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ARMY AVIATION

ENDORSED PUBLICATION OF THE ARMY AVIATION ASSOCIATION OF AMERICA • FEBRUARY 28, 1989

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Army Aviation Magazine is a professional journal endorsed by the Army Aviation Association of America (AAAA).

ADVERTISING
Display and classified advertising rates are listed in SRDS Business Publications, Classification 90. For advertising information, call (203) 226-8184.

SUBSCRIPTION DATA
ARMY AVIATION (ISSN 0004-248X) is published monthly, except April and September by Army Aviation Publications, 49 Richmondville Avenue, Westport, CT 06880-2000. Phone: (203) 226-8184. Subscription rates for non-AAAA members: $25, one year; $48, two years; add $10.00 per year for foreign addresses other than military APO's. Single copy price: $3.00.

ADDRESS CHANGES
The receipt of change of addresses is verified by the publication of the residence or business change in the "Arrivals & Departures" or PCS columns of the magazine. Senior AAAA members (O-6's and above) are asked to provide their new duty assignment for publication in the magazine's "Aviation Command Changes" column.

POSTAL
Second class postage paid at Westport, CT.

POSTMASTER
Send address changes to Army Aviation Publications, Inc., 49 Richmondville Ave., Westport, CT 06880-2000

FORTHCOMING ISSUES

March/April 1989 — Annual Convention Issue, Containing Complete Program for the Atlanta, GA event.

May 1989 — Annual Convention Report and Field Report Updates.

FRONT COVER
Paid advertisement:
United Technologies/Sikorsky Aircraft.

ARMY AVIATION

VOLUME 38 **NUMBER 2**

Strategic Role of the Army

by Lieutenant General Donald S. Pihl

The Army is at a crossroads as we enter the decade of the 1990's. We must maintain our momentum while preserving our future as I indicated in my guest editorial last February. To do this we must make a case with the American people that the Army is needed as a strategic force.

The Intermediate Nuclear Force (INF) Treaty process that is ongoing calls for both the Soviets and us to destroy intermediate range ballistic and cruise missiles. The INF process also causes an increased focus on the conventional deterrent. The Army is that conventional deterrent. You need an Army to deter and God forbid, should deterrance fail, to fight and win.

14th Annual Conference

Last summer in Atlanta, the top representatives of American industry and the Army met for our 14th annual conference to discuss matters of mutual interest. At that conference a senior industry official asked General Thurman, CG TRADOC, what were the Army's force deficiencies. General Thurman opened the discussion to the group and the following list was derived: anti-armor, counter battery, forward area air defense, mine detection and neutralization, seeing deep, deep fires, command and control, logistics burden, and chemical deterrence. This list is not all encompassing, however, it is very similar to the Joint Chiefs of Staff Net Assessment and a list established by the Conventional Forces/Alliance Defense Subcommittee of the Senate Armed Services Committee which is chaired by Senator Carl Levin of Michigan.

LTG Pihl is Military Deputy to the Assistant Secretary of the Army, (RD&A), Washington, DC.

In fact, Senator Levin's list is worth repeating particularly to an Army Aviation audience: redress armor antiarmor imbalance, improve fast sealift, modernize Army aviation, modernize close air support, maintain warm production base, and improve technology base.

The Army needs the resources to address these force deficiencies because of the threat. Post INF, the Soviets conventional modernization goes on unabated. My counterpart in the Soviet Union builds a new tank battalion every month and modernizes a force equal to the United States Army Europe and the United States Marine Corps every year.

Army's Role

The Army's role in countering this relentless pace by the threat is to provide modernized, trained, and ready forces to the theater commanders in chief (CINCs) as part of joint and combined forces. We have been able to attract, recruit, and retain the highest quality soldiers in history and are equipping our soldiers with the finest equipment that American technology has to offer. We are a global force because the United States is a global power. That is why we have both prepositioned and forward deployed heavy forces and crisis reaction ready to deploy light forces. We are strategic because landpower is the joint component of a strategic joint force.

The post INF focus on conventional forces comes in part with the reality that in the 1989 Budget, now authorized and appropriated by Congress, the Army's 78 billion dollars is a slight decline from 1988 and includes a pay raise. The force structure has been reduced by 8600

(Role — continued on page 51)

SPARRING

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Ours is a proven flight simulation system. It's operating right now, evaluating SuperTeam's LHX,

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applying the experience of thousands of hours already logged in design and development of America's premier fixed-wing and helicopter combat aircraft.

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WE PUT THE FIGHT INTO LHX.

Army Aviation Brigade Commander's Conference

by Major General Ellis D. Parker

We held the annual Army Aviation Brigade Commander's (AVCOM) Conference in the Lake Lodge at Fort Rucker in early December. Several years ago, at the first of these conferences, there were only seven commanders present, and I was able to invite all participants to dinner at my house. Brigade-size Army Aviation units have increased steadily since then, however, and a total of 49 brigade commanders, including 20 Army Reserve and National Guard leaders, attended the 1988 conference. Those attending also included representatives from the Pentagon and the Aviation Systems Command, as well as the staff leadership of the USAAVNC and of USAALS and several other subordinate and tenant commands.

Safest Year in History

At the beginning of the conference I was proud to be able to read a message from GEN Carl E. Vuono, the Army Chief of Staff, informing me that FY 1988 had been the safest year in the history of the Army. Furthermore, it was a particularly safe year for Army Aviation, which has now broken previously established safety records for three years in succession. I sincerely congratulate everyone in Army Aviation for contributing to setting these safety records, but, at the same time, I strongly encourage all of you to continue your efforts so that we may do even better in the future.

With regard to our steadily improving safety record, I must comment about recent adverse publicity concerning night vision goggles (NVG). Notwithstanding charges in the media based on the selective use of data, our statistics conclusively demonstrate that NVG are perfectly safe when properly trained for and used. It is therefore incumbent upon us to redouble our efforts in these regards, so that we may continue accomplishing our mission, but with an even better safety record.

MG Parker is Chief, Aviation Branch, Commanding General, U.S. Army Aviation Center and Ft. Rucker, AL and Commandant, U.S. Army Aviation Logistics School.

New Approaches to Training

The theme of the 1988 conference was "Training: The Cornerstone of Combat Readiness." Within this overall theme, we addressed such topics as safety, doctrine, force design, equipment requirements, leader development, contract training, evaluation and standardization, the status and role of the Aviation Logistics School, the Army Aviation Modernization Plan, air traffic control modernization, and changes in personnel policies. Thanks to the efforts of the conference coordinator, COL Malvin L. Handy, and his team from the Department of Combined Arms Tactics, the conference ran smoothly, and we made the best possible use of our time.

While it is impossible for me to summarize the entire conference in this short article, there is one agenda item that I will discuss briefly. As is generally known, we discontinued using the TH-55 as the primary trainer in 1988 and inaugerated Multitrack, a new approach to training using the UH-1 as the primary trainer, in order to produce a better-prepared graduate while reducing long-term costs. The UH-1 has numerous advantages over the TH-55, but as a primary trainer, it is expensive to operate and it is also an aging aircraft. We knew all along that it was only an interim solution to the problem, and we began looking for a new trainer even before retiring the TH-55. We are now studying designs for a three-person aircraft with turbine

(Conference — continued on page 49)

Aviation Soldier Update

by Command Sergeant Major John P. Traylor

We have been very busy over the past few months in the Aviation Branch. Some decisions made by the Congress of the United States recently will impact on the aviation soldier well into the 21st Century. Congress approved the Aviation Modernization Plan that will downsize the current fleet while providing increased warfighting capabilities. The influx of high technology will tax each and every one of us to the limit. The evolving trend of doing more with less is expected to continue as we try to lower the expense of defense.

Realignment of Personnel

The modernization of our aircraft means a realignment of our personnel in aviation maintenance. As we field our new aircraft and replace our aging fleet, the personnel makeup of the units change. The 67N will shrink in total size while 67T will grow as we produce more UH-60 BLACK HAWKs. The approval to modify more OH-58A/C into OH-58D Army Helicopter Improvement Programs will cause us to increase 67S school quotas. The plan to arm the OH-58D and replace the AH-1 COBRAs and OH-58A KIOWAs in our cavalry units will decrease the number of 67Y and 67V mechanics we will require.

All of our new aircraft will be equipped with state of the art avionics. The integration of avionics, flight controls and with one electronic data base system forces all maintainers to understand some electronic principles. The use of computers in Army aircraft is becoming as common as rotor blades on helicopters. The Aviation Branch is assessing the cream of the recruited force to maintain our increasingly technical aircraft. In the mid 1990s a new generation of aircraft will enter our inventory that will have very little in common with any of our present day aircraft.

CSM Traylor is Aviation Branch Command Sergeant Major, USAAVNC and Ft. Rucker, AL.

Take Nothing for Granted

What does all of this mean to me, you may ask? It means we can no longer take ourselves for granted. We can't rely on our past experience and knowledge to get us through in the future. Product improvements planned for the OV-1 MOHAWK, AH-64 APACHE, UH-60, and AH-1 COBRA will mean different configurations of aircraft in the same unit.

The standard fielding plans for new or improved equipment usually adds all new training to the affected Military Occupational Speciality (MOS) advanced individual training course. The problem that ensues is the private is more skilled than his supervisor when he gets to the unit. We teach our Noncommissioned Officers in the Basic Noncommissioned Officer Course (BNCOC) and the Advanced Noncommissioned Officer Course (ANCOC) on the new and emerging systems but time and money constraints in some courses limit the length of these courses.

Noncommissioned Officers must take the lead and seek help through correspondence course, civilian education or a personal commitment to study new training manuals for the new equipment. We at the Aviation Center have a long-range goal to consolidate all Career Management Field (CMF) 67 ANCOC and BNCOC at Fort Rucker. The theory being if the mechanics and avionics and armament soldiers can be collocated in a school environment, the cross fertilization of knowledge will produce a more cohesive work force in the unit.

(Soldier — continued on page 47)

Hardware:

Aviation Program Executive Officer: State of the Union

by BG David L. Funk and Robert L. Buhrkuhl, Ph.D.

ST. LOUIS, MO — The PEO concept at the U.S. Army Aviation Systems Command (USAAVSCOM) in St. Louis, MO has been modified significantly since its inception, just as the concept has been evolving throughout the U.S. Army. Described below are the origins of the PEO concept, its original method of implementation in the aviation community, and its current state of existence.

Background

The origin of the PEO concept can primarily be attributed to the Goldwater-Nichols Act, the Packard Commission Report, and the subsequent Department of Defense (DOD) Act of 1986. Generally, the Goldwater-Nichols' legislation directed that the number of personnel assigned to management headquarters activities be reduced, the reporting requirements within DOD be reduced, and that the acquisition activities of all the military services be streamlined. In turn, the Packard Commission required the establishment of a Service Acquisition Executive, the appointment of PEOs responsible for a reasonable and defined number of acquisition programs, and the reporting of Program/Project/Product Managers (PMs) directly to their respective PEO. Finally, the DOD Reorganization Act of 1986 directed that the military services have one official solely responsible for acquisition. Hence, the creation of the Army Acquisition Executive (AAE) position.

BG Funk is Program Executive Officer, Aviation. Dr. Buhrkuhl is a Program Analyst, Budget Execution Division, Aviation Program Executive Office, St. Louis, MO.

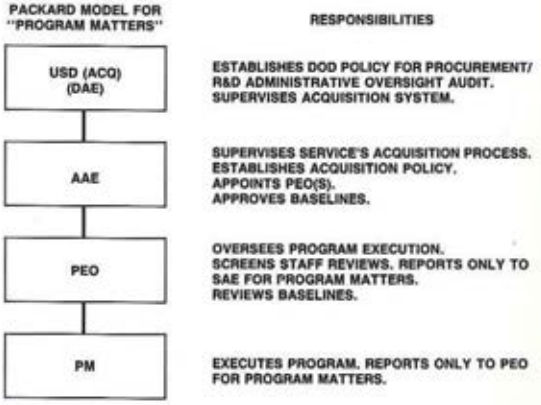
PEO Implementation

The implementation of the PEO concept in the aviation community commenced with the establishment of Provisional PEOs on May 1, 1987, and the subsequent creation of PEO Table of Distribution and Allowance (TDAs) on June 12, 1987.

A formal Aviation Task Force for PEO implementation was established on July 13, 1987, and it participated in a number of PEO implementation actions which included three PEO Working Groups (Fort Belvoir and Fort Monroe, VA and Fort Monmouth, NJ) and the development of a Major Subordinate Command (MSC)/PEO functional support system. On October 1, 1987, the permanent Aviation PEO organizations were established, via AVSCOM permanent orders, and the PMs were assigned. For aviation, it was decided that there would be two PEOs, Combat Aviation (CA) and Combat Support Aviation (CSA), and that the new Light Helicopter Program (LHX) would remain a direct reporting PM.

(PEO — cont. on p. 48)

SERVICE ACQUISITION EXECUTIVE PROGRAM EXECUTIVE OFFICER (PEO) CONCEPT



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Hardware:

AHIP Update

by Colonel James T. Huey

ST. LOUIS, MO — The demonstrated capabilities of the OH-58D and recent increases to the Army's Aviation budget have resulted in renewed life for the AHIP program.

The Army Aviation Modernization Plan published in May 1988 calls for a total procurement of 477 OH-58D aircraft. The plan requires that the OH-58D continue to operate in support of field artillery units in the Field Artillery Aerial Observer (FAAO) role and as an interim scout in the air cavalry role pending fielding of LHX.

The plan notes that an Armed OH-58D could replace both the OH-58A/C and AH-1 in the air cavalry role. Both the armed and basic OH-58D would ultimately be replaced by the LHX. The Defense Resource Board, which met in June 88, approved OH-58D production continuation at quantities of 36 per year through 1994 (the POM years) for a total of 375 and fielding to cavalry units.

With the question of fielding OH-58Ds in the FAAO and air cavalry roles resolved, the next logical question is its ability to perform as a member of the anti-armor team. A Senior Advisory Group (SAG) in the Pentagon has been tasked to make recommendations on the remaining test requirements necessary to resolve that issue. A working group has been formed to support the SAG as they continue to work the issue.

Firepower

As a result of the capabilities demonstrated by the specially equipped AHIPs from Fort Bragg, the Army is pursuing plans to arm the OH-58D with more than its inherent Air-to-Air STINGER capability. Current plans call for the addition of a .50 caliber machine gun, the HYDRA 70 (2.75 inch) rocket system, and the HELLFIRE laser guided missile system. User interest has recently been expressed in other anti-tank missile capabilities as well. Preliminary briefings have been conducted in the Pentagon and a decision on the additional air-to-ground weapons suite is expected soon.

The draft Required Operational Capabilities (ROC) and Operational and Organizational (O&O) plan for the armed OH-58D are currently being staffed worldwide. An updated Test and Evaluation Master Plan (TEMP) has been prepared; however, approval of the TEMP is awaiting completion of final staffing of the ROC and O&O plan.

Meanwhile, the OH-58D has continued fielding to support the FAAO mission. Fielding to those units is almost complete with the USAREUR Target Acquisition and Reconnaissance Companies (Corps) remaining as of this writing. The fieldings continue to be tremendously successful, made possible only through the hard work of a lot of people.

Improvements

Several improvements are planned for the AHIP. The Air-To-Air STINGER (ATAS) will be installed beginning in FY89. The mounts for the STINGER will be universal, thus allowing the installation of other weapons in the future. Upgrades are also

(AHIP — cont. on p. 42)

COL Huey is Project Manager, U.S. Army Helicopter Improvement Progam, Program Executive Office, Aviation, St. Louis, MO.

Hardware:

CH-47 Modernization Update

by Colonel Ronald N. Williams

ST. LOUIS, MO — Programatically, the past year was another good one for the CHINOOK Modernization Program. Fielding of the first three units in USAREUR and the Texas National Guard was completed on schedule. HQDA and the Defense Acquisition Executive approved an increase in the number of airframes to be remanufactured from 436 to 472. This will result in all available airframes being put through the line at Boeing Helicopters. And it means we will have enough airframes to increase the number of Special Operations aircraft from 17 to 51. Also in 1988, the last modernization contract was awarded. It is a multiyear contract for fiscal years 1990 through 1992, and is for remanufacture of 144 airframes.

Maintenance

The CHINOOK has continued to perform well in the field. Throughout 1988 the fleet readiness was maintained well above the HQDA standard. This is a reflection of good maintenance in the units and a steady improvement in the availability of spares brought to us by Material Management in AVSCOM. Over the course of the year the number of items critically short was brought down from 68 to 32. While this is not yet cause for celebration, it does reflect a lot of hard work and the sort of trend I expect to continue.

COL Williams is PM, CH-47D/Army V-22 Aircraft Program, Program Executive Office, Aviation, St. Louis, MO.

Two Tragedies

The cargo helicopter community experienced two tragic accidents during 1988. The first occurred in Texas in February. All the resources of the Army safety community, AVSCOM, and Boeing Helicopters have been applied to the investigation of this accident and to this date, I do not know the cause.

The chain of events started in the number two drive train components. Exhaustive testing has been completed of all the affected components and destructive testing was done on parts from other aircraft as well as new parts. We had just decided to terminate the investigation without reaching a conclusion when three cross shafts from aircraft produced in the same time period and flown by the same unit as the accident aircraft were found to be cracked.

Depending on your viewpoint, this can be considered a significant piece of good fortune. The investigation is on again and I am hopeful that a cause and a fix will be determined.

The second accident was in Honduras on December 8th, the day this article was to be mailed to ARMY AVIATION MAGAZINE. The preliminary report indicates that a chip light illuminated and the crew was making a precautionary landing when the crash happened. I hope that more complete information has been developed by the time you are reading this article. In the meanwhile, I remain confident in the aircraft. It has flown 112,471 hours now, with an average of 500 hours on the fielded aircraft. The high time aircraft is at the Development Test Activity and has 4,049 hours.

Extended Range

In early 1989 a customer test of the interim CH-47D Extended Range Fuel System (ERFS) will be conducted at Fort Stewart, GA. The system consists of four 600 gallon tanks and will provide self deployment ranges up to 1,058 nautical miles. The system is expected to be type classified in September 1989, with procurement of 126 sets to follow as funding permits.

Funds have been received to begin upgrading the two existing CH-47D maintenance trainers at Fort Eustis to the D-model configuration. These trainers are used in lieu of two airframes that are otherwise required, and in many ways are better than having the students work on actual aircraft. Faults can be programmed in the trainers following which the students are challenged to identify and correct problems. The upgrade will be completed in the 3rd quarter of FY91.

The next fielding site for the D-model CHINOOK is Korea. Aircraft will be flown to Olathe, KS, where they will be prepared for shipment by Aircraft Support Facility #37 of the 89th U.S. Army Reserve Command. The aircraft will be flown to Korea on C-5s and reassembled at the

(CH-47 — cont. on p. 35)

Hardware:

UH-1 Improvements

by Lieutenant Colonel Vaden B. Francisco

ST. LOUIS, MO — I will take this opportunity to introduce two new product improvements being installed on UH-1H/V aircraft, and also to dispel a misunderstanding that, I believe, some in Army aviation have about the future of the "Huey."

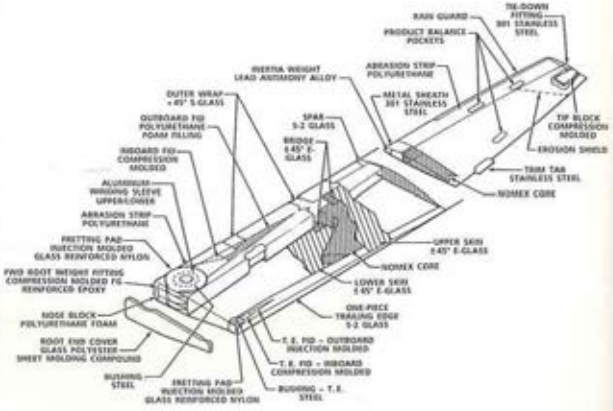
First, the misunderstanding — the UH-1 is not DEAD. While it's true that under the Army Aviation Modernization Plan (AAMP) about two thirds of the current fleet of more than 3,000 UH-1s will be retired, the plan also identifies a requirement for an additional 1,073 lift assets to supplement the UH-60 Black Hawk through the year 2007. A decision will be made in FY89 to determine if those 1,073 additional lift aircraft will be modified UH-1s, new UH-60s, or a non-developmental (off-the-shelf) aircraft. Regardless of that decision, there will be a large number of UH-1s needing support for the next 15 or 20 years.

Safety of the crew and aircraft is our first priority, and when safety improvements are also cost effective, we have a real winner! The following two improvements fit this category.

Composite Main Rotor Blade

Early in 1989, AVSCOM will begin introducing a CMRB for a selected number of UH-1 helicopters. Current plans call for the CMRB to gradually replace metal blades through normal attrition. The introduction of the CMRB on the UH-1 not only makes state-of-the-art rotor technology available to the user, but also provides the opportunity to fix nearly all reliability, availability, and maintainability (RAM) problems with the present metal blade.

LTC Francisco is Product Manager for UH-1, Fielded Aviation Systems Office, AVSCOM, St. Louis, MO.



The RAM features of the CMRB have been enhanced in a number of key areas. First, we designed all repairs around the same kit and tools used on the AH-1. Second, we developed a three piece abrasion strip using improved materials and an integrally molded rain guard on the outer third of the blade. Finally, we have developed a new set of rotor-smoothing procedures specifically for the CMRB that will help reduce the maintenance down-time associated with vibration troubleshooting.

Composite technology allowed designers to change the airfoil shape along the length of the blade. This reduces drag and improves blade efficiency, resulting in decreased fuel consumption of about five percent, and allows for a more rapid RPM recovery during sudden power loss.

Other advantages of composite technology include a 300 percent increase in service life to 10,000 hours, increased ballistic tolerance, reduced noise signature, and a blade that is field repairable.

The second major improvement is the Improved Particle Separator (IPS). The first IPS kits were installed at Fort Bliss, Texas in October 1988. Current plans call for modification of about 1,200 aircraft; installation priority will go to those units operating in sandy and dusty areas.

The IPS raises the separation efficiency from 35 percent to 93 percent, enhancing flight safety by reducing engine compressor stalls because of impacted sand

(UH-1 — cont. on p. 35)

A NEW IDEA TAKES FLIGHT

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Hardware:

COBRA Update

by Colonel Larry D. Holcomb

ST. LOUIS, MO — The COBRA Project Manager's Office is decisively engaged in preparing the COBRA for its final twenty years of its service. The AH-64 and OH-58D, followed by the LHX, will begin displacing the COBRA from the Army fleet beginning in 1993 according to the Aviation Modernization Plan.

We will quickly phase out the AH-1S/P & E models in that order by 1997 leaving 500 AH-1F aircraft until 2004 when we will begin retirement of the remainder of the AH-1 fleet by 2008. The AH-1 force will be evenly divided between the Active Army and the Army National Guard and USAR from 1994 until 2003 when final retirement begins in the active force.

Improvements

The COBRA Office is looking now at what needs to be done to assure the COBRA can be sustained over the next 15-18 years. I do not envision any substantial operational improvements but we are looking closely at how we can keep the system safe, reliable and affordable near the end of its life cycle when operation and support costs tend to skyrocket.

