

AAAA
Annual Post-
Convention
Report

**1994 AAAA ANNUAL
CONVENTION PHOTO WRAP UP**

ARMY AVIATION

OFFICIAL PUBLICATION OF THE ARMY AVIATION ASSOCIATION OF AMERICA • MAY 31, 1994

Bell Helicopter's
OH-58D
Kiowa Warrior



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FORTHCOMING ISSUES

June 1994 — Special Focus on RAH-66 Comanche and Simulation and Aviation Soldier Directory.

July 1994 — Special Focus on Special Operations Aviation and Night Vision Devices.

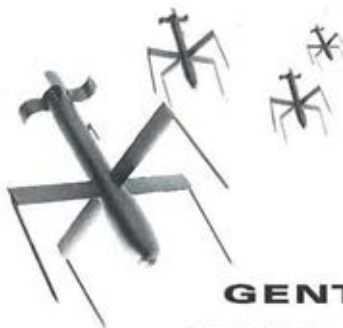
MG John D. Robinson, Aviation Branch Chief and Commanding General, U.S. Army Aviation Center and Ft. Rucker, AL, recently announced his intention to retire. MG Robinson will be replaced by **MG Ronald E. Adams**, currently Director of Requirements (COMBAT), Office of the Deputy Chief of Staff for Operations (ODCSOPS), Washington, D.C. Change of Command ceremonies are scheduled for 28 July 1994. **BG John M. Riggs**, Deputy Commanding General, USAAVNC, will be replaced by **BG Daniel J. Petrosky**, currently the Assistant Division Commander, 101st Airborne Division. BG Riggs will replace MG Adams as the ODCSOPS Director of Requirements.

On 14 April 1994 the following soldiers lost their lives when two UH-60 Black Hawks were shot down over Northern Iraq: **COL Jerald L. Thompson**, **COL Richard A. Mulhern**, **CPT Patrick M. McKenna**, **CW2 John W. Garrett, Jr.**, **CW2 Michael A. Hall**, **WO1 Erik S. Mounsey**, **SFC Benjamin T. Hodge**, **SSGs Paul N. Barclay** and **Ricky L. Robinson**, **SPCs Cornelius A. Bass**, **Jeffrey C. Colbert**, and **Michael S. Robinson**, and **PFC Mark A. Ellner**. **CW2 Garrett**, **CW2 Hall**, **WO1 Mounsey**, and **PFC Ellner** were members of the AAAA's Giebelstadt Chapter, and served with C Company, 6/159th Aviation.

The Army's recently-formed **Tuition Assistance Task Force (TAFT)** is responding to the growing concern throughout the Army about increased demand for tuition assistance and the adequacy of tuition assistance programs for soldiers. Soldiers use college courses to remain competitive in a smaller Army and to prepare for civilian employment after separation. TAFT is developing policy to provide soldiers a clear statement of what tuition assistance they can expect to receive, and when and where they can use it.

MG Patrick H. Brady, Ret. has been named the President of the Battle of Normandy Foundation. MG Brady, a Congressional Medal of Honor recipient, assumed operational responsibilities of the Foundation on 15 February 1994. A Master Army Aviator, MG Brady served two combat tours in Vietnam. His father, Michael H., served in the European Theater of Operations during WW II with Darby's Rangers.

The first production aerial vehicle of the TRW/IAI "Hunter" joint tactical UAV system was officially rolled out in ceremonies held at Israel Aircraft Industries' Malat UAV plant on 28 February 1994. The Hunter is a joint service program and systems will be delivered to the U.S. Army, Marine Corps, and Navy.



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WAY FOR MANY YEARS TO COME. NORTHROP. THE
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FRONT COVER

***Paid advertisement: Bell Helicopter Textron, Inc.** Bell's OH-58D Kiowa Warrior is fully digital and has the highest readiness rate in the U.S. Army fleet. Its transportability, survivability, and weapons capability make it the most versatile armed reconnaissance helicopter in the world. Caption provided by Bell Helicopter Textron, Inc.*



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BUILDING AMERICA'S ARMY FOR THE 21ST CENTURY

*Excerpted from an address delivered 22 April 1994
at the AAAA Annual Convention, St. Louis, MO.*

It is a great privilege and honor to address you. You represent what's good in the Army today — soldiers, civilians, and industry forging together as a strong team to keep our Army's aviators and their equipment the best in the world.

As I travel around the Army, Army Aviation stands out as one of the Army's true success stories of our lifetimes. We owe much to many of you, the early visionaries, who foresaw the potential of aviation to capture the third dimension of the battlefield — the ultimate "high ground". Likewise, we must count on you, the most vibrant aviation community in the world, to advance America's Army into the 21st century.

As you know, your Army, Ameri-

The Under Secretary of the Army reviews a bright future for Army Aviation.

ca's Army, is changing in response to the end of the Cold War and to the challenges of the new world order. As the Secretary of Defense put it, "a world long on new, and short on order". In the last four and one-half years the contributions of your

Army have been vividly etched in history. Etched by the award of over 600 purple hearts, and most recently, the tragic deaths in northern Iraq.

You are part of a community that flies on the front lines of this new world order. Army aviation needs no reminder of the reality that peace and national security come at a high price. A price many of you have stood ready to pay — a price we must always be willing to pay.

Let me take a few minutes to

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discuss the future of your Army and focus beyond the critical, pressing issues of today — next year's budget, readiness, base closures, roles and missions, etc. — all valid and all very worthy issues.

However, I ask for the next few moments that you take a longer view. Focus on what I will refer to as the keys to building a well trained, versatile, and highly lethal force to continue service to this Nation well into the next century. Focus on how we, the leaders of America's Army, will mold a Power Projection Army for the 21st century.

This Power Projection Army will not simply be a smaller Cold-War army. We will be smaller than the Army that won the Cold War. We already are. But this Power Projection Army will be even better. As a result of last year's comprehensive Bottom-Up Review, America's Army will be a power projection force of 10 Active Duty divisions, at least five Reserve Component divisions, 15 "enhanced" National Guard brigades, and about 22 other National Guard brigades. Army aviation will be a pivotal part of all of these units.

There are five, what we call "enablers", which are critical to the Army's success for the 21st century. They are strategic mobility, access to the reserve components, modernized equipment, quality training, and quality soldiers and civilians. These "enablers" will en-

sure that America's Army can deliver whenever America calls.

First, strategic mobility is the linchpin of our Power Projection Army. Strategic mobility consists of three main components: airlift, sealift, and power projection logistics. Congress must support all the Services' efforts for these components. Your Army must have the enhanced airlift capability of the Air Force's C-17 Globemaster III, the continued procurement of the Navy's large, medium speed, roll on/roll off ships, and the funding for our global logistical improvements — from prepositioned equipment to fort-to-port upgrades.

Reaching our goal for our strategic mobility efforts, the ability to deploy a five-division corps and all of its supporting forces, anywhere in the world inside of 75 days, will be challenging. It's like moving the entire city of Richmond, VA, or Las Vegas, NV, halfway around the world in only two and one-half months. Therefore, we must buy the necessary airplanes, ships, rail cars, and prepositioned stocks. Otherwise, we will have a CONUS-based Army stuck in the starting blocks . . . grounded.

Second, greater access to the Reserve components, the essence of the "seamless" Army. Congress must continue to support and fund initiatives designed to build this seamless force of Active, Reserve,

and National Guard soldiers. With a smaller active force, America's Army requires Reserve Component support earlier and for longer periods during contingency operations.

Victory is not possible unless we can deploy all the units and individuals required for a given mission. For example, the 5-division contingency corps and its support units include over 108,000 reservists. Therefore, the Army strongly supports changes to the law to increase a Presidential call-up to 180 days, with an additional 180-day extension.

We also support authority to call up a maximum of 25,000 Reserve component soldiers and their units to support operational missions. To execute our power projection strategy successfully, we must have early access to the Reserve Components.

Third, we must modernize the Army's equipment. Our equipment is the best in the world today. The displays at the 1994 AAAA Annual Convention certainly reinforced that. We cannot expect to maintain our technology overmatch into the 21st century unless we continue to modernize. We can never lose this edge.

All of our modernization efforts focus on five major capabilities: Project and Sustain the Force . . . Protect the Force . . . Win the Information War . . . Conduct Precision Strikes . . . and Dominate Maneuver. Army Aviation plays a key role in each of these five capabilities.

We are working hard to harness information age technology to digitize the battlefield. Our ability to gather, manage, and timely distribute battlefield information assures American soldiers a decisive advantage.

Knowing where friendly forces are, and where they are not is obviously of critical importance to our soldiers.

We will also know about the enemy in real time. We will know our logistics posture on an ongoing basis.

We plan to field an entire division possessing advanced digital networks by 1998. Nothing on the battlefield is more important than real time intelligence, and the ability to apply it quickly and decisively.

A handful of key programs will carry the digitized army well into the 21st century. For Army Aviation, the Comanche and Longbow Apache; for the ground maneuver forces, the Abrams and Bradley upgrades, the Javelin, and the Ar-

***"To execute
our power
projection strategy
successfully, we
must have early
access to the
Reserve
Components."***

mored Gun System; for the fire supporters, AFAS and ATACMS with brilliant submunitions; and for the air defenders, THAAD and CORPSSAM.

These systems, and, in particular, the aviation systems, which many of you shepherd through research, development, and acquisition, offer few immediate benefits. Rather, our young aviators and the next generation of our soldiers will realize their value. That is why we are fighting hard for every modernization dollar we can get. Simply put, failure to modernize mortgages our future.

Fourth, quality training is the life's blood of an army, its very sustenance. We must provide top quality training and education for America's Army. Resilient and versatile units, leaders, soldiers, and civilians are what we must continue to produce. Our training programs must continue to emphasize units, leaders, and soldiers as experts on the basics — our fundamental war-fighting skills.

Our Combat Training Centers at Fort Irwin, Fort Polk, and Hohenfels will remain essential, as will our Battle Command Training Program at Fort Leavenworth. They challenge our units, leaders, and soldiers with rigorous, realistic training unmatched anywhere in the world. Their value has been proven time and time again in JUST CAUSE, DESERT STORM, PROVIDE COMFORT, and RESTORE HOPE.

Regardless of budget cuts, we will continue to fund those outstanding leadership programs and schools such as the Army Aviation School, because they assure unparalleled, world class excellence. They nurture leaders who are confident, competent, creative, and imbued with those professional values essential to America's Army.

The fifth, and most important "enabler" is quality people, the men and women of America's Army. The individual soldier will always be our Army's ultimate smart weapon. Our Power Projection Army mandates that we attract and retain quality people. The heart and soul of this Army can be found in the soldiers and civilians we rely on.

I must tell you, however, we have challenges. Surveys show that willingness to serve has gone down among high school students. At the same time, our annual recruiting requirements, now at 70,000, in three years will increase to 89,000. Therefore, we are allocating more dollars and resources to recruiting. America's youth must know not only that we are still hiring, but also, that the skills and experience of serving in the United States Army are valued by virtually every industry and profession in this country.

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they are weathering uncertain times. Unquestionably, the perception of turmoil is a readiness issue.

There is good news, however. The Army is well on its way to reaching our eventual end state, and we know what that end state is. Equally important, the President has firmly committed to maintaining the best armed forces in the world. The President, Dr. Perry, Secretary West, and I are firmly committed to the 10-division, 495,000 Active and 575,000 Reserve end strength that will define America's 21st century land force.

Therefore, as to the five enablers I've just described, it is your job and mine, as we move America's Army into the future, to maintain our focus and momentum as to each of these critical areas. Now, let me offer the following thoughts about the future of Army Aviation.

First and foremost, the future of Army Aviation is extremely bright. What leads me to this conclusion — it's the past service of Army aviators. From your modest beginning — adjusting artillery fire in World War II — to the coming of age of airmobility in Vietnam . . . to the superb performance of Army Aviation in virtually every aspect of

DESERT STORM, from the opening night's raid deep into Iraq — before any bombs were dropped — to the largest air assault in the history of the world . . . and to your more recent outstanding service in a series of disaster and humanitarian relief missions at home and abroad. Army Aviation has played, currently plays, and will continue to play an absolutely essential role in the Army's ability to serve our Nation.

I also see a bright modernization future for Army Aviation, in spite of the nearly 50% reduction in the Army's modernization account in the past five years. This year, at a time when many modernization programs are unaffordable, Comanche and Longbow Apache are our top modernization priorities.

“ ... at a time when many modernization programs are unaffordable, Comanche and Longbow Apache are our top modernization priorities.”

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Your performance, and in large measure your conviction, has led the Office of the Secretary of Defense (OSD) to recognize that our aviation modernization programs are critical to the 21st century Army. 1993 was a year of exhaustive studies and analyses within the Pentagon. OSD scrutinized the attack, reconnaissance, and utility aircraft fleets. Their conclusions came as no surprise. There were no better, more

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cost effective options than the Comanche, the Longbow Apache, and the Black Hawk. Our current modernization strategy provides for the most balanced, deployable, and sustainable fleet to serve our nation deep into the next century. Moreover, our friends in Congress see things our way when it comes to aviation modernization. We have strong supporters for both Comanche and Longbow Apache on the Hill, with no opponents' blips on the radar screen.

Your future is particularly bright, because you have literally carved it into virtually every aspect of our war-fighting doctrine. What you bring to the 21st century battlefield — your systems — are the linchpins of the digital battlefield. They harness high technology as we mold and refine our smaller, more lethal force. Synchronized, the eventual fleet of Comanche, Apache, Black Hawk, and Chinook helicopters will round out our combat requirements, empowering us in every aspect of the battlefield. Comanche — the commander's eyes and ears — performing one of the most demanding and difficult missions, armed reconnaissance in the cavalry. Longbow Apache —

together with the Comanche — providing a devastating one-two punch with an optempo unmatched on the battlefield. Black Hawk and Chinook — rapidly moving soldiers and materiel throughout the battlefield. All four are deployable, versatile, lethal, survivable, and sustainable. Simply put, they are the best.

