsman.

Organization. TCM-Lift is located at the U.S. Army Aviation Center of Excellence (USAACE) at Fort Rucker, AL. We are part of the aviation enterprise lead by BG Anthony G. Crutchfield with a TDA authorization of six active Army aviation personnel.

Two Army civilians and ten contractors augment the TCM and provide long-term continuity.

All of these subject matter experts (SMEs) are former aviation Soldiers – they bring over 250 years of military experience to the team.

To ensure current operational relevance and understanding, TRADOC and HQDA hand-selects aviation officers and enlisted Soldiers, just like you, for temporarily assignment to the TCM based on their field experience.

The experience of SMEs and active duty Soldiers is specifically related to each of the platforms and areas we represent.

Platform Developments

CH-47F. The CH-47 has the longest continuously running production line in the aviation inventory. The aircraft entered operational service in the early 60s and the operational demand for its capabilities continues to be high. This is a great example of why a continuous user presence is beneficial for modifications and upgrades.

COL Brian Diaz, TCM-Lift, discusses features of a CH-47F CAAS cockpit trainer with team members from Rockwell Collins (Jason Cross, foreground and Evan Glendenning, hidden)

COURTESY PHOTO PM CARGO

SP4 Brown, 7th Bn., 101st Avn. Regt. tries a ramp seat.

Over the course of its long history, the PM has added many new features from user requests and the demands of modern battlefields. This had taken a toll on the old airframe and it became necessary to recapture some performance by using the benefits of new technology.

As a platform, CH-47F has led the way for integrating many user requirements common among all Army helicopters.

Of all Army aircraft, the newest Chinook has the first fielded combination of required navigation performance/area navigation (RNP/RNAV) capabilities and leads the fleet for integrating airspace control graphics.

UH-60M. In its many versions, the Black Hawk fleet presents the largest model inventory of any DoD helicopter. Even though it is a younger platform than Chinook, when the first UH-60 unit went operational in 1978, it was configured with analog cockpit displays and basic voice radios.

One of TCM-Lift's earliest efforts was to develop the requirements to upgrade performance and convert to a digital cockpit and modern battle command communications.

Theater OPTEMPO and DoD priorities have caused some changes in the most advanced planned version.

Higher demand for airframes in OIF/OEF and filling new CABs required a trade-off for some of the planned improvements.

TCM-Lift does the analysis and works with PM Utility to ensure that the most critical proposed improvements are added to incremental changes as technology matures.

Along with changes to the UH-60M, TCM-Lift is coordinating efforts to bring features, like a common digital cockpit, back to the L model as well. Civil navigation compliance and battlefield graphic improvements are part of a long string of capabilities that will continue to keep all variants of the Black Hawk relevant for the future fight.

The goal of the uniform look and feel is to improve capability and standardize training and operations for this utility workhorse.

UH-72A. Army Aviation was facing two distinct issues; many UH-60s necessary for the warfight were underused in permissive environments, and maintaining the aging remnants of legacy helicopter fleets.

It fell to TCM-Lift to develop and write the requirements for an aircraft that could simultaneously mitigate these issues by handling the roles pre-

PHOTO BY MR GLEN WOODARD

SSG Jose Bonet , TCM-Lift non-rated crewmember representative, discusses new MEDEVAC process with SGT Rene Gonzales from FLATIRON at Cairns Army Airfield.

viously fulfilled with our Huey and Kiowa, and freeing up UH-60s for the battlefield. The Lakota meets this need by satisfying MEDEVAC, training center and emerging Homeland Security roles.

The commercial off the shelf (COTS) non-developmental item (NDI) FAA certificated aircraft approach is new for Army helicopters, but is well suited to the permissive environments (largely National Guard) where the Lakota is used.

Along with speedy delivery of this new capability to the users, the Lakota allows underused Black Hawks to get back to operational units.

The current plan is to field UH-72 helicopters with mission equipment packages (MEPs) to support MEDEVAC, VIP transport, training centers and various civil government needs.

Fixed Wing. The Army maintains an extremely diverse fleet of fixed wing aircraft that serve a wide variety of purposes. TCM-Lift has been leading a process with the project manager to standardize and modernize the basic aviation and avionics capacity of the FW fleet.

TCM-Integrated Systems (TCM-IS) manages the MEPs found on many recon aircraft, but we offer assistance with basic airframe and avionics capabilities for the fleet.

Our goal is for the majority of Army FW aircraft to have a unified approach to both combat and civil communication and navigation capability.

We were the original combat developers for the C-27J aircraft and saw it through operational testing, at which time DoD directed that the program be turned over to the U.S. Air Force.

Non Standard Rotary Wing. The US military has long been involved in helping foreign military partners to improve their training and readiness to support our nation's strategic goals.

Recent events in southwest Asia have shown that the previous approach of training foreign nationals on U.S. equipment is not always appropriate – given current inventory in the host nation.

The Mi-17 is prolific in many parts of the world and TCM-lift is well suited toward establishing a flight-training program to take advantage of assets already in place.

Many of these aircraft have unique configurations and we are applying our expertise to develop requirements to standardize these systems for their intended use and assist in establishing a training program to enhance these capabilities for our international partners.

New Capabilities

The primary role of TCM-Lift is an application of the DOTMLPF process to develop new systems; but we also have a hand in urgent changes identified in the field through the Operational Needs Statement (ONS) process. For long-term projects or major system developments, TCM-Lift uses DOTMLPF analysis.

It allows for careful consideration of features to ensure they tie in with current and projected force structure, networks and other anticipated needs; it also allows for development of new structures/infrastructure should the system need it.

In contrast, the ONS process offers commanders in major combat theaters the latitude to request a specific and urgent material solution.

Sometimes, we foresee the current fight might call for a specialized addition such as SATCOM radio.

The ONS process can meet the need by providing a quick solution – like a strap-on type radio.

However, a more deliberate process produces an integrated system managed through a multi-functional display (MFD) and air mission planning system (AMPS) pre-loading; this full process significantly reduces workload, weight, and clutter.

To meet the full spectrum of new capability development, the TCM specializes in some functional areas:

Survivability. Just as we work to standardize capability within our managed systems, we also actively participate in programs that affect all of Army aviation. Each of our programs is directly involved in the latest developments in aircraft survivability equipment (ASE) and degraded visual environment (DVE).

Our team takes the latest data from field events and coordinates system integration and tactics for each managed system.

Battle Command. Digital networks and message systems have given the entire defense department quite a few growing pains. Current commercial network technology has created a generation of soldiers that expect networks to deliver a wide range of information-based services.

Unfortunately, the military does not have the luxury of all the flexibility and permanent infrastructure in a commer-

cial system. We all know not to trust spam and pop-ups, but our tactical situation must be accurate and uncompromised, so reliability and encryption are critical to force protection.

Beyond this, rigid rules for aircraft software certification add another layer of complexity. Many have experienced home computers crashing…, this simply cannot be tolerated in an aircraft – even if a system is shut down unexpectedly, it must come back quickly and with accuracy.

We need to do all this and move it over a network that has no fixed structure and must survive combat environments. Our role is to isolate pieces of information that pilots must have, or produce, and put them on an open exchange.

Getting others to understand data in a common format presents a challenge, so we encourage users to specify information needs as they develop.

We also have to build the mobile networks that ensure you can connect to the right destinations.

Right now, Blue Force Tracker (BFT) is our only network; we are working to integrate further the Joint Tactical Radio System (JTRS) capabilities, which we feel could offer a lot more opportunities in the future.

Logistics. Among our many efforts in this area, TCM-Lift participates in future capability design for improving automated data collection and use for maintenance management.

Initially, we focused our efforts on Condition Based Maintenance (CBM) and Integrated Vehicle Health Monitoring System (IVHMS). The future has us working to move the maintenance and logistics system to a more centralized process that can reduce overhead and streamline many other processes.

We also support current capability with standardization and configuration through the Air Worthiness Release (AWR) process, and continue to monitor other new developments in automated logistics operations.

Relationships

The TCM cannot possibly do all of this by operating in a vacuum – the team effort does not end with a connection between field Soldiers, SMEs and PMs. We are part of a robust team lead by BG Crutchfield, the USAACE commander who is constantly working on new aviation concepts and doctrine. Our efforts are closely coordinated with Army goals established at DA G3/5/7.

Part of our name is TRADOC, but we bridge the efforts of the capabilities directorate at USAACE with the mission of TRADOC.

It is important to note that our mission to describe requirements is often manifest in a material solution developed by a PM office in Huntsville – this journey is not complete until the Army Test and Evaluation Command (ATEC) has validated that our requirements were delivered as described.

TCM-L is your conduit to voice your needs to all the key players throughout DoD responsible for delivering your equipment.

Connecting with the Soldier

Direct Phone Calls. TCM team members routinely brief at many of the continuing learning courses at Ft Rucker. Users from all platforms get a snapshot of our efforts and information on how to get ideas and issues to our attention.

We are listed on AKO and in the Fort Rucker directory.

Unit Visits. Our primary interest is ensuring that Army flight crews have the best equipment available for the current fight and future efforts. To make sure we stay on top of developments, TCM-L sends representatives to meet with units, particularly after they return from deployments, or participate in certain exercises.

In these sessions, we gain insight into how equipment meets needs, how operators are actually using it, and where improvements are needed. This data also helps us conduct analysis to tie these needs into future systems.

New Equipment Fielding. When the PM is ready to field new systems or major updates, we also take this opportunity to see if the intended capability and training information comes along with it.

We can work with the PM to make sure any updates are included in future fielding activity.

Website. The TCM team is improving our access on the web. To make sure that we are consistent, visible and accessible we are streamlining our Fort Rucker web presence and AKO content into one linked site hosted on AKO, *https://www.us.army.mil/ suite/ page/317021*.

Each platform and functional area is updating the content and offer new opportunities to interact with the TCM.

Future Operations

Experimental. As TCM-Lift supports major improvements to current systems and new procurement like the Lakota, we also look further into the future. Your TCM keeps an aggressive watch on the state of the industry.

We understand that vendors are looking for new sales, but we try to spot emerging technology that meets needs expressed by users in the field.

From our position, we are able to see similar requirements that come to us as specific requests from units or activities and conduct the analysis necessary to fit them into the future Army structure.

This segment of operations is not limited to technology improvements, but doctrine and manning as well.

We participate in future heavy lift programs and Joint Multi Role (JMR) aircraft initiative.

The role of future aircraft comes into play as we contribute to the organizational structure of full spectrum CABs and aviation studies that support adding CABs to the operational structure or lead to new material solutions for existing airframes.

As part of supporting the user we always solicit your comments on current capability, especially material product improvement ideas, and doctrine or tactics, techniques, and procedures (TTPs) that make your job better, easier and safer.

We are obliged to keep you informed and will continue to do so with greater information access through our website on AKO and future articles to ensure the user community is aware of programs and activity at TCM-Lift.

