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**SPECIAL REPORT: THE
AH-64A APACHE IN THE FIELD**

ARMY AVIATION

ENDORSED PUBLICATION OF THE ARMY AVIATION ASSOCIATION OF AMERICA • DECEMBER 31, 1989



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U.S. SOCOM: Special Operations and Aviation

While on patrol in the Persian Gulf on the night of 21 September, 1987, one MH-6 and two AH-6 "Little Bird" special operations helicopters belonging to the Army component of U.S. Special Operations Command, fired on the Iranian landing craft "Iran Ajr", surprising it in the act of laying mines.

These special operations pilots of Task Force 160, supporting Joint Task Force Middle East, used well-honed night flying skills and, with the assistance of Navy SEALs, provided the proof the U.S. needed of Iranian mining of the gulf.

Their successful mission, which came just five months after the United States Special Operations Command (USSOCOM) was created, affirmed the importance of special operations forces working with conventional forces to exert United States national will in serious challenges short of general war.

Aviation: A Critical Asset

From the beginning of USSOCOM, aviation units like the 160th have been a critical asset to both special operations and conventional forces. In fact, a driving factor behind our establishment was the shortfall in the aviation field of infiltration/exfiltration platforms. With recent improvements to our helicopter fleet, we are doing quite well, except in long-range capability. Currently, and for the foreseeable future, special operations aviation support to the unified commands will come from a hybrid fleet of Air Force and Army helicopters, supported by an HC-130 tanker fleet to extend operational capabilities through air-to-air refueling.

The special operations aviation fleet, (which also includes the fixed-wing assets of the 23rd

GEN Lindsay is Commander-in-Chief, U.S. Special Operations Command, MacDill AFB, Florida.

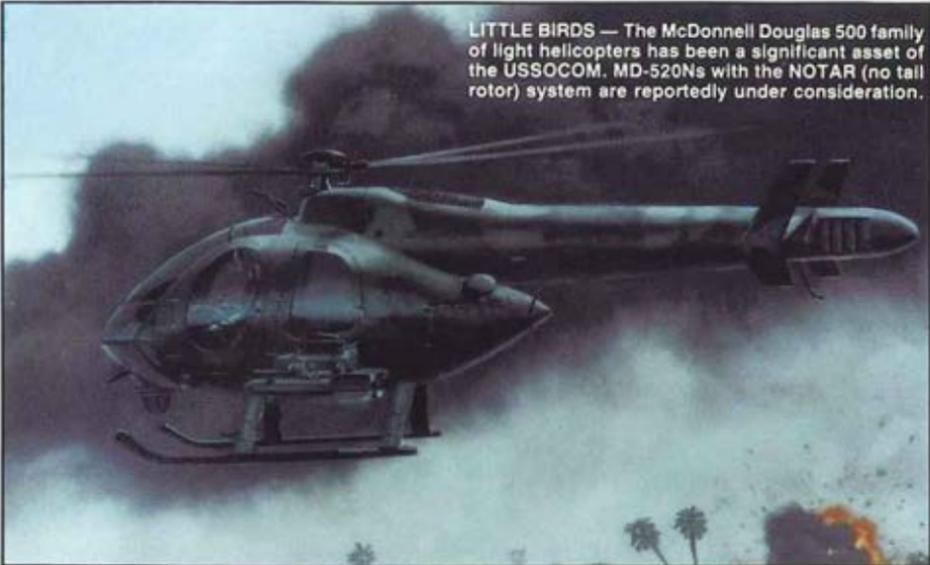
Air Force), is an integral part of USSOCOM, a command of approximately 37,000 active, Reserve and National Guard personnel. In addition to aviation, all U.S.-based special operations forces of the Army, Navy, and Air Force, as well as Psychological Operations and Civil Affairs forces of the Army and Air Force, are assigned to the command.

The Service Components

USSOCOM's service components include:

- The U.S. Army Special Operations Command (USASOC), headquartered at Fort Bragg, NC. The Army's newest major command oversees active and reserve Special Forces, Ranger, Psychological Operations and Civil Affairs units, and aviation. The aviation assets of USASOC have evolved from Task Force 160 of the early 1980s into the 160th Special Operations Aviation Regiment (Provisional) which will include three active battalions and one reserve unit, the 1st Battalion, 245th Aviation (Special Operations) (Airborne) of the Oklahoma National Guard. The mixture of MH-6, AH-6 gunships, UH-60A BLACK HAWK and CH-47 CHINOOK helicopters supports the increased requirements for special operations aviation worldwide.
- The 23rd Air Force, with headquarters at Hurlburt Field, FL. This component is responsible for three operational wings made up of AC-130 SPECTRE gunships, MC-130 COMBAT TALONS, MH-53 PAVE LOW and MH-60 PAVE HAWK helicopters, support aircraft, and combat control teams.
- The Naval Special Warfare Command in Coronado, CA. The commander, Naval Special Warfare Command, directs Navy SEALs and special boat units on both coasts.

These Special Operations Forces (SOF), along with the aviation units mentioned, have unique



LITTLE BIRDS — The McDonnell Douglas 500 family of light helicopters has been a significant asset of the USSOCOM. MD-520Ns with the NOTAR (no tail rotor) system are reportedly under consideration.

capabilities across the spectrum of conflict. They have a special utility in what is now termed Low Intensity Conflict (LIC). Perhaps better labeled *high probability conflict*, USSOCOM forces train on a daily basis to operate in this very complex and challenging environment.

Most SOF are well-suited to indirect application of military power. Many are oriented to specific regions and cultures, have the requisite language skills, are sensitive to political environments, and have a low visibility. Primarily through the indirect measures of foreign internal defense, our forces can contribute to the prevention or improvement of conditions that spawn subversion, terrorism and insurgency in the Third World. SOF can play a supporting role in addressing these major national issues.

Within the LIC arena, one of the most serious problems facing the nation today is illegal narcotics trafficking. The fiscal year 1989 Defense Authorization Act assigned to the Department of Defense the mission of detecting and monitoring aerial and maritime transit of illegal drugs in the United States.

As a supporting command, we are assisting the regional CINCs in combating drug traffic. For example, our forces are sent worldwide as mobile training teams to advise, train and assist host

nation forces. Because combating the narcotics trade at the source has similarities to countering insurgencies, Special Forces and SEALs are uniquely well-prepared to train host nation forces in special reconnaissance and direct-action operations against drug production, storage and transportation facilities.

Though limited in this area, our SOF aviation assets can provide unique capabilities when called for because of their ability to operate at night and refuel in flight.

Although establishing a command role in the national counter-narcotics strategy is one of our top priorities for Fiscal Year 1990, component forces must also be prepared to plan and conduct special operations either in support of regional CINCs, or unilaterally when so directed by the President or Secretary of Defense to prevent, deter, or respond to any situation in support of U.S. national strategy.

Our ability to deploy forces around the world, along with providing a permanent joint command and control structure was central to the demand of Congress that we revitalize Special Operations Force assets. Getting there and back has always been one of our greatest challenges.

To carry out this charter, USSOCOM was given
(USSOCOM — continued on page 72)



LHX Status Report

by Major General Rudolph Ostovich, III

The Light Helicopter (LHX) is intended to replace the Army's current light helicopter fleet which consists of aging AH-1s and OH-58s in the Cavalry Units and in the Light Division Attack Battalions. The primary missions for the aircraft will be Armed Reconnaissance and Attack with an inherent Air Combat capability. The LHX will be teamed with the AH-64 in the Heavy Division Attack Battalions to perform the missions currently assigned to OH-58 aircraft. The Organizational plan for the LHX is for 25 aircraft to be assigned to the Light Division Attack Battalions, eight to an Air Cavalry Troop, and 10 in the Heavy Division Attack Battalions, which will also be equipped with 15 AH-64s. The LHX will also be assigned to the Target Acquisition and Reconnaissance units at Division and at Corps to perform the Aerial Fire Support Observer (AFSO) mission. Special Operations Forces may receive the aircraft in limited numbers.

The U.S. Army Aviation Center is adhering to the requirement that the weapon system have an empty weight of 3402 kgs (7500 lbs) and a fly-away cost of \$75 million (FY88). The total buy will be 2096 aircraft with the total program cost of approximately \$35 billion (FY89). Almost 60% of the \$7.5 Million fly-away cost is to pay for the Mission Equipment Package (MEP). The MEP is essential to LHX effectiveness and includes:

- Electro-optical Target Acquisition and Integration System.
- Night Vision Pilotage System.
- Wide Field-of-View Helmet-mounted displays.
- Navigation Systems (Digital Map, Global Positioning System, Inertial Navigation).
- Electronic Warfare equipment.

- Communication and Identification Friend or Foe (IFF) equipment.
- Weapons control system.
- Automatic Fault Detection/Isolation System.
- Advanced Cockpit controls and displays.

The LHX design includes 10 weapon stations. Six of the positions will be internal to the airframe to reduce drag and radar signature. These internal and external stations will be multi-purpose weapon launchers and will have a capacity of either one HELLFIRE, two STINGERS, or four Hydra-70 rockets. The external stores system will only be mounted on the aircraft when deemed necessary to accomplish the mission. The aircraft will also have a turreted cannon mounted under the nose. Studies are ongoing to determine the gun system that will fulfill both the air-to-ground and the air-to-air requirements.

A typical attack mission load for a Middle Eastern scenario against an armored threat would include six HELLFIRES, two STINGERS plus gun ammo and would result in an LHX mission gross weight of about 11,000 lbs. The aircraft would also have sufficient fuel for the mission duration of 1.8 hours. The typical reconnaissance mission useful load in the same environment would include two HELLFIRES, two STINGERS, eight Hydra-70 Rockets gun ammo, and 2.3 hours of fuel. A notable unique aspect of the weapon system is the flexibility provided by the multi-purpose weapons rails. Our aircrews and commanders will be able to tailor their weapons layout to meet the mission needs and the threat without carrying additional weapons racks.

The Army's aircraft maintenance program concept is being revamped and reflects a two-level maintenance structure for the LHX. The two maintenance levels will be unit level (AVUM) and (LHX Status — continued on page 62)

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



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MIL-STD-188-141A Automatic Link Establishment (ALE) is also embedded in the HF-9000. This capability, integrated with either an effective and simple control or MIL-STD-1553B bus inter-

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APACHE: 'Rise to the Challenge'

As 1989 draws to a close and the Army Aviation community prepares to enter the decade of the '90's, one phrase comes to mind: 'Rise to the Challenge'. This phrase is particularly pertinent to the future of the APACHE.

Two days after I succeeded MG Stephenson as the AVSCOM Commander, the 500th APACHE was accepted by the Army. That event was significant for me, because for five and one-half years I managed the APACHE's predecessor — the COBRA.

As we reflect on that milestone and look to the eventual fleet of 807 APACHES, we need to prepare for the challenges facing the community and resolve to continue refining the world's premier attack helicopter. That refinement requires an unparalleled commitment to Total Quality Management, because it is quality that produces safe, reliable and capable APACHES.

Solutions

Since that first production 'APACHE' was delivered at Fort Rucker in January of 1985, the Aviation Community has been supporting and sustaining APACHES. We have, however, had some problems that have affected operational readiness, but the APACHE Action Team has come together to produce solutions to those problems.



by MG Donald R. Williamson, Commander, U.S. Army Aviation Systems Command, St. Louis, Mo.

Inherent in those solutions, from my perspective as the AVSCOM Commander, is the need to 'push the technology'

and stay on the 'leading edge' of the refinements that are needed in the face of future challenges.

Our Vice Chief of Staff, General Robert W. RisCassi, has noted that the 'APACHE's warfighting potential exceeds our expectations.' Echoing the Vice Chief's praise, I would like to add that AVSCOM, the Program Executive Officer and the Program Manager need to continue being 'proactive' as we face changing conditions in the decade ahead. We need to emphasize the prevention of deficiencies, while assuring that our on-going test and evaluation efforts are focused on guaranteeing that the APACHE's warfighting capability remains as strong as possible.

The APACHE's Role

Likewise, the Army Aviation Community needs to anticipate changes in user profiles and APACHE missions, while being poised and ready to adapt instantly to those changes.

The APACHE's unique role, supporting NATO's anti-armor mission, demands that nothing short of the best be devoted to keeping every APACHE ready to navigate, find targets and launch weapons at any time and in any weather.

That role continues to evolve as we stand on the threshold of the 'LONGBOW APACHE.' The improvements in that system, greater weapons accuracy at longer ranges, will challenge the community's management and administrative abilities. But, we have risen to the challenge in the past, and, with history as our guide, we will rise to this challenge as well. ■■■■

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APACHE: The PEO Perspective

The Packard Commission, in 1986-1987, was established to look closely at the way the Defense Department does business. The Commission provided specific recommendations which led to the DoD Reorganization Act that directed immediate streamlining and overhaul of the entire complex acquisition process.

The most significant finding was there were too many layers of management between the PM and the highest acquisition official. The major aviation PMs now have only one layer of management to be accountable to before reporting to the Army Acquisition Executive (AAE) versus the previous alignment where they had to report to AVSCOM, AMC, the DA staff, and finally to the Under Secretary of the Army. As a result, the Program Executive Officer management system was established in which the PEO Aviation reports directly to the Army Acquisition Executive along with fifteen other Army PEO's and the LHX PM.

Within the Aviation PEO are the Program/Project Management Offices for APACHE, BLACK HAWK, AHIP, CHINOOK, Special Operations Aircraft, Aviation Life Support Equipment, TADS/PNVS, and Aircraft Survivability Equipment. The PEO Aviation budget is around \$2.5B/year in procurement and approximately \$260M/year in RDT&E. There has been one major reorganization of the Aviation PEO structure since its establishment in August 1987.

Initially, two Aviation PEOs were established, PEO Combat Aviation and PEO Combat

Support Aviation. Systems were divided between the two PEOs more or less along mission lines. In November 1988, the PEO structure was further streamlined down to one PEO Aviation. Those systems that were mature, fielded systems reverted to the management of the Aviation Systems Command. The PMs manage their programs with oversight direction and control from the PEO and functional support from AVSCOM and the other major subordinate commands of the Army Materiel Command. AVSCOM provides engineering, procurement, legal, logistics, and personnel support to the PEO and PMs.

Alive and Well

The PEO system is alive and well. The PEO Aviation concept of management of the PMs has been to allow them maximum flexibility in running their projects. The PEO provides higher level decision making, advice and counsel, technical transfusion from one project to the other, and all important funding cross leveling between projects.

The APACHE remains one of our most important programs in PEO Aviation. It is a multifaceted program which has been reviewed extensively over the last year. An Army Systems Acquisition Review Council was successfully conducted in July which approved the initiation of the integration of LONGBOW (previously Airborne Adverse Weather Weapon System) onto the AH-64. The LONGBOW/APACHE will field a tremendous improvement in the APACHE's heavy force war-fighting effectiveness on today's and tomorrow's battlefield. The PM is developing the world's best attack helicopter into a machine capable of defeating the future heavy armor threat under nearly all weather conditions. ■■■■



by Gary L. Smith, Acting Program Executive Officer, PEO Aviation, St. Louis, MO.



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L T V : L O O K I N G A H E A D



APACHE: Program Manager's Update

The fielded AH-64A APACHE, the best attack helicopter in the world, began development in 1972. Over 500 APACHES have been accepted by the Government with a procurement objective of 807 aircraft. The requirements were based on Vietnam battle experiences, developmental lessons learned from the CHEYENNE program, and a continuing analysis of the threat.

Production began in 1982. The first aircraft was accepted by the Government in 1984, and in July 1986 the first battalion became operational. Now 14 battalions are deployed: four in USAREUR, nine active in CONUS, and one in the South Carolina Army National Guard. Presently, five battalions are in training. In 1990, we expect to graduate six more battalions bringing the fielded total to 20, which is half of the goal of 40 battalions.

Beneficial Efforts

The efforts to accelerate APACHE production in the early 1980s have proven to be highly beneficial. The average flyaway cost has decreased since 1982, the fielding of the APACHE is helping sway the conventional forces balance of power

in our favor, and the APACHE provides NATO a high value trump in the Conventional Forces Europe talks. The APACHE earned its spurs in the eyes of the U.S. and allied generals during 1987 REFORGER. The two battalions that deployed by boat to Holland



by COL Curtis J. Herrick, Program Manager, APACHE, Program Executive Office, Aviation, St. Louis, MO.