Your future is bright because you, as professionals, are doing a great job shaping it. You have forceful, visionary leaders like Generals

***“What you
bring to the
21st Century
battlefield —
your systems —
are the
linchpins of
the digital
battlefield.”***

Forster, Robinson, Irby, Cowings, and many others, making certain that you have the right doctrine, equipment, support, and professionals to advance Army aviation into the 21st century. And, to support and further your efforts,

you have a great and vibrant professional organization, the Army Aviation Association of America.

Finally, remember when this Nation comes calling, today, tomorrow, and into the 21st century, America's Army will always answer, “Count on us!” And I am extremely confident Army aviation will remain, as always, “Above the best!!”

★★

Mr. Reeder is the Under Secretary of the Army, Washington, D.C.



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AAAA CONVENTION HIGHLIGHTS

To the delight of those in attendance, our 1994 AAAA Annual Convention in St. Louis, MO was absolutely outstanding. I am convinced it was one of our best conventions ever! This year's theme, "Army Aviation: Advancing on the 21st Century" could not have been more appropriate. With much uncertainty in today's world, the long heritage of our nation's military and that of our industry partners takes on new meaning for the preparedness of our armed forces.

What better forum is there than our AAAA Annual Convention to bring together the military, civilian, and industry people that make Army Aviation the powerful and decisive force it is for securing our nation's peace?

This year's convention format con-

*The
Branch Chief
reviews this
year's
AAAA
Annual
Convention
in St. Louis,
MO.*

tinued many of last year's initiatives. We have included many of your suggestions to ensure this is an effective and enjoyable event for the Army Aviation community as a whole. I think we've been successful.

Our goal has been to reduce the competi-

tion between the professional sessions and the exhibits. Unit and individual awards were presented in the Professional Sessions to maximize the opportunity for everyone to participate in the widest variety of activities. We retained the Saturday morning Operations/Training forum, but this year split the Acquisition and Logistics portions into separate forums. We also extended the duration of the three simultaneous forums to three hours, which provided more opportunity to address your issues.

Some of the United States' most visionary thinkers attend the convention annually, and this year was no exception. Our speakers were right on target and consistent across the board with comments focused on the role of America's Army and Army Aviation in these uncertain times. Our forums and professional sessions were very well attended, and the industry and military exhibits were first-rate. The exchange of ideas and experience at this key event have proven invaluable and provide a platform for Army Aviation to advance into the 21st Century with leap-ahead technologies. I believe the current format is exactly on target.

On Thursday morning, GEN David M. Maddox, Commander-in-Chief, United States Army Europe (USAREUR) and Seventh Army, kicked off the convention with a compelling Keynote Address.

He emphasized that the absence of a Soviet threat has not resulted in tranquility and "world order", but in fact has led to widespread instability. The mission of USAREUR retains a strategic importance in our national military strategy as a force capable of being projected quickly into areas of conflict. He pointed out that deployments for USAREUR units had more than doubled in frequency and scope since the Berlin Wall fell in 1989 when compared with the whole 44 years prior since

the end of World War II.

GEN Maddox stated with conviction that forward-stationed Army Aviation provides him the unique capability to respond rapidly and with credible force to regional contingencies. He went on to say that Army Aviation must be more versatile, deployable, and at a higher state of readiness than ever before.

On Friday, the Honorable Joe R. Reeder, Under Secretary of the Army, built further on the topic of a world "long on new, and short on order". He reinforced the vital role Army Aviation plays in forging together the best fighting force in the world to counter the challenges yet to be faced in this new world order.

As you will note in the text of his remarks elsewhere in this issue, he also added that Army Aviation is leading the whole Army toward the 21st Century force with initiatives such as the Aviation Restructure Initiative and technological advancements like the Longbow Apache, the Comanche, the Chinook, and the Black Hawk. He said the future of Army Aviation is particularly bright, because it has been "carved into virtually every aspect of warfighting." Taking this point further, he advocated a greater role for the reserve components in our modern, total force.

Saturday night's AAAA Annual Banquet featured GEN Wayne A.

Downing, Commander-in-Chief, United States Special Operations Command (USSOCOM). GEN Downing stressed the importance of readiness, and that after the fact preparation for conflict is too late. He reinforced aviation's critical role in special operations aviation and the high-tech advancements that allow for great flexibility for our National Command Authority in crisis situations.

He made it clear that Army Aviation, all components, has played a significant role in supporting our nation and will continue into the next century to play an ever-expanding role in our nation's strategic power. He pledged to share lessons from the special operations community with Army Aviation so that we may all benefit.

Because of other commitments, the Secretary of the Army, the Honorable Togo D. West, Jr., was able to spend only a short time with us. He visited all the exhibits and was enormously impressed by the technologies displayed. The Secretary was especially interested in the training devices, simulation efforts, and the Aviation Restructure Initiative (ARI). He made repeated comments on the value of Army

Aviation and its pivotal role in the future force.

Perhaps some of the most informational and stimulating exchanges at the convention occurred in the forums on Saturday morning. The three forums, Operations/Training, Logistics, and Acquisition were all packed. Each panel had a wealth of experience to provide overviews on a wide variety of selected topics and answer questions from the audience on issues of concern. The audiences were diverse as well.

We had soldiers, industry executives, aviators, and many leaders from our units to include several general officers and a serving division commander. Once again, we ran the forums concurrently allowing folks to choose one of their interest or

move freely from one to another. Videotapes of the forums and other convention presentations are available from the AAAA National Office.

In addition to outstanding speakers, the industry exhibitors outdid themselves again. In the aviation community, we are fortunate to have such innovation and commitment in our materiel development industry and acquisition base. This year, we had over 164 floor exhibits

"The Secretary of the Army, the Honorable Togo D. West, Jr., ... visited all the exhibits and was enormously impressed by the technologies displayed."

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spread over 160,000 square feet. Thirteen aircraft were on display, including the Longbow Apache, Kiowa Warrior, Special Operations Black Hawk and Chinook, and Ft. Rucker's New Training Helicopter, the TH-67 Creek.

It was a privilege to address the convention on Friday with a Branch focus presentation. I am convinced we are headed in the right direction. MG Dewitt T. Irby, Jr. and MG John S. Cowings presented similar messages in their updates on PEO Aviation and U.S. Army ATCOM. The advent of the Information Age has in fact dictated that America's Army be on the cutting edge of the technological revolution. Fiscal realities being what they are dictate

that our smaller armed forces rely heavily on leap ahead technologies to win America's battles in Information Age warfare.

Technological advancements aside, it is our great aviation soldiers that make our advanced systems the capable, lethal, and decisive instruments they are. It was my great pleasure to participate in the presentation of awards to our AAAA units and individuals of the year. Please take the time to review our outstanding awardees in the Convention Photo Section of this issue.

The Cervantes Convention Center, located in the heart of St. Louis on the banks of the Mississippi River provided the venue for a magnificent event. Many thanks to those whose

extraordinary efforts really paid off this year. Terry, Lynn, Bill, and the rest of the National office along with our AAAA President, MG Benjamin L. Harrison, Ret., were the driving forces behind this event.

A special thanks to MG John Cowings' crew at ATCOM for handling the protocol and military affairs. Also, Lindbergh Chapter President MG "T" Irby and his folks from PEO Aviation and the Lindbergh Chapter, thanks for the hearty welcome felt by all. To the many others who are too numerous to list, collectively and individually thanks for a job well done! I spoke with many conference attendees — soldiers, aviators, commanders, industry, and government officials, and many others. Their comments were most positive.

Clearly, the convention continues to be rewarding both personally and professionally for those who participate. I am equally convinced the conference continues to pay significant dividends for Army Aviation well after the closing ceremonies. It is truly my desire

for the convention to continue to attract the participation of the fine military, government, and industry people it does each year.

In particular, attendance by our enlisted soldiers and company grade officers significantly enriches our conference with the enthusiasm, energy, and insight from the front lines of Army Aviation.

Finally, the Hospitality Suites sponsored by the Chapters capped

off a memorable convention. Much work went into making the entertainment absolutely top-notch and they certainly captured the pride and quality of our individual chapters.

If you missed this year's convention, ask someone who

went for a brief back. If you were there with us this year, let folks know what they missed and encourage them to come out to Atlanta for next year's convention. Share the word on the exciting future Army Aviation has as we "Advance on the 21st Century."

★★

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

"If you missed this year's convention, ask someone who went for a brief back. If you were there ... let folks know what they missed and encourage them to come next year."

LONGBOW APACHE: THE YEAR OF TEST

Six Longbow Apache (LBA) prototypes are now flying. McDonnell Douglas Helicopter Systems (MDHS) test pilots successfully completed the first flights for prototypes #5 and #6 in January and March 1994.

The Test & Evaluation (T&E) Management Team of the Longbow Program Management Office (PMO), St. Louis, is managing an intense, complex flight test schedule of these prototypes through developmental and operational testing over the next 12 months at eight locations throughout CONUS and Alaska. The Longbow Program, headed by COL Robert Atwell and Mr. Don Brewer, is currently on schedule at the 70% completion point of a highly successful Engineering and Manufacturing Develop-

*A look
at the
complete flight
test schedule
for the
first six
AH-64D
Longbow
Apaches.*

ment (EMD) phase. The prototype fleet has flown 1,212.7 hours in a total flight test program of 3300 hours as of 2 May 1994.

The EMD Phase for the Longbow Apache Weapon System (LBAWS), consisting of the Longbow Apache, the Fire Control

Radar (FCR), and the Longbow Hellfire Modular Missile System (LBHMMS), spans the period from December 90 (MS II) through November 95 (MS III). Development Testing (DT) will continue through September 94, and Operational Testing (OT) covers the period beginning October 94 through March 95.

Procurement includes 758 Longbow attack helicopters delivered over a 16-year period, FY96 to 2011. The procurement quantities entail 227 AH-64D models with FCR kit,



LONGBOW FLIGHT TEST SCHEDULE - MAR '94 THRU JUN '95

Longbow Project Manager's Office

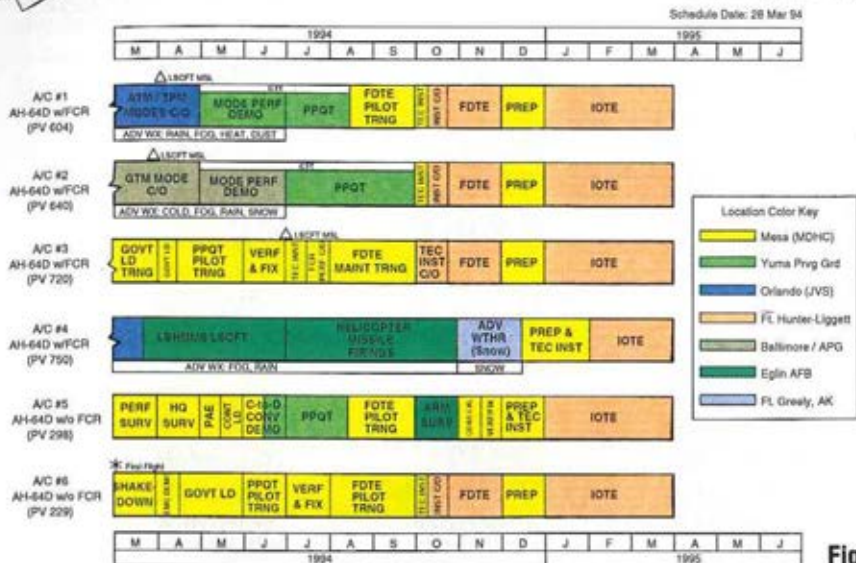


Figure 1

531 AH-64D models without FCR kit (previously referred to as the AH-64C), 227 FCR mission kits, and 13,311 radar-frequency missiles.

A successful Long-Lead In-Progress Review (IPR), scheduled in October 94, will initiate the Production Phase requirements and allow FY95 Long-Lead procurement contracts to support FY96 production of the aircraft, FCR, and RF missile.

The LBAWS Defense Acquisition Board (DAB), scheduled for November 95, will conclude the ACAT ID Milestone III decision and authorize the start of the Production/Deployment phase. To support the MS III DAB, the Operational

Evaluation Command (OEC) will submit an Independent Operational Evaluation of FDTE (Force Development Test & Experimentation) and IOTE (Initial Operational Test & Evaluation). The Army Materiel Systems Analysis Agency (AMSAA) will provide an Independent Technical Evaluation of the Pre-Production Qualification Testing (PPQT) and FDTE/IOTE, and will submit an Independent Live Fire Test Report based on the results of Live Fire Testing scheduled to begin in April 1995.

With regard to maintaining Longbow's Flight Test Schedule, we at the PMO, St. Louis, implemented several innovative testing techniques to reduce cost and sche-

dule. We included significant use of modeling and simulation, early user/tester involvement, and combined contractor/government DT. We used MDHS' VAPS (Virtual Application Prototype System) to design and verify symbology software. VAPS provides increased capability to create rapid change of display formats for verification of design alternatives which significantly reduced problems that surfaced during formal Crew Station Design Validation and Government Airworthiness Testing.

We used MDHS' Engineering Design Simulator (EDS) to validate the crew station design and provide the user an early opportunity to develop TTPs (Tactics, Techniques, and Procedures). The EDS cuts program costs by reducing the number of aircraft flight hours required to train military pilots during FDTE.

