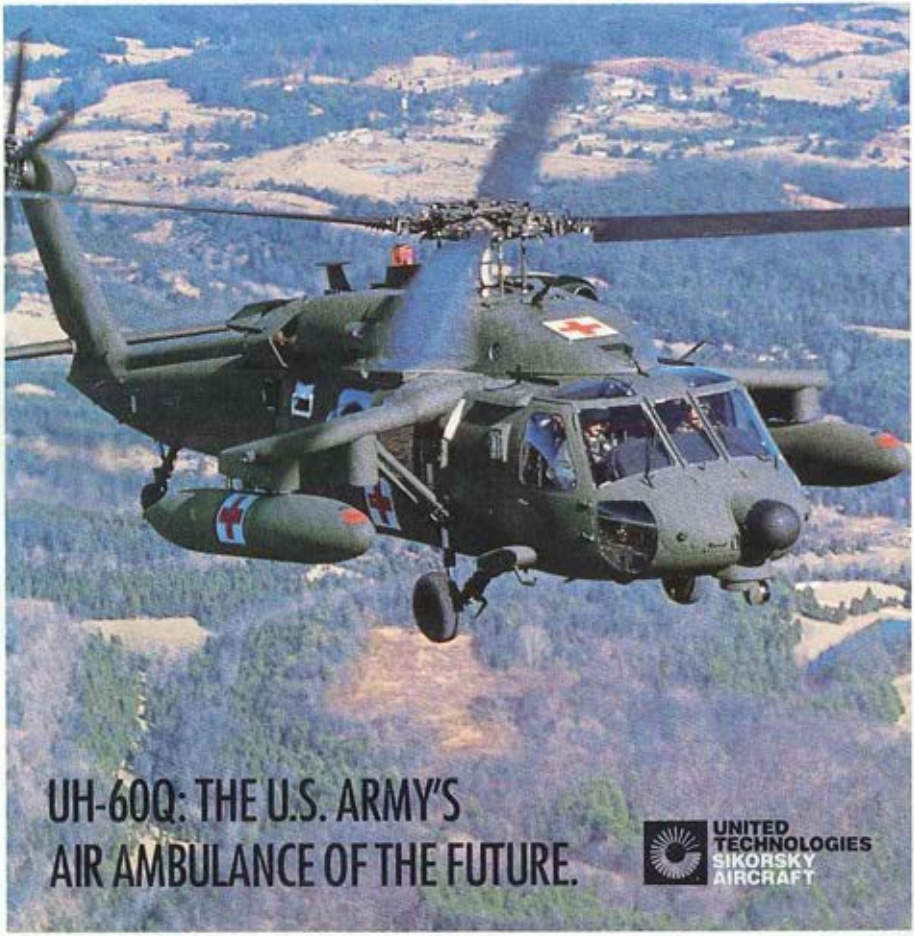
Special Focus: Special Operations Aircraft

Special Focus: Special Operations Aircraft

ARMY AVIATION

ENDORSED PUBLICATION OF THE ARMY AVIATION ASSOCIATION OF AMERICA • JUNE 30, 1993



SECOND TO NONE.

When the mission calls for the cover of darkness, the military calls for ITT leadership in night vision.

In night vision devices, what you get makes the difference in what you see.

That's why, for the clearest vision at low light levels, you need the leader in Generation III technology.

With improvements in our Aviators' Night Vision Imaging System ("ANVIS 6"), ITT continues to expand the night flying capabilities of military aviators.

Design enhancements – like improved resolution, increased eye relief, dual interpupillary adjustments – directly respond to the voice of the customer.

ITT also remains the undisputed leader in high-volume GEN III manufacturing. In fact, we've produced and delivered more GEN III image intensifier devices than all the other manufacturers combined.

No one is more dedicated to night vision technology than we are. And no one offers better value to the men and women who fly at night. They all agree, *you can trust the night to ITT.*

ITT Electro-Optical Products
7635 Plantation Road
Roanoke, VA 24019, USA • 703-563-0371

ITT DEFENSE & ELECTRONICS

VOLUME 42 ARMY AVIATION NUMBER 6

FEATURE ARTICLES

SPECIAL FOCUS: SOA and Night Vision

DEPARTMENTS

FRONT COVER

PUBLISHER
Lynn Coakley

ASSOCIATE PUBLISHER
Terrence M. Coakley

EDITOR
William R. Harris, Jr.

PRODUCTION MANAGER
Barbara Ross

ADVERTISING MANAGER
Deirdre Frost

EDITORIAL/PRODUCTION ASSISTANT
Stephen Moore

CIRCULATION MANAGER
Jill Thomas

CIRCULATION ASSISTANTS
Mary Ann Stirling, Debbie Coley, Deb Simons, Mary Ellen Kother

ARMY AVIATION is a professional journal endorsed by the Army Aviation Association of America (AAAA). The views expressed in this publication are those of the individual authors, not the Department of Defense or its elements. The content does not necessarily reflect the official U.S. Army position nor the position of the Army Aviation Association of America (AAAA) or the staff of Army Aviation Publications, Inc. (AAPI). Title reg. ® in U.S. Patent Office. Registration Number 1,533,053.

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

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

POSTAL
Second class postage paid at Westport, CT and other offices.

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

FORTHCOMING ISSUES

July 1993 — Simulation and Training Special Focus.

August-September 1993 — 1993 "Blue Book" U.S. Army Aviation Worldwide

Briefings

GEN J.H. Binford Peay, III was promoted to General and sworn in as the Vice Chief of Staff of the Army during a ceremony held at the Pentagon. Peay, who served two tours in Vietnam, has commanded the 2d Battalion, 11th Field Artillery, 25th Infantry Division, and the 9th Infantry Division Artillery. During DESERT STORM, he was the commander of the 101st Airborne Division, Ft. Campbell, KY. GEN Peay takes over from **GEN Dennis J. Reimer**, who has assumed command of U.S. Forces Command.

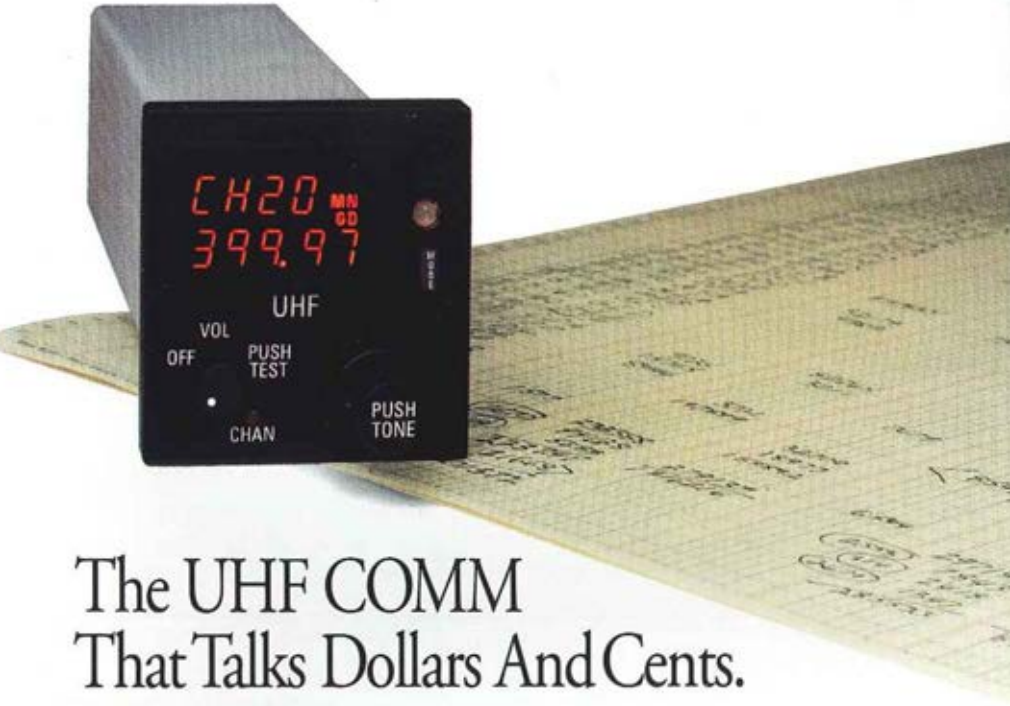
Army officials in Washington D.C. have announced that **BG Johnny M. Riggs** will become the new deputy commanding general of the Army Aviation Center and Ft. Rucker, replacing **MG Robert A. Goodbary**. A Master Army Aviator, Riggs comes to Ft. Rucker from Germany, where his last assignment was Assistant Division Commander, 3rd Infantry Division, USAREUR and Seventh Army. The dates of both officers' assignments are to be determined.

The **OV-1 Mohawk Association** will host its 4th Annual Reunion and Fly-In 20-22 August 1993 in Minneapolis, MN. For further information, write to the OV-1 Mohawk Association at 11724 67th Place North, Minneapolis, MN 55369, or call Paul Jacobsen, (612) 493-5522 or Mike Langer at (612) 488-0419.

Litton's Applied Technology Division has established a team with five other major contractors — **Hughes, International Telephone and Telegraph, Northrop, Lockheed,** and **Tracor** — to provide the international market with integrated electronic warfare suites for tactical helicopters. The self-protection system — called the Integrated Helicopter Electronic Warfare Suite (IHEWS) — includes an enhanced version of Litton's AN/APR-39A(V)2 threat warning system called Pegasus. The team's objective is provide unique self-protection capability for the international AH-64A Apache.

Beech Aircraft Corporation has been chosen by the U.S. Army to provide five **RC-12P** electronic intelligence aircraft for delivery between September 1995 and June 1996. The Army has awarded Beech a contract for $22,125,000 to begin work on the program. The RC-12P is the latest in a series of electronic intelligence aircraft.

Simula, Inc. has been awarded a contract totalling approximately $6 million for crashworthy seating systems for the UH-60 Black Hawk. The contract calls for 388 energy-absorbing crewseats for delivery starting in late 1993 over a three-year period.



The UHF COMM That Talks Dollars And Cents.

In today's cost-conscious government environment, your avionics have to do more than just perform well.

They also have to help you hold the line on expenses.

And that's why Bendix/King's off-the-shelf UHF AM transceiver, the KTR 909, is such a significant development.

Offering two-way AM voice communications in the 225.000–399.975 MHz range, the KTR 909 was specifically designed to provide outstanding performance and high reliability at a fraction of the cost of its MIL-SPEC equivalent.

Display options include an easy-to-scan gas discharge readout or our advanced Night Vision Goggle-compatible liquid crystal display, which meets the MIL L 85762 specification. The KTR 909 can even interface directly with the ARINC 429 data bus, for use with radio management units.

Key capabilities include 21 pilot-programmable channel presets; simultaneous monitoring of either (or both) the selected main or guard frequencies; 1000Hz tone modulation; and stuck-microphone protection. Frequency adjustment is made in 25kHz increments; channels may also be selected via a remote-mounted selector switch.

Ideal for airborne military training, the KTR 909 is also well-suited for ground-based applications. Available in single or tandem control-head configuration, the versatile KTR 909 can provide tuning for remote ADF systems.

In short, the KTR 909 offers everything you'd expect from a UHF COMM system.

Except the high price.

For more information, contact:

BENDIX/KING

AlliedSignal Military Avionics
400 North Rogers Road
Olathe, KS 66062-1212 FAX 913-791-1305
Telephone 1-800-366-5464 ext. 2540

AlliedSignal
AEROSPACE

THE 1ST ARMORED DIVISION IN DESERT STORM

A review of the use of Army Aviation in Southwest Asia.

It has been over two years since the commencement of combat operations against Iraqi forces in Operation DESERT STORM. Much has happened in the ensuing months, but there has been ample time for reflection on many aspects of the U.S. Army's performance during those 89 hours of intense combat.

As the Commanding General of the 1st Armored Division ("Old Ironsides"), I was particularly pleased with the role that our Army Aviation assets played in the victory. The 4th Brigade ("Iron Eagle"), commanded by COL(P) Daniel J. Petrosky, gave me many things — flexibility, quick response, overwhelming combat power — capabilities that any Division Commander loves to have at his disposal.

I'd like to take this opportunity to expound briefly on my experience with my Aviation Brigade during DESERT STORM. I'd really like to tell you about the things I learned that worked, some that didn't, and what we did about them that resulted in our unqualified success in the desert of Iraq.

Because of the fast pace of ground operations in VII Corps' zone of advance, it quickly became evident that the Apache attack helicopters would prove to be a valuable resource. Initially, I attempted to "chop" Apaches to ground brigade commanders, concentrating the combat power of our M-1A1 tanks, Bradley Fighting Vehicles, and the AH-64s as far forward as possible. Weather conditions, coupled with the smoke, dust, and

C-27A Spartan

Harsh, corrosive tropical climates... Short, undeveloped runways... for the Air Combat Command and the U.S. Southern Command, they're a way of life. But how to perform the mission when the right aircraft does not exist?

Chrysler Technologies Airborne Systems, Inc. is providing the sensible solution: Combine the proven ruggedness of Alenia's G222 STOL airlifter with state-of-the-art avionics to produce the reliable, multi-mission C-27A Spartan aircraft. When the mission calls for airland, airdrop, aeromedical, LAPES or follow on in-flight tanker refueling support capabilities, the versatile C-27A meets the challenge. Chrysler Technologies Airborne Systems then backs it with the industry's most comprehensive support package.

Total Systems Performance Responsibility

- **Design and integration of new avionics systems**
- **Testing and certification of aircraft and systems**
- **Fabrication and installation of systems and mission-specific elements**
- **Flight and maintenance crew training**
- **Technical publications**
- **Field logistics and technical support**

C-27A Spartan...*Flexible, Supportable, Available!*

CHRYSLER TECHNOLOGIES
AIRBORNE SYSTEMS, INC.

P.O. Box 154580 • Waco, Texas 76715-4580 • Telephone: 817-867-4202 • Fax: 817-867-4230

tempo of the battle itself, made this method less than satisfactory. I found that we simply were not getting the most out of our attack aircraft.

It soon became obvious that we could attain much better battlefield effect by sending the Apaches well forward of the tanks, engaging Iraqi targets at the depths of their formations, and under the control of the Aviation Brigade Commander.

Not only did we get our money's worth in terms of killing targets, but also the Apache and scout crews provided us with real-time intelligence gathering, a great boon to a commander struggling to see through the "fog of war". This allowed us to strike the enemy in depth, set our maneuver to hit where he was vulnerable, and achieve quick and decisive victory in the close battle.

Essentially, I assigned the Aviation Brigade the area 15 kilometers from the Forward Line of Own Troops (FLOT) and beyond. The Iron Eagles worked with Air Force assets and whatever artillery could range them. This zone of action stretched across the entire Division front, and progressed as the battle moved forward, constantly leaping from one phase line to the next.

With COL Petrosky coordinating all of our air and artillery fires, Air Force Close Air Support (CAS) aircraft and other Army aircraft, we conducted what can only be described as classic Joint Air Attack Team (JAAT) missions. This worked surprisingly well in the heat of battle.

Such an approach required great flexibility in command and control. Early into the second day of combat, I recall flying into the ever-moving Tactical Operations Center (TOC) of the 4th Brigade. Due to the VII Corps' rapid advance, these folks rarely stopped for more than a few hours.

At this brief stop in the middle of

WE DON'T DO BAND-AIDS.

WE DO TOTAL LIGHTING SOLUTIONS FOR NVIS RETROFITS.

Korry treats lighting as a system. And we recognize that making cockpit displays NVIS compatible takes more than applying filters.

Our comprehensive approach to lighting has made us the leader in illuminated switches, annunciators, and panels for more than 50 years. That's why we've been selected to supply NVIS-compatible parts as original equipment on the C-17, as well as to retrofit the C-130, F-16, Bell 412 helicopter, A-6, and other platforms.

So if you're modifying a flight deck for NVIS compatibility, call us at (206) 281-1300. We have the total solution, not just a Band-Aid.

Our proprietary Digital Video Lightmeter (DVL™) is so proficient it allows us to test every product — not just random samples — for NVIS performance.

Esterline KORRY

Korry Electronics Co.
901 Dexter Avenue North
Seattle, Washington 98109
(206) 281-1300

Instrumentation Group,
Esterline Technologies

the desert, Dan Petrosky and I hunched over the hood of a HMMWV, map unfolded before us, plotting our next employment of his aircraft. Throughout the 89 hours of combat, I gave COL Petrosky his orders either in person or via FM combat net radio communications.

Since we had planned the operation in detail, wargamed and rehearsed it thoroughly, and analyzed a number of options off the basic plan, lengthy and detailed orders were never required. COL Petrosky had a crystal clear understanding of the operational concept and of my intent.

Such rendezvous also gave COL Petrosky the opportunity to give me up-to-the-minute status reports on how his aircraft were faring — maintenance- and combat-wise. His assurances of "smooth sailing" gave me the confidence to give him and his battalion commanders free reign in their zone of action. Such liberty made him a happy aviator, and gave me peace of mind.

I was especially pleased with the response time of the Apaches throughout the operation. At one point, when it was clear that we had moved into the exploitation phase, I remember telling COL Petrosky, "I want you to have the Apaches in constant contact with the enemy."

This translated into 39 straight hours of combat for LTC Bill Hatch's 3-1 ATKHB (Night Eagles). His pilots and crew chiefs were in a constant rotation into and out of battle and the always-moving Forward Arm and Refuel Points (FARPs).

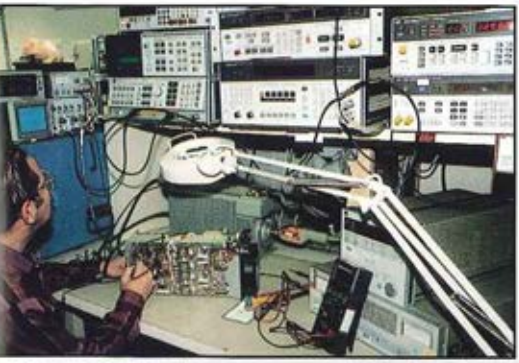
Additionally, COL Petrosky maintained an Airborne Command Post around the clock, guaranteeing good FM communications on the Command Net at each critical juncture. In retrospect, this was a tremendous display of professionalism and skill. It also reinforced in my mind that a Division Commander needs his attack assets — at least two battalions — in order to avoid the possibility of being without them at the critical point in a battle. I strongly believe that Corps aviation cannot provide the response time we needed during DESERT STORM. Therefore, I would advocate insuring that attack assets are maintained at the Division level, and I would oppose any centralization of assets at Corps level.

"I strongly believe that Corps aviation cannot provide the response time we needed during DESERT STORM. . . I would oppose any centralization of assets at Corps level."

The ability of the Apaches to react

Serving Army Aviation Since 1934

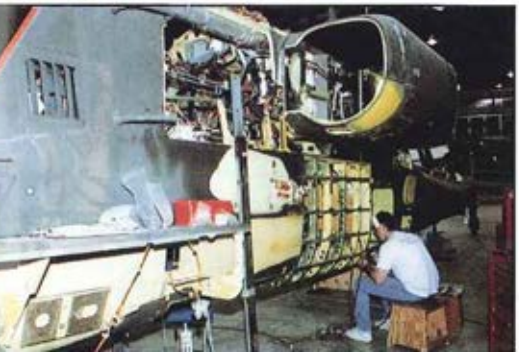
With dependable support and quality maintenance. Full-spectrum aircraft, training, and mission-support services.



- Aircraft Maintenance
- Unique Modifications
- System Integration
- Mission Enhancement
- Communications and Avionics Repair
- Pilot Training
- Logistical Support

SERV-AIR, INC.

An E-SYSTEMS Company



Serv-Air, Inc • P.O. Box 6669
Greenville, TX 75403-6669
(903) 454-2000

Recipient of Department of the Army, U.S. Special Operations Command, and many other Command-level awards for outstanding support during Operation Desert Shield/Desert Storm.

decisively to an unexpected threat allows a division commander to get more of his forces into the fight without holding back a sizeable reserve.

