AAAA
Annual
Convention
Report
Page 17

1990 AAAA Annual Convention Photo Wrap Up

ARMY AVIATION

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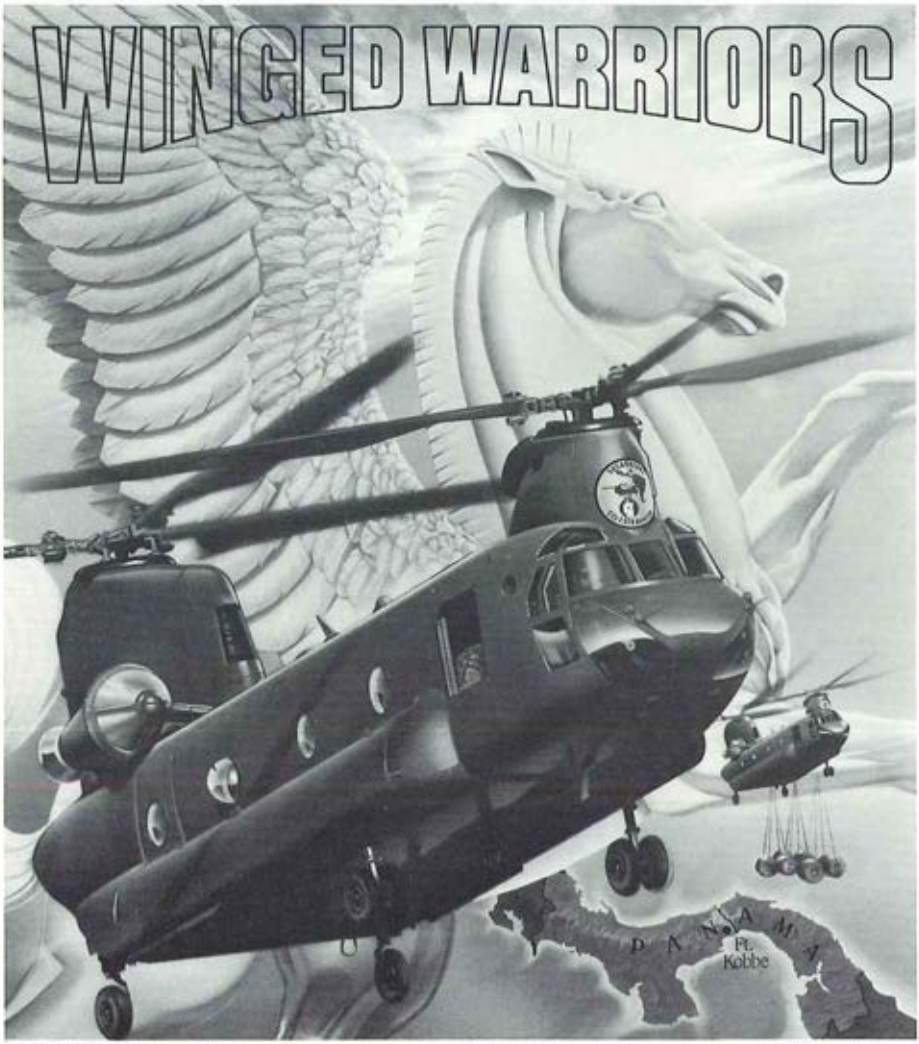

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Priorities for the '90s

Excerpts of the Keynote Address given during the 1990 AAAA Annual Convention in Orlando, FL

By The Honorable Michael P. W. Stone

The threat in Europe is not finished. The changes we are seeing in Europe should not delude us into concluding that the threat is terminated. Modernization continues unabated in the Soviet Union. There may be changes in quantities but the shift to quality is still very much with us.

We have to make sure that we maintain our emphasis on our own modernization; that we maintain the emphasis on our own readiness, and above all, that we maintain the quality we have built into the Army during the last ten years. It is an extraordinary force we have developed. As we are probably going to make the Army considerably smaller, we must make sure that we retain the qualitative advantages we have built into the Army.

There are only four main categories of expenditure:

- personnel accounts;
- procurement or investment accounts;
- operating accounts;
- and the military construction accounts.

Mr. Stone is Secretary of the Army, Washington, D.C.

We are going to reduce the size of the Army, which reduces manpower accounts. Whatever size Army we have, we want to make sure it is ready. We cannot reduce operating accounts significantly except in direct proportion to the manpower reductions and as a result of the major efforts the Army is making to achieve productivity and efficiency savings.

Modernization objectives limit what we can realistically accomplish within the procurement accounts and military construction is already the smallest of the four major expenditure accounts.

So we really don't have very much flexibility. But within what flexibility we do have, it is essential to maintain our modernization program in four specific areas.

(Priorities — continued on page 8)

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GENERAL INSTRUMENT

Priorities
continued from page 6

The first is air defense. The Air Defense Anti-Tank System (ADATS) program is one program that is essential to protect in the budget.

The second is to develop a good man-portable anti-tank weapon. We need a new one, and we have finally got one, we think. We must protect this item in the budget over the next few years.

The third modernization effort is an upgrade of our tank and heavy weapons programs. Although we have a diminished tank threat in Europe today, the Russians have some very capable tanks. They have some very effective new weapons coming along in their design bureaus. We must have in our own technological development and design process a tank that will be able to deal with those new Russian weapons if they are fielded.

The fourth fundamental Army modernization program is the aviation program. We must continue to focus on the need for the light helicopter and the modernization of our helicopter fleet.

The light helicopter provides a fundamental upgrade in the quality of the aviation program, and I am going to fight very hard to see that we get it.

LH Advantages

If I mention operating costs as the first advantage of LH, that might surprise you, but that perhaps reflects my business background. I look at operating costs very carefully because this is an area where the Army must strive to effect savings.

The APACHE is an expensive aircraft to operate, and we expect substantially lower per-hour operating costs with the LH, in whichever of the two configurations wins. This is very important when Army budgets are going to be under such considerable pressure.

Better survivability and increased performance of the avionics in the aircraft is also going to be important. We are going to have a great engine on that aircraft — the T-800 engine — one is already flying.

We have a lot of flight time on the T-800. It has excellent horsepower-to-weight and fuel consumption ratios, and all in all, is going to give us excellent performance on the light helicopter.

The diagnostic equipment will be better, having learned from problems on the APACHE, and if we get better diagnostics, we will get better reliability, better maintenance, lower operating costs, and lessen the burden on our already stressed maintenance people in the field.

LH is a new aircraft. It incorporates all of the lessons that have been learned technologically in the aviation industry during the last ten years. The AH-64, the best attack helicopter in the world, is nevertheless based on 1975 technology.

Furthermore, we have many Army aircraft that were built in the '60s based on 1950s technology. We must have one new aircraft in the fleet, and I am going to fight for it. It would be a defeat to have Congress plus us up on AH-64 and on AHIP as a substitute for the real step forward we are going to get with LH.

During the 1980s the Army fielded some new or dramatically modified aircraft, a strain on any organization. We fielded the APACHE, the BLACK HAWK, and substantially upgraded and modified OH-58Ds and CH-47Ds. So we had four different logistics fielding problems to take care of during that time.

In some of the articles about the AH-64 APACHE, the figure has been quoted of 149 hours of rotor life. The actual figure today is around 900 hours. It is so misleading to have these figures appear in print, and then try to refute them.

The record of our Army aircraft in the field has been excellent. I have a letter from General Tuttle, the Commander of AMC, reporting on the results of the AH-64 during an exercise in Germany this year. It was an excellent record; mission capable readiness up around the 85 percent level, throughout the exercise.

Negative, absolutely distorted reports have appeared in the press about the

(Priorities — continued on page 76)

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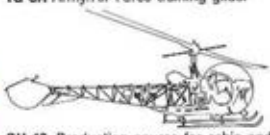
1940's

TG-3A Army/Air Force training glider

1950's

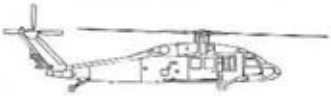


OH-13 Production source for cabin and frame assemblies

1960's

YO 3 A Quiet observation aircraft—operational in Southeast Asia

1970's



UH-60A Production source for gunner windows and other assemblies

1980's

TH-55/TH-300C Product support of Ft. Rucker fleet/Manufacturer of Model 300C product line

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Training Imperatives

By Major General Rudolph Ostovich, III

Army Aviation trains to fight and execute its doctrine in all aspects of both combined arms and joint operations. This is a monumental task which invokes the question, "How can we accomplish this training and maintain our units within the band of excellence our training guides discuss?"

Our training imperatives include air assault operations, antiarmor operations, air-to-air combat, sustainment of aviation operations, suppression of enemy air defenses, aerial reconnaissance, search and rescue operations, target handover, and others. Training imperatives are developed and refined as new missions surface. Tough, realistic training designed around these imperatives is the key to combat preparedness. Training devices that capitalize upon advanced technology to give us the capability for collective training are, therefore, a "must." These devices will allow us to optimize our precious training resources, particularly in terms of flying hours and training ammunition.

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

SIMNET

We are developing simulation devices to supplement institutional and unit training. In 1987, the Aviation Center entered into co-development with the Defense Advanced Research Projects Agency (DARPA) to integrate Army Aviation into the Simulation Networking (SIMNET) technology base and establish a combined arms simulation capability within the Army. SIMNET is a collective training system that can replicate a full spectrum of military force-on-force operations. This networking technology connects many simulators at single or multiple sites so that participants can see

(Imperatives — cont. on p. 14)

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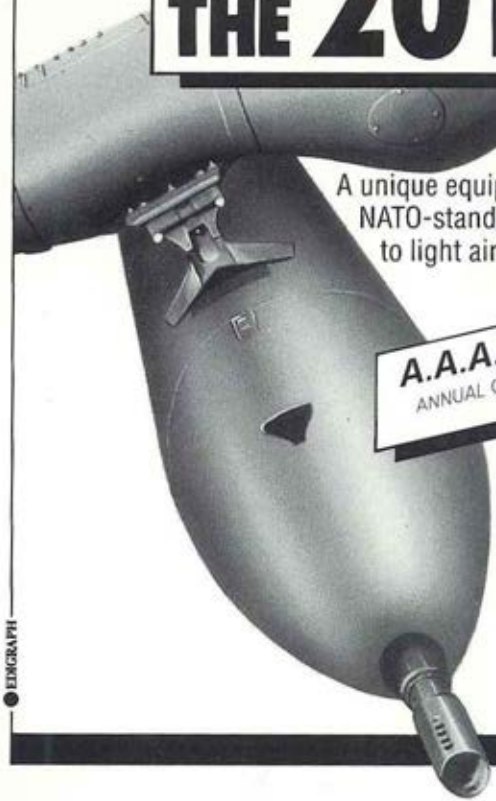

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EDIGRAPH

"Through long haul networking, combined arms operations are exercised from dispersed locations by actual units."

Imperatives
(continued from page 12)

and interact with the other participants in real time.

Today, SIMNET consists of combat vehicles (tank and fighting vehicle) simulators at eight sites in the U.S. and Europe. Through long haul networking, combined arms operations are exercised from dispersed locations by actual units. AIRNET is the aviation slice of the SIMNET pie. Our AIRNET facility at Fort Rucker has eight generic helicopter prototype devices. These man-in-the-loop tactical simulators allow crews to maneuver against a Soviet-styled all arms threat force. Recently, during a SIMNET evaluation, a cavalry troop commander in a Bradley fighting vehicle simulator located at Fort Rucker, AL, controlled and maneuvered his troop which was operating at the SIMNET facility at Fort Knox, KY. The crews were able to see each other and interact with one another as if they were on the same battlefield.

Efficiency

SIMNET uses semiautomated forces to replicate enemy and friendly forces. Whole units—aviation, infantry, or armor—can be directed by an individual using a computer work station. This means that combined arms exercises which normally require large training areas and consume large amounts of training resources, can now be conducted — at least in part — by a few soldiers manning simulation devices in a semiautomated threat and friendly force environment. Using low-cost simulators allows rehearsals in garrison, saving valuable time and expense during the actual field exercise.

The AIRNET site at Fort Rucker is a development facility. We are conducting tests, feasibility studies, and exercises to help us develop collective training and explore new technology for the aviation community. From this developmental effort will emerge the Aviation Combined Arms Tactical Trainer (AVCATT) as our future collective training system.

AVCATT training systems will be grouped in sets that replicate attack helicopter companies and air cavalry troops. They will include command and control echelons for friendly and enemy forces, and can stand alone for aviation training or integrate into combined arms exercises with the simulation systems of other branches. Crew members will also use AVCATT to achieve and maintain combat skills in a task-loaded combat environment.

Fielding

Our plan is to place AVCATT devices at every attack and cavalry unit location; thus, allowing battalions and squadrons to maximize, through simulation, CPX and FTX training. An AVCATT system will consist of scout and attack cockpits; semiautomated forces, both threat and friendly; an after-action review capability; battalion/squadron-level staff stations located in a simulated Tactical Operations Center (TOC); and subsystems necessary to simulate realistic scout and attack combat missions under realistic battlefield conditions.

Capitalizing on the opportunities afforded by this advanced technology will enable aviation units to participate frequently in combined arms training in order to enhance and maintain warfighting skills required to fight and win on the battlefields of today and tomorrow. Staying at the leading edge of training technology will keep Army Aviation a relevant and versatile force for the future. IIIII

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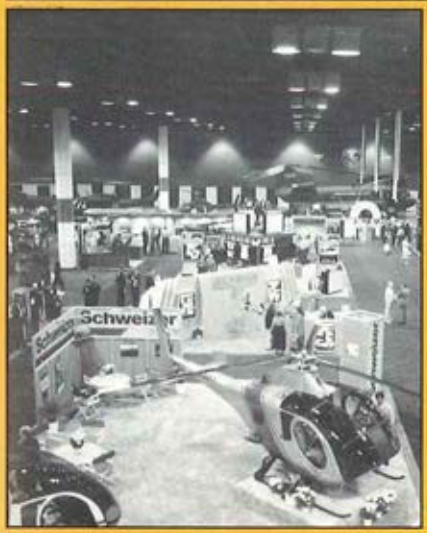
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ARMY AVIATION
ASSOCIATION

1990 AAAA CONVENTION HIGHLIGHTS

AAAA President BG James M. Hesson, Ret., opened the 1990 AAAA Annual Convention, April 11-15, in Orlando FL. (top left). The professional program was chaired by Presentations Chairman MG Rudolph Ostovich, III (top right), Aviation Branch Chief, CG USAAVNC, Ft. Rucker, AL and Commandant USAALS. The professional program opened with the keynote address by the Honorable Michael P.W. Stone, (top center), Secretary of the Army. Among the Thursday speakers were: MG Donald R. Williamson (above left), CG, U.S. AVSCOM; BG Robert S. Frix (above center), Assistant Commandant, USAAVNC; BG Clyde A. Hennies (right), Director of Army Safety and CSM Roy McCormes (far right), Aviation Branch CSM.

1990 AAAA CONVENTION HIGHLIGHTS

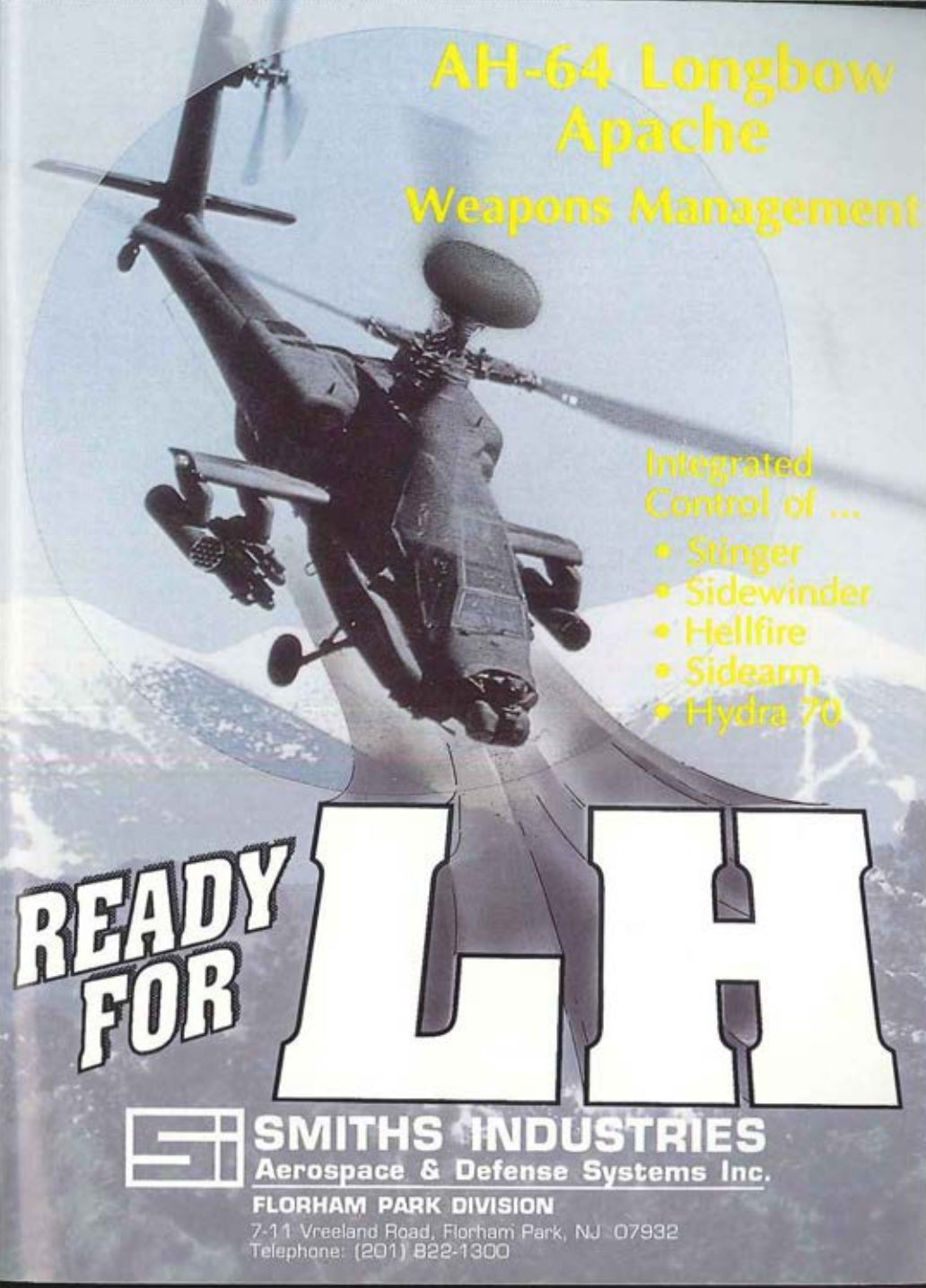
A number of special professional sessions were held including the NCO Professional Session (left), chaired by CSM Roy McCormes, Branch CSM, the AWO Professional Session by CW4 Harry W. Sweezey, Special Assistant, USAAVNC, and a Special Operations Aviation (SOA) Update chaired by COL (P) John N. Dailey (below).

Friday's main professional sessions featured presentations on "Coalition Warfare in Europe" by COL Jack E. Easton, Commander, 12th Aviation Brigade, APO New York; "Coalition Warfare in the Pacific" by COL John M. Riggs, Commander, 17th Aviation Brigade, APO San Francisco; "A Joint Perspective of a Changing World" by MG John D. Robinson, Director, Force Structure, Resources, and Assessment, Joint Staff. A first for AAAA this year was the inclusion of presentations by a number of international directors of Army Aviation. Pictured below are Friday's speakers with MG Rudolph Ostovich, III, Presentations Chairman. From left to right, front row are: COL Easton; MG Gianpaolo Gianetti, Director Army Aviation, Italy; MG Ostovich; MG Robin D. Grist, OBE, Director Army Air Corps, UK; MG Robinson. Left to right back row are: LTC Hans Schwarzmann, Director, German Army Liaison Staff, USAAVNC; BG Bertrand de LaCroix de Vaubois, CG French Army Aviation; COL Riggs; and BG Kim, Chul Woong, Chief of Army Aviation, Republic of Korea.

1990 AAAA CONVENTION HIGHLIGHTS

Saturday morning kicked off with the First light Breakfast. Guest Speaker was MG William H. Forster (left), Director of Requirements, Integration, Deep Operations, ODCSOPS. COL Douglas R. Terrell jumpstarted the day's professional sessions with an outstanding presentation on "JUST CAUSE" (below).