The Air-to-Ground Missile System (AGMS) PM used Hardware-In-The-Loop (HWIL) testing to develop the LBHMMS. HWIL greatly reduces risk and cost by allowing the radar-frequency missile to fly in simulation prior to the actual test. Computer simulation of a Lock-On-Before-Launch (LOBL) allows the aircraft's on board fire control computer to know, before firing, if the missile will hit its designated target. The missile flies an end-around trajectory to take advantage of doppler-

beam sharpening of stationary and moving targets.

Early in the flight test program, the Longbow PMO insured complete involvement of both user and tester. The Longbow crew station design included a two-year human-factors engineering effort with the Aircrew Systems Application Panel. Six military pilots from Ft. Rucker formed a Simulation Assessment Team at MDHS and conducted the Initial Force Development Data Collection Effort. These efforts allowed the Joint Working Group for MANPRINT to design a superior next-generation cockpit architecture with multi-functional displays (MFDs) interfacing nine functional subsystems in the Mission Equipment Package (MEP).

Mixed air crews, consisting of military and MDHC pilots, are used to reduce piloting costs during developmental engineering flights. Green-suit pilots from Fort Rucker's 2/229th Attack Helicopter Regiment and the Aviation Technical Test Activity (ATTC) augment MDHS' blue-suit test pilots. Mixed crews are reducing costs for the Crew Station Design/Validation Test, Mode Performance Demonstrations, maintenance test flights, and Preliminary Airworthiness Evaluations (PAE).

In order to eliminate duplication of expensive testing, the Longbow



Figure 2

PMO, in conjunction with the Test & Evaluation Command (TECOM) and the Joint Venture of Martin Marietta and Westinghouse Electric, and MDHS initiated a first-time Combined Technical Test (CTT) concept. CTT, scheduled for May-September 94, combines the government's technical testing of the FCR performance assessment with the JV's FCR Mode Performance Demonstration. The Flight Test Schedule depicts in progress Air Targeting, Ground Targeting, and Terrain-Profile Mode Performance Testing on going since September 1993 at Orlando and Baltimore.

During the EMD phase, the joint venture built and delivered ten

prototype FCRs and are using them in an extensive test program to demonstrate that all design and performance requirements are met prior to entering production. FCR testing ranges from laboratory functional and environmental qualification tests to full scale flight test with FCRs installed on four prototype AH-64D Longbow Apaches.

In June 94, MDHS will convert a C-Model configured Longbow Apache into an AH-64D with FCR and the -701C uprated engine to demonstrate conversion capability in a field environment by AVUM soldiers in a matter of hours. The JV initially started FCR testing in September 1993 at Aberdeen

A silhouette of an Apache helicopter in flight, centered in the upper half of the page. The background is a warm, orange-hued sunset or sunrise over a field of trees.

**Team Apache Modernization
United States Army Aviation and
Lockheed**

- **The Lockheed Family of Companies Provides the Most Complete, Total Quality, and Best Value Alternative for the Modernization and Sustainment of the Apache Fleet**
- **Lockheed's Approach Minimizes Impacts on Operational Readiness by Providing a Full Range of Responsive Capabilities for Modernization of the Apache Fleet**
- **Lockheed is Committed to Supporting our Customers' Needs in the Most Positive and Direct Manner from Our "Leadership Through Technology" Heritage**

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– Anywhere, Anytime***

Proving Ground, MD, and at test ranges near Orlando and Eglin AFB, FL. The Army will conduct FCR testing at Yuma Proving Grounds, AZ, beginning in May 94, and at the Army Cold Regions Test Center, Ft. Greely, AK, beginning in November 94.

Contractor FCR Tests: We installed the first two prototypes FCRs on test towers at the Westinghouse facility in Baltimore, MD, and at the Martin Marietta facility in Orlando, FL. These towers enable the FCRs to look out on real terrain while providing test engineers with easier access to the test units and the use of more sophisticated test and diagnostic equipment than would be available on aircraft-installed FCRs.

Tower-mounted FCRs support development of FCR hardware (HW) and software (SW), and test HW/SW changes prior to installing final changes in the aircraft's FCR. These test tower FCRs will remain mounted throughout the EMD phase to support investigation of problems identified during each flight test schedule segment.

Our third FCR prototype supports developmental T&E of the FCR's Built-In-Test (BIT) capabilities. The BIT function enables the FCR to detect and isolate internal failures. During formal BIT demonstration, approximately 175 non-destructive faults will be ran-

domly selected from 300 possible fault candidates and inserted into the FCR to assess HW/SW BIT capability. The Longbow Apache is also undergoing a formal BIT demonstration for aircraft's entire Data Management System (DMS).

We installed the next four FCR prototypes on the first four Longbow Apache prototypes. The JV uses two of the four helicopters for dedicated FCR flight testing at Baltimore and Orlando. The remaining two aircraft are conducting Logistic Demonstrations at MDHC and LBHMMS radar-frequency missile flight tests at Eglin AFB.

Contractor FCR flight testing consists of two phases: Mode Performance Check-Out to refine the FCR design; and formal demonstration testing. The contractor conducts the latter to demonstrate compliance with performance requirements in the design specifications.

We reserved the eighth FCR prototype for a 1,000-hour reliability growth test called the "Test, Analyze, and Fix" (TAAF) Test. TAAF improves FCR reliability by identifying and eliminating failure modes found during the test. TAAF analyzes the cause and determines the fix of detected faults. We insert the fault solutions into the FCR system to verify their effectiveness in eliminating the failure mode.

AWESOME.



AND THEN SOME.

The new multirole AH-64D Longbow Apache is 16 times more effective than the original Apache of Desert Storm fame. Sixteen times. That's awesome.

So, what's different? Integration of the new Longbow radar and fire-

and-forget Hellfire missile provides more combat capability in all weather conditions. It can see farther. See more. And fight through smoke, rain and fog. AH-64D Longbow Apache can detect, classify, prioritize and engage more targets, and do it faster.

And it's flying now. Longbow Apache is making the world's best attack helicopter even better.

With tighter defense budgets, Apache modernization is a smart move for the U.S. Army and the country — and then some.

MCDONNELL DOUGLAS
APACHE OWNS THE NIGHT

The TAAF test also provides data to assess the reliability of the FCR design prior to entering production.

The ninth FCR prototype will undergo laboratory environmental and functional qualification tests. These tests verify the correct performance of FCR components when exposed to harsh operating environments encountered in combat. The environmental tests include extreme conditions of vibration, high/low temperatures, humidity, rain, lightning, sand and dust, explosive atmosphere, bench handling shock, and icing (see Figure 2).

Following contractor flight tests, the Army will conduct Pre-Production Qualification Testing (PPQT) on the aircraft-mounted FCR. Starting in May 94, TECOM will conduct the Army's PPQT at Yuma Proving Grounds, AZ, as part of a three-month day/night desert test employing genuine threat wheeled, armor, and air-defense targets.

PPQT involves two AH-64Ds with FCR kit and focuses on verifying technical performance requirements contained in the U.S. Army Training and Doctrine Command's (TRADOC's) Operational Requirements Document (ORD) for the Longbow FCR.

The final segment of the Flight Test Program consists of an exten-

sive OT conducted by the U.S. Army Test and Experimentation Command (TEXCOM). TEXCOM will conduct the IOTE at Fort Hunter-Liggett, CA, from January-March 1995. IOTE involves a two-week gunnery firing 30 radar-frequency missiles by 229th AHR green-suit pilots in an operational environment which demonstrates Lock-On-Before-Launch (LOBL) and Lock-On-After-Launch (LOAL) capabilities.

The Longbow will also fire up to 50 Semi-Active Laser (SAL) missiles to compare the operational effectiveness between missiles employed against targets obscured by smoke, weather, and threat countermeasures.

Test evaluators will see a five-week force-on-force operational test with Longbow Apache attack teams maneuvering against threat armor, aircraft, and air-defense weapons IAW current threat doctrine.

IOTE concludes with a two-week air-transportability test on board Air Force transport carriers; C-141, C-5A, and C-17. Successful OT results will support OEC's and AMSAA's DAB recommendations to move the Longbow Program forward into production.

★★

LTC Neilsen is the Assistant Program Manager, Longbow T&E, St. Louis, MO.



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Software screen shown above illustrates the main control panel. Additional screens provide quick maintenance remedies and troubleshooting flowcharts.

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APACHE SEES UPDATING BEFORE LONGBOW

The AH-64A, Apache was the first Army Helicopter to be completely procured under the Logistic Support Analysis (LSA) concept. The MIL-STD for LSA was established through the joint efforts of the military services with assistance from industry. The goal was to establish standard requirements, data element definitions, data field lengths, and data entry requirements for Logistics Support Analysis Record (LSAR) data.

The focus of the standard is improving the cost effectiveness of the generation, maintenance, acquisition, and use of the technical data required to support an Integrated Logistic Support (ILS) program. This is accomplished by:

- Standardization of LSAR data

*How today's
Logistics
Support
improvements
help
insure
Longbow's
success.*

elements definition and formats between the services and industry;

- Consolidation of logistic oriented technical information for the various engineering disciplines and ILS elements;

- Establishment of one file to reduce redundancy, facilitate timely usage, and enhance consistency between elements and disciplines;

- Maximization of industry developed integrated data systems tied to engineering and manufacturing data bases of LSA documentation.

The Apache weapon system has matured throughout the last ten years to overcome its early shortcomings through design change and technology insertion. As changes in national policy and military strategy continue to impact the Army's stra-

tegic and tactical operations, new technology and the requirement for enhanced operational and warfighting capability have driven the need to expand the capability of the Apache.

These immediate needs have been met with development of the Longbow and its new MANPRINT crew station; fire control radar; improved cooling system; digital communication; global positioning system; expanded forward avionics bay; air-to-air capabilities; fire-and-forget Hellfire missile; enhanced fault detection, etc. Longbow fielding will bring tomorrow's advanced technology to the battlefield today, giving the soldier the fighting edge.

The LSAR process has likewise been updated in the same way to reflect the knowledge gained, system and technology improvements, and user needs. In much the same way, as the aircraft itself, the LSAR process has been improved and is reflected in a new standard. The new standard LSA/LSAR process enhances the logistic support of the weapon system. It maps the efficient means for managing the weapon system through its life cycle. This LSA/LSAR process then, is a critical element ensuring that the right actions are accomplished at the right time and place.

To meet the data needs of the Longbow, which is approximately a 70% baseline of the Apache, the

data bases need to be standardized. Because the Longbow is being developed under a new MIL-STD for LSAR and the Apache data base was developed under an older standard, updating is required.

Over the past few years an aggressive undertaking has occurred to update both the Apache's LSA and LSAR. By standardizing the LSAR Data Base for both the Apache and Longbow helicopters we will capitalize on the 70% redundancy of the two systems. This will result in major cost savings not only in data development but also in man-hours required for data review, validation, and verification.

Two of the major products of the LSA/LSAR process are new maintenance manuals and Provisioning Master Record (PMR). The new maintenance manuals will be validated and verified, and will both support the Longbow Program, and enhance Apache maintenance. Included in this manual process will be the introduction of Electronic Integrated Troubleshooting Manuals (EITMs).

These manuals will expedite the troubleshooting process by allowing the maintainer to download fault information from the helicopter to a portable maintenance aid which is similar to a lap top computer. The fault information is then processed through a yes-no (Apache — continued on p. 71)

AH-64D LONGBOW APACHE SUPPORTABILITY

As the AH-64D Longbow Apache continues to demonstrate success in the technical area with six prototypes flying and engineering development tests well underway, the positive results of early concurrent engineering and supportability planning are coming to the forefront. The Logistics Demonstration is ongoing; formal reliability tests have started; soldiers are being trained; the system support package for operational tests is developed and DA DCSOPS has identified the first 36 AH-64A aircraft for induction into the Longbow Program.

How did we get there? Longbow Apache is a "system of systems" (the modernized AH-64D aircraft, the Fire Control Radar and the Longbow Hellfire Modular Missile System).

*How the
Government/
Industrial team
has kept the
soldier-
maintainer in
mind for the
AH-64D.*

The goal of total weapon system supportability is facilitated by focusing our logistics approach through the Government and Industry "Team Apache Modernization" and efforts such as a combined Integrated Logistic Support Management Team, a consolidated ILS Plan and a Joint MANPRINT Working Group. Results emerging from the Logistic Demonstration are proving the value of this strategy.

The Logistic Demonstration (LD) is the "final exam" for supportability prior to entering operational testing later this year. This hands-on exam evaluates overall supportability through disassembly and reassembly of the system. The demonstration began in December 1993 using one of the AH-64D Long-

bow Apache prototypes set aside at Mesa, AZ for the contractor's validation conducted by McDonnell Douglas, Martin Marietta, and Westinghouse. This dawn to mid-night operation evaluated the supportability design from the manufacturer's perspective and made any needed refinements to procedures, equipment and documentation so the Government verification could begin as scheduled in March, 1994.

The Government's portion of the LD started 7 March and will continue through June. It encompasses all the evaluations required by AR 700-127 to include:

- Supportability of the AH-64D design.
- Adequacy of maintenance planning for the system (maintenance concept, task allocation, troubleshooting procedures, etc.) and its peculiar support equipment.
- Adequacy of the preliminary system support package which includes: draft technical publications in paper and the new interactive electronics format; personnel and training requirements by Military Occupation Speciality (MOS); tools and test equipment including the New Aviation Tool System (NATS-95) and a computer based portable maintenance aid.
- Validation and update of the Logistic Support Analysis Record (LSAR).