At one point, we received a report of a Republican Guard brigade moving south out of the XVIII Airborne Corps sector towards our northern left flank. LTC John Ward's 2-1 ATKHB (Strike Eagles) responded. They found an Iraqi armored brigade, which they quickly destroyed with Hellfires and 2.75" rockets. Responsiveness and firepower are the keys.

In addition to the great role that the Apaches played in DESERT STORM, I would also like to recognize the OH-58D as a tremendous scout aircraft. I could afford to give the Apaches a much-needed rest on the ground while the "Deltas" ranged out and developed targets. These skilled and brave pilots, coupled with their advanced avionics and other systems, gave me a great asset to gather intel and find the enemy.

". . .Close Air Support, as we have known it, is no longer viable."

At the risk of raising controversy, I would offer the observation that Close Air Support, as we have known it, is no longer viable. In the high tempo, armored conflict that we fought in Iraq, with a fairly dangerous air defense threat, the Air Force would not come lower than 10,000 feet to deliver ordnance.

Under these conditions, we would not call for CAS close to our own forces. Consequently, the Apaches took on what might be described as CAS, and the A-10s and other Air Force assets operated at intermediate depths (15-30 kilometers) farther in front of the Division. Perhaps future operations will see the Air Force operate in an area beyond current CAS and short of Battlefield Air Interdiction (BAI).

Finally, I want to say that Army Aviation came through for the 1st Armored Division in a big way. As a soldier with combat experience beyond DESERT STORM, I can gladly and proudly say that Army Aviation proved itself in spades as a member of the combined arms team. The lethality, agility, and flexibility of all of 4th Brigade's assets gave me the ability to do whatever was required to meet a constantly changing and diverse threat. I am a believer in Army Aviation today, and in what it will continue to offer the Army into the 21st century.

★★

LTG Griffith is the Inspector General, Office of the Secretary of the Army, Washington, D.C. LTC Marshall Tupper Hillard contributed to the preparation of this article.

NO NIGHT TOO DARK.

NO SHADOW TOO DEEP.

Today's and tomorrow's expanded defense, dual and civil operational arenas, demand that friendly forces clearly identify and designate targets by day and night. TAMAM Precision Instruments' range of surveillance and targeting systems for helicopters, UAVs and aircraft provide that critical multi-sensor capability.

▶ ***NTS*** *- a Night Targeting System for the U.S. Marine Corps and the Israel Defense Forces. An upgrade of the original TOW missile system on the AH-1 Cobra helicopter. NTS provides night and adverse weather capability plus laser designation and ranging. The system features inflight bore-sighting and auto-target tracking. NTS - the Cobra operator's force multiplier: a single platform for TOW and Hellfire missiles, 2.75" rockets and 20mm guns.*

▶ ***MOSP*** *- a Multimission Optronic Stabilized Payload. A dual sensor, light-weight modular system configured to operator's needs. Select performance: day/night all-weather surveillance, recognition, target acquisition and laser designation. MOSP, and its derivatives, are designed for installation in UAVs, helicopters and aircraft.*

▶ *A proven total helicopter service and operator-specified upgrading capability encompassing: structure, avionics and dynamic components.*

To find out how IAI leaves them with no place to run, no place to hide.... Call or fax us today.

see us at the IAI PAVILION
40th Paris Air Show, June 10-20, 1993

Israel Tel: (972) 3-935-8147. Fax: (972) 3-935-8516.
U.S.A. Tel: (703) 875-3777. Fax: (703) 875-3740.
Europe Tel: (32) 2-513-1455. Fax: (32) 2-512-8279.

IAI ISRAEL AIRCRAFT INDUSTRIES LTD.

SPECIAL OPERATIONS AVIATION: POWER PROJECTION+

How SOA benefits the conventional Army Aviation community.

Fighting Army Aviation across the continuum of operations covers the entire gamut of our capabilities as warfighters in the Combined Arms team. Aviation contributes to the battle in a variety of ways ... both conventionally and unconventionally. To provide Army Aviation at the lower end of the operational spectrum, we offer unconventional or special operations aviation.

What does this provide to the conventional Army Aviation community and how does it add to the Combined Arms team in accomplishing our mutual objectives? Clearly, the world is a changing place with unparalleled uncertainty. The Cold War has been won; however, it has been quickly replaced by a "Hot Peace" in which America's Army must be fully prepared to fulfill its mission of power projection in accomplishing decisive victory.

What better leverage to use than the high technology-oriented and supported Special Operations Forces in accomplishing these national level goals?

Our Special Operations Aviation Forces are replete with technological advances which focus America's best talents directly at national military objectives and reduce the margins of error in navigation, target acquisition, intelligence gathering, and communications.

Indeed, we have given our forces the long-awaited "unfair" advantage in dealing with whatever contingencies arise. Maximizing the

BE THE HUNTER. NOT THE PREY.

In today's combat environment, you can go from the hunter to the prey in a matter of seconds.

Vast amounts of threat data from onboard sensors must be processed to make critical decisions.

Litton knows every second counts.

We have integrated interactive subsystems for reduction of pilot workload and key information retrieval. Called the Integrated Electronic Warfare Suite (IEWS), accurate, multispectral rapid warning threats (EO/IR/RF) are shown on a single display for enhanced situational awareness. And, our proven APR-39A(V)2 Threat Warning System serves as the electronic warfare controller.

The Litton IEWS. Chosen by the U.S. Army.

Litton

Applied Technology

4747 Hellyer Avenue, P.O. Box 7012, San Jose, California 95150-7012
Tel: 408-365-4150 FAX: 408-365-4364 TWX: 910-339-9271

probability of mission success by matching state-of-the-art equipment with highly trained Army Aviation soldiers provides the National Command Authority (NCA) with multiple options in performance of warfighting or humanitarian assistance missions.

The U.S. Special Operations Command (USSOCOM) was established as a unified command at MacDill Air Force Base, FL, on 16 April 1987, and all Army, Navy, and Air Force Special Operations Forces (SOF) were assigned to it.

The 160th Special Operations Aviation Regiment (Airborne) (SOAR[A]), better known as Task Force 160, further aligns itself under the Army Special Operations Command (USASOC). Prior to the formal establishment of Task Force 160, special operations aviation was always a temporary alignment of aviation assets and, frankly, did not have a good track record of success. The advent of Task Force 160 provided joint interoperability, standardization, habitual relationships, and the ability to archive lessons learned.

Task Force 160 has enjoyed great success in such operations as URGENT FURY, MOUNT HOPE, PRIME CHANCE, JUST CAUSE, DESERT STORM, VICTOR SQUARED, and numerous other classified operations. They have earned great respect among aviators across the conventional force by developing and verifying their maturity in standardization, safety, and interoperability.

The splendid success of Special Operations Aviation necessitates that the U.S. Army continue to provide, at the direction of the NCA and warfighting Commanders-in-Chief (CINCs), a rapidly deployable, fully interoperable aviation force with unique night fighting capabilities. This all-weather force operates in urban, jungle, desert, mountain, Arctic, or overwater environments, and supports commanders conducting forced entries and other Special Operations throughout the operational continuum.

The shroud of secrecy that cloaks the Special Operations community is well-intentioned, yet often misunderstood. The purpose is simply one of National Security and, equally as important, safe mission accomplishment. We protect our capabilities in order to give our warriors the edge — possibly the only edge they will have.

Providing this advantage to our forces often eliminates the need to commit further troops to harm's way. These aviators will operate with precise timing and surgical lethality to conduct politically sensitive missions which have restrictive rules of engagement and demand a minimum of collateral damage.

WAR OR PEACE, THE HCAA SAVES MORE LIVES

The CASA C-212 STOL High Capacity Air Ambulance (HCAA) gets the wounded out when no other airplane can. So you can effectively evacuate a forward battle zone or disaster area. And the unique reconfigurable interior has room for 12 to 15 stretchers or 21 ambulatory patients.

The C-212 is capable of a 1500' take-off distance over a 50' obstacle – from a 1000' unimproved surface. With a 191 knot speed, the aircraft has the range to move wounded and surgical teams. Yet its low acquisition and maintenance costs guarantee value over years of critical missions.

Most importantly, the C-212 puts a medical presence on the spot – when your mission needs it most.

CASA

3810 Concorde Parkway, Suite 1000, Chantilly, Virginia 22021
Telephone: (703) 802-1000, Telefax: (703) 802-1025

While uniquely suited for low intensity, SOA can and has operated across the entire spectrum of operations. The threats against which the SOA force will be employed range from emerging nations to selected elements of modern armies or their surrogates.

Consider the threat of increased frequency of destabilization in subelements of the world order suddenly threatening our national interest or confounding our policies, and the decreasing predictability of those events. The recent shift in the world order from bipolarity to multipolarity, coupled with a growing worldwide economic interdependence, makes conflict almost anywhere in the world an event of national interest.

Some crises can impact on U.S. interest overnight. Rising expectations, particularly in developing countries, could cause social or political instability that threatens U.S. personnel and U.S. political or economic interests. Of course, terrorism will continue to disrupt the international community well into the 21st Century.

Many of these crises would escalate unless acted upon with a swift and appropriate military response. Hence, the Special Operations Aviation Regiment.

Task Force 160 is organized to equip, train, resource, and validate Army Special Operations Aviation forces for worldwide employment in support of contingency missions and the warfighting CINCs. SOA supports the full range of SOF missions across the continuum through clandestine penetration of hostile or denied airspace. Missions such as:

- insertion, resupply, and extraction of U.S. Joint Special Operations Forces (SOF) and other designated personnel;
- the conduct of special reconnaissance missions unilaterally or in conjunction with other forces;
- Direct Action using aerial firepower and terminal guidance for precision munitions;
- personnel recovery and support assisted escape and evasion;
- support and facilitation of C^3 in Joint Special Operations;
- C^2 asset augmentation, Joint Shipboard Operations;
- helocasting and water recovery;
- internal/external load insertion/extraction of SOF land and maritime assault vehicles and vessels;
- establishment of permissive and nonpermissive Forward Arming Refuel Points (FARPs) to facilitate joint special operations;
- and design and integration of aviation systems and support equipment unique to special operations aircraft and mission capability.

SOAR aircraft often serve as literal testbeds for new technological advancements in avionics,

We Star At Night

When it comes to support for image intensifiers and night vision goggles, nobody outshines Hoffman. For over 15 years, we've developed and manufactured innovative night vision products that not only comply with military standards, but have set the standard for quality around the world.

As a recognized leader in this dynamic industry, Hoffman provides you with the most advanced devices in the field, backed by comprehensive support services. In addition to a full scope of filters for lighting compatibility, we offer products which test tubes and goggles, as well as the most complete line of inspection equipment available anywhere.

With such a galaxy of products and services to choose from, it's no wonder we're seen in such a good light. For all your night vision needs, look to Hoffman.

Hoffman
engineering

20 Acosta Street • Stamford, CT 06902 U.S.A. • Tel 203-325-8933 • Fax 203-327-4812

navigational, and communications equipment and life support and weapons systems for the rest of the Army Aviation community. The SOA force provides the NCA and warfighting CINCs the ability to move ground forces quickly within any regions of the world and conduct special operations in support of national policies and objectives.

Task Force 160 provides a SOF-unique, state-of-the-art equipped SOA force with total interoperability. One battalion and selected regimental support elements can deploy worldwide under no-notice conditions in support of a national mission. In addition, two battalions can deploy on short notice to support two separate and concurrent major regional contingencies.

"Army Aviation benefits enormously from the Special Operations Aviation Regiment's contributions to the Branch and the Combined Arms team."

To meet these requirements, it takes special, well-trained, dedicated soldiers. Regimental aviators must pass demanding assessment, four months of intensive Special Operations Aviation training in the "Green Platoon", and subsequently serve as a copilot for twelve to eighteen months to become a full-fledged "Night Stalker". Yet, despite the intensity of training and mission criticality, the esprit is exceptionally high in the Task Force, the professionalism is pronounced, and their dedication is unparalleled.

I recently had the opportunity to fly on both an AH-6 and a MH-47D training mission. Their tough mission scenarios provided me with a look at peak performance in Army Aviation. These sterling soldiers conducted a precision cross-country attack operation and also demonstrated an aerial refueling link-up with an Air Force HC-130 under night vision goggles.

I watched with enormous pride as the pilots and their crew treated these events as just another day in the world of SOA. There is no doubt that the need for SOA demands retention and support of this unique force. Army Aviation benefits enormously from the Special Operations Aviation Regiment's contributions to the Branch and the Combined Arms team. Our Night Stalkers serve on the cutting edge of today's technologies and verify Army Aviation's commitment to warfighting in the ground regime.

★★

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

EXTENDING THE LIFE OF EXISTING HARDWARE

ADAPTING HARDWARE TO CONFORM TO CHANGING MISSIONS

A wide range of military and industrial hardware can be addressed in a timely and cost effective manner by the Engineering and Test Division of Dayton T. Brown, Inc. With 42 years experience and successful completion of 40,000 Technology-To-Product-To-Field Deployment programs, our comprehensive, all-under-one-roof product development and validation test facilities effectively and efficiently accelerate the Technology-To-Market Transition.

- *Engineering Analysis*
- *Failure Analysis*
- *Engineering Modeling*
- *Reverse Engineering*
- *Material Technology*
- *Sensor Technology*
- *Corrosion Technology*
- *Computer Technology*
- *Environmental Testing*
- *Structural Testing*
- *Non-Destructive Testing*
- *Data Acquisition*

PUT US TO THE TEST AND CALL.

DAYTON T. BROWN, INC.

Engineering and Test Division • Church St. • Bohemia, NY 11716 • Phone (516) 589-6300 • FAX (516) 589-3648

BY LTC MICHAEL W. ROGERS

SPECIAL OPERATIONS AIRCRAFT

An update from the office of the Product Manager, Special Operations Aircraft.

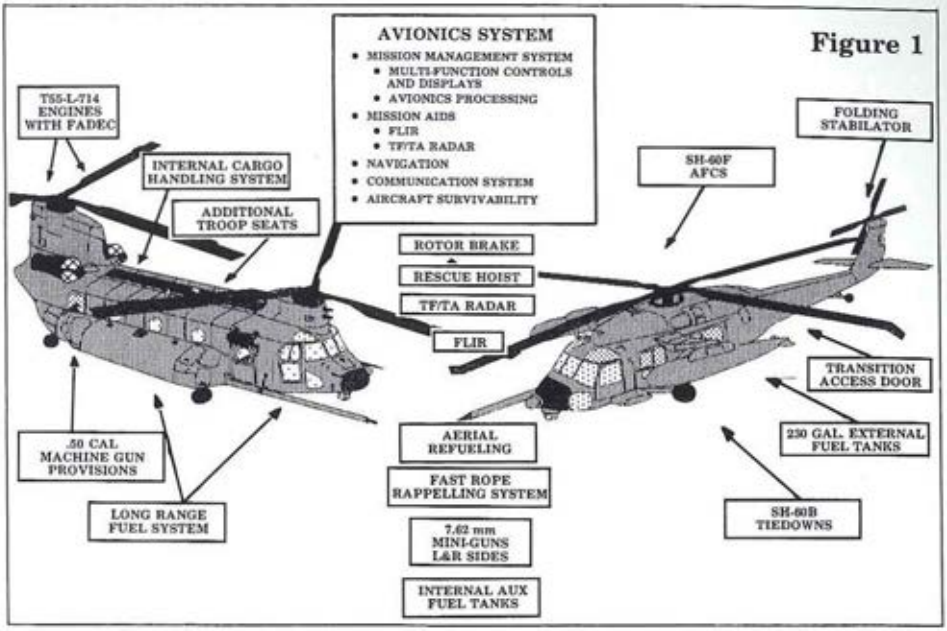
In our last AAAA SOA feature in the June 1991 issue of ARMY AVIATION Magazine, we discussed the status of our prototype aircraft testing program.

As you'll note in the following SOA articles, we've come a long way in the last two years. Getting from prototype testing to where we are today did not just happen. We first had to overcome significant obstacles. What follows is an update on the program and a discussion on the team concept we used (and are continuing to use) to overcome these obstacles.

What We're Building. Today, our production program is well underway. We've purchased, as of 31 December 1992, the first ten of the 22 production MH-60Ks we're building. This November our customer, the 160th Special Operations Aviation Regiment (SOAR), will receive the first of 25 MH-47Es.

Figure 1 shows the significant modifications we're doing to the basic aircraft. Those items listed in the center column are common to both aircraft. The "heart" of the system is the Integrated Avionics Subsystem (IAS) built by IBM.

This system, consisting of two 1553 data busses, is linked to four multifunction displays (each pilot has one color and one monochrome MFD). Integrated on these busses are all radios, navigation aids, the forward looking infrared, the multimode radar, and the digital map. Obviously, the pilot has available, at his fingertips, a tremendous amount of information.



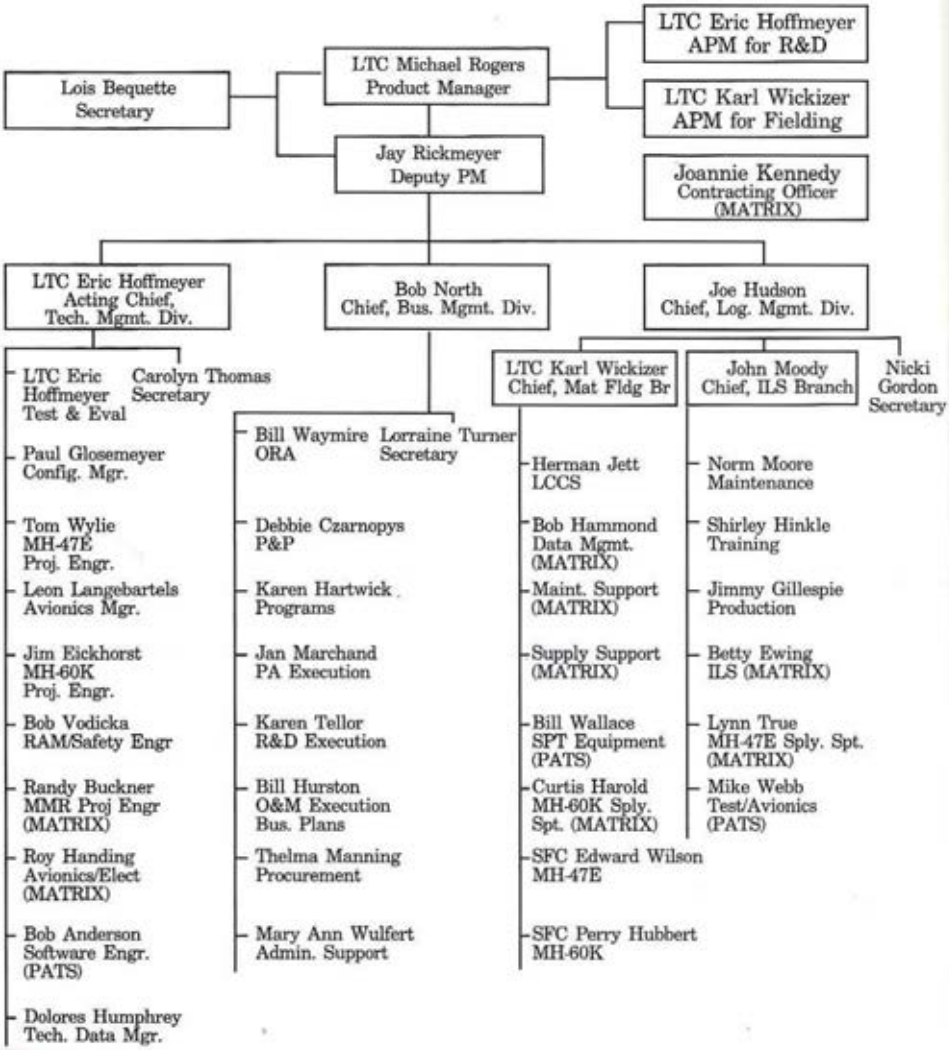
Accompanying delivery of the aircraft will be three tiers of training devices: eighteen Desk Top Trainers, two Part Task Trainers, and two Combat Mission Simulators.