I am pushing for such important, though not too exciting, things as a more reliable, less maintenance intense swashplate, a filter system which will reduce engine erosion and engine exchanges and overhauls and improvements on the K747 blade. We are analyzing other reliability and cost drivers that will save money and manpower and preclude obsolesence from the technological stand point.

Parts Problems

On many of the older systems we either can't find a producer or can't afford production of some parts which are technically obsolete. We are looking for low investment, high payoff items which will allow the AH-1F to continue to serve until we can replace her with new aircraft. These are important and enjoy a high priority in the COBRA Office.

The C-NITE system is now in production with 52 systems planned for fielding beginning in second quarter of FY90. As the AH-64 displaces AH-1's we are refielding up to 200 aircraft per year for the next several years. This entails all the same tasks associated with new system fielding. All spares, tools, test equipment, peculiar ground support equipment and, in the case of unit activations, the entire TOE package must be pulled together and moved.

The COBRA PM Office is presently assigned to the Program Executive Office, Aviation. Plans are in progress which will result in the transition of the AH-1 office to the Aviation Systems Command at some appropriate time in the future. As a part of the Army's COBRA Team we will continue with the support of AVSCOM and in close coordination with TRADOC and the units in the field to keep the COBRA ready. IIIII

COL Holcomb is Project Manager, COBRA, Program Executive Office, Aviation, St. Louis, MO.

Hardware:

UH-60 BLACK HAWK Update

by Colonel William E. Turner

ST. LOUIS, MO — Since the last field report on the UH-60 BLACK HAWK, production and fielding have continued at the rate of six aircraft per month. In October, a major milestone was passed when the 1000th BLACK HAWK was delivered to the Army marking ten years and over 875,000 hours of flight operations. However, the most notable events in 1988 were key decisions by the Army which will ensure an even more capable BLACK HAWK serving the Army's combat forces well into the twenty-first century.

UH-60 MSIP Initiated

In January 1988, both the Defense Acquisition Board (DAB) and the Defense Resources Board (DRB) approved and funded a block improvement program for the BLACK HAWK called the UH-60 Multi-Stage Improvement Program (MSIP). Approval of the Army Aviation Modernization Plan (AAMP) followed in May which defined the MSIP and expanded the BLACK HAWK procurement quantities from 1107 to 2253 aircraft. These key decisions provided the necessary Army and DOD commitment in terms of funding, aircraft quantities and configuration to allow the Project Manager to begin structuring and executing the first major modification to the BLACK HAWK since being designed in the early 1970s.

The UH-60 MSIP successfully passed its Milestone II In-Process Review (IPR) in August and contract negotiations were concluded in early October. The MSIP is a 48-month development program with delivery of the first production aircraft planned for the late 1992 time frame. This aircraft will be designated the UH-60M which simply reflects the next available model designator available for H-60 application (model designators A through L are either already in use or reserved by H-60 users of all services, e.g. SH-60F.

UH-60 MSIP Objectives

One of the primary objectives of the UH-60 MSIP is to restore the original performance capabilities of the BLACK HAWK which have been gradually eroded during the last ten years by weight increases resulting from safety, RAM and operational improvements. There is also a need for increased warfighting capability to satisfy expanding mission requirements and meet emerging threats on the current and future battlefield. External lift capability, for example, is being increased to 9400 pounds so that equipment being fielded in our ground forces can be airlifted around the battlefield. Some of the more significant configuration changes will be an advanced composite main rotor blade to be developed by the joint Boeing-Sikorsky effort, upgraded engines, a 3400 shaft horsepower Improved Durability Gearbox (IDGB), an improved visibility nose section, a 1553B bus-based integration of lower console avionics, digital automatic flight control system, larger fuel tanks, improved EMI protection, and various RAM, supportability, and safety enhancements. The aircraft structure will be "beefed-up" to accommodate heavier loads, higher gross weights and crashworthiness standards.

In May, the General Electric T700-GE-701C won a competitive engine procurement resulting in a five year mutliyear contract for 1156 engines. The new engine is a growth version of the current T700-GE-700 and will provide a 19% increase in available power for the UH-60M. The engine will be incorporated into production BLACK HAWKs in October of 1989 which will then, as a result of the new engine, be designated the UH-60L. Airframe structure and transmission limits, however, will preclude full utilization of all available power until the beefed-up UH-60M airframe is available.

One additional effort which has received highest priority within the BLACK HAWK Project Management Office has been hardening the aircraft against Electromagnetic Interference (EMI) and Electromagnetic Vulnerability (EMV). Through extensive testing in field locations throughout the world and in specialized electromagnetic test facilities, improved electrical designs are being incorporated into production aircraft and retrofitted into delivered aircraft which will provide improvements up to the new 200 volts per meter standard. IIIII

COL Turner is Project Manager, UH-60 BLACK HAWK, Program Executive Office, Aviation, St. Louis, MO.

Hardware:

TADS/PNVS Update

by Clifton D. Smith

ST. LOUIS, MO — In October 1987, the Target Acquisition Designation Sight/Pilot Night Vision Sensor (TADS/PNVS) Project Manager's Office (PMO) was reorganized as shown.

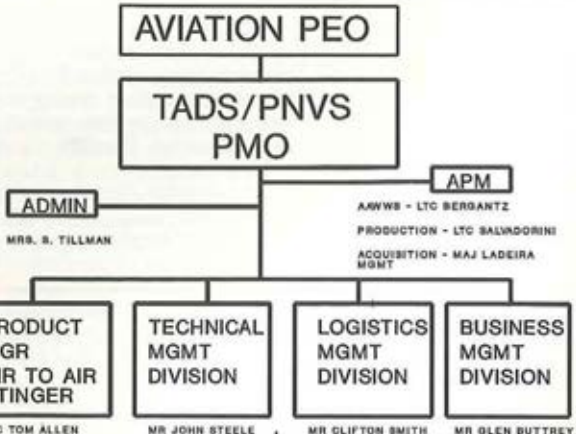
The responsibility for the Airborne Adverse Weather Weapon System (AAWWS) full scale engineering development and the Air-to-Air STINGER (ATAS) integration programs was added to the TADS/PNVS PMO at this time. A Logistics Division was added along with expanded business management responsibilities.

Logistical Transfer

On October 1, 1988, the logistical transfer of TADS/PNVS to AVSCOM was completed. This logistical transfer has consolidated the supply, maintenance, and engineering support responsibilities for TADS/PNVS at a single Major Subordinate Command (MSC). This centralized management reduces the Army's expenditure of critical resources since many of the overhead functions within the MSCs were duplicated, (e.g. contracting, administrative/processing, data requirements). This redirection in logistics management will help prepare the way for AVSCOM's development of an engineering support base for future management of integrated electronic technologies such as the Fire Control Radar (AAWWS) and LHX.

High-tech high-cost electronic components in our newer aircraft have caused AVSCOM to take a new look at the implementation of life cycle support. A good example is the evolvement of the current Depot Maintenance Support Program for the TADS/PNVS.

Mr. Smith is Chief, Logistics Management Division, TADS/PNVS Project Manager's Office, Program Executive Office, Aviation, St. Louis, MO.



SRAs

Early, during fielding of the AH-64A APACHE, we realized the TADS/PNVS production rates would not support the Army's system readiness. The reason was primarily due to leadtimes and the inability to produce at the required rate to fill the normal pipelines based upon a centralized depot repair concept. The solution was the establishment of Special Repair Activities (SRAs) in proximity to the aircraft units to provide expedited turnaround times (TATs) for critical spares. Today we have SRAs at Ft. Rucker, AL, Ft. Hood, TX, and Hausen Germany, with a temporary facility located at Ft. Bragg, NC.

These SRAs are repairing approximately 80 percent of the TADS/PNVS depot level failure modes. This maintenance implementation for the TADS/PNVS system continues to save valuable resources through reduced spare requirements, transportation cost, documentation, etc., but the key pay off is a higher TADS/PNVS mission readiness rate. The PMO anticipates that the AAWWS system could utilize a similar support concept and achieve similar savings/mission success.

Future high-tech/high-cost systems will require innovative planning and management by both Army Aviation and Industry to fully realize saving potentials through the structuring of tailored approaches to aircraft support requirements. IIIII

Research and Development:

Long Range Planning

by James S. Kirkwood

ST. LOUIS, MO — The long-range plans developed by the Army Aviation community serve as blueprints to guide future budgetary and aviation planning decisions. An example of the merit of solid long-range planning is the $7B plus-up in the Program Objective Memorandum (POM) years for the aviation modernization plan which was recently approved by OSD.

To keep you up to date, there have been some recent changes in aviation's long-range planning process. For those of you who are unfamiliar with the planning process, I'll briefly explain the system and provide the offices which are proponent for each new plan.

LRRDAP

The DA Long-Range Research, Development and Acquisition Plan (LRRDAP) contains the materiel acquisition portion of the long-range planning system. The LRRDAP displays R&D and procurement programs that support resolution of battlefield deficiencies identified during mission area analyses (MAAs) as summarized in the Battlefield Development Plan (BDP). The purpose of the LRRDAP is to prioritize programs in the POM years (FY90-94), and project program profiles in the Extended Planning Annex (EPA) years (FY95-04). The plan covers 15 years and provides guidance from Army leadership prior to program formulation.

Mr. Kirkwood is Acting Chief, Resource Analysis Division, Directorate for Advanced Systems, AVSCOM, St. Louis, MO.

Mission Area Materiel Plan

The Mission Area Materiel Plan (MAMP) provides a joint AMC/TRADOC input to the LRRDAP. The AMC/TRADOC MAMPs are based on the previous LRRDAP, threat analyses, and TRADOC's prioritization of the Army battlefield deficiencies as reflected in the TRADOC BDP. The MAMPs systematically address the user's deficiencies and propose strategies that will provide acceptable materiel solutions in a timely manner. The process will address all resources available, placing those in programs that provide the highest payoff for the soldier in the field.

Mission Area Analysis

Mission Area Analyses (MAA) are studies conducted by the combat developer to determine capability deficiencies in the programmed force against the threat in defined scenarios. MAAs synthesize information gained from many individual analyses which are conducted by each of 13 mission area proponents.

Deficiencies are identified by the analysis and a series of proposed actions (requirements) are developed and ranked in priority by the proponent to correct the deficiency.

The MAA process employs the AirLand Battle doctrine which describes what operations are to be executed by Army forces on the future battlefields. This doctrine is capable of being implemented worldwide, and provides the basis for developing future warfighting capabilities.

A new procedure being conducted at the Combined Arms Center is the Close Combat Capability Analysis (CCCA). Each MAA will input solutions to the deficiencies at their level (i.e., division and below). Through the CCCA, these deficiencies will be reviewed at higher levels (i.e., corps and above), providing an expanded review which will then be input to the BDP.

Modernization Planning

A new process for force modernization planning has been established at HQ DA which begins with a Master Plan that outlines a modernization strategy that is not resource constrained (TRADOC proponent). A Program Plan is then prepared that explains the materiel development and acquisition strategy based on the Master Plan (SARDA proponent).

The Modernization Plan is then prepared based on the first two plans (Master Plan and Program Plan) and incorporates the resourcing constraints. With the exception of this inaugural year, all subsequent aviation modernization plans will follow this planning process. This year's Program Plan is an exception to the new process as the Army Aviation Modernization Plan (AAMP) had already been approved and published.

AAMP

The Army Aviation Modern-

(Planning — cont. on p. 44)

Operations:

CERTAIN CHALLENGE

by Lt. Colonel Robert JH Anderson
and 1st Lieutenant William R. Robinson II

APO NY — The "Warrior Spirit" of the Air Cavalry is alive and well. The "Redcatcher" Squadron of the Second Armored Cavalry Regiment exemplified this spirit by its unmatched performance during exercise CERTAIN CHALLENGE.

The Redcatchers proved their warfighting skill as the fourth maneuver squadron of the 2d ACR, by employing not only their organic aerial assets of three Air Cavalry Troops, two Attack Helicopter Troops, and one Combat Aviation Troop, but also by directing air operations of C Company 7/6th Infantry and a Long Range Surveillance Unit (LRSU) made up of twenty-seven sappers from the 84th Engineer Company.

Additional OPCON

Additionally, the Redcatchers assumed operational control of the 2/6th Calvary Attack Helicopter Squadron (AH-64) and the 1st Infantry Division's 1st Attack Helicopter Battalion (AH-1) during several key phases of battle. The effective utilization of these elements combined with the combat power of three ground cavalry squadrons allowed the 2d ACR to successfully accomplish its demanding mission in southern Bavaria against a massed armored THREAT.

During CERTAIN CHALLENGE the 2d ACR drew the difficult and demanding task of defending a 60 kilometer wide sector on the VII U.S. Corps (Southland) right flank. The enemy V U.S. Corps forces were expected to make this mission extremely difficult with an attack which was expected to include the bulk of the Northland Forces, with the major objective of flanking the Southland Force.

In preparation for this defense, the Redcatchers immediately began operations to aid in finding and fixing the enemy prior to the expected onslaught.

LRSU Insertions

After a thorough terrain analysis and intelligence preparation of the expected battle area, the Redcatchers aerially inserted the attached Long Range Surveillance Unit (LRSU) into observation posts which allowed for rapid detection of both enemy buildups prior to an attack and enemy advances during the attack. The LRSU was task organized into five, three man teams equipped with radio communication and enough food and water for three days.

Additionally, these "sappers" carried enough small arms and ammunition (including Light Anti-Tank Weapons) to cover a rapid withdrawal to subsequent observation posts if neccessary. Shortly after the LRSU teams were inserted their spot reports on enemy activity flooded the intelligence airways. This tremendous flow of spot reports generated the assignment of missions for Redcatcher NVG and SIGINT assets.

NVG Operations

Well before daylight a specially task organized Air Cav Troop element consisting of OH-58Ds, UH-60s, and AH-1s established an aerial screen along the Regimental FLOT with the mission of detecting enemy troop concentrations.

Aided by LRSU observations and SIGINT gleaned from Redcatcher EH-60s continuously monitoring the command and control network of the Northlanders from well to the rear, the element detected a major concentration of enemy forces north of the Neustadt Valley in the heavily forested area of the Steigerwald.

This discovery and confirmation of a major armored force consisting of elements from both an Armored Cavalry Regiment and an Armored Division required a shift of emphasis across the 2d ACR front and demanded the focus of Redcatcher reconnaissance elements.

Eyes and Ears Forward

As the sun crested the horizon, Scout Weapon Teams from the Redcatcher Air Cavalry were poised in position along the FLOT to screen during the day what the NVG element had screened in darkness. As expected Northland elements attacked in sector at first light. What was unexpected was the sheer mass with which the Northlanders attacked. Seeking to "run the seam" of the Southland right flank, the Northlanders attacked the 2d ACR with one Armored Cavalry Regiment, two Armored Divisions, and a Sep-

LTC Anderson is Commander, 4th Squadron, 2d Armored Cavalry Regiment, APO NY.

arate Infantry Brigade.

The impetus of the attack was concentrated along three avenues of approach, all originating out of the Steigerwald. The "schwerpunkt" of the attack was an enemy ACR with five brigade sized elements from both of the Northland armored divisions providing a follow on force ready to capitalize on any success.

As the onslaught continued, Redcatcher Attack Helicopter Troops were called into battle to engage the enemy armored formations. Conducting local engagements against company-sized armor elements, Redcatcher Attack Helicopter Troop's maneuver and firepower ability allowed 2d ACR ground squadrons to move to successive battle positions under the cover of massed fires.

While the 2d ACR was moving to these alternate battle positions the Northlanders poised to conduct an armored breakthrough.

Classic Use of Aviation

The continuous and successful pressure of the Northlanders on the 2d ACR seriously threatened the Southland's right flank and warranted immediate action by the Southlanders. If in fact they were to successfully accomplish their assigned mission of defense, they required the classical use of aviation against a breakthrough attack.

Redcatcher aeroscouts fixed an enemy reinforced armored brigade in vicinity of the lonely German village of Langenzenn, but the closest 2d ACR ground squadron was well out of position to effectively engage the column within the "window of opportunity" available. This left the destruction of the road bound column to aviation elements under the operational control of the Redcatchers.

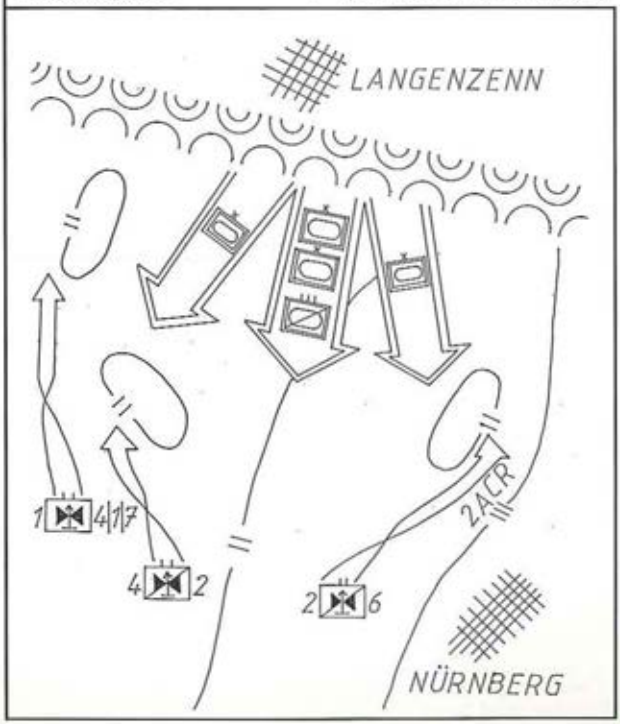
Combat Multipliers

The Redcatchers quickly coordinated for and synchronized the employment of the 2/6th Cavalry Attack Helicopter Squadron "Real Cav", the 1st Attack Helicopter Battalion of the 1st Infantry Division (M) "Gunfighters", and A-10 Close Air Support Fighters "Warthogs" from the 81st Tactical Fighter Wing in an effort to bring all the aviation combat multipliers to bear at a precise time and place.

Maintaining a screen to the north with organic Scout Weapon Teams and occupying battle positions to the west of the target with organic attack helicopter troops, the Redcatchers cycled the "Gunfighters" of the 1st AHB into battle positions east of the target to cordon off the engagement area and create an engagement area that usually occurs only on the chalkboard of idealistic instructors.

The engagement began ominously for the enemy as a rocket barrage from Redcatcher COBRAs preceeded a mass TOW engagement by both the Redcatchers and Gunfighters. As the engagement

(continued on next page)

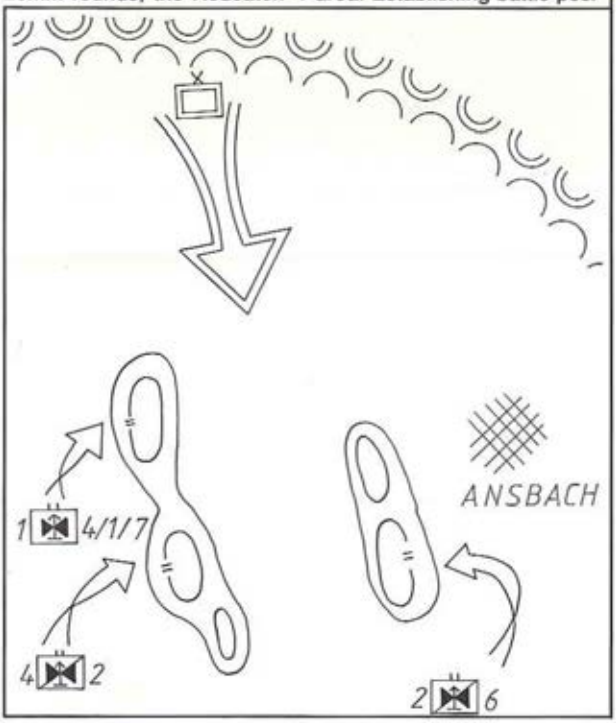


progressed, the enemy attempted to fight through the initial TOW barrage and continue their march along the axis of advance. With massed army aviation firepower flanking and engaging the southbound enemy, the perfect Joint Air Attack Team (JAAT) opportunity presented itself when A-10 "Warthogs", requested earlier by the Regimental Air Force Liaison Officer (ALO), checked in with the Redcatcher Air Battle Captain (ABC) and requested a quick fighter brief.

Phasing multiple sorties of these armor chewing fighters into and out of the immediate engagement area under cover of a multitude of rocket and 20mm rounds, the Redcatchers slowed the momentum of the attack, yet the armored breakthrough had been attritted and delayed by over 180 assessed kills.

APACHEs in the Attack

As the sun began to disappear beyond the horizon, the Northland attackers dispersed. Striving to keep the "window of opportunity" open, the Regiment committed the 2/6th Cavalry's APACHEs from Illesheim, FRG, into the battle. Fighting in its own backyard, the 2/6th Cavalry entered the fight as both the "Gunfighters" of the 1st AHB and the "Warthogs" of the 81st TFW were departing the engagement area. Establishing battle positions over five kilometers away and assigning one aircraft the task of laser designation, the APACHEs under direction of Redcatcher scouts whittled away at the remaining elements of the brigade-plus assault utilizing the precision accuracy of the HELLFIRE antitank missile. When the dust finally settled it was apparent that the "classical use of aviation" had delayed the initial armored breakthrough and was an unparalleled success.



Second Classic Case

The battle across the 2d ACR front continued to rage throughout the next several days and was characterized by "punch-counter punch" movements between the Northlanders and the Southlanders. The 2d ACR 'Dragoons" and the Redcatchers fought several localized small scale engagements to reestablish battle positions in center sector.

Early on the morning of September 21, Redcatcher Scout Weapon Teams made a discovery that quickly changed the entire defense posture of the regimental front. A Northlander armored brigade was detected fifteen kilometers south of the previous day's FLOT. This brigade was preparing to jump off an attack in hopes of linking up with the lead elements of a Northland ACR and effectively completing a penetration into the 2d ACR. This unforeseen enemy threat lead to the second classical use of aviation in three days by the Redcatchers — that of attack helicopters in the rear battle.

As soon as the spot report concerning the rogue armored

brigade in the 2d ACR rear reached the Redcatcher Tactical Operations Center, the Squadron immediately went into action to stop the apparent penetration operation.

Tank Formation Safety

Adhering to German Field Marshall Erich Von Manstein's military truism that "The safety of a tank formation operating in the enemy's rear largely depends on its ability to keep moving. Once it comes to a halt, it will immediately be assailed from all sides by the enemy's reserves," the Redcatchers alerted the liaison officers of both the 1st AHB and the 2/6th Cavalry and deployed their own organic attack helicopters with the goal of annihilating the armor brigade.

Attack helicopter contact with the armor column occured just to the northwest of Ansbach. Engaging the lead elements of the southbound armor from the flanks and rear, the attack helicopters stopped the brigade long enough for the 1st AHB "Gunfighters" and the 2/6th Cavalry Apaches to arrive on the scene, receive a battle handover, and be led into reconnoitered battle positions by Redcatcher scouts.