Gary L. Smith (right), PEO, Aviation, introduced Saturday's aircraft Program Manager's Presentations. Another first for AAAA this year was Saturday's Industry Seminar which saw presentations by the CEOs of four U.S. helicopter manufacturers. Pictured below, left to right are: AAAA President BG James M. Hesson, Ret.; Eugene Buckley, President, Sikorsky Aircraft Division, UTC; Edward J. Renouard, Executive Vice President for Helicopters, Boeing Defense and Space Group; William P. Brown, President, McDonnell Douglas Helicopter Company; Leonard M. Horner, President, Bell Helicopter Textron, Inc.; and MG Rudolph Ostovich, III, Presentations Chairman.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1990 AAAA CONVENTION HIGHLIGHTS

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1990 AAAA CONVENTION HIGHLIGHTS

The 1990 Membership Luncheon gets underway as BG James M. Hesson (above left), AAAA President, begins the program and introduces LTG John J. Tolson, III, Ret., (left), Chairman, U.S. Army Aviation Museum Foundation, who provided a status report on the museum. Below left, COL Rudolph D. Descoteau, Ret., President, AAAA Scholarship Foundation, delivers his update on the Scholarship Foundation. Next, Terrence M. Coakley (below center), Executive Director, AAAA, conducts the group presentation of the 30-Year Membership Lapel Insignia. Edith (Toddy) Todd (below right), pins the 30-Year Insignia on COL Leslie H. Weinstein, Ret., VP National Affairs for the Central Florida Chapter.

1990 AAAA CONVENTION HIGHLIGHTS

The award for Largest Net Membership Gain-AAAA Chapter Category was accepted by CPT Bryan S. Eckstein (above left), for the Wings of the Devil Chapter, Fort Polk, LA, from MG Charles F. Drenz, Ret., AAAA Senior VP and Chairman of the Membership Committee. VP Membership for the Greater Atlanta Chapter, LTC William A. McElwee (above center), accepts his chapter's plaque as the winner in the Senior Chapter Category. Above right, MG Drenz poses with BG Robert S. Frix, President, Army Aviation Center Chapter, the Master Chapter Category winner. Top Gun for 1989 was MSG John H. Bae (right), of Morning Calm Chapter who personally sponsored 337 new members last year.

Left, North Texas Chapter wins the Top Chapter Award. BG James M. Hesson, AAAA President (center right), presents the AAAA banner to LeRoy L. Worm (center left), immediate Past President of the North Texas Chapter as Ray Swindell (left), chapter member and AAAA National Executive Board Vice President and LTC Richard I. Gillingham, Ret. (right), current North Texas Chapter President, look on.

1990 AAAA CONVENTION HIGHLIGHTS

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B-N

Defender

The 1990 AAAA Awards Luncheon on Friday saw the presentation of the 1989 AAAA Individual Awards (above left), and an address by GEN John W. Foss (above), CG, TRADOC. At the left, BG Clyde A. Hennies, (left), Director, U.S. Army Safety, and Commander, U.S. Army Safety Center, presents the James H. McClellan Aviation Safety Award to CW2 William K. Manuel, (right). Below left, DAC of the Year John K. Shannon (right), poses with Joseph P. Cribbins (left), Chief, Aviation Logistics Office, ODCSLOG. Below, the Soldier of the Year Award was presented this year by CSM Roy McCormes (left), CSM, Aviation Branch, USAAVNC and Fort Rucker, AL. to SSG Eric J. Harris (right).

Above, the 1989 Army Aviator of the Year, CW3 Jon A. Iseminger (right), receives his award from GEN John W. Foss (left), CG, TRADOC. In his stirring acceptance remarks, CW3 Iseminger brings the audience to its feet for a standing ovation (above right).

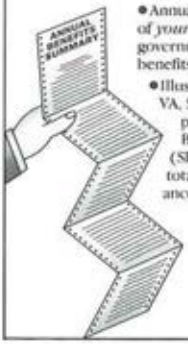
At right, BG Hesson, AAAA President, addresses the Chapter Presidents and Secretaries during their informal session to get feedback from the field on national programs and policies and share with them the views of the AAAA leadership.

The AAAA President's Reception Friday evening (lower right and below), is always one of the best-attended events. Mixing, mingling, and fantastic hors d'oeuvres are a hard combination to beat.

Right, two of the spouse models, Dianne Burrow (l) and Pat Snow (r) pose after the Monarch Crown-Clairol Makeover Presentation and Spouse Breakfast. Below right, Secretary of the Army Michael P. W. Stone presents an award to the Helicopter Club of America for support of the World Champion 1989 U.S. Precision Helicopter Team. MG George W. Putnam, Jr. Ret. (l), HCA President accepts as COL Robert E. Harry (r), Commander, USPHT looks on. Below, MG Robert F. Ensslin (l), AG, FLARNG and Convention Military Affairs Chairman, poses with GEN Crosbie E. Saint (center r), CINC USAREUR & 7th Army, President Hesson (center l), COL John Stanko (r), AAAA Secretary-Treasurer and Mrs. Stanko (center).

Here Are Just a *Few* of Our Services

1. Individually tailored summary of benefits



- Annual summary of *your* family's government benefits package
- Illustration of VA, SS retired pay, Survivor Benefit Plan (SBP) and your total life insurance portfolio

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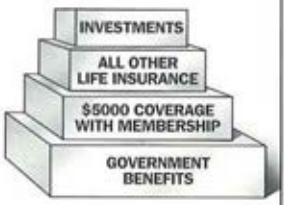

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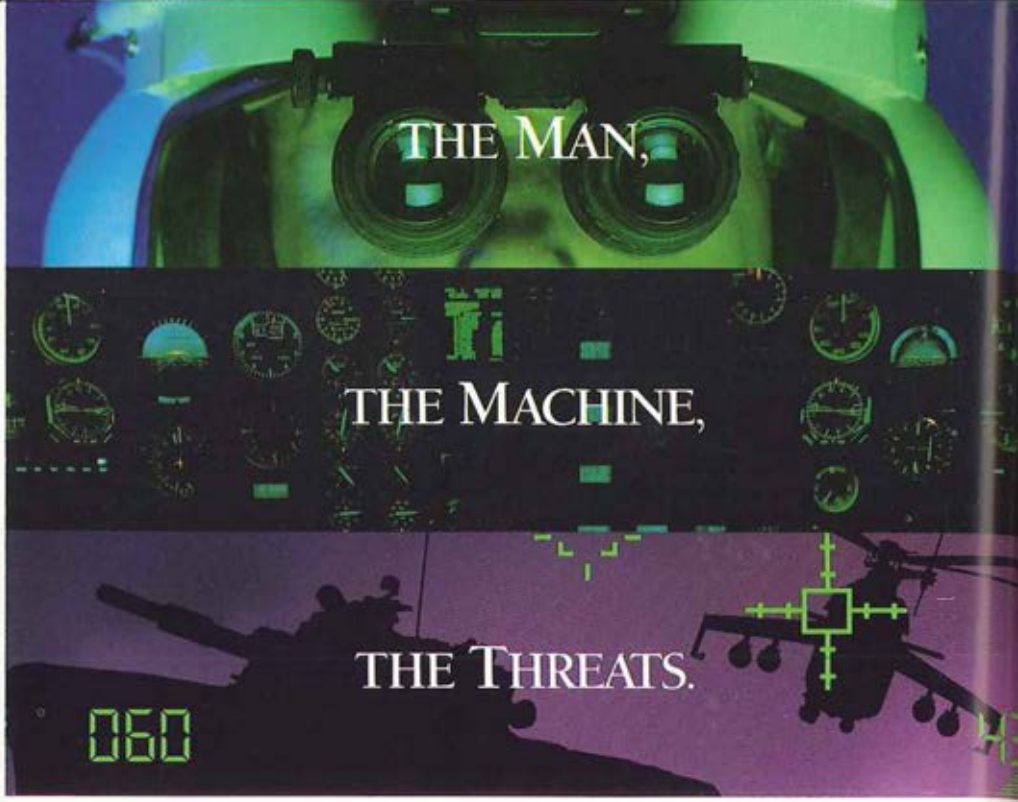

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Top: The 1990 AAAA Awards Banquet Reception gets underway in the Peabody Hotel Ballroom Foyer. Above left, BG James M. Hesson, Ret., AAAA President and Mrs. Hesson are introduced. Above center, GEN Carl E. Vuono, Chief of Staff, U.S. Army and Mrs. Vuono are introduced. Above right, the Adjutant General's Color Guard, Florida Army National Guard, presents the colors at the start of this year's Awards Banquet. Right: Following the invocation by Chaplain (LTC) Frank Hyde, Group Chaplain, 419th Aviation Group, Florida Army National Guard, head table guests (left to right) CSM Claud W. Sisco and COL Douglas R. Terrell of the 7th Infantry Division (Light), GEN Vuono, and President Hesson, enjoy dinner before the program commences.

Counterclockwise: 1) President Hesson presents the President's Award to E Co, 160th SOAG (Abn), (l to r), MAJ John H. Moorman; CW4 Russell A. Hunter and 1SG Daryl E. Schaal 2) GEN Crosbie E. Saint, CINC USAREUR and 7th Army, COMCENTAG (r), presents the Robert M. Leich Award to members of the U.S. Precision Helicopter Team (l to r), COL Robert E. Harry, CW3 Jon A. Iseminger, CW3 Rudolph V. Hobbs, and SSG John L. Degand. 3) CSM Richard T. Koralik (r) and COL Charles V. Nolan (c) of HQ, 244th Theater Aviation Group accept the USAR Unit of the Year Award from MG William F. Ward, Chief Army Reserve (l). 4) MG Donald Burdick, Director, ARNG, NGB, reads the citation for the ARNG Unit of the Year, 1st Bn, 131st Avn. Rgt., 167th Support Cmd. (Corps) as LTC Don E. Stagg (l), and CSM Harold M. Johnston (r) listen. 5) Aviation Brigade, 7th ID (Light) was the Army Aviation Unit of the Year. COL Douglas R. Terrell (r), and CSM Claud W. Sisco (c) pose with GEN Vuono.

Above left: GEN Carl E. Vuono, Chief of Staff, U.S. Army, delivers a compelling Banquet Address. At the conclusion of this year's Awards Banquet, GEN Vuono is given a memento of the occasion, a AAAA Orlando '90 T-shirt, by BG James M. Hesson, Ret., AAAA President, above right. After the Banquet, it was time to socialize at the Saturday night Chapter Receptions. The Mid Atlantic Reception, right and below, which combined the efforts of the Chesapeake Bay, Colonial Virginia and Washington D.C. Chapters, featured a 1950s Rock and Roll theme and a crowd-pleasing lip-sync contest. Sunday morning saw the 1990 AAAA Convention draw to a close with the Champagne Get-Away Breakfast, below right. Don't forget, next year it's back to St. Louis for the 1991 AAAA Annual Convention, 10-14 April. See you in St. Louis!!!

AEL Defense Corp. exhibited ATAS, EW Systems, night vision and other Aero capabilities. Equipment displayed included: the Air-to-Air Stinger missile system, the ASN-128, Radar warning receiver systems, and antennas. 305 Richardson Road, Lansdale, PA 19446, 215-822-2929

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The Army and Air Force Mutual Aid Association was honored to have an exhibit at the AAAA Annual Convention. Most Army Aviators know this 111 year old non-profit association but we must all continue to spread the word about this unique organization dedicated to officers and their families. (1-800-336-4538).

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Designed for the UH-1 H/N helicopters, the external tanks have received an Airworthiness Release by AVSCOM.

The Boeing Sikorsky Light Helicopter First Team thrilled the convention's opening night crowd by unveiling a full scale mockup of its LH design. The mockup featured a full cockpit and armaments bay complete with Hellfire and Stinger missiles, as well as the LH's turreted 20mm Gatling gun.

Evans & Sutherland Computer Corporation designs, builds and installs computer generation visual systems used for simulation flight training. These visual systems are capable of providing sensor simulation such as NVG, FLIR, radar and LLTV.

Harris Government Aerospace Systems Divsion exhibited digital map products as part of the Boeing/Sikorsky LH "First Team" display. DMG benefits LH with enhanced "situational awareness" and safety of flight along with traditional integrated navigation. The full scale LH then moved to Harris, Melbourne, FL as part of its overall "TQM" effort to build team effectiveness as it supplies digital map, HSDB, and cockpit displays.

EXHIBIT HIGHLIGHTS

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Sabreliner Corp. supports Army Aviation readiness, with engine overhaul and repair, and airframe maintenance and modification capabilities. It has an outstanding record of quality performance and on-schedule delivery. Sabreliner is a diversified aerospace service, modification and manufacturing firm that supports a variety of military, government and commercial aircraft, engines, systems and components.

Howell Instruments Inc. exhibited the **Jetcal Analyzer/Trimmer** for verifying engine condition & trouble-shooting unscheduled maintenance problems without removing aircraft engines, **Portable Engine Analyzer Test Set (PEATS)** providing engine performance analysis data comparable to a test cell and the new **H2900 Indicator/Monitor** an accurate cockpit indicator/engine usage monitor combined into one multifunctional unit.

Schweizer Aircraft displayed a prototype of its TH-330 training helicopter which was designed specifically to meet the requirements of the NTH program at Ft. Rucker. Also on display was a full-sized cabin mock up of the TH-330 with its unique three-seat design with three sets of controls.

The **AN/AIC-34(V) Intercommunications System** is part of the **Hughes** family of Secure Audio Distribution Systems that features high reliability, TEMPEST compatibility and operational flexibility. All **Hughes** airborne systems utilize a star architecture, which results in the elimination of ICS junction boxes, resulting in a significant weight reduction and enhanced TEMPEST performance.

Short Brothers has a long, illustrious history in aerospace. Founded in 1901, Shorts received the first production contract for the Wright Flyer. Through the years, Shorts has developed many famous aircraft and missiles. Shorts' Starstreak is a next generation missile system, and an ideal match for Apache. It's lightweight, high velocity and extremely accurate! As an NDI missile it offers the U.S. Army a very cost-effective solution for a near improvement in air-to-air combat.

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Rockwell's Collins Government Avionics demonstrated its integrated comm, nav avionics suite, including the Automatic Target Handover System (ATHS) and the Weapons Management System. ATHS is installed on Apache and OH-58D. The Weapons Management System was developed for the JOH-58C, MK-520 and is operational on the Bell 406 Combat Scout.

AVSCOM Management Plan For Fielded Aviation Systems

By Colonel Theodore Orvold

About the time everyone started to understand the organizational structure under the Program Executive Officer (PEO) concept, the structure changed. The current concept at the U.S. Army Aviation Systems Command (AVSCOM) in St. Louis, MO, consists of the PEO Aviation and direct reporting Program Manager for Light Helicopter Program (LH). The current structure also resulted in some PMs, previously reporting to the Aviation PEO, being assigned to AVSCOM.

The AVSCOM Commanding General, then MG Richard Stephenson, created the Fielded Aviation Systems Management Office as an interim measure to consolidate the management of the reassigned PMs and the Weapon System Management offices already assigned to AVSCOM. The ultimate organizational goal at that time was to establish a Project Manager to oversee this new organization. Through subsequent organizational iterations and guidance provided by the current AVSCOM Commander, MG Donald Williamson, I will head the new Directorate for Systems Management.

COL Orvold is the Director for Fielded Aviation Systems, AVSCOM, St. Louis, MO.

Mission Goals

Our goal is simple. We are organized to provide intensive management to fielded aviation systems until such time as they are retired or transferred from Army control.

To further refine our specific objectives, we are organized to accomplish the following:

- Execute aircraft retirement program;
- Implement Army Aviation Modernization Program;
- Support and sustain fielded aviation fleet of aircraft;
- Initiate and manage service life extension programs;
- Procure Non-Development Item

aircraft and related aviation systems;

- Promulgate mission equipment, avionics, and aircraft survivability;
- Provide officer development for future Aviation Project Managers.

Emphasis on Product Support to the Field

The individual Project Managers and Weapon System Managers have one overriding responsibility on a day-to-day basis: to provide responsive product support to the systems they manage to the customer in the field. Along with this support, they are also chartered to sustain, upgrade, overhaul, and manage all aspects of the program delegated to them under their product charter. The following summarizes individual product managers with some of their current major undertakings:

UH-1—the UH-1 PM is responsible for managing over 3200 UH-1 Series aircraft. Major decision we are looking forward to is final determination on the disposition of 1073 aircraft that may possibly be upgraded as prescribed in the Army Aviation Modernization Program.

LOH—the LOH PM manages over 2100 aircraft of two types (OH-58C and OH-6). Significant improvements for the OH-58 include the procurement and installation of the T63-A720 gas turbine engine. Some of the OH-58C aircraft will be integrated with the Air-To-Air Stinger (ATAS). The OH-6 is being prepared for retirement.

SEMA/Fixed Wing PMO has been realigned into three Product Manager Offices:

- The PM for SEMA/Surveillance will manage the OV-1, RV-1, and GRISLY HUNTER Programs.
- The PM for GUARDRAIL will focus on acquisition of the new RC-12K fleet and improvements to the RU-21 fleet.
- The third Product Manager to come out of the realignment of the SEMA/Fixed Wing PMO will be the PM for Fixed Wing, who will manage the Army's fleet of Cargo/Utility, jet, turbo- and piston-driven fixed wing aircraft.

WSM for Aviation Ground Support Equipment reports to this organization and will continue to support fielded and developing systems with sets, kits, outfits, ground mobility equipment, power units, shops, and NDI procurements of state-of-the-art support equipment.

WSM for Synthetic Flight Training Systems manages the fielded flight simulators through contractor logistics support arrangements. They will continue to work very closely with the training schools, PMs, and User community to insure the very best performance and availability of flight simulators worldwide.

As you can see, we have a few challenges in front of us with better than two thirds of the aircraft currently assigned to Army units worldwide. The Directorate of Systems Management will manage over 6300 fielded aircraft systems, continue to procure NDI aircraft, along with their supported ground and flight simulator trainers. We think this is a smart move on the part of our decision makers and we look forward to providing the very finest product support to our customers in the field. IIIII

Fixed Wing—Utility Update

By Captain (P) David L. McIntire

The necessity for a viable Fixed Wing Aircraft fleet to move priority personnel and cargo is often overlooked by many people in the Army rotary wing community. Although the Fixed Wing fleet remains small and relatively stable in size (just under 400 aircraft), the definite need for fast and economical transportation is seen on a daily basis. The management of the Army's Fixed Wing fleet is done at AVSCOM by the Product Manager for Fixed Wing Aircraft with the responsibility for procurement, engineering, daily management, and aircraft retirement for the over 27 different types of aircraft.

The Utility Fixed Wing office has undergone some change over the last few years mainly because of reorganizations within the AVSCOM community. When the Program Executive Offices (PEO) were organized approximately two years ago, the Fixed Wing Weapon System Management Office (WSM) was placed under the Special Electronic Mission Aircraft (SEMA) PM as the FW Division. That PEO structure lasted about a year, then we moved with the rest of the SEMA/FW under AVSCOM, reporting to COL Ted Orvold. During this past reorganization the SEMA/FW PM also internally reorganized into three distinct Product Manager positions. The Product Manager for Fixed Wing was officially sanctioned in early 1989, which brings us to our current position.

CPT (P) McIntire was acting Fixed Wing PM, AVSCOM, St. Louis, MO when this article was written.

Although we have seen several reorganizations and geographical moves in the last three years, we've remained basically the same size and have existed to serve you, the user, at all times.

The Army Fixed Wing business has been exciting during the past couple of years with the addition of two Gulfstream G-III jets, ten Shorts C-23 Super Sherpas, two

Fokker F-27s for the Golden Knights, ten C-12 type airplanes, and our most recent acquisition, two Cessna 182 Skylanes for West Point. When people deeply involved with helicopters see the above list of aircraft, it may appear that we buy a little of this and a little of that, which is true—the money to buy several airplanes at one time has all but dried up with the current budget reductions. As I said initially, the Fixed Wing fleet is small yet relatively stable; it is very likely that, as money is further reduced in upcoming budgets, we will see just a trickle of new acquisitions to our C-12 or jet fleet.

Aircraft Upgrades

The average age of the fixed wing fleet is approximately 24 years old and over 80% of the fleet is made by Beech Aircraft of Wichita. Since the age of our fleet is rapidly rising, we are very committed to keeping the existing aircraft flying as long as physically possible. The U-21 fleet had a major avionics upgrade with the installation of the NDI King package, an off-the-shelf, commercial-type avionics system that finished about three years ago. The King package has done a lot to help maintain a high availability rate as well as clean up an antiquated cockpit that helps to relieve pilot work loads. A similar type King package has also been installed by the National Guard and Army Reserve in U-8F Queen Airs. As the C-12s get older, a similar type of program will be considered, but for the present, their radios are still supportable and the OR rate remains high. Although many people think of the C-12 as a new aircraft, it has been in service for 14 plus years and will need an avionics update in the near future.