● Assessment of Manpower and Personnel Integration (MAN-PRINT).

Over 750 maintenance tasks selected from new Longbow Technical Manuals are being performed and verified by military target audience personnel. These soldiers range from skill level ten (recent AIT Graduates), to Senior TRADOC Sergeants acting as Technical Inspectors and subject matter experts.

The principal MOSs involved are 68NX1, Avionics Mechanic; 68X, Armament/Electrical Repairer; and 67R, AH-64 Attack Helicopter Repairer. As of 29 March, 131 MOS 68N tasks, including Communication/Navigation, Fire Control Radar (FCR), and interactive electronic troubleshooting, have been trained, verified and completed. The 67R and 68X training started 23 March and those tasks will be verified in April and May. In addition, during the first two weeks of June, the FCR Mission Kit installation on the basic AH-64D will be demonstrated and timed.

This kit includes: 5 Radar Components (Radar Power Control Unit (RPCU), Radar Frequency Interferometer (RFI); Mast Mounted Assembly (MMA), Low Power Radio Frequency (LPRF), Programmable Signal Processor (PSP); a torque tube and derotation unit, required for mounting the MMA; and

two T700-GE-701C engines. This conversion demonstration will prove Aviation Unit Maintenance (AVUM) level interchangeability of the FCR Mission Kit from airframe to airframe within the time specified by the Combat Developer in the Operational Requirements Document.

The Longbow Reliability, Availability, and Maintainability (RAM) efforts build on the success of the Apache Reliability Improvement Program and emphasize early design influence with an extensive RAM maturation program. The success of RAM is being systematically proven through a host of scoring conferences, demonstrations and tests.

Each new Line Replaceable Unit (LRU) undergoes Environmental Stress Screening (ESS) prior to being placed on the aircraft. The entire FCR system is subjected to a rigorous 1,000 Hour Test, Analyze and Fix (TAAF) program to find and fix failures that historically have not been found until after fielding to Army units. Numerous aircraft subsystems, including all processors are subjected to 4000 hours of similar testing. Failure Evaluation Review Boards, established at each contractor's facility, review each failure that occurs during flight and ground runs. Corrective actions are identified, implemented and monitored to

ensure the failures do not recur.

Early in the development process, several mock up demonstrations were performed on the Longbow Apache aircraft. Potential maintainability problems were identified and presented to the design engineers. Redesign or relocation of the LRUs resulted. In addition, nearly 800 faults are being inserted in the hardware to ensure the Built In Test (BIT) can and does find the defective units. As a result of the findings, additional test points and/or software will be added to the BIT.

A Maintainability Demonstration is being conducted as part of the Logistic Demonstration with trained Army maintainers timed in the accomplishment of assigned tasks. So far, many of the tasks are coming in under the predicted completion times.

Troubleshooting procedures are written in an interactive electronic technical manual format hosted on a Portable Maintenance Aid and will further enhance maintainability. This is key to our proposed Integrated Maintenance Support System which provides fault data logging, an "automated breakout box" resident on a card in the Portable Maintenance Aid, downloading of maintenance information through the data bus at the aircraft, and interface with the Unit Level Logistics System-Avia-

tion (ULLS-A). The dedicated efforts of the contractors, ATCOM, CECOM, MICOM, AMCCOM, PM Longbow and TRADOC, are yielding a highly maintainable weapons system. As a result of these intense RAM efforts, the Longbow Apache, as the world's finest Attack Helicopter, will also be the most maintainable Attack Helicopter ever built.

Learning heavily on lessons learned from the AH-64A Program, the Longbow Project Manager and TRADOC System Manager initiated the Longbow Integrated Training Program (LBITP) to support the AH-64D. The LBITP includes all courseware, training media and hardware integrated across the training base as well as integrated with the design evolution of the Longbow Weapon System. The Training Device Suite will address media for the resident training base as well as unit individual sustainment and collective requirements. The LBITP will be aligned with the Combined Arms Training Strategy and will be developed in accordance with the Systems Approach to Training (SAT).

The advantage of the LBITP, with the Longbow prime contractor as the training integrator, is that it ensures training development (courseware and devices) closely mirrors the evolution of the

aircraft and the supporting technical data. The concept is being developed and tested during the Engineering and Manufacturing Development (EMD) Phase of the Longbow Program. Courses have been prepared and taught in support of the Logistic Demonstration to soldiers in MOS 68N, 68X and 67R.

A course to train operators to participate in Pre-Production Qualification Testing (PPQT) started in April and will end in June. Lessons learned from the development and presentation of these courses will be applied to training conducted from Mid-July through September for Force Development Test and Experimentation/Initial Operational Test and Evaluation (FDTE/IOTE).

The information gathered from the results of FDTE/IOTE will be used for the development of courses used to train the First Unit Equipped (FUE) and subsequent units. The first three Longbow Apache Battalions will receive individual training at the contractor's facility due to the low quantities of aircraft during initial production. This will allow further refinement of courseware and training devices prior to introduction to the Army (TRADOC) resident school base at Ft. Rucker and Ft. Eustis, VA. After completion of (Longbow — cont. on page 66)

AH-64 APACHE IN FOREIGN MILITARY SALES: COOPERATION OR PROLIFERATION?

“Arms transfers are inherently neither good nor evil. A given weapon system is not stabilizing nor destabilizing as an abstract proposition. Arbitrary restraint and unrestricted transfers are equally unrelated to US national interest. There is no virtue in cutting arms transfers, or increasing them, in the aggregate. Transfers can fairly be evaluated only in terms of their impact on specific US interest in specific countries and regions, taking into account military, political, and economic realities at that time.”

The previous statement is an extract of a speech by William Schneider Jr., then Under Secretary of State for Security Assistance, Science and Technology before Congress on 3 March 1983 and is an at-

A look at the Win/Win value of Foreign Military Sales.

tempt to cut through the emotional sensationalism which surrounds the subject of foreign military sales.

Unless the people of the U.S. are ready to erect an impenetrable barrier around ourselves, we are going to continue to be part of global cooperation and conflict.

Especially since we are a nation made up of peoples of many nations, we are especially motivated to be a leader among the various conflicts and collaborations. This leadership role carries with it many responsibilities, as well as benefits.

One of the responsibilities is military cooperation, also known as Security Assistance. This cooperation takes many forms including: intelligence sharing (information), tactical procedure sharing (cross training

and liaison officers) and technology transfer (hardware sales and grants).

To hear the popular press tell the story, most Americans believe that arms transfer policy is established by corporate salesmen at trade shows and back alleys, with little regard for interests other than big profits. In the U.S., nothing could be further from the truth! Transfer of lethal military equipment to other countries is in actuality a complex and tightly controlled process. This process is governed by two primary laws: the Foreign Assistance Act (FAA) of 1961 (as amended), and the Army Export Control Act (AECA), (as amended).

The FAA is the statutory basis for non hardware programs such as International Military Education and Training (IMET), The Economic Support Fund (ESF), and for Peacekeeping Operations (PKO).

The AECA is the statutory basis for the conduct of government to government transfers (foreign military sales) and for the control of industry to government transfers (direct commercial sales). Under the guidance of AECA (Sec 3a) no defense articles may be transferred to another country unless:

1) the executive branch publishes a finding that the transfer will strengthen the security of the U.S. and promote world peace;

2) the country agrees not to transfer the equipment to another party without our government's approval;

3) the country will maintain the

security of the equipment; and

4) it is not otherwise prohibited from receiving U.S. defense articles.

Essentially, the executive and the legislative branches of our government must both agree that transferring arms to another country is in our (the U.S. people's) best interest.

Once that decision is made, what benefits might the American people expect to see?

- Greater ties and cooperation between the US and its allies, including: economic cooperation, base accessibility, and agreements on human rights and democratic values and institutions.

- Reduced costs of our defense by:
 - a) increased burden sharing of defense and joint exercise costs, and
 - b) increased lot sizes for economic orders of new systems and for logistical support items.

- Improved Rationalization, Standardization, and Interoperability, is the NATO term which means where possible nations will utilize specialization, standardization, mutual support, and tactical interoperability to improve effectiveness in mutual defense. The U.S. government has made all of the prerequisite decisions for export of the AH-64A to Egypt, Greece, Israel, Saudi Arabia, and the United Arab Emirates.

Other countries are in various stages of discussions with our government to buy the AH-64A and D models. In each case we will see (FMS — continued on page 68)

KIOWA WARRIOR FORCE DEVELOPMENT TEST

Wanted: *Aggressive, disciplined, highly-motivated cavalry and attack helicopter units recently equipped with OH-58D Kiowa Warriors. Requires extensive training in reconnaissance, security, and gunnery skills. Good communications skills in ATHS, HAVEQUICK II, and SINGARS is a must. Experience in computer skills and automated mission planning desirable. Must be willing to deploy at a moment's notice by strategic air. Units without the "Spirit of the Cavalry" need not apply. Inquire at the Combat Aviation Training Brigade.*

This want ad was recently answered by E Troop, 2/229th Attack Helicopter Regiment and will soon be answered by all OH-58D-equipped cavalry and light attack helicopter

**A review
of a
major
operational
test
of the
OH-58D
Kiowa
Warrior.**

units as they deploy to Ft. Hood, TX for a rotation through the Combat Aviation Training Brigade.

In a joint effort by the TRADOC System Manager OH-58D Kiowa Warrior, TEXCOM Aviation Test Directorate, U.S. Army Operational Evaluation

Command (OEC), and the Combat Aviation Training Brigade, the OH-58D Dual Station Unit Fielding and Training Plan (DSUFTP) was recently validated during the OH-58D Kiowa Warrior Force Development Test and Experimentation (FDTE).

The FDTE was a major operational test of the OH-58D Kiowa Warrior designed to answer critical operational issues and support the Full Material Release decision for the aircraft. The FDTE was innovative and unique by design, in that it was conducted con-

currently with normal unit training. This "piggyback" approach to operational testing pooled scarce resources to allow testing in a realistic, tactical environment.

The FDTE was conducted in two phases. Phase I was conducted in March 1993 at Ft. Bragg, NC, with a Kiowa Warrior-equipped troop from 4th Squadron, 17th Cavalry. This phase of the test focused primarily on the rapid deployability/air transportability capabilities of the OH-58D.

The test objective was to validate loading and offloading a team of two OH-58Ds using USAF C-130 transport aircraft. Using SOPs developed by the unit and OH-58D rapid deployment kits, the unit prepared and loaded two armed OH-58Ds. The preparation and loading took approximately 30 minutes. Offloading and reassembly of the Kiowa Warrior was the true focus of the event. Simulating an assault landing of the C-130 during a forced entry scenario, the aircraft were to be reassembled and launched as soon as possible.

Timing began as soon as the ramp of the C-130 was lowered and the ramp touched the ground. In two minutes and 30 seconds, the first Kiowa Warrior was unloaded, and at 5:45, the second aircraft was on the ramp. Blades were swung into place, mast mounted sights reattached, and the weapons racks unfolded.

After a rapid flight readiness in-

spection, the first Kiowa Warrior was running in 9:00, and the second cranked at 13:07. With the first aircraft providing security, the second Kiowa Warrior was in the air at 14 minutes, 30 seconds after the C-130's ramp hit the tarmac. The rapid deployability of the OH-58D gives the ground commander the option to introduce night armed reconnaissance or light attack helicopters during the forced entry phase of an assault, protecting the assault force along high speed avenues of approach. Kiowa Warrior units can now deploy to virtually any area of conflict, providing the ground commanders with the lethality and stealth to ensure a decisive winning edge.

The second half of Phase I was conducted during a troop FTX at Camp Mackall, NC, and validated Tactics, Techniques, and Procedures (TTP) for employing the Kiowa Warrior in reconnaissance, security, and light attack helicopter scenarios.

Phase II of the Kiowa Warrior FDTE actually began about the time Phase I ended. E Troop, 2/229th Attack Helicopter Regiment commenced the Combat Aviation Training Brigade's DSUFTP. Equipped and manned specifically for the Kiowa Warrior FDTE, E Troop is also the RAH-66 Comanche Early Operational Capabilities (EOC) unit. The lessons learned are directly translated for application to the

Army's future armed reconnaissance/light attack helicopter program.

Using the "crawl, walk, run" training philosophy of the CATB DSUFTP, E Troop completed individual, crew, team, and troop level training at Ft. Rucker, AL. The CATB OH-58D Combat Aviation Training Team (CATT) cadre evaluated the unit using written, oral, and hands-on assessments.

Upon completing the home station training portion of the DSUFTP, E Troop deployed on 23 September 1993 to Ft. Hood, TX to complete the second half of the DSUFTP and Phase II of the FDTE. Upon arrival, the aircraft were instrumented with 1553 data bus recorders, GPS, backup video recorders, version 6.0 aircraft software, and other instrumentation while the crews received local area orientations.

This instrumentation package allowed TEXCOM to record 100% of the data available from the OH-58D's 1553 data bus. Once recorded, the data was reduced to 47 critical test data elements to be entered into a data base for further analysis. Video data reduction included reviewing the mission video tapes for critical data elements such as time, location, and digital Airborne Target Handover System (ATHS) messages sent and received.

Gunnery began with a bang on 1 October at the Dalton Mountain

Multi-use Range Complex. Firing 1,400 2.75" rockets and 22,000 rounds of .50 caliber ammunition, the crews from E Troop completed TC 1-140 gunnery tables III-XII. During the exercise, CATB conducted the first ever digital gunnery range using a portable ATHS and a SINCGARS radio. Target handovers were given to the firing aircraft via digital ATHS messages, then engaged.