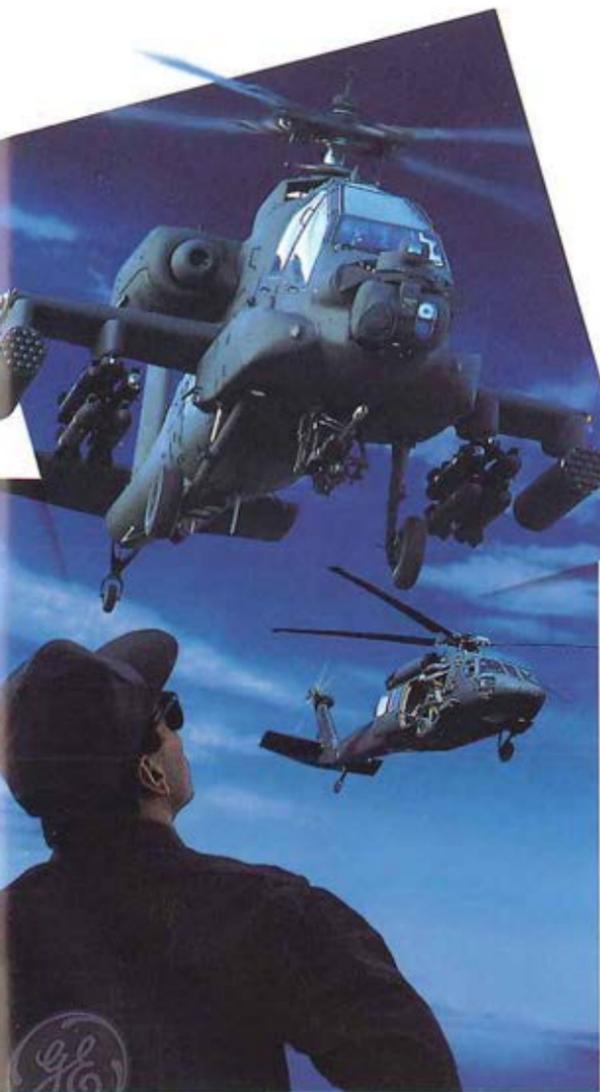
flew challenging deep night attack missions that convinced all involved that the APACHE was a terrific addition to the battlefield.

The opportunity to view the Russian MI-28 HAVOC at the 1989 Paris Air Show further supported the view that the APACHE is the predominate attack helicopter in the world. Although the HAVOC is a formidable attack helicopter in its current engineering development design stage, it lacks the integrated fire control and the Forward Looking Infrared (FLIR) capabilities that make the APACHE great. Direct comparisons are difficult, since the APACHE is a fielded helicopter and HAVOC capabilities are projected against an early 1990s fielding. Additionally, the aircraft are the results of different requirements, design, and tactics schools. The MI-28 basic weight is about 15,000 pounds, versus the marginally smaller APACHE at about 11,000 pounds. This further complicates basic direct "apples to apples" comparisons. However, the APACHE as "a bird in the hand" which is in production and in the field is a very difficult act to follow.

APACHE Action Team

In the first 200,000 unit flight hours, the APACHE has proven to be very capable but somewhat more difficult to maintain than expected. There were some design weaknesses and reliability problems that have resulted in additional maintenance inspections for the mechanic and greater challenges for the commanders in achieving their readiness goals. Considerable progress in fixing those problems was accomplished with a number of special reviews and studies that began with the 1982 production decision. The

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GE Aircraft Engines
Keeping the Promise

most effective and latest of these efforts is the current APACHE Action Team (AAT).

Formation of the AAT began in late 1988 in response to the conclusion that the fixes needed to be accelerated. As a result, the AAT was launched on 24 February at a joint industry and government meeting held at the McDonnell Douglas Helicopter Company (MDHC) production facility in Mesa, AZ.

Technique

The AAT's technique is to vitalize the existing structure in the government and industry systems in order to accomplish our duties better and more promptly. We avoided throwing another study team at the task. The group focused on the problems, developed a consensus, and produced an action plan. The team meets monthly, carefully reviewing action items that are needed to improve or solve the issues on the aircraft. Quarterly, the efforts of the team are reviewed by a General Officer Steering Committee (GOSC) that includes the Commander of the Army Logistics Center, the AMC Deputy Commander, support and user commanders, and the Presidents of MDHC and Martin Marietta.

By vitalizing the existing systems in industry and within the four major subordinate commands that support the APACHE, we are achieving a Total Quality Management approach that not only gets things done for the APACHE but improves the mindset for other important tasks. A by-

product of the AAT was the initiation of several exciting supply system evaluations this year that should carry over into 1990. An Expanded Special Repair Activity (ESRA) concept with direct exchange procedures for Line Replaceable Units (LRUs) is being evaluated at Ft. Rucker and will be looked at in USAREUR.

Initial results are extremely promising. Ft. Rucker significantly enhanced the aircraft Fully Mission Capable Rates with direct exchange of black boxes at the SRA by avoiding having to wait for the requisition process. Care was taken during this effort to maintain proper accountability of the boxes. This concept allows the LRUs that can be repaired quickly to be turned around in short order without having to wait for the long standard requisition processing, shipping, and repair times. The end result appears to be a more responsive supply system that will support higher readiness with fewer expensive boxes in the supply system.

EMI Interference

Some of the most urgent tests conducted during the last year and a half have been devoted to the Electro-Magnetic Interference (EMI) phenomena. The initial thrust was the potential operations around and on board U.S. Navy vessels. The radiation level of some devices (radar) on some ships is very high and, given a certain frequency, have the potential for interferences with APACHE electronics or effect ordnance safety.



The Soviet Mi-28
HAVOC helicopter
on display at the
Paris Air Show.

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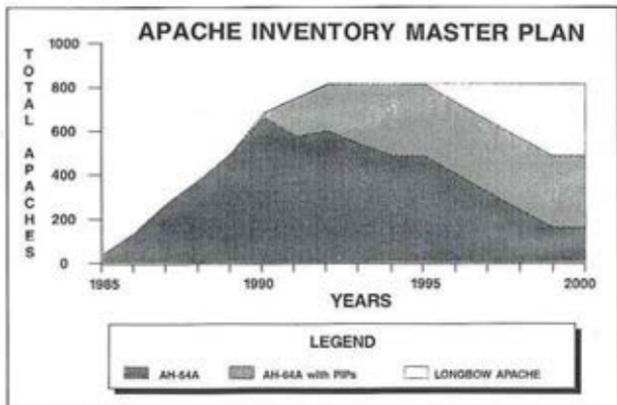
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**GENERAL
INSTRUMENT**

With the advent of fielding the AH-64 with the Back-Up Control System (BUCS) enabled, another aspect of EMI is introduced. Collectively the effects of these outside electrical fields result in varying degrees of vulnerability.

Beginning in late 1989 production APACHES will be delivered with activated BUCS. The details on the emergency electrical fly-by-wire control system have been previously included in the operator's and maintenance manuals. This system becomes active when a mechanical flight control component becomes jammed or is severed. This feature allows the crew to fly home in order to fight another day.

The BUCS has been extensively tested at Pax River and White Sands to ensure that the production AH-64A with BUCS enabled is immune to external inputs. To ensure a high degree of protection, electromagnetic interference hardening features were incorporated which include electronic filter pins for the Digital Automated Stabilization Equipment (DASE) and sealing around other points of energy entry. More care will be required by flight and maintenance crews to prevent activating the BUCS with strong accidental inputs to the flight controls. A user evaluation will be conducted with the initial BUCS



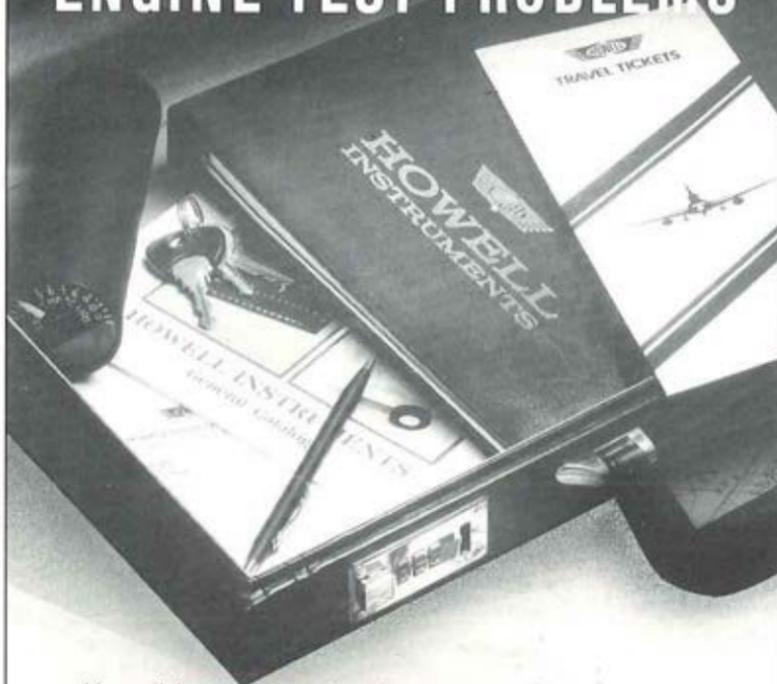
units to verify standard operating procedures.

An APACHE Inventory Master Plan has been prepared in coordination with the Army Aviation Modernization Plan to map out the future for APACHE product improvements and major upgrades. (See figure above.)

Presently the Army plans to procure 807 APACHES. Beginning in late 1991, retrofit should begin on the AH-64A with a group of product improvements that include the Airborne Target Handover System (ATHS), the Air-to-Air Stinger, and other priority improvements. LTC(P) John O'Hara, the ATHS Product Manager, explains the program in more detail in his article.



ON THE ROAD TO SOLVING ENGINE TEST PROBLEMS



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Development of a major APACHE retrofit upgrade to the LONGBOW APACHE configuration is underway. The LONGBOW APACHE is receiving those upgrades essential for the aircraft to support the LONGBOW millimeter wave radar and fire and forget missile systems. The major upgrades are in the areas of improved electrical power, improved cooling, expanded Forward Avionics Bays, improved processing, and a MAN-PRINT cockpit. The initial design phase for the LONGBOW APACHE began in August of 1988. Development was approved at the Army Systems Acquisition Review Council (ASARC) in July 1989. Retrofit approval of the LONGBOW APACHE aircraft, as well as the development and production prove-out authority for the LONGBOW, will be sought at the May 1990 ASARC.

The LONGBOW APACHE, with the LONGBOW, will geometrically increase the capability of the APACHE on the modern battlefield. The retrofit of those aircraft will take the older APACHES and refurbish them for operations out to year 2005.

The functions of the LONGBOW and the LONGBOW APACHE are discussed in the article by LTC Dennis Crowe, the Acting Product Manager for the LONGBOW APACHE, and Mr. Glen Buttrey of the TADS/PNVIS Project Manager's Office.

Foreign Military Sales

Foreign military sales is now a major mission of the APACHE program office. At this time, Israel is seriously considering a purchase of APACHES. The list of other interested countries includes the Netherlands, United Kingdom, Spain, United Arab Emirates, Egypt, Turkey, Pakistan, Korea, Japan, and Thailand.

The sale of APACHES to NATO and other allies is expected to provide a number of advantages which are in the best interest of the United States. Common equipment will be employed among allies, our collective battle capacity will be increased, and the mutual cooperation among countries will be enhanced.

With the acceptance of the 500th APACHE and the tenure of the program, the spares and support positions of the four AMC major subordinate commands (AMCCOM, CECOM, MICOM, and AVSCOM) have improved. Support of the APACHE sales to allies is not expected to impact the U.S. Army unit spares needs. It is recognized

that there will always be a small number of revolving key parts that will have to be intensely managed among the fleet as a whole.

The APACHE Materiel Fielding Team at Ft. Hood and the Materiel Transition Team in USAREUR are in place to support the field. The fielding teams, the rest of the program office, and I look forward to providing support to the units in the field, our customers, into the 1990s.

Storm Damage

The 17 May 1989 storm at Ft. Hood generated by three massive thunderclouds created down drafts of over 100 miles per hour. As a result, 111 APACHES were damaged in spite of being moored on the ramp with 5,000 lb. tie-down straps. 27 APACHES were turned on their side and seven on their rotor heads. Preliminary investigations suggested there was over \$100M damage. Later, an in-depth engineering team analysis concluded that the vulnerability reduction and crash survivability built into the aircraft greatly lessened the damage estimate to slightly over \$35M.

The aircraft rocked by the gusts impacted the ground with the landing gear, wing ends, the horizontal stabilator and the top of the static mast. The strong fuselage and integrated avionics design held the main body of the aircraft in excellent shape. 58 of these aircraft were returned to service by mid-October. Over 90 should be flyable by the end of the year and the rest should be repaired by the end of September 1990.

Terrific efforts have been made by the combat and support units, various contractors, and AVSCOM to overcome the storm damage. Depot repair of rotor heads was set up at Ft. Hood, additional maintenance teams were provided, and 48 extra aircraft were flown in to support the APACHE Training Brigade. These aircraft were from the ramp at the McDonnell Douglas facility at Mesa, Ft. Rucker, and the float accounts from some of the CONUS units.

All the affected battalions have at least 10 aircraft flyable. The APACHE Training Brigade has continued its training operations with only minor interruptions. Considerable intensive management is underway to provide the critical parts such as main rotor blades and main rotor heads. The toughness of the APACHE design and construction was borne out by the aircraft's stout resistance to the smashing forces of the storm. ■■■



APACHE: Production and Sustainment

The last special issue of ARMY AVIATION on the APACHE was in June 1986. In that month, McDonnell Douglas delivered 13 APACHES, bringing the fielded fleet to 106 aircraft. Meanwhile, the first APACHE Squadron was nearing completion of its training at Fort Hood. The following month this squadron, the 3rd Squadron, 6th Cavalry Regiment, 6th Cavalry Brigade (Air Combat) became the first combat ready APACHE unit in the Army. This action marked the initial operational capability for the advanced attack helicopter. Since then, the AH-64 program has come a long way.

Production Update

In August 1989, the Army took delivery of its 500th APACHE and the production line continues to fulfill APACHE requirements at a rate of ten APACHES per month. By 31 December, McDonnell Douglas will deliver APACHE number 546.

The FY89 procurement brings the Army's buy to 675 APACHES and slows the production rate from ten to ultimately five APACHES per month. To reduce the inherent unit cost increase associated with a production rate reduction, McDonnell Douglas worked closely with the Army, the Department of Defense, and the Congress to plan and implement a four year, multi-year procurement program spanning FY90 through FY93 for 240 APACHES. This plan was in place and supported by the



by Stuart D. Dodge, Vice-President, AH-64 Division, McDonnell Douglas Helicopter Company, Mesa, AZ.

DoD and the Congress until March 1989 when the entire DoD budget was hit with a major cut-back. DoD budget cuts caused the Army to reduce the planned procurement from 1031 to 807 — resulting in a last procurement in FY91 and last delivery in mid-1993.

However, the Congress continues to support the Army's need for additional APACHES and the need to maintain an industrial "warm base" attack helicopter production capability within the United States. Although this is a year-to-year activity, I am convinced we will fulfill the Army's APACHE requirements and produce another 500 APACHES for NATO and other allied countries.

Fleet Sustainment Activities

Since the January 1984 delivery of the first APACHE to the Army, the fleet has grown to more than 500 aircraft and amassed nearly 200,000 hours of flight time. While we have a relatively young fleet, averaging about 500 flight hours per aircraft, the Army's lead-the-fleet APACHE is nearing 3,000 flight hours. Fleet sustainment of the APACHE, like any other major weapons system, is the most challenging phase of the program. In late 1988, field Reliability and Maintainability (R&M) was the focus of attention for industry and the Army alike. An APACHE Action Team (AAT) and a General Officer Steering Committee (GOSC) was established to expedite R&M fixes. Mr. John Shannon's article in this issue provides an excellent update on this subject. The Army AAT/GOSC success story of bringing together industry, the AMC commands, and the field operators, establishes face to face communications, assigns definite responsibilities and sig-

— AUTOMATIC FLIGHT CONTROLS are tested in McDonnell Douglas' ACE (Advanced Cockpit Evaluator) flying testbed. The modified APACHE is testing four-way sidearm controllers for possible inclusion on the LHX.



nificantly accelerate solutions to field problems. Since the 24 February 1989 initiation of the AAT, more than 85 field issues have been totally resolved.