Another way we are preparing to support the U-21 and C-12 fleet into the 21st Century is by performing a depot type inspection program at the Selma, AL facility of our Contractor Logistics Support (CLS) contractor, Beech Aerospace Services, Inc. (BASI). This airframe condition inspection, which in some ways is similar to the Aircraft Condition Evaluation (ACE) inspection done by Corpus Christi Army Depot, will take the "worst first" of the U-21 aircraft fleet and selected C-12 aircraft as they approach or surpass the original 10,000 hour service life. Although we have no structural integrity problems with either the C-12 or the U-21, as the age of the fleet increases, a comprehensive inspection program is essential in order to insure airframe integrity and safety as we extend their useful life. The helicopter fleet has had a depot overhaul program as determined by the ACE inspection for several years, but a fixed wing depot overhaul program has been nonexistent.

COR Class

The Fixed Wing office in conjunction with AVSCOM Production & Procurement holds a Contracting Officers Representative (COR) class for the FW CLS contract approximately every 18-24 months. This class is held in the Jackson, MS area where full participation of BASI is solicited as well as COR Representatives from all the C-12 and U-21 bed downs.

This is a time for the contractor, AVSCOM engineers, contracting officers, the PM, and the user to roll up our sleeves and get into the managing of the CLS contract. We have held several over the years and the classes have proven invaluable in helping the CORs, BASI, and AVSCOM promote a better understanding of the CLS contract.

During the recent SEMA/FW Users Conference and also the Worldwide Aviation Logistics Conference (WALC), it became apparent that many commands need more fixed wing aircraft. The WALC found that the various MACOMS must revalidate their actual requirements to get them into the Aviation Modernization Plan. Until the need is recognized, it's highly unlikely we will see many new turboprop or jet aircraft added to our fleet.

If any of you in the Fixed or Rotary Wing community are out in the St. Louis area, please feel free to stop by and visit our office. Our door is always open to customers, who we try to serve faithfully by looking at your needs and the Army's to assure you get the support and readiness necessary. IIIII

UH-1 Aircraft Update

By Lieutenant Colonel Vaden Francisco

The UH-1 PM has life-cycle management responsibility for over 3,000 UH-1H/V/M helicopters and approximately 6,700 T53 series turbine engines. In addition to the UH-1's historical mission of Command and Control, resupply, troop transport, MEDEVAC, and primary instrument trainer, the UH-1 is used as the Army's Initial Entry Rotor Wing Trainer (IERW) at the U.S. Army Aviation Center located at Fort Rucker, AL.

Retirement Program

The first UH-1 helicopter was retired to the Army Maintenance and Regeneration Center (AMARC) in a dedication ceremony 13 September 1988. During FY89, 300 UH-1H/M helicopters were retired from the Army's inventory. The disposition of the helicopters follows: 61 to AMARC, 87 PDO/Salvage, 46 drones at MICOM, 38 Foreign Military Sales, 68 DoD/other government agencies. AVSCOM did not fully meet the goals stated in Program Budget Decisions 725c/731 to retire 450 UH-1s by the end of FY89. Reasons for the schedule slippage included the delay of aircraft transfers from Europe to replace ARNG helicopters that were to be retired, and retention of UH-1M models pending DA guidance on AH-64/AH-1 fieldings. Accelerated retirements in FY90 are expected to correct the slippage and meet goals.

LTC Francisco is the Product Manager, UH-1 aircraft, AVSCOM, St. Louis, MO

Material Change Fieldings

The first production Composite Main Rotor Blades (CMRB) for the UH-1 were delivered from Bell Helicopter and Boeing Helicopter this year. The first unit equipped with Bell blades was an ARNG unit in Austin, TX.

The first Improved Particle Separator (IPS) kits were fielded at Fort Lewis, WA.

(UH-1 — continued on page 44)

Now the Army turns to Sabreliner

Sabreliner – a name synonymous with years of positive program achievements and contract performance for the Air Force, Navy and Marine Corp. – is now also on the Army's team.

The Sabreliner Corp. team will rebuild up to 400 T53 engines at Perryville, Missouri and Hondo, Texas for the world renowned UH-1 "Huey" helicopter. Sabreliner won both halves of a split-procurement contract for small business and large business – a rare achievement. It competed against four small businesses and six major defense contractors worldwide in the open competition.

Once again, Sabreliner Corp. has proven to be a better choice for military aviation maintenance and modification services.

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UH-1
(continued from page 42)

Approximately 600 kits have been fielded during FY89.

The first commercially overhauled T53-L-13BR engines were delivered from a contract with Textron Lycoming this year.

Additional Programs

- ***Low-G Warning Device***—The requirement to install a warning device on UH-1 helicopters was cancelled by the VCSA. A warning device installed on the UH-1 was determined to be only marginally effective in alerting the pilots to the dangers of flight maneuvers which could result in mast bumping.
- ***Improved Oil Filtration Program***—The contract to finish development of the Oil Debris and Detection System (ODDS) was awarded in FY89.
- ***Service Life Extension Program (SLEP)***—The PM and the Directorate for Combat Development (DCD), Army Aviation Center signed a Memorandum of Agreement (MOA) to develop a SLEP which would meet user requirements and fill the shortfall in the "LIFT" fleet as stated in the Army Aviation Modernization Plan.
- ***Safety of Flights (SOF)***—Several SOF messages were issued in FY89 to prevent the use of sub-standard parts. Problems included tail rotor (T/R) nuts, T/R bevel nuts, T/R yokes, main rotor hub spring bolts, cold weather hub spring bumpers, and universal control levers.
- ***Synthetic Flight Trainer System (SFTS)***—The management of the UH-1 SFTS computer upgrade was transferred from the SFTS Weapon System Manager to the UH-1 PM. Twenty-two SFTS devices will receive new computer systems that operate using ADA. The existing computers are marginally supportable and at operating capacity. PM Training Devices (TRADE) is managing the software and hardware development and will function as the procuring activity.

Army Aircraft Retirement Program (AARP) Update

By Ronald S. Pelley

The Army Aircraft Retirement Program began with the approval of the 1988 update to the Army Aviation Modernization Plan (AAMP). The AAMP calls for the introduction of new, modernized aircraft systems to replace older aircraft less capable of meeting the threat of the modern battlefield. Two key points of the modernization plan are a strategy of management to a target average fleet age life and accomplishment of the modernization through a level funding concept. Basically, old aircraft systems must be retired in order to make room for and afford new systems. Specific downsizing guidance has been given through Procurement Budget Directives (PBDs) 731 and 725. Aircraft scheduled for transition out of the Army inventory include the following:

- Utility Aircraft—UH-1;
- Observation/Scout—OH-58/OH-6;
- Attack Aircraft—AH-1;
- Heavy Lift Aircraft—CH-54.

Mr. Pelley is a Logistics Management Specialist, Log/Tech Division, AVSCOM, St. Louis, MO.

The U.S. Army Aviation Systems Command (AVSCOM) is charged with implementing the Army Aircraft Retirement Program. The AVSCOM goal is to retire aircraft utilizing the least amount of Army resources while retrieving as much of the residual value of the aircraft as possible for the U.S. Government. Since AVSCOM will be managing the new aircraft systems coming into the Army inventory, our objective is to eliminate the support burden of the retiring systems so that resources can be redirected to management of new aircraft systems. This is to be done without hindering readiness and the long term warfighting capabilities of the Army.

The traditional means of dealing with retired military equipment includes salvage/reclamation of useful components for spares, foreign military sales, transfer to other government agencies, or public sale

(AARP — continued on page 73)

Confiscated/Excess Aircraft Update

By Major Paul Keil

In these times of austere budgets, prioritizing limited funds for future Army Aviation procurements presents the leadership with some difficult decisions. The first priority is, and must remain, tactical rotary wing aircraft and associated weapon/sensor systems to sustain a modern combat capability and support Army Aviation's primary battlefield mission. When significant budget cuts are dictated by our national leadership, it is only logical to start cutting our Army Aviation shopping list at the lower priorities first. As a result, programs like ground support equipment, Aviation Life Support Equipment (ALSE), and non-tactical utility fixed wing start tightening their belts first.

Out of this environment an effort was born to obtain utility fixed wing aircraft without committing substantial funds. A dialogue has been established with the various federal agencies involved with the interception of illegal drugs before they reach the streets of America. When arrests and seizures are made, in some cases a reasonably good fixed wing aircraft may become available through the court system. After evaluation of the aircraft's capabilities and condition by AVSCOM, a DA decision is made whether or not to bring it into the inventory as an Army asset. The seized aircraft program has been in operation now at AVSCOM for some years and to date has brought 23 utility fixed wing aircraft into the Army inventory.

MAJ Keil is Weapon System Manager for Confiscated/Excess Aircraft, AVSCOM, St. Louis, MO.

Now before everyone runs to the phone, let's address a few of the facts. In the past, the agency making the seizure determined if they wanted to keep the aircraft and, if not, turned it over to General Services Administration (GSA) for disposal. This is no longer the case. Two primary agencies now dispose of seized aircraft: the United States

(Confiscated — continued on page 74)

Light Observation Helicopter (LOH) Update

By Lieutenant Colonel Edwin Goosen

Today, there are over 2,000 aircraft, OH-58A (1,116), OH-58C (566), and OH-6A (341), operating worldwide performing reconnaissance, security, aerial observation, target acquisition, and Command and Control (C^2) missions. These aircraft are managed by the Light Observation Helicopter (LOH) Product Management Office, whose charter is to provide life cycle materiel management functions associated with acquisition, modernization, logistics support, and retirement.

The Army Aviation Modernization Plan (AAMP) provides direction to:

- Reduce the size of the LOH fleet;
- Make only those improvements which enhance safety, improve readiness, and sustain the aircraft's ability to provide operational service until the year 2020.

LTC Goosen is PM, Light Observation Helicopters (LOH), AVSCOM, St. Louis, MO.

Accordingly, all 341 OH-6A aircraft will be retired from the Army inventory by the end of 1994, and the OH-58A fleet will be reduced from 1116 to 879 aircraft by 1997. The overall intent is to remove these older, less efficient and less capable aircraft from selected units and replace them with OH-58D and future LH aircraft in the scout role.

Although almost 600 light observation helicopters will be reduced (retired) from service over the next few years, over 1400 OH-58As and OH-58Cs would be retained in service and operated for another thirty years. Therefore, to sustain their capability in accordance with the AAMP, several improvement programs are in progress. A brief summary of the significant ones are provided below:

- The Engine Upgrade program will convert all OH-58As to the T63-A-720 engine. This will increase power from 320 shp to 417 shp and provide adequate power and safety margins for combat flight operations in high altitude, high

(LOH — continued on page 75)

Electronic Intelligence/ Surveillance Update

By Lt. Colonel William Weaver

To keep pace with evolving acquisition policies, the Office of the Product Manager for Electronic Intelligence (ELINT) and Surveillance (SURV) was organized around a core staff of business, engineering, and logistical expertise. The business section directly tracks operational funding expenditures, establishes detailed budget projections, and monitors execution of procurement actions. Daily coordination, internally with AVSCOM and externally with HQDA, ensures optimum pace for all programs. Three aeronautical engineers represent a combined total of 86 years of aviation expertise. Mr. George Holubasch has worked on the MOHAWK surveillance aircraft since 1966! The logistical team manages the myriad daily issues associated with aircraft movement, aircraft readiness, and responds directly to the aircraft supportability needs of the user in the field.

LTC Weaver was PM, ELINT/ SURV, AVSCOM, St. Louis, MO when this article was written.

The PM office is primarily responsible for the MOHAWK airframe. The OV-1 carries imagery sensors consisting of cameras and Side-Looking Airborne Radar (SLAR) or Infrared (IR). The RV-1 carries receivers for the collection of electronic intelligence by the QUICKLOOK system. The MOHAWK aircraft are organic to the Aerial Surveillance Company in the Military Intelligence Battalion (Aerial Exploitation) assigned to the MI Brigade of Corps. Currently there are five active component aerial surveillance units and two National Guard companies, as well as those units at Ft. Rucker and Ft. Huachuca that conduct aircraft qualification and system mission training, respectively. There are 97 surveillance OV-1D aircraft and 24 ELINT RV-1D QUICKLOOK aircraft.

An aggressive Multi-Staged Improvement Program (MSIP) for the MOHAWK was embarked upon in 1984 to sustain the

(ELINT — continued on page 74)

COMINT/EW Aviation Platforms

By Lt. Colonel Joseph L. Bergantz

There have been some significant changes within the Special Electronics Mission Aircraft (SEMA) project office since our last report. A reorganization has taken place which has split the SEMA office into three product manager offices:

Communications/Electronic Warfare (COMINT/EW); Surveillance/Electrical Intelligence (SURV/ELINT); and Fixed Wing (FW). As Product Manager COMINT/EW, I would like to bring you up to date on the RC-12, RU-21, and EH-60 aircraft, for which I am responsible.

Currently, Beech Aerospace Corporation is on contract to build nine RC-12K aircraft for FY88/89 with an additional four for FY90. These aircraft have been beefed up with Pratt and Whitney T67 engines boosting propulsion to 1200 HP. In addition, these aircraft will incorporate an Engineering Change Proposal (ECP) to accommodate a dual Electronic Flight Instrumentation System (EFIS). EFIS replaces the electromechanical instruments in the cockpit with two CRTs at each crew station. Furthermore, the EFIS ECP will provide space, weight, and power provisions for a multi-function display on the console where communications, navigation, and Aircraft Survivability Equipment (ASE) will be integrated and managed.

LTC Bergantz is PM, COMINT/EW, AVSCOM, St. Louis, MO.

The EFIS ECP will also incorporate a new autopilot, a lightning strike sensor feature on the weather radar, and to enhance navigation capabilities, the production version of the Global Positioning System (GPS). All of these changes will lead to higher Reliability, Availability, and Maintenance (RAM), reduced pilot

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Directorate Of Combat Developments (DCD) Update

By Colonel Theodore Sendak and Captain Christopher Acker

The Directorate of Combat Developments (DCD) at Fort Rucker continues to work innumerable budgetary and system initiatives. This update with focus on systems and actions, because of the rapidly-changing budget picture.

At the Concepts And Studies Division (CSD) we are currently developing an operational concept to address how Army Aviation fits into the battle plan supporting counterdrug operations (CDO). The concept recognizes the pre-eminence of civil authority in the conduct of CDO and identifies the legal problems associated with military operations in support of civil law enforcement. As we have worked the concept it has become obvious that Army Aviation offers a wide range of capabilities to support CDOs. We can provide copies of the concept to government agencies on request.

- *Surveillance.* Army Aviation systems contribute to: border surveillance, reconnaissance of lines of communication (LOC), detection of production facilities, electronic signal platforms, and photographic intelligence information.
- *Air movement.* Aviation life assets provide: air movement platforms for Drug Enforcement Administration (DEA) personnel, resupply for CDO forces, platforms which carry systems to destroy source crops, command and control for counterdrug forces, and medical evacuation.
- *Attack.* Under close control of DEA/designated civil authority, Army Aviation attack assets provide: neutralization or destructive fires direct support of operations, interdiction of LOC, effective

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aerial delivered artificial illumination, and destruction of production facilities.

M43E1 Aircrew Member Protective Mask (AMPM)

The U.S. Army Aviation Center is the proponent for the M43E1 Aircrew Member Protective Mask. The mask will provide the aircrew member with chemical protection while maintaining compatibility with the current and near term fleet of helicopters. The M43 mask was initially developed for use in the AH-64 cockpit. Subsequent testing revealed potential applications to all Army helicopters. The M43E1 will replace the currently fielded M24 mask. Some of the unique features the M43E1 provide are: heat and stress control; improved vision; drinking capability; compatibility with night vision goggles; compatibility with the mission-oriented protective posture ensemble, aviator night flight helmet, and individual combat equipment; and most importantly, protection from chemical agents. Operational testing started in January 1990 at Hunter Army Airfield with the 24th Division. Technical testing started in December 1989 and is scheduled to end in May 1990.

Aviation Brigade Headquarters

The Organization/Force Developments Division of DCD is tackling the problem of personnel for Aviation Brigade Headquarters. Over the past four years, Army personnel reductions have claimed over 5,800 spaces in Aviation. Of these, more than 900 came from our headquarters elements: liaison officers, company executive officers, and assistant/special staff officers and noncommissioned officers. Field commanders continue to express concern that these reductions severely constrain their ability to perform sustained tactical operations.

During the September 1989 review of Deep Operations Tactics, Techniques, and Procedures Handbook, the Combined Army Center at Fort Leavenworth directed a reevaluation of the Corps Aviation Brigade Headquarters with particular enhancements for the planning of deep operations. We have taken this opportunity to also review Aviation Brigade Headquarters staff enhancements at division and echelons above corps.

The major commands are participating with the Aviation Center to assess existing shortcomings and develop recommendations that will restore Brigade Headquarters capabilities to sustain tactical staff operations over extended periods of time. We will brief our recommendations to the Vice Chief of Staff during the Aviation Systems Program Review in July, 1990.

Automated Mission Planning Station (AMPS)

The future battlefield will require a processor to assist the commander in the decision making process. Automated systems made today can inundate the commander with exhaustive information. The aviation automated mission planning system will collate this information in a useful format. It will drastically reduce lengthy "stubby pencil" drills and allow the commander flexibility in evaluating options and "war gaming" mission scenarios.

The mission planning station is designed to perform tactical mission planning and operational mission management.

Tactical functions include:

- Route planning (minumum exposure)
- Intelligence data processing (intervisibility plots)
- Communications/navigation/aircraft survivability planning
- Route display
- Mission rehearsal and debrief

Mission management functions include:

- Weight and balance planning
- Flight planning
- Performance planning
- Crew endurance tracking

Army Aviation will use the AMPS as a tactical command and control processor. The AMPS will interface with the Army Tactical Command and Control System's (ATCCS) Maneuver Control System (MCS)

(DCD continued on page 72)

Aviation Deep Operations

By Lt. Colonel (P) Thomas A. Green

Deep operations support the commander's scheme of maneuver by disrupting enemy forces in depth. Deep operations are based on a thorough Intelligence Preparation of the Battlefield (IPB), timely intelligence from organic and higher echelon services, identification of high-value targets, and development of a synchronized plan of attack. Our primary strike assets are air and artillery interdiction.

The purpose of deep operations is to deny the enemy the initiative by disrupting command and control, weakening critical assets, and delaying uncommitted forces. The desired effect is to ensure the success of close operations by foiling the enemy's plan and forcing him to react to the unexpected. Deep operations may cause the enemy to fight in two directions. This disrupts his time sequence of attack and creates opportunities for friendly offensive action.

LTC (P) Green is Director, Department of Combined Arms Tactics, Ft. Rucker, AL.

With its maneuver speed, the aviation brigade is especially suited to deep operations. Its capabilities in deep operations include air assault operations and attack helicopter operations. One of the missions used in conducting deep operations is the air assault raid. Planning steps for a raid are similar to those for any air assault operation, however, planning is much more detailed.

This is because elements of the raiding force must not only function independently in the area of operations but must be able to support each other. This operation requires more planning and coordination time than any of the other air assault operations.

An aviation cross-FLOT (Forward Line of Own Troops) operation is a combined arms maneuver mission; it requires the

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How III Corps Fights Utilizing Air Traffic Services

By 1st Lieutenant David D. Davidchik

The modern aerial battlefield with all its complexities poses a challenge for the ever-changing world of Air Traffic Services (ATS). With the advent of the modern "How to Fight" doctrine currently employed by the 6th Cavalry Brigade (Air Combat), a whole gamut of opportunities exist for the 2nd Battalion, 58th Aviation Regiment (ATS) commanded by LTC Richard L. Dodge. The 2-58th offers Army Aviation vital tactical support with its "How to Fight ATS" doctrine.

One of the challenges facing Army Aviation is utilizing Air Traffic Service assets as an effective combat multiplier. Those who are acquainted with the structure of an ATS battalion know that it typically supports a corps-sized element. An ATS platoon can provide services for a division-sized element. The air traffic services provided include a means of navigation, flight coordination facilities, a fully-instrumented aircraft recovery system, and air traffic guidance. These are important attributes, particularly in the rear area where a majority of the services exist. However, this is only a foundation for the modern tactical doctrine the 2-58th Aviation Regiment (ATS) is introducing to the world of aviation. This "How to Fight ATS" doctrine accentuates the four tenets of Airland Battle doctrine—Agility, Initiative, Depth, and Synchronization—covering deep, close, and rear operational areas.