Also integrated into the gunnery phase was an artillery TACFIRE system, allowing the crews to call for and adjust fires digitally. All gunnery tables were scored with the Area Weapons Scoring System (AWSS), which senses impact of the rounds in the scoring box by acoustical and radar sensors in the target area.

After completing gunnery, the crews conducted an Air-to-Air Stinger (ATAS) missile exercise on Trapnell Multi-use Range. Firing at pole-mounted "stove top" heated targets, the crews fired three Basic and five Reprogrammable Microprocessor (RMP) ATAS missiles.

The Hellfire missile shoot at Cowhouse Creek Range was definitely the highlight of the live fire phase. Firing 15 Hellfire missiles, the well-trained crews of E Troop scored 15 direct hits at ranges from 3,500 to 4,900 meters. Exercising the full gamut of Hellfire operations, the firing crews incorporated the ATHS

and launched missiles in both Lock On After Launch (LOAL) and Lock On Before Launch (LOBL), autonomous, remote, and ripple modes of fire. This 100% shoot is among the best Hellfire shoots of any unit and set the CATB standard for future Kiowa Warrior units.

Prior to deploying to the field, the battalion headquarters for E Troop, 2/229th Attack Helicopter Regiment, commanded by LTC Ken Travis, received OPOD mission briefs from CATB. Although 2/229th AHR is an AH-64 unit, they superbly adapted to cavalry operations. This cross fertilization of Apache and Kiowa Warrior capabilities proved especially useful during the FTX missions that included battle handover to attack helicopters. Completing terrain board exercises, crews from E Troop and HQs 2/229th AHR rehearsed several missions prior to deploying to training area L-16 near Lampassas, TX.

The FTX portion of the rotation allowed E Troop to fine tune their mission planning and execution skills prior to final certification. Using the Aviation Electronic Combat (AEC)/Communications Electronics Command (CECOM)-developed Aviation Mission Planning Station (AMPS) and the Honeywell Flight Planning Station (FPS), the crews were able to automate almost all flight mission planning functions.

The AMPS software resides in a

486-based, ruggedized Lightweight Computer Unit (LCU) with a CD ROM, a magneto optical drive and a data transfer cartridge to automatically plan and load missions. Using digital map technology, the crews can use the software program to plan routes, analyze terrain to include point to point inter-visibility, plot threat locations, and automatically load communications, navigation, ATHS data, HAVEQUICK II data, and laser codes.

The AMPS program automatically prints time/distance/heading and frequency cards. Once planned, the missions were briefed using a projection on a large screen monitor, essentially digitizing traditional TOC operations. The missions were then loaded to a data cartridge and transferred during the run-up with the OH-58D's data transfer system.

This entire process reduces mission loading time and errors during runup and offers many new techniques for mission management. This means in the future, OH-58D units may receive missions in the form of floppy disk instead of the traditional OPOD and overlay. If your headquarters is in a remote location, no problem — just modem the data over a secure phone between two LCUs. All of these capabilities were demonstrated during the FDTE supporting the Army's move to horizontally digitize the battlefield.

The test unit flew a variety of

cavalry and attack missions to include route, zone, and area reconnaissance, screen and air assault security. All missions included a digital link to TACFIRE for fire support and were opposed by actual threat systems from Operational Test and Evaluation Command's Threat Support Activity (OTSA), including the ZSU-23-4, SA-9, SA-13, BTR-60, and communication jammers. Using version 6.0 aircraft software enhancements, such as increased waypoints, battlefield graphics, and data transfer improvements, combined with the heads up ANVIS Display Symbology Subsystem, the crews were able to achieve unparalleled tactical and situational awareness, adding to Army Aviation's warfighting arsenal.

The culmination of the test and validation was the certification phase. Flawless mission briefs, precise execution, and positive command and control were the order of the day as E Troop executed all missions scenarios and received a combat-ready certification by the cadre at CATB. Top Gun and Top Gun Team awards were presented to CW3 Blaine Pendelton and his copilot, WO1 Deren Cook. CW5 Hugh Alderson was named as Top Scout, sharing honors with his copilot, CW2 Dan Fugazzi, as the Top Scout Team.

Complete results of the Kiowa Warrior FDTE are still emerging. Numerous benefits have already

been noted for both the Aviation and Kiowa Warrior communities. The results of this test will be used by both combat and materiel developers to continue to improve the world's finest fielded armed reconnaissance helicopter.

In the testing arena, TEXCOM was able to validate 1553 data extraction and reduction, as well as video reduction. Additionally, they learned that testing can be done in the training environment. Lessons learned during Kiowa Warrior FDTE will support future aviation operational tests such as AH-64D Longbow Apache, MH-60K and MH-47E Special Operations Aircraft, and the RAH-66 Comanche.

CATB will continue to collectively challenge future OH-58D units as they rotate through one of the most demanding training programs in Army Aviation. Kiowa Warrior units worldwide will benefit immensely from standardized, battle-focused training, making the armed OH-58D one of the most potent combat multipliers on the digitized battlefield of today and tomorrow. Kiowa Warrior — "It just works".

★★

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OH-58D LOGISTICS AND RAM TESTING

BY JOHN MCGRAW

During a recent ceremony at Ft. Rucker, AL the Commander of the U.S. Army Aviation Technical Test Center (ATTC), COL Joseph L. Bergantz, accepted a plaque from Larry Rose, Bell Helicopter Textron marking the completion of 1,000 hours of Logistics Evaluation/RAM Qualification (Log Eval/RAM Qual) testing of the OH-58D Kiowa Warrior.

ATTC pilots flew the 1,000 hours over a 20 month period from April 1992 to January 1994. During the last flight, OH-58D 89-0115 also became the highest time Warrior in the inventory.

During the Log Eval/RAM Qual, the aircraft was operated in accordance with mission profiles designed to duplicate the wear and tear that the aircraft would be exposed to when fielded. Flights included both day and night operations under simulated tactical conditions. Preliminary results show the Kiowa Warrior met or exceeded the RAM parameters stated in the Required Operational Capabilities (ROC) document.

The ATTC pilots delivered the aircraft to U.S. Army Proving Ground (YPG), AZ in December 1991 for the Production Qualification Test, which was conducted jointly by ATTC and YPG. As a result, fielding began in the spring of 1992. After a trip to the factory to get the latest



modifications, the aircraft was delivered to ATTC and began the Log Eval/RAM Qual test in April 1992. On 24 January 1993, the aircraft was loaded aboard a C-130 and flown to Ft. Greely, AK for an extensive cold weather test in

temperatures as low as -55°F. After returning to Ft. Rucker on 1 March 1993, the aircraft was involved in a variety of follow-on tests.

The team of pilots, maintainers, and engineers at ATTC, as well as the contractors, materiel managers, and logisticians, worked together closely with the program management personnel to complete the tests. It is a tribute to that teamwork that ATTC was able to complete 1,200 flight hours accident- and incident-free in a demanding test environment.

The aircraft will now be integrated into one of ATTC's Lead-The-Fleet efforts. It will fly roughly three times the operational tempo of the field, and accomplish "piggyback" testing — the ability to combine related testing efforts on one airframe, to maximize return on investment. This will allow the Program Manager to improve the performance of the Kiowa Warrior and provide the best possible product to the field.

★★

Mr. McGraw is an Aerospace Engineer/Flight Test Pilot, ATTC, Ft. Rucker, AL.

THE AERIAL OBSERVER IN SOMALIA

The Aerial Observer (AO) is a versatile combat multiplier. If integrated properly, the AO functions not just as a crew member, but also as a valued enlisted team player. The old stereotypes as the "1SG's Driver" or the "Tent Trash Collector" are simply no longer true. The Command outlook that the AO can be as proficient as a young aviator with flight skills, and a mature aviator with cockpit coordination will quickly set the program on solid ground.

Well prior to the C/2-25 Attack Helicopter Company's deployment to Somalia in April 1993, our four AOs were trained to Readiness Level 1 Day/NVG and integrated as primary battle crew members. The unit maintains a training focus based on the adage that "the time to train is not

*How
Enlisted Aerial
Observers
proved their
worth during
the
CONTINUE
HOPE
deployment.*

during the deployment sequence." Once again, this was proven true as little time was afforded to fly between the alert and deployment date. The AOs were trained to company ARTEP and Warbook standards. They were thoroughly trained by the instructor

pilot on blackout cockpit procedures, aircraft limitations, and emergency procedures. The AOs also occasionally acted as Air Mission Commanders (AMCs) and briefed Operations Orders.

Once alerted for deployment, the AO's assigned additional duties became an important part of the company's daily ground operations. One AO was the field sanitation NCO, another was motor and AO flight tracking NCO, another was the armorer, and the fourth AO acted as a flight

line supervisor. The AOs flew on numerous imminent danger or combat missions over the four month deployment. Their use as a primary aircrew member was vital due to the fact that UNOSOM II headquarters had only one attack helicopter company to cover all of its missions.

The 1991 DESERT STORM exclusion of AOs for NVG missions could not occur during Operation CONTINUE HOPE unless missions were decreased or additional aeroscout pilots were deployed. The attack company basically ran a 24 hour mission cycle during a 24 hour duty period. Every crew flew almost daily to support the wide array of coalition missions tasked to Task Force Safari and its air assets. Scout Weapon Teams (SWTs) were kept in a rest cycle to support two day and three NVG missions during the 24 hour duty day and rotated about every two weeks.

One team was kept in reserve for flexibility to add to either cycle. The AOs were a crucial factor in keeping crews rested as battle crews or SWTs. The two pilots per NVG mission requirement would have adversely affected operational focus. An AO flew on the average 130 hours during the four month deployment with about 50% of that under NVG conditions. This was about 60 imminent danger missions. Daytime missions included in-depth video, photo, and kneeboard sketch recon-

naissance of Pickup Zones (PZs), Battle Positions (BPs), Firing Positions (FPs), and targets.

PZ and LZ reconnaissance and sketch work was a vital mission for the AO as usually the map recon would prove worthless once aircraft arrived at the briefed grid and found the terrain unsuitable for air assault operations. LTC Russell Forshag, Task Force Safari commander, would have the attack company conduct an area/LZ recon in the vicinity of the ground objective and return to brief the assault AMC or himself on the suggested landing areas. The Aeroscout Platoon leader would have the AO brief his recon using LONGGLASSV as the standard.

The AOs played an integral part in mission planning cells. For the 12 June 1993 deliberate attacks in the city of Mogadishu, the company was assigned two primary and two alternate targets. The commander assigned each AO a specific target and the mission to gather all possible oblique angles to shoot the targets from. This implied to the AO he needed to take a SWT out and conduct video, photo, and sketch work reconnaissance to provide each target AMC with as much information as possible. This was an immense task that included the responsibility to recommend BP locations and attack directions.

The AOs did not fly on every deliberate attack mission due to crew

rest and mission requirements, but they still helped by acting as ground supervisors during these missions. This included running key messages to both flight lines, sending tightly event driven aircraft crank notices, or helping the 1SG, the company armament soldiers, and Cobra crew-chiefs move ordnance on the Cobra gunship pads.

The AOs flew nightly on "Eyes Over Mogadishu", which was basically an area recon of the city with an on-order hasty attack mission. "Eyes Over Mog" saw the AOs marking targets with handheld lasers (LPL-30), conduct target handoffs to Cobra gunships and, if necessary, fly. Daytime saw the AOs conducting similar missions to include cordon and search security for 1-22 Infantry Battalion, 2-14 Infantry Battalion, and coalition forces.

The AOs routinely conducted aerial-dropped grenade missions. This could be CS riot control for crowd dispersal, smoke for marking targets or positions, and thermites for marking targets under NVGs or destroying secured enemy AAA/recoilless rifle pieces. The AO flew more than normal "hands on" time to enforce greater confidence with aircraft handling. This paid great dividends when one AO was flying and his aircraft was hit by metal jacketed AK-47 fire. His experience and composure

under fire allowed him to call his Cobra in to try and develop the situation while he evaded.

The AOs normally filled in the mission debrief form for the Task Force S-2. Usually the AMC was busy conducting a verbal debrief with the Task Force Commander or the S-3, MAJ Brett Johnson. The AO would capture it all on paper while the actions were still fresh and the mission could be completed.

Professional actions by trained aerial observers greatly enhanced the mission capabilities of Task Force Safari. The successes of Operation CONTINUE HOPE and the safety of the Mogadishu coalition logistical bases and assembly areas relied heavily on their nightly performance in the cockpit. The AO performed superbly under day and NVG conditions in the very difficult flight profile of urban combat. Whether under the stress of directing danger close attack helicopter fires or controlling ground convoy security operations, the AO excelled when the opportunity was given. As LTC Forshag said often, "It will amaze you what the U.S. Army soldier can do in the most challenging of situations."

★★

CPT Gawkins is Commander, C Company, 2/25th Attack Helicopter Battalion, Ft. Drum, NY.

1SG McCombs is the First Sergeant, C/2-25 Attack Helicopter Company, Ft. Drum, NY.

ZONE RECONNAISSANCE AT THE NATIONAL TRAINING CENTER

The most frequently briefed aeroscout reconnaissance mission at the NTC is the zone reconnaissance. Unfortunately, aeroscouts consistently fail to execute the zone reconnaissance mission to standard.

The zone reconnaissance is the most time- and resource-consuming reconnaissance mission. Because of this, the commander and S3 must carefully consider whether the zone reconnaissance is mandatory for mission success or if the mission requirements can be met with a less resource-intensive reconnaissance operation. The commander and the S3 do this using Mission, Enemy, Terrain, Troops, and Time Available (METTT). For instance, information about one or two templated enemy locations, as defined by Named

Tips on the proper employment of zone reconnaissance.