In the May-June frame, another sustainment challenge hit the program. Fielded APACHES were exposed to damaging wind storms at Fort Hood, TX and in South Carolina. More than 25 aircraft were blown over on their wing tips or upside down. Within 24 hours an Army/industry team of engineers and logisticians were on their way to Fort Hood. While the engineers examined the aircraft, the logisticians were determining sources for needed repair parts and aircraft components. Initial damage estimates were high — in excess of 50 aircraft requiring AVIM level repairs and some depot repairs.

Repair Facility

The Army established a facility at the Killeen, Texas airport to handle the repairs. Although component damage was high, fuselage damage was negligible. Upon further evaluation it was determined that very few of the damaged APACHES required depot level repairs. By 31 August, about one half of the damaged APACHES had been returned to operational service. This test of the Army/industry APACHE team demonstrated the resourcefulness of the people, the ruggedness of the airframe, and led to the development of inspection criteria suitable for future combat battle

damage assessments.

In August, the Army/industry team launched a new initiative called the "APACHE Service Clinic". Reminiscent of the "Technical Assistance Teams" of the Vietnam era, the APACHE Service Clinic was conceived to provide fielded units with a mix of classroom and hands-on refresher training. Led by Mr. Gary Dombrowski, a retired APACHE maintenance test pilot and maintenance instructor, the service clinic is instructed by a team of Army and industry representatives.

APACHE Service Clinic

The course curriculum spans four to six days and is selectively tailored to meet individual APACHE unit requirements. In our first service clinic, the team worked with the 1-101st at Fort Campbell, KY focusing training on systems operation and maintenance for the AVIM level and on proper phase maintenance inspection procedures for the AVIM level and on proper phase maintenance inspection procedures for the AVUM level.

From this visit, a time-phased list of maintenance actions was developed. The service clinic concept has been very beneficial. It keeps the instructors current on field needs, provides the information necessary to update the school training courses and, most significantly, responds to fielded units' training requirements.

(Production — Cont. on page 73)

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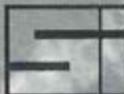
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APACHE: LONGBOW Update

The Army has on the horizon a significant increase to its war-fighting capabilities. It's a system called LONGBOW APACHE, which comprises two significant programs representing a major upgrade to a portion of the current APACHE fleet. One program is LONGBOW, formerly the Airborne Adverse Weather Weapon System (AAWWS), and the other is a major improvement program to the APACHE airframe accommodating LONGBOW.

On 14 July 1989, an Army Systems Acquisition Review Committee (ASARC IB) approved the recommendation to take the LONGBOW program into the Initial Design Phase (IDP) of Development/Production Proveout (D/PP). This IDP phase, which extends through September 1990, will be concurrent with the Proof of Principle phase of the program, scheduled to conclude in February 1990 with the completion of an Early User Test and Experimentation, or EUTE.

Capabilities

The LONGBOW program consists of development of an integrated Fire Control Radar (FCR) and a Radio Frequency (RF) Seeker for the HELLFIRE missile system. The LONGBOW sig-



by LTC Dennis Crowe and Glen Buttrey. LTC Crowe is Acting Product Manager for LONGBOW APACHE, Program Manager's Office, Program Executive Office, Aviation, St. Louis, MO. Mr. Buttrey is Chief, Business Management Division, TADS/PNVs Project Manager's Office, Program Executive Office, Aviation, St. Louis, MO.

ificantly improves the war-fighting capabilities of the APACHE helicopter, providing a true fire and forget capability able to be employed day or night in adverse weather and obscurants. The LONGBOW APACHE will be able to rapidly engage multiple targets with minimum exposure.

LONGBOW Proof of Principle is being conducted by LTC (P) Sam DeLoach, AAWWS Product Manager, under the auspices of the Aviation Applied Technology Directorate, Ft. Eustis, VA. The IDP program is being managed by COL David Forville, PM TADS/PNVs, PEO Aviation, St. Louis, MO, with assistance from the U.S. Army Missile Command in Huntsville, AL. Prime contractor for the program is a Joint Venture (JV) team consisting of Martin Marietta and the Westinghouse Electric Corporation.

IDP Contract

The IDP contract, awarded 28 September 1989, will define necessary interfaces between the FCR and RF Seeker through the use of error budgets and trade-off analyses. This will lead to the award of separate D/PP contracts with the JV for the FCR (managed by Aviation Systems Command) and the RF Seeker (managed by Missile Command) in FY91. Total system responsibility will remain with PM TADS/PNVs, within PEO Aviation, with each respective Command/PEO exercising full technical control of those elements within their missions and functions.

A Milestone Decision Review (MDR II) is scheduled for May 1990, which is intended to provide authority for entry into the D/PP phase during FY91. D/PP will include full scale engineering development, production engineering, a completed integrated logistics program, and the begin-



ning of Low Rate Initial Production, scheduled for FY93. The D/PP program is being conducted to qualify the **LONGBOW** only aboard the **APACHE** airframe. Hence, the title **LONGBOW APACHE**. However, a Pre-Planned Product Improvement (P3I) effort is envisioned for the LHX.

The term **LONGBOW APACHE** is used to refer to the changes necessary to the basic **APACHE** airframe in order to install the **LONGBOW Weapons System**. The 14 July 1989 ASARC mentioned above, also approved the "...development of those major upgrades necessary to integrate **LONGBOW** on four upgraded design **APACHE** aircraft. Specifically approved upgrades are additional electrical power, **MANPRINT** cockpit, upgraded processing system, additional cooling, and expanded forward avionics bay." Late in August, 1989 the government entered into a contract with McDonnell-Douglas for \$195M for the Development/Production Proveout of the **LONGBOW APACHE**. This contract is being managed under the leadership of COL Curtis J. Herrick, Jr., the **APACHE** Program Manager.

Specific Upgrades

The additional electrical power will require upgrading the generators to 45 kilovolt-amps, upgrading the Transformer-Rectifier Units (TRU) to a 400 amp capacity, replacement of Kapton wiring with extruded Tetro-Flouro-Ethylene coated wire, reduction of total wire from nine miles to about seven, hardening new components and wiring to reduce Electromagnetic Vulnerability (EMV), and relocation of the circuit breaker panel from the pilot's field of view to a remote location.

The **MANPRINT** cockpit is crucial to workload reduction to make **APACHE** crews more effective warfighters. The existing complex array of gauges, knobs, switches, and single-used panels and boxes will essentially be replaced by two multifunction displays and a simplified keyboard in each crewstation. An essential element in the **MANPRINT** cockpit is the Data Transfer Module being developed by the U.S. Army Avionics Research and Development Activity. It will be used to program the **LONGBOW APACHE** with mission-essential information such as waypoints, target locations, threat locations and the day's Communications-Electronic Operating Instructions (CEOs). The Data Transfer Module will be loaded by the Mission Planning Station which will also provide paper kneeboard data cards for

backup. Thus the **LONGBOW APACHE** crew will be able to "wake up" the aircraft quickly and accurately with minimal crew input.

The limited capacity and throughput of the existing Fire Control Computer and Backup Bus Controller will be replaced with an upgraded processing system. The new processors will be Very High Speed Integrated Circuit (VHSIC) technology. Redundant weapons, systems, and display processors will be networked with three channels of redundant 1553B multiplex data busses. For future growth, each processor will have 50% memory installed with empty slots for 100% more growth. The most important feature gained by adopting the 1553B bus is the use of a command word that will enable the activation of Built-In-Test (BIT) on demand and BIT status reporting thus enhancing the on-board Fault-Detection/Location System to 95% accuracy of fault isolation to Line Replaceable Units.

Additional cooling is required because of a growth of cooling loads from 22,000 BTUH, to a requirement of 54,000 BTUH. The existing shaft driven compressor powered air cycle system will be replaced by a vapor cycle system similar to those in other applications in aircraft and common automobiles. The vapor cycle system will eliminate the need for the shaft driven compressor which has been the source of numerous availability problems and the alleged culprit in several on-board fires. The Auxiliary Power Unit will have to be modified to provide high pressure air to start the main engines.

The Forward Avionics Bay (FAB) will have to be expanded to accommodate the new processors, avionics, and **LONGBOW** fire control radar system. Although physically larger in cross-section, the Expanded Forward Avionics Bay (EFAB) will fair into the wing roots and eliminate a "drag pocket" between the present FAB and wing so there will be no net drag increase in that area. The EFAB will enable the movement of LRUs from the Aft Avionics Bay and stowage compartment thus helping to correct the center-of-gravity which is near its aft limits in the AH-64A. Moving the LRUs will permit the shorter runs of wires and cables for the electrical system.

The addition of the **LONGBOW** weapons system and the associated upgrades to the **APACHE** will make the **LONGBOW APACHE** a premier war fighting system through the year 2005 and beyond. ■■■■



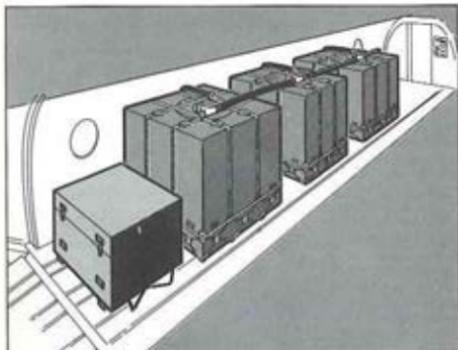
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APACHE:

Airborne Target Handover System

On the modern battlefield it is anticipated that Anti-Armor Helicopter Attack Teams will oppose an enemy force equipped with large numbers of highly mobile armored vehicles, a comparable number of advanced air defense weapons, and a proliferation of tactical communications jammers. Current voice communications systems are extremely slow and are vulnerable to enemy jamming, direction finding, and exploitation. U.S. Army attack aircraft are required to transmit and receive large amounts of mission data, including targeting, weapons delivery, aircraft fuel and weapons status, and reporting.

Product Improvements

The APACHE Airborne Target Handover System (ATHS) program provides a unique capability to the AH-64 fleet to accommodate an anti-jam communications capability as well as a number of other enhancements to the APACHE. The ATHS program actually consists of several related avionics Product Improvements (PIPs) rolled into one consolidated project.

The individual programs are:

- Airborne Target Handover System processor.
- SINCGARS radios.
- Improved FM power supply.
- Data Transfer System.
- ASN-137 doppler retrofit.

As the project began to develop in 1987, it became apparent that the smartest, most user friendly system would be to add a separate avionics

1553B data bus to the AH-64, and remote all of the non-bussed communications, navigation and Identify Friend or Foe (IFF) equipment on that bus, controllable by individual Control/Display Units (CDU) in both the pilot and co-pilot/gunner (CPG) cockpits.

The integration provides for bi-directional transfer of mission data between existing AH-64A subsystems and the ATHS. This transfer of data will be accomplished by monitoring the Fire Control Computer (FCC) bus for data input to the ATHS subsystem, as well as providing data to the FCC subsystem from the ATHS via Data Entry Keyboard (DEK) emulation.

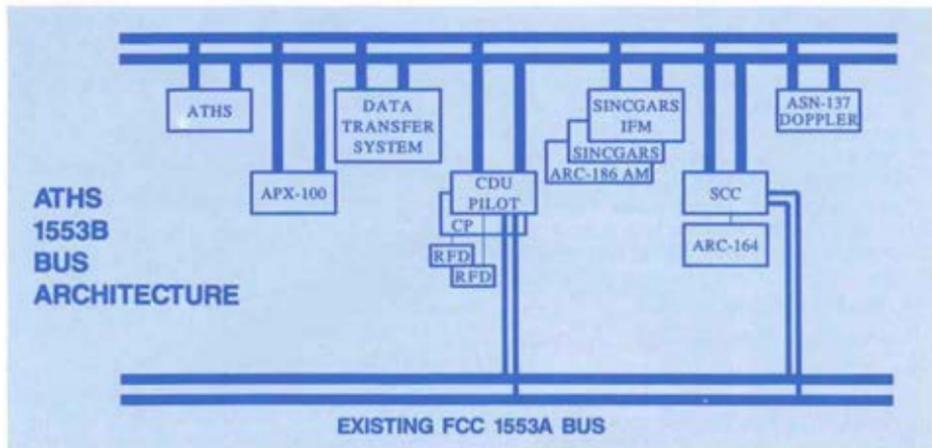
The ATHS also provides for a more user friendly cockpit layout and operation. Since most of the Communication/Navigation/IFF equipment will be removed, control heads are removed, and the CDU acts as the controller. Also, the DEK is removed from the CPG station, leaving only one CDU in each cockpit to operate the systems. A remote frequency display is added in each cockpit so both pilots know what the other is doing with their radios. The data transfer receptacle is located in the pilot's station for immediate access.

The ATHS system design requirements are for specific aircraft function timelines to be reduced overall by a minimum of 30%, with a goal of 60%. Those functions include: Target Acquisition, Fire Control Data Entry, Pilot and Co-pilot Gunner run-up procedures, aircraft position update by CPG, performance of navigation and external communications via preset free text ATHS messages.

A key objective of this system is to increase mission effectiveness of the APACHE by pro-

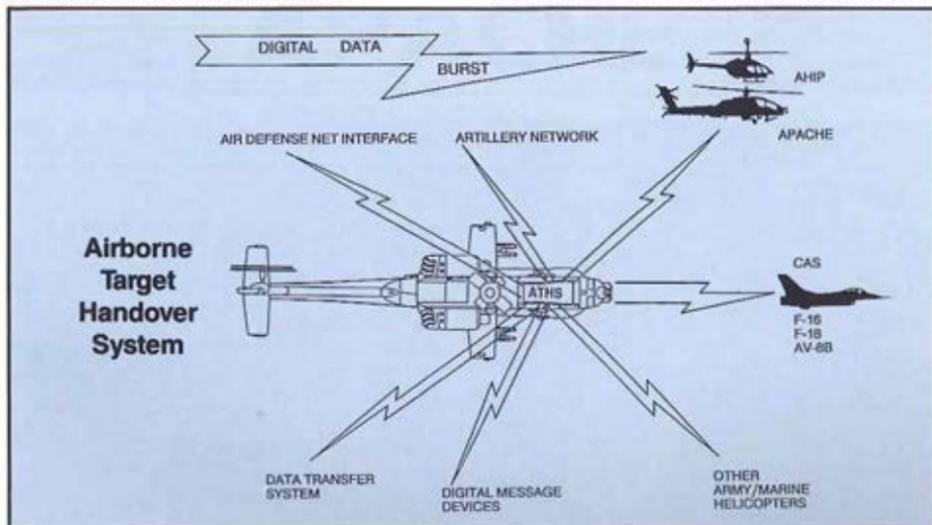


by LTC(P) John O'Hara, Product Manager, Airborne Target Handover System, PEO, Aviation, St. Louis, MO.



viding the mission functions required to effectively transfer data between ground, air and command elements. As an example, the ATHS modified AH-64A allows HELLFIRE missile launch in an average of less than 10 seconds from the time of a digitally data bursted ATHS mission acceptance. The allowable time from ATHS mission acceptance to missile launch includes the capability for selection and preparation of the required number of missiles, transfer of laser codes from the ATHS to the missile, and automatic or semi-automatic transfer of target position and altitude to the aircraft fire control computer.

ATHS is on schedule. Contract award to Rockwell International was April 1988. Since then, prototype ATHS aircraft have been configured with the new systems and are undergoing contractor test flight at Rockwell's Aircraft Modification Center in Shreveport, LA. Army technical and user testing will be conducted in the spring and summer of 1990. A low rate initial production of 28 aircraft then continues through October of 1991 to prove out the systems in preparation for full rate production. ATHS is planned only as a retrofit program at this time beginning in November 1991 at a rate of up to 18 aircraft per month,



12 in CONUS and six OCONUS.

In the spirit of the AHS, where several small Product Improvements are combined, the PMO APACHE is planning an APACHE with PIPs program as a consolidation of several significant improvements simultaneously. This project includes the prioritized PIPs shown in the table at right.