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To utilize his available ATC assets, a commander must understand what the ATS unit can do to enhance the tactical environment in which he works. In the rear operational area, the 2-58th Aviation Regiment (ATS) can maintain an instrumented corps main airfield as well as division airheads. The battalion also offers enroute navigational aids operating in accordance with the needs of the

supported unit. Control towers can be used to guide air traffic in high density areas such as ammunition supply points, refueling, aviation logistical support areas, and corps main and division Tactical Operation Center helipads. These same navigational aids and control towers can also be used for deception operations to simulate a high concentration of air traffic for diversion of enemy interests.

Flight Operations Center

The Flight Operations Center (FOC), found in the corps rear area, implements the airspace management plan. The FOC is in a network with the III Corps Airspace Element (CAE) receiving and disseminating Airspace Control Orders (ACO). The ACO is the deconflicted airspace plan used for coordinating the actions of air force, air defense, fire support, military intelligence, Combat Electronic Warfare Intelligence, chemical, and Army Aviation assets for a specific period. An ACO is designed after prioritizing airspace coordination requests (ACR) submitted by subordinate unit airspace management elements. An effective ACO will maximize the combat effectiveness and safety of all knowledgeable airspace users. In this regard, the FOC serves as an important link between the current tactical airspace intelligence situation and the subordinate airspace users in the operational flying area. The FOC is also in a direct link with the Flight Coordination Center (FCC), found in the division rear area. The FCC is a primary source of routing, weather, and emergency warning information to airspace users in the division area. It should be noted that the major difference between the FOC and the FCC lies with who is directly supported, since the same equipment is used to perform either mission. The communications capabilities of an FOC (3 FM, 3 UHF, 3 VHF, and 1 HF) coupled with its portability make it an outstanding potential emergency tactical operations center. In the close operational area, the ATS battalion continues to offer enroute navigational aids and tactical control towers for high density traffic areas in addition to deception operations. On call, inadvertent IMC recovery means can assist forward deployed aircraft. The FCC, along with its primary flight following and advisory functions, can also operate as an emergency operations center affording the tactical commander a complete communications package.

ATS and Deep Operations

The deep operational area is not traditionally recognized as an ATS-intensive environment. That is why it is important to realize the potential that exists for enhancing the successful completion and survivability of the deep strike mission. Portable insertion/extraction, low frequency, nondirectional beacon teams can provide precise fixes for even the most difficult terrain. This can be an invaluable asset for updating doppler systems or quickly locating a deep FARP. The idea of breaking radio silence with a beacon tends to frighten an APACHE pilot. The fear is greatly exaggerated when the ATS equipment is correctly employed. In fact, the NDB is only turned on at a specific synchronized time for a matter of seconds, allowing a slim chance for even the most knowledgeable of enemy pilots to take advantage of the brief signal emission. Of course, the beacon team can also be used for concurrent deception operations to further disrupt enemy counter operations.

Training

In training, air traffic services perform a dual mission. This mission consists of providing "real world" flight following and tower services for administrative aircraft while actively participating in the tactical scenario. The latter function requires more operational consideration during mission planning. It is also important for ATS support of all CONUS/OCONUS exercises and major training areas to be standardized Army-wide to better facilitate ease of user implementation without need for a trainup period. In the past, this has been difficult because of the preacetime mission and the supported unit's unfamiliarity with ATS. To overcome some of these points of ignorance, pure training environments such

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Training Mechanics: The Ultimate 500

By Lt. Colonel Stephen J. Snow

We are not doing an adequate job training aviation maintainers, or any maintainers, for that matter, for war. Mechanics or skilled technicians do not learn or become more skilled through random exposure to maintenance repairs or fixes.

Maintenance events, fixing or servicing things, by themselves, are not necessarily training events. We do not train our infantry, artillery, and tanker soldiers by just taking them out to the field and exposing them to combat maneuver. We plan and organize the time and insure that certain training objectives are met. We set standards of performance and train to them. Similarly, mechanics must not only be trained to be quality soldiers, but quality mechanics. They must be totally competent in their mechanical skills. They must be evaluated, provided wartime skill enhancement training, and have that training measured against established standards of performance. The unit's Mission Essential Task List (METL) must reflect this training objective and requisite time must be made available on the training schedule. The soldier-mechanic can then hone skills in their "field" environment; the hangar, flight line, or countryside. The proverbial bottom line is; mechanics must have equal opportunity to gather their fair share of the available training time.

LTC Snow is an Analyst, Maintenance Policy Directorate, OASD, Washington, D.C.

Mechanics are like other skilled individuals; some are good, some fair, and others not so good. All things considered, when time is available or when time is not the primary consideration, the fair and not so good mechanics will accomplish their tasks as well as the good mechanics, of course using more resources in doing so. Add the pressure of time, and it will become abundantly clear who can't make the cut.

The good ones know the steps to take; they know the theory of why something works; they know how to get something functioning in the shortest time and using the fewest resources.

We've all seen the choreographed performance of auto racing pit crews, especially during the big racing events: Indianapolis 500, Daytona 500, LeMans, etc. Cars are fueled, re-tired, checked for leaks, windshields are cleaned, and the driver given a cup of water, all done safely within a 15 to 25 second time frame. While at the drag races, engines are replaced and major repairs safely made by mechanics between runs in anywhere between 30 minutes to an hour. How did these mechanics attain this level of performance? Exposure?

We are about combat, about fighting, about chaos, about limited time. We are very much aligned with those who keep race cars running. A major race situation is tantamount to a war situation. Service by your local auto dealer is similar to what we in the Army would consider garrison support. We do more garrison support than we do wartime support and consequently are not training our soldier mechanics to function under pressure and under time constraints. We trainers need to focus our efforts and prepare our soldier-mechanics for the military version of the big race—THE ULTIMATE 500!

How do big time racing teams develop big time maintainers? For one thing, they go looking for talent. They try to find those who display an aptitude for maintenance. They test them to determine the level of competence. They have them demonstrate their hands-on capabilities. Once they are sure that they have someone to work with, they train them. The winning teams have the best cars, the best drivers, and the best mechanics available. Each are put through their paces under combat conditions—that is, racing. They are put under stress (time, time, time) and are measured against known winning standards. They rehearse, rehearse, and rehearse again until the movements become almost like a ballet. Contingency plans are made. "What if" drills are conducted. Tasks are given and responsibilities established. It is a well worn axiom, that races are won or lost in the pits, and winners have the best trained pit crews. In auto racing where victories are often decided by car lengths equating to fractions of seconds, there can never be enough attention to detail or enough training.

Task, Condition, and Standard

How can we gain more training time for our mechanics? Simple. Schedule it. Treat maintenance repair events like individual training events. Have them fix and repair to specified TASK, CONDITION, and STANDARD. Each maintenance section must have time allocated on the unit's training schedule for maintenance training. The training schedule must be flexible enough to accommodate unscheduled maintenance operations; but what better way to evaluate your people than to take advantage of a hip-pocket training opportunity? The NCO or officer trainer would conduct a short mission pre-brief, to include a review of the procedures to be used, would help assess and control the conditions impacting on the training event, and would help the mechanic or mechanics establish the standards to achieve. After the training event is concluded, the NCO or officer would conduct an after action review discussing with the mechanics the training event and soliciting from them ideas on how to accomplish the task better the next time.

Now does this sound too time consuming? It may very well be. But we think nothing of the time investment in weapons training or protective mask training, or any common military task training for that matter. Why should anyone think that training maintainers to be proficient under combat conditions would be any less difficult or time consuming than any other training endeavor?

Trained to Standards?

The Army community in conjunction with the Logistics community must assess current training practices to determine if we

(Training - continued on page 77)

Logistics Lessons for LH

Excerpts of a speech delivered to the competing LH Teams in November, 1989

By Lt. Colonel Wayne L. Dandridge

Please remember the following comments are mine and mine alone and do not necessarily represent the Army's position. None of my comments are instructions to you concerning the LH competition.

Let me begin by saying future Army aircraft must be built to protect the complex and fragile electronics components from harsh environmental elements. Water- and dirt- (fine sand, dust, etc.) proof fiber optics, wires, and black box components will have to be fully protected from corrosion and dirt. The only way of the future is good insulation: hermetically sealed connectors; sealed electronics compartments; wiring and fiber optics inside light weight and waterproof (PVC like) conduit with humidity control and many easy maintenance access panels; and electronics kept away from and protected from aircraft oils, hydraulic fluids, greases, and fuels.

LTC Dandridge is Chief, Logistics Management Division, Directorate of Logistics, and Contracting Officer's Representative, USAAVNC, Fort Rucker, AL.

I recently heard an encouraging story of a bright young maintenance soldier who, while stationed in Egypt, came up with the idea of Saran wrapping his electronics components. His airplane was the only one to stay Fully Mission Capable during the deployment. Perhaps your engineers can make wise use of his idea. Never again should electronics components be put in the bilge area (belly) of an aircraft. Many of you know about the ADF and Doppler problems we have with the AH-64. To a simple maintenance officer the ideal helicopter would have all the engines, transmissions, gear boxes, oil reservoirs, and fuel cells in the bottom part of the aircraft, and all of the electronics in the top part of the aircraft.

Future aircraft need to be wired with easy maintenance in mind. Wires must be long enough to allow the component to which

they are connected to be removed by itself without having to remove other components around it. We have some aircraft in the Army today with wires so short, you have to disassemble much of the cockpit to remove one item in the instrument panel. Wires must be long enough so that the component can be removed (from the dash for example) and allow easy reach to the electrical cannon plugs in the rear of the component. One other thing—let's use the right size cannon plugs for the wires this time. Potting cannon plugs with holes too big for the wires is not a favorite maintenance man or woman's past time.

I believe it to be more than possible to use the aircraft's environmental system to not only cool and heat the cockpit and electronics components, but to also serve as a dehumidifier for the entire electronics system. Controlled humidity has been proven over and over to be the best preservation and protection for aircraft and aircraft components (around 40% is ideal as I recall). Not enough humidity for corrosion, but enough to prevent imbrittlement of plastics, rubbers, etc.

Swap-a-tronics

Swap-a-tronics is a word we must erase from the Army's vocabulary. The need to frequently lateral exchange can be greatly reduced by doing the following four things:

- adopt electronic protection measures (fiber optics- vs-wires, conduit, humidity control, hermetically sealed connectors, sealed compartments, placement above the bilge area, etc.) as mentioned previously;
- provide reliable built-in-test (BIT);
- supply hand portable, simple electronics test equipment;
- industry has (in my opinion) a moral obligation to convince the Army that high skilled journeyman electronics technicians equipped with low cost, universal test equipment are a necessary part of future aerial weapons systems. Low skilled electronics technicians, armed with complex (think for the mechanic) electronics test equipment are not the answer to future aircraft maintenance. No more Electronic Equipment Test Facilities (EETFs) please.

Complete environmental testing of future aircraft is a requirement that must *not* be waived. This is no area for similarity qualification. Extreme cold and heat, heavy rain, high humidity, thick blowing sand should all be an integral part of LH testing. Look at Target Acquisition Designation System/Pilot Night Vision Systems (TADS/PNVS) Special Repair Activities (SRAs) and how industry approached support of complex electronics. They use versatile, relatively low cost, multiple stand alone pieces of test equipment (frequently common stuff like multi-meters and oscilloscopes) with journeyman level people ($30,000 to $40,000 people). SRA has about three million dollars in test gear with about 10 people. We use ten million dollars EETF with low skill people.

Inertia Navigation

Inertia navigation seems to be preferred by most maintenance people. Let's design the primary navigation equipment for alignment on moving ships. You may know that the APACHE HARS (Heading Alignment Reference System) must be aligned on a fixed, stable area and takes 5 to 6 minutes to warm up. Remember the Army must be able to fight from ships and land, and LH needs a HARS (with a flux valve) that warms up much faster. At one time, the Army had more ships than the Navy.

Last word under electronics, 'shock mount everything, especially circuit breakers.'

Warranties

Past Army contracted warranties have some obvious weaknesses. Under present and past warranties, if a component is lateral transferred (moved from one aircraft to another), the warranty is voided. Just guess how long it must have taken to void most of the Modernized COBRA, APACHE, and AHIP warranties.

Smooth, vibration free, easy to track,

easy to balance, quick to change, fast to repair, and reliable are the requirements for future rotor systems. Unfortunately, we are zero for two with our last two attack aircraft rotor blades. Debonding, water intrusion, and overly complex balancing have come with COBRA and APACHE. No matched sets of blades, please! Each blade must stand alone and be interchangeable with any other LH aircraft. Make them all the same (same weight, width, length, thickness) and make them easy to remove, replace, and track and balance.

I am told if you make the tracking and vibration standard .05 inches per second of vibration (IPS) instead of .2 that many of our maintenance problems will be eliminated. We try to do this with our aircraft at Ft. Rucker now.

I know industry is fascinated with composites and plastics and the OH-58D Composite Blades seem to be doing very well (original life was 4800 hours and now are on condition), but the only truly reliable part of rotor systems seems to be the steel spar. How I long for metal blades again. Metal blades are strong and easy to repair and, more importantly, they are reliable, don't debond, and have no real water intrusion problems.

Please design a powerful, simple, reliable strap pack for LH. No more inspections every 2.5 hours, please. Rotor brakes like the old 34 (without the hydraulic leaks) may be worth looking at. In any case, we need rotor brakes in maintenance and on ships.

Security

I've been told that the technology is here to provide classified components (KYs, ALQs, etc.) that are keyed and classified when needed, but can also be dekeyed and declassified on the aircraft without removal. It would be Godsent if we didn't have to either remove these components and lock them in a vault or put an armed guard on them when they were on the aircraft. At least ensure they are installed out of view on LH so the bad guys don't know from a distance if the sensitive gear is on the aircraft or not. Perhaps locking storage compartments would add some security to this equipment. Let us please use keyed alike door, ignition, and compartment locks (no more separate keys, padlocks, and special locking devices). This is a costly, hazardous, and painful situation on our older birds.

Modular

We maintenance people like modules. An aircraft with a unibody like APACHE makes no better repair sense to me. Make LH with a nose module or two, a center module, and one, two, or three tail modules. This holds true for other areas also. It's always great to remove and replace quickly a bullet damaged or broken module while the aircraft is out fighting or training rather than keeping the entire aircraft down.

Such unibody designs will rapidly prove problematic to our forces in combat. They are self defeating and require depot tools to handle fuselage damage. Modular design 'plug in, pluck out' features should be used whenever possible.

Data Recorders

LH needs data recorders that record, predict, and warn. All components possible should have recording devices that record the use and life of an item. The days of applying aircraft time to components is over. Auxiliary power units, electronic devices, etc., all need recording meters.

These new powerful flying machines no longer provide the pilots with abnormal feelings (warnings) through the flight controls or seat. Fly by wire and powerful new hydraulics eliminate high frequency and other vibrations that in days gone by gave the pilot a heads up of an impending problem. APACHE tail rotor is a prime example of a subsystem that is so powerful and advanced that the pilots will most likely get no warning of a swashplate failure until a catastrophic failure occurs. Pilots deserve a warning to give them time to make a precautionary landing.

Like rotor blades we are zero for two with reliable and explosive canopy systems. Both COBRA and APACHE require break out knives to ensure emergency exit. Why not supplement explosive systems with

simple mechanically operated emergency exits (like UH-1 doors)? I like getting out on either side. When I fly COBRAs, I know which way the aircraft is going to roll when ditching or in a crash—ON THE SIDE WITH MY DOOR FREE! By the way, all attack aircraft doors have trouble with leaks, latch wear, and vibration during firing and high speed dives. One way to fix that is with three latches. We seem to be hung up on two latches for our crew member doors.

Windshields

Pilots, especially back seat pilots, like blast shields but blast shields should have a pass-through window for passing messages, pencils, CEOIs, tourniquets, cigarettes, etc. from cockpit to cockpit. Blast shields can and do work as a poor man's roll bar in a crash, an added feature that most pilots would surely endorse. LH windows must be rocket debris proof! The pitting of APACHE windshields is a big maintenance headache. Oh yes, don't forget to put some gutters on the LH canopy so the rain water will not run off the doors and canopy windows into the cockpit electronics when the doors are opened. Some good mirrors for seeing a HIND behind you and checking out your aircraft condition, armament situation, battle damage, etc., is also a good idea.

Dual Controls

Let's not put any switches in only one cockpit that take total control from the other cockpit. I've been told AH-64 BUCS (Back-Up Control System) has a switch in the front seat that can be activated to disconnect the back seat. Could you imagine the terror of an IP (and his student) if this situation develops at night (or day) with only the student at the controls in an emergency?

Another thing, no more chop collars. The French Dauphin helicopter has two throttles on the collective separated by a spacer. Pilots I know like that idea over separate power levers located elsewhere, away from the collective. As I recall, humans have only two hands (cyclic, collective, and separate power levers require three hands). Two throttles on the collective remind me of the side-by-side brakes on a farm tractor, the design works well and has been proven (like the throttles on the Dauphin, I suppose) to be safe and smart. Finally, please ensure the stabilator control is either on the cyclic or collective (in line with the "I only have two hands!" principle), and ensure the stabilator will, in the event of failure, move to a safe, neutral position rather than the kind of thing we so tragically experienced with BLACK HAWK.

Armament

I prefer linked ammo than delinked. A complicated delinked carrier system is an unnecessary jugular vein. Linked ammo has proven reliable for years and a broken link is easy and quick to repair at the Forward Area Repairing, Rearming, and Refueling Point (FARRRP) by the crew. On the other hand, a broken carrier is a serious malfunction requiring special tools and serious maintenance. Having the feeder-delinker built right on the gun is also much smarter than having a separate delinker at the FARRRP. We need an automatic gun that can be removed, reinstalled, or replaced without boresight. For certain, if a gun is removed and the same gun reinstalled, no boresight should be necessary.

For goodness sake, let's not have to remove canopy windows to do boresights on LH. Since the luxury of sophisticated boresight equipment and tools is not going to be readily available under some field conditions, a field boresight procedure using a scope and distant aiming point should come with LH. COBRA has a distant aiming point, field boresight procedure. Along with a field boresight procedure is the need for a good, built-in stadiometric sight system for when the going really gets tough. Let's face it, as the battle progresses, more and more of our sophisticated subsystems will break or be battle damaged, and it will be necessary to continue to fight using 'Kentucky windage' as we did in Vietnam, Korea, and earlier.

It's important to remember that the old maintenance challenges of airframe,

powerplant, power train, prop and rotor, etc., have shrunk to insignificance when compared to electronics. When the electronics break—and they will—we can keep the aircraft flying and shooting in the stadiometric mode. Therefore, we owe it to our pilots to give them first class backup sights. The 2.75" folding fin rockets and gun can be kept firing indefinitely in the stadiometric mode because of the simplicity of such a task.

Just as we cannot allow our artillery to fall silent when its fire control computer breaks (we must not lose the skill of manual firing), we cannot stop launching attack aircraft because the fire control computer, navigation, or night vision systems become not mission capable.

We already know we will be fighting in cold climates, hot climates, muddy areas, sandy areas, and other environmentally-challenging conditions. Therefore, let's cover the gun turret with a smart cowling that protects the gun from ice, etc., and allows for quick removal and easy maintenance. If we have to, let's go to an aviation museum and look at some old B-17, B-25, or CHEYENNE turrets. It seems we've forgotten how to build turrets.

By the way, maintenance people tell me that an all electric gun (not an electric/hydraulic combination) causes fewer headaches (especially no hydraulic leaks) and should save weight over a hydraulic model. The Cobra has an all electric turret that works.

Ammunition Pods

Flight crews, maintenance people, and armament/ammunition people really appreciate easy to remove and install loaded and unloaded pods. The pod size should carefully consider the amounts of ammo that come in our ammo cans and boxes. Rocket pods, missile pods, and gun pods should be interchangeable (left or right, top or bottom, aircraft to aircraft, etc.). The current aircraft tight fitting, hard to align, easy to damage pod connectors need to be improved on. What about some cone/funnel type connectors that guide these pods into a solid, safe connection? Ammo pods hung outside of the fuselage are more maintenance friendly than those crammed inside dark, hard to see places. P.S., let's not face the bullets/projectiles up the pilot's behinds on the next attack aircraft.

Chaffing

Teflon paint, rubber pads, and other anti-chaffing material needs to be permanently installed and in all the right places. Teflon paint is working well to cure many APACHE chaffing problems. Cowlings must latch down securely for flight and open for maintenance modes. We could probably buy several LHs with the money that has been spent repairing damaged doors and cowlings from rotor wash and other wind damage.