With Redcatcher Air Cavalry Troops screening to the north and Redcatcher Attack Helicopter Troops positioned to the southwest of the armor column, the "Gunfighters" and APACHEs occupied positions to the west and east respectively of the enemy column — thus completing an "aerial encirclement" of the brigade.

The Redcatchers led off the combined engagement by neutralizing the brigade's air defense cover and sealing off any immediate exit routes.

The "Gunfighters" to the west began their assault on the target by launching a barrage of rockets to button-up the column, followed with a hail of armor-piercing TOWs. The APACHEs entered the action shortly thereafter by lofting laser guided HELLFIRE missiles into the remaining operational vehicles.

Combat Multipliers

This synergistic utilization of the massed aviation firepower negated the brigade's combat effectiveness and ended the Northlanders' hope of a deep penetration before it had begun.

The Combat Aviation Troop

While the cutting edge of the Redcatcher squadron is undoubtedly its Air Cavalry and Attack Troops, the unsung hero that made forward operations of these assets possible was the Redcatcher Combat Aviation Troop (CAT).

Conducting a variety of missions on the split-second notice that the fluid battlefield requires of successful units, the CAT emplaced aerial forward arming and refueling points (FARPS) across the entire 2d ACR front and continually resupplied these aerial FARPS with over 20,000 gallons of JP-8 during the exercise to ensure that the Class III and V lifeline to the Redcatchers engaged in battle was not broken.

As an integral part of Redcatcher air assault operations, the CAT rapidly executed several missions with C Company, 7/6th Infantry which resulted in total surprise and destruction of key enemy command and control centers. Their assault on a Northland armored brigade's TOC was a prime example of their effectiveness in this mission profile.

Additionally the CAT was an integral part of the intelligence gathering network as it inserted and extracted LRSUs into key areas — both behind friendly lines and cross FLOT — to aid in providing the Redcatchers with real time intelligence.

Maintenance and Supply

The key to successful sustained aviation operations is a unit's ability to maintain its equipment in warfighting condition and consistently resupply its warriors. This demanding mission was readily accepted and successfully completed by both the Aviation Unit Maintenance (AVUM) Troop and the Headquarters and Headquarters Troop (HHT) of the Redcatchers Squadron. Maintaining 73 aircraft which flew in excess of 2,240 hours in 14 days in support of CERTAIN CHALLENGE, AVUM Troop conducted round the clock operations ensuring that the **(CHALLENGE cont. on p.50)**

Operations:

4th Brigade In Transition

by Colonel Patrick J. Bodelson

APO NEW YORK — 'Change' is the name of the game at Katterbach, Germany. The 4th Brigade, 1st Armored Division is modernizing its helicopter fleet, converting to the best and newest Army Aviation has to offer. In conjunction, the Iron Eagle Brigade is reworking its training programs to encompass the requirements and challenges of the new aircraft and evolving doctrine. Our goal is to help establish corps-wide standardized training programs and procedures to enhance interoperability and to totally integrate Army Aviation into the combined arms team.

4th Brigade

4th BDE began its modernization by organizing its Combat Aviation Company and Assault Helicopter Company under a battalion headquarters. Designated Task Force Phoenix, this unit is functioning smoothly despite lack of official (DA) recognition. They have already made a name for themselves by winning the 1988 Connally Cup for Best Field Mess, an Army-wide competition. TF Phoenix led off the Brigade's fleet upgrade by bringing six OH-58Ds and fifteen UH-60 BLACK HAWKs on board. Additionally, they replaced their EH-1s with EH-60s in October 1988.

The most significant aircraft upgrade 4th BDE will experience comes with the arrival of the AH-64 APACHE. Currently, 3d Battalion, 1st Aviation Regiment, the 1988 Non-German Partnership Unit of the Year, is in the AH-64 Unit Training Program (UTP) at Fort Hood, TX. Commanded by LTC Dave Swank, they return to Katterbach in July 1989, bringing the first APACHEs to a heavy division in Europe.

COL Bodelson is Commander, 4th Bridgade, 1st Armored Division, APO NY.

Unit of the Year

Our other attack helicopter battalion, the 2d Battalion, 1st Aviation Regiment, stands down just prior to the return of 3-1 AVN and begins a similar transition. They will return to 1AD, the easternmost forward deployed division, in the spring of 1990.

Despite carrying the load of being the only attack helicopter battalion in 1AD and preparing to stand down, 2-1 AVN has continued to live up to its designation as the 1987 AAAA USAREUR Region Aviation Unit of the Year. In the last division gunnery, they qualified all but one of their crews and all but one of their teams on the first run down range. Recently they won the VII Corps Maintenance Excellence Award in the heavy maintenance category. They are now competing in the USAREUR competition.

1st Squadron 1st Cavalry, the newest member of 4th Brigade, is the oldest continuously active cavalry sqadron in the Army and the most decorated. It too has seen its share of change lately. Earlier this year, the squadron was reorganized under the '2x2' concept (two ground troops, two air troops). The two new air cavalry troops were quickly integrated into the squadron. The two ground troops, presently equipped with M60A3s and M113s, await conversion to the M3 Bradley in FY90.

Despite its reorganization and a move from Schwabach to Katterbach, 1-1 CAV has had an outstanding year. This summer, a team from the squadron won the prestigious Boeselager competition, besting scout platoons from throughout NATO and the U.S. Army. An underdog in the contest, the troopers of 1-1 CAV snatched victory from the favored 11th ACR. The CAV went on to an excellent showing during the division gunnery, qualifying all of its M60A3s on the first run with higher averages than their M1A1 equipped brethren.

Revamping Programs

With new equipment arriving and new unit organizations on board, the 4th BDE is relooking its training programs, standard operating procedures (SOPs), and war plans. The focus is to ensure a smooth and total integration of the brigade's assets into the combined arms team and to enhance interoperability.

The emphasis in revamping the Iron Eagle BDE's training programs is *standardization*. We are working closely with 3ID, 2d ACR, and the 11th AVN BDE to standardize training for utility, scout, and attack helicopters throughout VII Corps. Already, a corps-wide gunnery program has been developed from this co-

(Brigade — cont. on p. 46)

Test & Evaluation:

TEXCOM Aviation Board Under New Leadership

by Colonel Tommie A. McFarlin

FT. RUCKER, AL — It was with a mixture of delight and anticipation that I assumed command of the Test and Experimentation Command (TEXCOM) Aviation Board, Fort Rucker, AL, on December 1, 1988. This appointment followed my assignment as Director of the Tactical Missile Defense Office, Combined Arms Combat Development Activity (CACDA) at Fort Leavenworth, KS. This office worked the operational concepts and needs end of the concept based requirements system (CBRS) process. During an earlier assignment with CACDA, I served as a requirements and field test officer on such projects as laser designators, cannon launched guided projectiles, and the Joint-Counter Attack Helicopter (J-CATCH) tactics test against the HIND threat.

During my 21-plus years as an aviation officer, I have commanded four companies/batteries and an H-series aviation battalion. I was also the USAREUR DCSOPS Aviation Force Modernization Officer, planning and coordinating the fielding of the AH-1S(FM), UH-60, OH-58C, CH-47D, and AH-64. I am a TOE operator at heart who has worked combat development operational concepts and needs, plus the intricacies of fielding new systems. Now I "are" an operational tester, and I look forward with great expectations to user testing initiatives and challenges to ensure that quality aviation products/systems are fielded to enhance the combined arms war fighting capability.

COL McFarlin is Commander, TEXCOM Aviation Board, Ft. Rucker, AL.

TEXCOM Aviation Board

Now, what is the TEXCOM Aviation Board? It is one of the eight U.S. Army Training and Doctrine Command (TRADOC) boards and other test activities that have been consolidated into one command. It evolved from the U.S. Army Aviation Test Board that was in existence prior to 1976. During that period, materiel acquisition was heavily weighted toward hardware development. However, the office of the Secretary of Defense and the Department of the Army recognized a need for user representation during the acquisition test cycle. As a result, the Test Board was divided into the U.S. Army Aviation Development Test Activity and the U.S. Army Aviation Board — the latter designed to meet operational testing needs. The U.S. Army Aviation Board was formally activated by TRADOC on July 1, 1976 and was assigned to the U.S. Army Aviation Center (USAAVNC), Ft. Rucker, AL.

On October 2, 1988, TRADOC established its newest major subordinate command — TEXCOM — which consolidated all of TRADOC's user test and experimentation activities. At that time, the U.S. Army Aviation Board was designated as the TEXCOM Aviation Board.

Functions

Major functions of TEXCOM are to task and resource the test boards, direct execution of the current workload in accordance with priorities established in the TRADOC long-range plan for test and evaluation, and assume overall responsibility for quality assurance of all TRADOC testing and experimentation. This headquarters will also provide central technical resource assistance for all TEXCOM test boards.

TEXCOM Commander, MG Robert L. Drudik, said this about the advantages of consolidation: "The establishment of a central test and experimentation command will enable us to consolidate all of these highly developed assets, both human and materiel. The sharing of these assets will enable us to do a better job of meeting specific tests and experimentation needs."

The primary concern of the TEXCOM Aviation Board is operational tests and evaluations. These tests provide the user-oriented field experiments to identify operational deficiencies and shortcomings before items enter full production.

To do this, the Board must maintain a close coordinating relationship with its primary combat developer (Directorate of Combat Developments, USAAVNC) plus other user activities, as well as a good working relationship with the materiel developers.

The key to overall success is that we maintain the needed liaison between developer and users when operational testing is in progress. IIIII

Aviation Medicine:

U.S. Army Aeromedical Activity

by Major Kevin T. Mason, MC, SFS

FT. RUCKER, AL — "Keep them flying," is an old adage that portrays the flight surgeon as an advocate for the prevention of disease. This effort has a new ally, cloaked in RAM chips, the tool of automation. The major focus of our mission in the U.S. Army Aeromedical Activity (USAAMA) this year is on these two issues, prevention and automation.

Both the aviation line and the flight surgeon are interested in the prevention and early detection of coronary artery disease, which is the number one cause of premature death in adults in our country.

Since the flight surgeon's clinic has far more administrative tasks than any other type of medical office, automation will enhance the timely management of these tasks and will directly benefit aircrew.

Overall Mission of USAAMA

USAAMA operates under the direction of the Commander, U.S. Army Aeromedical Center, and is responsible for the timely review and disposition of flying duty medical examinations, review and formulation of recommendations for aeromedical waiver requests, formulation and staffing of aeromedical regulations and policies, aeromedical consultation in support of flight surgeons, carrying out studies to evaluate needs in changing aeromedical standards or policies, and aeromedical education for standards and policies as they relate to aircrew. We have a worldwide mission. We are dedicated to setting the pace for flight surgeons by improving and developing practical aeromedical standards to help the aviation command preserve their most irreplaceable asset, the aircrew member.

MAJ Mason is Director, U.S. Army Aeromedical Activity, USAAVNC, Fort Rucker, AL.

Coronary Artery Disease

We know that aircrew are healthier than the average person on the street in America. The Navy has followed 1,000 aviators for several decades and found that their quality and quantity of life is better than the general population. Intuitively, this makes sense because aircrew are medically pre-selected and have a self interest in maintaining good health throughout their careers. Therefore, it would be a mistake to base our aeromedical policy for coronary artery disease (CAD) on data generated in the civilian sector, and attempt to compare two dissimilar populations.

In the last two decades since the U.S. Air Force has centralized their evaluation of CAD at one location, Brooks AFB, TX, they have been able to study CAD in aircrew as a unique population. One problem they faced was that CAD occurs comparatively less frequently in aircrew than in the general population, that is, the prevalence of disease is low. Another problem is that aircrew with CAD generally feel well and have no symptoms. Fortunately, through their efforts, they have determined that advancing age and the blood cholesterol level are the two most significant predictors of CAD in aircrew.

This is a good lead for USAAMA to follow. Age and cholesterol are easy to measure. Both the media and the U.S. Army promote the importance of measuring blood cholesterol levels, therefore, it is easy for aircrew to understand why taking an annual cholesterol blood test is important. Aircrew will now more readily accept treatment if their cholesterol is elevated. Today, you hear from many sources, "Lower that cholesterol!"

It is a matter of looking at two issues. How can we prevent CAD? And how can we detect significant CAD in all of these relatively healthy aircrew when the prevalence of CAD is low and they are free of symptoms?

Risk Intervention

The name of the game here is, "Risk intervention." Find the aircrew who are at risk of developing CAD and help them direct their health oriented energies in the proper direction to prevent the development of the disease.

For aircrew we recommend the following:

Stay aerobically fit. This helps lower your cholesterol. Army regulations prescribe a certain level of aerobic fitness.

Avoid nicotine products. Nicotine interferes with the normal metabolism of cholesterol and will elevate the harmful components of cholestrol. The

aviation command supports nicotine cessation.

Keep the blood cholesterol as low as possible. There is a direct, straight line relationship between an aircrew member's risk for developing CAD and the level of blood cholesterol. The bulwark of prevention is incorporating a low cholesterol, high fiber diet into the aircrew member's daily life style. And it is effective. Therefore, U.S. Army medical regulations will soon require that the cholesterol and HDL-cholesterol subfraction be determined during every flying duty medical examination. Aeromedical policy from USAAMA will guide the flight surgeon in treating those aircrew members with elevated cholesterol levels, regardless of their age, in an effort to prevent CAD.

Disease Detection

The risk intervention program can be up and running well, but how can CAD be detected? As with many diseases, the reserve capacity of body organs is so great that symptoms often appear only after the disease is quite advanced. The aviation command and aircrew do not want to wait until CAD is quite advanced, because the first symptom of advanced CAD is often sudden death. Aviation safety is definitely threatened when a coronary artery is narrowed by 30% or more, because these affected aircrew members have a higher risk for developing sudden incapacitation in flight.

But when the prevalence of disease is low, as stated previously, finding those affected may be like looking for a needle in a haystack. That is, most of the time when you blindly reach into the haystack, your hand will probably not get pricked by the needle.

You could advocate that every pilot should be put on an exercise treadmill with a heart monitor and challenge his heart each year with vigorous exercise. The problem with this is that it is expensive, time consuming, and will likely result in many false positive tests. Remember the haystack analogy? False positive tests lead to the requirement for more expensive and risky tests to be performed on aircrew who do not really have any disease.

USAAMA will be developing policies to help the flight surgeon find the aircrew who are at highest risk for CAD with the least number of tests. Identifying those at higher risk will reduce the size of the haystack. Aircrew who are referred for the more expensive, time-consuming tests will be more likely to have CAD and will be more likely to have truly positive tests.

In summary, we at USAAMA are interested in finding the best way to prevent and detect CAD in the unique aircrew population in order to lower medical costs and keep aircrew hearts healthy.

Automation

USAAMA is largely automated. USAAMA annually processes 45,000 flying duty medical examinations and 1,200 requests for aeromedical waiver recommendations. We review these and enter the medical data into two large computer databases. One database is the Aeromedical Epidemiological Data Repository (AEDR) to store information from flight physicals. The other is the Aeromedical Waiver and Suspense File (AWSF) to store information from waiver requests.

These databases are used for answering practical questions.

The Aviation command can get answers to many questions, such as: How many aircrew who fly attack helicopters wear glasses? How many aircrew smoke cigarettes? And what is the age distribution of smokers? With automation, these questions can be answered within hours instead of months with a great savings of time and manpower.

USAAMA uses these databases to help formulate aeromedical regulations and policy and to provide consistency in making aeromedical recommendations with a more informed, firmer basis of decision.

Flight Surgeon Office

The next step USAAMA plans to take is to help the flight surgeon office out in the flying Army become automated and make that automation compatible with the USAAMA mission.

USAAMA is dedicated to developing and fielding a Flight Surgeon's Office Automated Management System. We are convinced that this system will help flight surgeons reduce their administrative workload. The time and effort saved will directly benefit aircrew by reducing the amount of time required to process flight physicals.

(USAAMA — cont. on p. 46)

Combat Developments:

Army Aviation Modernization Plan

by Colonel Theodore T. Sendak

FT. RUCKER, AL — The Directorate of Combat Developments at the Army Aviation Center (USAAVNC) has been busier than usual during the past few months. Since the Chief of Staff of the Army signed the Army Aviation Modernization Plan (AAMP) in May 1988, our efforts have been almost totally geared to defining and implementing the many tasks inherent in that plan. The trade-offs between doctrine, training, force structure, and materiel solutions for each of the tasks have been exceptionally difficult as the Army braces itself for more austere budgets.

LHX

The centerpiece of the AAMP is, of course, the Light Helicopter, Experimental (LHX). With a Milestone II decision pending in 1990, our efforts are geared toward making that milestone a success. The new cost and operational effectiveness study (COEA) is well on the way under the capable directorship of COL Tony Brinkley, TRADOC. This study will be especially important since the Army eliminated the lift version of the LHX and constrained the aircraft to a cost of $7.5M and weight of 7,500 pounds each. We plan to wrap up the COEA by April, 1990 in time to support the milestone decision. Concepts and Studies Division is conducting a major part of the analysis at Fort Rucker, backed up by all of the team.

COL Sendak is Director of Combat Developments, USAAVNC, Ft. Rucker, AL.

Implementing AAMP & MSIP

As I mentioned, most of our efforts are geared toward implementing the AAMP, and multistage improvement programs (MSIP) with the UH-60 and AH-64 at the top of the list.

The UH-60 MSIP will enhance the near-team warfighting capabilities of the UH-60A BLACK HAWK by incorporating a number of aircraft modifications based on identified deficiencies in flight safety, threat, survivability, and operational effectiveness. Modifications range from increased external lift and flight maneuverability to improved avionics and aircraft survivability equipment. The product of this program, the UH-60M, will replace the UH-60A on the Sikorsky production line in 1992. Anticipated production numbers are 60 aircraft per year with a total procurement objective of 1,146 aircraft.

Two Stage Effort

The AH-64 MSIP is currently envisioned as a two-stage effort. The base aircraft is the AH-64 APACHE, as it exists today, plus all approved and funded Product Improvement Programs. Stage I proceeds from the AH-64 baseline and incorporates additional technologies to improve warfighting capability for the 1994 to 2005 time frame. AH-64 MSIP major contributors to warfighting effectiveness are:

- Airborne Adverse Weather Weapons System
- Automatic Target Hand Over System
- Air-to-Air STINGER Missile
- Global Positioning System

Initial operational capability (IOC) is scheduled for fourth quarter 1993 with the eventual production of 322 aircraft. Forward deployed Attack Helicopter Battalions will receive the AH-64 MSIP.

Stage II will proceed from Stage I by incorporating advanced technologies, applying selected items from the LHX mission equipment package. Stage II will enable the APACHE to fight and win on the battlefield in the 2000 to 2010 time frame.

A^3 Modernization Plan

The Army Chief of Staff chartered the Armor/Anti-Armor (A^3) Special Task Force to develop the Army A^3 modernization plan to provide a competitive modernization rate countering the expected Soviet threat growth. As a subset, the A^3 Task Force tasked USAAVNC to prepare the aviation portion of the direct fire briefing, presented to the Chief of Staff of the Army on November 7, 1988 and the OSD Conventional Systems Committee on November 17, 1988.

Members of the USAAVNC team, lead by the DCD Materiel and Logistics Systems Division, with the assistance of MICOM, AVSCOM, and TSM-Missile, prepared the final A^3 briefing for MG Parker. The briefing is divided into three parts, beginning with the doctrinal portion that discusses how Army Aviation

fights in the close, deep, and rear battles, and covers the tactics employed by different type aircraft. The requirements section examines aviation weapons' lethality against threat armor out to the year 2005. It lists the current capabilities of existing TOW and HELLFIRE missile systems, the current and future deficiencies of these missiles, and the required improvements necessary to counter the growing threat.

The third portion of the briefing covers Army Aviation's anti-armor weapons system priorities and their relationship to the AAMP from the standpoint of force structure, doctrine, and funding. The Aviation Program Executive Officer, BG David L. Funk, prepared and presented the program acquisition strategies portion of the A^3 briefing, outlining the materiel developer's plan to support the user's anti-armor requirements.

A similar USAAVNC team, led by the Organization/Force Development Division, supported COL Gene Grimsley, Chief of the Aviation Division, Office of the Deputy Chief of Staff for Operations, Headquarters, Department of the Army, and his staff in Washington on a "Rump" in-progress review of all the tails to the AAMP and how they support Army Aviation modernization. The team briefed the Army Vice Chief of Staff on November 17.

Key Issues

Key issues affecting the Aviation Force included: modernization of the rotary wing fleet, reduction in older airframes, downsizing of organizations in the modernization process, warfighting assessment of modernized and downsized units, personnel reductions in accordance with program budget decisions 731 and 725C, and training. Per General Brown's guidance, work remains in our warfighting assessment and in identifying the best methods to modernize the aviation force.

Fixed Wing

While the front line helicopter fleet receives most of our attention, the Army still operates a sizable fleet of fixed wing Operational Support Airlift aircraft. These aircraft provide the wartime assets to support mobilization and post-mobilization sustainment activities. This capability is the subject of Aviation Center and Combined Arms Center studies examining potential improvements in passenger support and operating costs. Preliminary data indicates that centralization of these assets will reduce duplication, contribute to higher passenger service rates and establish a data base to further refine support airlift operations. In order to achieve further efficiencies, the current study will examine the composition of the support fleet to determine the optimal number and mix of aircraft, the best locations for stationing, and organization design to manage and operate the fleet.

I have talked about the AAMP and its implementing initiatives; however, there are a few more items on the plate which are also very important to our future. Test and Evaluation Division is busy with three evaluations having long term impact on the Army, beginning with an Air-to-Air Combat (ATAC) II test at Fort Hunter-Liggett beginning in March 1990. This test will allow us to exercise our air combat tactics, techniques, and procedures in a combined arms environment. The participation of ground systems (both Blue and Red) will add an element of realism which previous tests lacked. The primary goal is to measure how air combat impacts upon an attack helicopter company's ability to perform its primary mission of destroying enemy armor during close operations. We will also be gathering data on aircombat in deep and rear operations. This test is an integral part of our plans to develop means to fight the counterair battle.

Army Aviation has long promoted the concept of aviation forces conducting deep attack operations. Attack helicopters with the capability of the AH-64 can extend the battlefield and shape the battle by engaging the enemies' second echelon forces before they can directly influence the battle. We are now planning to evaluate deep attack operations measuring the operational effectiveness and survivability of a deep strike force. The options range from a fully instrumented dedicated test to an incremental evaluation, piggybacked on previously planned exercises and tests. This evaluation will serve to demonstrate our deep attack capabilities and shape the way we conduct operations beyond the forward line of troops.

The question of logistical

(AAMP — cont. on p. 45)

Test & Evaluation:

APACHE Air-to-Air STINGER

by Colonel Lawrence Karjala

FT. RUCKER, AL — The USAAVNDTA APACHE test team recently set a new record for the APACHE fleet. The APACHE pictured is a standard production model undergoing an accelerated flying-hour program as part of our lead-the-fleet (LTF) program. This APACHE, Bearcat 41, broke the 2,000-hour barrier on 19 November 1988 and is the high-time APACHE in the Army inventory.