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COL Brian J. Diaz is the TRADOC Capability Manager-Lift and CW3 (Ret.) Glen Woodard is contract support for TCM-Lift at Fort Rucker, AL.

Installation-constructed Shadow UAS Training Facility at Fort Campbell.

COURTESY PHOTO, FORT CAMPBELL RANGE CONTROL

U.S. ARMY CORPS OF ENGINEERS

UAS Training Support:

Current and Emerging Requirements Fulfilled

By CW5 James M. Oliphant and Ms. Nancy Robertson

The Army has seen a dramatic increase in the acquisition of unmanned aircraft systems (UAS) and just as dramatic are the increased capabilities these systems possess.

As the capabilities of unmanned platforms increase, the demand for highly trained operators to employ these systems also increases.

Initially, these systems were deployed with contractors to fly and sustain the aerial vehicles. As the UAS evolved into programs of record (POI) and became mainstream battlefield operating systems, so did the requirement to standardize initial and sustainment training for Soldiers who are now operating the platforms.

Safety Is Paramount

The Federal Aviation Administration's (FAA) main concern about UAS operations in the National Airspace System (NAS) is safety.

How does this affect military UAS operations in training? The answer is rather complicated, but the main issue is the current inability of unmanned platforms to "sense-and-avoid" other users of the airspace.

The FAA has enabled limited UAS operations within the NAS through a Certificate of Authorization (CoA) process. The process enables UAS aircraft to transition from the NAS into restricted airspace to conduct training.

Unfortunately, along with the CoA come restrictions which significantly impede our Soldiers' ability to train.

In order to utilize the transition corridors, a ground observer or chase aircraft must provide observation of the UAS until it enters the restricted airspace to provide the "see-and-avoid" capability. The transitions may only be made during the hours of daylight.

Unfortunately, the majority of U.S. Army airfields are outside restricted airspace and the owning installation requires a CoA from the FAA. It now becomes apparent how the FAA regulations impede training.

It is not practical to provide a chase aircraft for every UAS flight into restricted airspace, and it is unimaginable that commanders will only train during daylight hours.

Equipment Unique Limitations

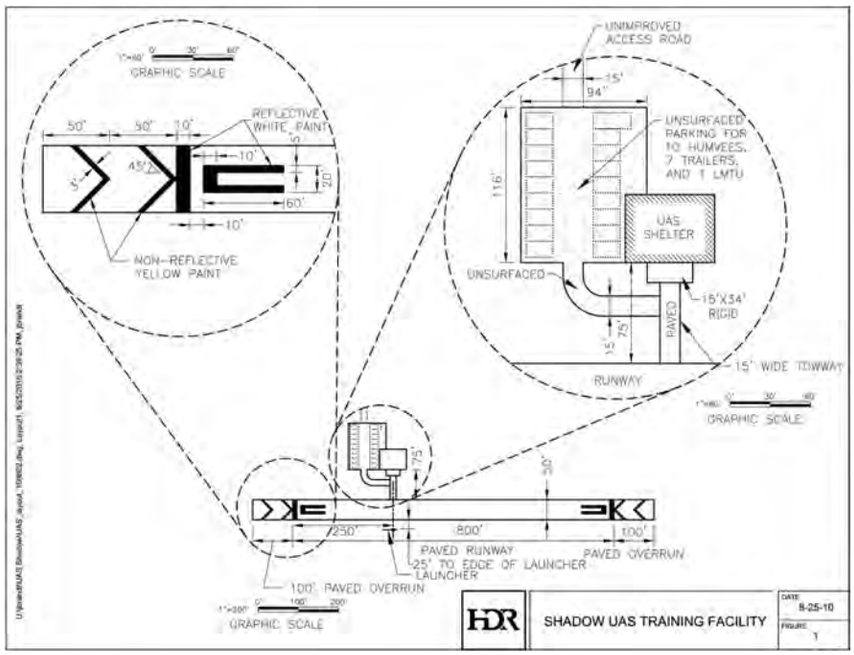
Each category of UAS has its own requirements and regulations that enable/hinder a Soldier's ability to train. For instance, the RQ-11 (Raven), which weighs less than 20 pounds, may operate within uncontrolled airspace below 1,200' above-ground-level (AGL) with an observer present.

Conversely, a large platform such as the MQ-1C (Gray Eagle) must operate from an airfield with a 4,500' runway due to performance requirements. It will operate from Army airfields, and the installations that have the MQ-1C will require a CoA, however, the owning installations and number owned by the Army will be minimal.

It is not feasible to build 4,500' runways within restricted airspace, i.e., downrange, as it takes valuable land from other users and the training throughput does not support the cost associated with such a facility.

It is the medium category, RQ-7 (Shadow) that has the performance capabilities and FAA requirements that dictate construction of UAS landing strips and facilities within restricted airspace.

The Shadow has the same FAA requirements of the larger platforms, but due to its smaller size, has a much smaller footprint for a landing strip and operating facilities.



U.S. ARMY CORPS OF ENGINEERS

COURTESY PHOTO, FORT CAMPBELL RANGE CONTROL

Assistant Chief of Staff for Installation Management (ACSIM) approved Shadow UAS Training Facility design.

The requirement for this type of facility was identified by installations as early as 2003, and installations have been constructing them using installation funds ever since to meet the mission commanders' training requirements.

Shadow Training Facility Requirement Established

In 2009, the Department of Training and Doctrine and the UAS Center of Excellence formalized the requirement for a rudimentary operating facility, including both a landing strip and operations facility. The specific requirement is a basic facility that enables Shadow to launch/train/recover, and be operated WITHIN restricted airspace. This capability enables Soldiers to train 24/7 without the limitations of the FAA regulations.

A 1391 template is in the final stages of development and acceptance for the facility that will fulfill this requirement. The facility has been designed by the Corps of Engineers with full concurrence of the UAS CoE, PM-UAS, TCM-UAS, and TCM-Live.

Soldiers will now have a standardized Shadow facility that will enable them to train as they fight, from a semi-improved site that has obstacle/hazard avoidance criteria designed in, antenna requirements accommodated and landing strip length requirements met on an improved surface that does not damage the aircraft.

The facility will provide a 3,200 square foot facility large enough to store 3 assembled RQ7B+/C airframes. The landing strip is 800' long with 100' of over-run on each end.A tow-way will be provided as will gravel parking for the vehicles of a Shadow platoon.

It is not designed to be a permanent facility, meaning users will treat it as any other range facility; signed for, occupied, and vacated when training is complete.

The End-State

The most important aspect of this designed facility is that it enables a Shadow platoon to realize its full potential by providing the ability to train when it wants without being encumbered by FAA requirements, from a facility that fulfills all training requirements. The new Shadow Training Facility meets these requirements.

Once a Facility Category Code is assigned, installations will be able to program/sustain the facilities and provide better training opportunities for the force.

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CW5 James M. Oliphant is an Aviation Specialist assigned to the TRADOC Capability Manager-Live, Joint Base Langley-Eustis, VA; and Ms. Nancy Robertson is an Airspace Specialist with the Army UAS Integration Center, Ft. Rucker, AL.

Aeromedical Waivers

By Dr. (MAJ) Nicole Powell-Dunford

Q: My flight surgeon at my last duty station wrote up a waiver. How do I know if it has been approved?

FS: Most waivers are entered electronically into AERO, a centralized flight physical and waiver review system. Waivers for pilots, flight surgeons, unmanned aircraft system (UAS) operators, air traffic controllers and any crew member with certain serious conditions must undergo a centralized review process, which is an extra safety measure.

Any flight surgeon, aeromedical physician assistant, or aeromedical nurse practitioner can therefore check on the status of a waiver submitted in AERO.

Before the era of electronic submissions, it could take up to a year or longer for a waiver to be approved. Now, most waivers will be approved within a few weeks or less.

The U.S Army Aeromedical Activity (USAAMA) provides centralized review at Ft. Rucker in consultation with medical specialty experts around the country.

USAAMA grants a final medical endorsement for a waiver and will sometimes convene a board of senior flight surgeons and pilots for a decision when a waiver request is unique, precedent setting or controversial.

Waivers are actually not granted through medical authorities but through Human Resources Command (HRC), the National Guard Bureau, or a Department of Army Civilian authority such as a commanding general – these organizations nearly always concur with the final USAAMA medical recommendation. So, if your flight surgeon is able to establish that USAAMA has endorsed a waiver, it is extremely likely that it will be forthcoming.

When undergoing a long or complicated waiver, a crew member should still follow up with regular flight physicals in order to be eligible for pay. Once medical grounding goes a single day over 365 days, pay is stopped; flight pay that is inadvertently continued after 365 days is subject to lump sum revocation.

Some conditions, such as combat related amputation, are able to still be considered for waiver despite a lengthy period of indefinite suspension and temporary flight pay cessation – if final surgical and functional outcomes are good. If a waiver to fly is not initially granted, it does not mean that the condition is not waiverable in the future given improvements and/or demonstrated medical stability over time.

Always remember to take the mandatory 'report to new duty station upslip' appointment as an opportunity to review the status of your last flight physical and any pending waivers in the AERO system. A diligent flight surgeon will enter and track all flight physicals and waivers, including those of crew chiefs, flight medics and gunners, in the AERO system to ensure continuity of care.

Once a waiver is approved, the HRC, National Guard Bureau or DAC authority will issue a non-descript letter of approval, which does not mention anything specific about the medical condition. This waiver letter should be maintained indefinitely in the service treatment record as well as the individual flight record folder as proof of your medical clearance.

A qualified flight physical now generates a 'green light' in the AKO readiness system for pilots – another way to check your status.

Question for the Flight Surgeon?

If you have a question you would like addressed, email it to *AskFS@quad-a.org*. Depending on the questions we receive, we'll try to address it in the future. See your unit flight surgeon for your personal health issues.

As always, fly safe!

The views and opinions offered are those of the author and researchers and should not be construed as an official Department of the Army position unless otherwise stated.

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Dr. (MAJ) Nicole Powell-Dunford is a flight surgeon and the director of the Army Flight Surgeon Primary Course at the U.S. Army School of Aviation Medicine at Fort Rucker, Ala.

ATTENTION Flight docs

The annual Operational Aeromedical Problems course, held at Naval Air Station Pensacola, Florida, will be held from 10 – 13 January. Email *willie.sallis@us.army.mil* or *robert.wildzunas@us.army.mil* for more details if interested.

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Holding the Membership Rubik's Cube Just Right

By CW5 Mark W. Grapin

With two pre-adolescent boys in the Grapin home, the examples and analogies of childhood abound. Whether it's holding your tongue just right to color within the lines, or learning where that errant Lego® piece got to while trudging the darkened kitchen floor in your bare feet, I find the tenets and axioms of a harmonious home routinely bleed over into my professional life – sometimes, literally.

And as though to taunt me from a generation ago when I still had combable hair, my children have recently discovered the Rubik's Cube.