ATHS is the core upgrade program. This project will begin retrofit in conjunction with AHS schedules. The key element is to support field commanders by retrofitting aircraft only once, not several iterations of MWO applications. More on this project in the near future.

Combined Arms & Joint Service

ATHS on APACHE has quickly expanded from an AH-64 to AH-64 or AH-64 to AHIP digital data burst capability to one that may soon encompass the entire joint environment. A TACTFIRE (Field Artillery Net) interface has always been an APACHE AHS requirement, and is already a part of the program. However, as our APACHE tactics expand, air-to-air and ground-to-air threats emerge in ever increasing numbers, and Close Air Support (CAS) receives more emphasis. AHS plays a growing role of importance.

Efforts are presently underway to net AHS with the Air Defense Artillery in order to obtain threat information, and pass targets back to them. We have actively participated with the Air Force

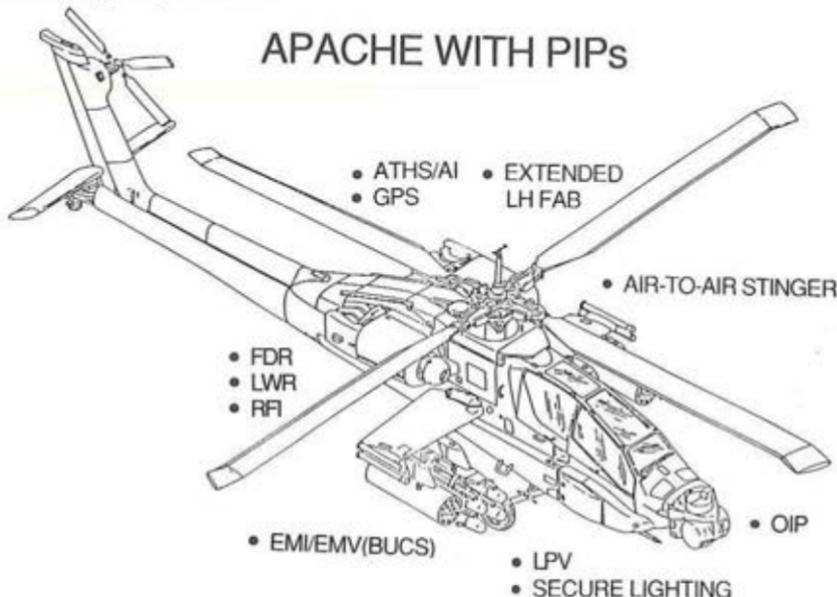
Priority Product Improvements

1. Air-to-Air Stinger
2. AHS/Avionics Integration
3. Optical Improvement Program
4. Laser Protective Visor
5. Global Positioning System
6. Electromagnetic Interference
7. Flight Data Recorder
8. Secure Lighting
9. Laser Warning Receiver
10. Radar Frequency Interferometer

in this CAS role recently, and look forward to expanding the AHS interface with all services. And, finally, we now have a system — AHS — that has potential to link up not only the Army Combined Arms team and other U.S. service aircraft, but we need to look off-shore for potential combined service interoperability. It is an exciting time, so we must take advantage of all that we can.

Hope the update on the AHS program was informative. We will keep you informed of its progress. ■■■■

APACHE WITH PIPs





The many faces
of
APACHE





APACHE: USAREUR — The Second Year

We in USAREUR have just completed our second year of Transitioning/Fielding AH-64 Advanced Attack Helicopter Battalions (AAHBs) into Germany. During the second year, we have added two AAHBs and their associated AVIMs. In June of this year, 3-1 Attack "Night Eagles" commanded by LTC Dave Swank, was positioned into Katterbach with the 1st Armored Division. In September, we added 3-227th Attack "Spearhead Attack" commanded by LTC Tony Jones, to the 3rd Armored Division. Currently, Germany has five AAHBs and four AVIMs positioned to support the USAREUR mission. In the next year, we are scheduled to position three more AAHBs bringing our total to eight.

The Fielding Process

The process of fielding an AAHB starts in Ft. Hood, TX under "single station fielding" and ends with the unit positioned in its home station. Once the AAHB completes its ARTEP, it begins the process of deploying to USAREUR. Aircraft and Equipment are positioned into Beaumont, TX for overseas preparation. The aircraft are shrink wrapped and loaded onto ships. In approximately



10-12 days they arrive in Rotterdam, Holland. At Rotterdam, the APACHE Material Transition Team-Europe (AMTTE) along with personnel from 70th Trans Bn supervise and assist the offloading of the aircraft. The units' aircraft are then positioned onto roll on roll off

barges for movement down the Rhine river. The three day Rhine river cruise terminates at Lampertheim, Germany where the aircraft are offloaded and prepared for a seven kilometer tow to Coleman Army Airfield. The offloading is supervised by the APACHE MTTE and members of the AAHBs AVIM. At this point, we start the association of the AAHB with its associated AVIM. The AVIM takes charge of the AAHBs aircraft at Coleman and begins the reassembly process which now lasts just over one week.

Opening the Presents

At Coleman, the AVIM removes the shrink wrap and installs the APACHE main rotor blades, wings and Air Data Sensor (ADSS). The aircraft are then test flown. At this point the AAHB receives their aircraft and flies them to their home station. This process has been completed by all USAREUR AAHBs. After arrival at home station the real work begins. The unit's personnel must be in-processed into their home station and USAREUR. Post housing locates quarters for the 268 soldiers and their families and begins to assign quarters both on and off post.

Three of the five AAHBs, 2-6 Cav, 4-229 Attack and 5-6 Cav, have successfully fired this year on the Grafenwoehr Range. As everyone knows, range time is very valuable in Germany. All the commanders have managed to share their experiences, increasing each successive unit's ability to benefit from the Grafenwoehr Range facility.

APACHE aircraft availability in USAREUR has been the highest in the Army. The USAREUR team has been "all it can be". This has truly been a team effort! We have had to share parts across

by LTC (P) David Sale, Chief, APACHE Material Fielding Team, Europe, APO NY.



ABOVE: The AH-64A APACHES in full tie-down aboard the MDS Vera in preparation for the Trans-Atlantic trip to Holland.

TOP RIGHT: An APACHE as it is rolled off a ship in Rotterdam after the journey.

BOTTOM RIGHT: The APACHE, shrink wrapped and ready for transit.

the Corps and Division boundaries with the APACHE MTFE monitoring.

During the year, we moved our Martin Marietta Special Repair Activity (SRA) in support of the TADS/PNVS to Coleman Army Airfield. They are now located in a Rudd building that resembles a tent, but inside it is a complete modern special repair activity that would compete with any in CONUS. We have also acquired a building for a McDonnell Douglas Helicopter Company (MDHC) SRA at Karlsruhe. We continue to work toward the award of a contract to begin the MDHC SRA.

AH-64 AAHBs have deployed within Germany and performed in a outstanding manner. The AH-64 AAHB is probably the most significant new weapon system fielded to USAREUR in the last decade. The AH-64 AAHBs continue to revolutionize attack tactics in USAREUR. Ground commanders are still learning the finer techniques of employing these new attack battalions. The best is yet to come!

IIIIII





SPECIAL

REPORT

APACHE: Electronic Equipment Testing

Supportability is a high priority effort in the Advanced Attack Helicopter (AAH) Program. The AAH Program Manager's Office, in conjunction with McDonnell Douglas Helicopter Company (MDHC), General Electric (GE), Martin Marietta Aerospace (MMA), Army Materiel Command (AMC) Commodity Commands and the Training and Doctrine Command (TRADOC), continue to work to enhance the established comprehensive automatic testing capability that supports the fielded APACHE weapon system.

The OQ-290(V)2/MSM Electronic Equipment Test Facility (EETF) uses computer based Automatic Test Equipment (ATE) to test and diagnose failures occurring in the APACHE aircraft electronic components. This is accomplished by providing stimuli to the Line Replaceable Units (LRUs) by simulating the aircraft operating environment to these Units Under Test (UUT) and measuring the results to determine, down to the electronic circuit card level, the faulty component within that specific LRU.

AN/USM-410

The core of the EETF is the AN/USM-410, comprised of a computer, power supplies, input and output devices, control equipment, and a test station allowing UUT interface. In addition to the core is ATE necessary for testing APACHE peculiar aircraft components: a programmable 400 Hz power supply,



by COL Jerry Green, Product Manager, Automatic Test Equipment, Program Executive Office, Aviation, St. Louis, MO.

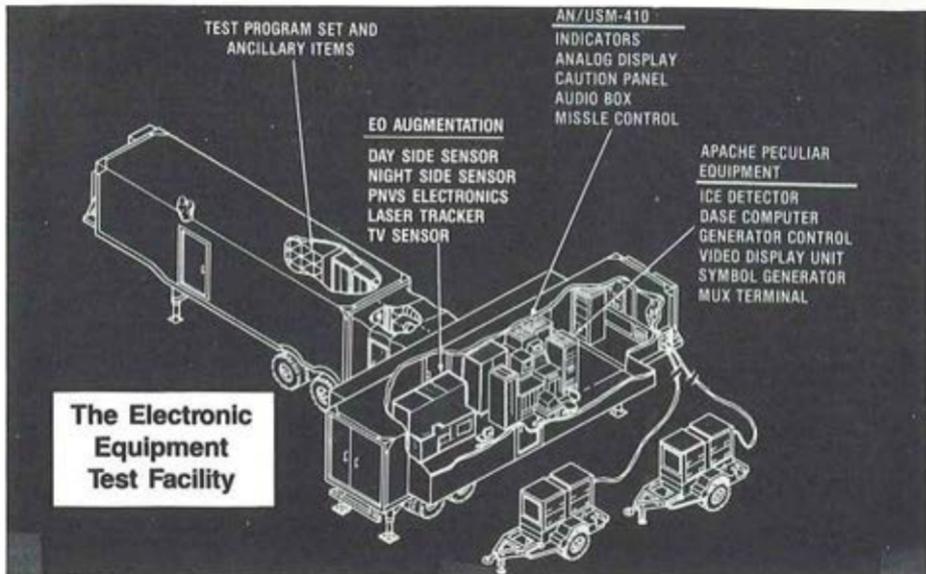
a pneumatic module, video monitor, photometer, and an additional interface station. Some of the APACHE systems or subsystems that require the peculiar augmentation are the Air Data System, Integrated Helmet and Display Sighting System (IHADSS) and the HELLFIRE Subsystem. The core and the APACHE peculiar augmentation are manufactured by GE in Burlington, MA.

Electro-Optics Testing

The third major component of the EETF is the most technically advanced augmentation. This unique Electro/Optical (E/O) test capability for the Target Acquisition Designation Sight/Pilot Night Vision Sensor (TADS/PNVIS) is manufactured by MMA in Orlando, FL. The E/O bench consists of an electronic equipment rack that is a precision device, providing the field a capability that previously required extensive time consuming, highly skilled subjective analysis of complex data necessary to test and diagnose failures in electro-optical components. Stimulus, measurement and analysis are predominantly accomplished automatically, representing a first for Army ATE.

Each ATE testable LRU requires a Test Program Set (TPS) which consists of a computer program, cabling, interface devices and user friendly documentation. Seventy-six APACHE specific TPSs are required for each EETF.

The EETF consists of the required ATE housed in an expandable 35-foot environmentally controlled semi-trailer test van, a support van, and two 60KW generators. The test van in the transport mode is eight feet wide. When deployed, it expands to 14 feet and provides adequate work space in a climate controlled environment.



As a companion to the test van, a non-expanding 35-foot van is provided for storage and transport of TPSs and ancillary equipment. The production of the expandable van, modification of the storage van and the integration of the equipment into each is being accomplished by GE under subcontract to McDonnell Douglas Helicopter Company.

The EETF is operated and maintained by MOS 39B (ATE operator/maintainer) Army personnel. This MOS training was expanded from eight to thirteen weeks in 1989 to allow additional TPS operation and to enable a new LRU faulty component replacement procedure within the EETF. The soldier operator discovered the original support concept of only testing the LRU within the EETF, repairing the faulty component in another shop, and returning the LRU to the EETF for retesting prior to returning the LRU to the supply system was inefficient.

The upgrade to the E/O bench during 1987 reduced LRU run times as much as 50 percent and allowed for much greater productivity of the EETF with the TADS/PNVs LRUs. Further improvements to the EETF are underway. The major improvement is through CECOMs ECP185R2. This ECP will replace the computer, tape and disk

drives and video display terminals. Some of the AN/USM-410 items are rapidly becoming non-procurable and will be replaced by later technology off-the-shelf components. This effort will greatly improve the capacity of the EETF by reducing the TPS run times, increasing computer memory, disk storage capacity, and eliminating software dual run time systems. The components being replaced have been the reliability detractors, thus replacement will allow for more available mission capable time.

The first EETF was delivered to Ft. Gordon on 3 June 1985, and provides the training base for MOS 39B personnel. The second EETF was delivered to Ft. Rucker, AL on 7 June 1985, and supports Aviator Qualification Training. Nine additional EETFs have been fielded to sites in both CONUS and OCONUS. The current APACHE aircraft program requires a total of 22 EETFs. EETFs are issued to non-divisional AVIM units in support of the supply system, which in turn is supporting three UH-64A battalions or 54 aircraft.

The EETF provides the Commander with the AVIM level ATE to quickly repair many APACHE LRUs in his operations base which enhances readiness at lower cost. ■■■■



SPECIAL REPORT

APACHE: APACHE Action Team

As APACHE Program Manager, Colonel Curtis Herrick reported in the September 1989 issue of ARMY AVIATION, the APACHE Action Team (AAT) is a real "FIXER". Industry and Government have come together in a joint management effort to identify the root cause of design and reliability problems precluding field commanders from achieving readiness objectives; to develop, prioritize, and implement quality solutions for each of these problems; and to direct a disciplined follow-up on each individual action necessary to insure planned schedules and objectives are met or exceeded.

The chart on the opposite page shows a summary of the activity level which has occurred since we were challenged by the General Officer Steering Committee (GOSC) following the "Army Day" Executive Review in late February.

Finding Fixes

Their collective tasking to the AAT was to find fixes for the known problems and to expedite implementation for as many as possible by October 1989. These numbers alone do not reflect the thousands of individual actions accomplished by the over sixty Government and industry personnel directly involved in the monthly review. Nor does it give credit to the hundreds of personnel who contributed and supported each direct participant.

But what have we really done? What has come out of



by Mr. John Shannon, Chief, Logistics Management Division, APACHE PMO, PEO, Aviation, St. Louis, MO.

the almost twenty days of detailed 10-12 hour meetings; the months of efforts, and the thousands of actions? By the time this article is printed, our October report will have been submitted to the GOSC.

First, it is essential to address the AAT process we have gone through into the context of current management philosophy. The excellent success we have achieved thus far is due to the Total Quality Management (TQM) "teaming" and input from the field users, the AMC/PEO/TRADOC community, and industry. Our theme, as COL Herrick said, has been "FIXER" or Field Improvement Extra Effort Required. Initially it was a catchy phrase complete with stickers to be used on Top Priority and Priority correspondence and actions. However, in time it came to mean AAT effort was not "business as usual."

"Hard" and "Soft" Management

One tenet of TQM philosophy is that there is both a hard and a soft side to management. The "hard" side includes design changes, production incorporation, field retrofit and all of the other visible aspects of the effort. On the other hand, the "soft" side considers the personnel involved, the environment in which they function, and the other less visible aspects which have contributed to our success or failure.

Assessing or measuring the hard side is relatively easy. As summarized in the chart, we have addressed over 160 issues. We evaluated, resolved, and closed over 50% (86) in slightly over six months. Some of our successes have been large, like finalizing the design and initiating fielding of the -17 Shaft Driven Compressor (SDC)

APACHE Action Team Status

- * THREE GENERAL OFFICER STEERING COMMITTEE PRESENTATIONS
26 APR 89, 13 JULY 89, 26 OCTOBER 89
- * SEVEN AAT REVIEWS - LAST REVIEW 3-4 OCT 89
- * STATUS OF ISSUES

	START	AAT 1	AAT 2	AAT 3	AAT 4	AAT 5	AAT 6	AAT 7
		14-16 MAR	18-20 APR	16-18 MAY	20-22 JUN	25-27 JUL	30-31 AUG	3-4 OCT
TOP PRIORITY	12	12	12	13	11	11	11	11
PRIORITY	48	41	47	44	40	38	38	30
NORMAL	57	63	56	45	41	38	37	34
CLOSED	12	27	32	50	61	68	73	86
TOTAL	129	143	147	152	153	155	159	161

configuration. This fix corrects all major failure modes identified. Other successes have been relatively small such as reviewing special inspection requirements and realigning as many as possible into established Phased Maintenance and Preventive Maintenance Service intervals.