Configuration Control

LH must start with, serve with, and retire with positive configuration control. Industry and the Army must work together to keep the LH configuration under positive control. This must be done by having National Stock Numbers for all components and subcomponents (no part numbers, please). Every component, every part, and every piece of hardware of LH should be permanently marked with the information necessary to safely and positively manage and control that part from cradle to grave. Industry and government procurement officials and contracting officers must include in all aircraft and parts contracts the requirement for proper and permanent marking and accurate paper work (2410s, Model Number, NSN, Contract Number, etc.). We must put an end to the foolishness of buyers and sellers not talking with maintenance, supply, and accident prevention people before the contract is finalized and signed.

Don't forget that many parts have a life of their own, independent of aircraft hours and require their own maintenance records (2410, 2408-15, etc.). A new life management experience example would be some of the Electro Slag Remelt (ESR) steel items on APACHE that are managed by

(Logistics Lessons — cont. on page 66)

FIRST IN AVIONICS WITH THE FIRST TEAM

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For more information call (407) 727-5115.

HARRIS

MEMBER OF LIGHT HELICOPTER FIRST TEAM

Logistics Lessons
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days of torque (rather than hours after installation, shelf life, etc.). Our ESR steel rod end bearings were contracted for with the bearing torqued at manufacture. This was very wasteful because we used up much of the life of the component before it was installed.

Fuel Cells and Samples

Pilots, refuelers, and maintenance people love sight gauges. Put a helmet hook-up (female plug) by the refuel port so the refueler can safely talk with the pilot. Put a sight gauge or fuel gauge at the refuel port so the refueler will know when the tank is full or as full as the pilot wants it, based on his weight and balance.

Stop making pilots open the fuel tank to check and see if the tank is full during preflight. Give the pilot a sight gauge so he doesn't get fuel all over himself and the ground (especially on hot days when the fuel expands in the cells/tanks). Give the refueler a break by giving him a sight gauge and/or fuel gauge to prevent over filling the tank. I know, the pilot is supposed to tell the refueler if his log book shows the (Closed Circuit Refueling Port) CCR is inoperative, but he does not. Fuel spills are dangerous and they damage the environment, not to mention waste fuel dollars.

I challenge you to come up with a fuel sample fuel check that is safe and does not require someone to crawl under the aircraft. What about a clear sight bowl at the lowest cell points and other key fuel places? What about a fuel sample operation that does not require one person in the cockpit operating switches and another under the aircraft getting wet and dirty (and perhaps oily and wet with fuel). Even Nomex is of little value when soaked with JP-4. An attempt at a stand up fuel sample check system was made for the BLACK HAWK, but it's a pain in the behind and not the answer.

Seats

The best place I know to find out how to build a comfortable seat for the crew are Peterbilt, Mack, Volvo, Kenworth, etc. The AirGlide truckers seat is a really comfortable seat. It exercises (it goes up when the truck goes down, it goes down when the truck goes up) to prevent fatiguing the driver. This same principle has tremendous safety benefits in a vertical crash. I have always been annoyed at us aviation people (government and industry) in our feeble attempts to design seats. Why not go to the experts? I vote for Lazy-Boy and the trucking industry as consultants for LH seats.

Additional Suggestions

I like (and so do most Army maintenance people) electric starters. The AH-64 Shaft Driven Compressor (SDC) has left a bad taste in my mouth over air starters.

If LH has an Auxiliary Power Unit (APU), please provide an easy, simple exhaust flange hookup for a long defrost hose to be used on those very cold days. Haven't you seen the disasterous results of attempted deicing in Army aviation? Up until now everything from ball peen hammers to hangars must be used.

The helmet is now a key element in the Fully Mission Capable (FMC) chain. We have reached the point where we can have a ten million dollar attack helicopter FMC and have to scrub the entire mission over a $15,000 helmet (that provides no laser protection). LH will need a laser visor or some good laser protection (contact lens seem like a better idea than glasses) with TEMPEST communications. By the way, don't forget to provide a simple, low cost imagery/symbology trainer for class room training of flight crews, maintenance people, and class room instructors.

If we use some type of night vision system turret on LH, let us protect the germanium windows (or whatever kind of window is devised) from sand blasting, rocket debris blasting, etc., in the stowed and forward modes. Let us also make the turret stops 'smart.' That is, when the turret gets close to the end of its limits, the turret

will automatically brake to a halt before slamming into the mechanical stop. (You know the screen door pump principle.)

LH needs powerful tie down moorings with simple, low cost 780 gear that ideally could be stored in the aircraft. I would like to see some crew storage space behind each pilot and an M-15 gun rack behind the back seat would satisfy many pilots. For me, a good helmet hook, a knee board storage space, and some publication/map/pencil storage slots would be very helpful. Please don't sell us any $5,000.00 pillows to plug engine inlets, exhausts, or other holes.

More Lessons Learned

Accessibility to areas requiring maintenance, adjustment, rigging, or inspection should be carefully designed into the aircraft with careful attention to ease of attachment and removal of access panels or doors. Sikorsky did a pretty good job on the UH-60 in this matter.

Interchangeability of components should be a major design feature with particular attention to the interchangeability of the rotor blades, gun, fuselage sections, wings, and other large modules. Try to make every maintenance job a 'one man job.'

Let us put this electronic stabilator actuator (if LH has one) inside the vertical fin (pylon) for protection from the elements (like the UH-60). Do not put it outside the pylon like the AH-64 unless you can guarantee water proofing, reliability, and safety.

Murphy Proof

Design for component installation should provide incorporation of the safety 'one way' principle to avoid inadvertent wrong installation. Good configuration control will help here. Use Modification Work Orders (MWOs) for changes with good records, do not use hurry up Class II Engineering Change Proposal (ECP) methods that leave the user in the dark on what model he is dealing with. (AH-64 rotor blades, droop followers, and many other APACHE items are examples of poor configuration control.)

LH tolerances must be specific, concise, clear, and logical. Cracks should not say "replace," for example, unless replacement really is the only alternative. Be specific with all maintenance criteria (make the criteria go-no-go). This is a major headache in Army aviation today, especially with APACHE.

Two level maintenance is dependent upon 90% or better accuracy of complete LH electronics self test. The GO-NO-GO principle should be emphasized to determine if a module or wire/fiber optic between modules is serviceable before it is removed or installed. Fault detection equipment should be employed to the maximum extent possible. BIT should be used as a primary means of reducing maintenance time and increasing safety and reliability.

Although already covered, I cannot say enough about the importance of good corrosion prevention design on LH. Dissimilar metals should be avoided wherever possible. A hookup for an external humidity machine and heater would be very smart.

Provisions must be made for the attachment of lift devices (crane and sling loading) to include hard points. Ease of jacking, trailer loading, C-141 loading, sling loading, and towing is necessary. Take from the U.S. Air Force their good 02 small running gear (runners) for emergency landing.

Washing

LH should be so well sealed and protected from the elements that with all cowlings and doors closed, the aircraft can be high pressure washed on the outside from nose to tail, top to bottom. Plumbing provisions for the attachment of a water hose to wash the engine interiors should be made.

The minimization of maintenance down time requires all inspections to be performed in phase with the aircraft inspection schedule (unlike BLACK HAWK and APACHE). We need to eliminate as much as possible the need for maintenance stands and ladders to inspect and service LH (build it into the aircraft).

History

The government and industry have consistently been over optimistic about the reliability, maintainability, and availability for new aircraft. The maintenance manhours required for each flight hour should not be underestimated for LH. Quote from the Advanced Attack Helicopter Task Force Report, Volume XI, Appendix J (RAM dated July 1972, Chapter 4, Paragraph 4.4: "One of the most significant results of the aircraft maintenance experience in the Republic of Viet Nam was the integration of some direct support maintenance functions into combat aviation units. This integration of direct support, which was proven in combat, is an essential part of the Advanced Attack Helicopter maintenance concept."

I am not an advocate of retractable gear on helicopters. Helicopters do not go fast enough to gain any speed advantages from retractable gear and the added maintenance problems are not worth the effort. I do think you should follow the Air Force 0-2 design lead with small runners (hard point strips) for landings where the gear has failed or been battle damaged. This way the helicopter can be set down on a hard flat surface with no fuselage damage (other than antennas maybe) and no roll over danger.

Final Wish List

For once let us design an airplane that uses only simple (issue) tools. Common tools only should be required by LH. No special tools should be your goal.

If you must use metric, then make everything a dual system device (i.e., nuts and bolts that both U.S./English tools fit and metric tools fit). A bolt head could be outside SAE (U.S./English) and inside metric for example. Design the entire aircraft around the general mechanic tool box.

- Don't—*please* don't—give us 50,000 tons of special new Ground Support Equipment (GSE) with LH. One exception to this might be a recovery trailer for improved road and rough terrain use. A blade rack on the trailer may also be a good idea. Needless to say, please make the LH ground handling wheels simple, safe, and easy to use.
- Please provide an LH that can be readily used without modifications for NVG aided and unaided flight.
- Will we need a 3/4 ton pickup to move LH manuals? Will we take advantage of the 'telephone book' principle? Will the manuals be complete and user friendly?
- At Fort Rucker we clamp screen wire over many drains and openings to prevent animals and especially insects and birds from building nests inside our aircraft. Some new tail boom designs need to provide protection from these accident makers.
- What a blessing it would be to have an aircraft that takes less than 30 minutes to prepare for safe loading on a C-141 or C-5A. Decide ahead of time exactly how many LHs can be loaded in these aircraft and design them to do it quickly and easily without disassembly.

Conclusion

I want to close by soliciting your help with killing some myths. In your proposal, please help industry and us logisticians by ensuring our operators do not get any false impressions about operations in harsh environments (like salt water, desert sand, jungle rain, arctic cold, tropical heat, etc.). Make sure the operator understands the harsher/rougher the environment and the farther we get from hard stand maintenance, the more the aircraft and its systems will go down and the harder it will be to keep the LH fully mission capable. Make all the legitimate claims you can, but please leave no false impressions.

Again, I remind you all my remarks are mine and mine alone and do not necessarily agree with the Army position. My remarks are not instructions to you—the Army is looking for great innovations and creativity from industry on LH. Please do not let any of my comments stifle any of that terrific industry innovation. Just use it if you can to give us the best helicopter ever built. One that's easy for us good ole South Carolina boys to maintain and keep fully mission capable at an affordable cost. IIIII

Attack Helicopter Operations at the NTC (The Lessons We *Didn't* Learn)

By Captain Michael P. Courts

It's 1830 hours local, 1st Brigade, 52d Infantry Division (Mech), the day before Brigade operations begin.

MAJ Steve Johnson (S3, 1st Brigade): "Gentlemen, the Brigade Commander."

COL Bill Clark (CDR, 1st Brigade): "Steve, is everyone here?"

"Yes, sir."

"OK, let's get going."

MAJ Johnson: "Sir, the XO wants to cover a few admin notes about redeployment before we get into the OPORD."

COL Clark: "Fine, but let's keep it short. My aviators have crew rest to consider." (A slight chuckle from the group)

LTC Bob Thomas (XO, 1st Brigade): "Sir, the big points have already been covered with the unit XOs, so I'll just hit the highlights. Vehicle turn-in will start on the fifth at 0800 with 2-10 Armor, followed by 3-1 Infantry on the seventh at 0800, with the rest of the units following on the tenth."

CPT Courts is S3, 3-6 CAV, III Corps, Ft. Hood, TX. He is rated on both the AH-1S and AH-64.

COL Clark: "Great. Let's get on with tomorrow's mission."

MAJ Johnson: "Sir, the battalion commanders received the warning order at 1300 hours along with your initial concept, and they'll be prepared to brief their specific plans after the order. I'll be followed by CPT Spencer."

CPT Spencer (S2, 1st Brigade): "Sir, the enemy situation. . ."

For the next hour COL Clark's staff cover their detailed plans for a brigade defense in a sector near the whale gap. The units have been given traditional roles with two battalion task forces being used along with an AH-64-equipped Attack Battalion, and the Division's OH-58Ds. The Attack Battalion has been given the role of Brigade reserve, and is

assigned to remain in a holding area until enemy forces penetrate the Brigade rear boundary (a mission that insures the Attack Battalion will remain uncommitted until the battle has been decided). The OH-58Ds have been tasked to establish a screen to the Brigade front, starting at 0200 hrs. The ground battalion commanders back brief their scheme of maneuver; then the time comes for LTC Pat Olsen (Commander, 1-52d Attack Battalion) to give his brief.

COL Clark: "Gentlemen, your plans look good. OK Pat, your turn."

LTC Olsen: "Yes, sir. Sir, I'm prepared to brief two options: first, the mission as your S3 stated it with my attack assets waiting in the holding area; and second, with us going out early, after the Deltas pinpoint the main body, and engaging in front of the Brigade sector."

COL Clark: "Pat, let's just stick to the plan. I'm not interested in the second option."

LTC Olsen: "Sir, I believe we can really use the terrain south of Tiefort to mask our movement, and cause the bad guys to deploy early. With our night systems and HELLFIRE, we can really kick him in the teeth."

COL Clark: "No dice, Pat. I don't want you giving away my positions or tying up the Deltas—I need them as intel platforms."

LTC Pat Olsen commands a battalion equipped with eighteen AH-64As, thirteen OH-58Cs, and three UH-60s. The battalion is well trained and capable. Through a tremendous effort from the Battalion maintenance personnel, they have been able to keep at least twelve AH-64s in the battle every day during the Battalion operations and live fire. The mission LTC Olsen attempted to sell to COL Clark was well within his unit's capabilities; in fact, it would have been overkill. So why wouldn't COL Clark use the AH-64s as they were intended? Despite being a well trained unit, the 1-52d Attack Battalion has had no impact on the battle during the last ten days of the rotation. No AH-64 and very few AH-1 units have had an impact on this battle at the NTC.

Although the names of the individuals and unit designations are fictitious, the scenario and perceptions I have just described are true. They are not new to the AH-64, but they are made more painful by the expectations of all parties involved. The problem of effectiveness at the NTC is a serious concern for all commanders. There are several key problems at the NTC for AH-64 units:

- *Technical:* Currently the MILES/AGES II for the AH-64 just flat does not work. The system is difficult to install, very time consuming to boresight and is absolutely unable to kill enemy vehicles at realistic ranges (greater than 300 meters). Specifically, the HELLFIRE is marginally effective at extremely short ranges, the 30mm is marginally effective at short range, and in a fixed forward position, and the 2.75"FFARs are completely ineffective. On the other hand, the AH-64 can be killed.
- *Resources:* With the limited availability of funds and transportation, rarely will an entire attack battalion be able to deploy to the NTC. The attack battalion is also constrained on the maintenance assets that it can deploy. The usual package is a Battalion Task Force with an attack company (+), the Headquarters and Service Company (HSC), OH-58D Platoon, D Co (AVUM) and a slice from the AVIM.
- *Commitment of Personnel and Equipment to Observer Controllers:* To support the Observer Controller (OC) requirement at the NTC, the battalion must provide two AH-64s, one to two OH-58Ds, and two OH-58s; these aircraft may or may not require Pilots In Command (PICs). The OH-58Ds and OH-58s usually require goggles. If the aircraft committed to OC support go down for maintenance, they must be replaced before the mission can go.
- *Operational:* The NTC is not as big as one might imagine, nor is the OPFOR (a Mechanized Rifle Regiment for Brigade Ops). To keep everyone honest within the reservation boundaries and to minimize the OC requirements, the Aviation units are limited to Brigade boundaries. The requirement to keep all the players within the Brigade Sector forces the attack battalion to give up one of its greatest assets, that of maneuverability. Another

limitation at the NTC is the availability of permanent party OCs. To support current operations, the NTC must task FORSCOM units for OCs and PICs in advanced aircraft (AH-64, OH-58D, UH-60, CH-47). Additionally, the rotational unit must support OCs for S1, S2, S4, Forward Area Refuel/Rearm Point, and fire support operations. When you add the required vehicles, drivers, etc., the augmented OC package can exceed 20 personnel. Aviation is the only branch that tasks for primary OCs.

What are the long range effects of these problems? The NTC is the only real testing ground for maneuver concepts that we have. Whether we like it or not, decisions are probably made, and opinions are certainly formed, about equipment and organizations, based on performances at the NTC. Right now, aviation on the whole and attack helicopters specifically are failing at the NTC. That is not to say the units that go to the NTC are not well trained, or that they don't work hard. These units that deploy to the NTC are just facing circumstances that do not permit them to succeed on the scale they are capable of. Ground commanders are learning that aviation is not an asset that can be counted on, and are consequently relegating its assets to secondary missions.

Corrective Action

What can we do to be more effective and reverse this negative attitude toward aviation? The problem is not an easy one, but I believe there are several areas we can improve:

- MILES/AGES II: This is the most important area. We have to be able to shine those little yellow lights on the battlefield. I had the privilege of flying as an AH-64 OC in LTC Olsen's second option. I counted over 75 tracked vehicles come through the Killing Zone (KZ) at four to six kilometers, and listened to the frustration as six AH-64s, each with 16 HELLFIRE missiles, went through engagements and got zero kills. I can imagine the response of the Brigade Commander, had we lit off 60-70 enemy vehicles.

This problem is in the hands of the engineers, and is probably as much a technological problem as a monetary one. We must have a system that can be easily installed, maintained, and replicates at least the direct fire weapons systems. The use of an eye-safe laser to replicate the weapons may be impractical. The current eye-safe range only laser is effective, but the killing laser doesn't work. The NTC has a kill box that utilizes RF signals to kill the vehicle remotely from long distance. (This system allows the "star wars" facility to kill vehicles with the push of a button.) This type of system could be incorporated into the AH-64, tying in the Range-Only-Laser and transmitting the RF kill code only when all firing constraints and times have been met. This would require a directional antenna to be installed on the AH-64 (possibly mounted on the side of the TADS, and boresighted optically).

Until such a system can be developed and fielded, I would recommend that a system like the artillery uses to assess kills be utilized. This would assign a certain number of kills based on several variables, among them range, terrain, visibility, time in KZ, and the number of missiles fired.

This would require a higher level of communication with ground OCs, and would also establish a level of subjectivity that the NTC attempts to avoid, but it would allow the AH-64 to have some influence on the battlefield. This system would only be able to partially reflect the actual number of engagements (a company of AH-64s could launch 96 missiles in two and a half minutes, but the OC system can't handle that number of engagements).

- The limited number of aircraft that the aviation units can bring to the NTC may be difficult to correct. One school of thought says the Brigade TF will never see an entire Attack Battalion. I would suggest that, to insure that the appropriate size slice be available during this expensive and limited training opportunity, the Attack Battalion needs to deploy in its entirety. There seems to be a perception in the aviation community that self-deployment is bad. We all fear the embarrassment of leaving a trail of broken aircraft from home station to the

NTC and back. This is certainly always a possibility, but good planning can help reduce it. The solution may be to have a good mix of self-deployment and deployment by Joint Army/Air Force Transportability Training. This keeps all your eggs out of one basket, and broadens the training value of the exercise. Certainly if aviation units could self-deploy more of their assets, they could take a greater percentage of their unit to the NTC.

- The OC requirement is particularly disconcerting. The officers that spent a tour as OCs are generally highly sought after upon their departure from Ft. Irwin. The other combat arms branches have made a commitment to fully support the NTC. Aviation needs to seriously look at a significant expansion of the permanent cadre. This cadre needs to include officers with recent experience in advanced aircraft. The pace at Ft. Irwin is tremendous, and the location leaves something to be desired. Couple this with the perishability of tactical skills, the tour for an OC should be limited to two years. The requirement to OC from a like vehicle is unique to aviation; armor and mech units are OCd from HMMVs. The need to OC from an aircraft is obvious; the need to OC from a like platform (like the AH-64) is also obvious. There is probably no reasonable way to maintain OC aircraft at Ft. Irwin but, if the rotational units can deploy more assets, the drain on the rotational units would be decreased.
- The nondoctrinal employment of aviation needs serious review. There are some factors that make the problem difficult. The NTC is set up for brigade size operations, and the Combat Aviation Brigade is a Division asset. The lack of adjoining forces (friendly and OPFOR) make boundary crossing unrealistic. The NTC also has extremely limited OPFOR Air Defense Artillery (ADA), so the effectiveness of aviation could be swung to the other extreme if the MILES/AGES II problem is solved. I recommend that Aviation Branch get involved in scenario development that would allow for a more accurate portrayal of aviation capabilities (and weaknesses). There is an installation that shares a boundary with the NTC, the China Lake Naval Weapons Center. This facility has the capability to replicate the most current threat ADA systems. Some cooperation with China Lake and the threat branch at Ft. Bliss may allow for a better OPFOR.

A concept whose time may be near, is that of an aviation pure rotation. With the creation of the Corps Aviation Brigades, there exist aviation units capable of utilizing the full scope of the NTC. I can see a rotation where the 6th Cavalry Brigade (AC), the only current fielded Corps Aviation Brigade, would be deployed with a ground (mech or armor) battalion. The brigade task force could conduct Deep, Rear, and Close operations against a viable threat like no aviation force has ever done in peace time. By tying into the threat systems at China Lake, we could more closely replicate the threat we expect to face.