The LTF program rapidly accumulates flying-hours on a particular airframe to identify maintenance trends which might impact the entire fleet as it progresses in age. Flight profiles are accomplished at combat mission gross weights up to 17,650 pounds and include all maneuvers expected to be encountered in combat. In addition, weapon systems are regularly fired. The test aircraft is scheduled to fly 10 hours a day to simulate a combat level of intensity and rapidly accumulate flight time. Modified reliability, availability, and maintainability data are collected on all unscheduled maintenance events and entered into a data base for trend analysis.

All APACHE LTF maintenance is accomplished by soldiers. This dedicated group worked many long hours over the life of this test to accomplish such outstanding results. Consisting of mechanics, shop personnel, technical inspectors, and pilots, each team member is fully qualified in his MOS and is cross-trained into at least one other specialty. Cross-training provides the depth required to sustain the intense flying-hour program and simultaneously maintain two additional test APACHES which often require support at remote site locations.

COL Karjala is Commander, U.S. Army Aviation Development Test Activity, Fort Rucker, AL.

APACHE Electromagnetic Vulnerability Investigation

This dedicated test team is also supporting EMV investigations of APACHE designed to reveal its vulnerability to low- and high-power microwave threats operating from 100 MHz to 18 GHz. The work is accomplished in the Special Electromagnetic Interference Vulnerability Analysis Facility (SEMIVAF) at White Sands Missile Range. SEMIVAF provides a controlled environment in which radiation runs are monitored in the control room. All principal aircraft systems are simultaneously monitored for anomalies.

The APACHE is set up to simulate actual flight which had never been done before in the SEMIVAF. This presented some new and interesting challenges. The air data system had to perceive an induced flow, the doppler had to think the aircraft was moving, the squat switch had to be bypassed to simulate the airborne mode, and the radar altimeter had to indicate a positive altitude. Additionally, electrical power, hydraulics, and compressed air were required. All the problems were solved by the APACHE test team on site, and the aircraft now thinks it is flying at about 6 knots and 50 feet.

The EMV team consists of one flight test pilot, four pilots, two mechanics, two armament specialists, one technical inspector, and one ASE specialist. They are divided into two shifts each working 10 hours per day starting at 0600 hours and running until 0200 hours the next morning. Over 500 radiating runs **(STINGER — cont. on p. 50)**

Operations:

9th Cavalry Brigade VIGILANT TROOPER

by Colonel Joe D. Carothers

FORT LEWIS, WA — The 9th Cavalry Brigade's most recent training endeavor, exercise VIGILANT TROOPER, was a three week FTX conducted during the Brigade's Octofoil Focus 1-89D rotation. Octofoil Focus is the 9th Infantry Division's semi-annual brigade level training density conducted at Yakima Firing Center (YFC). This rotation was especially exciting as it included our entire Brigade Combat Team. Our Team includes infantry, cavalry, aviation, and field artillery battalions, as well as engineer, air defense, military intelligence, military police, and chemical slices from Divisional units.

Brigade Alert

A Brigade alert initiated the exercise on October 25 and provided the impetus for the Emergency Deployment Readiness Exercise (EDRE) of 1st Squadron, 9th Cavalry. The Brigade Combat Team then deployed to YFC, and the squadron/battalions and separate companies began two weeks of intense unit training to build and strengthen mission essential task proficiency. Integrated within the unit training were extensive efforts to cross train with other combat team members.

The Cavalry Brigade Headquarters provided the operational scenarios and command and control to facilitate combined arms force on force training during the unit training periods. The Brigade's tactical scenarios also established the framework for the external evaluations of 1-84 FA, HHB/1-44 ADA, 3-9 AVN (SB), and the certification of the Brigade's recently acquired OH-58D Platoon. Superimposed on all of this was an evaluation of the aviation forward support battalion concept currently exercised by the 9th Cavalry Brigade. A team from TRADOC evaluated the utility and viability of 3-9 AVN, 9th Cavalry Brigade's forward support battalion.

COL Carothers is Commander, 9th Cavalry Brigade (Air Attack), Fort Lewis, WA.

Brigade FTX

After two weeks of intense battalion and squadron level training, the units assembled for a Brigade FTX to validate their previous training efforts. The Brigade's mission for the FTX was to clear and secure a zone to support the remainder of the Division's deployment. 1-9 CAV initiated the operation with a passage of lines through 2-2 IN and began a zone reconnaissance toward to the Columbia River. Rapid response of both ground and air attack teams during the reconnaissance enhanced the speed of the Cavalry Squadron.

Artillery maintained the pace through successive airmobiles and in less than a day the near side of the Columbia River was secure. The actual crossing of the Columbia began with 1-9 AVN (ATK) providing overwatch of far side objectives while an air assault of infantry forces secured the far side bank. With security forces in place, 2-9 AVN's CH-47Ds began a daylight airmobile of 73d EN CO's rafting equipment to the river. In the course of a day, the equivalent of two battalions rafted across the Columbia River.

Second Scenario

A second scenario was interwoven within the FTX which focused on rear battle opera-

(TROOPER — cont. on p. 44)

Operations:

6th Cavalry Brigade (Air Combat)

by Colonel Thomas J. Konitzer

FORT HOOD, TX — Cavalry is a unique organization, unique in its combined arms orientation, as well as unique in units steeped in history and tradition. Although the 6th Cavalry Brigade's history is only 16 yeras old, the 6th Regiment's lineage dates back 128 years. The 6th Cavalry Brigade (Air Combat) has spent 1988 *leaner* as a result of TO&E reductions, but a lot *meaner* with three full-up APACHE Squadrons. The 4th Squadron joined the 6th Cav family in July upon completion of its Unit Training Program (UTP) in the APACHE Training Brigade (ATB). In addition to 3/6 Cav and 1/6 Cav holding the title of first to transition into the AH-64, 4/6 Cav has the distinction of not only being the Army's first activating APACHE unit, but also the first to live-fire the HELLFIRE missile as part of ATB gunnery. We have also added D Troops (AVUM) to each of the attack squadrons, thus enhancing our maintenance posture in the brigade.

One Team

Regardless of tenure, all units in the 6 CB(AC) are members of one team with all positions being equally important to mission accomplishment. This includes the peacetime team, consisting of a Headquarters & Headquarters Troop, three Attack Squadrons, a Medium Lift CH-47 Battalion with an attached Command Aviation Company and Corps Aviation Intermediate Maintenance (AVIM) Company, and an Air Traffic Control Battalion. The wartime structure grows by two-thirds (6,000 troops and 487 aircraft) as a result of Reserve Component (RC) CAPSTONE units.

It is this RC heavy structure which causes us to take CAPSTONE integration very seriously, in spite of the ever changing trace. The Brigade has built a solid training management/assessment program which focuses on one standard for the total brigade, both active and reserve components. A comprehensive Mission Essential Task List (METL) was developed based upon the purpose, mission, goals and objectives (P,M,G,O) process, and all RC regiments/groups have received training guidance. We look forward to strengthening the Brigade's "Go to War" command and control structure in 1989.

The Brigade must be trained and ready in peacetime to deter, to fight and to win. This past year presented numerous opportunities, outside of major training events, for the squadrons/battalions to keep their individual and collective skills sharpened.

Joint CAS

In September, first squadron participated in the joint USAF F/A-16 Close Air Support (CAS) demonstration conducted at Nellis AFB, NV and Fort Hood, TX. The purpose was to demonstrate the F-16's capability to accomplish Joint Air Attack Team (JAAT) operations, survivability in CAS missions, as well as reliability and maintainability of a squadron size F-16 unit. The ability of the F-16 to fully perform in the CAS role left some concerns — night operations, survivability, fratricide, and comms compatibility to name a few. Yet, the end result for 1/6 Cav was 300+ flight hours working advanced JAAT operations which met or exceeded all mission requirements, and a good chance for blue/green suit interface.

The 1/6 Cav, has also equipped six AH64's with FM whip antennas, mounted on the vertical fin, to test their ability to communicate increased ranges at NOE altitude. They are also evaluating the effectiveness of a UH60 FLIR for Deep Operations including search and rescue, C^2, and logistics.

3/6 Cav is mounting AN/APR 39A(V1) radar warning receivers on all squadron aircraft for a test this spring. If the test is successful, the same unit, with APR39A's, will do a concept evaluation of the AH-64 Escort Jammer later in 1989.

2d Battalion, 158th Aviation Regiment, the CH-47 Battalion, has been resourced to purchase six FARE kits to develop a 2400 gallon mobile refuel capacity called "Fat Cow". This concept, coupled with an evaluation of an innovative AH-64 ammunition packaging design via 463L pallets, will give the Brigade its much needed Deep Forward Arming and Refueling Point

COL Konitzer is Commander, 6th Cavalry Brigade (Air Combat), Fort Hood, TX.

(FARP) capability. Hopefully, this is a precedent in revamping the entire FARP process (doctrine, materiel & personnel) which needs updating and standardization.

4/6 Cav just completed a major deployment test at Kelly AFB in which a Troop of 6 AH64s was loaded on a C-5A Galaxy using only AFT assets. Mixed reviews have been received thus far. It can be accomplished with fairly extensive teardown, but the space tolerance between aircraft is minimal, and this presents a greater risk of damage to the AH64's than front-loading. 4-6 Cav has also had two aviators at Yuma Proving Ground since September, participating in the Air-to-Air STINGER test. We anticipate some valuable insights after Phase I concludes in January.

User Tests

In the future the Brigade is also slated to work a number of user tests and fieldings in cooperation with Fort Rucker's Directorate of Combat Development, TEXCOM, and AMC. 4/6 Cav will field the M43 protective mask; 3/6 Cav will evaluate newly developed ammo containers for HYDRA 70 and HELLFIRE, and will test three variations of pump designs for refueling aircraft. Finally, in a major effort, the three attack squadrons will take part in an Army Research Institute gunnery test designed to validate Standard Training Commission (STRAC) training ammunition strategy, area weapons scoring technology, combat mission simulator effectiveness, as well as the Gunnery Tables in FM 1-140.

This past year, three of the Brigade's five battalions/squadrons successfully completed IG inspections. One noteworthy aspect of these inspections was the fact that ground maintenance fared extremely well. The success of the program was evidenced by the selection of 3/6 Cav for the Chief of Staff's Award for Maintenance Excellence — small unit category, for III Corps and Fort Hood — an outstanding accomplishment, considering that aviation units are notorious for their "awesome" ground maintenance.

Another very important, but often unheralded, part of the Brigade also excelled. The 6th Cav Dining Facility was Fort Hood's Connelly Award winner for best large dining facility, and will be the post's representative in the upcoming FORSCOM competition.

Yellowstone Emergency

The Brigade has been involved in some interesting support requirements other than the routine VIP visits from the Chairman Joint Chiefs of Staff and Chief of the General Staff of the Soviet Union. In September, B Company, 2-158, under the leadership of a new commander, had the privilege of supporting Vice President Bush during Cruise Missile demilling. A few days later, the battalion was alerted to send a task force of CH-47's, UH-60's and AVIM to augment fire fighting efforts at Yellowstone National Park. Task Force Thundercloud accumulated over 315 hours of safe operations in support of this national emergency.

The 2d Battalion, 58th Regiment also supported fire fighting efforts with Air Traffic Services not only at Yellowstone, but also on the Trans-Alaskan pipeline. In addition the platoons have accompanied their divisions on numerous NTC and JRTC rotations. I have come to the realization that ATC is one of the more under resourced and least understood assets on the battlefield. A major endeavor is being undertaken by the battalion to educate the community on "How to Fight ATC". This includes new concepts in using tactical Non Directional Beacons to assist APACHE squadrons in doppler updates, precise passage point crossings, deep FARP locations, and deception operations along with tactical tower teams. Utilization of FOCs/FCCs as emergency command and control operation centers is also being explored.

SABERS WEST

The most significant training event of the year however was "SABERS WEST", in which the entire brigade exercised its "Go to War" capability. We deployed over 400 ground miles to Terrell County, TX, near the Mexican Border, with 510 vehicles, 125 aircraft and over 1700 personnel. The objectives were to ARTEP two squadrons (a first for 1/6 and 3/6 since completing UTP in 1986), conduct predeployment and deployment training, and evaluate the AVIM and Corps Support Command (COSCOM) support required to sustain Brigade operations (another first since losing the 34th Support Battalion). The task

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Hardware:

USAREUR AH-64A Fielding Update

by Lieutenant Colonel David F. Sale

APO NY — It has now been just over a year since the first AH-64A Attack Helicopter Battalion arrived in USAREUR. In this article, I will attempt to outline that highly successful year in which numerous lessons learned have been captured and shared in USAREUR between V and VII Corps. This has been a year of team work and many "full court presses".

In September 1987, two AH-64 Attack Helicopter Battalions were deployed from Fort Hood, TX to participate as members of III Corp in REFORGER. The two battalions were the 1-6 and 2-6 CAV under the leadership of LTC Barney Jenkinson and LTC Tom Nelson respectively. Both units arrived at Rotterdam, Holland and the aircraft were processed through the port. The processing included de-shrink wrapping, installing main rotor blades and the air data sensor. Once the above was complete the aircraft were Maintenance Operational Checked and test flown to Eindhoven, Holland. The reassembly of the aircraft was performed by the soldiers of the 6th CB(AC) and the 330th AVIM in a superior fashion. After maintenance actions were performed at Eindhoven, Holland the aircraft were flown into the REFORGER exercise area.

REFORGER 87 took place in Northern West Germany September 11-24, 1987. During REFORGER, the two units flew the majority of their missions at night and many were performed in adverse to marginal weather. The two battalions flew approximately 752 hours while maintaining an aircraft mission capability rate in excess of 85%. All missions were successfully completed. It should be noted that both AVUMs were field deployed along with their battalions. Only the AVIM operated from a hardstand area at Wunstorf, Germany. The aircraft, crews and maintenance personnel performed the impossible. They, the members of 6th CB(AC) are to be commended.

LTC Sale is Chief, APACHE Transition Team, Europe, APO NY.

Contractor Support

Along with above personnel we deployed both the Logistic Assistance Representatives (LARS) and the Contractor Field Support Representatives (CFSRs) to learn and provide technical expertise. The CFSRs represented McDonnell Douglas Helicopter Company (airframe), Martin Marietta Corporation, (TADS/PNVS), General Electric (engines) and Honeywell Corporation, (Integrated Helmet and Display Sight System). It was a real team effort with green suiters showing that they can maintain the AH-64A during combat operations in the field.

Upon completing REFORGER, 6th CB(AC) minus 2-6 CAV returned to Fort Hood, TX. We demonstrated that we could deploy AH-64A Attack Helicopter Battalions from CONUS by ship, employ/fight them and return to CONUS.

The 2-6 CAV displaced from the REFORGER area of operations to Illesheim, FRG as the first USAREUR AH-64 Attack Battalion. VII Corp pulled out all the stops in welcoming 2-6 CAV and their families to Illesheim. The VII Corp DCG, MG James Allen, personally hosted all the VII Corp AH-64A Attack Helicopter Battalion In-Process Reviews on a monthly basis. Special care was provided by VII Corp and 11th Avn Bde to support the soldiers and families of 2-6 CAV.

A Company 7th/159th

Along with fielding 2-6 CAV, VII Corp was required to field A Company of the 7th of the 159th Avn Regiment (AVIM) commanded by MAJ Joe Townsend. This required forming and equipping the AVIM company with personnel and equipment. It should be noted that this company is of comparable size with an AH-64A Attack Battalion.

During this fielding 1064 lines of Authorized Stockage List (ASL), 605 lines of Electronic Equipment Test Facility (EETF) equipment, 21 lines of Peculiar Ground Support Equipment (PGSE) and 33 lines of special tools and test equipment were handed off. The APACHE Materiel Transition (MTT) Team in coordination with the AVIM were tasked to accomplish this handoff. It should be noted that the transition team was positioned in Germany some ten months prior to the arrival of the first AH-64A Attack Battalion.

This team forms the hub for **(USAREUR — cont. on p. 45)**

Logistics:

Speaking With One Voice

by Colonel Thomas M. Walker

FORT EUSTIS, VA — Many key events have taken place over the past year concerning aviation logistics, but none more important than the approved recommendations of the recently completed Department of the Army Aviation Logistics Study. The study charter was to review the totality of Army Aviation logistics systems and determine initiatives, across the logistics spectrum, needed to enhance the warfighting capability of Army Aviation forces. For the purpose of the article, I will focus on those recommendations which had the greatest impact on the United States Army Aviation Logistics School (USAALS).

Six Issues

After examining a host of logistics subjects, the study group concentrated on six major issues:

- Support and Sustainment of the Aviation Brigade;
- Military Professional Development;
- Aviation Logistics School Proponency;
- Supply;
- Maintenance, and
- Readiness.

While each of these issues affect aviation logistics in general, school proponency and military professional development have the most profound influence on how we operate and train at USAALS.

COL Walker is Assistant Commandant, U.S. Army Aviation Logistics School, Fort Eustis, VA.

Effective October 1, 1988, the Aviation Logistics School was assigned to the Aviation Center at Fort Rucker. This change in proponency from Fort Eustis to the Aviation Center was in itself a major event. First and foremost, it unites the Aviation Branch so that all functions relating to combat, combat support, and combat service support for aviation are the responsibility of the branch chief — Major General Don Parker.

This enables Army Aviation to speak with "one voice" on all matters pertaining to such important topics as airland battle, professional development (officers and enlisted), ATC, force development, and aviation support equipment. When one considers the resource constraints in today's Army, it becomes exceedingly clear why speaking with "one voice" is so important.

Transportation Affiliation

For years the Transportation Branch and Fort Eustis had proponency for aviation logistics. These were productive years and the contributions made to Army Aviation will remain in the annals of aviation forever. We had a proud affiliation with the Transportation Corps, but the changes in doctrine, training force structure, and creation of the Aviation Branch convinced the Army leadership to unite the branch once and for all.

From the school perspective, it's great to be a full-fledged member of the branch-working for one Branch Chief and speaking with "one voice."

Two very innovative decisions regarding the professional development of both enlisted and officer personnel were made as a result of the study. First, the Technical Inspector (TI) training (MOS 66) is to be integrated with the Basic Noncommissioned Officer Course (BNCOC). This will eliminate the need for a separate MOS for the TI function and will markedly enhance the overall competence of the aviation NCO corps.

Additionally, the consolidation of TI training into one course will enable USAALS to save both training time and dollars. Once implemented (training is to start in October 1989), this program will provide the unit commanders with more flexibility since all BNCOC graduates will be technical inspector qualified. Given the reduction of TI positions under Army of Excellence (AOE) force structure, qualifying more maintenance personnel as TIs is a move in the right direction. We anticipate positive results in all phases of aviation maintenance at both the unit (AVUM) and immediate (AVIM) levels.

AVLOAC

On the officer side, USAALS has been tasked to develop an Aviation Logistics Officer Advance Course (AVLOAC) for aviation logisticians (Branch Specialty 15D). The creation of AVLOAC is predicated on the need to make 15D officers competitive with other logisticians for key

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Air Traffic Control:

Air Traffic Services and A^2C^2

by Colonel Melvin J. McLemore

FT. RUCKER, AL — Airspace, the 3d Dimension over the battlefield has long been recognized as a valuable multiplier in combat. Our challenge is to maximize its effectiveness and utilization. We are familiar with the tenets of the Airland Battle — Initiative, Depth, Agility, and Synchronization. The most visible tenet in the third dimension of warfare is synchronization. Army Air Traffic Services play a key role in assuring efficient and effective use of the airspace over the battle area. The synchronized use of the airspace facilitates individual missions and supports the commander's overall objectives. Airspace control involves four basic functional activities — command and control, air defense, fire support coordination, and air traffic services. It is the last of these activities that will be highlighted in respect to the battlefield and current training requirements.

Potential Fratricide

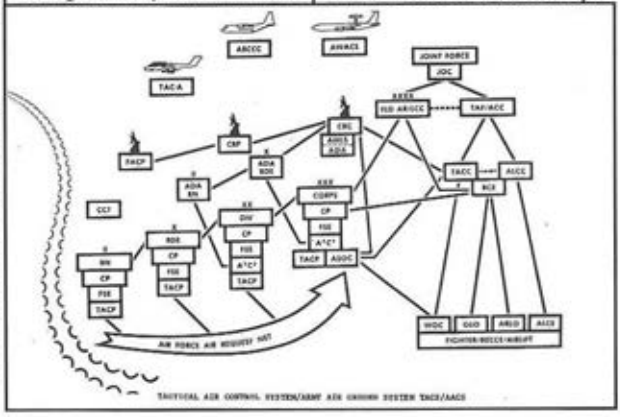
All agree, the airspace over the Corps and Division area in a combat environment will be congested with aircraft of all types, artillery, missiles, and remotely piloted vehicles. This only represents the friendly part of the equation that must be resolved. Lack of control and synchronization and inefficient use of this vital third dimension will guarantee ineffective command, control, and integration of the joint and combined arms team as well as potential fratricide. In order to meet this awesome challenge, all efforts must be synchronized.

Effective airspace management is essential, whether by a commander in the combat zone or one responsible for training centers and ranges. FM 100-103, "Army Airspace Command and Control (A^2C^2) In a Combat Zone," discusses the regulations, principles, and methods governing the conduct of the airspace control function.

The A^2C^2 element is key to this requirement. The staff element which carries out this function must integrate air defense, fire support, remotely piloted vehicles and aircraft, both rotor and fixed wing. A^2C^2 elements in coordination with other controlling centers provide for coordination, integration, regulation, and identification. Execution of these functions, both positive and procedural will contribute to enhanced airspace utilization and assure maximum combat effectiveness. Effective synchronization of the airspace and its users is equally important in our daily training and operations. Much like the congested airspace in times of conflict, our high density flight training areas and ranges also require an airspace management system.

ATS's Role

The ATS unit can assist the aviation unit with synchronization and effective utilization of the airspace. The ATS unit's mission includes a major role in the A^2C^2 element. The ATS units provide liaison personnel to the corps and division A^2C^2 elements, develop and operate continuous enroute flight systems, including navigational aids and a network of flight operations and flight coordination centers (FOC/FCC) in concert with other controlling centers. These critical support elements provide the commander, both ground and air, with maximum freedom of oper-



COL McLemore is Director of U.S. Army Air Traffic Control Activity, USAAVNC, Ft. Rucker, AL.

ations while enhancing effectiveness.

In a separate but related area, the U.S. Army Air Traffic Control Activity (USAATCA), in coordination with the MACOMs, recently developed a plan for the control of air traffic at high density training areas as directed by DA DCSOPS. This plan is outlined in DCSOPS message, DAMO-FDV, 181314Z May 88, subject: Positive Control of Aircraft in High Density Locations, utilizes operational flight following facilities at installations with high density training areas and ranges. Control and operation of the airspace in these training areas are designed to preclude conflict and enhance effectiveness. The procedures are similar to those described in FM 100-103. Safety and effectiveness are essential, both in peace and conflict.

Current modernization efforts are being driven by the ATS Interim Operational concept, which was approved on March 4, 1988 by the Commander, Combined Arms Center, and provides authority for combat development initiatives in the areas of force design and material developments. Efforts are ongoing to organize existing ATS units under Army of Excellence and upgrade or replace major tactical ATC equipment. Our operational and organizational plans are centered on providing timely and vital information along with necessary control and instrument recovery capability.