The AAT can report with a great deal of pride that the production aircraft being delivered now have significant design improvements incorporated. Equally as important is the large number of field fixes that have been initiated. Tail Rotor Elastomeric Bearings have been rebonded, hydraulic hoses have been replaced, and several TADS/PNVIS depot changes are underway just to name a few. During FY90, field fixes will be applied to hundreds of aircraft worldwide by a combination of contractor and OLR Teams.

The "Soft" Side

Our real accomplishment has been on the so called "soft-side" of management. It is here that the team approach and the cooperation exhibited by the AAT will pay lasting benefits to the APACHE Program and potentially to all Army Aviation initial fielding and readiness efforts. Over the last six months, this body of personnel, with diverse and varied objectives and representing all manner of functions and activities, have come together to achieve the AAT objective.

Together, using our collective skills and knowledge, the AAT has developed and implemented corrective actions for numerous problems which have impacted on the AH-64's reliability and readiness. These fixes address not only the hardware but also coordinate the logistics tail to assure a supportable, sustainable change is provided to the Field Commander. Early on, the user representatives like LTC Pat Bennett, 1/6th Commander, and Dave Caddell from the Aviation Center, impressed upon the AAT members the importance of a total solution not just an engineering fix.

Learning Communication

The AAT became an environment where different ideas and approaches could be discussed and evaluated. Sometimes these discussions became very heated but more often than not, the final result was one which each member understood and accepted...a true *team* effort. Engineers learned the problems of the logisticians. Logisticians improved their ability to communicate their requirements to the engineers. Everyone benefited from the exchange of information and the necessity to work together to solve common problems.

As an example, here is a situation that was identified and resolved so quickly that it never

really became an AAT issue. On a particular Thursday in August, the failure of a gun turret caused a Florida Army National Guard APACHE to fire a 30mm burst not down range but in the direction of his wing man. Faced with a Safety of Flight (SOF) message which restricted all 30mm gun firing, the elements of the AAT responded in a cooperative, coordinated manner. By the following Tuesday, an emergency Engineering Change Proposal had been approved, a draft Modification Work Order developed and reviewed, and a contractor team was on-site at Ft. Bragg retrofitting aircraft to support a critical field firing exercise less than one week later.

Mission Accomplished

Thanks to dedicated support personnel like Lynn Marohl, MDHC, and Jim Mason of my office who managed and coordinated the effort; Bill Rahr, AMCCOM who worked the MWO effort; and numerous technicians and soldiers who applied the fixes, almost 480 aircraft will have been retrofitted by the time this article appears. All of

this was accomplished with minimal impact on any units training or overall readiness.

While very few of the above people are direct participants in the AAT meetings, they have all been directly affected in their performance by the teamwork and the cooperative environment developed by the AAT. This should be the real legacy of the AAT organization and effort.

Yes, we have met the GOSC's challenge of last February by identifying and implementing hardware corrective actions in production and through field retrofit. But more importantly, we have demonstrated a viable TQM model through the dedicated team effort which can be applied to improve future programs.

As GEN William Tuttle, Jr., the new AMC Commander, summarized during the July 1989 GOSC Review at Ft. Rucker, AL, "Perhaps we should institutionalize the AAT approach and incorporate it into our management philosophy and policy for future system development and initial fielding." The AAT is not a destination, it's a journey and the APACHE leads the way. ■■■■

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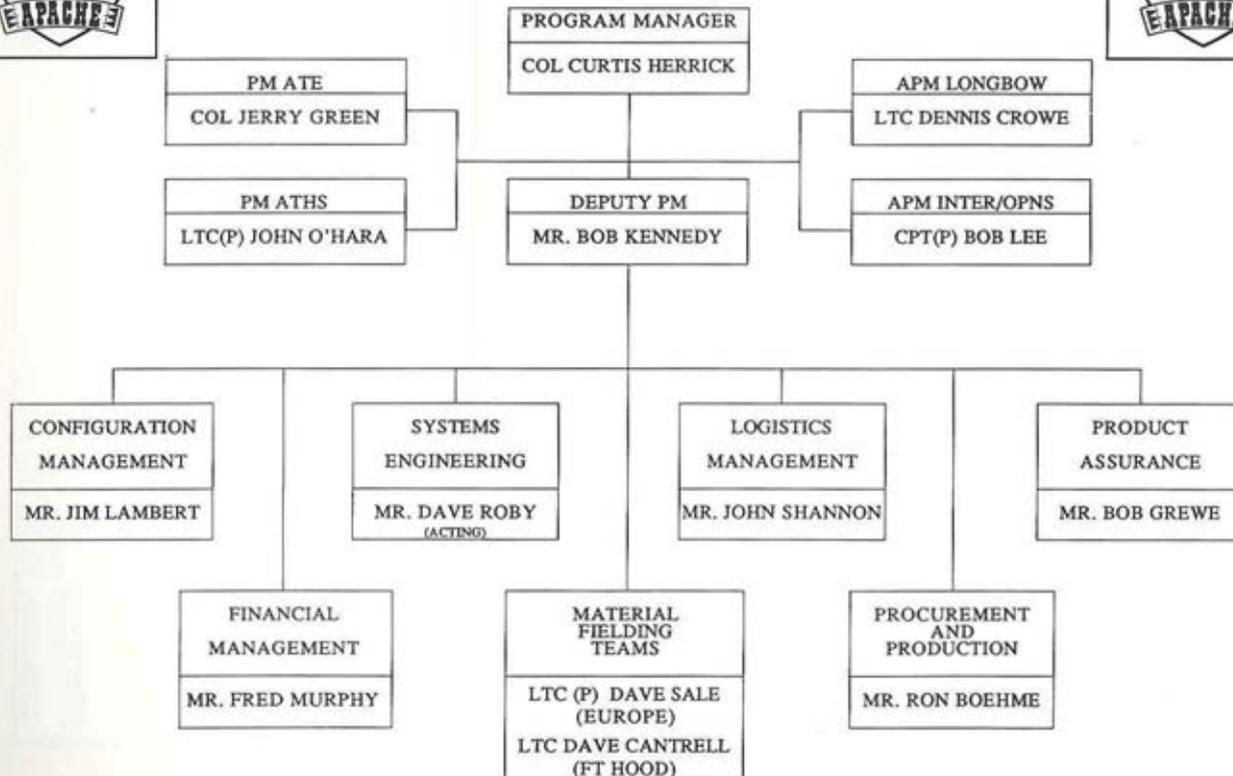
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The professional-personal roster of Dept. of the Army Civilian members of AAAA that returned their questionnaires by October 13, 1989.

ROSTER CODE

Last Name, First Name, MI
(Date of Joining AAAA)
(Nickname)
Address
Duty Phone

Residence Phone
Name of Spouse
Job Description
Current GS (GM/WG) Grade
AAAA Offices held

STANDARD ABBREVIATIONS

AMC - U.S. Army Materiel Command
ARPRO - U.S. Army Plant Representative Office
ARTA - U.S. Army Aviation Research & Technology Activity
ASE - Aircraft Survivability Equipment
ASF - Aviation Support Facility
AVSCOM - U.S. Army Aviation Systems Command
AVRADA - U.S. Army Avionics Research & Development Activity
CCAD - Corpus Christi Army Depot
CECOM - U.S. Army Communication & Electronics Command
CONUS - Continental United States
FW - Fixed Wing

MICOM - U.S. Army Missile Command
LHX - Light Helicopter Experimental
OASA - Office, Assistant Secretary of the Army
ODCSLOG - Office, Deputy Chief of Staff for Logistics
PEO - Program Executive Office
PMO - Project (Program/Product) Manager's Office
TADS/PNVS - Target Acquisition Designation Sight/
Pilot Night Vision Sensor
TROSCOM - U.S. Army Troop Support Command
USAALS - U.S. Army Aviation Logistics School
USAAVNC - U.S. Army Aviation Center

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The 1989 DAC Pack

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BUTTREY, Charles G., (M88) (Glen) RR 2, 1405 Daniel Drive, Collinsville, IL 62234. Dy: (314) 263-1981. Res: (618) 345-3101. S: Patricia. Job: Chief, Bus Mgmt Div, TADS/PNVS P.M.O. GS: 14.

BYRNES, Merium M., (M84) 118 Harvest Drive, St. Charles, MO 63303-5527. Dy: (314)

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263-1796. Res: (314) 926-0993. S: Larry. Job: AVSCOM. GS: 12. Ace.

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CAHILL, Kevin T., (M88) 361 Peffer Lane, Fenton, MO 63026. Dy: (314) 263-3261. Job: Aerospace Engr, AVSCOM. GS: 13.

CAINES, Joseph A., (M89) (Joe) 6301 Old Brownsville Rd., No. 64, Corpus Christi, TX 78415. Dy: (512) 939-2397. Res: (512) 862-1134. S: Harriet. Job: WVC SEC3A, Ext. 2397. CCAD. WG: 5.

CALVE, Jack W., (M88) (The Voice) 3021 Dale Avenue, Granite City, IL 62040. Dy: (314) 263-1164. Res: (618) 451-7650. Job: Public Affairs Spec, AVSCOM. GS: 9.

CAMPBELL, Bobbi, (M82) (Bobbi) 256 Third Street, Fair Haven, NJ 07704. Dy: (201) 544-2781. Res: (201) 842-3243. Job: Writer, AVRADA. GS: 9.

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CAPELL, Henry F., (M82) (Hank) 6 Sky Har- Court, Toms River, NJ 08757. Dy: (201) 544-4806. Res: (201) 244-3795. S: Cecelia. Job: AVRADA. GS: 12.

CARABELLO, Jose A., (M88) 1891 McKelvey Hill Drive #111, Maryland Heights, MO 63043. Dy: (314) 263-3524. Res: (314) 464-1266. Job: System Safety Engr, AVSCOM Safety Off, AMSAV-XAP. GS: 11.

CARAWAY, Priscilla A., (M87) 9794 Conquistador Walk, St. Louis, MO 63136. Dy: (314) 263-2282. Res: (314) 867-3849. Job: General Supply Specialist. GS: 11.

CARNEY, Shirley R., (M81) (Shir) 911 Sugar Lake Court, St. Charles, MO 63303. Dy: (314) 263-1568. Res: (314) 926-3331. Job: Logis Data Mgmt Personnel, AVSCOM. GS: 9.

CARR, Gerald T., (M83) (Jerry) P.O. Box 81325, Corpus Christi, TX 78468-1325. Dy: (512) 939-3513. Res: (512) 992-7767. Job: NDT Foreman, CCAD. WS: 11.

CARRION, Ignacio R., (M82) (Joe) 3037 White Bird Drive, Corpus Christi, TX 78415. Dy: (512) 939-3698. Res: (512) 854-4129. Job: Acft Engr Repairer/Mech, CCAD.

CARVER, Marie L., (M87) 5190 Butler Bend Drive, St. Louis, MO 63128. Dy: (314) 263-2031. Res: (314) 892-6585. Job: AVSCOM, Supr Personnel Staffing Spec. GS: 13.

CASEY, Mark A., (M86) P.O. Box 291, Slocomb, AL 36375. Dy: (205) 255-8202. Res: (205) 886-2745. Job: Electrical Engineer, USAAVNDTA. GS: 12.

CASIAS, Philip L., (M89) (Phil) 5667 Liberty School Road, Hillsboro, MO 63050. Dy: (314) 263-5349. Res: (314) 586-6902. S: Barbara J. Job: SIMA. GS: 14.

CHAMBERS, Henry R., (M56) 206 Hillcrest Avenue, Neptune, NJ 07753. Dy: (201) 544-4069. Res: (201) 776-8638. S: Louise. Job: Engineer, AVRADA. GS: 14.

CHING, Donna M., (M87) 2925 Scarsdale Manor Dr, St. Charles, MO 63303. Dy: (314) 263-2813. Res: (314) 724-5453. S: Richard. Job: Budget Analyst, APA Major, Resource Management Div, AVSCOM. GS: 11.

CLARK, Raymond F., (M87) (Ray) 626 S. Riverside Drive, Neptune, NJ 07753. Dy: (908) 544-2389. S: Sara. Job: Chief, Flight Eval Bureau, AVRADA. GS: 14.

CLINE, John H., (M88) (John) NASA Langley Research Ctr, M/S 266, Hampton, VA 23665-5225. Dy: (804) 864-3966. Res: (804) 851-4551. Job: Research Engr Technology Transfer, Army Aerospace Structures Directorate. GS: 13.

COLEMAN, Rosalie L., (M83) (Rosie) 9304 Nelan Drive, St. Louis, MO 63137. Dy: (314) 263-1309. Res: (314) 868-5253. Job: AHP P.M.O. AVSCOM. GS: 13.

COLLIER, Patricia A., (M89) (Pat) 2108-H Thicket Place, Huntsville, AL 35802-4028. Dy: (205) 876-4745. Res: (205) 882-2706. Job: Supply Mgmt Rep, USA Missile Cnd. GS: 12.

COLLIGAN, Alexander J., (M89) (Al) 83 Breezy Point Place, The Woodlands, TX 77381. Dy: (409) 539-3991. Res: (713) 363-3055. S: Diane. Job: Ft Facil Supvr, 90th AFRCOM. GS: 13.

COLTEN, Norman E., (M88) 44 Stonehenge Dr, Ocean, NJ 07712. Dy: (201) 544-3872. S: Bernice. Job: Electronic Engr, AVRADA. GS: 13.

CONFIDES, James J., (M86) (Jim) 3550 Juliann Circle, Lexington, KY 40503. Dy: (606) 293-4277. Res: (606) 223-1349. S: Ruthann. Job: Equip Spec, USAMC MRSA. GS: 13.

COOPER, Cella Rae, (M84) 1001 Carmel Parkway, Apt. 10, Corpus Christi, TX 78411-2150. Dy: (512) 939-3530. Res: (512) 852-3301. Job: Equipment Specialist, CCAD. GS: 9.

COOPER, Jeanette L., (M88) Route 2, Box 790, Union Grove, AL 35175. Dy: (205) 842-6734. Job: Supply Systems Analyst, USA Missile Command. GS: 12.

COPPENS, David P., (M82) 111 Roger, Collinsville, IL 62234. Dy: (314) 263-1415. Res: (618) 345-6625. S: Sue. Job: Log Mgr, CH-47 Mod/V-22 PM Office. GS: 13.

COYNE, Raymond J., (M87) (Ray) 126 Phelps Avenue, Bergenfield, NJ 07621. Dy: (201) 823-6200. Res: (201) 385-5542. S: Dolores. Job: Dir, USAISCA-EA. GS: 15.

CRENSHAW, Georgia M., (M78) (Peaches) 4100 The Woods Drive, Apt. C-316, San Jose, CA 95136. Dy: (415) 694-5255. Res: (468) 972-5538. Job: Program Analyst, ARTA Aero-Flight Dynamics Directorate. GS: 11. Past VP, Lindbergh Chapter.

CREWS, Samuel T., (M86) 6904 Washington, St. Louis, MO 63130. Dy: (314) 263-1600. Job: Dym & Analy Branch Chief. GS: 15.

CRODM, Jonathan E., (M89) 12025 La Padra Lane, Florissant, MO 63003. Dy: (314) 263-1796. Res: (314) 355-0156. Job: Quality Assurance Specialist, AVSCOM, AMSAV-OS. GS: 12.

CROWELL, C. Quinn, (M88) 43157 41st Street West, Quartz Hill, CA 93536. Dy: (805) 277-4992. Res: (805) 943-0317. Job: Aerospace Engr, USA Avn Engr Ft Activity. GS: 11.