As aviation continues to field sophisticated aircraft and assumes a greater role in AirLand Battle Doctrine, we must make a commitment to train and resource our training with the same intensity of our ground brothers. If we fail to do this, we will destroy the confidence of our fellow branches, and our own soldiers. It is my belief that we, aviation branch, have to this point failed, and not as a result of the units that have represented us at the NTC, but in our inability to replicate our true combat effectiveness, and our failure to adequately resource the NTC. IIIII

DCD Update

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at the Aviation Brigade Tactical Operations Center. The AMPS passes critical information (i.e., aircraft status) to the MCS computer for distribution over ATCCS architecture.

So you can see your combat developers have a lot of irons in the fire. Some of our hottest current actions include: reworking the Army Aviation Modernization Strategy to fit the budget; LONGBOW APACHE Army Systems Acquisition Review Council scheduled for June 1990; LH Cost and Operational Effectiveness Analysis; OH-58D procurement and distribution. In future issues, we'll bring you up to speed on these and other actions. IIIII

AARP Update
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as scrap or salvageable materiel. We will continue to utilize these methods to our benefit. But to deal with the large numbers of aircraft being retired we have developed a program we call the Contingency Aircraft Program, or CAP.

The objective of CAP is to eliminate the support burden of fielded systems being retired so that resources can be redirected to the management of new systems. We plan to do this by utilizing contractual arrangements with qualified civilian contractors to overhaul aircraft and components, provide short and long term storage, provide field support of aircraft, salvage and repair components, and provide supply support for aircraft systems.

Pools

We will utilize CAP to establish and maintain multiple pools of aircraft for a variety of contingency purposes. These pools can be utilized to support U.S. security interests, foreign military sales, and possible requirements from other government agencies. Aircraft placed in these pools will come from the retirement program and will be rehabilitated and refurbished to the extent required by each particular pool.

The first phase of the CAP program is already underway. It is the UH-1 Security Assistance Pool. This program will establish an available pool of overhauled UH-1H helicopters for foreign military sales.

Funds to overhaul twenty helicopters have been provided by the Defense Security Assistance Agency (DSAA). We plan to award a fully competitive contract for the depot level overhaul later this year. Included in the contract will be four option years for an additional 230 helicopters.

Establishment of this pool will relieve the burden placed on the Army to meet security assistance requirements when aircraft are diverted from depot overhaul to meet a Foreign Military Sales (FMS) obligation. It will also relieve Corpus Christi Army Depot from having to support FMS overhaul requirements.

Additional Programs

The UH-1 Security Assistance Pool overhaul contract is just the first of many programs we plan to establish under CAP. A similar program could be established for other aircraft systems that will be retired in the future which includes the CH-54, AH-1, and OH-6 helicopters. The CH-54 may have applications in civilian as well as military markets.

We will also be looking at contracts in aircraft storage and salvage, component repair, and contractor logistics support.

We feel that the helicopters being retired by the U.S. Army are a national asset, and the goal of Contingency Aircraft Program is to see that the government and its citizens receive the residual value of the these aircraft. IIIII

Confiscated Aircraft
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Customs Service and the United States Marshall Service. Their priorities are:

- The agency that made the seizure;
- Participating law enforcement agencies in the seizure effort;
- State and local governments that cooperated or assisted in the seizure effort;
- Public auction with sale asset sharing with state and local governments;
- Other government agencies.

Although the Posse Comitatus Act prohibits the Army from direct enforcement of civil law, we have been and will continue to be an essential team member on task forces targeted against the movement of illegal drugs into this country. Additionally, we have provided the Customs Service with sixteen UH-60 BLACK HAWKs and six C-12 Super King Airs on extended loan agreements for their dedicated use. A decision on Army priority for the reception of seized aircraft should be forthcoming, with the potential result of obtaining some excellent utility fixed wing assets. Let's hope for the best.

There are several misconceptions about confiscated aircraft people should be aware of. The aircraft are not *totally* free; in most cases, there will not be any maintenance records available, and the life-cycle status of major components may be difficult to determine. Historically, some of the aircraft brought into inventory under the confiscated program have been expensive when major TBO items have required replacement or overhaul because of unknown life cycle status. These costs would normally be carried by the command asking for the aircraft.

Another misconception that exists is that AVSCOM will decide who gets the aircraft. This is not correct. DA is the only authority in deciding who is going to receive one of the confiscated assets. AVSCOM's role includes everything from maintenance contract with the various law enforcement agencies in an attempt to find aircraft to the actual acceptance, pick-up, and delivery of the asset to the gaining unit. AVSCOM does not make the decision as to where the aircraft goes.

Anyone who has read a newspaper recently knows that the Federal Government is committed to fighting a serious war on drugs. Because of the wide range of agencies involved in the effort, no single group knows exactly what has been seized or what is available for disposal. As a result, some aircraft in the past have sat for a year or more without any action to move them.

Additionally, assets may be tied up in the court system for extended periods of time. The end result is there may be aircraft available for disposal that no one has a firm handle on. There are changes taking place now that should eliminate this problem, but because of the various agencies involved, changes are slow. The bottom line to all of this is, if any Army unit or agency becomes aware of a confiscated aircraft out there that looks like it might be of benefit to our utility fleet, contact AVSCOM at AUTOVON 693-2258 and talk to MAJ Paul Keil. We might just be able to bring it into the inventory and help the Army leadership maintain the procurement priority in the combat arena. IIIII

ELINT Update
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aircraft beyond the year 2000. The program encompassed safety, supportability, and survivability improvements based on evolving engineering changes for the aircraft and radar sensor. FY 90 Program Budget Decisions terminated MSIP funding, causing the acceleration of an incremental retirement strategy which will eliminate the entire MOHAWK fleet by 1997.

Concurrent activities within the ELINT/SURV office include nondevelopmental approaches to specific user needs for manned airborne surveillance. While the MOHAWK team works toward the future of manned aerial surveillance organic to the Army, the needs of today's user in the field remain the number one priority. IIIII

Deep Operations
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support of all arms. All units involved in the operation must participate in planning and coordination to guarantee mission success and prevent fratricide. The corps must coordinate the passage points with the division to expedite the passage of lines. The fire support plan for this operation is planned in detail to assist in crossing the FLOT. The fires should be scheduled so that they begin before forces cross the FLOT and end before the lead aircraft arrives at the FLOT; the COMJAM should end as aviation units leave the friendly artillery range. ELINT jamming continues until the aviation unit returns.

Route separation considerations should include the separation of company flight paths by as much as three to five kilometers. This dispersion improves survivability; a single Threat system is thus less likely to acquire and destroy the entire assault force.

Return and reentry through the FLOT differ chiefly in the selection and use of different egress routes and the use of onboard ASE. The corps must coordinate the passage of lines by changing the AD weapons system status of the ground maneuver units. ASE and IFF systems will be employed to the maximum to defeat all possible Threat AD systems during the penetration of the FLOT.

Immediately after recrossing the FLOT, companies will assemble at designated holding areas for sequencing into the Forward Arming and Refueling Point. Aircrews will be debriefed and intelligence reports sent to higher headquarters; this will complete the final phase of the mission.

The deep operations component of the AirLand Battle doctrine contributes to the overall campaign and tactical plan by delaying, disrupting, and destroying the enemy's uncommitted forces. These actions isolate the enemy from close operations, prevent massing, and allow U.S. forces to defeat the enemy. Additionally, deep operations create windows of opportunity to seize or retain initiative and thereby defeat the enemy's plan.

Further information of deep operations can be found in annex J of FM 1-111, *The Aviation Brigade*, and FM 1-112, *The Attack Helicopter Battalion* IIIII

LOH
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temperature environments. Fleet-wide Modification Work Order (MWO) application will begin in mid-1991.

- The Air-To-Air Stinger (ATAS) missile program will provide the OH-58C with a self-defense capability against the air-to-air threat. The initial program calls for installation of 202 ATAS systems on selected OH-58C aircraft. Fielding will begin in the second quarter of FY90.
- The AN/ARC-201 SINCGARS program will replace AN/ARC-114 FM radios with SINCGARS radios. All OH-58Cs and OH-58As not scheduled for retirement will be modified, providing a dual FM secure communications capability. Fielding will begin in the third quarter of FY 90.
- The AN/AVR-2 Laser Warning program will provide the capability to detect laser threats and provide audio and visual warning via the existing AN/APR-39 Radar Warning System. All OH-58Cs will be modified. The design effort has been completed. Funding cuts have delayed kit procurements until FY 91.
- The NVG Cockpit Lighting Program is currently modifying all OH-58 and OH-6 cockpits with ANVIS-compatible lighting. The initial phase will be completed in all aircraft in FY 90. Future phases will further improve cockpit lighting with the goal of eventually achieving full MIL-L-85762 compliance.

In short, the above programs and any future programs which evolve in response to specific requirements will ensure that the OH-58A and OH-58C will be safe, capable, and supportable well into the next century. These aircraft will continue to perform their mission while the Army transitions into a modernized scout fleet of OH-58D and future LH aircraft. IIIII

Priorities
continued from page 8

APACHE's performance in Panama. There were originally six APACHES deployed in Panama. One of them was damaged on the way there and never flew in Panama. It was out of action the entire time it was down there, through no fault of the Army's, but it did affect the readiness rates because it was included in the statistical evaluation that was conducted at that time.

The five that did fly, and the five more that were flown in after the action started, had an excellent record. Again, mission capable readiness was around 80 percent and not the levels reported in the newspapers.

I am not implying that we do not have logistics problems with APACHEs. We do. You have to keep in mind that it was only toward the end of last year that the first APACHE aircraft reached 1,000 hours of flight time. We have only 450 aircraft in the field, and most of them have not yet flown 1,000 hours.

One last statistic to give you relates to maintenance people. There have been two allegations made in the press. One is that we are plussing up our maintenance battalions by 35 percent. We are actually adding 35 people to maintenance battalions, people who have always been in the TOE. Those 35 people only represent about a 25 percent increase — not the 35 percent increase mentioned in the press.

The press also suggests that we are unable to keep our maintenance personnel. Our retention statistics don't prove that in any way. We do not think that we are losing any more of our maintenance personnel in the aviation field then we would expect to lose in normal patterns of personnel attrition.

In conclusion, I feel that we have very fine professionals in Army Aviation today. As we begin this new decade, I am confident that your outstanding ability, dedication, and performance will continue to guarantee that we have an Army Aviation Branch of which our country can remain truly proud.

Ultimate 500
continued from page 59

unit and *total* individual training, that is training to the unit's Mission Essential Task List (METL), as envisioned in FM25-100, "Training the Force." Are mechanics being trained to standard? Or are only common military tasks and skills trained to standard because they are convenient, definable, and demonstrable? Where are the standards for mechanics? Where are the repair time comparisons? Where are the individual training records that reflect an organized and coordinated attempt to enhance the combat maintenance skills of our soldier-mechanics? Is there equal time set aside for mechanic training? Commanders, do you work mechanics or train them?

Are we wrong if we work mechanics? Let me just ask—does an infantry commander work his soldiers or train them? Does an armor commander work his soldiers or train them? Artillery commander? Do we find ourselves training our mechanic-soldiers during the duty day and them work them at night and on the weekends? Why? Is it because we don't consider work training? I would submit to you that unless you put work into a recognized coherent training program, TASK, CONDITION, and STANDARD you have nothing but work, work, and more work. This not only adversely impacts morale, but does nothing o train mechanics to achieve expected wartime performance levels.

Like the Berlin Wall, the impediments to mechanic training must come down. An attitudinal, as well as a cultural revolution must take place. Training and work are not synonymous. The high technology weapons systems that we have in the inventory today require highly trained and skilled mechanic-technicians to maintain them. As even more sophisticated weapon systems loom on the horizon, now is not too soon to begin training mechanics in lieu of working them! We need to train our soldier-mechanics to function at Indianapolis 500 or Daytona 500 performance levels, not at "E.Z.'s REPAIR SERVICE" levels. After all, the focus of our training efforts is the successful conduct of war, not peace.

Commanders and fellow trainers, we have the best machines and the best drivers (pilots) in the world. How are your maintenance crews? Will your TOTAL team be ready for the ULTIMATE 500? IIIII

ATS
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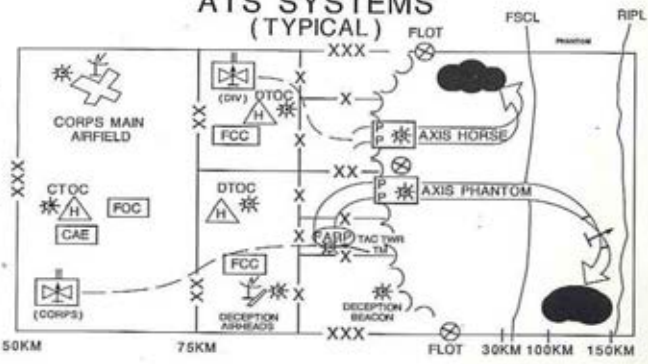
as the National Training Center at Fort Irwin, CA, and the Joint Readiness Training Center at Fort Chaffee, AR, are now maneuvering units to deploy with ATS assets to tactically manage their airspace. This provides a larger emphasis on safety while integrating ATS doctrine.

To be an effective combat multiplier, ATS assets must be integrated into the scheme of maneuver. Only through standardized training will the supported unit fully begin to realize the benefits of tactical air traffic services. With realistic, effective ATS-supported training, the aviator will gain a better understanding of air traffic service capabilities and how they actually can increase the chances for successful mission completion. IIIII

INTEGRATION OF ATS SYSTEMS (TYPICAL)



COMINT/EW
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workload, and improved safety and survivability. This system will also have the capability to employ embedded training and a data loader/transfer function, which are currently being incorporated on the OV-1 MOHAWK. This gives the Corps commanders a much more capable system, not only as an invaluable intelligence asset in time of war, but also in performing real world peace time missions.

I have also continued the efforts to upgrade the avionics package on the RU-21H. The American Electronics Laboratories (AEL) Corporation is presently on contract to prototype one upgraded RU-21H cockpit and prove out their design on a second airplane with a Verification and Validation (V&V) kit. The remaining 19 RU-21Hs would then be retrofitted with production kits beginning in the summer of 1991.

The RU-21H fleet has suffered numerous supportability problems, particularly with the present Inertial Navigation System (INS). The avionics upgrade will incorporate the Carousel IV-E INS, as well as secure lighting, GPS, SINCGARS, a new TACAN, a new autopilot, and an advanced Flight Management System. These enhancements will allow the RU-21H to remain a viable COMINT/EW platform in the future and greatly reduce supportability problems.

The EH-60A, QUICKFIX, is out of production now and being fielded to using units. Only five units remain to complete fielding. The QUICKFIX fleet will give the Division commanders the ability to perform COMINT missions and also Jamming missions as needed. I am investigating ASE integration on the EH-60 similarly to the way it is being done on the OV-1 and RC-12K. This effort would have common hardware components with those platforms and require only some software-unique differences.

As you can see, there are many exciting things happening with our COMINT/EW fleet. By working closely with the Product Managers for GUARDRAIL/COMMON SENSOR and QUICKFIX, as well as using units, we will continue to improve these aircraft in order to optimize their safety, survivability, and supportability to increase mission effectiveness. IIIII

CAREER TRACK

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

Captain, USMA 1979, BS-Civil Engineering. 10 years Regular Army. Company Cdr., Executive and Opns. Officers, and Platoon Ldr. UH-60 Assault and Air Cav. Assignments, Instructor and OH-58D Project Officer. Seeking Avn. Industry Position in Engineering/Dev., Marketing or Training. Available May '90. 05-90-01

Chief of Staff/Garrison Cdr., TRADOC Installation; 17 years in Training Strategy and Training Dev.; Combat Developments experience at DA and TRADOC; Commanded an avn bde., battalion and company; AWC graduate; MPA (Auburn); BS (Math). 05-90-02

Captain, USMA 1985, BS Management, seeks Management/Mktg./Pilot position with Aviation/ Defense Industry. Rotary and Fixed Wing qualified. Experience as airfield commander, operations and intelligence officer, contracting representative. Available July '90. 05-90-03

Marketing/Program Manager. 20 years Army, 18 years Industry experience in aviation and related activities. BS, MS Aero-Engineering, MBA. Thorough knowledge of DoD and other government agencies. Available now. 05-90-04

CW4 retiring from Army 30 June. Over 6000 flight hours, instructor and Instrument Examiner qualified. BS Mathematics and BS Education. Looking for nonflying, aviation industry position Mineral Wells or Temple, TX area. 05-90-05

BRIEFINGS

Members of the **4th "Iron Eagle" Brigade, 1st Armored Division** stationed at Ansbach Army Heliport, Katterbach, W. Germany, took time out from their busy daily activities on 30 October 1989 to celebrate their exemplary aviation safety record. The "Iron Eagle" Brigade has not had an aircraft incident involving loss of life or serious damage to an aircraft (Class A mishap) since September 1982. In that time, they have logged more than 150,000 flying hours, an exceptionally remarkable record.

An Army aviator has joined the short list of aviation greats honored with the Harmon International Aviation Award. **CW3 Jon A. Iseminger,** 1989 AAAA Aviator of the Year, was presented the award by the Vice President of the United States **Dan Quayle** April 18, 1990. Iseminger was nominated and selected for his 1986 achievement as the World Helicopter Champion. Iseminger is not only the first warrant officer selected for the honor, but also the first Army aviator named since **LTG James A. Doolittle** in 1950.

McDonnell Douglas has received a contract from the Army to modify two A/MH-6 rapid deployment helicopters to incorporate the NOTAR anti-torque system. The contract also sets the stage for the Army to retrofit its other MD 500 Series helicopters. In other McDonnell Douglas news, the government of Israel has ordered 18 AH-64A Apache helicopters. The contract, worth approximately $150 million to McDonnell Douglas Helicopter Co., will be completed as a foreign military sale with the U.S. government.

Harvey S. Levenson has been named president and chief operating officer of **Kaman Corp.,** Bloomfield, CT. **William P. Desautelle** and **Robert M. Garneau** have been appointed senior vice presidents of the corporation; and **Ronald M. Galla** has been named vice president.

The **Perkin-Elmer Electro-Optics Technology Division** in Danbury, CT was purchased by the **Hughes Aircraft Company,** a unit of GM Hughes Electronics. The division is now operating as Hughes Danbury Optical Systems, Inc. (HDOS).

GEC-Plessey Avionics Ltd. of Havant, Hampshire, UK has received further orders for their integrated Health and Usage Monitoring System (IHUMS) computer. The IHUMS satifies the requirements of impending mandatory CAA and FAA helicopter legislation to fit Accident Data Recorders to all helicopters above 2,700 kgs.

The **Boeing Sikorsky Light Helicopter First Team** has revealed for the first time a full-scale mockup of its proposed armed reconnaissance/light attack/air combat aircraft for the U.S. Army at the **AAAA Annual Convention** in Orlando, FL. The LH mockup, funded by Boeing Sikorsky, will serve as an engineering tool in continuing MANPRINT studies.

AWARDS AND HONORS

The following information is provided by the U.S. Army Aviation Center at Ft. Rucker, AL:

Initial Courses:

Class 89-5 UH-1 Track (09/01/89): 2LT Bradley A. Bridgewater, Dist. Grad.; 2LTs Joe L.J. McMillen & David E. Noegel, Honor Grads.

Class 89-5 UH-1 Track (09/01/89): WO Brian E. Parrotte, Dist. Grad.; WOs Daniel P. Teeter, Mark E. Herd, Honor Grads.

Class 89-5 OH-58 Track (09/01/89): 2LT Barry P. Sweeney, Dist. Grad.; 2LTs Russell D. Bissinger & James E. Brown III, Honor Grads.

Class 89-5 OH-58 Track (09/01/89): WO Daniel L. MacGregor, Dist. Grad.

Class 89-4 UH-60 Track (09/01/89): WO Jack S. Newman, Dist. Grad.

Class 89-3 AH-1 Track (09/01/89): WO Wayne E. Gore, Dist. Grad.

Class 89-13 UH-1 Track (01/12/90): 2LT George S. Belin, Dist. Grad.; CPT William S. Lehman, Honor Grad.

Class 89-13 UH-1 Track (01/12/90): WO Darrell A. Feller, Dist. Grad.; WO John S. Tomkowski III, Honor Grad.

Class 89-13 OH-58 Track (01/12/90): 2LT Brad L. Schoneboom, Dist. Grad.