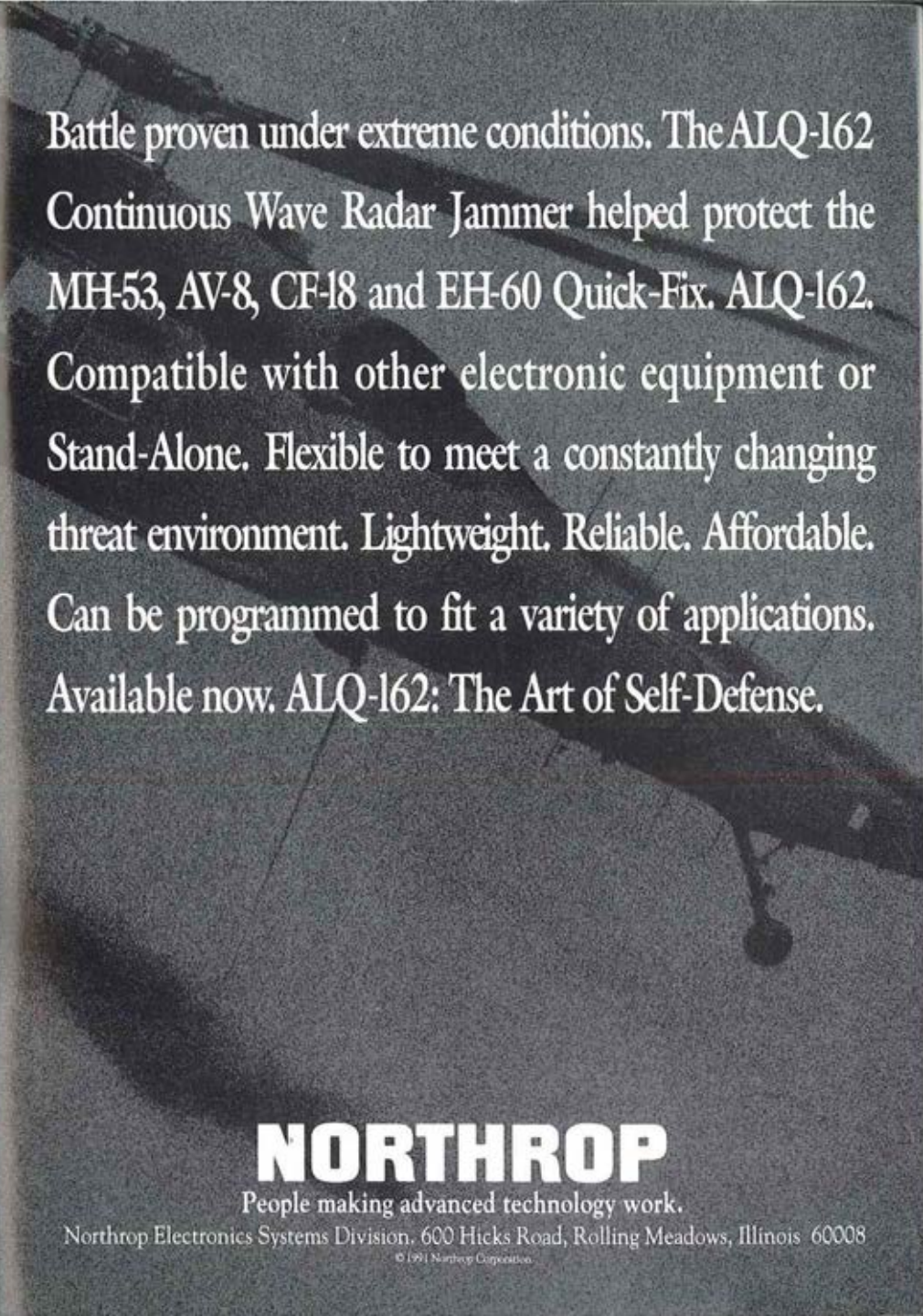
Why We're Building These Helicopters. The "vision" of the SOA program management office recalls the challenge of DESERT ONE and the solution embodied in the MH-47E and MH-60K aircraft. The PMSOA/USSOCOM/Sikorsky/Boeing/IBM team is building aircraft from the ground up with DESERT ONE in mind. We have designed our testing program to assure our customer of the reliability of these helicopters.

LTC Eric Hoffmeyer's article lays out our testing plans and describes the tremendous impact the user has had, and continues to have, in the development of these aircraft. We have also begun a special support arrangement with the contractors to ensure we meet the availability and maintainability requirements for these helicopters. Mr. Joe Hudson, the SOA Logistics Chief, discusses the Joint Venture in his article.

When We're Delivering The Helicopters. As noted earlier, we've already purchased the first 10 MH-60Ks. They are undergoing mini-gun and internal fuel tank modifications at Bluegrass Army Depot, Lexington, KY. We'll buy the remaining twelve production 60Ks between October and December 1993. The 160th SOAR will re-

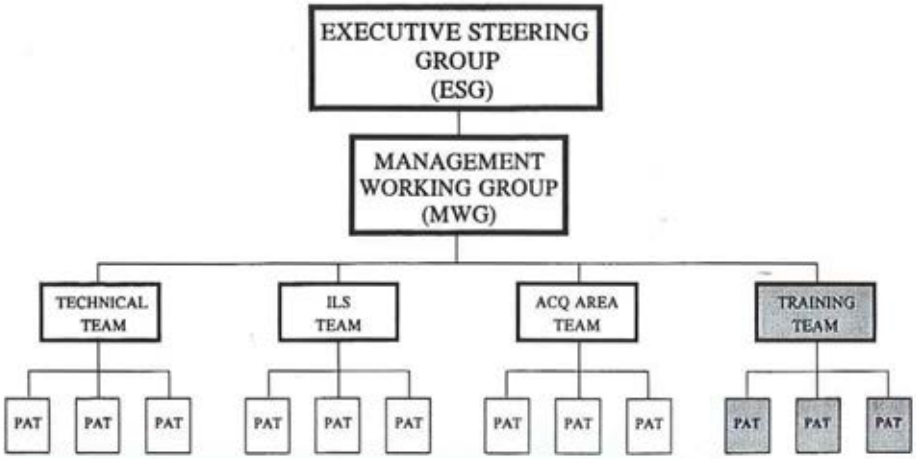
OFFICE OF THE PRODUCT MANAGER SPECIAL OPERATIONS AIRCRAFT




Battle proven under extreme conditions. The ALQ-162 Continuous Wave Radar Jammer helped protect the MH-53, AV-8, CF-18 and EH-60 Quick-Fix. ALQ-162. Compatible with other electronic equipment or Stand-Alone. Flexible to meet a constantly changing threat environment. Lightweight. Reliable. Affordable. Can be programmed to fit a variety of applications. Available now. ALQ-162: The Art of Self-Defense.
NORTHROP
People making advanced technology work.
Northrop Electronics Systems Division, 600 Hicks Road, Rolling Meadows, Illinois 60008
© 1991 Northrop Corporation

ORGANIZATION

Figure 2



ceive the first production MH-47E in November 1993. The twenty-fifth aircraft will be delivered in December 1994.

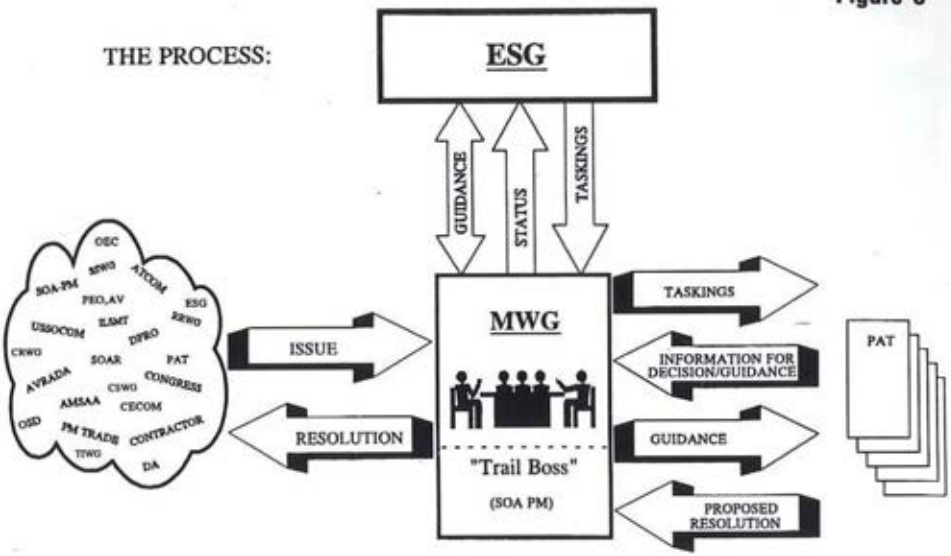
That is an update on the program. Now let me explain how we — and by we, I mean the Program Management Office, the user, other government agencies, and industry — were able to overcome some major issues and get this program to the point where we are today.

TQM In Action: TEAM SOA. Under the direction of the Aviation Program Executive Officer, we formed TEAM SOA in March 1992. The purpose of the team is threefold:

- define the program's critical processes;
- decide if these processes are broken or are as efficient as possible;
- input solutions to fix the problem or increase the efficiency.

The team consists of three levels: An Executive Steering Group (key industry and military leaders who interact with the program), a Management Work Group (decision makers in all agencies who affect this program), and Process Action Teams (chartered by the MWG to accomplish specific tasks). To date, we have chartered ten PATs (Software, Aircraft Survivability Equipment, Multi-mode Radar, Electro-environmental Effects, Data Collection, Training, Combat Mission Simulators, Testing, Fi-

Figure 3



nancial, and Material Changes).

Figure 2 shows the layout of TEAM SOA while Figure 3 shows the process. The MWG evaluates issues and decides if an issue is significant enough to assign a PAT to it. If so, a PAT is formed and chartered to fix the process problem. The PAT contains members of organizations who, in many cases, previously graded us at the end of a process (evaluated our program and gave us a go or no go). Now these "paper graders" are with us on the team and helping us "write the paper."

The PAT receives guidance from the MWG. The MWG, in turn, receives guidance from the ESG who can also be used to resolve those few disputes not resolved at the MWG level.

With the arrival of TEAM SOA, we discovered many programmatic problems. We are now well on our way toward fixing these problems that, if left undiscovered, would have resulted in major program crises. In short, TEAM SOA found the problems and put the right folks together to correct them. I am now confident our customer will receive the high quality aircraft they so richly deserve.

★★

LTC Rogers is the Product Manager, Special Operations Aircraft, PEO, Aviation, St. Louis, MO.

BY ROBERT E. NORTH

SPECIAL OPERATIONS AIRCRAFT BUSINESS REPORT

In the current economic atmosphere of shrinking budgets, the requirement to control program costs and manage all appropriated funds has become all the more critical. The possibility of cost overruns and unchecked program growth are just not acceptable.

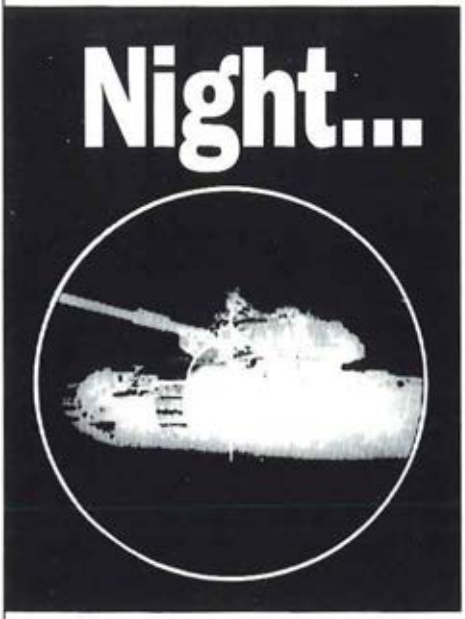
The process of ensuring delivery of affordable, fully mission capable and fully supportable aircraft.

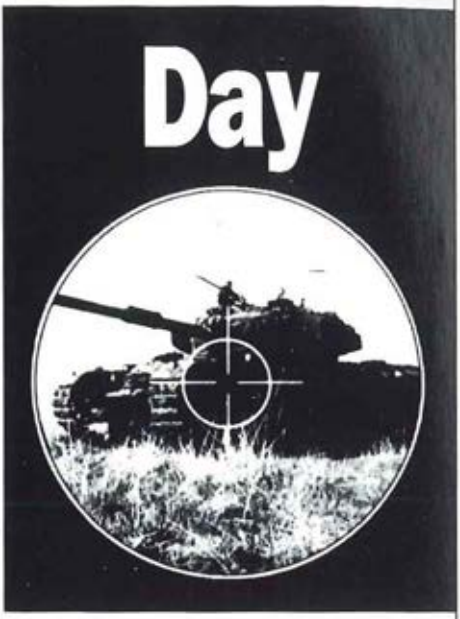
We in the SOA PM have taken this very seriously and one of our major goals is to assure that all aircraft are delivered to the user in a fully mission capable configuration and fully supportable within current available funding. To this end, a number of initiatives have been put in place to monitor program execution, minimize any cost growth, and in fact, reduce costs wherever possible.

The first step in that direction has been controlling the design configuration. No additions/modifications to the production aircraft are being entertained by the PM. The only changes considered are those required to assure a Prime Item Development Specification (PIDS) compliant aircraft at delivery. Any other materiel change will not be considered unless it is accompanied by the required funding, and it can be accomplished without disruption of the production line.

Another effort in controlling costs is to assure that our program only pays for our fair and appropriate share of various expenses. There are agreements in place between the Army and SOCOM which delineate the proper charges to be born by SOCOM and define what charges

In operation...





HELIOS/HELITOW

Helios and HELITOW are the preferred solutions in all recent European procurement and in service with

- **The Swedish Army**
- **The Royal Danish Army**
- **The Italian Army**
- **The Royal Belgian Army**

SAAB SCANIA

COMBITECH GROUP
Saab Instruments

Saab Instruments AB, Box 1017, S-551 11 Jönköping, Sweden
Tfn +46 36 19 41 00. Telex 70045 saabjkg s.
Telecopier +46 36 16 41 06.

are the responsibility of the parent Product Manager (PM) (i.e., UH-60 and CH-47).

This requires constant monitoring of everything from reimbursable matrix support to materiel changes so as to assure the bills to SOA are only the correct and equitable charges for the "peculiar" portion of any common bill.

Still another area that receives strong emphasis is cost reduction. The procurement strategy of this office has always been to search out the most cost effective means of doing business. In the past this has led to several initiatives such as teaming the primes for purchases of common items to produce larger/more economical buys.

"The procurement strategy of this office has always been to search out the most cost effective means of doing business."

Another strategy has been to shift the purchase of spare parts from the Prime Contractor to their service corporations to avoid the higher overhead rates associated with manufacturing operations.

A third strategy involving our Joint Venture concept for the Life Cycle Contractor Support (LCCS) contract was initiated to gain the economies of common management of the five subcontractors and some forty-one vendors. Finally, this office is actively involved in initiating Value Engineering Change Proposals (VECPs) that are directed toward doing things smarter and more efficiently. This office has submitted a number of proposals ranging from recycling engine containers to depot installation of mod kits. To date, two have been officially accepted as ATCOM Value Engineering projects with projected savings of over $3M. These have been so successful that one for Gun and Tank Kit installation was honored as ATCOM VECP of the quarter in 3Q FY92.

The one initiative that has really helped to pull everything together and assure a cohesive work effort has been the advent of TEAM SOA. This team concept has brought together the talents from both Government and Industry to focus on the various critical issues affecting the program. The commitment to the team from both sides has enhanced the level of involvement at all levels of management.

The team approach has managed to get all the right people in-

COULD YOUR AUX TANK SURVIVE A FIRING SQUAD?

Robertson's *GUARDIAN*® auxiliary fuel tanks have survived .50 cal., 14.5mm and 20mm gunfire — even a brutal 65 ft. drop test *without leakage.*

Extending your range is one thing. Extending the survivability of your aircraft is another. Lightweight, space-saving Robertson aux fuel systems with combat proven self-sealing bladders are designed to do both. So why fly with anything less than the most dependable, most survivable aux fuel systems in the air. The ones that exceed the U.S. military and government's most stringent crashworthy and functional requirements.

GO THE EXTRA DISTANCE WITH THE SURVIVORS. To get the most survivability and range from your aircraft, call (602) 967-5185. FAX (602) 968-3019 anytime. Or write P.O. Box 968, Tempe, AZ 85280 for more information.

ROBERTSON

AVIATION

Range Extension Fuel Systems

volved in identifying solutions. This has had many positive results in the financial arena. The Process Action Teams (PATs) formed from the Management Working Group (MWG) meetings are having a positive impact on requirement identification and information flow. The testing PAT was established to review all planned tests to determine their validity.

While not directly related to funding, the results will have a large funding impact. Any tests that are not required will obviously reduce test funding requirements. Also, the team's findings will provide rationale and backup for any future budget request and submittals.

The Materiel Change PAT was formed to investigate the process for generating materiel changes and to formalize a fully coordinated list of future improvements for these aircraft. The team brought together the user, (160th SOAR) Combat Developer, (USASOIC), Material Developer (SOA PM) and Headquarters (SOCOM) to prioritize the future changes already identified and to lay the groundwork for approving all future requirements.

These requirements will be the basis for all future budget requests for these aircraft. A Financial PAT was formed to establish a means to improve the information flow and level of understanding of the SOA Program throughout the Special Operations community.

As a result of this, we now are included in the USASOIC quarterly IPRs. At these, we present our execution progress, trends, variances, etc. This real time data raises the understanding of the program across the board and assures we are all working from the same sheet of music.

While not a PAT product, another outgrowth of the TEAM SOA spirit has been the proposal tracking system initiated by the PM this fall. This system tracks all in-process proposals. Working backwards from the date of the event a proposed contract Mod is to support, it tracks all major events from Statement of Work preparation to proposal submittal to negotiation and contract award. This is then placed on a time-line and from this, it becomes evident what proposals are in need of any extra attention.

These listings are tracked with both prime contractors on a weekly basis to assess progress towards accomplishing each individual task. This allows both contractor and Government to develop priorities and distribute resources to accomplish the most critical projects first.

This proposal tracking system has brought some much needed order to a program that has an average of over 100 proposals in-process at any

(Business — cont. on page 68)

BY LTC DAVID M. KRISTICK

NIGHT STALKERS WANT YOU!

The facts on recruiting and assessment into the 160th SOAR(A).

There are often misunderstandings relating to the recruiting and assessment process involved in the assignment of an officer to the 160th Special Operations Aviation Regiment (Airborne). In this article, I want to clear up these misunderstandings by sharing with you the process involved in "hiring" a Special Operations Aviation Officer.

Normally, through its Chief of Staff Army (CSA) directed recruiting efforts, officers are recruited by 160th representatives during their trips to installations and OCONUS locations. These visits generally begin the assessment process in the form of an application for assignment to the 160th Special Operations Aviation Regiment (Abn).

The applications are received at the Special Operations Aviation Training Company (SOATC), and from here begin the review process within the regiment.

The applications, with enclosures, are reviewed at the SOATC, where a file evaluation, or Manner of Performance (MOP) check is requested of PERSCOM. There the respective assignment officers appraise the officer's file quality, availability of assignment, and whether the officer has the requisite branch qualifications necessary for assignment.

Other factors, such as conflicting assignments, are determined. This is normally the first detractor, as the Memorandum of Understanding (MOU) between PERSCOM and the 160th precludes the assignment of

an officer to the 160th who is already on orders. Because of this, officers should apply to the 160th no earlier than their second year on station, and realistically, no later than one year prior to expected PCS (36-48 months on station).

Once the MOP is received from PERSCOM via my office, the application packet is reviewed within the regiment. This review process begins with the Regimental S1, and is continued by the prospective gaining Battalion Commander as well as the Regimental Commander. The Regimental Commander makes the determination whether the officer will assess. If so, the officer receives a letter inviting him to assess, with TDY funds supplied by the 160th. If not selected for assessment, the officer will be notified of such.

"Within the next 12-36 months . . . the Regiment will require approximately 15 Captains and six Majors."

The 160th assessment, normally scheduled once a month, includes an in-brief, a general aviation test, a psychological battery of tests, an APFT, Navy Swim Test, and a NVG Flight Evaluation followed by the formal assessment board. This detailed and well-orchestrated process normally requires five days.