CSIKY, Peter S., (M85) (Pete) 2801 Rigney Road, Apt. L-14, Steilacoom, WA 98388. Dy: (206) 967-2349. Res: (206) 588-7550. Job: Science Advisor, 1 Corps, AMC-FAST. GS: 14.

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Res: (602) 830-5232. Job: Chief, Procure & Prod Div ARPRO, McDonnell Douglas. GS: 14.

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DAPKUS, David B., (M88) AVSCOM, AMCPM-9H-L, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. Dy: (314) 263-1708. Res: (618) 689-2368. S: Linda. Job: Configuration Mgr. Black Hawk P.M.O. GS: 13.

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DAVIS, Bartley E., (M88) (Bart) 3429 Huntman Drive, Sacramento, CA 95826. Dy: (916) 364-4169. Res: (916) 363-1132. S: Sally H. Job: DESCOM CTX-PM, Light Helicopter, Sacramento Army Depot (LHK). GS: 12.

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DE LA CRUZ, Juan G., (M74) (De La) 4010 Killamier Drive, Corpus Christi, TX 78413. Dy: (512) 939-3963. Res: (512) 855-8002. S: Della. Job: Chief, Airframe Div, CCAD. GS: 13.

DELKER, Richard W., (M89) (Rick) 2509 Witt Road, Kingsville, MO 21087. Dy: (301) 671-5630. S: Su. Job: CRDEC. GS: 13.

DETMER, Jerry F., (M77) 2011 Wakefield Lake Road, Glenco, MO 63038. Dy: (314) 263-1460. S: Mary Lou. Job: Deputy Proj Mgr, ASE. GS: 15.

DELEZON, Thomas, (M89) 5921 Liptonshire Drive, Corpus Christi, TX 78415. Dy: (512) 939-3282. Res: (512) 853-5383. GS: 9.

DIECKMANN, Tony J., (M83) 4117 Joyful Court, Florissant, MO 63034. Dy: (314) 263-1310. Res: (314) 837-7274. S: Joy. Job: Logis Mgmt Spec, AVSCOM. GS: 12.

DIETZ, Cynthia K., (M86) (Cindy) 1425 Charles-ton Drive, Edgewood, MO 21040-2205. Dy: (301) 671-9932. Res: (301) 679-9088. S: Hoot. Job: Chemical Secretary, USA Chemical Research Dev & Engineering Cntr. GS: 5.

DIFATTA, Patricia A., (M83) (Pat) 2639 Horseshoe Ridge, St. Charles, MO 63030. Dy: (314) 263-2549. Res: (314) 441-3190. S: John. Job: AVSCOM AMSAV-CBB. GS: 14.

DISMUKES, Kathleen M., (M89) (Kathy) 9645 Groethel Road, Sacramento, CA 95827. Dy: (916) 368-3030. Res: (916) 368-0873. Job: Logistics Mgmt Specialist, Sacramento Army Depot. GS: 11.

DIXON, Linda S., (M89) Route 1, Box 174, Ingheside, TX 78362. Dy: (512) 939-2515. Res: (512) 776-3776. Job: Trades Worker. WG: 5.

DIXON, Peggy J., (M89) 4904 Sun Lake Drive, St. Charles, MO 63301. Dy: (314) 263-1082. Res: (314) 946-1832. S: Richard Lee. Job: Program Analysis Officer, AVSCOM. GS: 13.

DODD, David W., (M72) 144 Bret Harte Drive, Newport News, VA 23602. Dy: (804) 878-6864.

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S: Virginia. Job: Log Mgmt Spec, Concepts & Studies Div, Dir Combat Dev, USAALS. GS: 12.

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DOUGLAS, Edward H., (M82) (Ed) 1527 Daly Drive, Corpus Christi, TX 78412. Dy: (512) 939-2660. Res: (512) 992-5787. S: Jodi. Job: Equip Spec, CCAD. GS: 10. Past VP, Corpus Christi Chapter.

DOUGLAS, JoJynn K., (M86) (Jodi) 1527 Daly, Corpus Christi, TX 78412. Dy: (512) 838-3628. Res: (512) 992-5787. S: Ed. Job: CCAD, Dir of Contracting. GS: 9.

DOWNS, Sharon L., (M85) 10843 Lawnbrook Drive, St. Louis, MO 63123. Dy: (314) 263-3763. S: Ray. Job: Logistics Mgmt Specialist, UH-1 Prod Mgr Office. GS: 13.

DREHER, Elizabeth, (M87) (Betty) 2112 Prather, St. Louis, MO 63139. Dy: (314) 263-2636. Res: (314) 644-0907. S: Donald. Job: AMSAV-MDP, AVSCOM. GS: 11.

DUARTE, Robert G., (M89) (Bob) 1014 Pin-cay Ct, Florissant, MO 63034. Dy: (314) 263-1687. Res: (314) 838-1988. S: Kristine. Job: Aerosp Engr, AVSCOM AMSAV-ECU. GS: 13.

DUBOIS, Merton S., (M77) (Sherm) 309 Green Grove Road, Wayside, NJ 07712. Dy: (201) 532-0014. Res: (201) 922-9657. S: Jean. Job: Chf, Advance Concepts Div, Ft. Monmouth. GS: 15. SRVP & Past Pres, Monmouth Chapter.

DUNN-HUBBARD, Ada L., (M88) 3432 Larchmont Avenue, Apt. 422, Alexandria, VA 22302. Dy: (202) 697-0487. Res: (703) 931-9526. Job: Secretary, ODCSLOG, DALO-AV. GS: 6.

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EAGERTON, Donald C., (M89) (Don) Route 1, Box 129, Jack, AL 36346. Dy: (205) 255-3304. Res: (205) 735-3810. S: Jean. Job: Chief, ATC NAVADS Maint Div, 1-11th Avn, ATB. GM: 14.

EARLEY, Faye E., (M87) 1852 Bogase Dr, Petersburg, VA 23805. Dy: (804) 734-1723. Job: Protocol Off, USALOGC&FL, Ft. Lee. GS: 9.

EASTER, Richard A., (M84) (Dick) 654 Lansdown St, Corpus Christi, TX 78412. Dy: (512) 992-8355. Res: (512) 939-3967. S: Barbara. Job: Corpus Christi Army Depot. GS: 10.

EATON, Cheryl C., (M89) P.O. Box 34, Harvest, AL 35749. Dy: (205) 876-4673. Res: (205) 837-5658. Job: Supply Systems Analyst, USA Missile Cnd. GS: 12.

ECKER, Constance H., (M88) 710 South Quidia Street, Enterprise, AL 36330. Dy: (205) 255-2425. Res: (205) 347-6568. Job: Writer, ATB, SZ/S3. GS: 11.

EICKHORST, James D., (M84) (Jim) 1569 Candish Lane, Chesterfield, MO 63017. Dy: (314) 263-1575. Res: (314) 537-1588. S: Patricia. Job: Cobra P.M.O., Tech Eng Div. GS: 13.

ELLERT, Diane S., (M89) 5056 Cascade, Corpus Christi, TX 78413. Dy: (512) 939-2938. Res: (512) 992-1385. S: Ruben. Job: Sec'y, CCAD. GS: 4.

ELLINGTON, Char M., (M85) 2311 Park Drive,

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ELLIOTT, Graydon A., (M88) Army Avn Applied Tech Div, ATTN: SAVRT-TY-ATP, Fort Eustis, VA 23604-5577. Dy: (804) 878-2771. Res: (804) 565-4640. S: Sue. Job: Aerospace Engineer, Avn Applied Tech Directorate. GS: 14.

EMAHISER, Nancy L., (M89) 9 Fairway Drive, Edwardsville, IL 62025. Dy: (618) 452-4328. Res: (618) 692-1857. S: James B. Job: Logistic Mgmt Spec, AVSCOM. GS: 13.

EMANUEL, Cindy H., (M88) 615 Dellwood Drive, Newport News, VA 23602. Dy: (804) 878-6961. Res: (804) 877-1498. Job: Management Asst., Mgmt Office, USAALS. GS: 5.

EVANS, Barbara W., (M88) 1817 O'neill Street, Corpus Christi, TX 78418. Dy: (512) 939-2066. Res: (512) 937-1532. S: Gene. Job: Supr Inventory Mgmt Spec, CCAD. GS: 12.

EWING, Elizabeth C., (M88) (Boop) 5913 Pennsylvania, St. Louis, MO 63111. Dy: (314) 263-1261. Res: (314) 481-8328. Job: Logistics Mgmt Spec, AVSCOM. GS: 12.

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FALCON, Benjamin F., (M69) (Ben) 4649 Coventry Ln, Corpus Christi, TX 78411. Dy: (512) 939-3872. Res: (512) 855-7962. S: Isabel. Job: Qual Assur Spec Acrr, CCAD. GS: 11.

FARIAS, Eddie, (M88) P.O. Box 203, Driscoll, TX 78351. Dy: (512) 939-3161. Res: (512) 387-9760. S: Aurora. Job: Quality Control Inspector, CCAD. WG: 11.

FEDER, Earl, (M82) 16 Meyer Road, Edison, NJ 08817. Dy: (201) 544-3907. Res: (201) 985-5582. S: Elaine. Job: AVRADA, Fort Monmouth. GS: 14.

FELDER, Charles, (M89) (Chuc) P.O. Box 963, APO New York 09221. S: Barbara A. Job: Avionics Technician, Augusta Int'l. DCS: 12.

FERENCE, Edward W., (M88) (Bill) 2 Graystone Court, St. Charles, MO 63303. Dy: (314) 263-9471. S: Sue Ann. Job: General Engineer, TROSCOM. GS: 11.

FERENCE, Sue A., (M88) 2 Graystone Court, St. Charles, MO 63303. Dy: (314) 263-3524. Res: (314) 723-6606. S: Edward W. Job: Safety Engineer, AVSCOM. GS: 12.

FEUTZ, Lester, (M59) (Les) PSC Box 1358, APO NY 09611. Dy: 030/819-5495. Res: 030/833-6806. S: Janet. Job: Chief, Ft Stotzn, Avn Detachment, Berlin Brigade. GS: 13.

FINAFROCK, John W., (M76) 500 Guntersville Road, Arab, AL 35016. Dy: (205) 878-5266. Res: (205) 586-2203. S: Leta. Job: Deputy Director of Materiel Mgmt, MICOM. GS: 15. VP, Tennessee Valley Chapter.

FINEGAN, Janis M., (M85) (Jan) Hq, Materiel Cnd, AMCPM-MR, 5001 Eisenhower Ave, Alexandria, VA 22333-0001. Dy: (202) 274-9012. S: Ray. Job: Public Affairs Specialist. GS: 13.

FIRMONT, John A., (M81) 491 Monticello Blvd, Lexington, KY 40503. Dy: (806) 293-4146. Res: (806) 223-5928. S: Gretchen. Job: Maint Mgmt Specialist, USAMCMRSA. GS: 12.

FLYNN, Robert J., (M82) (Bob) 11752 Benedicta, Bridgeton, MO 63044. Dy: (314) 263-1771. Res: (314) 263-1771.

Blossom Street, Corpus Christi, TX 78418. Dy: (512) 939-2068. Job: Supervisory Inventory Mgmt Spec. GS: 11.

FOREMAN, Laverne R., (M82) (Vern) 164 N. 74th Street, Apt. 2024, Mesa, AZ 85207. Dy: (602) 891-3579. Res: (602) 961-2974. S: Doris. Job: Chief, Log Mgmt Branch, USA ARPR-MDHC. GS: 13. Past Sec, Arizona Chapter.

FRY, Clarence A., (M83) (Piff) 102 Dublin Court, Bel Air, MD 21014. Dy: (301) 278-5834. Res: (301) 838-6691. S: Eunice. Job: Chv, Avn & Air Def Dir, USA Human Eng Lab. GS: 15.

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FUNKHOUSER, Donald, (M89) (Don) Dept of Enlisted Training, ATTN: ATZQ-DEJ-O, Fort Rucker, AL 36362. Dy: (205) 255-5707. Res: (205) 794-0499. S: Peggy. Job: Ed. Specialist, Dept of Enlisted Training, Hq. GS: 12.

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GAGE, Jack S., (M86) (Jack) P.O. Box 18966, Corpus Christi, TX 78418. Dy: (512) 939-2229. Res: (512) 883-8010. Job: Industrial Engr. Tech., CCAD. GS: 9.

GAGGIN, David V., (M85) (Dave) 12 Roger Avenue, Lincroft, NJ 07738. Dy: (201) 544-4851. Res: (201) 842-2338. S: Judy. Job: Director, USA AVRAIDA. SES: 4. NEB. Pres, Monmouth Chapter. SES: 04.

GAINER, Charles A., (M81) (Chuck) P.O. Box 1503, Enterprise, AL 36330. Dy: (205) 255-4404. Res: (205) 347-8438. Job: Chf, Army Research Institute Avn R & D Activity, Inst. DCSPER. GS: 15.

GARCIA, Eliseo V., (M79) (Ev) 4422 Hamlin, Corpus Christi, TX 78411-3069. Dy: (512) 939-2675. Res: (512) 853-1539. S: Maria I. Job: Section Chief, CCAD. WS: 10.

GARCIA, Manuel, Jr., (M89) (Manny) 3226 Lariat Ln, Corpus Christi, TX 78415. Dy: (512) 939-2135. Res: (512) 851-9339. S: Alma Dalia. Job: Actl Rotor Head Mech Hpr, CCAD. WG: 5.

GARCIA, Raquenal S., (M87) (Rocky) 3622 Redwood, Corpus Christi, TX 78411. Job: Machinist 5EB2C, CCAD.

GARMON, Janet J., (M83) (Jan) 1525 Tremont Drive, Florissant, MO 63033-3024. Dy: (314) 263-1122. Res: (314) 921-6251. S: Gary. Job: AMSAV-ET Admin Officer, Dir of Eng. GS: 7. VP, Lindbergh Chapter.

GASAWAY, James W., (M83) 22 Chesterton Lane, Chesterfield, MO 63017. Job: AVSCOM AMSAV-DPL. GS: 14.

GENTRY, C. Patrick, (M88) 4019 Hilltop Field Dr, Chester, VA 23831. Res: (804) 796-7842. S: Nancy. Job: Personnel Ofcr, Ft. Lee. GS: 14.

GEOFFROY, Thomas A., (M86) (Tom) 1290 St Anthony Lane, Florissant, MO 63033. Dy: (314) 263-3053. Res: (314) 837-2563. S: Rosalie. Job: Chief, Maint Engr Pgm Mgmt Br, AVSCOM. GM: 14.

GIBSON, Constance S., (M80) (Connie) Hqs 5th Corps, Safety Office, APO NY 09079. Dy: 320-5306. Res: (49) 06181-850613. S: William. Job: Safety and Occupational Health Mgr, Frankfurt. GM: 13.

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GONZALEZ, Juan, (M89) 5757 Woodbridge, No. 21-A, Corpus Christi, TX 78413. Dy: (512) 939-3315. Res: (512) 992-7842. Job: Security Guard. GS: 6.

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GORDON, Troylla C., (M89) (Troy) 100 West Morningview Dr., Enterprise, AL 36330. Dy: (205) 255-6418. Res: (205) 393-3463. S: Linda. Job: Hcpr Ft Instr, D/1-212 Avn. GS: 12.

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GRIMA, Carmel, (M84) (Chuck) RSA Casewent, FMA Box 80, APO New York 09049-5367. Dy: 243-1110 x244. S: Jose. Job: Chief, Adm-Svcs Div, 47 ASG, England. GS: 11.

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HEADLEY, David R., (M89) (Doc) 7350 McCarde, Apt. 114, Corpus Christi, TX 78412. Dy: (512) 939-2095. Res: (512) 991-3256. S: Connie. Job: Actl Mechanic, CCAD. WG: 8.

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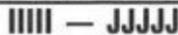
HUDSON, Joseph D. Sr., (M86) (Joe) 309 Dogwood Lane, Fairview Hts, IL 62208. Dy: (314) 263-1465. Res: (618) 397-2918. Job: Chief of Logis, CH-47 PMO, AVSCOM. GS: 14.

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KELLEY, Karen L., (M82) 1709 Nashua Drive, Delwood, MO 63136. Dy: (314) 263-3307. Res: (314) 867-4695. Job: Supv Contracting Off, TROSCOM. GM: 13.