Class 89-13 OH-58 Track (01/12/90): WO Gregg A. Deetman, Dist. Grad.; WOs Brian D. Fox, Nelson R. Lubold III, Honor Grads.

Class 89-12 UH-60 Track (01/12/90): 2LT John O. Payne, Dist. Grad.

Class 89-13 UH-60 Track (01/12/90): WO Mark A. Prosser, Dist. Grad.

Class 89-11 AH-1 Track (01/12/90): WO Markham S. Phillips, Dist. Grad; WO Caley J. Stewart, Honor Grad.

Class 89-14 UH-1 Track (01/31/90): 2LT Mark J. Radtke, Dist. Graduate; 2LT Christine M. Mugrage, Honor Grad.

Class 89-14 UH-1 Track (01/31/90): WO Andrew J. Gandarillas, Dist. Grad.; WO James A. Schroder, Honor Grad.

Class 89-14 OH-58 Track (01/31/90): 2LT Gregory K. James, Dist. Grad.; 2LTs Stephen T. Darr & Alexander E. Murray, Honor Grads.

Class 89-14 OH-58 Track (01/31/90): WO James M. Gigliotti, Dist. Grad.

Class 89-13 UH-60 Track (01/31/90): WO Richard J. Gregg, Dist. Grad.

Class 89-12 AH-1 Track (01/31/90): 2LT James R. Barnes, Dist. Grad.

Class 89-12 AH-1 Track (01/31/90): Gregory G. Breunig, Dist. Grad.

Class 89-15 UH-1 Track (02/14/90): 2LT Daniel E. Drew, Dist. Grad; 2LT Christine J. Millard, Honor Grad.

Class 89-15 UH-1 Track (02/14/90): WO Joel D.H. Buchanan, Dist. Grad; WO Brock A. Tedrick, Honor Grad.

Class 89-15 OH-58 Track (02/14/90): 2LTs William O. Fisher & William J. Van Bree, Dist. Grads.

Class 89-15 OH-58 Track (02/14/90): WO Trent M. Kemp, Dist. Grad.; WO Kurt W. Hammond, Honor Grad.

Class 89-14 UH-60 Track (02/14/90): 2LT Troy D.Krings, Dist. Grad.

Class 89-13 AH-1 Track (02/14/90): WO Tawee R. McLeod, Dist. Grad.

Class 89-16, UH-1 Track (02/28/90): 2LT Mark T. Calhoun, Dist. Grad.

Class 89-16, UH-1 Track (02/28/90): WO Daniel J. Ferreira, Dist. Grad.; WOs Alan C. Mack & David S. McCurry, Honor Grads.

Class 89-16, OH-58 Track (02/28/90): 2LT Mark A. Hinds, Dist. Grad.

Class 89-16, OH-58 Track (02/28/90): WO Stephen D. Shiveley, Dist. Grad.; WOs Vincent D. Rice, Wesley D. Watkins, & Richard L. Utech, Honor Grads.

Class 89-15, UH-60 Track (02/28/90): WO Rodney L. Ruggles, Dist. Grad.

Class 89-14, AH-1 Track (02/28/90): 2LT Jeffrey R. Holcomb, Dist. Grad.

Class 90-1 Senior Warrant Officer Course (01/09/90): CW4 Ralph J. Weber III, Dist. Grad.; CW4s Thomas C. Daley, Harold B. Miller, John M. Parry, CW2 Tom E. Grogan, Honor Grads.

Class 89-5 Aviation Officer Advanced Course (02/23/90): CPT Thomas J. Comodeca, Exceeded Course Standards & Class Leader.

Class 90-2 MWO Training Course (03/08/90): MWO Gregory A. Waltz, Class Leader.

Class 90-02 USAAVNC Basic NCO Course (02/22/90): SGT John R. Boyd, Dist. Grad.

Class 90-02 Avionic Maint. Sup. Advanced NCO Course (03/09/90): SSG Jeffrey I Briddell, Dist. Grad.

Class 90-01 AVN OPS SPC Advanced NCO Course (03/09/90): SFC John R. Valentine, Dist. Grad.

Class 90-03 ATC Operator Basic NCO Course (03/09/90): SSG Noel W. Taylor, Dist. Grad.

Class 90-01 AVN OPS SPC Basic NCO Course (03/09/90): SSG Andy W. Seymore, Dist. Grad.

Class 90-01 Aeroscout Observer Basic NCO Course (03/09/90): SSG Russell F. Awalt, Dist. Grad.

Avionic Communication Equip. Rep. Basic NCO Course (04/20/90): SGT Clyde E. Teeter, Dist. Grad.

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COL Roland Sade
CPT Bradley J. Snyder, Ret.
Mr. Horst Steinberg
Mr. Wolfgang Walter
COL Warren J. Walton, Ret.
LTC Donald D. Wilkes, Ret.
Mr. Douglas S. Wood
CW2 Royden S. Zimmerman

WINGS OF THE DEVIL CHAP. FORT POLK, LA

CW2 Renato R. Astolfi
1LT Robert C. Covert
LTC James P. Hogan
1LT Kevin J. Krull

WINGS OF THE MARNE CHAP. GIEBELSTADT, GERMANY

CW2 Gregory F. Barnes
WO1 Gregg A. Beck
1LT Laurence R. Bishop
CSM Ruben A. Blackmon
2LT David P. Bruner
SGT Keith T. Burke
CPT Randolph B. Cash
PV2 Bret R. Gaidos
PFC Steven A. Haase
SPC Ryan M. Kalipi
CW2 Randy M. Kirgiss
Mr. Stephen G. Kreipe
1LT Gregory S. McAfle
1LT John C. McLean
PFC James Scott Medrick
SPC Thomas J. Miller
CPT William H. Morris
PV2 Larry B. Newman
CPT Michael J. Pergande
PFC Michael K. Phillips
WO1 Kevin S. Poates
WO1 Robert B. Rainier
Mr. Jeffrey I. Randall
CW2 Jeffrey A. Reichard
PV2 Arthur L. Rice
SGT Michael T. Ryan
1LT Alan Seise
CPT Emmett C. Shaffer
SGT James F. Smith

MEMBERS WITHOUT CHAPTER AFFILIATION

LCL Richard Agnus
LTC Jack C. Ahrens, Ret.
Mr. Pete Alexander
Mr. Gene Allen
Mr. Steve Allen
Mr. Samuel J. Amato
SSG James A. Aperans
Mr. Tom Archer
Mr. Edward J. Ayral
Mr. Kyle D. Barnes
Mr. Jean Billioque
Mr. Jacques Bisson
Mr. Paul Bisson
Mr. Ray Briggs
MAJ Brad C. Brightman
Mr. Lionel Brochu
CW4 Jackie R. Brooks
SSG Lisa M. Brown
Mr. Walt Brown
Mr. Roy Robert Carver
Mr. Robert Chappell
Mr. Jacky Cloue
Ms. Pilar Concha
SGT Robert J. Conger
SGT Jody R. Connett
SGT Gregory E. Crawford
MAJ Reed R. Critchfield
Mr. Dominique De Ponteves
CW3 Robert L. Dobis
Mr. Ben Earl Doll
Mr. Steven R. Eagleburger
Mr. Lee Ellis
Mr. Vahit Erdem
Mr. Henry Fisher
Mr. Matthew S. Forelli
Mr. Jay W. Foster
Mr. Herbert J. Frank
CW4 Raymond A. Frank
Mr. H.Q. Franzen
MG Robin D. Grist
Mr. Roland Guigner
SFC Gary G. Gustalson
CW4 Lance H. Ham
Mr. John E. Hansen
SSG Kelly S. Hess
Mr. Donald R. Hiller
CW3 Michael C. Hillwig
Mr. Charles R. Hofius, II
Mr. Earl L. Hruska
Mr. John D. Issenman
Mr. Tom R. Jicha
Mr. Steven M. Jones
LTC Kenneth T. Joyner
Mr. Darrel P. Kaiser
Mr. Ellis E. Kendall
Mr. Jerry T. Knight
Mr. Allen M. Krieger
Mr. Gilles Lalonde
Mr. John A. Largess
Mr. Walter R. Ledbetter
Mr. Gerard Lenestour
CW4 Marshall L. Lewis, Ret.
Mr. Clydeen Lowman
Mr. Kent R. Martin
Mr. David R. Mazoff
Mr. John F. Michaels
CW4 William P. Mignon, Sr.
Mr. Stu Miller
Mr. Kevin D. Moran
1LT April J. Moss
CPT Don V. Naman
Mr. Mike Neder
CPT George B. Nessmith, III
Mr. Sy Newman
LTC Charles R. Ogle
Mr. William C. Parker
Mr. Jean Claude Parmentier
Mr. Timothy L. Patterson
1LT Francisco C. Paulino, Jr.
1LT Richard A. Pember
Mr. Charles E. Piker
Mr. Guenther Price
Mr. Mike Pursel
Mr. Dale Robertson
Mr. Curtiss L. Robinson
Mr. Meyer Rosen
CW3 William C. Ross, Jr.
Mr. Jean-Claude Salvinien
SGT Wilbur F. Scott
Mr. Jean Segui
Mr. Alex Simonot
LTC Don E. Stagg
Mr. Jeff Stolbom
Mr. Gary W. Strawn
MAJ Donald P. Sullivan
Mr. Ralph Thompson
Mr. Frank Vangorkum
1LT Edward Vargas
Mr. James L. Wade
Mr. William J. Whitehouse
Mr. Frank A. Witt
Mr. Ron Ziegler
Ms. Kathy M. Zima
Mr. Terry Zurn

The SILVER EAGLES Program was established in 1988 to recognize those AAAA supporters who have been members for at least 30 years.

SILVER EAGLES receive a special 30-year membership pin, a listing in ARMY AVIATION magazine and recognition at the AAAA Convention.

We've come a long way since 1957 — when a small group pf aviation officers banded together to form the AAAA. Thank you SILVER EAGLES for your continued support. Those 30 year members who joined AAAA in 1960 are:

Ackerley, James M., MR.
Adie, John R., COL
Baldwin, Franklin D., CW4
Ball, Donald A., MR.
Barthel, William H., MR.
Berta, Thomas L., COL
Boehm, William C., COL
Bonnett, William B., COL
Bosking, William H., MR.
Bourgeois, Randolph C., LTC
Brophy, Edward R., Jr., LTC
Brunelle, Pierre V., COL
Burk, Friedrich, CW4
Burleson, Carl L., COL
Caesar, Charles W., MR.
Cantrell, William D., LTC
Cargen, Alfred J., CW3
Chin, Bak Y., LTC
Christensen, Neal R., BG
Chunn, Don C., Jr., COL
Clark, Carl G., LTC
Cropp, Ralph C., MR.
Doyle, John P., LTC
Fitch, John B., COL
Frank, Joseph J., MSG
Frownfelter, James, O., LTC
Fumey, Robert M., COL
Fyffe, Carroll M., COL
Gauze, James E., COL
Gillispie, William H., MR.
Golding, Willard E., COL
Gorman, Mary H., MISS
Greene, Robert P., LTC
Harber, Bobby D., LTC
Harper, William H., COL
Harris, Lyman B., Jr., LTC
Hays, James D., LTC
Henderson, Ralph E., LTC
Hendrickson, Paul L., MR.
Holbert, Calvin D., MR.
Holmes, Ernest L., LTC
Hoyem, Sylvan D., LTC
Innes, Douglas D., COL
Isenmann, Lester G., CW4
Jacob, John S., LTC
Jayne, Robert K., Jr., COL
Jones, W.P., MR.
Kallata, Clifford J., MAJ
Kelly, James J., COL
Kibler, Robert A., MAJ
Kitteman, James H., COL
Klein, Frank S., LTC
Koslow, Norman, MR.
Layne, Leslie A., COL
Leach, Bertram G., LTC
Leach, Ercie J., COL
Leins, David V., Jr., LTC
Leister, Richard W., LTC
Leonard, Jesse W., CW4
Lilley, Aaron L., Jr., MG
Marr, John W., COL
Martin, Geary D., COL
Masters, William W., MR.
McNamee, Vernon D., LTC
McWilliams, Bayard T., MR.
Miller, Richard E., LTC
Moore, Peter W., LTC
Mye, Edward F., BG
Neel, Spurgeon H., MG
Oberg, Robert E., COL
Osborne, Walton H., III, LTC
Pate, Robert I., COL
Peele, William G., LTC
Powell, Buell R., LTC
Rackley, Robert L., LTC
Reynolds, Charles W., MR.
Robinson, Charles A., LTC
Robinson, Edward C., COL
Schneider, Maurice D., MR.
Sevier, David W., MR.
Sharp, Leonard J., LTC
Shoemaker, Robert M., GEN
Shonerd, George D., LTC
Smith, Denald H., COL
Smith, Richard A., COL
Spelser, Carl H., Jr., MR.
Stiles, Howard J., COL
Sullivan, Bernard P., CW4
Taylor, James M., LTC
Taylor, William D., COL
Thompson, Thomas E., COL
Thornton, Tommy W., LTC
Turner, Hollis C., CW4
Vogt, Albert F., MR.
Watson, Ronald J., LTC
Webb, Charles L., COL
Weinstein, Leslie H., COL
White, Jewel G., LTC
Wirthlin, Floyd R., LTC
Woolcki, Walter J., MR.
Zorn, Burl A., COL

ARMY AVIATION ASSOCIATION OF AMERICA (AAAA)

49 RICHMONDVILLE AVE., WESTPORT, CT 06880 • PHONE: (203) 226-8184 • FAX (203) 222-9863

Please check one: ☐ Change of Address; ☐ New Membership Application

I wish to join the Army Aviation Association of America (AAAA). As a U.S. Citizen, my past or current duties affiliate me with U.S. Army Aviation and I wish to further the aims and purpose of the AAAA. I understand that my membership includes a subscription to the AAAA-endorsed magazine "Army Aviation", and that my membership will start on the subsequent first of the month. The name of the current member who recruited me is printed in the lower right corner. Contributions or gifts to AAAA are not deductible as charitable contributions for federal income tax purposes. Dues payments are deductible by members as ordinary and necessary business expenses.

Rank/GS Grade _____ First Name _____ MI _____ Last Name _____ Sex _____

Mailing Address _____

Mailing Address (Continued) _____

City _____ State _____ Zip + 4 Code _____

Active Duty or Civilian Job Title _____

Unit or Firm Name _____

( ) _____ Area Code Office Phone

( ) _____ Area Code Residence Phone

Nickname _____ Spouse's Name _____

Date of Birth (Mo/Yr) _____ Social Security No. _____

Office Use _____

AAAA ANNUAL DUES

Applicants other than those listed below:
( ) 1 yr, $15; ( ) 2 yrs, $29; ( ) 3 yrs, $43
Enlisted; GS-6 & below; Wage Board 12 DAC's and below:
( ) 1 yr, $10; ( ) 2 yrs, $19; ( ) 3 yrs, $28
Add $5 per year if you have a foreign, non-APO address.
Add $15 if your check is drawn on a foreign bank.

[ ] Check enclosed made payable to "AAAA."
or charge to: [ ] Mastercard; [ ] Visa

Card No. _____

Amt $ _____ Exp. Date _____

Signature _____ Date _____

Check (✓) Your Professional Qualification

( )	Army Active Duty	( )	US Defense Industry
( )	DA/DOD Civilian	( )	Consultant
( )	Army Nat'l Guard	( )	Publishing/Other Assn.
( )	Army Reserve	( )	Foreign Military Service
( )	Army Retired	( )	Foreign Defense Industry
( )	Other US Military Service	( )	Other _____

Are you a former AAAA member? ☐ Yes ☐ No

If yes, what year did you join? _____

Print Name of Recruiter _____

The AAAA President's Annual Report

The following remarks are excerpts from the AAAA President's Annual Report delivered by BG James M. Hesson, Ret., AAAA President, during the AAAA Membership Luncheon, 12 April 1990, at the AAAA Annual Convention in Orlando, FL.

How are we doing? In total membership, we are growing with 17,077 active members, up from 16,487 last year. Life membership has shown a significant increase with the adoption of a new payment plan allowing members to pay up annually, semi-annually, quarterly or monthly. We now have 644 Life Members, up from 561 Life Members last year. Industry Membership is on the rise. There are now 203 members, an increase of 19 since last year. Sustaining Memberships are still popular among the Chapters with 67 Members as of March 31st.

In the area of Regional and Chapter activities, AAAA continues to grow with each passing year. A look at the AAAA CALENDAR in each issue of **ARMY AVIATION MAGAZINE** verifies the fact that many professional and social gatherings are being held throughout the Association's worldwide structure. I attended the USAREUR Convention held in November 1989. It is unmatched at the Regional level anywhere in terms of its high level and industry attendance support and remains one of AAAA's more prestigious gatherings.

In the area of national meetings, the Lindbergh Chapter-sponsored annual **Joseph P. Cribbins Product Support Symposium**, held this past February, maintained its high attendance records. The Lindbergh Chapter also sponsored the First AAAA Scholarship Banquet during the Symposium and donated the profits from this Symposium to the AAAA Scholarship Foundation.

The Seventh Annual AAAA **Aircraft Survivability Equipment (ASE) Symposium** was held in Austin, Texas in early November and established a new high of 175 attendees. The **Monmouth Chapter** will hold its biennial **Army Aviation Electronics Symposium** in September 1990. AAAA's 54 Chapters in 1989 held 165 meetings—which produced over $30,000 in refunds returned from the national organization to Chapters for their use.

We are also proud to welcome EIGHT new AAAA Chapters: **Armadillo Chapter**, Conroe TX; **Central Florida Chapter**, Orlando, FL—our Host Chapter; **Fort Bliss Chapter**, Fort Bliss, TX; **Greater Chicago Area Chapter**, Chicago, IL; **North County Chapter**, Fort Drum, NY; **San Jacinto Chapter**, Ellington Field, Houston, TX; **Talon Chapter**, Illesheim, Germany; and the **Tarheel Chapter**, Raleigh, NC.

ARMY AVIATION MAGAZINE continues to bring comprehensive information about Army Aviation developments to our members ten times a year. We have structured the magazine to allow the "the troops in the field" to provide updates. Junior officers and enlisted soldiers are encouraged to express themselves.

With respect to contemporary issues, AAAA went to bat for Army Aviators on the **Aviation Career Improvement Act**, aggressively supporting equalization of flight pay among the services and among all ranks, commissioned and warrant officers. AAAA is currently working with the Aviation Branch Chief to formulate a position on "Aviation Warrant Officers Wearing the Branch Insignia". You can count on AAAA to represent the membership on issues having an impact on Army Aviation.

We initiated an employment referral service in 1989—called **CAREER TRACK**—and we'll be placing major emphasis to expand this service in the future. We have developed a library of ARMY AVIATION articles and have established a Video Library available for individual and chapter use. We have also established a mini-warehouse of "AAAA Goodies" for sale in support of chapter needs, including **T-Shirts, Caps, and Patches**.

AAAA now offers a **CHAMPUS HEALTH SUPPLEMENT PROGRAM** for members. This service is directly funded by you. Every dollar you spend on CHAMPUS SUPPLEMENT goes directly to the insurer to pay for your insurance. We're also looking into other programs that provide personal benefits, such as credit cards, legal services, and so forth.

"Recognition" is a key word in this Association. The AAAA Awards Program attests to that. National Award winners represent the best and brightest. AAAA also recognizes several special areas. The first presentation of the AAAA **Howze Gunnery Award** was made in December 1989 to the winners of the APACHE "Top Gun" Competition, **CW2 John S. VanBuren** and **1LT Michael J. Blatz** of B Co., 1/3 Aviation Regiment, 2d Armored Division, Ft. Hood, TX. **Rockwell International** provided take-home trophies to the top three crews.

The AAAA **Trainer of the Year Award**, sponsored by **CAE-Link**, went to **CW4 Russell A. Hunter**, E Company, 160th Special Operations

(REPORT — continued on page 90)

President's Report
continued from page 89

Aviation Group (Airborne), Fort Campbell, KY.

The AAAA's ASE Award went to MAJ Steve L. Ash, USMC, who served as Assistant PM-ASE.

The **Outstanding Logistic Support Unit of the Year Award** was awarded to **B Company, 3rd Battalion, 501st Aviation Regiment**, APO San Francisco. The Commander, MAJ Robert P. Birmingham accepted on behalf of the unit at the AAAA Lindbergh Chapter Product Support Symposium.

Industry contributions to Materiel Readiness were also recognized at the Product Support Symposium. The **Individual Industry Award** went to **Mr. Richard D. Walter**, President, Beech Aerospace Services, Inc. The **Industry Team Award** was awarded to **Lockheed Support Systems, Inc.** The **Small Business Organization Award** went to **Schweizer Aircraft Company**. The **Major Contractor Award** went to **DYNCORP**.