At the conclusion of the board, the officer is informed as to whether he is accepted. Assignment details are not normally discussed at this time, as they are dependent on the personnel strength of the 160th at that time. If there is a requirement at the time of the assessment, the officer's assignment is normally brokered between Special Management Branch and the officer's career branch at PERSCOM, unless the officer has already been approved for assignment to the 160th by their career branch.

Again, I want to stress the importance of deciding if you want to be a part of the 160th early on in your assignment. It makes your assignment to the 160th smoother, as Aviation Branch is allowed the time to do the personnel planning necessary to maintain personnel strengths at all installations.

Within the next 12-36 months, the Regiment will be fielding the new MH-60K and MH-47E Special Operations Helicopters. These aircraft are the most sophisticated helicopters yet designed for the Army.

During this time-frame, the Regiment will require approximately 15 Captains and six Majors. Assign-

(STALKERS — cont. on page 49)

BY LTC ERIC HOFFMEYER

SOA — THE PROGRAM WITH THE TECHNICAL USER

The best part of being in the SOA Program Office is that we are not befuddled by business as usual. We have a special requirement and fortunately a very special user — The 160th Special Operations Aviation Regiment (160th SOAR).

How the end user and developer work together on Team SOA.

Since the beginning of the SOA program 160th personnel have immersed themselves in every aspect of the development of the two SOA platforms. The brains of the MH-47E and MH-60K are the Integrated Avionics System and the mission software. The 160th contributes daily expertise in software requirements and function integration. Their participation in software review activities, identification of problems and recommended solutions is priceless.

Identification of solutions is, however, only the beginning. The 160th pilots are the aircraft and aircraft systems experts. No single person or organization knows more about how the entire system works than the 160th.

That expertise is at work today, as it has been from the start, in production software and system flight development. 160th pilots fly both systems on an almost daily basis in pursuit of the finalization of a specification compliant helicopter. The value added is specific information to the prime contractor on corrections needed to bring the aircraft within specifications.

Involvement by the 160th is a program cost savings. Input from the user ensures that the engineering

efforts are headed in the right direction from the start — avoiding expensive "re-work".

User pilots participate in the Government Acceptance Test Procedure (GATP). The GATP was written by members of the 160th, coordinated with the contractors, and approved by the government. The 160th is now flying this extensive test procedure which will ensure that a quality product is accepted by the government.

Members of the 160th SOAR participate in the ASE, Electromagnetic Environmental Effects (E^3), and Multi-Mode Radar (MMR) Process Action Teams (PATs). The PATs are essential to establishing consensus on the most difficult program issues.

"The [Government Acceptance Test Procedure] GATP was written by members of the 160th, coordinated with the contractors, and approved by the government."

As the most experienced pilots of the SOA systems, the 160th aviators have provided key insights about operational considerations allowing us to arrive at solutions for the complicated ASE suite on the SOA helicopters. The "solutions" will be tested this summer (60K) and fall (47E) at Patuxent Naval Air Station, MD.

A unique feature of the SOA aircraft is the MMR. When qualified, it will permit low level Terrain Following/Terrain Avoidance (TF/TA) flight without external visual reference. This will be true Instrument Meteorological Conditions (IMC) low level flight.

This summer/fall we plan to have user pilots fly development test flights at the manufacturer's facilities to complete the complicated interface between the MMR and the host air vehicle. We expect that the flights from the prime's facilities will reveal important results which we will translate into modifications of the system software.

The eventual software modifications will optimize the MMR and air vehicle interface before the system's final qualification at Edwards AFB next year.

Due to intense program activity and the concurrent development nature of the program, some modifications are being done at the Blue Grass Army Depot (BGAD) rather than at the prime contractor's location. The modification program consists of installing electrically fired 7.62mm machine guns, additional fuel capacity, some navigation aids, and Fast

(USER — continued on page 41)

BY JOSEPH HUDSON

SPECIAL OPERATIONS AIRCRAFT LOGISTICS SUPPORT

The SOA PMO's Logistics Management Disivion reports on fleet sustainment efforts.

Planning and establishing responsive logistics support for the full development, testing, and fielding of the MH-47E and MH-60K Special Operations Aircraft (SOA) continues to challenge and build upon the Army's "standard" system acquisition practices.

The SOA Program requires planning logistics support at multiple levels for multiple locations; integrating the required support in parallel for two separate aircraft systems undergoing concurrent development, testing, production, and fielding; and ensuring quick reaction logistics support for this limited quantity of specially-configured aircraft over their entire life cycle.

The PMO, SOA Logistics Management Division is meeting the challenge of planning and providing logistics support for fielding and sustaining the SOA fleet by implementing the proven Total Quality Management (TQM) method of applying Process Action Teams (PATs) and working groups across the vital areas of Integrated Logistics Support (ILS).

Our logistics activity has reached a critical stage as we complete the final preparations for fielding aircraft to the 160th SOAR(A) at Ft. Campbell, KY in the Fall of 1993. We have established nine logistics teams to support the SOA ILS mission, covering these critical functional areas:

- SOA Fielding
- SOA DATA Requirements
- SOA Reliability Validation
- SOA Spares

- SOA Support Equipment
- SOA Publications
- SOA ASE and Avionics Support Requirements
- SOA Life-Cycle Contractor Support (LCCS)
- SOA Materiel Release
- SOA Follow-on Test Support (FOTS)

The continuing success of this TEAM SOA concept can be measured by the resolution of logistics issues, the completion of implementing support actions, and in the quantitative availability assessments of SOA support items. Here are some examples of these TEAM SOA logistics activities: Follow-on Test Support has been a "moving target" in the SOA Program due to extensive adjustments in test schedules driven by concurrent development and production challenges. The FOTS Working Group has had to grapple with "real time" prototype/production aircraft testing support (MMR, ASE, EME, SBC) as well as planning and programming for production aircraft fielding support.

Blending this support for two separate aircraft at multiple range and test locations such as Patuxent River, MD, Edwards Air Force Base, CA, and China Lake Test Range, CA, has been an interesting logistics challenge to the FOTS Working Group.

The team has developed Statements of Work (SOWs) that integrate contractor support for all of these tests: this reduces personnel and logistics requirements by taking advantage of overlapping test schedules to economize on the required effort. Support packages have been intensively managed to the point that we now have 755 of the required 802 items for the MH-47E on-hand, and 480 of the required 575 items for the MH-60K. Of equal importance, we have interim "work-arounds" in place for items not yet available.

The FOTS Working Group continues to meet the challenge of ensuring full aircraft availability throughout two demanding test programs.

The SOA Spares Working Group has been equally effective in planning and accomplishing spares support for the SOA Fleet. The unique nature of the SOA Program has provided abundant challenges in the spares arena that have challenged the best logisticians of our industry and government team. Since both the MH-47E and MH-60K are modifications to existing fielded aircraft, the blend of SOA spares ranges from "common" items (used on the standard aircraft employed by the Army and other services) to "peculiar" items (unique to the SOA systems) to "closed loop" items (supported totally within the LCCS system) to

"depot" items supported by the standard Army supply and maintenance system).This diverse mix of spares also has many components that are shared between the two aircraft, primarily in the Integrated Avionics Subsystem (IAS).

Because of this broad range of spares, and the requirement for full mission support of the SOA aircraft at fielding, the SOA spares team was formed to address all SOA spares requirements. Common spares are being provisioned through the standard Total Package Fielding (TPF) concept.

The development of these common requirements involved extensive research and coordination within the SOA community, since the unique mission of the 160th SOAR requires not only the maintenance of an ASL and PLL but also the stockage of three separate kits of spares for mission, training, and deployment needs.

Closed-loop items consist of a limited quantity of dynamic flight components that are common to the fleet; however, due to engineering assessments of the SOA mission profile, these items have been assigned reduced fatigue lives.

These closed-loop items will be assigned unique part numbers and will be managed and maintained separately under the LCCS system. Peculiar components are those items unique to the SOA fleet, not identified as common or closed-loop, and identified by either a contractor part number or a non-Army recorded NSN. Peculiar items will also be separately managed and maintained under the LCCS system.

"The common items for both aircraft are already over the 95% fill mark, and are projected to reach 100% prior to fielding."

There are over 4,200 line items of all categories of spares for the MH-60K and over 6,600 line items of all categories of spares (including the Lycoming T55-L-714 engine) for the MH-47E.

The spares working group has excelled in meeting the goals associated with these complex categories of spares requirements. The common items for both aircraft are already over the 95% fill mark, and are projected to reach 100% prior to fielding. These items are pre-positioned at Bluegrass Army Depot, Lexington, KY. The peculiar items are now estimated by the supporting contractors to be over 93% available, and are projected for 98% fill at

aircraft fielding. These solid accomplishments could not have been made without the full SOA community support of the spares working group.

Life-Cycle Contractor Support. The final TEAM SOA logistics topic for this report addresses our Life-Cycle Contractor Support concept for supporting and maintaining the SOA fleet. Once again, the unique nature of the SOA Program has led to tailored responses to Integrated Logistics Support needs, departing when appropriate and necessary from the standard Army support concept.

The limited quantity of aircraft being procured (49 aircraft — 23 MH-60K and 26 MH-47E) and the significant differences between these aircraft and the standard fielded fleets of Black Hawks and Chinooks have led to the implementation of new concepts for supply and maintenance. The resulting LCCS concept is the most effective and affordable process for assuring a total SOA fleet mission capable rate goal of 85% and a fully mission capable rate goal of 80%.

Under the LCCS concept, the Army will still perform all supply and maintenance support for "common" items. However, our contractors will perform all supply and maintenance functions for "peculiar" and "closed-loop" items, and will provide technical backup to the Army for all levels of maintenance.

In the early stages of the SOA Program, the LCCS concept envisioned that both Boeing Helicopters and Sikorsky Aircraft would provide parallel but independent support. Intensive analysis by TEAM SOA concluded that a joint venture LCCS program would provide a more effective and integrated support system.

"The limited quantity ... and the significant differences between these aircraft and the standard fielded fleets ... have led to the implementation of new concepts for supply and maintenance."

Boeing and Sikorsky subsequently teamed to form the Boeing Sikorsky Aircraft Support (BSAS) Company, which will manage and accomplish the complete LCCS effort. This approach provides the Government with a single contract entity and management focal point, consolidates facilities, reduces manpower requirements, provides more economic ordering and stockage for supply replenishment, and creates savings by pooling critical resources.

Specific cost savings will result from eliminating duplicate test equipment, reducing total spares re-

quirements, consolidating personnel requirements, and providing the single point of contact for performance and subcontractor management.

The joint venture concept takes advantage of system similarities between the two aircraft, limits pass-through costs, and provides specific and measurable performance standards that will be used to assess contractor performance.

The BSAS team will be co-located with the using unit at Ft. Campbell, KY, and the joint venture personnel will deploy as necessary to support the 160th SOAR mission. The BSAS LCCS proposal is currently in final review and evaluation, with contract award targeted for the 4th quarter, 1993. The joint venture is projected to be capable of providing full mission support by February 1994.

As you can see, the logistics tasks facing the SOA Program have been formidable. Much work has been accomplished, and there are still more challenges ahead. With the TEAM SOA concept well established, and the working level action teams in place, the SOA logistics mission will be fully in place to support fielding and operations.

★★

Mr. Hudson is Chief, Logistics Management Division, Special Operations Aircraft Product Management Office, St. Louis, MO.

TECHNICAL USER
(continued from page 36)

Rope Insertion Extraction System provisions. Close coordination between the PM and the 160th resulted in the design and installation of the above modifications. User pilots ferry the aircraft to BGAD, oversee the installation, and conduct the acceptance inspection. The cost savings of the BGAD program exceeded 5 million dollars.

The 160th's involvement highlights the necessity to break the old mold of heel to toe testing. Formally the contractor(s) would complete a series of tests and/or experiments only to see the same experiments repeated by the government. The elimination of this wasteful practice saves time, ensures user requirements are addressed, and reduces overall test activity cost. Teamwork pays off!

Teamwork with the 160th has and will continue to pay dividends. Who else better knows what is required of the system in combat? Who else better understands the flight environment, the potential tactical situation, and the training needs? User presence, contributions, work and involvement — The SOA Difference.

★★

LTC Hoffmeyer is the Chief of the Technical Management Division, SOA PM, St. Louis, MO.

BY MAJ ROBERT P. BIRMINGHAM

SPECIAL OPERATIONS AVIATION COMBAT MISSION SIMULATORS

How the Simulation and Training Instrumentation Command (STRICOM) supports the 160th SOAR(A).

In 1992 Team SOACMS overcame a severe Government Furnished Equipment (GFE) delivery delay which resulted in a complete program replan and a seven month schedule slip to the Ready For Training (RFT) date. The Contractor-Government SOACMS Team took advantage of every possible "work around innovation" to keep the program moving forward and completed the critical Hardware Software Integration (HSI) Phase with repaired, very high time, Prototype Multi Functional Displays (MFDs) in November 1992 for the MH-60K CMS device and in March 1993 for the MH-47E CMS. Team SOACMS utilized the GFE delay to plan for major concurrency upgrades in order to keep pace with the SOA program.

The parallel development efforts of the SOACMS and the aircraft program presented unique challenges. Since 1988, the simulator program lagged behind the SOA baseline. As the SOACMS devices are torn down and shipped to their new Ft. Campbell, KY facility, the first SOACMS development phase comes to a successful close. At Ft. Campbell, the SOACMS devices will be "conditionally" turned over to the 160th SOAR pilots in November 1993 and February 1994 for the MH-60K and 47E respectively.

A follow-on ECP to upgrade the IAS Software load to final 10.3 and integration of a Storm Scope, improved fuel gauge, and a digital 8-day clock will be completed before the CMS devices are declared "Ready For

Training" well ahead of the final delivery of the SOA aircraft. The conclusive result of four years of team work will be training devices with realistic, high stress, full task loading environments designed to sharpen the edge of the Night Stalker's Wings.

A major ECP to bring the SOACMS devices up to the SOA Hardware Production baseline configuration was planned and awarded to the SOACMS contractor, CAE-LINK, in October 1992. In addition to numerous cockpit hardware configuration changes which evolved since the 1988 CMS baseline freeze, the SOACMS will also precisely match configuration with the production Internal Fuel Tanks System.

The aerodynamic effects of the tank loads will represent the MH-60K or MH-47E characteristics. All flight systems will provide the simulation for the fuel flow and control from and to the internal tanks. Also, as a part of this ECP the Contractor will move the Map Display Generator (MDG) 180° within its existing cabinet. This will provide access to the MDG from within the cockpit allowing the crew or instructor to install a new Data Transfer Module (DTM) as required to complete the simulated mission without coming off motion.

Another "Lead the Fleet" training initiative planned by Team SOACMS is the conversion of the SOACMS Radar Data Base to DMA Level 1 Digital Terrain Elevation Data (DTED). This will allow 160th pilots to view the terrain elevation on the digital map display while flying low level SOA training missions. This modification will also be applied prior to final acceptance.

Maintaining concurrency with the IBM Integrated Avionics Suite (IAS) Software baseline has proven to be considerably more difficult. The latest SOA IAS Software functionality changes have become somewhat of a "moving target". The SOACMS devices are currently operating with IBM IAS Software Baseline 10.0. The SOA aircraft are testing, for delivery, with Update 10.3. In order to maintain Prime Item Development Specification (PIDS) compliance, ensure operability of all CMS flight management systems, and prevent any negative training transfer habits, it is essential that the CMS devices incorporate the final 10.3 SW Upgrade.

To get a PIDS compliant CMS to the pilots of the 160th SOAR concurrently with the delivery of their SOA K/E fleet, TEAM SOACMS initiated a Software 10.3 ECP, (before final Government acceptance), which will include most of the functionality changes resulting from the upgraded software baseline.

Any Software System Trouble Reports (SSTRs) or functionality changes written after the award of

the ECP will be reviewed for incorporation in a follow-on ECP.

As 1993 got underway so too did Contractor and Government preliminary formal testing. SOACMS Team members from PM TRADE, aviators from the 160th SOAR Systems Integration and Maintenance Office (SIMO), and the Contractor team worked together to create, refine, and implement a complex Test Requirements Document (TRD) which comprehensively describes hundreds of test procedures, mission scenarios, malfunction checks, and interactive threat environments.

To adequately test the performance of the two 3-channel Army Tactical Digital Image Generators (ATACDIGS), which provide Out The Window (OTW) scenes to any six of eight window displays at a time, a total team effort was required. Hundreds of Discrepancy Reports (DRs) were written, corrected and re-checked within a very constrained test schedule.

The SOACMS Team ran two shifts over the two five week Government Preliminary Inspection cycles in order to accurately test/verify every possible function and capability such as air-to-air refueling, shipboard, nighttime, adverse weather, and NVG operations.

The Simulation Instrumentation and Training Command (STRICOM) and PM TRADE are also assisting in the development, procurement, and life cycle support of integral Multi-Level Training Aids Devices Simulations and Simulators (TADSS) for the 160th SOAR aviators. In addition to the (2) CMS devices, (18) Desk Top Trainers (DTT) and (2) Part Task Trainers (PTT) will be fielded and integrated into the 160th SOAR training program.

The DTT will provide Multi-Functional Display (MFD) familiarization and pilot/maintenance personnel training. The PTT is designed to provide a realistic Integrated Avionics Suite (IAS) simulation and "user friendly" fault analysis software. These two devices will save the 160th SOAR thousands of training and maintenance flying hours both in the CMS devices and in the actual aircraft.

PM TRADE is assisting the 160th SOAR in developing a Simulation Strategy for the future which builds on the SOACMS program, takes advantage of emerging technology, and leverages other Aviation efforts maintaining the 160th SOAR's "razor sharp" training edge.

★★

MAJ Birmingham is the Project Director, Special Operations Aviation Combat Mission Simulator (SOACMS), Simulation and Instrumentation Training Command, Orlando, FL.

BY JENNIFER McCORMICK
and GLEN NOWAK

AVIATOR'S NIGHT VISION IMAGING SYSTEM: TOTAL PERFORMANCE

New developments and further enhancements for the Aviator's Night Vision Imaging System.

In the operational environment of Army Aviation, the Aviator's Night Vision Imaging System (ANVIS), AN/AVS-6, is mission essential equipment for night operations. The ANVIS has profoundly altered Army Aviation history. The aviator must see at night, and that insatiable need to "rule the night" is accomplished with ANVIS.

ANVIS is an electro-optical system designed to provide aviators with the optimum capability to see in the dark and perform Nap-Of-the-Earth (NOE) and other terrain flight modes during starlight conditions.

The ANVIS system provides a very cost effective night pilotage system that was highly effective during Operations JUST CAUSE and DESERT STORM.

The ANVIS system was first fielded in 1984, and its design has been improved many times since. Changes during the Eighties included:

- Improved third generation Image Intensification (I^2) tube resolution to operate effectively at lower light levels.
- Redesigned battery packs that accept AA batteries (BA-3058) and lithium batteries (BA-5567).
- Increased EMI system protection.
- Laser protection with Light Interference Filters (LIF).
- Redesigned Light Emitting Diode (LED) in the visor mount which allows the LED to blink, making the low battery indicator more visible.
- System construction material changes from LEXAN to ULTEM, making the parts more durable.

These design changes were ac-

complished through constructive feedback from the aviator, the maintainer, and operational lessons learned. They were also achieved through cooperation of the manufacturers in a way that continually improved their management and quality control processes to manufacture I^2 tubes. These manufacturers are at a point where they are consistently producing high performance tubes with minimal defects.

Safety in aviation is paramount. The best way to make ANVIS safer is by continually considering and improving reliability, availability, and maintainability.

It takes considerable effort to produce a highly reliable image tube. Manufacturers of this tube combine technologies that create an integrated product using Micro-Channel Plates (MCPs), miniature power supplies, Gallium Arsenide (GaAs) photocathodes, phosphor screens, fiber optics, and sophisticated vacuum technologies. This creation is the heart of the ANVIS system and means better performance under a wide range of low-light conditions.