While nearly everyone reading these words just now sighs aloud, intrinsically appreciating the self-inflicted aggravation, this plastic slice of cerebral nirvana finds itself at the focus of this month's article: How best to view our current plane of membership numbers, against the adjoining plane of prospective membership numbers.

In the brief span of my career, the mantra of Women in Army Aviation has dramatically changed.

Our own Aviation Hall of Fame celebrates several firsts for the female of our species, yet their representative number in our membership ranks is surprisingly low – well under ten percent of our total membership population.

While the stock explanation for these low membership numbers could be dismissed as representative of the total female population wearing Aviation brass on their collars, we may only be seeing one side of the Rubik's Cube.

By rotating the cube just ninety degrees, we're able to see a huge prospective population, each wearing a spouse's badge!

In living to our charter of Support to the U.S. Army Aviation Soldier and Family, we are compelled to represent the interest of each Aviation spouse in the collective voice of our Association. And, why would we not want to count our spouses – male or female – as bona fide Quad-A members in their own right?

Our principal challenge, however, is likely the perceived relevance of our programs to make the membership worth the investment of dollars and commitment of time.

Two years ago, MG Carl H. McNair, Jr. (Ret.) hosted a top-drawer recognition and celebration of Women in Army Aviation at our Annual Convention. The billing on the published Convention schedule did little justice to this event – in that I was wholly impressed with the assembled talent, and the terrific manner in which this huge ceremony was kept upbeat and flowing.

I doubt there was a person in the ballroom that evening who wasn't captivated by the slices of history and accomplishment each wore – or are wearing – the uniform of our Army, and the prop and wings of our Branch.

Forget about the fact that General McNair was the sole male representative on the stage in his emcee role – these Soldiers were each accomplished in their own right, and each just happened to be female.

This celebration solidified in me the conviction that we each serve our Branch with the tools we drew during our initial issue.

And whether it's the hand of a mechanic clutching a wrench to apply just the right torque to a swash plate bolt, or it's the finger squeezing a mic button to usher air traffic across a runway threshold, the gender of each person executing each of these millions of excellent contributions to our unit and National missions means very little to the aircraft or airspace – but means everything to the manner in which we celebrate these successes.

PHOTO BY CW5 (RET) RANDY OLSON

CW5 Geraldine A. Bowers (left) and Medal of Honor Recipient Colonel (Ret.) Robert "Snake" Crandall following CW5 Bowers' installation in the Honorable Order of St. Michael – Silver, at the Camp Humphries Community Club on the event of the Brigade Aviation Ball, Apr. 16, 2009.

Looking for Firsts, and Celebrating the Best

We have a moral – if not a fiduciary – obligation to our current and next generations to seek out excellence in service to our Branch, and provide the proper timely recognition of these Soldiers, industry partners, service civilians, and family members.

In fulfilling this obligation, we also give the nod to those upon whose shoulders we stand in reaching for the goals of today and objectives of tomorrow.

Rhetoric aside, there are countless opportunities we collectively pass-up each day in not recording winning accomplishments – either on a Department of the Army Awards nomination form, or on a comparable form for one of the several awards available through our professional association.

How many of us have wondered during an awards program why so-and-so wasn't up on that stage,

accepting an award for very comparable service?

Not to take anything away from a much-deserved recipient, but the answer often lies in our having been allowed to be overcome with the events of the day and the scope of our mission, to the point where finding just a few moments to record superior performance evades a slot on our daily planner.

Notes jotted on the back of an envelope or receipt seem to get sucked into the washing machine, and recalling them for transposition onto an awards nomination form slips to the eleventh priority on our list of ten.

We owe it to our Branch and Army to seek out excellence wherever we may find it, and to celebrate it appropriately.

The Our Lady of Loreto award was specifically created to recognize excellence in Aviation service by our spouses, and the comparatively low numbers of those awarded this companion award to the Order of St. Michael gives us a great opportunity for improvement.

This only deepens the hue of the little colored squares on that seldom-seen side of our Membership Rubik's Cube.

Matching the Little Panels on One Side of the Cube

In digging just a little into the talent in our own back yards, we're sometimes able to get those little panels on one side of that Membership Rubik's Cube to all line up.

If you'll permit me a single, stellar example: In a cooperative effort between the Bluegrass Chapter in Kentucky, and the Morning Calm Chapter in Korea, the contributions of the first female attack helicopter maintenance test pilot in the US Army, were recognized on 16 April 2009.

The legacy of excellence in service to Army Aviation by CW5 Geraldine A. Bowers is significant and lasting – having inspired at least two generations of Women in Army Aviation, as well as attack helicopter pilots of both genders.

CW5 Bowers was the first female to qualify in the AH-1S Cobra in the Army National Guard (only the second in the entire US Army) – adding her maintenance test pilot and maintenance flight examiner bona fides in 1990; in addition to being the first female to qualify in the UH-1M as a pilot, and later as a maintenance test pilot!

Her professional resume and military accomplishments are nothing short of astounding, culminating in her recent combat assignment to the Joint Personnel Recovery Center in Baghdad, Iraq, where she was directly responsible for 46 percent of the open cases on missing and captured Servicemembers, and earning accolades from the Embassy of the United States in Baghdad, as well as a Bronze Star Medal for her service.

She is a qualified logistician, tactical operations officer, instructor pilot, maintenance test pilot, instrument flight examiner, fixed-wing pilot, and aviation safety officer.

This Master Army Aviator and highly-decorated combat veteran of more than three decades of service is currently back in Korea for her second tour in southeast Asia.

Her substantial accomplishments – not only as a "first" in several categories – each and collectively reflect great credit upon herself, her unit of assignment, and U.S. Army Aviation!

Membership Committee Update

By the time this article appears in print, the National Executive Board will have been updated with our recent progress, and we'll be flying with a refined course and glidepath.

We're making progress on Dual Life Membership programs with the U.S. Army Warrant Officers Association (USAWOA); on the Virtual State-Centric (VSC) initiative; and on expanding the "of-the-Month" recognition program to encompass the larger populations of "Contractor," "Service Civilian," "NCO," etc.

Our Membership subcommittees are engaging and it's encouraging to see the progress.

Details on each of the Membership programs, along with some practical tips for solving the Membership Rubik's Cube, are further described in the AAAA InfoFile, and I welcome your questions at mark.grapin@quad-a.org.

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CW5 Mark W. Grapin
AAAA Vice President for Membership
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South Korea: From Hardship Tour to a Destination of Choice for Army Families

By Karen Barker

Family members board a CH-47 Chinook during a Non-combatant Evacuation Order (NEO) exercise at Desiderio Army Airfield, Camp Humphreys, Pyongtaek, Republic of Korea.

U.S. ARMY PHOTO BY CPL TIM OBERLE

With the ongoing changes in South Korea and at Camp Humphreys, Soldiers and families will most certainly consider a tour to the "Land of the Morning Calm" as a duty station of choice. Until recently, most assignments to the Republic of Korea did not allow a Soldier to bring his or her family, and the assignment had been considered a "hardship" tour.

The primary reason Soldiers refrained from requesting a tour to Korea was due to the Department of Defense (DoD) policy that limited families from accompanying Soldiers.

This DoD policy was based on several factors including the lack of infrastructure and facilities for family members on the peninsula.

Transition to a Family Friendly Tour

In the fall of 2008, the DoD began to implement sweeping changes in the assignment policies of service members assigned to Korea to include increasing the opportunity for Soldiers to be accompanied by their family members and sponsored by the command.

To make the transition more feasible, the DoD modified its existing plans to the ongoing major construction project at Camp Humphreys under the Yongsan Relocation and Land Partnership Plan. This partnership plan is the blueprint for the relocation of Eighth U.S. Army and its supporting units to Camp Humphreys.

Due to an estimated 60,000 people who will be living and working on Camp Humphreys, construction plans have been altered to provide for more family housing and schools.

Over 70 percent of the current standing structures on Camp Humphreys are scheduled to be replaced, and over 13 billion dollars is being invested to create a major military city. Construction is currently scheduled to be complete by the year 2016 to host even more families.

The plans for construction at Camp Humphreys include a new child development center, a new commissary, a post exchange with multiple eateries and movie theaters, six new state of the art exercise facilities, three elementary schools, one middle school, a high school, and thousands of housing units built around the schools to support a family neighborhood environment.

Camp Humphreys already provides an elementary school, middle school, outdoor water park, impressive baseball fields, soccer fields, and a "super gym" with indoor pool.

Currently we have a small town feel with easy access to larger cities and other bases. What that means is we have everything that you can find at a CONUS installation. Army Community Services, Morale Welfare and Recreation, Child and Youth Services, Child Development Center, B.O.S.S., USO, Chapel, and Health Clinic, as well as a Community Spouses Club, Teen Center, Commissary, and PX - we have it all!

The Growing Pains

However, not everything is blue skies yet. Although we have our basic needs met, we are a developing community that will undergo a number of growing pains while we transition to a larger community.

PHOTO BY SOHEE RUDE

Ladies of the 3rd Battalion, 2nd Aviation Regiment host a welcome reception at Camp Humphreys, Pyongtaek, Republic of Korea.

Some of these that we are currently experiencing are due to a lack of jobs for family members. Substitute teaching and working in the Child Development Center are proving to be dependable avenues of employment, but due to the current Status of Forces Agreement (SOFA) agreement, few family members are able to find employment outside of those venues.

Even teenagers are having difficulty finding employment at the usual establishments, such as the commissary or food court. On the bright side, our teenagers do have the opportunity to participate in the Camp Humphreys summer hire program that enables teens to gain work experience and earn a paycheck.

The U.S. Army in Korea is experiencing a flooding of families since they opened up accompanied tours.

Our communities can only accommodate so many due to the number of schools (classroom space), and healthcare (number of healthcare providers). Presently we simply do not have enough room to afford every family concurrent travel. Some families will see a delay until the community they are going to can provide sufficient support for their needs.

These challenges will decrease with the growth of Camp Humphreys into a large community. Do not be discouraged! This is a great place to live and you should look forward to an assignment here!

2nd Combat Aviation Brigade

The 2nd CAB "Talon Brigade" is comprised of 4 battalions with three stationed at Camp Humphreys, and one located at K-16 Air Base near Seoul. Currently, the 2nd CAB does not deploy from Korea to Afghanistan or Iraq. This provides families up to three years dwell time allowing them to reintegrate with their families while still training for "full-spectrum" military operations.

With that said, yes, 2nd CAB trains for combat, but there is plenty of time for Soldiers and family members to continue their education, join clubs or teams, and volunteer with numerous community agencies and activities.

Our brigade and battalions have established Family Readiness Groups (FRGs), along with Family Readiness Support Assistants (FRSAs). So the moment your family has pinpoint orders to join us, you will have a military sponsor to welcome you to Korea and the support of the FRG throughout your tour. Our FRGs are more than an avenue of information though, they provide an opportunity for spouses and soldiers to gather socially, and are the base that makes our community and our units strong.