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KHEMCHAND, Frederick, (M80) (Sonny) c/o Commander, Aviation Detachment, USAB Box 46, APO NY 09611. Dy: 30/B19-5437. Res: 685-2130. S: Beryl. Job: Calibration Coordinator, Avn Det, Maint Element Bde.

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KITCHENS, John W., (Dr.) (M89) Branch Historian, AT20-MH, Fort Rucker, AL 36362-5000. Dy: (205) 255-5501. S: Lynne. Job: Branch Historian, USAAVNC. GS: 12.

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KREGER, Warren P., (M88) Rr1 23d, Lebanon, IL 62254. Dy: (314) 263-3594. Job: Equip Spec (Actl), AVSCOM, AMSAV-MCAAB. GS: 11.

KROUPA, Dorothy, (M82) 1536 N. Elizabeth, Ferguson, MO 63135. Dy: (314) 263-2177. Res: (314) 524-2842. Job: S/GS, TROSCOM. GS: 14. Past Sec, Lindbergh Chapter.

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MURPHY, Frederick D., (M83) (Murph) 17167 Surrey View Drive, Chesterfield, MO 63005. Dy: (314) 263-1925. S: Marvel. Job: Chf. Financial Mgmt Div, AAH PMO, AVSCOM. GS: 15.

MURPHY, Nancy A., (M83) Hq. AMC Europe, Box 37, APO NY 09333. Dy: 496221-57-6068. Res: 496203-68193. Job: Hq. AMC Europe AMXEU-CD. GS: 7.

MURRAY, William M., (M85) (Bill) 220th CAC, 4th Avn Bde, Box 2542, APO NY 09250. Dy: 4672/616. Res: 049/09872-8126. S: Linda. Job: Katterbach AAF, Germany. GS: 12.

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NEILSON, Donna M., (M87) (Nee-na) 6448 Industrial Park Blvd, #50, Fort Worth, TX 76180. Dy: (817) 280-7006. Res: (817) 485-6982. Job: Contract Off, ARPRO Bell. GS: 12.

NEUDING, John M., (M87) (Big John) HHT, 2nd CAS, Box 10423, APO NY 09092-0216. Dy: 01149-9128-8743. Res: 01149-911-305548. S: Barbara S. Job: USA Missile Command, Logistics Asst Rep. GS: 12.

NIERHAUS, Patricia. (M77) (Pat) 295 Aviant, Apt. D, Hazelwood, MO 63042. Dy: (314) 263-1637. Res: (314) 839-3852. Job: Secretary, AVSCOM, Direct for Engrg. GS: 6.

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OGBURN, Larry D., (M89) CECOM-LAD-K, AMSEL-RE-LA-P, APO San Francisco 96301-0066. Dy: AV 732-1719. S: Sheila. Job: Camp Stanley, CECOM, Korea. GS: 12.

OHJGER, Robert G., (M86) (Bob) 19 Chamber Lane, Manalapan, NJ 07726. Dy: (201) 544-4686. Res: (201) 780-2195. S: Roberta. Job: General Engr, AVPRADA. GS: 13.

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OLENIK, Leonid. (M78) (Leo) 1120 Darlene Ave., Ocean, NJ 07712. Dy: (201) 544-4219. Res: (201) 531-0507. S: Flor. Job: Elect Engr, Proj Engr, AVPRADA (SAVAAN-N). GS: 13.

OLIVER, Raymond S., (M88) (Ray) 8661-C Old Towne Drive, University, MO 63132. Dy:

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PARKE, Darrel B., (M88) 42 Club Grounds No. Dr., Florissant, MO 63033. Dy: (314) 263-3261. Res: (314) 831-5361. S: Mary. Job: Aerial Navigation Engineer, AVSCOM. GS: 12.

PARR, Harry P., (M88) P.O. Box 21353, St. Louis, MO 63115. S: Ruth. GS: 9.

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PINDLE, Willie A., (M86) P.O. Box 348, Hq, USAMC Europe, APO NY 09333-5000. Dy: ETS 370-7793. S: Sharon. Job: Hammonds Bks, Seckenheim, FRG. USA Troop Spt Cmd. GS: 12.

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RAY, James A., (M82) (Jim) 3705 Red Hawk Court, Bridgerton, MO 63044. Dy: (314) 263-1000. Dy: (314) 739-6352. S: Charlotte. Job: Deputy Dir, Dir. for Engrg, AVSCOM. GS: 15.

RAY, James R., (M87) (Jim) Hq, AMC Europe, Box 396, APO New York 09333-4747. Dy: 370-8139. S: Peggy. Job: Chief Logistic Asst, AVSCOM Europe. GS: 14.

RAY, Peggy L., (M89) Hq, AMC Europe, Box 396, APO NY 09333-4747. Job: Program Analyst, AVSCOM Europe. GS: 9.

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RESPASS, John T., (M86) 3000 Alicia Drive, Wall, NJ 07719. Dy: (201) 544-2666. Res: (201) 681-7270. S: Marie. GM: 15.

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RICHARDSON, Robert K., (M87) (Bob) 1001 Highland Drive, St. Louis, MO 63135. Dy: (314) 263-3892. S: Virginia. Job: Operating Accountant, AVSCOM. GS: 10.

RICHEY, James M., (M82) 23 Pilot Hill Drive, St. Peters, MO 63376. Dy: (314) 263-1810. Res: (314) 447-9380. S: Barbara. Job: Chief, Mission Equipment Branch, LHX PMO. GS: 15.

RIVERA-MONER, Jorge, (M86) 902 Sandra Place, Lakewood, NJ 08701. Dy: (201) 544-3532. Res: (201) 458-8949. S: Vivian. Job: DDCSE, AMSAV-WE GS: 13.

ROBBINS, Walter V., (M86) (Walt) 138 Brel Harte Drive, Newport News, VA 23602. Dy: (804) 878-6661. Res: (804) 877-3355. S: Viola. Job: Chief Resident Training Div Dir, TRADOC, USAALS, Ft. Eustis. GS: 13.

ROBERTS, Mary C., (M89) (Charlie) 103 Lightfoot Drive, Enterprise, AL 36330. Dy: (205) 255-4010. Res: (205) 393-2673. Job: Education Specialist. GS: 11.

ROBERTS, Patricia L., (M88) (Patti) 1526 Cambridge Drive, Corpus Christi, TX 78415. Dy: (512) 939-2938. Res: (512) 851-2353. Job: Production Controller, CCAD. GS: 9.

RODGERS, Gary A., (M85) 6838 Crosstimbers, Corpus Christi, TX 78413. Dy: (512) 939-3120. Res: (512) 993-4106. S: Shirley. Job: Machinist Supervisor, CCAD. VP, Corpus Christi Chapter.

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(703) 487-8044. Res: (703) 455-8330. S: Charlotte. Job: Comm Mgmt Spec, JTC3A, Defense Communications Agency. GS: 14.

ROGERS, Janie T., (M89) 101 Victoria Drive, Enterprise, AL 36330. Dy: (205) 255-2808. Res: (205) 347-4926. Job: Sec'y Steno. GS: 8.

ROLAND, Don L., (M73) 64 Rock Creek, Corpus Christi TX 78412. Dy: (512) 939-3585. Res: (512) 992-0962. Job: CCAD Civilian Exec Asst.. GS: 15.

ROMANO, Julius, (M85) 2225 Spoonwood Ln, Florissant, MO 63033. Dy: (314) 263-1971. Job: Computer Resource Team Ldr. GS: 14.

RORICK, Harry H., (M88) (Bear) HHC, 4th Brigade, Attn: Base Operations, APO NY 09185. Dy: 06131-477605. Res: 06131-504132. S: Patricia. Job: Airfield Ops Spec. GS: 8.

ROSBOROUGH, William W., (M87) (Bill) Stonewood Apt 203, Ridley Park, PA 19078. Dy: (215) 591-8570. Res: (215) 521-3465. Job: Electronics Engr, US Army ARPRD, Boeing Hcpr. GS: 12.

ROULAND, Donald P., (M87) 2628 Benton St, Granite City, IL 62040. Dy: (314) 263-3224. Job: Contract Specialist, AVSCOM. GS: 9.

ROWLAN, Matilda C., (M72) (Tillie) 710 Orleans, Apt C, New Orleans, LA 70116. Dy: (504) 589-3882. Res: (504) 581-4271. Job: Budget Asst, Nat'l Park Service. GS: 7. Past Sec. Lindbergh Chapter.

RUIZ, Eduardo G., (M83) (Ed) 3822 Brookhaven Drive, Corpus Christi, TX 78410. Dy: (512) 939-2011. Res: (512) 241-3051. S: Guadalupe. Job: Acrt Electrician, Spec Proj Acrt Assy Br, CCAD.

RUSZCZYK, Joseph C., (M88) 14345 Aquarius, Corpus Christi, TX 78418. Dy: (512) 939-3447. Res: (512) 949-7301. S: Phyllis. Job: Ind Engr Tech, CCAD, X3305. GS: 9.

RUTLAND, James S., (M88) 508 S. Ouida Street, Enterprise, AL 36330. Dy: (205) 255-4605. Res: (205) 347-9720. S: Marcia. Job: Flight Instr, Ft. Rucker, B Co 1/212th. GS: 12.

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SALAZAR, Jesus, (M89) 7470 Skyking Drive, Corpus Christi, TX 78412. Dy: (512) 939-2398. Res: (512) 991-3613. Job: Mech Parts Repairer, Work Leader, CCAD.

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SAN MIGUEL, Norma, (M75) P.O. Box 10170, Corpus Christi, TX 78410. Dy: (512) 939-2259. Res: (512) 241-1607. S: Fred. Job: Labor Rel Spec, Civ Perts Div, CCAD. GS: 12.

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SANDRIDGE, Leslie G., (M86) 1261 Ballast Point, Arnold, MO 63010. Dy: (314) 263-2226. Res: (314) 464-0302. S: Judy. Job: Ind Spec (Act), AMSAV-PMD. GS: 11.

SANSONE, Patricia J., (M87) (Pat) 5002 Flamewood Drive, St. Louis, MO 63129. Dy: (314) 263-2986. Res: (314) 487-5578. S: Fred. Job: Logis Mgt Spec, AVSCOM. GS: 10.

SATTERFIELD, Kenneth T., (M89) 101 Oakview Circle, Enterprise, AL 36330. Dy: (205) 255-4181. Res: (205) 393-2773. Job: Helicopter Flight Instr. GS: 12.

SCHMITZ, Don W., (M83) (Don) 1090 Marion, Caryle, IL 62231. Dy: (314) 263-3125. Res: (618) 594-2883. S: Mary Ann. Job: Director of Proc & Prod, AVSCOM AMSAV-P. SES.

SCHODROSKI, Jeannette, (M83) 1417 Olive Street, Highland, IL 62249. Dy: (314) 263-3769. Job: Inventory Mgt Spec, AVSCOM, Directorate For Material Mgt. GS: 12.

SCHROEDER, Jill E., (M85) 2183 Hillgate Ct., St. Louis, MO 63146. Dy: (314) 263-2236. Res: (314) 469-6810. S: Paul. Job: Contracting Ofcr, AVSCOM. GS: 12.

SCHULZ, Rodney J., (M88) (Rod) 717 Jovett Drive, Newport News, VA 23602. Dy: (804) 878-6850. Res: (804) 874-1446. S: Diana. Job: Deputy Asst Commandant, USAALS. GS: 14.

SCHWARZ, Robert M., (M88) (Bob) 9151 Cordoba Lane, Crestwood, MO 63126-2703. Res: (314) 843-0466. S: Betty. GS: 12.

SCHWIND, Gamma, (M83) P.O. Box 18106, Corpus Christi, TX 78418. Dy: (512) 939-2973. Res: (512) 939-9486. Job: Computer Sys Analyst, CCAD, Dir of Info Mgmt. GS: 9. VP, Corpus Christi Chapter.

SCYERS, George, (M80) RR #2, Box 95, Alhambra, IL 62001. Dy: (314) 263-1755. S: Carol. Job: Dep Dir for Prod Assurance. GS: 15.

SCOTT, Earl D., (M82) (Scottie) 402 Rebecca Drive, O'Fallon, IL 62269. Dy: (314) 263-1741. Res: (618) 624-2607. S: Josie. Job: AMCPM-SOA-I. Special Ops Acft. GS: 13.

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SEATON, Marguerite, (M88) (Margaret) 269 8th St, Wood River, IL 62095. Dy: (314) 263-1821. S: Bill. Job: Qual Assurance Spec. GS: 7.

SEKACH, Stephen M., (M87) RR2, Box 107A, Waterloo, IL 62298. Dy: (314) 263-1194. Res: (618) 939-6055. S: Barbara. Job: Project Dir, PM TRADE, AMCPM-TND-STL. GS: 13.

SELLMAN, Martina V., (M88) (Tina) 905 Twite Cir., Corpus Christi, TX 78418. Dy: (512) 939-478. Res: (512) 937-6149. Job: CCAD. GS: 9.

SEVERS, Clelia L., (M87) 1204 Kinsella Avenue, Swansea, IL 62220. Dy: (314) 263-3727. Res: (618) 235-9631. S: Lois. Job: Inventory Management Specialist. GS: 9.

SHACKELFORD, Sandra H., (M87) (Sandy) Route 1, Box 1160, Hayes, VA 23072. Dy: (804) 878-2208. Res: (804) 642-3143. S: James. Job: Avn Applied Tech Directorate, Fort Eustis. GS: 7.

SHAMBLIN, Chester H., (M78) (Homer) 6830 Victoria Drive, Morrow, GA 30280. Dy: (404)

669-6770. S: Evelyn. Job: AVSCOM. GS: 13. Past VP, Phantom Corps Chapter.

SHANNON, John K., (M81) 6946 Pershing Ave, University City, MO 63130. Dy: (314) 263-1944. Res: (314) 862-1302. S: Linda. Job: Logistics Mgmt Division, AAH-PMO. GS: 15.

SHEPARD, Richard L., (M89) (Shep) 811 Highland Street, Dothan, AL 36301. Dy: (205) 255-3909. Res: (205) 794-3097. S: Peggy A. Job: ATC Branch Chief, 1-11th Aviation ARAC Div. GM: 15.

SHETH, Chandrakant, (M87) (Chandu) 6 Old Bridge Drive, Howell, NJ 07731. Dy: (201) 544-3588. Res: (201) 367-4022. S: Bina. Job: Super Gen Engr, AVRADA. GM: 14.

SHIPLEY, John L., (M82) Aviation Applied Technology Directorate, Fort Eustis, VA 23604-5577. Dy: (804) 678-2000. Res: (804) 249-2131. S: Betty. Job: Deputy Director, AATD. SES.

SILVA, Joseph, (M85) (Joe) USMCA Base Ops, Box 106, APO NY 09457. S: Lucia. Dy: 337-5190. Res: 0048/6121-307834. Job: Wiesbaden MILCOM. GS: 12.

SIMONE, Barbara A., (M87) (Barb) 978 Crossbill Street, Corpus Christi, TX 78418. Dy: (512) 939-2431. S: Larry. Job: Secretary, CCAD. GS: 5.

SIMPSON, Constance M., (M83) (Connie) 10 Hanson Drive, Granite City, IL 62040. Dy: (314) 263-3784. Res: (618) 797-0639. S: Jack. Job: Inventory Mgmt Spec, AVSCOM. GS: 12.

SINGLEY, George T. III, (M79) 9912 Shady Slope Court, Fairfax Station, VA 22039-2924. Dy: (202) 697-1646. S: Maxine. Job: Deputy Research & Tech, OASA (ROA). SES.

SKIPLE, Jacqueline, (M84) 7343 Drexel Drive, University City, MO 63130. Dy: (314) 263-3808. Res: (314) 726-3493. Job: Inventory Mgmt Spec, AVSCOM. GS: 11.

SKIPLE, Scott A., (M88) 7343 Drexel Drive, University City, MO 63130. Dy: (314) 263-1082. Res: (314) 726-3493. Job: Aerospace Engr, AVSCOM. GS: 13.

SMITH, Eugene A., (M85) (Gene) 886 Garrow Road, Newport News, VA 23602. Dy: (804) 878-6457. Job: Training Spec, DOTD, USAALS, OTB. GS: 11.