The most recent changes will come about when deliveries of the OMNIBUS III Contracts begin. These systems will be fielded by the Project Manager Night Vision & Electro-Optics (PM-NVEO) starting in FY94. Enhancements to the OMNIBUS III ANVIS system include:

- 25mm eye relief eyepieces.
- Increased fore-aft adjustment range.
- Independent interpupillary (eyespan) adjustments.
- Smoother objective, eyepiece, and binocular movements.
- Greater improvements in tube performance.
- Increased tube reliability (10,000 hours minimum).

These design changes will allow the aviator to more effectively accomplish his mission. Many aviators cannot currently obtain a full 40 degree Field Of View (FOV) because their eyes are too far away from the eyepieces. Currently fielded eye piece assemblies are designed to be set at a maximum distance of 15mm from the eye in order to see a 40° FOV. The most comfortable setting of eye-to-eyepiece distance is greater than 15mm for many aviators, however. The distance of the lens assembly from the eye is called eye relief. If the current eyepieces are adjusted beyond the 15mm eye relief, the FOV is reduced.

The new 25mm eye relief eyepieces have larger diameter lenses than the current eyepieces, allowing the aviator to adjust the ANVIS to a distance of up to 25mm from the eye and still maintain the full FOV.

Another design change proposed as part of the new contracts is Independent Interpupillary Adjustment (IPD), or eyespan adjustment. The current system is designed so

Figure 1

that both monocular assemblies move either toward or away from the centerline of the goggle as the IPD knob is turned. The new ANVIS will have IPD knobs on both the right and left hand sides of the goggle to adjust each monocular individually. Because our eyes are not necessarily symmetrical with respect to the centerline of our faces, individual IPD will allow each aviator to "custom fit" each monocular to the location of his own eyes. This feature further enhances the aviator's ability to achieve the full field of view in both eyes.

The fore/aft adjustment range of the new ANVIS has also been increased. The combination of the new 25mm eye relief eyepieces and the increase in fore/aft adjustment range allows aviators who wear eye glasses to set their goggles and still achieve the full 40° field of view. In addition, the increase in available adjustment range away from the face will allow protective masks to be used more effectively with the ANVIS. Improved look-around capability for direct view of the cockpit instruments is another benefit resulting from the increase in fore/aft adjustment range.

Advances in I^2 tube technology have led to improvements in both quality and reliability. The new ANVIS will incorporate improved image tube resolution to provide a

much sharper and clearer image to the aviator. In addition, the new image tube will last at least one third longer than currently fielded image tubes, thereby increasing operational availability and readiness. The image tube is truly the heart of the ANVIS system.

An innovative procurement technique, best value, allowed the product enhancements described above to be adopted as part of the new ANVIS system. The PM-NVEO, in conjunction with the CECOM procurement office, awarded two OMNIBUS III contracts in November 1992. The ANVIS portion of these contracts amounted to $8 Million which was split between ITT of Roanoke, VA (60%) and Litton of Tempe, AZ (40%). The contracts procure both ANVIS systems and spare parts, and also have options available to support future force structure changes.

The ANVIS system offered by each manufacturer was required to meet the minimum Statements of Work and specification requirements provided with the solicitation. The best value approach to procurement also allows improvements to the minimum requirements to be offered. It is somewhat analogous to ordering off a menu. A menu provides many available options and the customer then chooses the combination which best suits his needs and available resources.

A "wish list" of possible enhancements was compiled using lessons learned from the field and Operations JUST CAUSE and DESERT STORM and was included as part of the solicitation package. The contracts resulted in a more robust product that includes many "best values" for the ANVIS system.

The Army Acquisition Executive (AAE) has praised the best value acquisition strategy as an example of how procurements should be structured to obtain the best possible equipment for the soldier. The new ANVIS is a total system designed in concert by the aviator, the maintainer, and the manufacturer. This joint effort has resulted in the best possible aviation night vision imaging system for the ultimate user, the aviator.

In addition to the ANVIS system, the PM-NVEO and Night Vision & Electronic Sensors Directorate are working together to continue two other improvements for pilotage.

The first is the ANVIS/HUD (AN/AVS-7), which is a modification to the AN/AVS-6 that will collect instrument symbology and display it in one eyepiece of the goggle. The system will allow "heads-up" flight without the need to continuously look down at the instrument panel. ANVIS/HUD is currently in the production phase.

First Unit Equipped is scheduled for October 1994. *[Ed. note: See the following article for more details.]*

The Advanced Image Intensifier is a Department of the Army approved Advanced Technology Demonstration. The leap-ahead technologies demonstrated are applicable for both ground and aviation helmet mounted applications. It will increase by 50% the FOV, integrate flight symbology, with both low light and high light improved visual acuity and human factors designs. In addition, it will be capable of displaying imagery from thermal sensors. System development is scheduled to start in early 1994 with user evaluation scheduled for FY95.

★★

Mrs. McCormick is the ANVIS Project Leader and Mr. Nowak is the ANVIS Logistics Specialist, PM-NVEO, Ft. Belvoir, VA.

NIGHT STALKERS
(continued from page 34)

ments for Majors through this summer have already been planned. The Major requirements will be for the Summer of 94. There will be requirements for approximately eight Captains in the Late Fall/Winter of 1993. Again, for planning purposes, assignments to the 160th are for 4 years. The 160th is seeking Captains who have successfully completed company command or who are junior enough to allow for company command while in the 160th; well prior to consideration for promotion to Major (roughly 4 years before promotion to Major/attendance at CSC). Majors should have completed CSC (in residence or correspondence) and have also successfully completed company command.

During this same period, the 160th will actively recruit UH-60 and CH-47D pilots of all skills. These officers will be needed for the testing, delivery, fielding and manning of the new MH-60K and MH-47E helicopters. If you feel you have the commitment, desire and skills to add to this prestigious unit, contact the 160th Special Operations Aviation Training Company (SOATC), DSN: 635-4384/5689, C: (502) 798-4384/5689, or myself at DSN: 221-4042, C: (703) 325-4042.

Night Stalkers Don't Quit!

★★

LTC Kristick is Chief, Special Operations Assignments, PERSCOM, Alexandria, VA.

BY DAVID TROXEL AND
CPT ANDREW CHAPPELL

ANVIS/HUD: ENHANCEMENT FOR NAP-OF-THE-EARTH FLIGHT

The ANVIS/HUD system is designed to provide aviators critical flight information superimposed on the outside visual scan image of the ANVIS night vision device.

The system is electro-optical and overlays cockpit information by integrated graphics on the night vision scene. It provides both the pilot and copilot critical, real-time, high resolution flight and navigational information. Its primary purpose is to enhance flight safety, ease the crew workload, and reduce the need to divert pilots attention from outside the aircraft to inside the aircraft to monitoring flight and navigational instruments.

This "eyes out of the cockpit" aid is almost here.

The ANVIS/HUD acts as a sensory gathering device that takes various analog and digital aircraft sensor information into the signal data converter (data accumulator box), converts it into symbology (such as altitude and airspeed), and transmits the information into an optical combiner, the display unit, that is overlaid onto the ANVIS scene.

The resulting symbology overlay provides the aircraft crew with an independent display of data obtained from one sensory gathering point.

The ANVIS/HUD system's official nomenclature is AN/AVS-7 and consists of an "A" and "B" kit. The "A" kit includes all the required mounting brackets, wiring, connectors, transducers, etc. to transfer instrumentation and navigational data to the "B" kit. The A kit is aircraft type specific and is designed and manufactured accordingly.

The B kit includes the signal data converter, the converter controller, and two display units. It is designed and manufactured to be 100% interchangeable among aircraft types UH-60 A/L, OH-58A/C, CH-47D, UH-1H/V, and the AH-1F. Compatibility with other services' aircraft include the Marines' UH-1N and the Navy's CH-46E.

The signal data converter acts as a symbology generator and system processor. It weighs 13.1 pounds and its dimensions are 7.8 inches by 10.6 inches by 7.6 inches.

The converter controller is a control unit for pilot/copilot built-in-test (BIT) activation, symbology selection and placement, and intensity control. It weighs 1.1 pounds and is 2.7 inches by 5.7 inches by 3.7 inches.

The two display units superimpose selected symbology onto the ANVIS scene using a stroke base system. Each weighs 8.5 ounces (including optional counter weight) and is 4.5 inches by 2.5 inches by 1.5 inches in dimension.

The following bullets list the unique features and capabilities of the ANVIS/HUD:

- Independent pilot and copilot controls and displays. Contrast/intensity and on/off switches are adjusted independently by each crew member.
- Display unit is optionally mounted on either left or right ANVIS objective lens.
- BIT diagnostics may be activated by maintainers or crew members during ground operations or in flight.
- Symbology field of view is 34 degrees.
- The system has four programmable modes (pages).
- Instantaneous switch-over (select/deselect[declutter]) capability. This gives the crew member the capability to display all or no symbology.
- The declutter mode displays sufficient data for the pilot to maintain safe flight in a high workload or emergency condition. It will display airspeed, altitude (MSL), torque, and attitude.
- Total system weight per airframe is approximately 36 pounds.

"ANVIS/HUD utilizes Army Aviation's three level maintenance concept: Organizational (AVUM), Intermediate level (AVIM), and Depot level."

As part of the requirements document, the HUD symbology display must include, as a minimum (see Figure 1 for a composite of all the symbology):

- Attitude

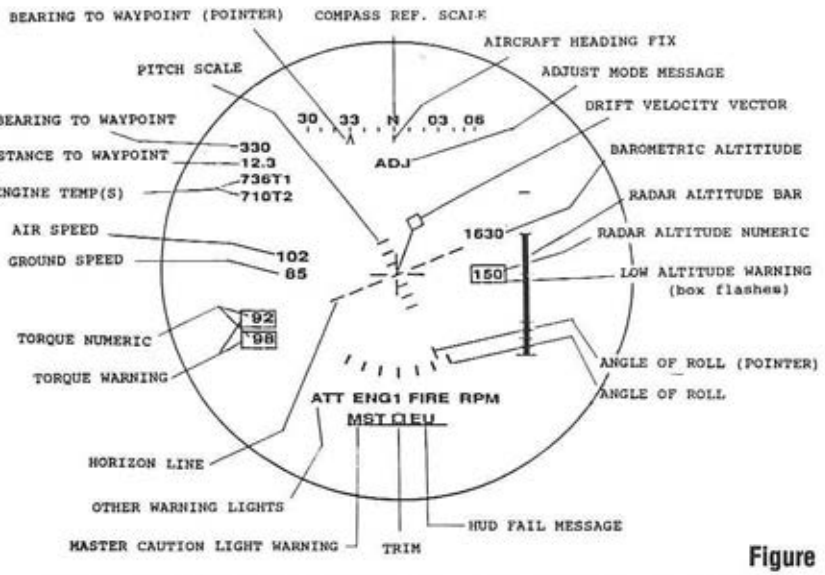


Figure 1

- Altitude (MSL and AGL)
- Waypoint/Distance
- Airspeed
- Vertical Speed
- Cargo hook engagement
- Ground speed
- Torque setting(s)
- Hover (pitch/roll)
- Trim
- Compass heading
- Low altitude warning
- Engine temperature(s)
- Master caution/warning

Additional symbology for the AH-1F includes weapon site information and laser rangefinder. The added symbology for the UH-1N/CH-46E includes quadrant threat warning.

The system incorporates future expansion to allow presentation of obstacle avoidance information and various modes to include hover, transition, cruise, targeting and weapons delivery as referenced in Military Standard-1295(AV).

The ANVIS/HUD utilizes Army Aviation's three level maintenance concept: Organizational (AVUM), Intermediate level (AVIM), and Depot level. There are no special tools or test equipment needed or required at AVUM/AVIM levels. Perhaps one of the greatest advantages is that the system requires no new Military Occupational Specialty (MOS) for operation, maintenance, or support in the field. Figure 2 depicts the ILS flow for the ANVIS/HUD program.

AVUM operators and main-

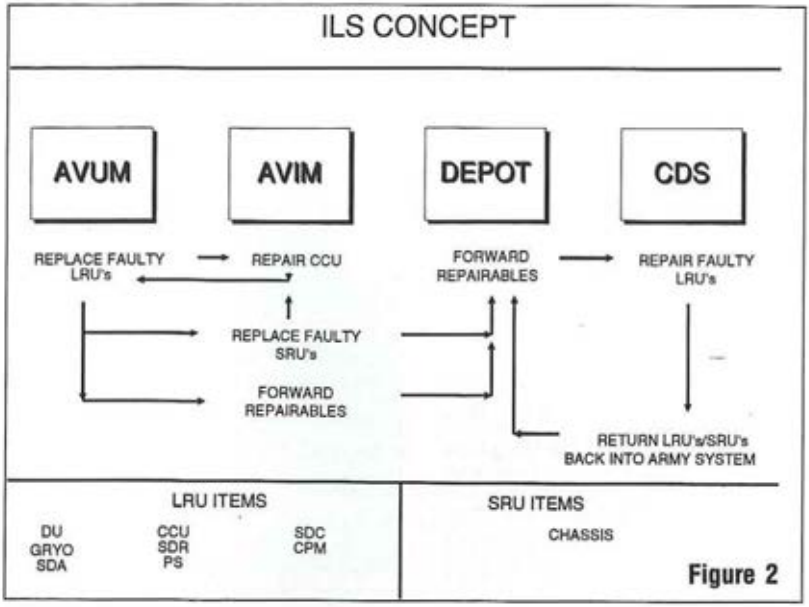


Figure 2

tainers will detect equipment failure by utilizing the system BIT. Line Replacement Unit (LRU) replacement of failed components is authorized at the organizational level (to include card replacement). A 15 minute Mean-Time-To-Repair (MTTR) is established and includes external cleaning, minor adjustments, knob replacement, and LRU removal and reinstallation.

AVIM activities will repair failed converter controllers. All other components are forwarded to Depot. A 30 minute MTTR has been established at AVIM to include fault isolation and remove and replace fault modules.

Depot maintainers will have interim contractor support to assist in repair and replacement of LRUs. They will have on hand appropriate test equipment to simulate input conditions, isolate fault LRUs and Ship Replaceable Units (SRUs). Depot maintainers have a 60 minute MTTR and includes fault isolation of modules to identify faulty piece parts and repair of modules and systems.

The ANVIS/HUD system is required to have a 400 hour Mean-Time-Before-Failure (MTBF).

The ANVIS/HUD program is unique in that it requires a tremendous amount of cooperation to develop, procure, field and support the system in the field. Two major commands, CECOM and ATCOM, and ten project management offices

are involved in providing this capability to the U.S. Army and Marine Corps.

Project Manager for Night Vision & Electro-Optics (PM-NVEO) is the program sponsor and has overall responsibility for system integration. PM-NVEO is also the official military point of contact for ANVIS/HUD.

Other integral players in the program are Project Manager-Aviation Electronic Combat (PM-AEC); Project Managers-Utility Helicopters UH-60A/L, UH-1H/V, UH-1N; Cargo Helicopters CH-47D and CH-46E; Scout Helicopter OH-58A/C; and Attack Helicopter AH-1F.

PM-AEC is responsible for coordinating U.S. Army aircraft PMs position on aircraft integration issues. All aircraft PMs have a vital role to validate aircraft interface/documentation modifications.

The ANVIS/HUD program is scheduled for installation on the UH-60 Black Hawk starting 1st quarter FY94 and on the CH-47D in second quarter fiscal FY94. There is currently a five year procurement plan for active Army, Reserve, and National Guard Forces.

★★

Mr. Troxel is the ANVIS/HUD Project Leader and CPT Chappell is the ANVIS/HUD Assistant Project Leader, PM-NVEO, Ft. Belvoir, VA.

IHADSS, PHONE HOME

The Apache helicopter uses a peculiar, expensive helmet which incorporates infrared sensors which permit the pilot to drive the weapons and pilotage subsystems merely by moving his head. The Integrated Helmet Display Sight System (IHADSS) was initially issued to all Apache pilots, who retained them as they transferred between assignments.

A number of Apache aviators have now gone to non-flying jobs or have left the service without turning in their helmets. The Advanced Attack Helicopter PMO needs those helmets back.

Anyone who is currently in a non-flying duty assignment or who has departed the service and who has an IHADSS in their possession, please contact:

Mr. Lloyd Johnson
Chief, Logistics Support Branch
Advanced Attack Helicopter
Program Office
4300 Goodfellow Blvd.
St. Louis, MO 63120-1798
Comm: (314) 263-1946
DSN: 694-1946

PEO AVIATION STEWARDSHIP REPORT

Excerpted from the PEO Aviation's presentation at the AAAA Annual Convention, 2 April 1993.

I title this my stewardship report. When I say "I", I would like for you to take that as we — because nobody in aviation or in the acquisition business today can be an island unto himself. If he is not integral to a team, he is programmed for failure. So this is *our* stewardship report.

MG Dave Robinson has already shown you in his presentation what aviation is, and how it really projects mass with a heck of a lot less. To do this, we have to have a vision.

MG Don Williamson (then CG, ATCOM) and I got our heads together and determined what our vision was going to be, and we talked to MG Robinson. Our vision at PEO Aviation and ATCOM is to provide the Army and other customers with technologically superior, affordable aviation, soldier, and combat support systems that are capable, safe, survivable and sustainable. The operative words there are Safe, Capable, Reliable, Survivable.

Our mission is delivery of materiel in the shortest time, in sufficient quantities consistent with sound business practices within available resources.

Ladies and gentlemen, I cannot overemphasize the words "sound business practices within available resources". Resources are going down every day. We believe that we've got to resource and modernize warfighting systems. We have to retire or contract out the marginal fleet, the fleet that doesn't contribute to the war fight. We've got to insert technology, we've got to invest in our

future, and we've got to dedicate ourselves to continuous improvement.

Technology is changing rapidly today. As technology changes we are literally faced with a challenge of mission equipment package integration. That, in my view, is our biggest challenge. But at the same time we've got to get ourselves involved in simulation.

We've also got to keep our focus back on our new fleet that is starting to age. We've got to get a modernization program going on the UH-60. We've got to get a modernization program going on the CH-47. We've got to come to grips and come up with how we're going to deal with the light utility requirement. We just signed a contract on the NTH, and we're also deeply involved in foreign military sales.

Horizontal integration is a major challenge. The Chief of Staff of the Army stood up here yesterday and he said that "I want that battlefield digitized". We've got to get it horizontally integrated, we've got to digitize the battlefield, and I will simply tell you we can't afford everything we want to do. We've got to do a lot through simulation so that we understand when we make our investment what we're going to get.

We just did a couple of exercises that I'll talk about more here in a few minutes down at Fort Knox and White Sands. Those cost millions of dollars. We can't afford millions of dollars to do proof of principles continually, so we are dependent a lot on simulation.

Here's the fun part — in 1985 we had $25 billion in a procurement account. In 1993 we're down below $7 billion. If you look at how the money flows in Figure 1, you'll see that from DA to the PEO to the PM you've got three pipes.

You've got RDT&E, PAA, and OMA. You look over on the bottom, you see DBOF, OMA RDT&E. If you say, "Where do those pipes communicate with each other?", the answer is — they don't. That tells me as a Program Executive Officer and that tells the PM that if we're going to build weapon systems, if we're going to sustain the support of those weapon systems, those pipes have got to talk.

The only way we know to make them talk is to develop business plans that look out over at least five years of the life of that weapon system and plan what contributions have to be made to the weapon systems during that life-cycle phase.