Safety and training at installations with high density flight training areas and ranges will be enhanced by utilizing established flight following procedures and facilities, manned by qualified air traffic controllers, employment of the tenets of A^2C^2, and proactive participation by the installation air traffic and airspace (AT&A) officer.

Along with these major developments, we as aviation professionals must be familiar with FM 100-103, Army Airspace Command and Control in a Combat Zone. Those who need to further their knowledge and skill in Air Ground Operations should consider the courses offered at the U.S. Air Force Air Ground Operations School, Hurlburt Field, FL.

This school provides specialized instruction in concepts, doctrine, tactics, techniques, and procedures for conducting joint and combined operations. Two relevant courses include the three week Battle Staff Course and the five day Joint Firepower Command and Control Course (the Battle Staff Course is a prerequisite).

The three day Senior Tactical Battlefield Commanders Course is highly recommended for senior officers and commanders. Inquiries should be directed to the Senior Army Instructor, AUTOVON 579-6655.

In conclusion, to operate in the Airland Battle of tomorrow or the high density training area of today, thorough understanding of the various systems and organization is key.

UH-1 – cont. from p. 12

and dust. The IPS also lowers operating costs by reducing engine compressor erosion thus extending engine component life. Maintenance crews can now perform an engine flush without removing any portion of the separator by simply connecting the solution tank to the built in washing system. This feature reduces the incidents of foreign object damage (FOD) and reduces maintenance hours associated with this task. We estimate that the IPS kits will pay for themselves in the first 18 months.

Although these two improvements represent only a small percentage of the approved hardware upgrades for the UH-1, they contribute the most to the program's priorities.

The UH-1 is one of the Army's safest rotary wing aircraft today, and we are committed to maintaining that distinction while exploring ways to improve readiness rates and reducing ownership costs.IIIII

CH-47 – cont. from p. 11

destination by the 45th Transportation Battalion, MAJ Steve Flanagan, Material Fielding Team in Korea, is there and ready to receive aircraft in February.

There are three major challenges to meet in 1989. We must keep producing four aircraft per month in the face of increasingly deep budget cuts. Four hardware problems must be fixed. They are the torque measuring system, difficulty in starting engines and APUs in some high altitude conditions, continuing sheet metal deficiencies, and NVG compatibility in some avionics sets. The third item is to continue to drive down the list of problem parts, especially those related to drive train components. The trends today are all favorable and I am confident that significant progress will be made in all of the areas during the next year. IIIII

AVRADA Goes To Europe

by Charles Marotta

From October 10th, 1988 through the 19th, Mr. David Gaggin, Director, AVRADA, myself and Mr. Bruce Davis, Chief, Communications Division visited various U.S. Army aviation units stationed in the Federal Republic of Germany.

With the results of the REFORGER exercise fresh in everyone's mind, the purpose of the European trip was to tap recent memories of the units and individuals involved for equipment and program needs that the Avionics Research and Development Activity (AVRADA) could provide to resolve "real" operational difficulties.

Futhermore, we wanted to determine if the on-going organizational changes and focusing of AVRADA towards customer support, described in the November 30, 1987 issue of the ARMY AVIATION MAGAZINE in the "Director's Overview" was in line with the fundamental needs of the field commanders.

Validation and Confirmation

The visit to various Army Aviation units stationed in the Federal Republic of Germany provided validation and confirmation of the organizational and programmatic changes that have been implemented within AVRADA. First, and foremost, without exception, the units visited stated a need for improved communications in rugged terrain and Nap-of-the-Earth (NOE) flight regimes.

New attack helicopters give the field commanders the ability to conduct deep penetration operations that can disrupt forces in reserve, control the tempo of the main battle and localize combat power. These operations require timely accurate intelligence, detailed coordination and synchronization and the ability to react in a dynamic situation. AVRADA has programs underway to provide the technology to improve the field commander's ability to command and control his assets in the NOE environment.

The Anti-Jam Aircraft HF Radio Program article, appearing in the January 1989 issue, detailed AVRADA's Non-Developmental Item (NDI) approach to provide long range, secure, anti-jam communication by 1992. The pilot and observer of an OH-58D aircraft, after extolling the capabilities of the avionics, asked; "Why are other types of aircraft not similarly equipped with the Airborne Target Handover System (ATHS), for air to air transmission of target data?" Good question, guys!

I was pleased to respond that the PM APACHE, with technical support from AVRADA, has been under contract since March 1988 to provide such a capability and the "ATHS/Avionics Integration for APACHE" article, in January 1989 issue, revealed the details of this most significant undertaking.

CATC^{2}D

Another program, which will have a significant effect on combined arms operations, is one of the highest priority R&D programs within the Aviation Systems Command (AVSCOM); the Combined Arms Tactical Command and Control Demonstration (CATC^{2}D). The primary objectives of this program are:

- To provide a strong technology base from which future C^2 requirements can be met with minimum risk, schedule and cost.
- To demonstrate C^2 information transmission in real time at NOE, and with all members of the Combined Arms Team.
- To demonstrate a capability for the aviator to rapidly change missions in support of ground and air operations.

The ultimate payoffs would be increased mission mission flexibility, effectiveness, availability and survivability.

(Europe — cont. on p. 50)

Mr. Marotta is Deputy Director, Avionics Research and Development Activity, Fort Monmouth, NJ.

Electromagnetic Vulnerability

by John Prorok

Recent BLACK HAWK experiences have prompted the Army to relook the criteria for hardening aircraft systems against Electromagnetic Vulnerability (EMV).

While flight safety has not been compromised, it was determined that a better balance could be achieved between the level of EMV hardness applied and need for improved mission effectiveness in terms of permissible geographic areas of operation.

Interference Effects

Tests have confirmed that if sufficient radio frequency energy is directed at an aircraft, the following interference effects could be experienced:

- Uncommanded movement of flight controls and surfaces.
- Malfunction of power generating and conditioning systems.
- Display of false caution warnings.
- Interruption of operations in the Command Instrument System.
- Malfunction of communication and navigation systems.

Prior to the BLACK HAWK investigations, the Army imposed a nominal EMV hardness requirement of five to ten volts/meter at the Black Box level and expected the metallic airframe structure to boost the level of protection above 50V/m.

Higher Hardness Levels

Today, we find that increased dependence on electronic rather than mechanical control systems, higher usage of composite versus metallic airframe materials and a new requirement to operate in the limited real estate of a shipboard environment demand EMV hardness levels of 200 V/m and higher. Basically, aircraft systems will be expected to tolerate the same electromagnetic operation levels considered safe for human exposure.

The table above is provided as an example of some of the more common High Intensity Radio Transmission Areas (HIRTA) which may be encountered in other than a shipboard environment. The table entries are typical and not the worst case conditions.

Some general points which can be derived from the table include:

- While closing on a HIRTA at

(Vulnerability — cont. on p. 47)

INCIDENT FIELD STRENGTH VOLTS/METER

TYPE HIRTA	RANGE FROM HIRTA (FT)						
	6200	3940	1820	880	330	165	80
VLF COMM/NAV A150 10 TO 300 KHz 500 kW ERP	2.5	5.5	10	18	39	77	159
AM BROADCAST 0.55 TO 1.6 MHz 50 kW ERP	0.75	1.5	3.0	5.5	12	24	50
SHORT WAVE BROADCAST 3 TO 30 MHz 10 kW ERP	0.35	0.70	1.4	2.7	5.4	11	22
VHF TV AND FM BROADCAST 54 TO 216 MHz 500 kW ERP	2.5	5.0	10	19	39	77	159
UHF RADAR 225 TO 450 MHz 500 kW ERP	75	152	304	606	1210	2430	5023
UHF TV 470 to 890 MHz 500 kW ERP	2.1	4.1	12	24	48	97	200
ATC ADAR 1250 TO 1900 MHz 5 GW ERP	205	606	1210	2430	4870	9741	20,091
TIME TO CLOSE RANGE AT 120 KNOTS AND SPEED	12.5 secs	6.0 secs	4.3 secs	2.3 secs	1.1 secs	0.6 secs	

TABLE 1

Mr. Prorok is an Electronic Engineer in the Product Assurance Office, AVRADA, Fort Monmouth, NJ.

UH-60A GPS Integration

by Peter Csiky

Mr. Csiky is an Electronics Engineer in the Aviation Electronics Integration and Installation Division, AVRADA, Ft. Monmouth, NJ.

AVRADA is responsible for integrating the Global Positioning System User Equipment (GPS UE) in Army aircraft. The UH-60A BLACK HAWK, the Army's airborne test platform will be used for the GPS Operational Test and Evaluation, scheduled for April through June 1989. If the testing is successful, the Army will buy about 3500 GPS receivers for the UH-60A, CH-47D, AH-1, AH-64 and other aircraft. The decision will be made at the tri-service Milestone IIIB review in September 1989.

The Global Positioning System is a space based radio navigation and timing system. Users can determine their latitude, longitude and altitude within 16 meters Spherical Error Probable (SEP), and time within 0.1 microsecond (0.0000001 sec). Signals are received passively from satellites orbiting at 10,900 miles which can be coded so that this high accuracy navigation will not be available to unfriendly users. The coding also assures that false signals do not degrade the accuracy of the authorized users.

Today, seven prototype satellites provide about four hours of GPS navigation each day. Production GPS Satellites will be

launched throughout 1989 and the next few years, some of them aboard the Space Shuttle. By 1991, signals will be available in all weather conditions, world-wide, 24 hours each day, from 21 satellites.

Several versions of the GPS UE are available depending on their application. One channel manpack sets are used by personnel on foot and in vehicles; two channel airborne sets with various interfaces are used in aircraft. A MIL-STD-1553 set is available for data bus compatible aircraft, and an inertial interface is used on some Special Electronics Mission Aircraft. Many major subassemblies, however, are common throughout the GPS User Equipment family.

In July 1987, the BLACK HAWK Project Manager, COL William Turner, and the Army GPS Program Manager, COL Lonnie Bellamy, tasked AVRADA to install the GPS UE on two UH-60As. The two UH-60As were required to be at the U.S. Army Electronic Proving Grounds, Ft. Huachuca, AZ by November 1988. The aircraft are going Operational Assessment prior to the start of the Operational Test.

This is the second time the GPS UE is being integrated in the UH-60A. Two contractors provided equipment for testing in 1982. Previous low reliability of the GPS receivers was the major reason for this second test. The Tri-service GPS Joint Program Office selected Rockwell-Collins to continue the testing in this phase. The GPS equipment and the UH-60A GPS installation designs incorporated several improvements: a digital Command Instrument System Processor (CISP) was developed to operate with the GPS, the CDU was modified to be compatible with the new ANVIS cockpit lighting in the BLACK HAWK; GPS software enhancements were incorporated such as a position alert discrete and more area navigation features, and a zeroize switch was added to erase waypoint data and GPS encryption information in case of capture by the enemy.

The BLACK HAWK GPS UE consists of four units: the Control-Display Unit (CDU), the Receiver-Processor Unit (RPU), the Antenna Electronics Unit (AE), and a Fixed Reception Pattern Antenna (FRPA). Installation locations for the BLACK HAWK are shown below. The GPS CDU replaces the AN/ASN-128 Doppler CDU on the BLACK HAWK. The new CDU controls both the GPS and the AN/ASN-128. The RPU, the heart of the GPS UE, receives the signals and processes the information to determine its location. The RPU also controls and processes the Doppler information. The antenna electronics unit, a preamplifier for the GPS signals, sends the low power satellite signals to the receiver. The antenna is an omni-directional, receiving antenna capable of detecting the satellite signals. A data loader is also used with the GPS which allows the pilot or mission planner to preprogram waypoints.

On the BLACK HAWK, the GPS is integrated with the AN/ASN-128 Doppler navigation system. The Doppler provides velocity information to the GPS to improve its accuracy and also provides a self-contained navigation capability and a back-up if the GPS signals are lost.

The GPS is also interfaced with the CISP, the flight director for the BLACK HAWK, which provides steering information to the pilots based on navigation system input. The new digital version of the CISP handles the additional information being provided by the GPS. Map coordinates can be programmed into the GPS along with approach heading and glide slope information. The CISP then calculates the steering information and sends

(Integration — cont. on p. 42)

GPS UH-60A BLOCK DIAGRAM

Automated BLACK HAWK Checklist

by Captain(P) Michael R. Skaggs

One important research tool used at AVRADA is the System Testbed for Avionics Research (STAR), a highly modified UH-60A that has been equipped with an integrated "glass" cockpit using the Army Digital Avionics System (ADAS). No more acronyms, I promise.

1553 Bus

ADAS has taken all the electronic signals going to the cockpit of a standard BLACK HAWK (communications and navigation radios, flight instruments, engine instruments, cautions/warnings/advisories) and integrated them on to a 1553 Data Bus enabling a mission computer to control those signals.

By giving a computer access to the cockpit signals, it is possible to use the computer to take a lot of work off the already-overburdened shoulders of the pilot.

One aspect of the pilot's job in which ADAS has been able to significantly reduce workload is the checklist. ADAS contains electronic checklists that present the text of the checklist to the pilot on the flight displays. More than simply reproducing the text of the paper checklist, ADAS uses the mission computer to accomplish over 50% of the steps required to run up the aircraft.

The pilot uses the checklist on the lower half of the inner flight display. Three to five steps are presented at a time on the display with the upper half of the display used to provide the controls for secondary systems or alert messages. Switches located below the screen and on the collective grip are used to go forward to the next page of the checklist.

As the pilot advances through the checklist, the mission computer is programmed by a sub-routine associated with that page to perform certain functions, check for certain engine indications, or paste up certain messages to the pilot if needed. In this way, the mission computer "knows" where the pilot is in the checklist, and what automated steps the pilot is expecting to be done.

Secondary Systems

One feature of ADAS that enables so much of the checklist to be automated is the integration of secondary systems (see above) These systems represent many of the mechanical switches that occupy so much space on the upper and lower consoles in the aircraft.

CPT(P) Skaggs is the Project Pilot for the STAR aircraft in the Flight Information Systems Division, AVRADA, Ft. Monmouth, NJ.

LIST OF THE UH-60 SECONDARY SYSTEMS AUTOMATED BY ADAS

Air Source Switching	Pitot Heaters
Blade De-ice	Anti-Ice (Engine and Windshield)
Attitude and Heading Reference	Gyros
Radar Altimeter	Engine Ignition
Tail Rotor Servo	Backup Hydraulic Pump
Hydraulic Leak Test	Engine Overspeed Test
Landing Light	Anti-Collision Lights
Position Lights	Search Light
Tail Wheel Lock	Audio Warning
Engine Speed Trim	Fuel Boost Pumps
Fuel Quantity Test	Heating and Ventilation

The mechanical switches for the systems have been eliminated reducing the total number of cockpit switches from 69 in the standard UH-60 to 31 in the STAR.

The switches are now controlled through the line select keys beside the flight displays. Now, in addition to the pilot being able to set the switches, the mission computer can be programmed to control the switches automatically at the proper time.

Run Up

As the pilot enters the first page of the engine run up checklist, the mission computer places all the secondary systems switches in the proper position called for in the Operator's Manual. Later in the checklist, as the pilot reaches the point where he is about to start the engines, the backup hydraulic pump switch is automatically placed in the OFF position. If the pump is still operating to recharge the hydraulic accumulator, a message is displayed on the upper half of the flight display telling the pilot to wait. After the engines are running, the mission computer checks for rotor rpm to be above 30% and puts the backup pump switch in the AUTO position.

The system works much the same way in the parking and shutdown checklist. As the pilot enters the first page the mission computer turns off the heater, pitot heat, windshield anti-ice and engine anti-ice if they were on.

On the last page of the checklist after the engines have been shut off and the rotor is coasting down, the mission computer waits until the rotor rpm is below 2% before turning off the position lights, anti-collision lights, and ventilation blower. The pilot still has to turn off the APU and battery by himself.

Drive-Train

Another aspect of ADAS used in the automated checklist is the ability of the mission computer to monitor the engine and transmission instruments. Now the mission computer can perform many of the instrument checks for the pilot and inform him if any indication is out of the allowed tolerance. Again, these checks are made according to the step of the checklist since many indications vary as the checklist progresses. For example, after the engines are started and are at idle, the UH-60 checklist reads:

Ng SPEEDS 63% or more.
% RPM - Check.
XMSN PRESS - Check.
ENG OIL PRESS - Check.
#1 and #2 HYD PUMP caution lights - Check off.

These steps do not appear in the ADAS checklist. Instead, the mission computer checks for Ng above 63%, engine and transmission oil pressure normal, engine rpm out of the 20-40% and 60-90% ranges, and the #1 and #2 hydraulic pump cautions out. If any of these indications are not correct, a message is posted to alert the pilot.

System Checks

A third type of check in which the mission computer saves work for the pilot are the numerous system checks on the aircraft, the best example being the Hydraulic Leak Test System. In the standard UH-60 the pilot places the hydraulic leak test switch to the "test" position and checks for ten different caution and advisory lights to illuminate. In ADAS, the pilot presses the line select key labeled "TEST" and the mission computer checks for the presence of the caution messages on the data bus and gives the pilot a "PASS" or "FAIL" message. This same procedure is used in checking the radar altimeter, the backup tail rotor servo and all the communications, navigation, and IFF radios.

Another good example of the degree of automation in the ADAS checklist is the engine start procedure. In starting the engines on a standard UH-60, the pilot checks seven different engine indications through the course of the engine start procedure: engine oil pressure, engine rpm, proper starter initiation and dropout, and turbine gas temperature (TGT) three times. In ADAS, the mission computer monitors those criteria, and alerts the pilot to abort the start if necessary. All these indications are also available on the flight displays for the pilot to check himself in case he wants to verify that the mission computer is working properly.

An AVRADA analysis shows that 187 distinct actions are required to run up a standard UH-60A in a day VFR flight. This figure includes such items as the number of individual switches checked and every step called for in the checklist **(Checklist — cont. on p. 43)**

AHIP – cont. from p. 10

planned for the Mast Mounted Sight (software improvements) and the Master Controller Processor Unit (faster throughput and greater memory). In addition, an Integrated Systems Processor (ISP) will be added to integrate weapons and aircraft survivability equipment into the control display subsystem. The weight growth associated with these changes and the added weapons will be compensated for by improvements to the engine and transmission currently in development by the manufacturers. The overall impact of these changes will be to improve on a weapons system, which is already tremendously effective.

Performance

The operational effectiveness of the OH-58D has been validated as additional units receive the AHIP. Particularly noteworthy are the successes of the Combat Aviation Brigade, 2d Armored Division in recent field exercises.

At the National Training Center this spring, OH-58D's using their laser designators participated in Joint Air Attack Training (JAAT) with A-10s equipped with PAVE PENNY, which allowed the A-10s to acquire targets from approximately 500 feet AGL at ranges of greater than seven nautical miles. First pass acquisitions were achieved on four out of four runs.

At a special demonstration conducted this summer at Edwards AFB, the OH-58D's of the 2d AD using their Airborne Target Handover Systems (ATHS) worked with F-16s also specially equipped with ATHS. The OH-58Ds used their mast mounted sight with its thermal imaging system and laser rangefinder at near maximum standoff range to avoid detection. The typed target information from the OH-58D's ATHS was transmitted by data burst to the Falcon with the push of a button. When the F-16 pilot called up the target information on his ATHS, the location of the targets, the OH-58D, and his own aircraft were displayed in his cockpit. The effectiveness of the OH-58D's ATHS was convincingly demonstrated as the F-16 acquired and successfully attacked targets on its first run into the target area nine out of nine times.

Team Effort

The reception the AHIP has received in the field has been tremendous. As the number of fielded AHIPs has grown, so have the plaudits on its performance. This success is directly attributable to the hard work and team efforts of the materiel developer, combat developer, testers, evaluators, contractors, and most importantly, the user. Although there are a few growing pains which we are all working hard to fix, the OH-58D has consistently proven itself where it counts — in the field! IIIII

Integration - cont. from p. 39

it to the flight instruments for display.

AVRADA awarded two contracts in September/October 1987 to accomplish the integration. One was to American Electronic Laboratories for the installation design. The second was to Astronautics Corporation of America for the digital CISP. In October 1988, one of the UH-60As with the GPS installed was flight tested by the Aviation Electronics Research Activity at Lakehurst, NJ. The second BLACK HAWK was completed shortly thereafter. A laboratory built prototype digital CISP was successfully tested in July 1988 and a productionalized version was delivered to the Army for testing in October 1988.

The GPS installation with the digital CISP was tested and trained by AVRADA before being delivered to the Electronic Proving Grounds at Ft. Huachuca, AZ. Ground testing included preflight, electromagnetic compatibility and electromagnetic vulnerablity. Flight testing was conducted at the Federal Aviation Agency Technical Center using laser tracking. GPS and CISP data were recorded on the aircraft for comparison with the laser tracker. Initial pilot and maintainer training was also conducted before delivery of the aircraft. The training familiarized both the pilot and the maintainer with the additional capabilities of the GPS-equipped BLACK HAWK.

The first UH-60A Army units will be equipped with GPS in mid 1990. All UH-60s are scheduled to get GPS installed by 1995. Other major integration projects (CH-47, AH-64, AH-1 and OH-58) are in the planning and study phase. The GPS will soon be providing a new dimension to Army operations, eventually replacing other radio systems as our primary means of navigation. IIIII

6th Cav – cont. from p. 31

organization included the 4th Squadron evaluating the other two, a hefty slice of air defense, medium lift, command aviation, air traffic control services, Air Force liaison, weather, and a task force representing all classes of supply from the Corps Support Command. The challenges presented by two missions a day (approximately 30,000 gallons of JP4 daily consumption rate), and a move a day, stretched logistics to the maximum. The insights and lessons learned on this exercise will be detailed in a separate article on "How to Support the Corps Aviation Brigade".

The success of a major exercise is often judged in terms of not only how valuable the training but how safe. Although we lost an AH-64 due to materiel failure and fire on run up, I am pleased to report that after over 450,000 miles driven and 2,500 hours flown, there were no serious injuries or accidents.

In conclusion, I am proud to report that the 6CBAC is the most powerful aerial manuever force on the Airland Battlefield. It can provide responsive, flexible firepower over the spectrum of conflict in all three of the operational areas of close, deep, and rear. However this great capability is not without some concerns. First and foremost is the austere aviation TO&E's, both at squadron and brigade which present a significant challenge to operators, maintainers and sustainers. This should cause us to seriously consider fewer and more robust units vice downsizing existing units. Second, scouting is a mission, and not a platform. The AH-64 is a very costly scout. Finally, we need to insure that aviation maintains its proper warfighting focus in the combat, combat support, and combat service support roles and missions. Resources may be scarce, but ingenuity and discipline are in abundance. This means applying good old American ingenuity to solve the challenges of figuring out "How To" and the discipline to insure that aviation operations are standardized. The 6 CBAC looks forward to the challenges of 1989, as well as the opportunity to document Corps Aviation Brigade operations. IIIII

Checklist – cont. from p. 41

detailed procedures of the operator's manual. In the ADAS automated checklist the number of pilot-performed tasks is reduced to 91 with the mission computer doing 96 tasks — a reduction in workload of more than 50%.