AAAA Morning Calm Chapter Initiatives

The Brigade has a growing AAAA membership with many upcoming events planned to support our efforts in establishing scholarships and donating to the community.

This year we have given a monetary donation to the Camp Humphreys food bank that supports military families during the holiday season and throughout the year.

The Morning Calm Chapter of AAAA has also initiated "It's Time for a Change" fundraiser where we are asking for everyone to donate their spare change in support of the American Cancer Society.

The Chapter will donate its collection of spare change in honor of Mrs. Arlene Crandall, the spouse of COL Bruce "Snake" Crandall. Mrs. Crandall lost her long fight with cancer recently and is moving on to her 54th home in 54 years of marriage setting the conditions for Bruce's arrival to Arlington National Cemetery.

The members of the Morning Calm Chapter and families of the 2nd Brigade thank the selfless duty that Arlene has shown in the support of her husband and the entire aviation community.

What South Korea May Offer You and Your Family

South Korea provides the military an outlet to improve the quality of life for our families, while giving our Soldiers the opportunity to train hard. Keep 2nd CAB in mind for a future tour.

We live in a small military community with a BIG future, and hope you can be a part of our Brigade and experience this beautiful country, its wonderful culture, and the friendly people that make South Korea a joyful experience.

Current Events Update

In light of the recent events with North Korea firing on the Northwest Islands off the coast of the Republic of Korea, and as a family member here, I must say that we are in a heightened state of alert; meaning we are consciously aware of our safety just as most Americans are or should be when traveling. The U.S. military has an established Non-combatant Evacuation (NEO) plan that accommodates the mass exodus of military families, Department of Defense employees, and all U.S. citizens living or traveling in South Korea.

Our military conducts NEO training exercises and allows family members to volunteer in order to experience the rapidity of an evacuation and to give credence to the exercises.

With that said, our day to day activities since the incident have not changed and the soldiers and family members are planning to enjoy all that Korea has to offer this holiday season.

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Karen Barker is the wife of COL James T. Barker, commander of the 2nd Combat Aviation Brigade; she is the brigade FRG Advisor, and holds a Bachelor of Arts degree in Political Science from Arizona State University; Karen and Jim have two daughters.

Judy Konitzer is the family readiness editor for ARMY AVIATION; questions and suggestions can be directed to her at judy@quad-a.org.

FROM THE ARCHIVES
Article from the December 31, 1993 issue of ARMY AVIATION Magazine.

"The Next 40 Years"

By MG John D. Robinson

The then Branch Chief in 1993 looks ahead to the future of Army Aviation in the 21st Century.

The humor of Yogi Bera's quotation, "The future ain't what it used to be" has subtle and profound meaning today. As major changes sweep the globe, predicting even a year or two into the future challenges even the most perceptive thinkers. It is therefore with some trepidation that your Branch Chief attempts to respond to ARMY AVIATION Magazine's request that I look at Army Aviation 40 years into the future.

Forty years ago, when ARMY AVIATION Magazine began publishing, Army Aviation was completing a period of phenomenal growth resulting from the tremendous role it was able to play in the Korean Conflict. Its aircraft inventory had more than tripled in three years to a total of 3,500. Its role and mission, although somewhat expanded, was limited for the most part to observation, reconnaissance, fire adjustment, medical evacuation, and battlefield resupply. The old Department of Air Training of the U.S. Army Field Artillery School at Fort Sill had just become the U.S. Army Aviation School, and the move to a location other than Fort Sill was being considered. Who could have predicted then what Army Aviation would experience and become by 1993? Can the past 40 years be a prologue to the next 40?

How Army Aviation will evolve during the next four decades is inextricably linked to future directions in the world and our Nation's future need for military forces. Complex ideological, political, and economic interactions will cause some analysts to question whether the exercise of military power remains a relevant means of achieving national goals. Autonomous operations will become less common as calls for collaborative commitment increase; this will greatly complicate the political and military decision processes.

Futurists Alvin and Heidi Toffler have perceptively labeled the current "Information Age" as the "Third Wave" in the development of civilization. The other two great revolutions in human history, the Agrarian Revolution of 8,000 B. C., and the Industrial Revolution of the eighteenth century provide a sharp contrast to the present – when digital circuits enable us to pass almost infinite quantities of information around the world in nanoseconds.

The Tofflers postulate that this information and knowledge explosion has significantly influenced the ideological, political, and economic underpinnings of civilization. While other observers believe that contemporary change is being driven largely by the demise of the Cold War, the Tofflers conclude that the increase in knowledge during this age, perhaps the most rapid increase since the Enlightenment, is the principal reason for change in the world today. They suggest that our national strategy may currently be in somewhat of a vacuum, having been unhinged by the loss of the Cold War paradigm.

Ancient hatreds and intolerant attitudes persist, however, confirming the probability of future conflicts ranging from high technology battlefields to operations other than war. Sovereign nations will be increasingly assertive and will tap the high technology weapons producers of the world, who will tend to respond when presented with hard currency. Because of the proliferation of high technology, there will be a movement away from large standing armies.

Requirements for lethal and precise weapons that have the effect of massed forces will increasingly influence defense investment decisions. There will be considerable interest in space-based and terrestrial sensor communications, ballistic missiles, systems capable of precision fires, and perhaps non-lethal weapons. Agile, stealthy weapons platforms, both manned and unmanned, along with sophisticated electronic countermeasures will become increasingly important for the battlefield survivability. The Army will likely increase its investment in manned and unmanned sensors, intelligence-producing systems, space-age communications, joint precision fires, agile and maneuverable armed reconnaissance, attack and assault platforms, and missile technologies.

As much as we might like to think otherwise, the peace dividend will probably remain elusive. During the Industrial Revolution, fewer workers could weave far more cloth with the new power looms than they could before, but far more cloth was required by the rapidly growing world population. During the Information Age, as armies are reduced in size, most of the resulting cost savings will perforce be directed into Information Age technologies so as to provide the necessary means for the promotion of our national interest and a concomitant free, democratic world.

The capability for successful operations in the third dimension of the ground battle regime will become paramount. In the next 40 years, war is not likely to become a "push-button" affair, nor will it be conducted solely from

Back In The Fight

By Sofia Bledsoe

The first crash battle damage repair OH-58D Kiowa Warrior was introduced at the Corpus Christi Army Depot, TX during a roll-out ceremony Oct. 14 in Hangar 44. Tail number 153 was damaged on Christmas Day, Dec. 2008, when it was hit by a rocket and destroyed on the ramp in Iraq.

Although CCAD had not done any repairs on KWs in the past, the Project Manager for Armed Scout Helicopters made a strategic decision to invest in the CCAD facilities and began a partnership.

An asset for Army Aviation, repairing extensively crash damaged aircraft, building 38 aircraft from scratch to replenish combat losses, and running an aircraft overhaul program are three major things that CCAD is doing for the Project Office.

PHOTO BY SOFIA BLEDSOE, PEO AVN PAO

The Army's first OH-58D Kiowa Warrior crash battle damage repair is displayed in Hangar 44 during the roll-out ceremony Oct. 14 at Corpus Christi Army Depot.

The production line for the KWs ended in 1999 with a planned retirement for the fleet in 2011; however, the wars in Iraq and Afghanistan, and the cancellation of the RAH Comanche and the Armed Reconnaissance Helicopter programs which were supposed to take the Kiowa's place, will cause the Army to make a service-life extension, in some form, for at least another 15 to 18 years.

KWs have logged more than 650,000 combat hours in Iraq and Afghanistan since the start of the war.

Sofia Bledsoe is the public affairs officer for Program Executive Office, Aviation, Redstone Arsenal, AL.

the air. Joint forces operating in coalition with other nations will be the norm. Air maneuver in the ground regime will become commonplace in maneuver battle punctuated with high technology infantry and special operations soldiers. As T.R. Fehrenbach astutely observed, "We can fly over land, bomb it, atomize it, and wipe it clean of life; but if we desire to preserve it for civilization, we must ultimately put soldiers in the mud."

In the future high-technology ground environment, the role of Army Aviation will greatly increase. We will consummate the Aviation Restructure Initiative, gaining a streamlined force of fewer personnel equipped with the highest technology systems possible.

Systems such as Longbow Apache, Comanche, Black Hawk, and the Chinook upgrade will be pivotal in meeting the ground commander's needs in all dimensions of the battlespace. Research and development will focus on advanced composites, propulsion, sensors, missiles, avionics, visionics, electronic survivability equipment, and digital communications.

The recent publication of FM 100-5, *Operations*, gives insight into future warfighting. The focus is on force projection, operations other than war, overwhelming combat power, versatility, simultaneous operations, and joint, combined, and interagency dimensions of warfare. The Army must respond quickly to uncertain contingencies by fielding lethal, flexible, expansible, and supportable forces. Concepts long associated with aviation, such as "fighting in the spirit of cavalry" and operational parameters like agility, initiative, and flexibility must characterize

"During the Information Age, as armies are reduced in size, most of the resulting cost savings will perforce be directed into Information Age technologies..."

the fighting capability of the entire Army of the next century. Since Army Aviation is already well acquainted with the precepts of FM 100-5, we should not find it difficult to relate to the Army's emerging operational concepts of battle across the full range of military operations.

Aviation tactics, techniques, and procedures will be adjusted to gain decisive victory against increasingly sophisticated adversaries. The training base will be challenged to shift from brute-force-thinking to harness the power of the human brain. Information Age technologies will demand agile-minded, intuitive leaders empowered to make quick battle decisions. As more powerful sensors become available and lethal systems with greater precision and lethality emerge, training regimes must change to harness solider intellect. As we move from the era of the Huey and Cobra, significant investment must be made in the

"Army Aviation can and must lead the way in harnessing the power of the Reserve Components."

training base now to transition aviator and maintenance personnel from these faithful but mature systems to modern equipment.

There is no reason why traditional hierarchical staffs cannot be flattened. We must be capable of identifying the most outstanding and intuitive leaders and of training them to use the information produced in these new battlefield circumstances. The time is near when large, cumbersome staffs can be streamlined. Information Age technologies will do much of the work currently done in the acetate and grease pencil environment. You can be certain many will resist, just as the computer has been resisted by many during the last decade. While Information Age technology will permit large amounts of information to be processed very quickly, the question remains: To what end shall we use this information?

Simulation technology will be powerfully harnessed for training and combat development purposes. Sophisticated networks will link combined arms elements in real, constructive, and virtual environments. Much of our individual, crew, and collective training will be done in a simulation environment; we can and should trade off some OPTEMPO to accomplish this. The simulation environment will permit mission rehearsal on terrain developed from a worldwide database containing natural and manmade terrain; dynamic terrain will be commonplace in our training environments. Sophisticated opposing forces with blue-grey technologies will offer significant challenge in these simulation environments. The time is not far off when aviators will go "on line" with their home personal computers and interact with other warriors on a simulation network. This Information Age technology has significant implications for the National Guard and the USAR components.