Areas of Interest (NAIs), can better be executed by an area reconnaissance of those NAIs than by a zone reconnaissance. By using an area reconnaissance, the commander and S3 reduced mission execution time, saving fuel, aircraft blade

hours, possible fighter management conflicts, and probably passed the information faster since the mission was completed sooner.

So, the first step in conducting zone reconnaissance operations to standard is to decide whether or not the most time- and resource-consuming operation is really necessary. Oftentimes, it is not.

If the zone reconnaissance is critical to mission success, the commander and the S3 should focus the zone reconnaissance on the essen-

tial critical tasks. Let's say the aeroscout unit receives a mission to conduct a zone reconnaissance forward in sector to establish a screen line. In this scenario, the ground forces are preparing fighting positions rearward of this screen line to defeat a first echelon Motorized Rifle Regiment (MRR) that is not currently in sector.

To focus, the commander and S3 consider the zone reconnaissance critical tasks as well as the critical tasks of the follow-on screen mission. Several of the zone reconnaissance critical tasks (see FM 1-116, pp. 3-16 for more details) support a ground force moving forward in zone (route recon tasks, bypasses for follow-on forces, determining cross country mobility, and identifying obstacles) and, therefore, are not critical to this aeroscout mission.

However, two tasks are critical to this mission:

- finding all enemy in zone and;
- finding suitable covered and concealed approaches into the flanks of the enemy.

These two tasks are important to this mission because they support a follow-on critical task to destroy

or repel enemy reconnaissance elements while occupying the screen line.

This does not mean that the aeroscouts will perform a hasty zone reconnaissance; rather, they will conduct a detailed zone reconnaissance focusing on destroying or repelling all enemy reconnaissance forces in sector and then establish a screen line to prevent further penetration.

In this example, the commander, S3, and the aeroscout unit com-

manders must develop more elaborate plans for key aspects of the mission, such as actions on contact, fire support, and bypass procedures and they will not plan or execute unnecessary route reconnaissance tasks.

“Several of the zone reconnaissance critical tasks ... support a ground force moving forward in zone ... and, therefore, are not critical to the aeroscout mission.”

The second step in performing zone reconnaissance operations to standard is to focus the zone reconnaissance on its essential critical mission task or tasks.

Now that the commander and the S3 have decided to conduct a zone reconnaissance and they have focused the zone reconnaissance, they begin a detailed analysis of the mission to determine the assets and (NTC — continued on page 73)

1994 AAAA
Annual
Convention
April 20-24
St. Louis,
Missouri



The 1994 AAAA Annual Convention got underway Wednesday night with the Grand Opening/Early Birds Reception. Left to right are: AAAA Executive Director Terrence M. Coakley, BG Orlin L. Mullen, PM Comanche, MG Benjamin L. Harrison, Ret., AAAA President, MG David C. Meade, Commanding General, 10th Mountain Division (L), MG Dewitt T. Irby, Jr., PEO Aviation, MG John S.

Cowings, Commanding General, U.S. Army ATCOM, BG Johnny M. Riggs, Deputy CG, USAAVNC, MG John D. Robinson, Army Aviation Branch Chief, and MG Walter H. Yates, Commanding General, Berlin Brigade.



Over 160,000 square feet of display area were filled by 164 aerospace organizations, 13 aircraft including the Apache, Black Hawk, Chinook, NTH, the MH-60K and MH-47E special operations helicopters, a Hunter UAV, and a HMMWV.

Right: Secretary of the Army Togo D. West, Jr. greets SGT Joseph T. Ebu, 1993 Soldier of the Year, during his tour of the exhibit hall with AAAA Executive Director Terry Coakley and Presentations Chairman and Aviation Branch Chief, MG John D. Robinson.





Before the Grand Opening, the AAAA National Executive Board met to discuss a number of issues. Pictured at right are: (l to r) MG Robinson, MG Carl H. McNair, Jr., Ret (AAA Secretary-Treasurer), MG Richard E. Stephenson (AAA Senior Vice President), MG Harrison, and Mr. Coakley.

Right: The Posting of the Colors was the first order of business during the Opening Ceremonies of the Thursday Professional Sessions. The Color Guard was from the U.S. Army Reserve Personnel Center, St. Louis, MO.



Left: GEN David M. Maddox, Commander-in-Chief, U.S. Army Europe and Seventh Army, delivers the Keynote Address at Thursday's Professional Sessions.



Left: The 1993 AAAA Unit Awards were presented immediately after GEN Maddox's Address. MG Harrison (left) and MG Robinson (right) join GEN Maddox in presenting the Robert M. Leich Award to the U.S. Army Aviation Logistics School (USAALS), Ft. Eustis, VA. Accepting on behalf of the School was COL Thomas E. Johnson, Assistant Commandant, and SGM Alan R. Gott, Senior NCO.

GEN Maddox (left), MG Donald W. Lynn, Adjutant General, Illinois Army National Guard, and MG Robinson (right) copresent the Unit of the Year Award (ARNG) to the 1st Battalion, 106th Aviation Regiment, Illinois Army National Guard. Accepting on behalf of the unit were LTC Michael A. Marvin, the Commander, and CSM Frederick A. Lane, the Senior NCO.



Right: GEN Maddox (left), MG John E. Scully, CG 102d ARCOM, BG Paul C. Bergson, Deputy Chief (IMA), U.S. Army Reserve, and MG Robinson (right), present the Unit of the Year Award (USAR) to the 7th Battalion, 159th Aviation Regiment (CBT), 146th Aviation Group (CBT), Scott AFB, IL. Accepting on the unit's behalf was LTC James M. Richey, Commander, and CSM Warren O. Berry, Senior NCO.



Left: GEN Maddox (left) and MG Robinson (right) are joined by MG David C. Meade, CG, 10th Mountain Division (Light Infantry) in presenting the Unit of the Year Award (Army) to the 10th Aviation Brigade, 10th Mountain Division (LI). Accepting the award on the unit's behalf was COL Lawrence E. Casper, Commander, and CSM Dwight J. Brown, Senior NCO.



The 1994 Annual Membership Meeting recognized CY93 AAAA Membership Contest winners and the 1993 Top Chapter. Left: MG Richard E. Stephenson, Ret. (right), AAAA Senior Vice President and Chairman of the Membership Committee, presents MSG John H. Bae, Ret. with the Top Gun Award for 1993. This is MSG Bae's fifth "membership touchdown", this time by recruiting 514 members.

Right: MG Stephenson (right) presents CW4 Thomas P. Gadomski, Treasurer of the High Desert Chapter, Ft. Irwin, CA with the Award for Largest Net Membership Gain — AAAA Chapter Category.



Right: MG Stephenson (right) presents LTC Merle W. Converse (left), Vice President of Membership for the Mid-America Chapter, with the Largest Net Membership Gain — Senior Chapter Award.



Left: COL Thomas E. Johnson, President of the Colonial Virginia Chapter, accepts a AAAA banner from AAAA President, MG Benjamin L. Harrison, Ret. The Colonial Virginia Chapter won both the Top Chapter Award and the Largest Net Membership Gain — Master Chapter Award for 1993.

The Friday morning Professional Session really started with a bang as MG Robinson (right), appeared in the middle of a simulated Hellfire explosion. His presentation set the tone of the rest of the day's professional program.



At the conclusion of MG Robinson's session, SGT Arthur H. Thomas from the 160th Special Operations Aviation Regiment (Airborne) appeared in full Night Stalker regalia — a perfect example of the 21st Century Aviation Soldier.

Right: MG Dewitt T. Irby, Program Executive Officer, Aviation, presented an update on various initiatives within the PEO Aviation arena in his Friday session.





Left: Next, MG John S. Cowings, Commanding General, U.S. Army Aviation and Troop Command, discussed the challenges facing Army Aviation logistics and related mission capabilities.

The last Friday briefer, The Honorable Joe R. Reeder, Under Secretary of the Army, closed the sessions with a presentation on the bright future for Army Aviation. See page 6 for the text of his remarks.



Throughout the Convention, Professional Session attendance was at a high as attendees came to hear clear, concise briefings concerning the present trends and future challenges facing Army Aviation.



Presentation of the AAAA Individual Awards took place in Friday morning's Professional Sessions. Left: MG Harrison, COL(P) Thomas W. Garrett, CG, U.S. Army Safety Center, and MG Robinson (far right) present CW5 James H. Raiford with the AAAA's James H. McClellan Aviation Safety Award.

Right: MG Harrison, Mr. Joseph P. Cribbins and MG Robinson present the Joseph P. Cribbins Department of the Army Civilian of the Year Award to Mr. Rickie L. Barron, Directorate of Evaluation and Standardization (DES), USAAVNC, Ft. Rucker, AL.



Right: CSM Fredy Finch, Jr., Command Sergeant Major, U.S. Army Aviation Center, Ft. Rucker, Al joined MG Robinson and MG Harrison in presenting the Aviation Soldier of the Year Award to SGT Joseph T. Ebuon, B Co., 1st Battalion, 58th Aviation Regiment (Corps), Ft. Bragg, NC.



Left: The AAAA Aviator of the Year, CW2 Gerhard P. Turner, A Co., 3rd Battalion, 227th Aviation Regiment, USAREUR and Seventh Army, proudly holds the trophy presented to him by MG Harrison, GEN David M. Maddox, CINC USAREUR and Seventh Army, and MG Robinson.

The receiving line at the AAAA President's Reception included AAAA President MG Harrison and Mrs. Harrison, Presentations Chairman MG Robinson and Mrs. Robinson, Lindbergh Chapter President MG Dewitt T. Irby, Jr. and Mrs. Irby, Military Affairs Chairman MG Cowings and Mrs. Cowings, and AAAA Executive Director Terry Coakley.



On Thursday and Friday nights, AAAA's Chapters hosted their traditional receptions. At left, reception-goers get wild and woolly at the Big East Reception with the help of the inimitable Blues Brothers, Joliet Jake and Elwood Blues.

Right: Folks line up to hit the Lindbergh Chapter's Reception. The theme for the host chapter's reception was "Riverboat Gambling".





Left: Mrs. Harrison, 1994 Spouse Chairman, presents Sunday Stoddard, wife of Army Aviator of the Year CW2 Gerhard P. Turner, with a corsage at the Saturday Spouse Breakfast honoring the Awardee Wives.

Below right: the Colonial Virginia Chapter, 1993's Top Chapter, poses for a photo during Saturday's Chapter Photo Session.

Below left: Reuben Bidez (left), son of AAAA Convention Photographer Rene and Linda, selected the winners of the 2nd Annual AAAA Scavenger Hunt. Convention attendees entered the contest by finding answers to specific questions in each exhibitor's booth.



The 1994 Scavenger Hunt Winners were: Sang Ho Shim, \$1,000 Grand Prize; Gwyn Bouma, \$500 Second Prize; Gary Coleman, \$250 Third Prize; CW2 Raymond A. Quinones, \$150 Fourth Prize; Ann Hurley, \$100 Fifth Prize.

The winner of the TWA Trip for Two to Paris was Sandra Stanton.

During Saturday's First Light Breakfast, MG Harrison, MG Irby, and MG Robinson (right) present LTG Merle Freitag, Comptroller of the Army, with a Silver Order of St. Michael Award while LTG William H. Forster (seated), First Light Breakfast Guest Speaker, applauds.



MG Harrison (right) is presented a commemorative montage from Space Shuttle Flight STS-58 by LTC Bill McArthur (left) during the First Light Breakfast. An AAAA silver medallion at the center of the montage was flown aboard the October 18–November 1, 1993 *Columbia* mission.

Right: LTG Forster, Director, Army Acquisition Corps, makes his presentation during the First Light Breakfast. A true favorite of military and industry leadership alike, this marked LTG Forster's third appearance at the event.





Left: The Operations and Training Forum, chaired by MG Robinson, had a panel comprised of Ft. Rucker and U.S. Army Aviation Logistics School senior aviation personnel and department heads.

Right: The Acquisition Forum, moderated by MG Irby, was composed of a panel of PEO Aviation's senior leadership and program managers.



Left: MG Cowings (standing), moderator of the Logistics Forum, makes his presentation to an assemblage of military and civilian attendees. All three simultaneous, three hour forums were well-received and highly attended.

Right: MG John D. Robinson (second from right), Aviation Branch Chief and CG, USAAVNC and Ft. Rucker, AL, receives a standing ovation at the AAAA Banquet in recognition of his outstanding contributions to the Branch. Joining in is GEN Wayne A. Downing, Commander-in-Chief, U.S. Special Operations Command (far right). MG Robinson will retire in July.



Left: GEN Downing, AAAA Banquet Guest Speaker, made a rousing presentation and spoke at length about Army Aviation's contributions to world security, both in the Special Operations community and in the regular line units.

Right: Couples dance away the night at the AAAA Farewell Dance. See you in Atlanta, March 29-April 2 1995!



EXHIBIT HIGHLIGHTS

AAR Manufacturing, Inc., is a manufacturer to ISU™ Transport/Storage Containers; specialty Air Cargo Pallets; deployable Shelter Systems; Composite Panels; Air Cargo Flooring; Liners; In-craft Cargo Handling Systems; Airflex™ humidity-controlled, long-term storage systems; Skydyne Transit, Operational and ATA Cases; and materiel handling equipment.

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PHOTO-SONICS, INC. featured the Super SVCR-V301 (SVHS/VHS) rugged airborne VTR and Control/Maintenance Software program. This recorder offers max. resolution, direct multiple line scan rate recording, two hour record time, BIT, RS422 interface, event mark, rewind/playback, PCM data recordings, etc. Outstanding reliability and maintainability make this AVTR the recorder of choice for evaluating operational performance, BDA, training, etc.