What is AVRADA trying to accomplish here? The STAR is not our attempt to redesign the UH-60A. Approximately 80% of the wiring on the aircraft was redone to install ADAS, such a degree of modification that the STAR has been redesignated as a NUH-60A — a permanently reconfigured aircraft that cannot be returned to its original state. It would not be feasible to try and retrofit such a system on the existing fleet. Nor do we expect this checklist to appear in the next model BLACK HAWK. As its name says, the STAR is our testbed aircraft. The BLACK HAWK is merely the vehicle we use to investigate automated cockpit technology and demonstrate concepts such as the automated checklist that have applications in future Army aircraft. Through this program, AVRADA is able to assemble a group of engineers and pilots with a wealth of technical expertise in integrated cockpits.

By getting smart about advanced cockpit technology, the Army can better perform realistic technology assessments for LHX and future improvements on the UH-60 and the AH-64. ADAS established the architectural, processing, and display structure used in the OH-58D, the Air Force HH-60D NIGHT HAWK, and the MH-60K/MH-47E Special Operations Aircraft. The knowledge gained from the program has provided the technical base for developing the avionics specifications for the MH-60/MH-47E and conducting the sources selection evaluation. Finally the STAR provides the Army with a valuable integration facility and data bus-equipped testbed aircraft in which to perform flight tests of evolving technology.

There are other automated features in ADAS that reduce workload for the pilot: electronic emergency procedures, automatic prioritization of cautions, and embedded solid state circuit breakers that the mission computer can automatically reset. Future upgrades include voice interactive avionics, electronic Communications Electronics Operation Instructions (CEOI), digital map display, onboard automated performance planning, and automated HIT check. IIIII

Planning – cont. from p. 17

ization Plan (AAMP) contains guidelines for the continuous modernization of the Army Aviation fleet.

The 1988 edition is a summary document that refocuses Army Aviation modernization as a consequence of development in the threat, advances in our technologies, refinements in our force designs and force structure, and changed fiscal guidance. The principal innovations in this latest edition are:

- Establishment of an integrated concept for developing and fielding current and future warfighting capabilities required of Army Aviation by the threat, Army doctrine, and employment plans.
- Establishment of a level funding concept that encourages the optimum use of resources made available for Army Aviation modernization.
- Establishment of initial criteria for Army aircraft fleet age management which will facilitate decisions on improvements and aircraft replacement over time in a way that allows the Army to get the most out of its investment and also ensures that needed warfighting capabilities remain present in the fleet.

Copies of the Army Aviation Modernization Plan, approved by the Army Chief of Staff on May 19, 1988, are available from HQ DA, ATTN: DAMO-FDV (LTC Bolton), WASH DC 20310-0460. Interested industry and government personnel are asked to request this plan in writing.

The purpose of the Program Plan is to present the "business" details of the AAMP as reflected in the Program Decision Memorandum (PDM). This plan should be used as a source document for preparing the fiscal year 90-91 President's Budget in order to preclude the creation of "broken" programs.

Programs are cross referenced between narratives and funding detail. This document is only available to government agencies and can be obtained by writing to HQ DA, ATTN: SARD-SM (LTC Dickens), Washington DC 20310-0460.

RDT&E

The Research, Development, Test & Evaluation (RDT&E) Plan is prepared by the Directorate for Advanced Systems, AVSCOM, in coordination with the Aviation Center at Fort Rucker. This document is a presentation of the 20-year plan of the Army Aviation community to develop new technology, equipment, and subsystems for potential application to Army aircraft.

The RDT&E Plan is written in coordination with the MAMP process and serves as a link between the MAMP process and modernization planning. Our funded programs in the MAMP are linked to modernization planning by tech base and development efforts that allow us to produce and field aircraft. The RDT&E Plan describes the development efforts required to successfully achieve the acquisition strategies described in the AAMP.

The RDT&E Plan is the culmination of a comprehensive threat survey, a technology forecast by both government laboratories and industry, an assessment of the AAMP, and a review by the PEO, PMs, and the combat developer community. It has served as a useful planning tool to all of these participants and fully supports the DA and AMC long-range RDA plans. Current copies of this plan are available by writing to Commander, AVSCOM, ATTN: AMSAV-NR, 4300 Goodfellow Blvd, St. Louis, MO 63120-5000. IIIII

TROOPER – cont. from p. 29

tions. There were two objectives in this arena: to exercise the command and control of the base cluster normally assigned to a Division Aviation Brigade; and to demonstrate 3-9 AVN's ability to simultaneously manage the Brigade's rear battle responsibilities and provide support while the Brigade TOC is fighting forward.

Valuable Lessons

The exercise provided many valuable training lessons, most importantly, that the Brigade's forward support battalion is a combat multiplier of substantial import when properly utilized and supported.

"VIGILANT TROOPER" was a tremendous training experience for the 9th Cavalry Brigade Combat Team. The Brigade deployed, trained, and redeployed over 2,800 personnel and 990 vehicles without a recordable mishap, and flew over 1,500 accident free hours in 85 aircraft.

Dynamic, well planned training increased unit proficiency and honed our skills as a full fledged combined arms combat team of the Old Reliables. IIIII

AAMP – cont. from p. 27

sustainment on the integrated battlefield becomes more and more crucial as Army Aviation moves into the next century. The rapid tempo of the battle and the fluid, multidimensional nature of the conflict will strain our service and support, supply, maintenance and transportation assets to limits. Distances on the modern battlefield are great. The deep battle, main battle, and rear battle areas create a divisional area of operations that dwarfs those of previous conflicts. We are assisting the Logistics School in evaluating a forward support battalion tailored to the unique needs of the aviation brigade.

The Aviation Forward Support Battalion (FSB) provides the necessary support, to include aviation intermediate maintenance, throughout the division's area of influence. The FSB coordinating staff and Support Operations Section provide a unique opportunity for it to continuously interact with the aviation brigade staff, assuring logistics plays a key role in all operational planning. The FSB has the ability to anticipate requirements and move resources forward as necessary to maintain the warfighting tempo. It moves fuel and munitions forward, establishing Forward Arming and Refueling Points. Maintenance support teams go forward to fix everything from M16A1 Rifles to AH-64 APACHE aircraft. The FSB will emphasize maintaining the warrior and weapon systems in the battle.

Finally, Threat Division has recently published the Aviation Mission Area Threat, a classified assessment of threats to Army Aviation. That and the revised quarterly Aviation Branch *Threat Bulletin* should be in aviation units throughout the Army in the near future.

As the user's representative for Army Aviation combat developments, our goal is to represent your requirements to the world. So as a parting note let me solicit your comments, criticisms, suggestions, and proposals as often as you can afford to put pen to paper or pick up the telephone (AV 558-2703).

USAREUR – cont. from p. 32

coordinating the transfer and fielding of the AH-64A Attack Battalions and their associated AVIMs to USAREUR. The coordination revolves around Headquarters Department of the Army, FORSCOM, USAREUR, V and VII Corps, AMC, AVSCOM, MICOM, CECOM, AMCCOM and the AH-64 Program Management Office.

Since the arrival of 2-6 CAV and the fielding A/7/159 the Mission Capable (MC) rate for the AH-64 has been steadily rising. We have achieved and are maintaining a high Mission Capable and Fully Mission Capable rate in USAREUR. Again a team effort from the first team.

During July 1988, 2-6 CAV and key personnel from A/7/159 deployed to Grafenwohr for gunnery. This was a highly successful exercise with all 17 AH-64s firing and returning to Illesheim. This is particularly noteworthy since the unit had not fired in over a year. Grafenwohr range management personnel commented favorably on the units firing performance.

In June, 1988 we successfully fielded A Company of the 8th of the 158th Avn Regiment to Wiesbaden Army Airfield. The unit is commanded by MAJ Tom Gallegos. This unit with the help of both V and VII Corps personnel and the APACHE MTT has applied many of the lessons learned from our first fielding. The unit stands by to support the second AH-64A Attack Battalion (5-6 CAV) that arrived in mid September. With our ability to learn and share lessons learned these two units should do even better than their sister units in VII Corp. Again because *we* have learned many valuable lessons in the first fielding and we will continue to learn and share our experiences. The APACHEs first year in Germany closed with this years REFORGER. 2/6 CAV flew 371 hours with 18 APACHEs and achieved an astonishing 87.9% FMC rate. The unit along with their AVIM, A/7/159, received many accolades for a job "well done".

In closing, a "Well Done" to all those involved in fielding these four units. Those of us in USAREUR look forward to the fielding of all 14 APACHE Attack Battalions along with their associated AVIMs. IIIII

The AAAA Convention is just five weeks away!

Brigade – cont. from p. 22

operative effort. Currently, a standardized Aeroscout program is being developed, encompassing the OH-58A, OH-58C, and the OH-58D. Realizing that interoperability can be greatly enhanced by common SOPs, we are also working with our fellow aviation units in VII Corps to develop a common tactical SOP. In the near future, 4th BDE hopes to host the Air-to-Air Combat NETT training for VII Corps.

Along with our efforts to assist in establishing corps-wide standards for doctrine and training, 4th BDE is also working within 1AD to integrate our assets into the division's combined arms team. We have put together an AirLand Battle 'roadshow' to present throughout the division. This seminar covers both aviation capabilities and limitations. Focusing on supporting the ground commander's plan, it stresses the complexity of a non-linear battlefied and demonstrates how the proper use of Army Aviation's flexibility and maneuver capabilities can gain the initiative at the enemy's expense.

Close Battle

Finally, we are in the initial stages of developing a combined training program for effectively integrating the AH-64 into the close battle. There are volumes of material on the street telling you how to get somewhere on the battlefield — we are working on the SOPs, drills, and techniques that allow you to do something when you get there. Fire control, fire distribution, target priorities, coordination of designators (i.e. who does what? and when?) are some of the significant challenges we have to train now, not in combat. We don't have all the answers, but the entire 1st AD team is working on it.

A Time of Change

It's a time of change in Army Aviation. The fielding of new, more sophisticated helicopters is expanding our capabilities. In turn, these new capabilities force an evolution of doctrine. New equipment, capabilities, and doctrine require corresponding changes in training and organization. We must educate not only ourselves, but also the rest of the combined arms team, if Army Aviation is going to be effectively and efficiently synchronized into the AirLand battle. We in Ironland are trying to do our part — are you?

Iron Eagle! IIIII

USAAMA – cont. from p. 25

This system will have several features:

- A local aircrew member database to store perennial medical information on aircrew so that aircrew do not have to keep entering this data into their flight physicals year after year. As aircrew change assignments, the information can also be carried on floppy disk from one flight surgeon's office to the next, or sent by modem. The local database can assist the aviation commander in tracking who needs flight physicals, and who has aeromedical waivers with what restrictions.
- Assist the flight surgeon in reducing the number of administrative errors on flight physicals before the paperwork leaves the flight surgeon's office by prompting the clinic staff to fill in items that are required but missing, or repeat tests or pursue investigation of values that are out of aeromedical standards.
- Print a readable, hard copy of the flight physical for storage in the aircrew outpatient records as a permanent record.
- Store a file compatible with the AEDR so that it can be sent to USAAMA by mail or modem, and entered directly into the large, mainframe computers for review and database storage.

We estimate that this automation could annually save hundreds of thousands of dollars in excess postage and administrative manpower costs, as well as reduce delays resulting in flight time or lost flight pay.

The Line Can Help Too

How can the aviation community help?

Aviation leaders can play a key role as advocates for the prevention of coronary artery disease. The loss of experienced aircrew to advancing CAD can be reduced by instituting prevention programs while aircrew are young and fresh out of flight school.

Aviation commanders and supply officers can assist their flight surgeons by equipping the aviation medicine clinics with IBM-compatible minicomputer systems to take advantage of software that will directly benefit aircrew across the Army. IIIII

Soldier (continued from page 7)

Maintenance is not our only concern at the home of aviation. Air Operations CMF 93, is also going to be affected by the modernization plan. Our 93P operations sergeants must become aware of the new capabilities of the future aircraft so they can plan effective use of these assets. The role of the 93B Aeroscout Observer may be expanded when he is in the left seat of the armed OH-58D. Our 93C Air Traffic Controllers are feeling the pinch of doing more with less. The constrained personnel ceilings, along with the consolidation of MOS 93H and 93J, has caused some overstrength conditions at the senior grade levels which has resulted in very few promotions. The 93C40 soldiers who have served as 93P Operation Sergeants in the past and have less than 16 years of service may be receiving letters asking them to volunteer for reclassification to 93P. We have a shortage of 93P senior NCOs and an overage of 93C40s. The promotion outlook is very good for 93P, so consider your future before you answer.

The following is a list of changes in selective reenlistment bonuses (SRB) and new enlisted bonuses (EB) for Aviation MOSs: (If your MOS is not listed there has been no change).

MOS	PREVIOUS BONUS	NEW BONUS
35K (68N)	None	EB $1,500 for 6 years
35L (68L)	None	EB $1,500 for 6 years
35M (68Q)	None	EB $1,500 for 6 years
35R (68R)	SRB E3-5 2 A	SRB Deleted EB $1,500 for 6 years
67H	None (1st term)	SRB for E4-E6 1A EB $1,500 for 6 years
66R	SRB E5-6 3A/2B	SRB Deleted
67S	None	EB $1,500 for 6 years
67T	None	EB $1,500 for 6 years
66Y	None	SRB for E5-E6 1A/B
67Y	SRB E3-8 1A	(1st term) SRB for E3-7 1A (mid-term) SRB for E5-7 1B EB $1,500 for 6 years
93B		EB $2,500 for 4 years EB $4,000 for 5 years EB $5,500 for 6 years
93C		EB $2,500 for 4 years EB $4,000 for 5 years EB $5,500 for 6 years

If you have any personnel questions pertaining to strength of any aviation MOS, promotion outlooks, or future changes, call the Directorate of Aviation Proponency, AV 558-5706/4313. IIIII

Vulnerability (continued from page 37)

a constant bearing, the likelihood of interference effects doubles every time the remaining range is halved.

- Imposing a 200 V/m threshold of vulnerablity will improve mission effectiveness by reducing the density of HIRTA restrictions. At the same time, this presents somewhat of a Catch 22 situation for once a vulnerability threshold is breached at a closer range to a HIRTA, pilot reaction time to recognize and react to interference effects is reduced. This is due to transition between higher interference levels at a faster rate the closer we get to a HIRTA.

Basically, the pilots will have to acquire an increased awareness of their vulnerability thresholds that can be compared to known HIRTA characteristics and these factors will have to be considered in their mission planning. Such mission planning requirements have already been proposed in NATO Standardization Agreement STANAG-1305, *RADHAZ Procedures for Receiving Helicopters (and VSTOL Aircraft) of Other Nations on Ships Other Than Aircraft Carriers.*

Likewise, as we push EMV thresholds higher and shrink available margins closer to technological limits, aircraft maintainers will have to become more aware of maintaining high quality bonds and grounds and ensure equipment case shielding is preserved after servicing.

Overall, the trend will be to increase aircraft EMV hardness at both the total aircraft system and Black Box levels with the greatest emphasis on aircraft flight control systems. As attempts to harden intentional users of electromagnetic signals such as communications, navigation and IFF receivers, state-of-the-art limitations will require unique trade-off solutions and a better definition of the environments in which Army aircraft must operate. IIIII

PEO — cont. from p. 8

The Aviation PEOs, like the other PEOs within the Army, were assigned specific responsibilities.

- Make programmatic decisions (cost, schedule, performance)
- Supervise assigned PMs (charter/rate and management oversight)
- Ensure responsive support for the PMs
- Maintain mission area interface with the user community
- Provide resourcing data to the ! ng Range Research, Development and Acquisition Plan (LRRDAP)
- Track and enforce program baselines
- Defer assigned programs
- Coordinate with the Army Secretariat and the Army Staff

Although the specific responsibilities cited above are not all encompassing, they do represent the broad areas of responsibility upon which more specific tasks and responsibilities were derived.

When the official PEO organization chart was signed on September 30, 1987, by the then AAE and Under Secretary of the Army (USA), Mr. James Ambrose, there were 22 designated and three designated direct reporting PMs. As mentioned earlier, for aviation there were two designated PEOs (CA and CSA) and one direct reporting PM (LHX).

Decision Memorandum

On August 4, 1988, the newly designated AAE/USA, Mr. Michael Stone, signed a Decision Memorandum which combined and disestablished a

(PEO — cont. on p. 52)

Conference (continued from page 6)

engines that would be relatively inexpensive to operate and also permit easy transition to other helicopter tracks. Recognizing that budget constraints would probably prevent our outright purchase of new training aircraft, we have come up with a new approach to initial entry rotary wing training. This new approach, Single Contract Aviation Training (SCAT), envisions a single contractor providing all academic and flight training, simulators, and maintenance and support services for the first 18 weeks of initial entry training; the contractor could possibly also initially purchase the aircraft. Indications are that SCAT would be a more effective and less costly approach to initial entry training than we now have, so we have growing incentive to execute this program and are very excited about it.

Finally, I want to mention the meeting of the AAAA National Executive Board (NEB) and the AAAA Army Aviation Center Chapter Annual Awards Banquet, both of which were held at Fort Rucker concurrently with the AVCOM Conference. This was the second time the NEB met at Fort Rucker during the AVCOM Conference. Since so many board members found it convenient for these two functions to be held at the same time, the NEB decided to make this a permanent arrangement. The guest speaker at the awards banquet was Mr. Joseph P. Cribbins, to whom Army Aviation owes so much, and who is justly recognized as *Mr. Army Aviation Logistics*. Mr. Cribbins also attended the AVCOM Conference as a useful and highly valued resource person. All in all, the AVCOM Conference and the related AAAA activities provided fertile ground for exchanging ideas, building closer relations between active and reserve components, and conducting crucial NEB business, as well as for hearing firsthand from Aviation commanders about the many successes they have had and the problems they face. IIIII

Voice (continued from page 33)

assignments. The course content has yet to be finalized; however, we visualize a program of instruction that would address three fundamental disciplines:

- aviation operations;
- aviation maintenance and logistics, and
- multifunction logistics common core — the same common core taught at the other logistics advance courses (Ord, TC, and QM).

The thrust would be on logistics; nonetheless, sufficient hours on airland battle will be presented to ensure the logistician has a full understanding of how the aviation brigade functions in battle. The imperatives of airland battle will be covered in great detail.

All of us at USAALS are encouraged and excited about the change in proponency and new developments concerning professional development for officer and enlisted personnel. Aviation logistics is a multifaceted field which requires skills and knowledge from basic maintenance to a full understanding of airworthiness and flight characteristics of Army aircraft. Simply stated, an aviation logistician must not only be an operational pilot, but also a leader, manager, and an aircraft maintenance/supply technician. Without question, the action taken by USAALS in compliance with the Aviation Logistics Study will make a significant improvement in the Army's ability to support and sustain aviation during airland battle operations. We are doing our utmost to keep Army Aviation "Above the Best." IIIII

CORRECTION:

In the November 1988 issue of ARMY AVIATION MAGAZINE, a line was inadvertently left out of MG Ellis D. Parker's column during the typesetting process. The line should have read, "These air combat operations will occur as part of the combined arms operations in close, rear and deep battles".

In addition, a word was mispelled two paragraphs later. The term should have been sensor package, not senior package.

ARMY AVIATION MAGAZINE regrets any inconvenience these errors may have caused.

CHALLENGE – cont. from p. 21

Redcatchers had the maximum amount of SAFE aircraft available for combat operations. Providing logistical support for over 500 soldiers in fighting positions and tactical operation sites all across southern Bavaria, HHT accomplished its vital mission by ensuring that each soldier was properly clothed, properly equipped, and well fed.

Using a combination of T-rations and Meals Ready to Eat as a daily staple, HHT ensured that no soldier ever missed a meal. Not forgetting the old saying that "An Army fights on its stomach", HHT pushed hot meals forward to the fighters each time the battle subsided and the Redcatchers occupied tactical assembly areas.

Additionally, the motivated soldiers of the HHT Support Platoon pumped over 130,000 gallons of JP-8 throughout the exercise — ensuring that the Redcatchers and their warfighting aircraft were "always ready" to fight.

A Grim Reminder

While the majority of units participating in CERTAIN CHALLENGE focused their total attention on the tactical exercise, the Redcatchers not only conducted CERTAIN CHALLENGE operations but also conducted aerial surveillance operations along the 651 kilometer politically sensitive border between East Germany, Czechoslovakia, and West Germany on a daily basis. This daily border surveillance coupled with a visit to the Redcatcher Squadron by senior Russian, East German, and Czechoslovakian Warsaw Pact officers and NATO dignitaries as part of the Conference on European Disarmament served as a grim reminder to the Redcatchers and all of NATO that the THREAT is real.

Always Ready

Having integrated, exercised and synchronized all of the warfighting components of the Squadron in a variety of missions against a massed armored enemy, we proved to all involved that the Redcatchers were indeed combat ready.

With skids on the ground at Feucht Army Airfield, and post combat inspections underway, the Redcatchers are now focusing their attention forward to planned General Defense Plan exercises, Annual Aerial Gunnery at Grafenwohr, Redcatcher Strike Tactical Exercises, and Daily Border Surveillance in an effort to remain "ALWAYS READY". IIIII

STINGER – cont. from p. 28

have been accomplished so far, equating to approximately 42 full hours of radiation. In February, the aircraft will be moved to an outside facility where it will be radiated with both engines running and the rotors turning. Testing is scheduled to continue through second quarter FY89.

The APACHE version of Air-to-Air STINGER (ATAS) mounts two STINGER missiles on pylons attached to each wingtip. ATAS target acquisition and sighting functions are integrated into the existing APACHE Target Acquisition Designation Sight and the Integrated Helmet and Display Sight System, making the test effort considerably more complex than ATAS on the OH-58. ATAS on APACHE provides either crewmember with the capability to acquire, track, and engage enemy aircraft with a fire-and-forget weapon.

Testing, consisting of approximately 55 flight-hours, will include captive flight trainer tests, live firings at stationary pole targets, and live firing at a QH-50 helicopter drone target. Live firing of the other weapon systems on the APACHE will also be accomplished to ensure system compatibility. Production prove-out testing is scheduled to be completed by second quarter FY89.

ADTA's APACHE test team is working hard to make the world's finest attack helicopter even better. They are truly "testing for the best". IIIII

Europe – cont. from p. 36

Operational readiness issues brought to our attention included poor reliability and difficulties in maintaining older avionics such as the AN/ARN-89 ADF in the APACHE and the AN/ARN-103 TACAN in the MOHAWK. AVRADA has recently, in association with CECOM, who has the lifecycle support responsibility for fielded avionics, recommended the replacement of these two items with the AN/ARN-149 ADF and the AN/ARN-118 TACAN. The TACAN is currently used in the EH-60 aircraft and is fully supported by the U.S. Air Force.