Army Aviation can and must lead the way in harnessing the power of the Reserve Components. In the post Cold War environment, all components must be shaped for short-notice contingency operations. Large reserve forces for mobilization purpose are a vestige of the Cold War. Statutes must be changed to give the National Command Authority immediate access to fully modernized Reserve Components. While offering tremendous potential, breaking the paradigm of past attitudes and practices will prove a formidable task.

In the next 40 years, we will harness information technologies to sustain the force. Smaller, high technology forces must be complemented with state-of-the-art diagnostic equipment in the hands of highly trained technical specialists. Aviation's "Stripes on the Flight Line" and Technical Career Track for our non-commissioned officers are exactly on target and must be promulgated.

The notebook computer offers nearly limitless possibilities as digital connectivity will make electronic logbooks commonplace; technical manuals and parts requisition will become paperless. Data buses on our aircraft will record usage data and help predict fatigue and failure parameters.

Twisting, bending, and torsion moments experienced by the aircraft will be compared instantaneously with engineering designs to determine when the component should be changed. In short, prognostic technologies will protect the millions in operations and support costs.

Technology will also greatly increase our knowledge of how to protect our investment from mishaps. We are just beginning to understand risk and its impact on crew coordination and cockpit decisions. In the past 30 years, Class A mishaps have been reduced from 30 to fewer than two per 100,000 flying hours. While system reliability has increased, we are flying smarter. In the coming decades, we must push the envelope of knowledge to reduce risk by lessening cockpit workload with better avionics and improved visionics. Much was said earlier about intuitive thinking; such thought can be applied in preventing avoidable accidents. Safety must be predominant to protect our expensive personnel and equipment investment from needless mishaps.

Minority American representation will continue to increase in all phases and levels of Army Aviation during the next decades. Women will find great opportunity to progress in the Branch. We are justly proud of recent progress made in these areas.

While we all have great pride in what has been accomplished, the demand for change in the next four decades will greatly alter attitudes and investment priorities in the Army. The time has come to confirm Aviation leaders as full participants in the Combined Arms Team. With full acceptance, many future senior leaders will wear Army aviator wings, serve in the Army and Joint positions of significant responsibility, and rise to the highest positions in the Army. Essentially, the Army will transition as it did in earlier times when Field Artillery officers were finally accepted as capable of commanding divisions and corps, thus permitting service at the highest levels.

Aviation warrant officers' duties will be greatly expanded; they will be placed in increasingly important command and staff positions throughout the force where aviation technical expertise is needed. Noncommissioned officers will possess greatly broadened technical skills and become specialists and experts in their aircraft field. As such, aviation maintenance must remain integral to the Aviation Branch.

The human mind is able to predict the future only as through a glass darkly. Just as someone in 1953 attempting to plot the course of Army Aviation for 40 years in the future would have been hard-pressed to predict the Comanche and the simulation technology we use today, perceiving the latter decades of the next 40 years can be done only in vague outlines. In one thing, however, I am very confident: in the year 2033, Army Aviation soldiers will be able to reflect on the previous four decades as truly remarkable.

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MG Robinson was the Chief, Aviation Branch and Commanding General, U.S. Army Aviation Center at Ft. Rucker, AL and Commandant, U.S. Army Aviation Logistics School in 1993 at the time this article was written.

Industry News

And Announcements Related to Army Aviation Matters

Editor's note: *Companies can send their Army Aviation related news releases and information to editor@quad-a.org.*

LM To Finish Modernizing Apache Arrowhead®

PHOTO COURTESY LOCKHEED MARTIN

The U.S. Army awarded Lockheed Martin a $65 million contract on Nov. 2 to continue modernization of the Apache helicopter's Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS) system. The total contract value includes the $22 million base, plus options. Under the Phase II, four-year, fixed-price contract, Lockheed Martin will finish modernizing the Apache's legacy Day Sensor Assembly (DSA) and associated electronics. The modifications will ensure M-TADS/PNVS remains the world's most advanced electro-optical precision engagement system for attack helicopters.

Raytheon Gets Order for CSP EO/IR Systems

PHOTO COURTESY RAYTHEON

Raytheon Company, McKinney, TX was awarded on Nov. 29 a $42.9 million delivery order for 57 Common Sensor Payload (CSP) electro-optical and infrared sensor systems. The order is part of a contract awarded by the U.S. Army in November 2007, with options worth up to $1.2 billion. Since winning the initial development contract, Raytheon has delivered 28 system development and demonstration units to the U.S. Army. The day and night imaging sensor is designed for installation on numerous platforms, including manned, unmanned, and rotary- and fixed-wing aircraft. It passed Milestone C review in June 2010, and moved into the low rate initial production manufacturing phase.

Contracts – (From various sources. An "*" by a company name indicates a small business contract)

OH-58 A2D Conversion Awarded to Bell

Bell Helicopter, a Textron Inc. company, Fort Worth, TX announced Oct. 28 that the U.S. Army initiated a contract for the OH-58 "A2D" cabin conversion upgrade program for the OH-58 platform.The A2D conversion program is an Army initiative to replace war time losses suffered by the OH-58D Kiowa Warrior. This conversion program takes an existing "A" model OH-58 and upgrades it to "D" model. The agreement calls for an initial conversion of eight cabins with an option for a second group of ten. After the conversion of 18 OH-58A aircraft, and establishment of a "hot" production line, Bell Helicopter will be in a position to respond to the Army's potential requirement to replace wartime losses with "new metal" cabins reducing overall fleet age.

Boeing to Produce More Apaches and Trainers

Boeing Co., Mesa, AZ, was awarded on Oct. 29 a $141,701,518 firm-fixed-price contract for the advanced procurement for the manufacture of 31 AH-64D model aircraft and two fixed-site Longbow crew trainers matching the Taiwan AH-640 aircraft configuration. Work is to be performed in Mesa, AZ, with an estimated completion date of July 30, 2015.

AH-64 Components Contract Awarded to Boeing

Boeing Co., Mesa, AZ, was awarded on Oct. 29 a $75,233,988 firm-fixed-price performance based logistics for the Apache, AH-64D unique components.Work is to be performed in Mesa AZ, with an estimated completion date of Oct. 31, 2014.

AAI Wins Shadow UAS Support Contract

AAI Corp., Hunt Valley, MD, was awarded on Oct. 29 a $35,434,902 cost-plus-fixed-fee contract for the acquisition of efforts necessary to complete the fiscal 2011 performance based logistics contract for the Shadow unmanned aircraft system (UAS) and a service effort for four government owned/contractor operated (GOCO) teams to operate and maintain the Shadow UAS in support of Operation New Dawn/Operation Enduring Freedom. Work is to be performed in Hunt Valley, MD, with an estimated completion date of Oct. 31, 2011.

CH-47 SBIR Project Awarded to QuesTek

*QuesTek Innovations, LLC, Evanston, IL has been awarded a Small Business Innovation Research (SBIR) Phase II project on Nov. 18, from the U.S. Army to demonstrate the application of QuesTek-designed *Ferrium*® C61™ steel to the forward rotor shaft of the CH-47 Chinook helicopter. It is expected that the weight of this large shaft can be reduced by 15-25% with this product. The 2-year contract is valued at $729,958.

Advertisers Index

POTM
PEOPLE ON THE MOVE

Aviation General Officers

Secretary of Defense Robert M. Gates announced Nov. 17 that the President has made the following nominations:

U.S. ARMY PHOTO

BG Walter M. Golden Jr. has been nominated for appointment to the rank of major general; he is currently serving as director, J-1, the Joint Staff, Washington, D.C.

U.S. ARMY PHOTO

BG Raymond P. Palumbo has been nominated for appointment to the rank of major general; he is currently serving as commanding general, U. S. Army Alaska/deputy commander, U. S. Alaskan Command, Fort Richardson, AK.

Soldiers Earn Citizenship in Iraq

U.S. ARMY PHOTO BY SPC ROLAND HALE, EAB, 1ST INF. DIV. PAO

Pfc. Sandra Colocho, Enhanced Combat Aviation Brigade, 1st Infantry Division, holds her certificate of citizenship and a U.S. flag, Nov. 11, after becoming a naturalized citizen along with 50 other U.S. servicemembers in a ceremony at the Al-Faw Palace on Camp Victory, Iraq. Colocho came to the U.S. from El Salvador when she was 11 months old, and she is now serving as her unit's supply clerk.

Thanksgiving in Afghanistan

U.S. ARMY PHOTO BY SPC JEANITA C. PISACHUBBE, 4TH CAB, PAO

Left to right, U.S. ***Army CSM Donald Rose,*** 4th Combat Aviation Brigade, 4th Infantry Division and Regional Command-North senior enlisted leader; German Army ***Maj. Gen. Hans-Werner Fritz,*** commander, RC-N; and U.S. Army ***COL Daniel Williams,*** commander, 4th CAB, 4th ID, Fort Hood, TX join forces and serve Thanksgiving dinner to Soldiers, Airmen and civilian personnel stationed at Camp Marmal, Afghanistan on Nov. 26.

Flight School Graduates

AAAA congratulates the following officers graduating from the Initial Entry Rotary Wing (IERW) courses at the U.S. Army Aviation Center of Excellence, Fort Rucker, Ala. AAAA provides standard aviator wings to all graduates and sterling silver aviator wings to the distinguished graduates of each flight class.

63 Officers, Nov 23

AH-64D Track

LT William Dionne -	DG
WO1 John A. Sims -	DG
LT Michael E. Allen -	HG
WO1 Christopher D. Crew –	HG
WO1 Justin W. Fitzharris –	HG
WO1 George M. Bilafer *	
CPT Matthew Brown	
LT Christopher D. Byrne	
LT Ian Cosby	
WO1 William W. Dodson	
WO1 Jacob J. Ellison	
LT Erika N. Garcia *	
WO1 Matthew M. Goldsberry	
LT Daniel Gossman	
WO1 Josiah C. Liddle	
WO1 Daniel L. Munger	
WO1 Paul M. Myers *	
WO1 Derrick S. Ouellette	
LT Jennifer R. Peebles	
WO1 Anthony J. Rubado	
WO1 Kristopher P. Shallow	
WO1 Sean Stewart	
WO1 Bradley J. Summers	

OH-58D/R Track

WO1 Joshua R. McSwain –	DG
WO1 Tyler D. Morse –	HG
LT Brian Borkowski	
WO1 Curtis K. Childree	
WO1 Brandon M. Cumens	
WO1 Thomas B. Farrell	
WO1 Demetrius W. Franklin	
WO1 Joanna M. Graf	
WO1 Jason L. Kirby	
WO1 Francis S. Laudano	
WO1 Jereme J. Leason	
WO1 David D. Robinson	
LT Thomas J. Williams	

UH-60 Track

LT Curtis L. Bew –	DG
WO1 Troy A. Buford –	DG
LT David J. Veth –	HG
LT Brandon K. Warren –	HG
WO1 James A. D'Amico –	HG
WO1 Jason M. Abel	
WO1 Bryan A. Armstrong	
WO1 David P. Breton	
LT Joseph G. Constant *	
WO1 John M. Coreil	
LT Andrew J. Coyle *	
LT Dayne W. Eisele	
LT Patrick D. Farrell	
WO1 Jeremy M. Haley	
LT Christopher K. Jones	
WO1 James P. Kearns	
CPT Jared A. Krantz-Odendahl	
WO1 Aaron M. McNeal	
LT Edward J. Naughton	
LT John J. Newton	
LT Christopher L. Sandin	
LT Andrew A. Sepulveda	
LT Ronald J. Shepard	
WO1 Jennifer A. Shimek	
WO1 Rafael A. Toler	
LT Stephen L. Walker	
WO1 Michael D. Williams	

DG = Distinguished Graduate
HG = Honor Graduate
* = AAAA Member

Legislative Report

COL Curtis J. Herrick (Ret.)
AAAA Representative to The Military Coalition (TMC)

VOTING MATTERS

During the 2010 mid-term elections the Republican Party, with Tea Party support, gained the largest swing of party positions since 1938, with significant gains in the congressional, gubernatorial and state house races. In the House of the coming 212th Congress, the Republicans are up at least 60 seats, a 239 to 179 margin. In the Senate the Democratic party, after losing 6 seats, retained control by 54 to 46 with the aid of independents Joe Lieberman (I-CT) and Bernie Sanders (I-ME), who caucus with the Democrats.