GEC-Marconi Electronic Systems Corporations' exhibit highlighted the new AN/ASN-128/G Doppler Navigation System with embedded P/Y code one-card GPS and new two line display. This low-cost approach provides integrated GPS/Doppler capability for helicopters currently using the AN/ASN-128 (UH-60A/L, CH-47D, AH-1F). Also featured was the AN/ASN-157, the U.S. Army's newest standard Doppler, installed on the AH-64D Apache.

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APACHE CONVERSION TO LONGBOW

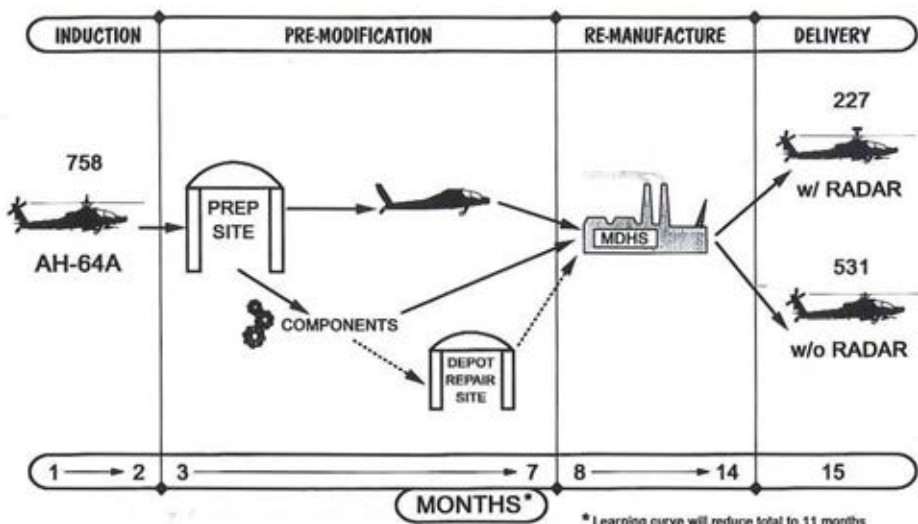


Figure 1

LONGBOW (continued from page 35)

individual training, each Longbow battalion will rotate through the Combat Aviation Training Brigade for collective training culminating in completion of an Army Training Evaluation Program.

A key aspect of our efforts in Longbow logistics is to learn the lessons of other similar conversion programs and apply them to our program. Kiowa Warrior and CH-47D lessons-learned revealed the need to identify aircraft well in advance of induction. Through Team Apache Modernization process action teams, the Longbow

Apache induction process was examined and culminated with DA DCSOPS identification of the first 36 aircraft for induction.

We have also drafted a Memorandum of Agreement containing comprehensive transfer standards to orchestrate the turn-in process with the MACOMs. This aspect is critical for a modernization program where many of the dynamic components from the AH-64A are reused on the AH-64D. (See Figure 1).

In order to meet the "customer's expectations" when we field the Longbow Apache, we must ensure that AH-64A components to be reused on the AH-64D are received



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at induction in a serviceable condition. We also recognize the AH-64A must continue to be supported well into the next decade and the return of unused AH-64A components to the supply system must be carefully controlled. An initial draft Materiel Fielding Plan (MFP) is being prepared now and will accompany the Memorandum of Notification in March 1995. The MFP will further define what must be accomplished by the fielding and gaining commands.

The United Kingdom and the Netherlands are both considering the Longbow Apache to meet their attack helicopter requirements.

The distinct advantages of standardization with our allies, improved production rates for all customers, and the war fighting synergy obtained with the world's premier attack helicopter on the combined arms battlefield cannot be overemphasized. The demonstrated supportability emphasis in the Longbow Apache design will help achieve these goals. Our bottom line is a reliable, maintainable and supportable Longbow Apache for the Army.

★★

*Mr. Ordway is the Chief, Logistics Management Division,
PM Longbow, St. Louis, MO.*

FMS (continued from page 37)

many advantages which are rarely if ever discussed in the popular press.

The manufacturer of the AH-64 employs many people, in many states. These people are part of the industrial base of the U.S. which has served us well in past wars and is critical to maintaining our technological edge. Currently the AH-64A production line is being kept open by FMS customers, resulting in up to a \$300M estimated cost avoidance to the Longbow program.

Each country that buys AH-64s typically pays for Americans to be assigned as advisors, in both operations and logistics. This allows many military and contractor personnel to

live and work inside other countries and establish friendly relations. The cost of our major programs, which are under much upward pressure because of smaller acquisition targets, is helped out by increasing lot sizes through FMS. As with several Navy and Air Force programs, the Longbow initial full rate production contract may include FMS sales.

Within government-defined limits, the acquisition community is continuing to develop FMS and direct commercial sales where the American people, their military, and our allies all benefit from sharing common military equipment.

★★

CPT(P) Scantlan is the Assistant Program Manager for International Logistics, Apache PMO, St. Louis, MO.

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APACHE

(continued from page 30)

logic to identify corrective action. The repair or removal and installation task, along with any Maintenance Allocation Chart (MAC) required to correct faults will be accessible through the same electronic modem.

This will eliminate the need for reams of paper currently required to support maintenance. To aid the maintainer and pilot, the logbook is also being automated and will be maintained electronically. The automated manuals, EITMs and Logbooks will allow the Longbow to be mobile and responsive by reducing its Logistics Support tail. The PMR will also enhance the support of both the Longbow and Apache by improving supply support and availability. With the advent of new and improved manuals and in turn PMRs, the maintainability, sustainability and readiness rate of both the Apache and Longbow helicopters will surely be enhanced.

Logistics support improvements have been continuous for the Apache and have helped ensure the success of the Longbow Program. Today's technology continues to enhance the support of tomorrow's equipment and its user — the soldier in the field.

★★

Mr. Urhahn is the Section Chief, AH-64/RAH-66, Directorate for Maintenance, U.S. Army ATCOM, St. Louis, MO.

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NTC

(continued from page 48)

time required to complete the mission.

A few of the factors that will influence the time and assets required to execute the zone reconnaissance are: the amount of air-ground integration in the zone reconnaissance, a day or night mission window, and, most important of all, the time available based on the S2's templated enemy timeline.

Unfortunately, there is no handy reference to determine how long an Air Cavalry Troop (ACT) or Target Acquisition and Reconnaissance Platoon (TARP) will take to execute the zone reconnaissance to stan-

dard. However, ACTs and TARPs that are ordered to conduct zone reconnaissance operations of 120 square kilometers or more in one hour or less usually fail.

To execute the zone reconnaissance to standard, you must determine if the zone reconnaissance is the required recon operation to meet the mission. If so, focus the zone reconnaissance on its essential critical tasks and, finally, support the zone reconnaissance with the time and assets necessary to achieve success.

★★

CPT Thorne is the Air Cavalry Troop/Target Acquisition and Reconnaissance Platoon (ACT/TARP) Trainer, National Training Center, Ft. Irwin, CA.

LTC Powell is the Senior Aviation Trainer, National Training Center, Ft. Irwin, CA.

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(cont. on p. 78)



Above: Army Aviators from the 1993/1994 class attending the U.S. War College gather for a photo opportunity. They are, from left to right: (first row) COL Ron Reichelderfer, LTC Bill Vogel, LTC Tom Foulk, LTC Randy Young; (second row) LTC Billy Stevens, LTC Neil Buthorne, LTC Dick Cody, LTC Tim Casey; (third row) LTC Burt Lennon, LTC Steve Sherrill; (fourth row) LTC Ted Larew, LTC Dell Dailey, LTC Craig Pearson, and LTC Jim Reynolds (faculty).

Below: GEN Leon E. Salomon, Commanding General, U.S. Army Materiel Command, hosted a promotion ceremony for BG Stuart W. Gerald at the Pentagon. From left to right: Maggie Gerald, GEN Salomon, BG Gerald, and son CW2 Jason Gerald, a UH-60 pilot with the 7/158th Aviation out of Scott AFB, IL.



NEW NEB INSTALLED

During the recent Annual Convention in St. Louis, MO, the new members of the National Executive Board were installed.

The officers are **MG Benjamin L. Harrison, Ret.** (President), Belton, TX; **MG Richard E. Stephenson, Ret.** (Senior VP and Chairman, Membership Committee), Vienna, VA; **MG Carl H. McNair, Jr., Ret.** (Secretary-Treasurer), Reston, VA; and **Terrence M. Coakley** (Executive Director), Westport, CT.

Vice Presidents include: **COL Sylvester C. Berdux, Ret.**, Alexandria, VA; **MG Robert S. Frix**, Presidio of San Francisco, CA; **COL Gerald R. Kunde, Ret.**, Arlington, VA; **LTG Jack V. Mackmull, Ret.**, Mt. Pleasant, SC; **MG Rudolph Ostovich III, Ret.**, Fair Oaks Ranch, TX; **CW4 Joseph L. Pisano, Ret.**, Clarksville, TN; and **Mr. George T. Singley III**, Fairfax Station, VA.

MG Harrison appointed the following as National Members-at-Large: **COL Dave Carothers, Ret.**, Edmond, OK; **MG John S. Cowings**, St. Louis, MO; **CSM Gary W. Crisp**, Clarksville, TN; **CSM Fredy Finch, Jr.**, Ft. Rucker, AL; **LTG William H. Forster**, Ft. Belvoir, VA; **COL George F. Francioni**, Fayetteville, GA; **Mr. Thomas L. House**, St. Louis, MO; **CPT Robin D. Lynch**, Belton, TX; **Mr. A. John Miller**, Ft. Rucker, AL; **MG William L. Moore, Jr.**, Ft. Sam Houston, TX; **EG Orlin L. Mullen**, Granite City, IL; **CPT Carolyn M. Pacello**, Enterprise, AL; **LTC Ellis D. Parker, Ret.**, Enterprise, AL; **Mr. William Pollard**, Alexandria, VA; **CWS Darrell C. Pope**, Alexandria, VA; **MG John D. Robinson**, Ft. Rucker, AL; **GEN Crosbie E. Saint, Ret.**, Alexandria, VA; **Mr. James P. Schwalbe**, Fort Worth, TX; and **CPT Dan E. Williams**, Clarksville, TN. Additionally, **Mr. Joseph P. Cribbins**, Alexandria, VA, and **COL John J. Stanko**, Arlington VA, are to serve as National Members-at-Large Emeritus.

AAAA Past Presidents, who serve in perpetuity, include: **GEN Hamilton H. Howze, Ret.**, Fort Worth, TX; **LTG Harry W.O. Kinnard, Ret.**, Arlington, VA; **MG Delk M. Oden, Ret.**, Fort Belvoir, VA; **LTG John M. Wright, Jr., Ret.**, Riverside, CA; **LTG Robert R. Williams, Ret.**, Fort Worth, TX; **MG George S. Beatty, Jr., Ret.**, Savannah, GA; **COL John W. Marr, Ret.**, Arlington, VA; **MG James C. Smith, Ret.**, St. Petersburg, FL; **MG George W. Putnam, Jr., Ret.**, Basye, VA; **MG Story C. Stevens, Ret.**, Hilton Head, SC; **EG James M. Hesson, Ret.**, Vienna, VA; and **MG Charles F. Drenz, Ret.**, Fairfax, VA. The Past Executive Vice President, **Arthur H. Kesten**, Westport, CT, serves in perpetuity on the NEB. USAREUR Region President is **COL Stephen K. Cook**, APO AE. The Presidents of Chapters with more than 150 members fill the remaining seats on the 73 member board.

SCHOLARSHIP BOARD ANNOUNCED

The AAAA Scholarship Foundation Board of Governors also met during the AAAA Annual Convention in St. Louis, MO. The current officers are: **MG Richard E. Stephenson, Ret.**, (President), Vienna, VA; **Mrs. Dorothy Kesten**, (Vice President), Westport, CT; **COL Robert L. Parnell, Jr., Ret.**, (Secretary), Alexandria, VA; **COL John W. Marr, Ret.**, (Treasurer), Arlington, VA; and **Terrence M. Coakley** (Executive Director), Westport, CT. Governors include: **Dan R. Bannister**, Reston, VA; **CW4 Sandra L. Beebe**, Dumfries, VA; **LTC Frank S. Besson III, Ret.**, Arlington, VA; **MAJ Robert P. Birmingham**, Oviedo, FL; **LTC Edward L. Carnes, Ret.**, Eatontown, NJ; **COL Dave Carothers, Ret.**, Edmond, OK; **Carolyn L. Chapman**, Fairfax, VA; **MAJ Brian M. Graddock**, O'Fallon, MO; **CSM Raywood P. Dartez**, Ft. Belvoir, VA; **LTC Jan S. Drabczuk**, Oviedo, FL; **MG Robert S. Frix**, Presidio of San Francisco, CA; **Jose J. Guzman**, Corpus Christi, TX; **Paul L. Hendrickson**, St. Peters, MO; **EG James M. Hesson, Ret.**, Vienna, VA; **Leonard D. Kulik**, Washington, DC; **Ronald V. Kurowsky**, Manasquan, NJ; **COL John A. Lasch III, Ret.**, Woodbridge, VA; **COL Gerald E. Lethcoe, Jr., Ret.**, Fairfax Station, VA; **CSM John T. Pate, Ret.**, Arlington, TX; **LTC Lawrence P. Peduzzi, Ret.**, Fairfax Station, VA; **CW4 Joseph L. Pisano, Ret.**, Clarksville, TN; **William Pollard**, Alexandria, VA; **LTC Frank H. Radspinner, Ret.**, Fort Worth, TX; **LTC Ralph W. Shaw, Ret.**, Killeen, TX; **COL Harry W. Townsend, Ret.**, Silver Spring, MD; and **LTC James O. Woodard, Ret.**, Alexandria, VA. Presidents Emeritus who serve in perpetuity include: **MG John L. Klingenhagen, Ret.**, Virginia Beach, VA; **COL Rudolph D. Descoteau, Ret.**, Arlington, VA; and **MG George W. Putnam, Jr., Ret.**, Basye, VA.