Regarding the MOHAWK, I'm pleased to report that the Avionics Upgrade Program reported in the November 30,

Europe — cont. on p. 52)

Role
(continued from page 3)

soldiers and 12,200 civilians. Training is top priority. There is RDTE for LHX, Forward Area Air Defense, Deep Operations, and Follow on to LANCE (FOTL). There is a slower rate of acquisition for tanks, infantry fighting vehicles, helicopters, PATRIOT, and howitzers. The Mobile Subscriber Equipment (MSE) is fully funded. Some systems such as AQUILA were killed. Ammunition is substantially reduced and so is military construction. However, as General Vuono has said we will not wring our hands because of the shortage of funding, but rather will ensure we get every ounce of readiness and warfighting value from the resources we have.

The key to unlocking the door at the crossroads of the 90's is to explain to the American people that the Army does not have all the resources it needs to increase conventional deterrence.

In order to modernize the Army as a strategic force to carry out what I believe to be the people's wish for a strong conventional deterrence, the family of modernization plans is being developed. The first approved, and the model for others, is the Aviation Modernization Plan. Soon to follow are the armor-antiarmor mod plan, the fire support mod plan, the air defense mod plan, the truck mod plan, the command and control mod plan, and the tech base mod plan.

What is the difference between a master plan and a modernization plan? The previous master plans of varying vintage have been unconstrained. A Department of the Army modernization plan is constrained by level funding, specified by force structure, causes retirements of aging inventory, and controls modifications or transparent upgrades which are preplanned in blocks. Revolutionary developments that infuse technology are focused and the entire process is disciplined. Only by producing a cohesive set of modernization plans can the balance be struck to ensure that when the Army is needed as a strategic force it will have the full complement of capability to fight and win.

In my treatment of modernization plans there is one subject in this past year of training that I dare not leave out which is the need for simulation and substitution — in other words training devices. I truly believe that American soldiers can fight outnumbered and win because we will be better trained. The recent successes in Europe's tank gunnery, helicopter, and cavalry competitions are credited in some part to the use of simulation networking (SIMNET) and conduct-of-fire trainers (COFT). What we need to move to is embedded training devices where the unit can train right on the actual system.

Permit me to close on what I consider could be a carrier wave for the future. Two years or so ago the Department of Defense proposed a pillar called competitive strategies. The concept is straight forward, we want to capitalize on enduring American strengths to exploit predictable Soviet vulnerabilities. The modernization described in the family of mod plans is a competitive strategy, the modernization is balanced and warfighting is enhanced. The deep, close, and rear battles are addressed. We must continue to build these plans in increments so that should additional resources become available, we will be in a position to explain the value that is added to deterrence from each increase to the Army as a strategic force.

I remain thankful to the Army Aviation community for the major role it has played in being the pace setter in bringing Army modernization to reality. IIIII

PLACEMENT OF AVIATION PM(S)

PEO AVIATION	AVSCOM
AH-64, APACHE AUTOMATIC TEST EQUIPMENT (ATE) AIRBORNE TARGET HANDOVER SYSTEM (ATHS)	UH-1, IROQUOIS
UH-60, BLACK HAWK	CH-54, SKY CRANE
OH-58D, AHIP	OH-58A/C, OH-6
CH-47D, CHINOOK	SPECIAL ELECTR. MISSION AIRCRAFT/FIXED WING
MH-60K/MH-47E, SPECIAL OPERATIONS AIRCRAFT	
AH-1, COBRA	
AIRCRAFT SURVIVABILITY EQUIPMENT AVIATION LIFE SUPPORT EQUIPMENT	
TADS/PNVS AIR—TO—AIR STINGER	

PEO – cont. from p. 48

number of PEOs and PMs, and which had the net result for Aviation of combining the offices of PEO CA and PEO CSA into a new office entitled, "PEO Aviation". PM LHX remained a direct reporting PM with no change in function.

The combining of the PEOs resulted in the total number of personnel spaces being reduced from 45 to 29, and the creation of a new structure.

This restructuring also resulted in some of the PMs, previously reporting to the Aviation PEOs, being reassigned to AVSCOM. The new PM alignment for both PEO Aviation and AVSCOM is depicted above:

Conclusions

Being the newly assigned Aviation PEO in St. Louis, my conclusion is that the implementation and functioning of the PEO concept in the Aviation community is going well. The implementation is in accordance with the Packard Commission requirements and the DOD Reorganization Act. In addition, the PEO organization structure and personnel requirements are in accordance with published HQ DA guidance. The functional support provided by the MSC (AVSCOM) is outstanding, and the recent realignment of the PMs will enhance the PEO's main responsibility of programmatic management (cost, schedule and performance) of major aviation weapons systems and AVSCOM's main responsibility of Aviation readiness. IIIII

Europe – cont. from p. 50

1987 issue of ARMY AVIATION is on schedule and a prototype has been in flight testing since May 1988 and will continue through April 1989.

Weather Induced Problems

Without exception every aviation unit visited parked their aricraft outdoors, exposed to the weather; and except for units with relatively new aircraft, comments reagarding weather-induced avionics maintenance actions were the norm. We were asked "Are avionics designed and tested to withstand environmental conditions encountered in the field?"

The answer was affirmative. However, as avionics and electronics, in general, accumulate time and use, their ability to withstand the ravages of weather diminishes, necessitating increased maintenance hours. This, of course, becomes a drain on the supply system, consuming spares and repair hours.

Operations on a daily basis are run from fixed, hard-surfaced airfields with sufficient room for quick erection of metallized or fabric structures. New aircraft are very expensive containing, for the most part, the latest integrated aviation electronics and present new challenges from a systems trouble-shooting viewpoint. We believe an investment in simple aircraft shelters will provide an overall savings in manhours and materiel and further improve the readiness posture of aviation units.

We came away with a new appreciation for the capabilities and the high morale of the young men and women in Army Aviation. It was a great learning experience and I personally would like to express my gratitude for our warm reception and candid discussions. IIIII

BRIEFINGS

FT. EUSTIS, VA. — AATD ANNUAL DIRECTOR'S AWARD WINNERS — Four employees of the Aviation Applied Technology Directorate (AATD), Fort Eustis, Va., were honored for their outstanding contributions during the past year at the Directorate's annual director's award ceremony held December 2, 1988. (L to R) John H. Barbie received the Director's Award for Exceptional Service; William L. Brickhouse received the Director's Award for General Excellence (technical support); Lavonne F. Vann received the Director's Award for General Excellence (administrative support), and Bruce S. Tenney received the Director's Award for Technological Achievement. (photo by Ronald Bowman)

UNC Incorporated, Annapolis, MD, recently announced that the U.S. Army Aviation Center at Fort Rucker, Alabama, has awarded its subsidiary, UNC Support Services, a helicopter training contract valued at over $70 million, beginning January 1, 1989. Under the terms of the contract, the company will provide the initial entry helicopter pilot training for all U.S. Army Aviation candidates at Fort Rucker, the Army's primary flight center. In addition, the company will provide advance helicopter and fixed-wing training to Army pilots under the contract. The contract was awarded for the remaining nine months of Fiscal Year 1989, with two one-year options.

ITT Avionics, Nutley, NJ, has received an award for $83 million from the U.S. Army Communications Electronics Command (CECOM), Ft. Monmouth, NJ, for the production of AN/ALQ-136(V)2 electronic countermeasures (ECM) system primarily for Army Special Electronic Mission Aircraft (SEMA) such as the OV-1D and EH-60 Quick Fix platforms.

Grumman Melbourne Systems has announced it has successfully completed the first radar test flight on the Air Force/Army Joint Surveillance Target Attack Radar System (Joint STARS). The 6.4-hour flight of the E-8 aircraft yesterday marked the start of the fourth phase of the Joint STARS two-year, full-scale development flight program.

Five **UH-60A BLACK HAWK** helicopters were delivered by a giant C-5A aircraft to the Texas Army National guard December 19, 1988 at Bergstrom Air Force Base, in Austin. The BLACK HAWKs are bound for the 49th Armored Division's 149th Aviation Regiment.

Link Flight Simulation Division has awarded **Merit Technology** a $1.7 million contract to develop the AN/APQ-174 radar simulator for the U.S. Army's MH-47E Combat Mission Simulator. This radar simulator will use the same digital terrain data base as the helicopter's visual system and it will operate in terrain following and avoidance and ground mapping modes.

Short Brothers PLC, has been awarded a contract by the U.S. Army to supply 10 C-23 Sherpa aircraft to the U.S. Army National Guard (ARNG). First deliveries are expected in early 1990 and the total equipment value is $60 million. The C-23s will replace a number of the ARNG's aging C-7 Caribous.

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FORT RUCKER, AL 36362
BOWLER, LYNN N.
190 NORTH HARRIS DRIVE
FORT RUCKER, AL 36362
CHEATHAM, TEDDY M.
7818 ETIWANDA AVENUE
RESEDA, CA 91335
CULP, MARTIN J., II
1317 4TH AVENUE
DUNCANSVILLE, PA 16635
DAVIS, DAN J.
C TROOP, 3/7TH CAV
APO NEW YORK 09028
DEVENS, CHRIS G.
10 JOHNSON STREET
FORT RUCKER, AL 36362
DUFF, MICHAEL
C COMPANY
2 AVIATION REGIMENT
APO SAN FRANCISCO 96524
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170 LEXINGTON DRIVE
APT. M105
CLARKSVILLE, TN 37042
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3D MI BATTALION
APO SAN FRANCISCO 96271
FIERRO, HERMAN H.
51 WEST IVEY ROAD
HUACHUCA CITY, AZ 85616
FRAKES, MARK D.
239 AVIATION
APO SAN FRANCISCO 96271
GATLIN, BILLY T., JR.
P.O. BOX 237
FORT RUCKER, AL 36362
GRIDER, JOHN R.
HHC 7/159TH AVIATION
BOX 366
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GUESS, STEVEN C.
5724 ERNE AVENUE
IROQUOIS POINT
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HANDINERO, JO F.
G COMPANY, 71ST BATTALION
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242 FOREST RIDGE DRIVE
SAVANNAH, GA 31419
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1023 COMANCHE TRAIL
ANNISTON, AL 36206
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302 E MARSHALL STREET
APT. 412
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P.O. BOX 16268
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McCLEAN, CELEITA A.
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206 CORAL WAY
ENTERPRISE, AL 36330
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E COMPANY
4/1ST AVIATION
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HHC 2/227 AVIATION, 3AD
APO NEW YORK 09165
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C COMPANY
2D AVIATION REGIMENT
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APO SAN FRANCISCO 96301
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612 MORGAN LANE
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6281 LAKEHAVEN DRIVE
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201 WARRIOR DRIVE
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MURFREESBORO, TN 37129
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44663
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APT. 11
MANHATTAN, KS 66502

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C COMPANY
2/2 AVIATION REGIMENT
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3310 EAST RANCIER
APT. 401
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302 BROKEN ARROW
ENTERPRISE, AL 36330
NELSON, ROBERT K.
15910 YORK ROAD
SPARKS, MD 21152
PULFORD, BRIAN R.
503 GRANDPIN
ENTERPRISE, AL 36330
REIST, PAUL K.
C COMPANY, 2/1 AVIATION
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3720 SONARA ROAD
RANDALLSTOWN, MD 21133
SPONSLER, JEFFREY L.
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TAYLOR, MARK C.
604 MARY JANE
KILLEEN, TX 76543

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A CO, 1ST BATTALION
501ST AVIATION
APO SAN FRANCISCO 96301
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P.O. BOX 14446
AUSTIN, TX 78761
COATES, DAVID A.
BOX 702 AUSSB
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GREER, JAMES S.
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EL PASO, TX 79924
LOCKE, VIRGIL H.
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OLD TOWN, FL 32680
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CO A, 5TH BN 159TH REGT
APO NEW YORK 09025
McCRADY, PATRICK M.
20 1ST CAC
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APO NEW YORK 09224
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6225 TRAILWOOD TRAIL
SHREVEPORT, LA 71119

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MARINA, CA 93933
THURMAN, PAUL D.
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FORT HOOD, TX 76544
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ROUTE 1, BOX 1104
KEMPNER, TX 76539
VOIGT, RICHARD L.
A COMPANY, 2/3 AVN. REGT.
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APO NEW YORK 09182

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1325 KELLY DRIVE
BARSTOW, CA 92311
BECKER, WILLIAM R.
B CO. 58TH AVN
APO NEW YORK 09028
BROWN, RONALD K.
2140 FLORDAWN DRIVE
NO. 8
FLORISSANT, MO 63031
BUERGEL, RICHARD K.
101 NANCY DRIVE
ENTERPRISE, AL 36330
HENDLEY, JAMES H.
377TH MEDICAL CO., /AA/
APO SAN FRANCISCO 96301
JENSEN, STUART C.
11388 LAKE ONTARIO
EL PASO, TX 79936
KRANZ, WILLIAM E.
815 TAVERN ROAD
SAVANNAH, GA 31409
MESSBERGER, THEODORE A.
3620 35TH STREET N.W.
GIG HARBOR, WA 98335
TABRON, DONALD F.
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MORNG CALM CHAP TREAS
A CO, 1/501 AVN, BOX 505
APO SAN FRANCISCO 96301
TOMPKINS, WILLIAM R.
D TROOP, 3/12 CAV
APO NEW YORK 09076

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LSU MFO AVIATION
APO NEW YORK 09679
BLAND, ROY L.
A CO, 4/159TH AVIATION
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CORDRAY, LLOYD A.
ACO 3-3 AVIATION
BOX 86
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C CO, 1/2 AVN REGT
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205 W. MONTGOMERY XRDS
APT. 1202
SAVANNAH, GA 31406
PAYNE, STEVEN C.
3862 MULBERRY DRIVE
COLUMBUS, GA 31907
SLANE, ROBERT K., JR.
101 EAST EMERALD DRIVE
ENTERPRISE, AL 36330
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STORCK BARRACK
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WOJTALA, THOMAS J.
45TH TRANS
194TH MAINT. BATTALION
APO SAN FRANCISCO 96271

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O TROOP, 2ND CAS, 2ND ACR
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432A SEVENTH STREET
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RYAN, ANTHONY F.
2840 S. CIRCLE DRIVE
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B COMPANY
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APO NEW YORK 09185

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2LT Joseph Warnick
WOC Joshua B. Watkins
2LT Jeffrey L. Watson
2LT Mark W. Weiss
CPT Larry R. Werneke
WOC Calvin Roy Wesolowski
WOC Bryan F. West
WOC Brett M. Westcott
WOC David B. Whalen
WOC Christopher B. Wheatley
CPT Stanley S. White
CPT Wayne R. White
WOC Harmon Keith Whitfield
Mr. Thomas J. Wicker
2LT Clifton W. Wilcox
WOC Dale A. Williams
CPT Randall J. Williams
2LT Richard L. Williams
WOC David A. Wilminillo
WOC Paul M. Wilson
WOC Ronald H. Wilson
2LT Paul A. Wolf
WOC David K. Wood
WOC Timothy J. Woodward
CW4 Mark O. Wrinn
WOC Bart E. Wulff
WOC Philip T. Yochum, Jr.

BLACK KNIGHTS CHAPTER
WEST POINT, NY

Mr. John Kurti
CDT Ted F. Russ

BONN AREA CHAPTER
BONN, GERMANY

COL Rainer F.F. Scholz

CHECKPOINT CHARLIE CHAP
GERMANY

SSG Gary W. Blankenship
SGT Ken Copley

CHESAPEAKE BAY CHAPTER
FORT MEADE, MD

2LT Paul J. Bates
Mr. William H. Carroll
Mr. Donald B. Doolittle
CPT Gerald K. Thompson, Jr.

COASTAL EMPIRE CHAPTER
FT STEWART/HUNTER AAF, GA

1SG Gary L. Rojeski

COLONIAL VIRGINIA CHAPTER
FORT EUSTIS, VA

SFC Michael E. Ryan

CONNECTICUT CHAPTER
STRATFORD, CT

Mr. David E. Brayton
Mr. F. Scott Defelice
Mr. Nick Defelice
Mr. Michael A. Sharillo

CORPUS CHRISTI CHAPTER
CORPUS CHRISTI, TX

E9 Jesus T. Garcia, Ret.
Mr. Manuel Garcia, Jr.
Mr. Alfredo Hinojosa, Jr.
Ms. Angie Salazar
Mr. Jesus Salazar

DELAWARE VALLEY CHAPTER
PHILADELPHIA, PA

Robert M. Zanzalari

EDWIN A LINK MEM CHAP
BINGHAMTON NY AREA

2LT Mark F. Fassl
2LT Daniel G. Tupper

FOLLOW ME CHAPTER
FORT BENNING, GA

WOC Robert L. Grapp
WOC Leroy A. Latshaw

FORT BRAGG CHAPTER
FORT BRAGG, NC

MAJ Ivan T. Beach
MAJ Craig D. Hackett
WO1 Bill W. Holyfield, Jr.
WO1 Warren C. Lyons
1LT Michael O. Silver
MAJ William C. Townsend
CPT Gregory J. Ulsh
CPT(P) Gregory M. Williamitis

GREATER-ATLANTA CHAPTER
ATLANTA, GA

Mr. H. Neal Cheek
MAJ(P) Jack M. Cooper
2LT William P. Freeman
WOC William E. Lovett, III
Mr. Terry T. Peters
2LT John W. Thompson

HANAU CHAPTER
GERMANY

1LT William J. Davisson
CW4 William J. Harrison
SGT Charles A. Hendricks
SSG Ernest N. Hill
CW3 Ronald D. Jordan
SGT Derrick R. Ruffin
PFC Nancy Jean Schramm
PSG Thomas L. Turner

INDIANAPOLIS CHAPTER
INDIANAPOLIS, IN

Mr. James D. Agan
1LT Ronald D. Jones
2LT Paul J. Meyer
Mr. Michael Wagner

LINDBERGH CHAPTER
ST. LOUIS, MO

Ms. Karen S. Bagot
1LT Paul O. Belobrajdic
E8 Robert E. Biter, Ret.
Ms. Georgia L. Brennan
Mr. Donald J. Bruns
Mr. T. Shing Chu
Ms. Peggy J. Dixon
CW4 George G. Fairfax, Ret.
Ms. Jill D. Gavora
Mr. Norman Laverne Green
Mr. Robert L. Guerrero
Ms. Jan B. Hackman
Mr. Donald S. Halter
Ms. Cheryl C. Hammond
Mr. Asa Helleny
Mr. Eugene A. Hitt
Dr. Paul B. Knese
Mr. Lee F. Kohring
Mr. Leon Langebartels
MAJ Bruce R. Legrand
Mr. Raymond L. Mantler
CPT Robert D. Mayfield
LTC Charles W. Millican, Ret.
Mr. Harry J. Par
Mr. Haliday M. Pullum
Mr. Kelly Quinn
Mr. Herb Scherer
Mr. Chaim Shacham
Mr. Clifton D. Smith
MAJ W. Leonard Snitch
Ms. Patricia Thompson
Mr. Mathias Voes, Jr.
Mr. Wayne K. Wight
Mr. Wallace R. Willard, Jr.
Ms. Sharon K. Williams
Mr. Lou Young
Ms. Carol J. Zeltman

LONE STAR CHAPTER
AUSTIN, TEXAS

CW3 Edwin M. Fattmann
CW4 John B. Morel
2LT John W. Newton, II
Mr. Tom Shores
CW3 Tim O. Snow
1LT Richard F. Vogel

MAINZ CHAPTER
MAINZ, GERMANY

1LT Arthur F. Powell

MONMOUTH CHAPTER
FORT MONMOUTH, NJ

COL Wesley A. Beal
Mr. John S. Tedona
LTC John R. Wrinkle

MONTEREY BAY CHAPTER
FORT ORD, CA

1LT Teddy A. Jackson
COL Douglas R. Terrell
WOC Devon H. Wedum

MORNING CALM CHAPTER
SEOUL, KOREA

MAJ Robert C. Claflin
CW3 Michael D. Gainey
MAJ Ronald S. Petricka

MOUNT RAINIER CHAPTER
FORT LEWIS, WA

CPT James P. Contreras, Jr.
MAJ David M. Cowan
CPT James P. Neely
WOC Scott S. Schevenius

NORTH TEXAS CHAPTER
DALLAS/FORT WORTH

Mr. David R. Baker
Ms. Susan C. Baker
Ms. Launa D. Barboza
Mr. William E. Bastable
Mr. John H. Benner
Mr. Roy M. Blackwell
WOC John C. Boehm
Mr. Jim W. Brooks
Mr. Ronald J. Bunger
Mr. Robert B. Caldwell
Mr. Keith E. Cedras
Mr. Michael G. Cholds
Mr. Richard J. Clare
Mr. J. D. Cloud
Mr. George A. Consolver
Mr. Ronald R. Cook
Mr. Ray Crossland
Mr. Joseph P. Culp
Mr. Leonard J. Daves
Mr. Lewis M. Deen
Ms. Suzette A. Dial
Mr. R. A. Diggs
CPT John R. Drewien
Mr. Gerald E. Erwin
Mr. L.E. Ferguson
Mr. Fred Fischler
Mr. Jerry M. Flippen
Mr. Doug Fowler
Mr. Richard H. Gall
Mr. Mark L. Genard
Ms. Julie Grandinetti
Mr. Jim F. Guthrie
Mr. Robert C. Haney
Mr. Edgar S. Holland, Jr.
Mr. Myron T. Hubble
Mr. R. L. Jacobs, Jr.
Mr. Terry M. Jeffcoat
Mr. Douglas A. Jordan
Mr. William H. Lappin
Ms. Brenda Little
WOC James G. Loggins
Mr. Fred Matthews
Mr. Darrell B. McBrayer
Mr. Fredrick H. McFarland
Mr. Alan W. Moffatt
Mr. Charles D. Morrow
Mr. Trevor W. Palmeri
Mr. Clifton E. Patterson
Mr. Tom Petrovich
Mr. Gary D. Pinson
Mr. Robert Gregroy Ready
Mr. Philip C. Reynolds
Mr. D. R. Rice
Mr. John F. Schluckebier
Mr. Paul M. Schwartz
Mr. Richard R. Sharpe
Mr. Keith Simpson
Mr. Bernard G. Smith
Mr. Christopher L. Spangler
Mr. Reed St. Pierre
Mr. Jack B. Swindle
Mr. Darrel E. Watson
Mr. Donald K. Watson
Mr. Roger W. Wilk

OLD TUCSON
MARANA, AZ

LTC Douglas M. Clark
2LT Michael D. Hima

PHANTOM CORPS CHAPTER
FORT HOOD, TX

CPT Anthony A. Baker
Mr. Jimmy E. Carpenter
CW2 Michael G. Champion
PFC Kevin R. Crocco
MAJ Alan M. Gardner
2LT Robert J. Johnston
Mr. Donald D. Lindert
CW2 Lonny Meeks
CW2 Wayne L. Pearson
WO1 Todd L. Rabusin

PIKES PEAK CHAPTER
FORT CARSON, CO

CPT Samuel I. Banks
COL Blair K. Blacker
WO1 John M. Cunningham
CPT Michael P. Cyr
CW2 Marshall G. Kyle
1LT Robert K. Mock