The Republicans gained 11 governorships for a 29 to 18 margin and flipped at least 19 Democratic state chambers without a loss.

Overall results include the president having to work with a split Congress, the Republicans gaining an edge in the coming congressional district reapportioning and the pundit community attempting to foresee how the Republicans with Tea Party members will cooperate with Democrats on coming legislation.

Both parties began caucusing in mid-Nov. to refine their leadership, committee memberships and strategies in anticipation for the 212th Congress.

LEADERSHIP CONCERN

Rep. Howard "Buck" McKeon (R-CA), a seasoned 9-term member, is expected to be selected as a chairman of the House Armed Services Committee which has a reputation for bipartisanship, military expertise and legislative effectiveness. With the loss of 9 of 36 highly capable Democratic members due to retirement and the election, there is concern that the Democratic caucus may have difficulty finding replacements who will aid in extending the HASC legacy.

Departing chairman Rep. Ike Skelton (D-MO), respected for leading the only standing committee to complete an annual 2011 authorization bill, the National Defense Authorization Act, supports un-encumbering the NDAA of social issues to facilitate its passage by the end of 2010.

IRAQ AND AFGHAN VETS ELECTED

Six new Iraq and Afghanistan veterans were elected to the House: Army LTC Allen West (R-22- FL), Army LTC Steve Stivers (R-OH-15), Air Force Capt. Adam Kinzinger (R-IL-11), Army COL Joe Heck (R-NV-3), Army MAJ Tim Griffin (R-AR-2) and Army COL Chris Gibson (R-NY-20).

They are expected to join the two pro-victory Iraq veterans in Congress, Duncan Hunter (R-CA-52) and Mike Coffman (R-CO-6), in a victory caucus.

The two anti-Iraq War incumbent veterans, Patrick Murphy (D-PA) and John Boccieri (D-OH), were rejected by the voters. The election and retirements have lowered the number of military veterans in Congress to 21 percent.

LAME-DUCK SCORECARD

After the failure of the Congress to pass any of the twelve 2011 appropriations, here is a scorecard of things the lame-duck Congress should do for their country by the end of Dec. 2010:

- Extend the current continuing resolution to permit the country to function from Dec. 3 through at least Feb. 2011 to allow the appropriations bills to be approved by Congress and signed by the president.
- Accomplish the "Doc Fix" to prevent the mandated 21.5 percent reductions in payments to Medicare and TRICARE doctors that are to begin on Dec. 1, 2010 and to be further increased an additional 6.1 percent on Jan.1, 2011.
- Pass the NDAA to support our troops at war, to prevent the snafu of causing Congress to start over again with the Jan. 1 cancellation of existing bills at the end of the 211th Congress, and to prevent the nugatory effects of cancelling recruiting and numerous other bonuses and payments beginning on Jan.1. (On Nov. 17, the TMC wrote the leaders of the House and Senate urging them to pass the NDAA in 2010 and provided a matrix of recommendations concerning the positions of the two chambers for consideration by the expected conference committee)
- Pass the Post 9/11 Veterans Educational Assistance Improvements Act of 2010, S. 3447, to improve the popular 9/11 GI Bill to better cover all the deserving war veterans, to include needed non-college vocational training suited for many, to support "distance learning programs" and to enhance the VA administration of the program for the students and the schools; this program, priced at $2.3 Billion over the first decade, requires additional funding.

INITIAL DEFICIT COMMISSION PLAN

On Nov. 10 the National Commission of Fiscal Responsibility and Reform released a 58-page initial plan to reduce the projected deficit by nearly $4 trillion by 2020.

This plan, which was provided prior to the required Dec. 1 submission date and without the required agreement by at least 14 of the 18 commission members, alerted the government community to the gravity of the deficit problem and the stunning size of the recommended corrective actions.

The U.S., with an annual national debt of 40 percent of our Gross Domestic Product at the end of 2008, is expected to reach a 62 percent level by the end of 2010 while anticipating reaching a rising and unsustainable 87 percent by 2020.

The goal is to discipline our annual government spending from an estimated 23.8 % in 2010, to the committee plan of 22 percent of GDP by 2020 and to 21 percent from there.

Our $700 B annual Defense spending including war operations, the country's largest discretionary account, is recommended to be reduced $100 B between 2011 and 2015 and lowered $100 B thereafter.

The many proposed cuts in the initial plan are not listed to avoid possible later confusion while the president, Congress and DoD await the internal commission approval release of the final report on Dec. 1.

DOD BUDGET UNDER ATTACK

Prior to the Nov. 2 election, 57 members of Congress wrote to the "deficit commission" urging that substantial defense cuts be included in their report. On Oct. 25, a CNBC segment called "Cut Military Benefits" presented cutting excessive military benefits without objectively mentioning that the troops and their families agreed to endure the extraordinary demands and sacrifices inherent in a career of 20 to 30 years in uniform.

Meanwhile, Secretary of Defense Robert Gates is maintaining that during this wartime period DoD spending should be allowed to rise one percent per year and that the $100 B in economies he is seeking during the next five years should be invested to modernize aging systems while maintaining fiscal discipline.

DISABILITY PILOT GOING GLOBAL

The pilot test of using just the VA Disability Evaluation System examination to gather information for the VA and the DoD evaluation boards has been successful at 27 sites.

As a result the DES system will be expanded worldwide in three phases to replace the legacy DoD systems by Oct., 2011.

This improved processing of the disability evaluations of wounded warriors and other service members is in response to recommendations made by commissions investigating disconnects found at Walter Reed Army Medical Center in 2007.

ORDER OF ST. MICHAEL and OUR LADY OF LORETO AWARDS

Mid-Atlantic Chapter

ARPI PHOTO

Mr. Michael A. Crapanzano, deputy director for intelligence, surveillance, and reconnaissance of the Communications-Electronics Life Cycle Management Command (CECOM) Software Engineering Center, and chief of the Army Reprogramming and Analysis Team (ARAT) is awarded the Bronze Order of Saint Michael following his presentation to attendees at the 2010 Aircraft Survivability Professional Forum in Huntsville, AL. He was recognized for his years of dedicated service to Army Aviation and the Army Aviation community. Presenting the award on behalf of Mid-Atlantic Chapter president is Mr. John Sensing (left), ARAT Executive Officer and chapter member and AAAA national president, BG (Ret.) Rod Wolfe.

Tennessee Valley Chapter

ARMY PHOTO BY SOFIA BLEDSOE, PEO AVN PAO

CW4 Mark P. Mata stands with his wife Amy, son Ayrton and daughter Nikki, during his retirement ceremony Oct. 29 at Redstone Arsenal, AL. Among Mata's awards were the Legion of Merit, Outstanding Service Medal and the Order of St. Michael – Silver Award. Mata is retiring after over 20 years of active duty service in the U.S. Army.

Thunder Mountain Chapter

PHOTO BY MICHAEL GAUN, BLACK TOWER PRODUCTIONS

CPT Shane W. Boyd, commander of Company C, Unmanned Aircraft Systems Training Battalion (UASTB) is presented the Bronze Order of Saint Michael by UASTB commander, LTC Patrick T. Sullivan (not pictured) on July 23, 2010 at Fort Huachuca AZ. Boyd was recognized for establishing the Department of the Army's Warrior-A and Gray Eagle (MQ-1C) Training Programs on the occasion of his permanent change of station; his next assignment is UAS Branch Systems Manager for the U.S. Army Special Operations Command (USASOC) at Fort Bragg, NC.

PHOTO BY DUANE AYERS, BLACK TOWER PRODUCTIONS

MAJ Kent MacGregor, executive officer of the Unmanned Aircraft Systems Training Battalion (UASTB) is presented the Bronze Order of Saint Michael by Thunder Mountain chapter president, CW5 (Ret.) Luis Zamudio (left), and UASTB commander, LTC Patrick T. Sullivan on Sept. 2, 2010 at Fort Huachuca, AZ on the occasion of his permanent change of station. MacGregor was recognized for his accomplishments as part of the command team that has witnessed the largest increase in UAS operator and maintainer training, the largest military construction investment in the school's history, the largest Department of Army Civilian hiring effort, implementation of the first UAS maintainer MOS 15E, the fielding of the MQ-1C Grey Eagle, and the establishment of MQ-1C operator and maintainer program of record training. His next assignment is as the S-3 operations officer for Headquarters and Headquarters Troop, 6th Squadron, 17th Cavalry Regiment at Fort Wainwright, AK.

Volunteer Chapter

ARMY PHOTO BY MAJ LEONARD D. BRANNON III

CW4 Robert A. Stephenson, Aviation Safety Officer, 1st Bn., 107th Avn. Regt. (Afld. Ops. Bn.), Tennessee Army National Guard, Smyrna, TN, receives the Bronze Order of Saint Michael from his battalion commander, LTC Anthony K. McConnell, during a retirement ceremony at the Volunteer Training Site, Smyrna, TN Nov. 7. Stephenson was recognized for his exceptionally meritorious services to the U.S. Army, the ARNG and Army Aviation over a 35-year career. He plans on enjoying a peaceful retirement at home.

Washington-Potomac Chapter

ARMY PHOTO BY DEL HARDIMAN

COL Yvette J. Kelley is presented the Silver Order of Saint Michael by MG (Ret.) Rudolph Ostovich, III, president, Washington-Potomac Chapter at the Chapter's annual Dining Out held at the Officer's club, Ft. Myer, VA Friday, Oct. 22. Kelley was recognized for her exceptionally meritorious service as the garrison commander at Fort Rucker, AL from June 2008 to June 2010. Specifically, through her direction, Fort Rucker was recognized as having the best Wide Area Work Flow (WAWF) program throughout Installation Management Command (IMCOM) and now has a voice in U.S. Army Training and Doctrine Command (TRADOC) Training Requirements Arbitration Panel (TRAP) actions and use of resources.