We've got to put the pieces together. We've got to have some vision. We've got to look at the critical deficiencies that we have identified in battle in Saudi Arabia and Kuwait and Iraq. We've got to build our future. We've got to exploit

BUSINESS PLANNNG ARCHITECTURE RELATIONSHIPS

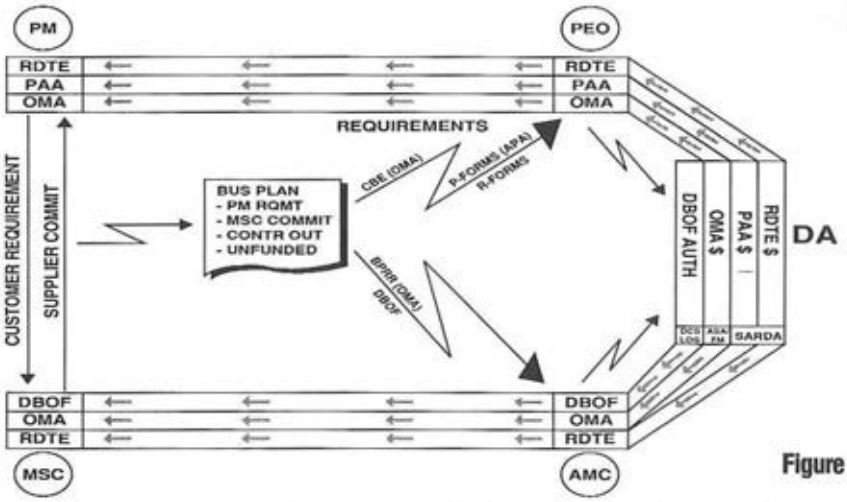


Figure 1

simulation. We've got to exploit the battlelabs.

I'll tell you that when the battlelab business came up, I was one of those that had questions about the value of the battlelab. I wondered why we didn't have a battlelab for aviation. But as I've looked at the battlelabs as they've evolved, it has become very clear to me that we are literally involved in every battlelab. For that reason I don't believe aviation should have a battlelab but I do believe that we should be associated with every battlelab that is out there.

We've got resource constraints and we've got to manage change. I've told every PM if they can't identify where they're getting an improvement in capabilities, supportability, survivability and safety then they're not going to spend money on that questioned area.

Basically we've got to change the environment. Folks, as we've looked in the past we've had a lot of turf protectors — they have a lot of rice bowls. We've got to flip those rice bowls over, we've got to have the battlelabs pulling together, and we've got to have a team focus. As far as I'm concerned, we can no longer afford those people, those organizations who will sit there with their arms crossed and wait until you deliver the paper and then grade your paper and give you "F" and expect you to go back and correct the problem.

If they are smart enough to grade our paper then they are smart enough to help us start writing it

when it's blank. That is what we've all got to insist on because the dollars are not there for paper graders to sit there and have no accountability for their conduct.

When I made the comment a few minutes ago that a PM or PEO cannot be an island unto himself, take a look at Figure 2. Just visualize putting the Product Manager/Program Manager in there. Look at the influences on him. Look to the left — these are people who have authority. These are people who are mucking around in his program every day. That tells me very clearly a PM cannot carry a program on his shoulders through to completion no matter if OSD and the Department of the Army want the program to succeed.

There are too many influences. There are too many people and agencies that have authority to affect him. BG Orlin Mullen (PM Comanche) was told by the OSD and the Congress, "When you build your Comanche, General, I expect you to have avionics commonality with the F-22."

I want to tell you when you are looking at a 50,000 pound airplane that's already 10,000 pounds overweight, that is flying at 40,000 feet, and that is flying above the speed of sound, it is a tough challenge to try and get commonality with a Comanche that still weighs 7,500 lbs and is still on cost and doesn't have any growth to it, flying in its environment.

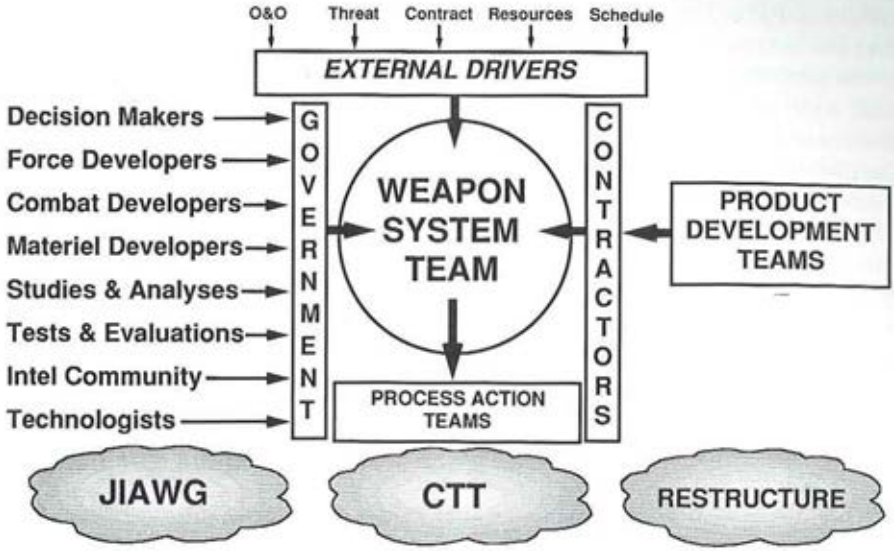
But when we got the industry team, the Air Force team, and the Army team together, I will simply tell you that we got a heck of a lot of commonality in the aviation suites within those airplanes.

Ladies and gentlemen, the days of the industry doing a test and then the Army doing a test and then somebody else doing a test and everybody pulling data, and everybody wanting more blade time, are over. Now you put an industry guy in the front seat, you put an Army Aviator in the back seat, you go for the data, you make decisions, you work together, and you work as a team.

The reason we have programs that are still alive today, in spite of the fact that we have lost about 70 percent of our money in the last two years from the aviation modernization program, is because we have aviation teams. We've got the MG Robinsons, the MG Williamsons, the LTG Forsters, the industry folks , the CEOs, working together on the team in the executive steering groups. They are the reasons that our programs are still alive.

Here is the way we structured our team. We have our executive steering group that is accountable up to the Secretary of the Army for the delivery of a weapon system. They

Figure 2 — ACCOUNTABILITY FOR AUTHORITY



are DA level, they are PEO, they are AMC, TRADOC, they are CEOs of industry, and if you look at the management group you've got your industry and your government PMs.

Somebody said, "But the farce is, you've got to keep them arms length from each other." That doesn't mean you've got to stiff-arm them. It says you've got to work together with them. And that's what we're doing in the management work group.

We've got a lot of folks in AMC. We've got a lot of folks out there in the various commands that are at the SES level that have the authority to touch and change these programs. They work right in that management work group. They bring their authority to that management work group. They advise, they assist the program managers. From there the decisions that can be made at that level are made at that level. Those decisions that must move up to the executive steering group go immediately to the executive steering group.

By the way, you don't take 50 briefings today to get to the Secretary of the Army. It takes one briefing and that's to the Army Acquisition Executive and the next level is the Secretary of the Army when we have problems. That makes the team more powerful. That makes the team better.

Folks, what we are driving to very simply is this — in production and fielding of a thing called Apache, we

had problems. That's not to say that there was a problem with previous PMs. I'm simply saying that the way we had to do business in the past led us to doing business that way. It led us to holding the problems down and not identifying the problems and not dealing with them when we should have dealt with them in concept, DEMVAL, and EMD.

The way we're running our programs now is the way we're managing Comanche and Longbow Apache, Apache modernization, and all of the programs. But, believe it or not, finding problems earlier in the process offers a threat to the program too. This tells the paper graders in the Pentagon, "'Uh-oh — we've got a risk — we've found a problem and we've found it before we've committed to production, therefore, we'd better slow this program down."

Folks, that's concurrent engineering. If you're looking at the life-cycle phases of a weapon system then those first three phases of the life-cycle phase is where you're supposed to find problems. You don't find problems when you get out there and you start fielding and giving it to the soldier. His life would be threatened not only by the guy shooting at him but by the weapon system you delivered to him.

The way we can and will achieve success in Army Aviation in the future leads down to one thing — accountability for authority. Paper graders, if you want to play, get up and help write the paper. If you don't help write the paper, we're going to ignore you. Be accountable for your authority.

"Paper graders, if you want to play, get up and help write the paper. If you don't help write the paper, we're going to ignore you."

If there is any one area that I am vitally concerned with as a combat multiplier in Army Aviation, it is Aircraft Survivability Equipment (ASE).

Every time we deployed somewhere in this world I will tell you that usually, we deploy airplanes that are not properly equipped with ASE equipment or we have people that are not properly trained to operate the stuff going. The ASE PM has to go out there and get with them and help them solve their problem before they get themselves into a situation where they can lose folks.

Last year, I took the ASE PM

and the Avionics PM, two electronic sides of the house and asked why we didn't bring those two guys together. We did that. I think that is probably one of the smartest decisions that we made in the last year or so because the next question was "what is the avionics architecture for Army Aviation?"

We had a little list of things of about 15 or 20 items. No. 1 was funded. No. 6 was funded. No. 15 was funded. I asked what does No. 1 or No. 6 contribute to the overall avionics architecture? Nobody could tell me. I told the AEC PM, COL Tommy Reinkober, that I wanted him to get together with MG Robinson and his guys and put together an avionics architecture for the battlefield. We need to communicate with everybody. Everybody below us and everybody above us.

When we buy a box and we put it on the airplane we've got to be sure it contributes to the total system. If it does not contribute to the total system, then it has no value there.

Folks, today we have an avionics architecture for Army Aviation that has been approved all the way and through the Pentagon. Now I understand when I get dollars for the community where to put those dollars and I understand what the contribution of those dollars is to Army Aviation.

I've already mentioned the value that I see in battlelabs. We just finished a demo with the Abrams and Bradley. We hooked ourselves up with the IDM to IVIS in the tank. I would tell you that six months ago I was told that we would never be able to communicate with the IVIS system in the tank. I would tell you that two weeks ago down in Fort Knox they had a target handoff between an IDM and an IVIS. I'll also tell you that we ran a 30 minute demonstration down there that had only one voice communication which was an administrative communication. The rest was SITREP and FRAGOS that we sent digitally on that battlefield. It was a proof of principle that we can do it if we want to.

We did a Joint Stars simulation, a handoff from Joint STARS to an ATAC to an OH-58 which fired at target within 160 seconds from the time we identified it. We had a joint find between an ATAC system and an Apache at White Sands and took that target out together. Now that shows you the power of using IDM with Joint STARS and literally bringing everybody on the battlefield together.

In August we are going to hook up with Joint STARS again and we are going to start using that capability and tying ourselves to the ATAC and the AH-64. It will prove a principle that will help us in the future to bring Comanche into this game.

Folks, as far as I'm concerned, the

RAH-66 is the centerpiece for the peacekeeping force. When you look at that Comanche you're looking at the power of the processors associated with it and its ability to reach up and pull down Joint STARS data, pull down the intel satellite data and do all of the communications, you can see that we are rapidly approaching the Chief's desire to digitize the battlefield. Comanche can be the centerpiece for the whole effort.

Look at the technology that is overhead. Look at it from the intel side of the house. I might be flipping over a rice bowl here, but I really don't care because it takes four hours to get intelligence off of that satellite down to the ground commander to do something with. You want Comanche to pull intelligence data off of that satellite. You want Comanche to take his sensors and fuse that data and you want Comanche to give the commander on the ground targeting information in less than a minute. Comanche can do that and more.

Joint STARS can look out and identify one tank that shows up as an icon on his screen. Comanche looks out and identifies three tanks that show up as T-72s on his screen. He takes the Joint STARS data, fuses it, goes back to the ground station immediately and now you have taken the total team and pulled them together and provided the commander the information that he needs to make real-time decisions in targeting.

As I've already said, it costs too much to do a lot of these proof of principles and for that reason we've got quite a bit of effort going on in the world of simulation particularly with Comanche and Longbow Apache. In the future we will know what we need because we will have simulated a lot of the stuff before we actually have to come to grips with making the investment.

"Why do we have to have a flexible gun on Comanche if we can turn it 90 degrees at 80 knots in a snap turn?"

We look at Comanche as the center of the peacekeeping force. Why? Because of everything it pulls together. The Comanche covers the total battlefield and it gives the commander situational awareness.

As we develop the technology, what are the spin offs that can be of value to the rest of the community? We are designing the airplane with a focus on the soldier with transportability, and built-in diagnostics.

Let me make a very interesting

point right here. The Comanche will be able to do a snap turn at 80 knots. That brings a question to my mind. You know that 30mm cannon that's hanging underneath your Apache that can't hit anything? Well, we say it's an area fire weapon but really, when we mount it there and we make it flexible, it's not going to hit anything. Why — because of 2,000 lbs of recoil when every round is fired. Why do we have to have a flexible gun on Comanche, if we can turn it 90 degrees at 80 knots in a snap turn. We need to look at that. We need to think through that a little more and MG Robinson has agreed to do that.

We're looking at Comanche's FLIR. It's going to be 40 percent better. It's going to give us 40 percent better capabilities out there on the battlefield. What additional things does that do for us over and above some of the other stuff we might be putting on the airplane? There are a lot of questions that still need to be answered in that area.

The spin offs from technology mean that we don't have to reinvent the wheel in our other weapon systems.

Aviation is involved in all five of the modernization overmatch areas. That is powerful stuff for our future Army. When you look at the Apache and you look at the Comanche and think in terms of stored kills, you can put six Apaches on a C-5, take it to a fight and you've got 96 missiles on that flank when they roll off the back. With the Comanche, there are eight on a C-5 with 112 missiles that will come off the back. That's a pretty potent force when you're deploying a light force to a theater somewhere and you need some immediate protection for your force.

Folks, we've got to keep hooking the pieces together. I believe there is a helluva lot of wisdom associated with the expression, "The road to success is always under construction." Thank you very much.

★★

MG Irby is the Program Executive Officer, Aviation, St. Louis, MO.

AVIATION LOGISTICS ACROSS THE CONTINUUM

Excerpted from the ATCOM Commander's presentation at the AAAA Annual Convention, 2 April 1993.

You've seen in MG Robinson and MG Irby's presentations that we're talking Aviation Team — Aviation Center, PEO Aviation and ATCOM. I take a great deal of pride in the fact that we work so well together.

Our part of that team, the Aviation and Troop Command, is kicking off a somewhat new look with the consolidation of the Aviation Systems Command (AVSCOM) with the Troop Support Command (TROSCOM). Our focus is still on aviation, but our focus is also on the soldier. We've now got the wherewithal to not only take care of the hardware, but to take care of the great aviation soldier.

As we've said before, the Black Hawk, the Apache, OH-58D, and Chinook are "Team Attack". But we at ATCOM also have to look at the UH-1, OH-58A/C, AH-1, OH-6, U-21, OV-1, and C-23, and we have to support them. We're still supporting over 8,000 aircraft. We're on the horns of a dilemma.

Can we continue to support all of the aviation forces, all aviation soldiers and equipment with the same degree of excellence? The resources are just not there.

We must concentrate on our warfighting capability. You heard the Chief say yesterday that the expectation is decisive victory and to win. ATCOM's capability is diminishing to serve all of these aircraft so that we can concentrate on that warfighting capability and our Team Attack.

Other commodities that we support at ATCOM are soldier systems, from shelters, food and clothing to space.

The astronauts' steak and eggs usually come right out of our labs. ATCOM is an excellent marriage between aviation and troop support.

You might not think that soldier sustainment is a big deal, but I get as many calls on food and clothing as I do on safety of flight.

You heard the Chief talk about our 25,000 soldiers in more than 60 countries. Anywhere that the United States of America is involved, at any time, you're going to find Army Aviation. Our troops have to be able to respond anywhere at a moment's notice.

We used to have war plans. We don't need war plans. Army Aviation needs to be prepared to go anywhere, anyplace, anytime, to do anything to anybody. It's that simple. That's our war plan. In this way we are going to be able to meet America's needs no matter where they are around the world.

The thing that we try to do at ATCOM is to get there first. We were first in Southwest Asia. As some of you recall from last year, we made a heliport from a junkyard that a Lieutenant Colonel got us out there and grew the operation to more than 800 technical experts from industry at three locations.

When Hurricane Andrew hit down in Florida we were at the Eastern Airlines Hangar before anybody else setting up the base of operations to help support our aviation and troop areas.

Same thing happened in Hawaii. We had a great involvement with the 25th Infantry Division with Hurricane Iniki, and then in Somalia when COL Mike Dallas, Commander, 10th Aviation Brigade got the word up in the snow at Fort Drum that he was trooping out to Somalia.

From DESERT STORM to Somalia, it's technology that has made the difference for us. In DESERT STORM, Saddam never had a chance. We had the patience. We had the night vision. We could see him, but he couldn't see us. We could see him from satellites, he had no communications. We had the first round kill. We had the standoff weapons with mass, momentum and speed. It wasn't a fair fight because our success was based upon technology and our commitment and our experience.

Ask COL Tom Hayes out there with PROVIDE COMFORT in Turkey. Ask COL Tom Green with the 18th Airborne Corp about Hurricane Andrew or COL Dallas as I mentioned before over in Somalia, and COL Guy Ballou with Iniki, and on and on. Team Aviation has eliminated the business-as-usual.

We've replaced it with a vision, with creativity and a trained-to-fight attitude that MG Dave Robinson has brought into focus.

Contingency operations begin

with ALAT, ATCOM Logistics Assistance Team combined with PEO Aviation. We're building field spares for a reinforced aviation brigade. We're putting our depot level equipment together. We're dusting off the Arapaho so that we can put that stuff into containers and operate off shore or bring it on shore to support our aviation forces.

Let's look at something called ATCOM AVIM. We have a contractor at Fort Hood right now doing our Project STIR, our technical inspection and repair and doing our modification work orders. That's another secret we've got because that outfit is ready to be moved around the world at a moment's notice. Our own AVIM backs up whoever needs backing up anywhere in the world. We're doing Power projection through the Team. I don't care whether it's Team Blade, Team Engine, Team Chinook, Team Black Hawk, Team Comanche — it's working together.

The thing we do when we need to do something different is to use the I^3 (Improvisation, Innovation, and Initiative) approach. You must understand what the process is and be able to change the process to accommodate the situation that you have at hand. At ATCOM the focus is on the customer. We make sure we deliver the very best. We bring the food to the customer in the best possible fashion. We are working well together and we are supporting extremely well.

As we've seen before, our personnel reductions have gone to both the military and civilian worlds. Although we talk of 535,000, we're looking at somewhere in the vicinity of 400,000 in military personnel and personnel reductions in the civilian work force of over 25-30%.

What has happened is that it's tearing us apart. Even though the sign is still on the door, we are losing experience, we are losing talent. We haven't had a hiring freeze or promotional freeze for the last two years, but today 450 senior people are walking out the door of ATCOM with retirement and early retirement. Those people will be hard to replace in the next few years.

So the things that we do are going to be very different because we still have that expectation to meet of a trained and ready Army capable of decisive victory.

A decisive victory is going to be based upon the pillars of the personnel with experience. We've been talking about reshaping our Army. We have got to rebuild our Army. It is going to take some years to do it.

The thing that is a problem in Army Aviation today is Army armament and sustainment. We're building our parts support based on a peacetime OPTEMPO.

There are very few dollars for the kind of things we need to do with

safety level and war reserve. We just don't have it. If we don't have people in production and we have the potential of a reduced industrial base, we won't be able to call quickly for inventory-just-in-time as some people are wanting to do because the inventory-just-in-time won't be there.

We're going to have to go to war with what we have unless we can fill those contingency stops with some kind of support to do it. It wouldn't be very hard to do it.

The transportation and distribution system is still broke. The Army distributes bulk. We don't know how to distribute things. We don't know how to track critical items. We've got a tremendous problem there even today as we try to get the materiel to our soldiers. The Army is working on this, but we haven't solved it in 216 years, and I hope a solution will be coming in the next 216. We've got to get into a mode where we can deliver critical items to our soldiers versus the inventory-just-in-time syndrome that people want to drive us to.

Again, it is the team that we have to concentrate on. We still have an obligation to our soldiers and our aviators out there flying the older systems. That is a given. Maybe our readiness rates are going to have to come down a little bit if we're going to put our item managers and our contracting officers and our training and our resources on a fighting team that can do the job for us.

As you've seen before, we are looking at five systems — Apache, Black Hawk, Chinook, Comanche, and Warrior. We're looking at those five systems to improve capability through technology insertion. We will enhance that capability through the sustainability and durability improvements.

So it isn't business as usual. We've got to make some hard decisions on our marginal systems. MG Robinson is fixing AOE. I think the big problem that we still have is "inventory-just-in-time" and a distribution system that just isn't there to do the job for us.

Again, let's build on the recent past. It's the technology and the training — it's the commitment by our Army — it's the commitment by the leadership of our country that made us what we were.