SOUTHERN CALIFORNIA CHAP LOS ANGELES, CA

Mr. Robert M Ansalone
Mr. Dennis P. Arnold
WOC Jeffrey Aryan
Ms. Barbara J. Beardsley
Mr. Robert A. Bradley
Mr. Stuart D. Bresnick
Mr. Roman J. Calczynski
Mr. John Duran
MAJ Ray A. Estes
Mr. Dwane Grim
Mr. Kent J. Hackman
WO1 Harold Lee Bowen Kraley
Mr. Dave Ladin
Mr. Channing D. Miller
Mr. William O. Miller
Mr. David G. Ratcliff
Mr. Alan Riley
Mr. Richard A. Sigerist
Mr. Oliver Steinke
CPT James R. Stewart
Mr. Pete Turner
Mr. Douglas L. Vossler
Mr. Michael A. Yates

STUTTGART CHAPTER STUTTGART, GERMANY

PFC Thomas R. Anderson
SPC Michael J. Black
SPC Michael K. Chastain
Mr. Hans W. Coester
SPC Kelly R. Cole
PV2 Mitchell R. Dodge
PFC James D. Howard, Jr.
PV2 Peggee M. Lisk
SPC(P) Thomas E. McFarland
SPC Frank R. McKay
PFC Charles G. Merchant
PFC Chris A. Miller
SGT Gary Lee Moore
SGT(P) Edgardo Ortiz-Lugo
PV2 Lawrence R. Pasilkowski
PFC Jerome C. Richardson
SFC Daniel W. Rose
PV2 Demetrio P. Rose
PV2 Ian A. Tucker
SPC Kathy J. Youngblood

TAUNUS CHAPTER GERMANY

Mr. Jason A. Wilson

TENNESSEE VALLEY CHAPTER HUNTSVILLE, AL

LTC James H. Boschma, Ret.
Mr. Earle L. Smaltz
Mr. Gerald L. Van Leeuwen

THUNDERHORSE CHAPTER FULDA, GERMANY

PV2 Micheal B. Aman
Ms. Leslie A. Andrews
CPT Mark N. Baines
PFC Charles Bangle
SSG Timothy A. Barley
CPT Daniel R. Barnett
PFC Douglas E. Brooks
SGT Kenneth L. Cobb
SPC Lonnie G. Collins
CPT Terry M. Crane
PFC Mickey Daniel
SGT Michael D. Elmer
PFC Fredrick D. Evans
SPC John G. Harder
CW2 James W. Holderby
WO1 Kerry A. Holder
Mr. Richard J. Holeman
SPC Winfred W. Howard
SRC Scott W. Johnson
PFC David W. Kilmer
PFC Weston R. Ledford
SSG Henry G. Levinsky
SFC William R. Lewis
SGT James J. Loomis
E3 Scott A. McGilvray
SSG Charlie McIntyre
Ms. P. Joyce McKim
SGT John J. McLaughlin
PFC Jeffrey E. Newman
2LT Daniel J. Nosal
CW2 Scott A. O'Donnell
SFC Reuben T. Press
PFC Christopher Santos
SFC Ulysses J. Scales
PFC David R. Seddon
SGT Joseph P. Stevens
PV2 Scott E. Stirn
PFC John J. Stubblefield
SPC Bradley D. Swartz
E5 Billy B. Taylor
PFC Donald R. Tibbitts
CPT John E. Valentine
SGT Ashley Von Pritchard
SPC Bobby C. West
PV2 Jack E. Westerlund
A/C James C. Youngblood

WASHINGTON DC CHAPTER WASHINGTON, DC

Mr. Roland E. Berg
Mr. Joseph R. Carlisle
Mr. Frank M. Kucharski
1LT Anthony S. Lamanna, Jr.
CPT Brian V. Patton
Mr. Gerry K. Sellman
LTC Owen R. Thompson, Ret.
Mr. Dennis Wightman

WINGS OF THE DEVIL CHAP FORT POLK, LA

COL Paul D. Allord, Jr.
WOC John Patrick Plunkett

WINGS OF THE MARNE CHAP GERMANY

2LT Robert S. Allen
2LT Ralph C. Thompson

MEMBERS WITHOUT CHAPTER AFFILIATIONS

SGT Arnel J. Alniendral
Mr. Lee Baxter
Mr. Anthony M. Berta
2LT Donovan S. Brown
Mr. Thomas F. Conboy
CW3 Leonard S. Constantine
CPT Richard W. Cook
WOC Kevin L. Crumpler
Mr. Richard G. Davis
Mr. Charles Dollimore
1LT Stanley W. Dunston
SPC Christopher L. Eargle
LTC Richard L. Easterwood
Mr. Charles Felder
WOC Richard F. Ferguson
Mr. Michael F. Gajewski
Mr. Robert O. Glasier
Ms. Carol T. Greb
CPT Larry B. Hancock
Mr. Victor D. Hillgren
2LT Michael J. Hughes
Mr. Richard W. Jeannot
Mrs. Nadia Korn
Mr. Fred W. Kowols
Mr. John Krause
SPC Michael A. Kuchenbrod
Mr. Craig S. Laurent
Mr. Glenn T. Liska
CPT Michael Lougee
Mr. Larry W. Love
Mr. W. Larry Mahaffey
CW4 Woodrow B. Mashburn
Mr. Ernest Maynard
Mr. David J. McCarthy
Mr. Earl M. McGinty
CPT Lee E. Moritz, Jr.
Mr. Jim Mulrheid
Mr. Kenneth E. Nutter
Mr. Alex Papadakis
WOC Carlos A. Pardo
WOC Thomas W. Parker
1LT Billy C. Perry
Ms. Mary Priss
COL James W. Rainey, Ret.
Mr. Robert L. Rambo
WOC Timothy W. Sexton
WO1 John C. Skarda
CW3 Daniel L. Stewart, Jr.
CW4 Tom Stockton
Mr. Ian Sutherland
Mr. Les Tarl
COL Andre C. Vanhecke, Ret.
WOC Thomas W. Wall
WOC Andrew S. Wheatley
WOC Jeffrey B. Wroblewski
Mr. James G. Young
Mr. John E. Young
Mr. Jerome C. Zajic
Mr. William A. Zemlak
2LT Douglas K. Ziemer
2LT Eric W. Zuschlag

CAREER TRACK

If you'd like to take advantage of the Career Track employment referral service, but you're not yet a member of AAAA, the solution is simple: Just fill out a membership form and send it in along with your request for a Career Track application. Your ad will run in the next available issue.

Active AAAA members may have a 30-word classified employment ad published in two consecutive issues of ARMY AVIATION MAGAZINE free of charge. Write to the AAAA National Office, 49 Richmondville Avenue, Westport, CT 06880-2000, or call (203) 226-8184 for Career Track applications.

Captain, USMA 1982, B.S. — Quantitative Business Management. 6 years active. Detachment Commander, Co. opns officer, and platoon leader. UH-60A. Seeking Industrial or Financial Management position in Atlanta, Georgia area. 1-01

LTC, Aviation battalion commander with extensive training, program management background, currently Avn Off, Army Staff, Pentagon seeks challenging position in aviation industry: program management, marketing, training, military relations. Will relocate. 2-01

SR Aviator, seek position in mktg/bus. development. 10 year combat developer with emphasis on FAAD weapons and C^3I. Recent work with Air to Air-FAAD Integration at ADEA. MANPRINT. Avail 1 Mar 89. 2-02

Captain, USMA 1979, B.S. — Engineering. 10 yrs active. Ground Cav, UH-60 Assault, Avn Safety, USAF A-10 Systems Integration. Seeking Defense/Aviation Industry Management position. Available Spring '90. 2-03

Three-Way Tie For CY88 "TOP GUN" Award

BG James M. Hesson, AAAA Senior Vice President and Vice President of Membership, announced a three-way tie for the CY88 "Top Gun" Award. This award is given annually to the member who sponsors the greatest number of new members during the membership contest year ending December 31.

The co-winners are: **Ms. Susan E. Barnes,** Lindbergh Chapter; **CW2 Dwight A. McDonald,** VP Membership, Thunderhorse Chapter, and **CPT Keith S. Norris,** Army Aviation Center Chapter. Each co-winner enrolled 145 new members. Truly a remarkable effort!

All three winners win an expense-paid trip to the AAAA Annual Convention in Atlanta, GA, including airfare, hotel accommodations, registration, tickets to all the social functions and a $300 cash award. The winners will also receive plaques to be presented at the AAAA Membership Luncheon on April 8, 1989.

Last year's "Top Gun", **1SG Frank Q.**

(Top Gun — continued on page 63)

Army Aviation Center, Thunderhorse and Cedar Rapids Win 1988 AAAA Membership Contest

Two remarkable come-from-behind victories and one close contest marked the CY88 AAAA "Chapter Membership Enrollment Competition".

In the "AAAA Chapter" category, chapters having 42 to 130 members, the **Cedar Rapids Chapter**, Cedar Rapids, IA, edged out the **Leavenworth Chapter**, Fort Leavenworth, KS, by securing a net membership gain of 24 to Leavenworth's 23. Third place went to the **Pikes Peak Chapter**, Fort Carson, CO, with a net gain of 18 members.

The "Senior Chapter" category, 131 to 270 members, saw a last minute rush by the **Thunderhorse Chapter**, Fulda, Germany, overcome a strong sustained five month effort by the **Aloha Chapter**, Honolulu, HI.

The final figures showed a Thunderhorse net gain of 65 members, Aloha 58. The **Chesapeake Bay Chapter** came in third with a healthy net gain of 32 members.

In the battle of the heavyweights, the "Master Chapter" category, those chapters having 271 or more members, **Army Aviation Center Chapter**, Fort Rucker, AL, racked up an astounding net membership gain of 423 in the last thirty days of the contest. An almost equally amazing but yearlong drive by the **Lindbergh Chapter**, St. Louis, MO, resulted in a net gain of 355 members but was not enough to stave off the gain by the Army Aviation Center Chapter. **North Texas Chapter**, Dallas/Fort Worth, TX, claimed third place with a hefty 120 net member gain.

The Presidents of the three winning Chapters will receive plaques at the April 8, 1989 Membership Luncheon at the 1989 Annual Convention in Atlanta. They are **R.P. Marovich**, Cedar Rapids Chapter; **LTC Thomas A. Swindell**, Thunderhorse Chapter and **BG Rodney D. Wolfe**, Army Aviation Center Chapter.

Jules Gonseth Passes Away at 76

Colonel Jules E. Gonseth, Jr., Ret., a former Assistant Commandant of the U.S. Army Aviation School, passed away suddenly on December 20. A Vice President on the AAAA's initial 11-member National Executive Board during 1957-1958, he also was the Commander of Camp Gary, TX, the Army's major primary fixed wing flight training center and for a six-month transition period the only known Army commander of an Air Force installation.

A highly skilled civilian pilot, he talked his way into flying school in 1951 in the grade of LTC, was waived through primary, and "washed forward" to advanced at Ft. Sill which he completed in less than the prescribed time. The Signal Corps officer then returned to the Pentagon where his efforts resulted in the creation of the Signal Corps Army Aviation Center at Ft. Monmouth.

Prior to retirement in 1964, he also served as Commander of Fort Wolters, TX, the only Army Aviator to command separate fixed- and rotary-wing primary flight training installations.

He is survived by his wife, Jane, of 2981 Avenida de Suenos, Sierra Vista, AZ 85635; two daughters; two granddaughters, and a brother.

A scholarship has been established in his memory. Donations are payable to the AAAA Scholarship Foundation, Inc., 49 Richmondville Avenue, Westport, CT 06880-2000.

AAAA Overview

AAAA's National Executive Board (NEB) conducted its winter meeting at Ft. Rucker, AL, December 9, 1988, immediately following the Army Aviation Brigade Commander's Conference.

Among the significant items discussed were:

Proposal for Aerial Gunnery Award. BG R. D. Wolfe reported that plans are underway to sponsor an AAAA Aerial Gunnery Award Competition in December 1989 in Ft. Rucker, AL.

1989 AAAA National Convention Report. Terry M. Coakley, Convention General Chairman, reported that GEN Carl E. Vuono, Chief of Staff, accepted as the guest speaker for the Awards Banquet and that GEN Maxwell R. Thurman, CG TRADOC, will be the Awards Luncheon guest speaker. For the first time, Sergeant Major of the Army Julius W. Gates will present the Aviation Soldier of the Year Award at the Awards Luncheon. Mr. Coakley also reported that he had been able to secure low cost convention housing for enlisted attendees at the Econo Lodge (near Atlanta Airport) and that there will be bus service to the Georgia World Congress Center.

Review of AAAA Fiscal Status. The NEB approved the fiscal recommendations submitted by COL J.J. Stanko to allocate 1) $2,000 to fund the costs of establishing the Army Aviation Museum exhibit booth and transportation costs of moving the AAAA National Trophies to the 1989 Atlanta Convention; 2) $4,000 to the Helicopter Club of America to support the efforts of the 1989 U.S. Precision Helicopter Team; 3) $5,000 to support the AAAA USAREUR Convention; 4) $60,500 to the AAAA Scholarship Foundation to support the Scholarship Program; 5) $5,000 to develop and distribute the AAAA INFO FILE to NEB and Chapter officers; 6) $5,000 to stock an inventory of AAAA T-shirts, caps, patches, etc. for sale to AAAA members; 7) $2,500 to develop new membership recruitment materials and 8) $5,000 to increase publicity of Member and Chapter News in ARMY AVIATION MAGAZINE.

Army Aviation Museum Status. LTG J. J. Tolson, III, reported that completion of the new museum is expected by Fall 1989.

AAAA Liaison Office in Fort Rucker, AL. The NEB approved a $5,000 authorization to cover expenses for a volunteer to submit job requirements and a job description to the NEB for NEB evaluation of the feasibility to implement the liaison office.

Nominations. MG G.W. Putnam, Jr., Chairman of the Nominations Committee reported that the Committee recommended the following slate of National Officers for the April 1989-April 1990 term: BG James M. Hesson, Ret., for President; MG Charles Drenz, Ret., for Senior Vice President; COL John J. Stanko, Jr., Ret., for Secretary-Treasurer; and LTG John J. Tolson, III, Ret., Joseph P. Cribbins, MG Ben L. Harrison, Ret., COL Sylvester C. Berdux, Jr., Ret., COL John A. Lasch, III, CW4 Kurt J. Porter, and Brennon R. Swindell, Vice Presidents.

COL LONG

CW4 BURNETTE

MG MOLINELLI

MR. HILLER

1989 INDUCTEES
CW4 James T. Burnette, Ret.
Shelton, Connecticut
Colonel Ted A. Crozier, Ret.
Clarksville, Tennessee
Colonel John C. Geary
(Deceased)
Stanley Hiller, Jr.
Atherton, California
Colonel Richard L. Long
(Deceased)
Maj. Gen. Robert F. Molinelli
(Deceased)
Lt. Col. Joseph M. Watson
TX-ARNG
(Deceased)
1989 Induction — Atlanta, GA
Thursday, April 6, 1989

COL CROZIER

LTC WATSON

COL GEARY

Aviation Hall of Fame to induct seven

New AAAA Officers

The following members were elected to the Executive Boards of their respective Chapters:

LTC Fred C. Schattauer, (Senior VP), **MAJ John F. Finan, Jr.,** (Sec), **CPT James P. Contreras, Jr.,** (VP Memb Enroll), **Mt. Rainier Chapter.**

2LT Richard K. Wright, (Treas), **CW4 William D. Wade** (VP Memb), **Pikes Peak Chap.**

CW2 Joseph P. Elliot, (Sec), **SPC Michael C. Egly,** (VP Benefits), **Stuttgart Chap.**

COL Edwin H. Henry, (President), **LTC David C. Elliot, Jr.,** (Senior VP), **CPT(P) Robert C. Todd,** (Secretary), **CPT James A. Horine,** (Treasurer), **CW4 Harry R. Ward,** (VP, Membership), **MAJ Robert F. Cini,** (VP, Programming), **Wings of the Devil Chapter.**

Certificate of Appreciation

A Certificate of Appreciation was recently presented to **COL Gerald R. Kunde** by the Washington D.C. Chapter, in recognition of outstanding interest in the affairs of the AAAA, and this chapter.

Aviation Soldiers of the Month

SPC John A. Buis, Aviation Center Chapter (December)

SPC Jon B. Norris, Thunder Horse Chapter (December)

New Industry Members

Aerolift Inc., Pillamook, OR.

AVIBANK Manufacturing, Inc., Burbank, CA.

Cartwright Electronics, Inc., Fullerton, CA.

Munters Cargocaire Defense Division, Amesburg, MA.

Chapter News

ARIZONA CHAPTER DISPLAY — Karen Naylor, a McDonnell Douglas Helicopter Company marketing employee, picks up a membership application from AAAA's Arizona chapter display in the company's main lobby. The display featured an array of photos taken at the chapter's recent meeting in Mesa, AZ, at which General Louis C. Wagner, CG, U.S. Army Materiel Command, was guest speaker. In November the chapter held two events — a membership drive gathering at Falcon Field, Mesa, with refreshments and a showing of two APACHE helicopter videos and a dinner meeting at the Mesa Holiday Inn. Guest speaker at the meeting was Major General Donald Burdick, director of the Army National Guard, Washington, DC, who was accompanied by his aviation officer, Colonel John J. Stanko Jr., (Ret.)

HANAU CHAPTER, APO NY — A general Membership Meeting was held December 16 at the Hanau Officer's Club. Guest speaker, LTC Paul M. Severance, Commander, 8th Battalion, 158th Aviation Regiment, and VP Corporate Membership, Hanau Chapter, delivered a presentation of new developments and initiatives in the aircraft technical inspector programs. SPC Carolyn D. Ford, I Co, 227th AVN, was honored as Chapter AAAA athlete of the year as an All Army Softball Player and Hanau Community Basketball Team member. The general membership endorsed the executive board authorization to spend no more than $200 for refreshments, and approved a $1,000 donation for participation in the AAAA Chapter Matching Fund Scholarship Program. The $2000, two-year, option was selected.

Please send in your chapter minutes and photos for inclusion in these pages

Chapter News

STUTTGART CHAPTER, APO NY — A Chapter Executive Board meeting was held December 6, 1988 at the Nellingen Officer's Senior Enlisted and Civilian's Club. The VP Membership, CPT Larry Gissentanna, reported that the Chapter received 21 new members in the month of November. The Board discussed ideas for a second quarter general membership event. Tours of the local ATC, the 2d Aerial Exploitation Battalion, or Messerschmitt-Boelkow-Blohm were suggested. The fourth quarter 1988 event, a tour of the Deutsches Technische Museum in Munich, was declared a big success. Forty-two Chapter members were bused to and from Munich, and given a guided tour of the museum on November 14. The Board's thanks was expressed to SGT Lawrence B. Thompson, VP Enlisted Programs, for his thorough organization. In a subsequant action, SGT Thompson suggested that the Chapter sponsor an NCO and Soldier of the Year.

AAAA Calendar

A listing of recent past AAAA Chapter Events and upcoming National dates

January. 1989

■■ **Jan. 5.** Lindbergh Chapter. Night of Hockey, The Arena, 5700 Oakland Avenue.

■■ **Jan. 10.** Monmouth Chapter. Professional Luncheon Meeting. Ft. Monmouth Officer's Club. Guest Speaker: COL Theodore T. Sendak.

■■ **Jan. 11.** Stuttgart Chapter. Professional Social Meeting. Nellingen Officer's/Senior Enlisted Club. Guest Speaker: Mr. Ralph E. Pineo III.

■■ **Jan. 19.** North Texas Chapter. General Membership Meeting. Arlington Sheraton Centrepark Hotel, Champions Ballroom. Guest Speaker: Mr. George T. Singley.

■■ **Jan. 25.** Tennessee Valley Chapter. Professional Luncheon Meeting. Holiday Inn, Madison Square Mall. Guest Speaker: BG Robert L. Stewart.

■■ **Jan. 31.** Ft. Bragg Chapter. Professional Business Meeting. Fort Bragg Main Officer's Club, Lafayette Room. Guest Speakers: COL Billy J. Miller, and COL Robert N. Seigle.

February. 1989

■■ **Feb. 3-4.** AAAA National Awards Committee Meetings to select CY88 National Award Winners and CY89 National Scholarship Award Winners.

■■ **Feb. 14-16.** 15th Annual Joseph P. Cribbins Product Support Symposium sponsored by the Lindbergh Chapter. Stouffer Concourse Hotel, St. Louis, MO.

■■ **Feb. 15.** Outstanding Avn Logistics Support Unit of the Year Award Presentation and Industry Award Presentations, Stouffer Concourse Hotel, St. Louis, MO.

March. 1989

■■ **Mar. 11-18.** AAAA Ski Week in Garmisch hosted by the 12th Aviation Brigade.

April. 1989

■■ **Apr. 5-9.** AAAA National Convention, Georgia World Congress Center, Atlanta.

Top Gun Cont.

Oxendine of the Redcatcher Chapter came in second with 64 new members and **LTC Michael S. Byington,** VP Programs, tied for third with **LTC Lawrence R. Retta,** VP Membership, both of the Army Aviation Center Chapter, with 61 members.

Runners up included:

Ms. J. Garmon, Lind.....57
CW3 B. Lusk, Avn Ctr.....50
MAJ J. Kaufmann, Blk Kn.....41
CW2 L. Smith, Avn Ctr.....41
Ms. S. Ervin, N. TX.....40
MSG J. Bae, Mom Calm.....39
Ms. V. Avenevoli, Lind.....28
Ms. P. Caraway, Lind.....28
2LT S. Hurst, Avn Ctr.....24
Ms. K. Losse, Lind.....23
CSM J. Pate, Lind.....23
LTC W. Roberts, Blk Kn.....22
Ms. M. Byrnes, Lind.....21
CPT K. Fechter, Avn Ctr.....21
1LT R. Butler, Tauns.....20

ACES

The following members have recently sponsored a total of five new members. Each "ACE" receives an AAAA "ACES" coffee mug in appreciation of the effort and is eligible to win the AAAA's "**TOP GUN**" Contest.

CPT David A. Anderson
CW4 Alford L.D. Aston
COL Rodney D. Bither
2LT Lynne A. Colantoni
CPT Larry Gissentanna
CW2 Dana E. Johnson
CW4 Paul J. Kopriva
2LT Barry A. Midkiff
WOC Brian A. Orlosky
CPT Mark A. Reisweber
LTC Thomas J. Sabiston, Ret.
MAJ Alexander D. Tarker, Ret.
E5 Lawrence B. Thompson
MAJ Joe Weatherly
SFC Donald G. Winn

The mission is real.

America counts on the National Guard.

In war, certainly. And in peace — to relieve suffering caused by natural disaster; to save lives in rescue operations; to provide merciful assistance when no other agency, public or private, can do the job.

The Guard has come through on all of those missions, compiling an honorable record of service to the nation. But the Guard needs more than "thanks" for a job well done. It needs support and modern equipment.

The Texas National Guard has received the first upgraded CH-47D helicopter ever delivered to a Guard or Army Reserve unit. This upgraded Chinook is more productive, more reliable and less expensive to maintain than the rest of the fleet — an important step forward for the Guard in its missions in peace and war.

BOEING