NEW MEMBERS

Air Assault Chapter
1LT Michael Byrn
CW4 Kristopher W. Cornelius
1SG James S.Halchishick
CW3 Brett A. McFarland
SFC Jeremy Mondick
CPT Ryan Murphy
1SG Bradford Lee Smith

Arizona Chapter
Lora A Ridenour

Aviation Center Chapter
1LT Sarah C. Brakefield
1SG Javier Dela Cruz Garcia
CPT R. Smith Griggs
Patrick W. Miller
Angela M. Redden
WO1 Brad Walker

Bavarian Chapter
SFC Gilberto Camacho Jr.

Big Red One Chapter
1SG Jeffrey Carter

Central Florida Chapter
Brett Bernhardt
Carla B. Cropper
SGT Matthew V. Giammalvo
John McDermott

Colonial Virginia Chapter
Robert Wagner

Connecticut Chapter
Andrew A. Sadanowicz
CW4 David Wayne Tozier

Corpus Christi Chapter
Kathy P. Comstock
Melanie A Edwards
Martina R Flores
Diana P. Garcia
Patricia Medrano
SGT Evelyn L. Reyes
Rosetta Rojas
Allison A. Slovacek
Douglas R Small
Katrina Tomao
Al Yanez

Greater Atlanta Chapter
Darryl D Dixon
CDR Charles Dunehew, Ret.
David Lowe
David G Zurn

Griffin Chapter
CW4 Immanuel DelaCruz

Idaho Snake River Chapter
SGT Brycen Alan Bullard
WO1 Jon P Creager

Iron Mike Chapter
LTC Jeffrey J Dudley
Khadijia S Grant
CPT Micah Jared Morino
John A. White

Jack H. Dibrell/Alamo Chapter
SGT Eric J. Eldridge
SGT Maria C. Garcia

Jimmy Doolittle Chapter
1LT Christopher Collins
SGT Andrew S. Goza
1LT Lee Jackson

Keystone Chapter
Johnna K. Bord

Magnolia Chapter
WO1 Mark A. Briscoe
SPC David A. Cash
MAJ Christopher Cummins
BG Phil Fisher
MG William Freeman
MG Ben Gaston
COL Kim Jackson
SSgt Terry Wayne Lofton
SGT Samuel G. Vaught
BG William Waller

Michigan Great Lakes Chapter
Robert L. Folts

Mid-Atlantic Chapter
Allan Chan
Let F. Chin

Midnight Sun Chapter
CW5 James H Keyes

Morning Calm Chapter
PFC Michael J. Conner
SPC Andrew M. Johnson
PFC Jessica M. Kujawski
SGT Andrezrej Kupinski
SSG Chad A.Lechene
PFC Latasha M. Mitchell
SGT Preston Pichon
PFC Vincenzo R. Rocco
SGT Lill Hope Rogers
CW2 Chad A.Weaver

Mount Rainier Chapter
SSG Michael Robert Dyson

North Country Chapter
CSM Wayne Ward

North Star Chapter
Gerard A. Hummel
CPT James N. Johns, Ret.
CSM James M Kampsen
2LT Nolan R. Kohlrusch
CSM Jeffrey A. Lindberg
MAJ Dan O'Meara
SSG Christian D. Pool
2LT Jesse Pope
CW5 Jeffrey James Pratt
SFC William T. Vaudreuil
Mark Woodbeck
CW4 Jason Wright

North Texas Chapter
CW4 James E Bennett
David Morgan
Diana Braiden Radspinner

Old Tucson Chapter
WO1 Christopher J Marcott
COL Bill Patterson, Ret.
Everett E. Tackett

Phantom Corps Chapter
CPT Lukas Berg
Philip Cummings
CW3 Michael D. Erickson
WO1 Jeff Johnson

Savannah Chapter
CW4 Manuel R. Portela

Southern California Chapter
Charlotte Johnson

Tarheel Chapter
CW4 William G. Purvis Jr.

Tennessee Valley Chapter
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Ande L. Bodary
Leslie Bunt
Samuel Collier
Randle Cook
David Cosby
Robert Coleman Crow
CW3 Travis Curtis, Sr. Ret.
Dave Dameron
Keith Fury
Lt. Col. Jim Herrera
Jason Holder
James F. Howell
MAJ Tony Knight
Brenda R Neely
Cyril Constantine Peters
Bryan Pourcho
Hank S. Rinehart
Joe Robinson
Nevada Jo Ryan
Michelle Vigo
Edward Ward
Chris Wellborn
Joseph C. Wilson

Thunder Mountain Chapter
SFC Kelly C. Boehning
CW5 Keith Resco

Volunteer Chapter
Harold Lindsey Segerson, Sr. Ret.

Voodoo Chapter
PV2 Michael Cummins
SPC Nicole Morgan DeGeorge
SSG Mitchell Douglas France
SPC Kyle Joseph Guillory
LTC Philip Donald Isherwood, MD
SPC Joseph Jennings
SPC Eric Kyle Johnson
PFC Matthew Drew McKenzie
SGT Erin Nicholas
CDT Parrish C Orth
PFC Tyler Fredrick Traweek

Washington-Potomac Chapter
James E. Andrews
Clark Dutterer
SFC Kenneth Green
William G Irby
CDR Thomas Linthicum, Ret.
Francisco Santos
Raymond E. Schwartz
MAJ Aaron Smith
CPT John W Snedeker, USN Ret.

Zia Chapter
Kathleen P. Mader

No Chapter Affiliation
CPT Michael R. Adams
WO1 Nathaniel W. Barnard
Ronald G Browning
SSG Robert Calabresi
SGT James Michael Cardin
Robert Castillo
LTC Brian Conway
Guido J. Defever
Alex D Doig
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Oliver P. Leber
SPC Jordan Wayne Logan
Stephen P. Logue
SSG Nathaniel Menagh
CAPT Luke Mercier
WO1 Brian Morton
MAJ Terry Michael O'Mahoney
Jon E Paris
Thomas R. Pilling
Barry Steiner
LTC John Stevens
CW3 Darin S. Stewart
Todd Stoner
Eric B. Takeuchi
PV2 Odie Kirst Tucker III
Mavourneen Wilcox
Jeffrey D Wrobel

LOST MEMBERS

Help us locate a lost AAAA member and receive a free month extension added onto your membership!

MAJ James Anderson, Ret.
SPC Michael E. Ballard
Mr. Jerry Bresee
SGT Keith V. Brezinski
SGT Alejandro L. Briceno
Lawrence E. Bryant
SSG Marissa N. Burns
CW3 William Bush
LTC Eli Caison, Ret.
CW5 Matthew J. Carmichael
CW2 John T. Carrico
SFC Jody J. Chilson
SSG Brian A. Cooper
SSG Keith A. Crockett
CPT Joshua M. Davis
WO1 Michael E. Demkowicz
WO1 Evan M. Dewan
SFC Patrick K. Donovan
CPT Scott W. Dunkle
1LT Kenneth B. Evans
COL Ricardo A. Falcon
SSG Mitchell D. France
Mary E. Frazier
CW3 Sheldon W. Gresham
LTC Mark W. Hamilton, Ret.
Tina Hinojosa
SPC Erik W. Holsing
Tomoki Ito
SGT Paul M. Kiil
LTC James E. Lawson II
SPC Lucas Leach
Mr. Chad L. Leathers
SSG Robert R. Mason, Ret.
SGT Daniel L. McEwen
CPT Brett L. Monette
CW5 Richard O'Connell, Ret.
SPC Caldon C. Parker
PFC Shamieka Patterson
WO1 Nathanael M. Piatt
Karen Pogoloff
Robert Ramirez
SSG James Reese
Stanley B. Roden
SGT Samuel G. Rodriguez
CW3 Stephanie R. Rose
Margaret A. Schrapp
SFC Michelle R. Smith
CPT David M. Spanton
PFC Kenneth R Swan
1LT Jiajing Thach
Dedra D. Townsend
1LT William P. Townsend
SGT Daniel W. Umberger
Ronald D. Vargo
Hans Weichsel

New Order of St. Michael Recipients

BRONZE
CW4 Harry James
CW5 Roger Showers
COL Richard Thomas
LTC Luis R. Rivero
CPT Matthew Minear
CW3 Chris Lee
1SG Ronald Alexander
CW4 Kurt Gruner
LTC John Drobnica
LTC Gary Hipps
LTC Larry D. Bartholomew
John Hoza
CW5 Michael R. Randall
CW4 Rik Cox

Soldier of the Month
PFL Vincenzo R. Rocco
August 2010
Morning Calm Chapter

SGT Andrezrej Kupinski
August 2010
Morning Calm Chapter

SGT Preston Pichon
September 2010
Morning Calm Chapter

PFC Michael J. Conner
September 2010
Morning Calm Chapter

PFC Latasha M. Mitchell
October 2010
Morning Calm Chapter

SSG Chad A. Lachene
October 2010
Morning Calm Chapter

PFC Jessica M. Kujawski
November 2010
Morning Calm Chapter

SGT Lill H. Rogers
November 2010
Morning Calm Chapter

SGT David B. Atkins
October 2010
Old Tucson Chapter

Soldier of the Quarter

SPC Jamar F. Harris
1st Quarter FY 11
Aviation Chapter

SSG James W. Boschardt
1st Quarter FY 11
Aviation Chapter

New Chapter officers

Northern Lights Chapter
Keith Genter
VP Retired Affairs

Aces
SSG Kevin Marshall
No Chapter

CPT Charn P. McAllister
Big Red One Chapter

MAJ Donald R. Mobley, Ret.
Phantom Corps Chapter

1SG Luis H. Rodriguez
Griffin Chapter

New Lifetime Members
Eric A. Bergantz
LTC Keith E. Besherse
COL Angelia D. Farnell
CW4 William G. Jepsen
CW5 James H. Keyes
Thomas G. Petrick
Harold L. Segerson Sr., Ret.
CW2 James R. Suggs Jr.
CW4 Alexander D. Swyryn
SFC Kenneth G. Trickey, Ret.
Phillip J. Zeller III

New Industry Members
AGE Logistics Corporation
Aranea Solutions Inc.

In Memoriam
LTC James A. Phelps, Ret.

AAAA Chapter News

Mid-Atlantic Chapter

MID-ATLANTIC CHAPTER PHOTO

Mid-Atlantic Chapter president, ***LTC (Ret.) Ed Carnes*** (left) and chapter member and Wounded Warrior ***SSG Mike Minard,*** manned the Fisher House booth at the Veterans of Foreign Wars Eastern Conference on Nov. 20, 2010 in Teaneck, NJ. Former VFW NJ State president, ***Don Marshall*** (right) stopped by to chat during the event which included more than 400 attendees from Maine to D.C.