Let's not throw the baby out with the bath water. That great Aviation Team of the Aviation Center, the PEO and ATCOM, and the Safety Center and the National Guard and Army Reserve provided power projection when it was needed. It is Power Projection when it will be needed.

★★

MG Williamson was the Commanding General, U.S. Army Aviation and Troop Command, St. Louis, MO at the time he delivered this address. MG Williamson retired in April after 35 years of service.

BUSINESS REPORT
(continued from page 32)

given time. Its success has been greatly enhanced by the high-level support this system has received from both Government and Contractor.

Beginning in FY95, the management responsibility for these aircraft is scheduled to transfer from the SOA PM (which will then disband) to the Technology Applications Project Office (TAPO). To facilitate this, transition planning has already begun.

One critical aspect of this merger is the combining of the two budget requirements into one. Meetings between all effected elements are now ongoing to assure that this is a well orchestrated effort and that all our joint submittals during the transition period will be complete and accurate.

At the time of transition, it is the intent of this office to assure that the production and development testing programs are accomplished within available funding, the Joint Venture contract and all spares are in place, and that all budget submittals properly reflect the requirements for the out-years. These aircraft and their mission are too important to leave them with any less of a foundation.

★★

Mr. North is Chief, Business Management Division, Special Operations Aircraft PMO, St. Louis, MO.

Lt. Colonels

Adams, Anthony J.L
Purdue Univ, 1512 Armory
Dept. of Military Science
W. Lafayette, IN 47907

Brostrom, David P.
2503 Noble Oaks Drive
Savannah, GA 31406

Browne, Harvey
1415 Ballard Street
Silver Spring, MD 20910

Sapienza, John S.
PO. Box 6392
MacDill AFB, FL 33608

Majors

Johnson, Thomas W.
126 Mazak Court
Fort Bragg, NC 28307

Kelley, John M.
PO. Box 2318
Fort Campbell, KY 42223

Pate, David S.
6028 Miller Road
Fort McPherson, GA 30330

Petty, Frank S.
768 Farmbrook Drive
Beavercreek, OH 45430

Slyfield, Stephen S.
PSC 303, Box 92
APO AP 96204

Captains

Banks, Bernard B.
CATB 5/501st Avn
Fort Hood, TX 76544

Bishop, Kevin R.
5607-2 Lockridge Loop
Fort Hood, TX 76544

Bohman, William E.
HHC, 1-2 Avn Regt
Unit 15420
APO AP 96257

Cain, Jacqueline
669A Chelsea Place
Newport News, VA 23603

Carlsen, Calvin T.
850 N. Randolph Street
No. 1434
Arlington, VA 22203

Climer, Charles T.
HHC, 1-2 Avn Regt
Unit 15420
APO AP 96257

Gayler, William K.
17 Galt Lane
Fort Rucker, AL 36362

Goldenberg, Richard L.
208 Edith Way
Daleville, AL 36322

Gorski, Bruce J.
637 Trailcrest Court
Colorado Springs, CO 80906

Jackson, Brian L.
202 Heritage Drive
Enterprise, AL 36330

Johansson, Brian K.
33 Galt Lane
Fort Rucker, AL 36362

Lynch, Robin D.
Route 5, Box 5371A
Belton, TX 76513

Pietsch, James C.
505 Briarwood Drive, F-2
Enterprise, AL 36330

Pulford, Brian R.
A Troop, 2/12 Cav
Fort Knox, KY 40121

Radovich, Rory R.
25 Normandy Drive
Fort Bragg, NC 28307

Robinson, Tony
8742 Baltimore Street
Fort Lewis, WA 98433

Sanchez, Edward J.
PSC 2, Box 1017
APO AA 34002

Watanabe, Nathan K.
3040 Davis Road, No. A36
Fairbanks, AK 99709

1st Lieutenants

Burns, Ronald A.
C Troop, 5/17th Cavalry
Unit 15037, Box 8
APO AP 96224

Coose, Matthew D.
2502 Bacon Ranch Road
No. 1502
Killeen, TX 76542

Crawford, Gregory E.
4914 M-32 West
Gaylord, MI 49735

Driver, Mark M.
61-161 Iliohu Place
Haleiwa, HI 96712

Jones, Ryan S.
581 Viking Drive
Newport News, VA 23602

Logel, Jon Scott
O Troop, 4/11 ACR
Unit 20804, Box 587
APO AE 09146

Matthew, Joseph C.
835 Iris Lane
Clarksville, TN 37042

McDermott, Raymond A.
306 Melbourne Drive
Enterprise, AL 36330

Perkins, Scott M.
804 Tallstone Drive
Fayetteville, NC 28311

Pojtinger, David A.
2501 Galloway Drive
Manhattan, KS 66502

Ruediguell, John P.
B Co., OSB, CMR 2
Fort Rucker, AL 36362

Turman, Thomas S.
814-A Ringold Street
Wahiawa, HI 96857

Wertz, Michael E.
94-1450 Kulewa Loop
Apt. A
Waipahu, HI 96797

2d Lieutenants

Alley, David W.
B Co, 4/501st Avn, Box 28
APO AP 96208

Apgar, Brian P.
9801 Baymeadows Road
Apt. 160
Jacksonville, FL 32256

Eno, Paul A.
1817 Camilla Road
Killeen, TX 76542

Kubista, Todd A.
1001 Twin Creek Drive
No. 406
Killeen, TX 76543

Lange, Adam W.
P.O. Box 608
Lake George, NY 12845

Larson, Erik P.
7714 Boundry Avenue
Anchorage, AK 99504

Van Riper, Steven G.
251-F Pin Oak
Clarksville, TN 37040

Wehmeyer, Marc A.
3176 Rivanna Court
Woodbridge, VA 22192

MW4s

Wagner, Randy D.
5877 Trammell Road
Morrow, GA 30260

CW4s

Moran, Homer L.
P.O. Box 331093
Fort Lewis, WA 98433

Stone, James E.
3473 Brookfield Drive
Clarksville, TN 37043

CW3s

Blankenship, Steven W.
P.O. Box 13317
Fort Carson, CO 80913

Bolding, Randy L.
807 Pembrook Place
Clarksville, TN 37042

Brown, Clark W.Jr
6003-A Gannet Avenue
Ewa Beach, HI 96706

Flankey, Steven F.
401 Deepwood Trail
Clarksville, TN 37042

Grimes, Wayne
985 Cheekwood Trail
Clarksville, TN 37042

McWaters, Tony H.
538 7th Street
No. B
Fort Richardson, AK 99505

Proctor, Brian K.
2230 Komo Mai Drive
Pearl City, HI 96782

Statham, Stacy
20 North Oak Drive
Richmond Hill, GA 31324

CW2s

Linehan, James J.
2311 E. Union Hills Dr., No. 132
Phoenix, AZ 85024

WO1s

Kirkpatrick, Thomas C.
29 Prescott Street
Apt. 16
Concord, NH 03301

Soh, Princeton K
104 Francis Street
New Llano, LA 71461

Staff Sergeants

Christopher, Dean SSG
4230 599th Street, No. 6
Fort Wainwright, AK 99703

Morales, Jose A. SSG
P.O. Box 5104
Richmond, KY 40475

Randall, Anthony G. SSG
2317-A 13th Street
Fort Eustis, VA 23604

Specialists

Mumpower, Julie SPC
P.O. Box 2146
Clarksville, TN 37042

Privates

Lancia, Christopher PV2
E Co, 25th Avn Regt
Box 112
Fort Drum, NY 13602

DACs

Okagi, Robert M. Mr.
P.O. Box 33548
Fort Lewis, WA 98433

Tkach, Thomas M. Mr.
PSC 1, Box 5796
APO AA 34001

Civilian

Burbank, Susan R.
6179 Vine Forest Court
Falls Church, VA 22044

Coleman, Robert J.
14 Garden Street
Woburn, MA 01801

Howe, Jason A.
2123 Hawthorne Lane
Chesterton, IN 46304

Retired/Other

Burrow, Troy E. COL
P.O. Box 3721 CRS
Johnson City, TN 37602

Eichelberger, Charles B. LTG
P.O. Box 2569
Peachtree City, GA 30269

Jacobson, Duane M. CW4
12116 Chicamauga Trail
Huntsville, AL 35803

McGee, Bernard A. COL
120 Harborage Court
Clearwater, FL 34630

Torney, James V. CW4
4433 Woodson Rd., Suite 200
St. Louis, MO 63134

AIR ASSAULT CHAPTER FORT CAMPBELL, KY

CW3 Mark S. Alderson
CW2 Tracie E. Bostic
CPT Brad Grambo
SPC Phynoil Hardiman
CPT Chuck Harrison
WO1 Stuart G. Hartwell
1LT Arthur L. Holmes, III
PFC Michael J. Hosler
2LT David E. Jernigan
MW4 Joseph L. Jones
CW2 Anthony S. Kram
CDT Andrew M. Paterson
LTC Jimmy M. Rabon
CW2 William D. Rodgers
CW2 Doyle E. Smith, Jr.

ALOHA CHAPTER HONOLULU, HI

CW4 Bruce L. Barefoot
WO1 John A. Seeds
Mr. James E. Ware

ARMADILLO CHAPTER CONROE, TX

MAJ Edward F. Vengrouskie
2LT John H. Weidemeyer

AVIATION CENTER CHAPTER FORT RUCKER, AL

MAJ John E. Barron, Ret.
2LT Russell L. Blanchard
WO1 Cody L. Brown
Mr. Marvin D. Bryan
2LT Clarence L. Carroll, III
2LT Nicholas S. Catchings, II
WO1 Anthony M. Cianciolo
WO1 Brent S. Crook
SGT Michael W. Dobbs
2LT Christopher P. Downey
2LT Ladda T. Duckworth
CPT Donald G. Fallin
MAJ Daniel S Gressang III, Ret.
Mr. Dan H. Hale
Mr. Beverly M. Hall
CPT Joseph P. Henderson
2LT Joseph A. Hoecherl
2LT Tom T. Hull
CPT David A. Johnson
CW3 Juan R. Joy-Martin
CW2 Richard E. Koryciński
CSM John E. Lawrence
CPT Zachary E. Marrer
WO1 Patrick R. McSherry
2LT Joe H. Milec II
CPT Joseph G. Miller
WO1 David C. Millett
2LT David B. Moulder
2LT Williamm E. Pearson, Jr.
MW4 James Rafoid
2LT Stephen L. Rhoades
2LT Michael A. Richart
WO1 Inaldo Salgado
CPT James R. Schenck
WO1 Daniel W. Stoddard
2LT Jennifer K. Swift
SPC Patterson W. Taylor
SPC Cheryl K. Tolbert
2LT Bradley J.W. Wyatt
COL James Zarinczuk
1LT Esmeraldo E. Zarzabal

BLACK KNIGHTS CHAPTER WEST POINT, NY

CDT Jimmy D. Andrews
CDT Kerry S. Cecil
CDT Scott M. Fitzgerald
CDT Troy L. Lambeth
CDT Robert J. Lenz, Jr.
CDT Fernando D. Miguel
2LT Stephen C. Reich
2LT Brian C. Symonds
CDT Allen T. Thiessen

CEDAR RAPIDS CHAPTER CEDAR RAPIDS, IOWA

Mr. Forrest P. Reynolds, Jr.

CENTRAL AMERICAN CHAPTER FT. CLAYTON, PANAMA

LTC Jeffrey C. Bischoff
CW4 Randall C. Sullivan
WO1 Boern Whetstone

CENTRAL FLORIDA CHAPTER ORLANDO, FL

SGT William M. Carvill
SSG Sidney Essex
Mr. Warren E. Richeson

CHECKPOINT CHARLIE CHAPTER BERLIN, GERMANY

SPC Jacob A. Mong
Mr. Gunter Rossnagel
SSG Timothy P. Walsh

CHESAPEAKE BAY CHAPTER EDGEWOOD, MD

CPT Arthur B. Childers
Mr. David E. Douglas
MAJ Dave Seibert
CPT Allison Solomon
Ms. Cynthia Welch

CITADEL CHAPTER CHARLESTON, SC

CDT Felix J. Almaguer
CDT James F. Ryan III
CDT Stephen R. Slayton
CDT Arnold F. Stauffer
CDT Gesan J. Williams

COLONIAL VIRGINIA CHAPTER FORT EUSTIS, VA

CPT George D. Kunkel
Mr. Timothy P. McKee
SSG Wayne G. Raisner
MAJ Ward Stone

CONNECTICUT CHAPTER STRATFORD, CT

Mr. Gary J. Loftus
LTC John C. Wells

CORPUS CHRISTI CHAPTER CORPUS CHRISTI, TX

Mr. Ronald C. Matzick
Mr. Mark A. Velazquez
Mr. Larry S. Weathers

DELAWARE VALLEY CHAPTER PHILADELPHIA, PA

Mr. Marc McCorkle
Mr. John Trumbore

EDWIN A. LINK MEMORIAL CHAPTER BINGHAMTON NY AREA

Mr. John A. Force
Patrick M. St.Romain

GREATER ATLANTA CHAPTER ATLANTA, GA

LTC Steven M. Dial
Mr. Jerry P. Higman
LTC Robert C. Kleysteuber
Mr. Richard Koldewey
Mr. Sam A. Lyons

GREATER CHICAGO AREA CHAPTER CHICAGO, IL

Mr. James E. Hartnett
Mr. Thomas J. Nilles
Mr. Alan L. Schmidt

HIGH DESERT CHAPTER FORT IRWIN, CA

MSG Randy D. Porter
CW4 Mike Warlick

INDIANTOWN GAP CHAPTER INDIANTOWN GAP, PA

CPT Philip J. Deblasio, Jr

IRON MIKE CHAPTER FORT BRAGG, NC

CW2 James A. Bennett
SSG William H. Cole
CW2 Christopher G. Gunderson
CPT Timothy R. Lemons
CW2 Michael J. Nevada
CW2 Michael A. Weatherholtz
WO1 John D. Wellington
1LT Donald A. Whitmore

JACK H. DIBRELL/ALAMO FORT SAM HOUSTON, TX

MAJ Edward Monhollen, Jr. Ret.
MAJ Bobby D. Thomas

LEAVENWORTH CHAPTER FORT LEAVENWORTH, KS

LTC Robert E. Davis
LTC Michael C. Flowers

LINDBERGH CHAPTER ST. LOUIS, MO

Ms. Jean W. Cozart
COL Eugene J. Davis
Mr. John J. Griffiths
Mr. Barry G. McGlynn
CPT David W. Whipple

MacARTHUR CHAPTER NEW YORK/ LONG ISLAND AREA, NY

Mr. Jeffrey A. Harmon
CPT Chance E. McDonald, Ret.

MID-AMERICA CHAPTER FORT RILEY, KS

SPC Philip Carter
CW2 John S. Hedges

SSG Gordon Rivenburg
SPC Michael Scussella

MONMOUTH CHAPTER FORT MONMOUTH, NJ

Mr. James Mueller
SFC Donald R. Oglesby
CW2 James F. Zink

MORNING CALM CHAPTER SEOUL, KOREA

MAJ Stephen D. Combs
SSG Brian E. Mills

NARRAGANSETT BAY CHAPTER N. KINGSTOWN, RI

SFC Raymond F. Jones

NORTH TEXAS CHAPTER DALLAS/FORT WORTH

CPT Robert L. Acklen, Jr.
Mr. Eddie Castillo
Mr. Ronald R. Childs
Mr. Leo W. Davis
Mr. Kenneth J. DeSerrano
Mr. Marty Fiahive
Mr. John J. Hyatt
Mr. Joseph Lavery
Mr. Joe Ludwig
Mr. Gene Prater
Mr. James K. Rogers
Mr. Mark Sadel
Mr. John J. Shapley
Mr. Walter G. Sonneborn
CDR Robert H. Wehr, USCG-Ret.

OLD BILL CHAPTER FORT BLISS, TX

CW2 Douglas B. Dickens
CPT Russell L. Dunford
CW3 James W. Holderby
CW4 Franklin D. Moore
1SG Allan C. Mull
CW2 Michael K. Roberts

OLD TUCSON CHAPTER MARANA, AZ

SGT Stefan F. Schrader

PHANTOM CORPS CHAPTER FORT HOOD, TX

CPT David A. Acosta
2LT Robert T. Ault
CW2 William R. Beecher
MSG John F. Carew
CW3 Robert W. Carr
CPT Tracy A. Cleaver
CW3 James E. Coker
CW4 Garland M. Hines
CW2 Bradley R. Keough
CW2 Francis W. Lankist, Jr.
MAJ Axel Martinez
CW3 Charles H. Morris
CPT Mark A. Neal
CPT Bernard C. Reinwald, Jr
1LT Norman M. Wade
1LT Jason L. Walrath
CW4 Luis Zarrudio

PIKES PEAK CHAPTER FORT CARSON, CO

CDT James A. Orshood, II

RHINE VALLEY CHAPTER MANNHEIM, GERMANY

Mr. Clarence M. Barnes
Mr. Michael J. Callahan
CW3 William L. Huszar
1LT Michael L. Kubala
LTC Daniel G. Van Winkle, Ret.

SAVANNAH CHAPTER FT STEWART/HUNTER AAF, GA

MAJ Gerald A. Kincaid
SGT Brent D. Libby
CW2 Steven M. Lowell
SPC Sean M. Moyer
PV2 Edward D. Overmyer

SOUTHERN CALIFORNIA CHAPTER LOS ANGELES, CA

Mr. Donald E. Bair
Mr. Chuck Bulloch
Mr. Mike Conti
Ms. Susan Crockett
Mr. John W. Doak
Mr. Matt Donaldson
Mr. Wallace Fields
Mr. Bob Frampton
Mr. Jack Geerer
CPT Mitchell E. Green
Mr. Bill Hart
Mr. Harry Lebovitz
Mr. Y. C. Lo
Mr. Gerald Misurek
Ms. Heidi Nagy
Mr. Gary Olson
Ms. Elizabeth Orban
Mr. Paul W. Rumple
Mr. Donald P. Shutt
Mr. William F. Thompson

TALON CHAPTER ILLESHEIM, GERMANY

CW2 Dale T. Dew
CW2 Otto Gambrel, Jr.
MAJ Oleh J. Holowatyj
CPT Eric W. Kaempfer
CPT John C. Matthews

THUNDERHORSE CHAPTER FULDA, GERMANY

CW2 Richard W. Hanberg
CW3 Richard E. McGuffin
1LT David L. Simmons
CPL Robert C. Walker
1LT Kenneth M. Wilkinson

WASHINGTON D.C. CHAPTER WASHINGTON, DC

Ms. Cheryl Brammeyer
Mr. Pierson J. Holcombe
CDR Kenneth G. Jay
Mr. Joe McClelland
SSG William E. Ridlehoover
CW3 Thomas W. Sanders
Mr. Les Scott
SPC Craig M. Smith

WINGS OF THE MARNE CHAPTER ANSBACH, GERMANY

CW2 Ramon E. Ramoscruz

WINGS OF THE WARRIORS CHAPTER CAMP STANLEY, KOREA

CW3 Tom C. Adams
CW4 Thomas L. Adkins
CW2 Craig A. Bingham
CPT Patrick L. Casey, Jr.
CW2 Leon M. Francis, Jr.
SGT Daniel J. Gaddis
CPT Terry L. Griffith
2LT Wendy L. Hart
CW4 Leland J. Hendrix
CW2 Jeffery Herriott
SGT Sung K. Kang
SFC Billy W. King
SPC Shawn I. McLemore
SFC Michael W. Mitchell
MAJ Walter R. Moss
CW3 Tom O. Sandner
CW2 Mel J. Sorensen
SFC Roberto Unibe
CW2 Graham B. Vockroth
SSG Kenneth J. Wells
SGT Michael D. White
1LT Stephen W. Wilson
SFC Rudolph H. Zibelin

MEMBERS WITHOUT CHAPTER AFFILIATION

Mr. Craig S. Albee
CW3 William L. Barker
CW2 Thomas J. Bauer
2LT Steven R. Braddom
CPT Gretchen Brand
CW3 Gary W. Burdick
Mr. William J. Burns
Mr. Mark S. Busa
SFC George R. Carpenter
MSG Paul D. Castle
Mr. Gary M. Champlin
MAJ Donald G. Cummings
2LT Mark A. Eberle
MAJ Lester D. Eisner
Mr. Herb Faust
Mr. Jorge H. Galoffin, IV
MAJ Richard W. Girard
MAJ Jay Greeley
Mr. Jeffrey C. Groat
1LT Tammy L. Gross
Mr. James E. Hacunda
CDT Michael L. Haggard
Mr. Mark A. Hall
CW4 Charles S. Hamilton III
Mr. George D. Hedges
Mr. Richard Heusser
WO1 Steve E. Hood
MAJ Philip A. Isley
Mr. Jim Kelly
CPT Jerry A. Kidrick
CW4 Bryan King
Mr. Danny O. Larson
Mr. Jean Pierre Le Cozannet
Mr. Mike Lee
CPT Milt M. Lutton
MAJ Daniel B. Mack
Mr. Herve Moray
WO1 Edwin R. Morris
Mr. Herschell F. Murry
Mr. Steve W. Nunnelee
CDT Tom C. Paudler
Mr. Dwight P. Payne
LTC Mark V. Rhett
CPT Rodney S. Robinson
Mr. Geof Rodman
COL John C. Rowland
Mr. Michael Schmid
Mr. Richard G. Snyder
CPT Karl V. Stahlecker
CPT Barry L. Stuckey
MAJ Virgil J. Vigil
BG Harry D. Walker, Ret.
Mr. Matt Weigel
Mr. Gary D. Wise
Ms. Dawn M. Wozniak
Mr. Thomas Zogorski

NEB MINUTES

AAAA's National Executive Board (NEB) conducted its Spring meeting during the AAAA Annual Convention in Ft. Worth, TX, 31 March-4 April 1993. Major actions included:

PROVISION OF NEW CASES FOR AWARD TROPHIES. MG Drenz referred the NEB to the Agenda and asked MG Beatty to brief the NEB. MG Beatty reported that new cases for the award trophies were needed and that the Museum had received an estimate of $6,000 to $7,000 to produce the cases. A motion was approved to authorize the expenditure of up to $7,000 to purchase new cases for the AAAA awards at the U.S. Army Aviation Museum in Fort Rucker.