The AAAA President's Annual Report

The following remarks are excerpted from the AAAA President's Annual Report delivered by the President, MG Benjamin L. Harrison, Ret., during the AAAA Membership Meeting, 21 April 1994, at the AAAA Annual Convention in St. Louis, MO.

In total membership, as of April 1, 1994 there were 16,219 active members. Notably, enlisted membership has grown dramatically to 2,715, almost 17% of the total membership. Life memberships have also grown from 844 last year to 939 this year and industry support remains strong with just over 200 Industry Members. Sustaining Memberships for local non-defense related businesses are still popular with our chapters with 61 as of April 1st.

National, Regional, and Chapter activities have done very well over the last year. The Eleventh Annual AAAA Aviation Electronic Combat (AEC) Symposium took place in early November and drew a record crowd at the Grumman Facility in Melbourne, Florida.

Two months ago, the Lindbergh Chapter Annual Joseph P. Cribbins Product Support Symposium served as another excellent opportunity for AAAA to foster communication between the Army and Industry. The Lindbergh Chapter, once again, under the leadership of MG Irby, orchestrated a most successful event.

AAAA's 60 Chapters held more than 150 meetings in 1993. We have also welcomed FIVE new AAAA Chapters in the last 12 months: the **Flying Tigers Chapter**, Fort Knox, Kentucky; the **Giebelstadt Chapter**, Giebelstadt Germany; the **Midnight Sun Chapter**, Fort Richardson, Alaska; the **Northern Lights Chapter**, Fort Wainwright, Fairbanks, Alaska and the **Razorback Chapter**, North Little Rock, Arkansas.

ARMY AVIATION Magazine celebrated its 40th anniversary last year, and continues to bring comprehensive information written by and for the Army Aviation Community to our members ten times a year.

1993 also saw the institution of the First Annual AAAA Essay Contest, sponsored by ARMY AVIATION Magazine. The top three essays were published in the magazine, and the Second Annual Contest is already under way with a suspense of July 1. First prize is \$500, so fire up your word processors and be part of this professional development exercise.

One of AAAA's biggest annual efforts is the AAAA Awards Program.

The AAAA recognizes excellence throughout the year.

During 1993, at the AAAA Aviation Center Chapter Awards Dinner in Fort Rucker in December, this year's Army Aviation Trainer of the Year Award, sponsored by CAE-Link, was awarded to **SFC Alexander A. Tejada**, U.S. Army Aviation Logistics School, Fort Eustis, Virginia.

Also presented was the Army Aviation Air/Sea Rescue Award to the **50th Medical Company (Air Ambulance)**, 101st Airborne Division, (Air Assault), Fort Campbell, Kentucky.

The AAAA's Aircraft Survivability Equipment Award went to **CW4 Bradford A. Powell**, 160th Special Operations Aviation Regiment (Airborne), Fort Campbell, Kentucky.

The AAAA's Avionics Award was awarded to **CPT Keith J. Kranhold**, 128th Aviation Brigade, U.S. Army South, APO AA.

These two awards were presented at the AAAA's Aviation Electronic Combat Symposium held in November.

The Outstanding Logistic Support Unit of the Year Award for 1993 was awarded to

E Company, 228th Aviation Regiment (AVIM), Albrook Air Force Station, Panama, and was recognized at the AAAA Lindbergh Chapter Product Support Symposium in February.

Industry contributions to Materiel Readiness were also recognized at the Product Support Symposium. The Individual Industry Award went to **Mr. Dennis R. Weaver** of Martin Marietta Corporation.

The Materiel Readiness Award for Contributions by an Industry Team, Group or Special Unit was awarded to the **DynCorp Contract Field Team 10-2S**, Ft. Hood, TX.

The Small Business Organization Award went to **Sabreliner Corporation**.

The Major Contractor Award was presented to **Sikorsky Aircraft Division, UTC**.

In addition to these various national and functional awards, there is the AAAA Distinguished Graduate Award program. This program was vastly expanded in 1992 and now provides the top graduates from the U.S. Army Aviation Logistics School and U.S. Army Aviation Center with awards documenting their achievements.

The Association also honors other outstanding young people who are entering Army Aviation with the AAAA Top ROTC Cadet of the Year and AAAA Top U.S. Military Academy Cadet of the Year Awards. The Top USMA Cadet for 1993 was **Marc A. Wehmeyer** and the Top ROTC Cadet was **Roy R. Trumble IV**.

Our most significant program, certainly in financial terms, is the AAAA Scholarship Foundation, Inc. We help our members before, during, and after they and their loved ones graduate from college, through our support of the AAAA Scholarship Foundation, Inc. The Foundation was able to give out 30 scholarship grants and loans for a total of over \$120,000 in 1993 and is expected to exceed that effort in 1994.

Over the last few years, we have specifically earmarked scholarships for specific membership categories like Enlisted per-

sonnel that help insure fair distribution of this benefit.

However, we need many more applicants in our Enlisted, Warrant Officer and Company Grade ranks to really get this effort off the ground.

As I hope you know, your Association is managed by the National Executive Board consisting of ten elected Vice Presidents, twenty National Members-at-Large who are appointed annually by the President, and the Past Presidents of the AAAA, the Past Executive Vice President and National Members-at-Large Emeritus who serve as permanent members of the Board. In addition, the NEB is also comprised of the USAREUR Region President and the Presidents of Chapters representing 150 or more members.

In recent years, we have expanded the NEB to include additional company grade officers, warrant officers and enlisted soldiers as National Members-at-Large.

This breadth and depth of experience of personnel serving on the NEB is intended to keep your leadership in touch with the real world of our membership. You should not hesitate to communicate your thoughts to your board representative.

With all these programs, how do we keep financially solvent? Membership dues alone do NOT cover our expenses. The answer is the support of our Industry members. Much of our income comes directly from this Annual Convention with the sale of exhibit space to our industry member firms. We are deeply indebted to those companies that have supported us year in and year out through good times and bad.

With all these strong programs, and our fiscal health in good shape, the future looks bright. There will certainly be significant challenges ahead but with initiatives like our ongoing Aviation Warrant Officer Survey and the formation of our Strategic Planning Committee, we look ahead with confidence. ■■■■

Washington D.C.:
CPT Steven R. Palmer
(Treas); CPT Bradley K.
Dreyer (VP, Programs).

Wings of the Marne:
LLT Eric Craig (Treasurer).

**New AAAA
Industry Members**

**Better Engineering
Mfg., Inc.**
Baltimore, MD

FN Herstal
Belgium

Fokker Aircraft U.S.A., Inc.
Alexandria, VA

Horizons Technology, Inc.
San Diego, CA

Ingersoll-Rand Company
Washington, DC

**Innovative Logistics
Techniques, Inc.**
McLean, VA

**Loctite Lumiscent
Systems, Inc.**
Lebanon, NH

**NAVCOM Defense
Electronics, Inc.**
El Monte, CA

Stanley Works
Washington Ct. House, OH

II Morrow, Inc.
Salem, OR

Talley Defense Systems
Mesa, AZ

Tracor Flight Systems, Inc
Austin, TX

TRW, Inc.
San Diego, CA

Tsirah Corporation
West Chicago, IL

Versatron Corporation
Healdsburg, CA

**Vickers Inc.,
Todoco Division**
Glenolden, PA

**ARMY AVIATION ASSOCIATION OF AMERICA, INC.
BALANCE SHEET AS OF DECEMBER 31, 1993**

| | |
|---|------------------|
| ASSETS | |
| Cash | \$17,623 |
| Cash Funds | 197,555 |
| Investment in Marketable Securities | 258,582 |
| Net of valuation allowance of \$3,219 in 1993. | |
| Accounts Receivable | 0 |
| Inventory of Pins | 22,182 |
| Prepaid Administrative Fee | 206,123 |
| TOTAL ASSETS | \$702,065 |

| | |
|--|------------------|
| LIABILITIES | |
| Accrued Expenses and Allocations Payable | \$25,679 |
| Deferred Membership Dues | 210,526 |
| Deferred Convention Revenues | 116,131 |
| TOTAL LIABILITIES | \$352,336 |

| | |
|---|--------|
| FUND BALANCES | |
| General Fund | 73,548 |
| Net of Unrealized Loss of Investment in Marketable Securities of \$3,219 | |

| | |
|---------------------------|---------|
| Board Designated Funds | 250,000 |
| Emergency Fund | 16,648 |
| Hall of Fame Escrow Fund | 9,533 |
| Order of St. Michael Fund | |

| | |
|--|------------------|
| TOTAL FUND BALANCES | 349,729 |
| TOTAL LIABILITIES AND FUND BALANCES | \$702,065 |

**STATEMENT OF REVENUE, EXPENSES
AND CHANGES IN FUND BALANCES
FOR THE YEAR ENDED DECEMBER 31, 1993**

| | |
|-------------------------------------|--------------------|
| REVENUES | |
| Membership Dues | \$312,816 |
| Annual Convention | 825,455 |
| AEC Symposium | 29,800 |
| Souvenirs & 50th Anniversary Covers | 2,871 |
| Interest | 28,941 |
| Miscellaneous | 9,311 |
| TOTAL REVENUES | \$1,207,200 |

| | |
|----------------------------|------------------|
| EXPENSES | |
| General and Administrative | 490,391 |
| Special Allocations | 74,733 |
| Annual Convention | 489,000 |
| AEC Symposium | 30,277 |
| TOTAL EXPENSES | 1,084,411 |

| | |
|---|----------------|
| EXCESS OF REVENUE OVER EXPENSES | 122,789 |
| FUND BALANCE — BEGINNING | 222,422 |
| Unrealized Marketable Securities Adjustment | 4,511 |

| | |
|------------------------------|------------------|
| FUND BALANCE — ENDING | \$349,729 |
|------------------------------|------------------|

Army Aviation Hall of Fame Nominations Open

Suspense Date for Nominations: July 1, 1994

An AAAA-sponsored Army Aviation Hall of Fame honors those persons who have made:

- an outstanding contribution to Army Aviation over an extended period;
- a doctrinal or technical contribution;
- an innovation with an identifiable impact on Army Aviation;
- efforts that were an inspiration to others, or
- any combination of the foregoing, and records the excellence of their achievements for posterity.

All persons are eligible for induction, except active duty Generals and Colonels. Membership in AAAA is not a requirement.

Contact AAAA National Office (203-226-8184) for Nomination Documentation requirements. All nominations must be postmarked not later than July 1, 1994.

An eight member Board of Trustees is responsible for selecting a specific number of candidates from all nominations received for placement on the Army Aviation Hall of Fame ballot. The ballot will be mailed to AAAA members with two or more years of current, continuous membership in the Fall of 1994.

CALENDAR

A Listing of Recent Chapter Events and Upcoming National Dates.

May, 1994

✓ **May 24.** North Texas Chapter General Membership Meeting. Guest Speaker: LTG Paul E. Funk, CG, III Corps & Ft. Hood.

✓ **May 26.** Corpus Christi Chapter Quarterly Dinner Meeting. Guest Speaker: LTC Rhonda Cornum.

June, 1994

✓ **June 14.** Ft. Monmouth Chapter Social Meeting.

July, 1994

✓ **July 15.** AAAA Scholarship Board of Governors Executive Committee Meeting, Best

Western, Arlington, VA.

✓ **July 16.** AAAA National Scholarship Selection Committee Meeting to select 1994 scholarship recipients, Best Western, Arlington, VA.

August, 1994

✓ **Aug. 15-18.** Army Aviation Electronics Symposium, sponsored by the AAAA Monmouth Chapter, Gibbs Hall, Ft. Monmouth, NJ. Theme: "Digitizing Tomorrow's Battlefield."

October, 1994

✓ **Oct. 17.** AAAA NEB and Scholarship Board of Governors Executive Committee Meetings, Sheraton Washington Hotel, Washington, D.C.

New AAAA Life Members

LTC William N. Phillips

CPT Phillip S. Martin

AAAA Soldier of the Month

SPC James Edwin Shade

Ft. Indiantown Gap

February 1994

AAAA Soldier of the Quarter

PFC Crystal A. Thompson

Aviation Center Chapter

1st Quarter 1994

AAAA NCO of the Quarter

SGT Sheri M. Wolfe

Aviation Center Chapter

1st Quarter 1994

Honorary Member

The following individual has been selected by his Chapter as an Honorary Member. He will receive a complimentary one year membership, citation in these pages, and a "Certificate of Honorary Membership."

H. Ross Perot, Jr.

North Texas Chapter

Aces

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

CW2 Brett J. Armstrong

CW3 David J. Dohm

1LT Michael G. Gray



*We all know the cost to put them
in the air...who knows the cost of*

AOG

AIRCRAFT ON THE GROUND

*\$5M a day in lost inventory value;
110,000 lost flying hours; \$1,000 a
day in labor costs; and the threat to
combat readiness...immeasurable.*

DynCorp keeps thousands of aircraft flying - year round, providing maintenance and logistics for training missions and combat readiness all over the globe in pursuit of peace and war.

DynCorp has provided aircraft maintenance, logistics, and supply support to the Defense Department for nearly five decades.

*We're on the ground to keep you in
the air...safely!*

DynCorp

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