We also honor our outstanding young who are entering the Aviation Branch. This year's AAAA Top **ROTC Cadet of the Year Award** will be presented to **Cadet Gregory Todd Lang**, Western Maryland College at our December meeting at Ft. Rucker. The AAAA Top **U.S. Military Academy Cadet** of the Year Award will be presented during graduation week to **Cadet Hely Dave Wood**. On a related subject, the AAAA is donating $5,000 toward the establishment of a **"Memorial to Flight"** at West Point.

AAAA also has been providing sterling silver wings for some time to the initial entry Distinguished Graduates and provides branch insignia to newly Aviation-Branched officers.

Every three years, AAAA honors sustained contributions to Army Aviation by inducting members into the **AAAA Army Aviation Hall of Fame**. The next induction ceremony will take place at the AAAA Annual Convention in April 1992. Three Congressional Medal of Honor winners will be inducted in a special ceremony held in conjunction with the grand opening of the Army Aviation Museum at Fort Rucker. They are **MG Patrick H. Brady, MAJ William E. Adams** (posthumously), and **E4 Gary G. Wetzel**.

One of AAAA's most outstanding success stories is the **AAAA Scholarship Program**. This year we will award 30 scholarship grants valued at $69,000 and five interest-free $4,000 loans for a total $89,000. This is up from 26 scholarships at $60,000 last year.

With all these strong programs, and membership on the rise, our fiscal health is sound, but I point out to you that our membership dues do not support our member activities. How do we do this without becoming insolvent? We derive surplus funds to support the Association from the sale of exhibit space to our industry member firms. We are deeply indebted to those industry member firms that have supported us for so many years.

On the subject of dues, we have not had a dues increase since 1980. Based on inflation alone we would have to double the current dues just to stay even. After considerable study over the last year, the National Executive Board has approved a new dues structure which, although not keeping pace with inflation, at least will help close the gap between the individual membership dues and what it costs to deliver membership services to that individual.

Effective **1 January 1991** the following **Two-Tier Dues Structure** will take effect. **Tier-One** includes all students, all enlisted, Warrant Officer Candidates, GS-8 DACs and below, and Wage Board 12 DACs and below at a rate of $14 for one year, $25 for two years, and $36 for three years. **Tier-Two** includes all other members at a rate of $21 for one year, $39 for two years, and $57 for three years. In addition we will offer a one-time, two-year membership for all first-time members at the one-year rate for that individual's respective membership category.

Remember, this new structure will not be implemented until **1 January 1991**. The new, two-year for the cost of one, initial rate should encourage even more new members.

Maintaining fiscal solvency and administering the many AAAA programs is the responsibility of the **AAAA National Executive Board** consisting of ten elected members and twenty National Members-at-Large who are appointed annually by the President.

We have recently expanded the board to reach out and appoint additional company grade officers, warrant officers, and enlisted soldiers as National Members-at-Large. In addition to the elected vice-presidents and appointed mambers-at-large, the NEB is also comprised of the USAREUR Region President and the Presidents of Chapters representing 150 or more members. This broad range of NEB membership is designed to keep your leadership in touch with the real world of our membership. Lastly, the Past Presidents and the Past Executive Vice President are permanent members of the Board providing a most important historical perspective.

Your Association is alive and well. The future looks good and we are financially sound. The challenge to us is to continue to grow through innovative programming and quality membership. AAAA is your organization. Make it all it can be. IIIII

ARMY AVIATION ASSOCIATION OF AMERICA, INC.
BALANCE SHEET AS OF DECEMBER 31, 1989

ASSETS

Cash	$62,510
Paine Webber Cash Fund	41,174
Investment in Marketable Securities, Less valuation of $2,841 in 1989 and $5,118 in 1988	122,399
Inventory of Pins	27,939
Prepaid Adminstrative Fee	124,576
Accounts Receivable and Prepaid Expenses	2,529
Equipment, Less accumulated depreciation of $22,041 in 1989 and $16,521 in 1988	5,494
TOTAL ASSETS	**$386,621**

LIABILITIES AND FUND BALANCES

LIABILITIES	
Accrued Expenses and Allocations Payable	$22,183
Deferred Membership Dues	128,045
Deferred Convention Revenues	106,937
TOTAL LIABILITIES	**$257,165**
FUND BALANCES	
General Fund	$4,297
Unrealized Loss on Investment in Marketable Securities	(2,841)
BOARD DESIGNATED FUNDS	
Hall of Fame Escrow Fund	10,000
Emergency Fund	118,000
TOTAL FUND BALANCES	**129,456**
TOTAL LIABILITIES AND FUND BALANCES	**$386,621**

STATEMENT OF REVENUE, EXPENSES AND CHANGES IN FUND BALANCE — GENERAL FUND YEAR ENDED DECEMBER 31, 1989

	1989
Revenues:	
Membership Dues	$267,549
Annual Convention	762,600
ASE Symposium	28,095
Souveniers	1,705
Interest	31,187
Total Revenues	**$1,091,136**
Expenses:	
General and Administrative	$452,533
Special Allocations	66,820
Annual Convention	565,047
ASE Symposium	19,041
Total Expenses	**$1,103,441**
Excess of Revenue Over Expenses	($12,305)
Fund Balance — Beginning	31,602
Transfer to Emergency Fund	(5,000)
Transfer to Hall of Fame Escrow Fund	(10,000)
Fund Balance — Ending	**$4,297**

New AAAA Chapter Officers

CHESAPEAKE BAY:
LTC Kenneth Boley (Sr.VP)

COLONIAL VIRGINIA:
CPT Margaret Gordon (VP, Prog.); CPT Louise V. Terrell (VP, Prof. Develop.); MAJ Rich L. Tannich (TRADOC Liaison); CW4 James R. Garrett (WO Rep.)

CONNECTICUT:
Vincent Nitidio (Pres.); Norman M. Bissell (Sr. VP); Jimmy A. Watt (VP Prog.).

CORPUS CHRISTI:
Billy F. Quintanilla (VP Prog.)

FORT BLISS:
LTC George S. Webb (Pres.); CPT Douglas K. Lang (Sec.); CPT Kevin M. Kelly (VP, Memb. Renew.); CSM Dalton F. Southern (VP, Enlisted Affairs).

GREATER ATLANTA:
2LT Susan Kae Davis (VP, Memb. Enroll.).

GREATER CHICAGO:
MAJ Ronald I. Botz (Sr. VP); CW4 Gerry F. Ventrella (VP, Memb. Renew.); Tony M. Hannell (VP, Public Affairs); CW3 Kenneth A. Murfay (VP, ARNG Affairs).

INDIANTOWN GAP:
CPT Sheryl A. Rozman (VP, Prog.).

JACK H. DIBRELL (ALAMO):
CW3 Alfred J. Cargen, Ret. (Pres.); LTC Jay F. Gillman (Sr. VP); MAJ Thomas E. Fletcher (VP Prog.).

MONTEREY BAY:
1LT Christopher N. Borgerding (Treas.); MAJ Paul L. Barnard (VP Prog.).

MORNING CALM:
MAJ John R. Martin (Sr. VP).

NORTH TEXAS:
COL Leighton Haselgrove, Ret. (VP, Memb. Enroll.).

New Officers Cont'd

PHANTOM CORPS

CPT (P) Janice F. McHale (Treas.).

REDCATCHER

LTC Donald C. Olson (Pres.); MAJ Eric R. Cunningham (SR VP); 1LT John J. Combs (Secr.); 1LT John M. McHugh (Treas.); 1LT David A. Dykes (VP, Memb. Renew.); 1LT Monte C. Ferguson (VP, Memb. Enroll.); 1LT John M. Sexton (VP, Prog.)

STUTTGART:

CPT Edward M. Szeman (VP Memb.); CPT Joel E. Roberts (VP, Prog.); LTC Rodger R. Sexton (VP Pub.)

TAUNUS:

LTC Ralph W. Legrow (Pres.); CPT Kevin R. O'Brien (Secr.).

THUNDERHORSE

CW4 John C. Quattlebaum (SR VP); WO1 Daniel R. Smee (Secr.); CW4 Douglas K. Brantley (Treas.).

WASHINGTON, D.C.

CPT Michael J. Delaney (Treas.); Mr. Gerald E. Lethcoe (VP, Indus. Affairs).

WINGS OF THE MARNE

MW4 Dennis X. McCormack (Secr.); CW2 Jeffrey A. Reichard (Treas.); CPT Darryl T. Shamblin (VP, Memb. Enroll.); 1LT Gregory S. McAffe (VP, Prog.)

Aces

The following members have been declared Aces in recognition of their signing up five new members each.

Ms. Nancy A. Alexander
Ms. Vicki L. Avenevoli
CW4 J.D. Badgley

AAAA NEB MINUTES

AAAA's National Executive Board (NEB) conducted its spring meeting in Orlando, FL at the 1990 AAAA Annual Convention. Major actions included:

PROPOSAL TO ESTABLISH AN AAAA ORDER AND MEDAL. MG Rudolph Ostovich III, Branch Chief, recommended that the AAAA establish the Order of St. Michael based on the biblical archangel, who was known for waging war against evil. MG Ostovich added that St. Michael was an appropriate symbol of excellence for Army Aviation, embodying courage and justice.

The NEB approved the establishment of the AAAA Order of St. Michael, with the actual award consisting of a bronze medallion and certificate. The NEB also approved that nominations be submitted by AAAA members at the chapter level to the AAAA Chapter President for review by the AAAA National Awards Committee with the Aviation Branch Chief having final approving authority.

The criteria for consideration would include that the individual represents the highest standards of integrity, moral character, professional competence, and selflessness to duty and that he or she has made a significant contribution to Army Aviation and support of the Aviation Branch. The individual need not be a member of AAAA.

BG Hesson, AAAA President, referred the action to the Fiscal Committee for funding, with implementation set for CY91.

COMMEMORATIVE STAMP FOR ARMY AVIATION. COL Sylvester C. Berdux, Jr., Ret., Chairman of the ad hoc committee on this subject, briefed the NEB that the Army Aviation Commemorative Stamp was still under consideration as one of the World War II Commemorative Stamps planned to be issued by the U.S. Postal Service. He added that the proposal had passed all the gates to date — with the final decision scheduled for December 1990 or January 1991.

REVISION OF DUES STRUCTURE. Mr. William Pollard, Chairman of the ad hoc committee tasked to study the revision of the dues structure, summarized the objectives of the study, to re-structure the dues schedule to 1) improve membership retention and insure membership growth and 2) align the dues revenues with the administrative expenses associated with providing membership services.

Mr. Pollard summarized the assumptions used by the committee, 1) an "acceptable" subsidy level was needed—the committee considered a $9.50 subsidy affordable; 2) simplification of the dues and membership structure was needed; 3) an attractive "initial" membership package was needed; and 4) industry dues and contributions were in line with other professional organizations and did not represent a source for additional revenue or further subsidy.

The NEB approved the recommendations as follows:

1) the AAAA establish a two-tier membership structure: Tier One to include all students, enlisted, WOCs, GS-8 DACs and below, and Wage Board 12 DACs and below at a one-year rate of $14, a two-year rate of $26, and a three-year rate of $36; and Tier Two included all other than above at a one-year rate of $21, a two-year rate of $39, and a three-year rate of $57;

2) that AAAA offer a one-time, two-year membership for all initial members at the one-year rate for the individual's

MINUTES Cont'd

respective membership category;

3) the structure and rates take effect January 1, 1991 giving sufficient time to make efficient use of inventory and to properly promote the increase to the membership;

4) the NEB review membership dues in relation to expenses and monitor the degree of subsidization annually; and

5) the NEB conduct a formal dues analysis every five years.

BG Hesson thanked the members of the committee for a job well done. BG Hesson advised the NEB that he would work with the members of the Executive Group to publicize the dues increase in the most positive manner possible and asked that all NEB members, particularly Chapter Presidents, assist wherever possible. BG Hesson emphasized the importance of explaining to the AAAA membership that the AAAA subsidizes the membership services provided to each member through other sources of revenue and that the dues increase will merely allow the AAAA to maintain the subsidy at current levels.

NOTICE OF THE NATIONAL ELECTION. LTG Ellis D. Parker and MG Carl H. McNair, Jr., Ret., were elected to the NEB during the AAAA Membership Luncheon on Thursday, April 12, 1990. BG Hesson advised the NEB that he had appointed the following members to the National Executive Board as National Members at Large and requested ratification: CW4 Harry P. Arthur, CPT Jeryl Cornell, MG William H. Forster, CPT Phillip S. Martin, COL Lewis J. McConnell, CSM Roy McCormes, MG Rudolph Ostovich, III, CW4 Joseph L. Pisano, Mr. Gary F. Rast, GEN Crosbie E. Saint, LTC Ralph W. Shaw, Mr. Gary L. Smith, LTC Merle J. Snyder, CPT Paul M. Steele, MG Richard E. Stephenson, COL Harry W. Townsend, and MG Donald R. Williamson. BG Hesson advised that he planned to appoint three additional members at large, bringing the total to 20, in accordance with the AAAA By-Laws. The NEB members present voted unanimously to ratify the National Members at Large.

AAAA SUPPORT FOR AVIATION WARRANT OFFICERS TO WEAR THE AVIATION BRANCH INSIGNIA. BG Hesson referred the NEB to the Agenda, specifically bringing the NEB's attention to the statistics compiled as a result of the survey published in ARMY AVIATION MAGAZINE. The results indicated support for the wearing of the Aviation Branch insignia. BG Hesson advised the NEB that MG Ostovich supported the AAAA proceeding with establishing an official position on "Aviation Warrant Officers Wearing the Aviation Branch Insignia" and to present the position to the incoming DCSPER.

REQUEST TO RECOGNIZE SAN ANTONIO'S SUPPORT OF OPERATION "JUST CAUSE". By unanimous acclamation, the NEB voted to recognize the people of San Antonio for their selfless devotion to duty while providing medical and emotional assistance to the servicemen and their families during operation "Just Cause". The NEB authorized the AAAA President to draft a letter to the Mayor of San Antonio and to prepare an appropriate certificate.

AAAA PARTICIPATION IN ARMY AVIATION ANNIVERSARY. The NEB reviewed written material provided by Mr. Bryce Wilson, AAAA Past President, on AAAA's participation in the 50th Anniversary of Army Aviation in 1992 and approved that the AAAA should coordinate efforts with the Aviation Branch.

Aces Cont'd

MSG Walter F. Barfield
Ms. Susan E. Barnes
CW4 Kenneth W. Bording
CPT John P. Connell
Ms. Lois Contreras
Ms. Linda S. Dixon
1LT William R. Fipps
COL Albert J. Ferrea
Ms. Janet J. Garmon
CW2 Michael P. Hansen
1LT George J. Hart
Ms. Martha S. Hawkins
Mr. Ronald V. Kurowsky
CPT Brian W. Magerkurth
Mr. Johnny L. McCoy
LTC John L. Papier
CPT James M. Reed
1LT James K. Rountree
CPT/P Katherine J. Tiffany
Ms. Anna M. Varela
CPT Dennis J. Weese
MAJ David L. Westfall
COL James B. Wilkie, Ret.

New Industry Members

Aerosonic Corporation
Clearwater, FL

Army & Air Force Mutual Aid Association
Arlington, VA

Chromalloy Precision Products
Hurst, TX

Cincinnati Electronics Corporation
Cincinnati, OH

Concurrent Computer Corporation
Tinton Falls, NJ

CRL Technologies, Inc.
Gatineau, Quebec

DAC International, Inc.
Austin, TX

Dornier Aviation (North America), Inc.
Sterling, VA

Instrument Flight Research, Inc.
Cayce, SC

Life Safety International
Boca Raton, FL

New Industry Members Cont'd

Enstrom Helicopter Corp.
Menominee, MI
Puritas Metal Products
Cleveland, OH
Republic Electronics Co.
Hauppauge, NY
Sextant Avionique
Issy Moulineaux, France
Vistascope Corporation
Atlanta, GA

New Sustaining Members

American Contract Health
Aransas Pass, TX
Sheraton Marina Inn
Corpus Christi, TX
Sheraton Plaza Hotel
Killeen, TX

AAAA Army Aviation Electronics Symposium

Sponsored by the AAAA Monmouth Chapter, the Symposium will be held 11-13 September 1990 at The Berkeley-Carteret Hotel, Ocean Avenue, Ashbury Park, NJ. "Integration and Automation Impact on Army Aviation" will be the theme. Call for Papers POC is: Dr. John Niemala, Program Chairman, (201) 544-4635. Address written communications to: 1990 Symposium, AVRADA, Bldg. 2525, ATTN: SAVAA-P (PAONE), Ft. Monmouth, NJ 07703-5000.

FOUND
At the AAAA
Annual Convention, Orlando, FL
One Garrison Cap
One pair of glasses
Contact the National Office:
(203) 226-8184

Above, Undersecretary of Defense Industry Vahit Erdem (left), Ministry of National Defense, Ankara, Turkey, accepts a certificate of Honorary Membership from COL Norman M. Bissell, Ret. (r), Connecticut Chapter Senior VP, during the Undersecretary's recent visit to Sikorsky Division, UTC's Stratford plant.

The Central Florida Chapter, host chapter for the 1990 AAAA Annual Convention in Orlando, FL, sponsored a highly successful golf tournament 11 April to kick off this year's convention. Among the 232 participants were (left to right) COL Edward K. Lawson, III, Ret., Mrs. Lawson, COL Andrew J. Miller, Ret., and Mrs. Miller.

AAAA CALENDAR

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

June, 1990

✓ **June 24.** America's First Coast Chapter. Family Beach Party and tour of Navy Aircraft Carrier and Medical Helo Display. Mayport Naval Station Officer's Club.

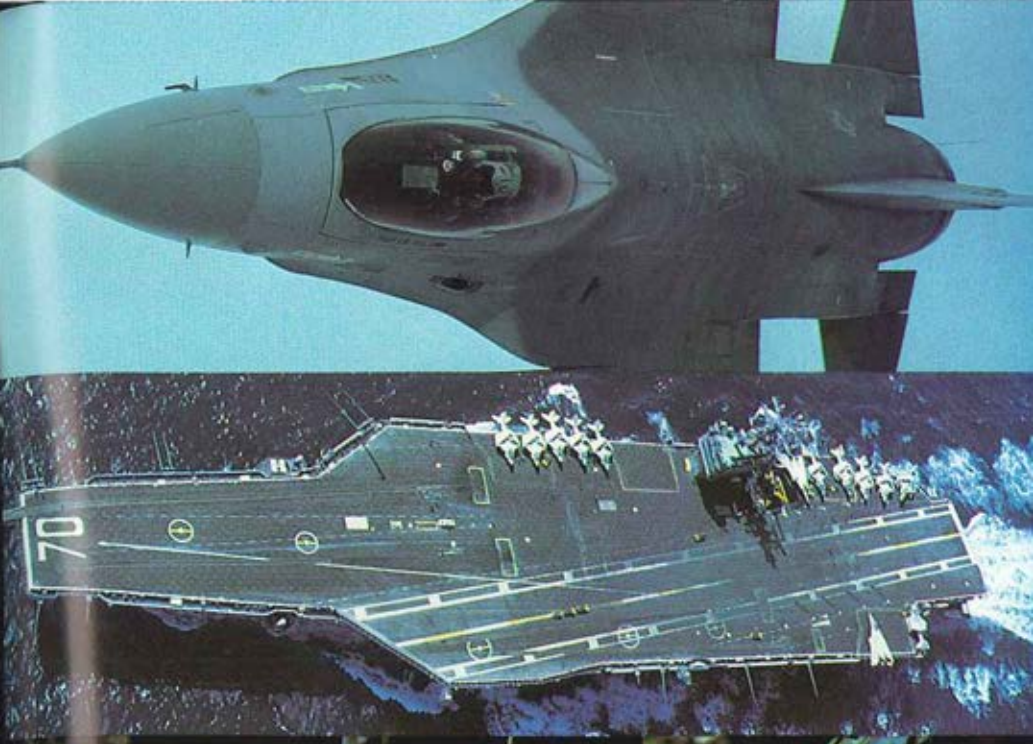
✓ **June 25-29.** Air Assault Chapter. AAAA Tennis Tournament. Members Only. Cole Park Tennis Courts, Ft. Campbell.

July, 1990

✓ **July 14.** AAAA Nat'l Awards Committee Mtg. to select CY90 Nat'l Scholarship Winners.

September, 1990

✓ **Sept. 11-13.** AAAA Army Aviation Electronics Symposium. Sponsored by Monmouth Chapter. Berkeley Carteret Hotel, Ashbury Park, NJ.



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