Tennessee Valley Chapter

CHAPTER PHOTO BY DAVID E. KATHER

On Oct. 9, 2010, the TVC held its Bob Vlasics Classic Fall Bass Tournament on Lake Guntersville at Jackson County Park, Scottsboro, AL. 22 boats with 44 anglers left the staging area to experience a day's fishing, returning with 38 keeper bass weighing 81.3 lbs. The Big Bass pot was won by Quintin Thompson and Ricky Kleager with a 4.09 lb. bass. Overall in first place were ***Taylor Vinson*** (pictured) and Terry Harbin with a 13.61 lbs. total weigh-in. All our thanks go to the participants and particularly to all the sponsors.

Washington-Potomac Chapter

CHAPTER PHOTO BY DEL HARDMAN

GEN (Ret.) Crosbie E. Saint, (left) guest speaker at Washington-Potomac Chapter annual Dining Out held at the Officers Club, Ft. Myer, VA Oct. 22, receives a copy of recently published "Winged Warriors, the History of Army National Guard Aviation, 1948-2008". Making the presentation is Chapter president ***MG (Ret.) Rudy Ostovich***. Saint talked about, among other things, the early inception of the AH-64 into the Army war fight. The former commander in chief, U.S. Army, Europe and Seventh Army and commander, Central Army Group, NATO is a member of the AAAA Senior Executive Associates.

Attention AAAA Members Stay Connected!
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UPCOMING EVENTS

JANUARY 2011

Jan 12-14 **AUSA Aviation Symposium & Exhibition**, National Harbor, MD
Jan 21 **AAAA Scholarship Executive Committee Meeting**, NRGC, Arlington, VA
Jan 22 **AAAA National Awards Committee Meeting,** NGRC, Arlington, VA
Jan 31-Feb 4 **Aviation Senior Leaders Conference,** Fort Rucker, AL

FEBRUARY 2011

Feb 9-10 **Joseph P. Cribbins Aviation Product Symposium,** Huntsville, AL
Feb 22-25 **AUSA Winter Symposium,** Fort Lauderdale, FL

MARCH 2011

Mar 5-8 **HAI Heli-Expo 2011,** Orlando, FL

APRIL 2011

Apr 17-20 **AAAA Annual Professional Forum and Exposition, Gaylord Opryland,** Nashville, TN

ARMY AVIATION ASSOCIATION OF AMERICA

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UNITED STATES ARMY WARRANT OFFICERS ASSOCIATION

SIMULTANEOUS MEMBERSHIP FORM

AAAA Membership Place "X" in appropriate box

☐ New ☐ Rejoin ☐ Renew ☐ Data Change ☐ Life

USAWOA Membership Place "X" in appropriate box

☐ New ☐ Rejoin ☐ Renew ☐ Data Change ☐ Life

PURPOSE: To maintain organizational records. Used by national, region, and chapter officers, office staff and members (when approved) to generate mailing lists,chapter and region rosters, etc. Failure to furnish information may result in members not receiving the Monthly Magazine, ballots, letters and other correspondence of importance to the membership. Incorrect information may result in erroneous computation of statistical & financial reports and/or credit for prior membership.

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Last five digits of your SSN:_____Rank:_____MOS:_____Branch: _____
(Last 5 digits of SSN is used to identify you & is used for your member number. It is not released to anyone for any purpose)

First Name MI Last Suf Joined Service(yy/mm)

Address Date Birth (yyyy-mm-dd)

City State ZIP+4 Home Tel

Unit of Assignment Work Tel * (*DSN for OCONUS work phones otherwise commercial)

Spouse (First Name) FAX Tel:

E-Mail Addresses *
(*AKO – us.army.mil preferred)(If both military and civilian are used, place preferred one first)

RELEASE OF INFORMATION Place "X" in appropriate box: ☐ I DO ☐ I DO NOT want the above information released if requested by other members and/or to be provided to the membership-benefit companies affiliated with these organizations. Regardless of option checked, no information is released outside of these organizations.

CURRENT STATUS Place "X" in appropriate box

☐ Active Army ☐ ARNG* ☐ USAR* ☐ Retired ☐ Former Warrant Officer
☐ Associate (all others) *AGR please check ARNG or USAR ☐ Male ☐ Female

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☐ I HAVE HELD a Warrant issued to me by the Secretary of the Army (If NO check Associate above)
☐ I AM ☐ I AM NOT entitled to wear several National Defense Medals

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☐ RETIRED MEMBER DUES ☐ 1 Yr $37 ☐ 2 Yr s $74 ☐ 3 Yr s $111 ☐ 5 Yrs $185
☐ Check or Money Order for dues is enclosed, made out to "AAAA".
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Applicant's Signature and Date Optional Sponsor or Recruiter (rank & name)

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Art's Attic

By Mark Albertson

Art's Attic is a look back each month 25 years ago and 50 years ago to see what was going on in ARMY AVIATION Magazine. Art Kesten is our founder and first publisher from 1953 to 1987. He is also the founder of the AAAA in 1957 and served as its Executive Vice President. Each month contributing editor Mark Alberston will select a few key items from each historic issue. The cartoon, right, was done back in 1953 by LT Joe Gayhart, a friend of Art's and an Army Aviator, showing the chaos of his apartment-office in New York City where it all began.

25 Years Ago

DECEMBER 1985

What is a Djibouti?

What is a Djibouti? Well the above question was recently circulated at AVSCOM in St. Louis. And the answers were really quite extraordinary: An Italian sports car. An exotic animal. A rock group. A dance step. The answer lies with geography. Djibouti is a tiny Muslim republic which sits on the verge of the Horn of Africa. On land it is girdled on three sides by Eritrea, Ethiopia and Somalia. Yet Djibouti boasts a strategic significance all out of proportion to its diminutive 8,958 square miles. Djibouti forms the hinge of the lower jaw of the strategic Gulf of Aden and lies just south of a bottleneck known as Bab-el-Mandeb (Gate of Scars in Arabic). The Mandeb Straits are the gateway to the Red Sea and hence the Suez Canal. Units of the French Foreign Legion augment the meager Djibouti Army. The U.S. Navy enjoys access to Djibouti's strategic Golfe de Tadjoura.Washington opened an embassy in the capital, Djibouti, in 1980.

Top Soldiers

The adjoining photo depicts SSG Ronnie Garett (left) showing SP4 Eric A. Eicher how to service the hydraulic servo actuator on an OH-58 Kiowa. SSG Garett is an instructor assigned to the Maintenance Training Division, Dept. of Enlisted Training. He was the Aviation Center Chapter's "NCO of the Month" for November. SP4 Eicher is a flight operations specialist assigned to the 8th Aviation Training Battalion, Aviation Training Brigade. Eicher was the AAAA chapter's "Soldier of the Month" for November.

50 Years Ago

DECEMBER 1960

Pentagon Ceremony

Early in November, Don R. Berlin of Boeing Vertol presented Bryce Wilson, president of AAAA, with a model of the Wright Brothers Flyer "A." The ceremony at the Pentagon was to commemorate the first flight of an Army airplane 51 years ago. On October 26, 1909, LT Frederick E. Humphries flew the Wright Flyer at College Park, MD. Humphries was the first Army pilot to solo in an Army airplane. Humphries was immediately followed by LT Frank P. Lahm, who became the second Army pilot to solo in an Army airplane. Both aviators had completed three hours flight training with the Wright Brothers prior to their flights. The adjoining photo shows GEN George H. Decker, Don R. Berlin and Bryce Wilson of the Army Aviation Association of America.

New Chief-of-Staff

MG Ernest F. Easterbrook, commander of the U.S. Army Aviation Center, announced the new Chief-of-Staff. The candidate is COL William C. Wilkerson, Jr. Wilkerson just returned stateside from duty in Korea. Outgoing Chief-of-Staff is COL Duncan Sinclair.

Product Improvement

In early November, testing was completed on the YHU-1B Helicopter. The HU-1B introduced improvements over the HU-1A, such as: • A powerplant increase from 860 to 1,100 horsepower • A broader chord main rotor blade (21 inches) to accommodate the additional horsepower and improve altitude capability • Internal fuel capacity of 165 gallons with a 350-gallon auxiliary tank • A 3,000 pound cargo sling • More centrally located "T" panel arrangement for flight instruments.

Army Aviation Hall of Fame

The Army Aviation Hall of Fame sponsored by the Army Aviation Association of America, Inc., recognizes those individuals who have made an outstanding contribution to Army aviation. The actual Hall of Fame is located in the Army Aviation Museum, Fort Rucker, Ala., where the portraits of the inductees and the citations recording their achievements are retained for posterity. Each month Army Aviation Magazine highlights a member of the Hall of Fame.

Nominations for the 2012 induction into the Hall of Fame are currently being accepted, with a deadline date of June 1, 2011.

Contact the AAAA National Office for details at (203) 268-2450.

Colonel James C. Adamson (Retired)

Army Aviation Hall of Fame 2007 Induction

Retired COL James C. Adamson's career spans nearly four decades of aviation and space related service from Army officer to astronaut, to chief executive officer, but first and foremost as an Army aviator.

A 1969 graduate of the U.S. Military Academy, he also completed pilot and paratrooper training, the Command and General Staff College.

During Vietnam, he flew as a scout pilot, team leader and an air mission commander with Troop C, 16th Air Cavalry. After Vietnam, he returned to Fort Bliss, Texas to command a Hawk Battery while still maintaining his flight proficiency.

He then joined the faculty at USMA, earned his Masters of Science in Aerospace Engineering from Princeton, and returned to Military Academy to develop and teach their new Aerodynamics concentration, including courses in fluid mechanics, aircraft performance, and stability and control; and completed his certification as a licensed professional engineer.

Following West Point, he attended the Navy Test Pilot School at Patuxent River.

Later he was recruited by NASA's Johnson Space Flight Center as a research test pilot and aerodynamics officer. In 1984, he was selected for the astronaut program and became qualified for mission assignments on Space Shuttle flights. He was one of eleven astronauts selected to hold management positions within NASA including assistant manager for Engineering Integration. He flew on two highly successful shuttle missions, one with Columbia (Space Transportation System-28) in August 1989, and on Atlantis (STS-43) in August 1991.

During his 23-year Army career, he commanded tactical units in Europe, Vietnam and the United States, as well as the Army's Space Flight Detachment at JSFC. He has logged over 3,000 hours of flight time in over 30 types of aircraft, as well as the Space Shuttle.

After retirement, he continued excelling in the Aerospace field serving as president of Honeywell Technology Solutions, Inc.; the chief operating officer of United Space Alliance; president & chief executive officer of Lockheed Engineering & Sciences Co.; and as an active board member and consultant to the NASA Administrator.

His awards include two Distinguished Flying Crosses, 18 Air Medals, and three Vietnamese Crosses of Gallantry for valor.