ESTABLISHMENT OF AAAA AVIONICS AWARD. MG Drenz referred the NEB to the Agenda and briefed the NEB that the proposal to establish an AAAA Avionics Award had been submitted to the AAAA Awards Committee for consideration and that the AAAA Awards Committee recommended the establishment of the award. A motion was approved to establish an AAAA Avionics Award as outlined in the Agenda.

ESTABLISHMENT OF AAAA POLICY ON STANDARDS OF CONDUCT. MG Drenz referred the NEB to the Agenda and briefed the NEB that he had tasked COL Marr to draft a policy on Standards of Conduct. A motion was approved to establish the policy as outlined in the Agenda.

NEW CATEGORY — ESTABLISHMENT OF TRAVEL POLICY. MG Drenz referred the NEB to the Agenda and recommended that the travel policy as outlined in the Agenda be approved. Discussion centered specifically on the limitations imposed for trips to USAREUR and Korea as well as the apparent lack of specific trips to CONUS Chapters. There was a general consensus supporting the need for a national presence at both CONUS and OCONUS chapter meetings and activities. A motion was approved to accept the travel policy and to task the Executive Group to develop a travel budget for approval at the next NEB meeting.

STRATEGIC PLANNING: ESTABLISHMENT OF COMMITTEE CHARTER. MG Drenz referred the NEB to the Agenda and briefed the NEB that at the last NEB meeting, the NEB approved the establishment of a Strategic Planning Committee as an AAAA standing committee. A motion was approved to accept the memos from MG Drenz and MG McNair outlined in the Agenda as the guidance for the Strategic Planning Committee.

NEW CATEGORY — AAAA BANQUET GUEST INVITATION POLICY. LTC Ralph Shaw and COL John J. Stanko, Ret., Co-Chairman of the Reserve Component Affairs Committee, requested a review of AAAA's Banquet Guest Invitation Policy, which currently was limited to active duty AAAA members. LTC Shaw and COL Stanko recommended that the current policy be amended to include all components, Active Duty, Army National Guard, and U.S. Army Reserve, on a first-come, first-served basis. A motion was approved to amend the AAAA's Banquet Guest Invitation Policy, which would allow for invitations to be extended to Active Duty, Army National Guard, and U.S. Army Reserve AAAA members.

AAAA AEC Symposium Set

The Eleventh Annual Aviation Electronic Combat (AEC) Symposium will be held in Melbourne, FL, 2-3 November 1993. Hosted by Grumman Melbourne Systems, this year's theme is "AEC—Combat Multiplier for Tomorrow's Battlefield Today".

The 1993 Symposium is open to all interested AAAA members who possess a minimum SECRET level clearance. Contact the AAAA National Office at (203) 226-8184 for Registration and Housing forms.

Avionics Award Announced

Sponsored by the Army Aviation Association of America, Inc., this new National Award will be presented at the 1993 AEC Symposium "to the person who has made an outstanding individual contribution to Army Aviation in the area of Avionics during the awards period encompassing August 1, 1992 through July 31, 1993."

Eligibility: A candidate for this AAAA National Award may be a military or civilian nominee and must be actively involved in the field of Avionics. Membership in the AAAA is not a requirement for consideration. The individual contribution of the nominee should have been initiated and completed during the awards period encompassing August 1, 1992 through July 31, 1993.

Suspense Date: The nomination(s) should be mailed so as to arrive at the AAAA National Office at 49 Richmondville Ave., Westport, CT 06880-2000 not later than **September 1, 1993**.

1993 Aircraft Survivability Equipment (ASE) Award Call for Nominations

Sponsored by Loral Electronics Systems, the AAAA ASE Award will be presented at the 1993 AEC Symposium to "the person who has made an outstanding individual contribution to Army Aviation in the area of Aircraft Survivability Equipment during the awards period encompassing the previous period encompassing August 1, 1992 through July 31, 1993."

Eligibility: A candidate for this award may be military or civilian and must be actively involved in the field of Aircraft Survivability Equipment. Membership in the AAAA is not a requirement for consideration.

Suspense Date: All nominations must be made on the official ASE Awards Nominations Form, obtainable from the AAAA National Office by **September 1, 1993**.

New AAAA Chapter Officers

Citadel:
CDT Timothy J. Swanner (Pres); CDT Daniel Prieto (Secy); CDT Henry E. Delacruz (Treas); CDT Harold L. Moxley (VP, Memb. Enroll); CDT Christopher O'Connor (VP, Memb. Renew); CDT Oscar K. Diano (VP, Prog); CDT Sulev Suvari (VP, Pub. Aff); CDT Jason S. Pausman (VP, Activity).

Connecticut:
LTC Thomas N. Bordner (VP, ARNG).

Greater Chicago:
CW4 Douglas W. Cunzeman (VP Programs).

Iron Mike:
LTC David D. Morris (VP, Membership).

Monterey Bay:
1LT Richard A. Chism (Treasurer).

Phantom Corps:
MAJ John J. Gniadek (Secretary).

New AAAA Sustaining Member

Burdeshaw Associates, Ltd.
Bethesda, MD

Aviation Soldiers of the Month

A Chapter Program to Recognize Outstanding Aviation Soldiers on a Monthly Basis

Air Assault Chapter:
PFC James E.G. Burke
(January 1993)
SPC Phynoil Hardiman
(March 1993)
PFC Michael J. Hosler
(April 1993)
SPC Kristen L. Kerns
(May 1993)

Soldiers of the Month (cont.)

America's First Coast:
SGT William P. Pflueger
(November 1992)
SGT Paul B. Stinson
(December 1992)
SSG Claude W. Franklin
(January 1993)
SSG Sidney Essex
(February 1993)
SSG Edward M. Kee
(March 1993)
SGT William M. Carvill
(April 1993)

Colonial Virginia Chapter:
SPC John H. Selby, Jr.
(January 1993)
PVT Kelly S. Ray
(February 1993)

Mid-America Chapter:
SPC James R. Sewell
(December 1992)
SPC Michael Marshall
(January 1993)
SSG Gordon Riverburg
(February 1993)
SPC Michael Scusselle
(March 1993)
SPC Phillip Carter
(April 1993)

Rochester Chapter:
SGT Joseph D. Wasson
(February 1993)

Wings of the Warriors:
PFC Hwan Sik K. Shim
(January 1993)
CPL Wyatt W. Welch
(February 1993)
SGT Donald W. Squires
(March 1993)
SPC Shawn I. McLemore
(April 1993)
SGT Sung K. Kang
(May 1993)

AAAA Soldier of the Quarter

SGT Stefan F. Schrader
Old Tucson Chapter
2d Qtr, FY93

AAAA President MG Benjamin L. Harrison, Ret., and AAAA Executive Director Terry Coakley recently traveled to Germany for the AAAA USAREUR Professional Sessions and AAAA USAREUR Ball, 16-17 April 1993. Above, left to right: MG Walter H. Yates, Jr., Commanding General, Berlin Brigade, Mrs. Harrison, Terry Coakley, Mrs. Yates, and MG Harrison pose for a photo during a visit to the Yates' quarters.

AAAA Executive Director Terry Coakley (left) discusses international chapter and USAREUR regional relations with MAJ Lowell J. Berry, President, Checkpoint Charlie Chapter, Berlin outside the Berlin Brigade's U.S. Army Aviation Detachment building during the above-mentioned trip.

Above: During ceremonies at the Aloha Chapter's 16 April 1993 Aviation Ball in Hawaii, several individuals were recognized for their contributions to Army Aviation. For distinguished service, the Order of St. Michael Bronze Award was presented to (left to right) LTC James A. Page, CW5 Paul R. Wilson, CW3 Howard H. Fancher, CSM Johann Ciboth, and CSM Trino Garcia.

Below: Another recipient of the Bronze Award was BG John C. ("Doc") Bahnsen, Jr., Ret. (center). Presenting the award to the legendary combat aviator is COL Justin G. Ballou III, Aviation Brigade Commander, 25th Infantry Division (L) and Aloha Chapter President (left), and MG Robert L. Ord III (right), Commanding General, 25th ID(L) and U.S. Army, Hawaii.

AAAA Chapter Soldiers of the Year

SGT Joel S. Panasiewicz
Rochester Chapter
1992

SPC Brian Davis
Talon Chapter
1992

AAAA Chapter NCO of the Year

SSG Robert R. Schick
Talon Chapter
1992

AAAA Chapter Aviator of the Year

CW3 Robert S. Wold
Rochester Chapter
1992

Honorary Members

The following persons have been selected by their Chapters as Honorary Members. Each will receive a complimentary one year membership, citation in these pages, and a "Certificate of Honorary Membership."

MG Michael S. Hall
Rochester Chapter

MG Joe W. Rigby
Tennessee Valley Chapter

BG Thomas A. Schwartz
Wings of the Warriors

Aces

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

CPT Robert S. Ballew
MAJ James B. Blunk, Jr.
MAJ Jim D. Bodenheimer
CW2 James P. Kennedy

COL Harry L. Bush, Ret.

COL Harry Leonard Bush, Ret., a Charter Member of AAAA, died 17 January at Georgetown University Hospital after a stroke. He was 74 years of age.

COL Bush was a graduate of Auburn University in his native Alabama and received a master's degree in aeronautical engineering at Princeton University. He spent 35 years in the Army before retiring in 1976.

A field artillery officer, COL Bush served in Europe during World War II and in Korea during the conflict there. He spent much of his career in Army Aviation and research and development, and was stationed in St. Louis, MO when he retired.

COL Bush's decorations included two Legions of Merit, three Air Medals, the Bronze Star, the Purple Heart, the Distinguished Flying Cross, and the Army Commendation Medal. He also wore the Master Army Aviator Badge.

Survivors include his wife, the former Mary Olive Strozier, of Washington and Hobe Sound, FL; two sons, Dr. Harry Bush, Jr. of Hastings-on-the-Hudson, NY; and William Owen Walton Bush of Cookeville, TN; and five grandsons.

Services were held at the Main Chapel at Ft. Myer. COL Bush was laid to rest in Arlington Cemetery on 25 January.

Above: During the Aloha Chapter's Aviation Ball, Chapter Awards were presented. COL Justin G. Ballou III (left), Chapter President, presents a plaque to the Aloha Chapter's James H. McClellan Aviation Safety Award winner CW4 Richard G. Amodt (right).

Below: COL Ballou (left) presents the Aloha Chapter Aviator of the Year Award to CW3 Samuel E. O'Neal, Jr. (right). Also receiving honors were SGT Charles W. Herron, the Aloha Chapter Army Aviation Soldier of the Year awardee, and the 5th Squadron, 9th U.S. Cavalry Regiment, commanded by LTC Michael Juneau, the Aloha Chapter Army Aviation Unit of the Year.

Above: While on a visit to The Citadel in Charleston, SC, MG John D. Robinson (left), Branch Chief and Commanding General, U.S. Army Aviation Center and Ft. Rucker, AL, presents CDT John W. Jones with the Citadel Chapter's Aviation Soldier of the Year Award.

Below: MG Robinson (center) poses with the new Chapter Officers of the Citadel Chapter. They are, from left to right: CDT Daniel Prieto, Secretary; CDT Jason Pausman, VP, Activities; CDT Oscar Diano, VP, Programming; CDT Timothy J. Swanner, President; CDT Harold Landon Moxley, VP, Membership Enrollment; and CDT Sulev Suvari, VP, Public Relations.

CW4 Byrd R. Dews

CW4 Byrd R. Dews, a member of AAAA since 1967, passed away on 30 January 1993. Interment was in the Ft. Bragg Post Cemetery, Fayetteville, NC.

CW4 Dews is survived by his wife.

COL Gerald W. Kirklighter, Ret.

COL Gerald W. Kirklighter, Ret., 61, passed away 28 October 1992 from a heart attack. He had been a member of AAAA for 30 years.

Sent to Korea as a field artillery officer, COL Kirklighter became an aviator in 1957, and was rated for both rotary and fixed wing aircraft. He served two tours in Vietnam, and his decorations included the Silver Star, the Bronze Star with V Device and three oak leaf clusters, the Legion of Merit with cluster and the Distinguished Flying Cross with two clusters.

COL Kirklighter was also a retired employee of Westinghouse.

COL Kirklighter is survived by his wife, the former Veronica Ryan; four sons, MAJ Fritz Kirklighter of Stafford, VA, CPT Jeff Kirklighter of Lexington, KY, CPT Matthew Kirklighter of Tampa, FL, and CPT Scott Kirklighter; a brother, James Kirklighter, of Gulf Breeze, FL; two sisters, Grace Iarrobino of San Diego and Janice Nelson of Lake Bluff, IL; and four grandchildren.

NOMINATIONS OPEN

Army Aviation Trainer of the Year

Sponsored by the CAE-Link Corporation, Link Flight Simulation Division, this AAAA National Award will be presented "to the trainer who has made an outstanding individual contribution to Army Aviation during the awards period encompassing CY 93."

Eligibility: A candidate for this AAAA National Award may be a military or civilian nominee and must be actively involved in Army Aviation training. Membership in the AAAA is not a requirement for consideration. The individual contribution of the nominee should have been initiated and completed during the awards period encompassing September 1, 1992 through August 31, 1993.

Suspense Date: The nomination(s) should be mailed so as to arrive at the AAAA National Office at 49 Richmondville Avenue, Westport, CT 06880-2000 not later than September 30, 1993.

Army Aviation Air/Sea Rescue Award

Sponsored by Lucas Aerospace, this AAAA National Award will be presented "to the crew or crew member who have performed a rescue using a personnel rescue hoist that saved the life or eased the suffering of an individual or individuals during the awards period encompassing October 1, 1992 through September 30, 1993."

Eligibility: A candidate must be in the U.S. Army, Active or Reserve Components, and must have had an active role in an air rescue effort using a personnel rescue hoist. Membership in the AAAA is not a requirement for consideration. The contribution of the nominee should have been initiated and completed during the awards period encompassing September 1, 1992 through August 31, 1993.

Suspense Date: The nomination(s) should be mailed so as to arrive at the AAAA National Office at 49 Richmondville Avenue, Westport, CT 06880-2000 not later than September 30, 1993.

AAAA CALENDAR

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

June, 1993

June 29. Lindbergh Chapter Professional-Business Meeting. Guest Speaker: MG John S. Cowings, Commander, ATCOM.

June 30. Aloha Chapter General Membership Meeting and Election of new officers.

July, 1993

July 16. AAAA Scholarship Board of Governors Executive Committee Meeting. Best Western Hotel, Arlington, VA.

July 17. AAAA National Scholarship Selection Committee Meeting to select CY92 scholarship recipients. Best Western Hotel, Arlington, VA.

October, 1993

Oct. 18. AAAA National Executive Board Meeting, Shera-ton Hotel, Washington, D.C.

Oct. 18. AAAA Scholarship Board of Governors Executive Committee Meeting, Sheraton Washington Hotel, Washington, D.C.

November, 1993

Nov. 2-3. 11th AAAA Aviation Electronic Combat Symposium, hosted by Grumman Melbourne Systems, Melbourne, FL.

Nov. 2. AAAA ASE and Avionics Award Presentations, Melbourne, FL.

December, 1993

Dec. 1. AAAA National Executive Board Meeting, Ft. Rucker, AL.

February, 1994

Feb. 2-4. 20th Annual Joseph P. Cribbins Product Support Symposium, Stouffer Concourse Hotel, St. Louis, MO.

Feb. 3. AAAA Outstanding Aviation Logistics Support Unit of the Year Award Presentation and AAAA Industry Award Presentations, Stouffer Concourse Hotel, St. Louis, MO.

April, 1994

Apr. 20-24. AAAA Annual Convention, Cervantes Convention Center, St. Louis, MO.

AN/ARC-217

HIGH HF STANDARDS FOR DEEP-STRIKE MISSIONS.

Now deep-strike missions by U.S. Army helicopters will benefit from new standards in HF radio performance.

These standards – ECCM/ALE capability – are available off-the-shelf today in the Collins AN/ARC-217 (V) High Frequency communications system. The ARC-217 is a derivative of the HF-9000 System, of which more than 1,000 systems are flying to date in applications worldwide.

Designed for reliable interoperable communications in hostile ECM environments, the ARC-217 sets new standards in mission reliability and mean time between failure.

Fiber-optic interconnects make the unit less susceptible to the effects of electromagnetic interference. The radio's embedded MIL-STD-188-148 Tri-Service compatible ECCM capability foils close-range ECM.

MIL-STD-188-141A Automatic Link Establishment (ALE) is also embedded in the ARC-217. This capability, integrated with either an effective and simple control or MIL-STD-1553B bus interface, allows the pilot to concentrate on his critical mission objectives instead of controlling the radio.

And the ARC-217 maintains the ability to communicate with fielded high-frequency communications systems deployed by other services, including the IHFR equipment utilized by ground troops.

The ARC-217 – nothing less than the new standard for a new generation of HF communications.

For more information, contact: Collins Avionics and Communications Division, Rockwell International, 350 Collins Road NE, Cedar Rapids, Iowa 52498. (319) 395-1600. Telex 464-435.

Rockwell International

...where science gets down to business

Starstreak on Apache: Air-to-Air Superiority!

Attack capabilities of the Apache helicopter are greatly enhanced with the deadly, high-velocity Starstreak air-to-air missile.

McDonnell Douglas Helicopter Company, Martin Marietta Electronic Systems and Shorts are working together to integrate Starstreak into the Apache weapons platform.

Starstreak's exceptionally short pre-launch sequence and time of flight mean survivability! An accurate and lethal 3-warhead punch means effectiveness!

In addition, the multi-purpose Starstreak is used as a shoulder-launched and vehicular-mounted ground-to-air system. Flexibility means lower costs!

For more information, contact Short Brothers (USA), Inc., 2011 Crystal Drive, Suite 713, Arlington, VA 22202-3719. Or call us at (703) 769-8700.

BOMBARDIER SHORTS