SMITH, Gary L., (M81) (Gary) 514 Fox Pointe Drive, St. Charles, MO 63303. Dy: (314) 263-1121. Res: (314) 928-9458. S: Ida. Job: Deputy PEO, Aviation. SES, NEB.

SMITH, Gerald S., (M83) (Gerry) 9625 Todd Mill Road, Huntsville, AL 35803. Dy: (205) 876-5185. S: Jo Ann. Job: TOW Project, USA Missile Command. GM: 15.

SMITH, Ida L., (M83) 514 Fox Pointe Drive, St. Charles, MO 63303-7152. Dy: (314) 263-3751. Res: (314) 928-9458. S: Gary. Job: AVSCOM, Program Analyst. GS: 12.

SMITH, Mary Jo, (M89) P.O. Box 14, Edgewood, MD 21040-0014. Dy: (301) 671-2314. Res: (301) 939-3311. Job: Military Personnel Officer, USA Chemical Research, Devt Engrg Center. GS: 9.

SMITH, Paul J., (M80) (PJ) P.O. Box 191, Salmon, ID 83467. Dy: (208) 865-2383. Res: (208) 756-2623. S: Mary Anne. Job: Hcpr Mgr, Salmon Nat'l Forest. GS: 7.

SNACKENBERG, Steven J., (M87) 215 Brittany Drive, Fairview Heights, IL 62208. Dy: (314) 263-1237. Job: Industrial Prod Management

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Officer, AVSCOM. GS: 15.

SNYDER, Richard, (M84) (Rick) 35 Weaverly Road, RD 5, Box 71, Freehold, NJ 07728. Dy: (201) 544-3023. Res: (201) 462-6195. S: Donna. Job: OPM SINGARS, AVRADA, Ft. Monmouth. GS: 5.

SOMERS, Karen L., (M88) 106 Lookout Point, Yorktown, VA 23692. Dy: (804) 878-0103. Res: (804) 890-2558. S: Max. Job: Opns Research Analyst, USA AATD. GS: 14.

SPEARS, Abner B., (M89) 7434 Piper Drive, Corpus Christi, TX 78412. Dy: (512) 939-3803. Res: (512) 992-9710. Job: Mgmt Analyst, CCAD. GS: 11.

SPONEMANN, Frieda A., (M88) (Fritz) RR 3, Box 880, Sugarloaf Road, Collinsville, IL 62234. Dy: (314) 263-3517. Res: (618) 344-2859. Job: Supply Cataloger, AVSCOM. GS: 7.

STANFORD, Don L., (M83) 9511 Howerton Drive, St. Louis, MO 63123. Dy: (314) 263-2814. Res: (314) 638-0195. S: Janet. Job: AVSCOM, AMSAV-CM. GS: 14.

STECKER, Eileen B., (M84) 2538 Westglan Estate Drive, Maryland Hgts., MO 63043. Dy: (314) 263-2651. Job: Pos Classification Spec, AVSCOM. GS: 12.

STEELE, John A., (M87) 309 N. Sappington, St. Louis, MO 63122. Dy: (314) 263-1722. Res: (314) 965-1065. S: Patricia. Job: Technical Division Chief, TADS/PNVs PMO, AVSCOM. GS: 15.

STEELMAN, Jimmie L., (M88) 111 Peacock Street, Daleville, AL 36322. Dy: (205) 255-3775. Res: (205) 598-3107. S: Christina. Job: Standards, 1-223 ATB, USAAVNC. GS: 13.

STEIGER, Arthur J., (M83) (Art) 810 Bergquist Drive, Manchester, MO 63011. Dy: (314) 263-701. Res: (314) 394-3597. S: Trudy. Job: Computer Prog Analyst, AVSCOM. GS: 12.

STEUER, Eileen A., (M88) 3468 Gunston Road, Alexandria, VA 22302. Dy: (703) 274-9144. Res: (703) 998-8617. Job: Program Integration Spec, USA. GS: 14.

STEVENS, Frank E., (M88) 11019 Crimson Drive, St. Louis, MO 63146. Dy: (314) 263-1157. Res: (314) 872-7440. S: Pat. Job: Aerospace Engr, AVSCOM. GS: 13.

STEWART, Edna Roma, (M85) (Roma) 7208 Jenwood Street, St. Louis, MO 63136. Dy: (314) 263-1794. Res: (314) 381-1487. Job: Secretary, AVSCOM. GS: 5.

STIM, Michael, (M88) 3611 Sun Lake Drive, St. Charles, MO 63301. Dy: (314) 263-1775. Res: (314) 947-3014. Job: General Engineer, AVSCOM. GS: 12.

STONE, Michael P.W., (M89) (Mike) Secretary of the Army, Dept. of the Army, Washington, DC 20310-0100. Dy: (202) 695-3211. S: Ann. Job: Secretary of the Army. SES.

STOOPS, Kathy D., (M89) 7437 Piper Drive, Corpus Christi, TX 78412. Dy: (512) 939-3831. Res: (512) 992-9998. Job: Industrial Engrg Tech, CCAD. GS: 9.

STOOPS, Lewis E., (M85) (Lew) 7437 Piper Drive, Corpus Christi, TX 78412. Dy: (512)

939-2660. Res: (512) 992-9998. S: Kathy. Job: WC 54400, x2660, CCAD. GS: 11.

STOREY, Catherine E., (M85) 8210 West Main Street, Belleville, IL 62223. Dy: (314) 263-3290. Res: (618) 397-1973. Job: Contract Spec, AVSCOM AMSAV-PASA. GS: 9.

STRATHMAN, Sandra L., (M88) 2045 New Sun Drive, Florissant, MO 63031. Dy: (314) 263-3116. Res: (314) 831-4031. Job: Secretary, AVSCOM. GS: 4.

SUEVER, William H., (M85) (Bill) 4117 Lebanon Avenue, Belleville, IL 62221. Dy: (314) 263-2212. Res: (618) 632-2922. S: Mary Eileen. Job: New Equip Training Division, Directorate for Maintenance, AVSCOM, AMSAV-MSB. GS: 12.

SUTTON, James, (M87) (Jim) 912 Coral Drive, Fairview Hgts., IL 62206. Dy: (314) 263-1221. Res: (618) 624-6605. S: Gloria. Job: Logis Mgmt Spec, AVSCOM. GS: 13.

SWAYZE, Sandra J., (M88) 345 South Lincoln Avenue, Oakhurst, NJ 07755. Dy: (201) 532-8158. Res: (201) 531-0271. Job: Computer Programmer Analyst, USAMC-DOIM, Ft. Monmouth. GS: 5.

SYKORA, Wayne E., (M84) 3210 Richmond St, Corpus Christi, TX 78410-2421. Dy: (512) 939-2137. Res: (512) 241-6510. S: Janice. Job: Production Controller, CCAD. GS: 9.

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TERNAK, Barbara R., (M83) 6005 Lemay Ferry Road, Melville, MO 63129. Dy: (314) 263-2267. Res: (314) 892-7808. S: John Sr. Job: Competition Advocate, TROSCOM. GS: 15.

THOMAS, Joseph L., (M88) (Joe) USARPRD-MDHC, (AVSCOM), 5000 E. McDowell Road, Mesa, AZ 85205. Dy: (602) 891-3337. Res: (602) 396-7041. S: Chong. Job: Safety/Occupational Health Mgr. GS: 12.

THOMPSON, Karen G., (M83) 1639 Talisman Lane, St. Louis, MO 63138. Dy: (314) 263-1335. Res: (314) 355-8068. Job: AVSCOM. GS: 12.

THRONE, Varsenig N., (M82) (Vee) P.O. Box 327, Granite City, IL 62040-0327. Dy: (618) 452-4423. Res: (618) 452-3266. Job: Secy, AVSCOM, Mil Personnel Office. GS: 6.

TONSING, Elton H., (M85) (Al) 400 Tamarack Drive, Ballwin, MO 63011. Dy: (314) 263-1817. Res: (314) 394-3802. S: Janice. Job: Chief, Assessment Branch, AVSCOM. GS: 13.

TORREGROSSA, Robert E., (M89) 811 Mid-lincroft Road, Middletown, NJ 07746. Dy: (201) 544-5860. Res: (201) 671-1081. Job: Electronics Engr, PM EW/RSTA. GS: 14.

TRANTHAM, Sandra G., (M88) (Sandy) 7068 Florence, Jennings, MO 63136. Dy: (314) 263-1239. Res: (314) 383-7187. Job: Voucher Examiner, AVSCOM. GS: 5.

TRENT, Thelma, (M87) 19 Pinehurst Court, St. Peters, MO 63376. Dy: (314) 263-3216. S: Ben. Job: AVSCOM, Directorate for International Logistics. GS: 7.

TREVEY, Betsy, (M87) 4570 Laclede, #103, St. Louis, MO 63108. Dy: (314) 263-1237. S: Bill. Job: ARPD Management Office, AVSCOM. GS: 14.

TREVEY, William E., (M88) (Bill) 4570 Laclede, #103, St. Louis, MO 63108. Dy: (314) 263-2085. S: Betsy. Job: Hq, USA AVSCOM, AMSAV-9P. GM: 14.

TSCHOEPE, James A., (M78) (Jim) 5218 Hitching Post, Corpus Christi, TX 78415. Dy: (512) 939-2526. Res: (512) 853-6325. S: Linda. Job: Aircraft Engine Overhaul Inspector Gen Foreman, CCAD, WS: 16. Past VP, Corpus Christi Chapter.

TUCKER, Thomas G., (M89) (Tuck) 200th TAMMC, P.O. Box 363, APO New York 09052. Dy: 49/6332-86-6126. Res: 49/6332-46227. S: Dora. Job: Force Modernization Supervisor, Aviation. GM: 13.

TUSHOPH, Frank H., (M89) 744 Whitney's Landing Dr., Crownsville, MD 21032. Dy: (301) 267-2103. Res: (301) 923-3685. S: Judith. Job: Electronics Engr, DoD ECAC. GS: 13.

TYLECKI, Stanley R., (M85) 3055 Governor's Crossing, Wall, NJ 07719. Dy: (201) 544-4348. Res: (201) 681-3929. S: Arleen. Job: Branch Chief, AVRA. GS: 14.

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ULMAN, Becky, (M87) 3858 Grand National Drive, Florissant, MO 63034. Dy: (314) 263-220. Res: (314) 831-8281. S: Becky. Job: Procurement/Prod, AVSCOM. GS: 14.

ULRICH, Jeanne C., (M89) 3910 Ady Road, Pylesville, MD 21132. Dy: (301) 671-8741. Res: (301) 836-1035. S: Dean. Job: Secretary, Army Avn Division, NGB. GS: 7.

URBAN, Charles W., (M88) (Charlie) 12839 Fox Hollow Court, Florissant, MO 63033. Dy: (314) 263-1771. S: Sandra. Job: Quality Assurance Spec, AVSCOM. GS: 12.

VAIL, C. Mark, (M82) 5115 Carriage Trace Dr., Mehlville, MO 63128. Dy: (314) 263-1758. S: Karen. Job: Computer Engineering, USA AVSCOM, AMSAV-DE. GS: 12.

VALIGORA, Darlene I., (M82) 1306 Harbor Village Drive, Corpus Christi, TX 78412. Dy: (512) 939-2011. Res: (512) 993-3884. Job: Director, Maint, Special Projects, Hanger 45, CCAD. WG: 8.

VANBOOVEN, Vera E., (M87) 920 Hartford Place, St. Charles, MO 63301. Dy: (314) 263-1261. S: Orval. Job: Logis Mgmt Specialist, AVSCOM. GS: 12.

VAN WINKLE, Aiden D., (M81) (Van) 2265 Loveland Drive, Florissant, MO 63031. Dy: (314) 263-3197. Res: (314) 838-7942. S: Peggy. Job: SEMA/FW Project Mgt Office, AVSCOM General Engineer. GS: 14.

VARNEY, Ronald P., (M85) 1309 Fall Court, Wheeling, IL 60090. Dy: (312) 657-2122. Res: (312) 541-2811. S: Inse. Job: Aircraft Worker, USAR ASF #26. WG: 8.

VENEZIA, Eliseo, (M85) (Alex) 5309 Seguin Drive, Corpus Christi, TX 78415. Dy: (512) 939-3500. Res: (512) 851-2620. S: Estela. Job: Machinist, CCAD. WG: 10.

VILLVA, Gene P., (M89) (Gene) 7512 Saybrook Trail, Jonesboro, GA 30236. Dy: (404) 669-6792. Res: (404) 471-6193. S: Dani. Job: Forscom, J4 Supply & Maint Div. GS: 12.

VINES, Virginia G., (M88) 11151 Sierra Vista, No. 10, St. Louis, MO 63138. Dy: (314) 263-1258. Job: Chief, Military Pay, AVSCOM. GS: 8.

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WADDY, Ronald E., (M87) (Ron) 309 Saugat Avenue, Cahokia, IL 62206. Dy: (314) 263-

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518. Res: (618) 337-9800. S: Harriet. Job: Aft Logis Spec, AVSCOM. GS: 12.

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WALDROP, William D., (M64) 720 Southgate Drive, Belleville, IL 62223. Dy: (314) 263-1955. Res: (618) 398-5592. S: Jerry. Job: Equip Spec Aircraft, USA AVSCOM. GS: 12.

WALTON, Coburn C., (M77) 5757 S. Staples, 1104, Corpus Christi, TX 78413-3737. Dy: (512) 939-3585. Job: Chief, Mgmt Systems Div, Exec Dir. of Modernization. GM: 13.

WATTS, Annette L., (M86) (Anne) 7518 New Battle Grove Cir., Baltimore, MD 21222. Dy: (301) 877-6072. Res: (301) 477-0252. Job: Secy, Staff Chaplain Ofc, Edgewood Arsenal, Aberdeen Pk. GS: 5.

WEBB, Cameron W., (M80) 4041 Devon Dr, Corpus Christi, TX 78415. Dy: (512) 939-2938. Res: (512) 853-5233. S: Rose Marie. Job: Production Controller, CCAD. GS: 9.

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WEINFELD, John C., (M84) 34 Eastern Parkway, West Caldwell, NJ 07006-7216. Dy: (201) 544-2849. Res: (201) 575-0245. Job: Electronics Engr, USA AVRA. Ft Monmouth. GS: 13.

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Safety:

Non-lethal UH-60A Cyclic

by Colonel David E. Sullivan



FORT EUSTIS, VA — The Aviation Applied Technology Directorate (AATD), is continuing to search for new methods and materials leading to increased effectiveness of fielded and future aircraft. Two of our latest ideas are:

UH-60A Cyclic Control Stick

Head and neck injuries have historically accounted for a high percentage of fatal injuries to U.S. Army aircrew members involved in accidents. In one survey of the U.S. Army helicopter accidents (1971 through 1976) involving fatalities, over 19 percent were due to head and neck injuries. Many of these involved secondary (flailing) impacts in otherwise survivable crash scenarios. The advent of crashworthy (stroking) crewseats causes the cyclic control stick to pose an even greater threat than before since the crewman's head/upper torso is placed in closer proximity to the cyclic stick during seat stroking.

A 1980 UH-1 survivable accident, in which investigators determined the cyclic stick caused a fatality, prompted AATD's research effort to develop a generic crashworthy stick design. The UH-60A was selected as the baseline design since it was the first Army aircraft with stroking crewseats. The result (Fig. 1) was a stick which will collapse and



Figure 1.

fall away when struck vertically during a crash event. On the other hand, the design has demonstrated the strength to sustain emergency flight control (hydraulics off) loads in the longitudinal and lateral directions.

The stick pictured reduced facial dynamic impact loads 78

percent when compared to the current design, based on a full-scale crash test with a 50th percentile anthropomorphic dummy. Fig. 2 shows the maximum vertical load cell reading for the current and crashworthy sticks during testing. Loads are absorbed through the combination of a grip-mounted high-impact foam pad plus a wire-bending absorber built into the base separation mechanism. Though not totally non-injurious, this load reduction moves the stick from the lethal to the non-lethal category.

Additionally, the new stick offers the aviator a $\pm 2\frac{1}{2}$ " grip height adjustment feature using a cam/pin arrangement near the base.

Flight evaluation and full qualification is planned for 1990.

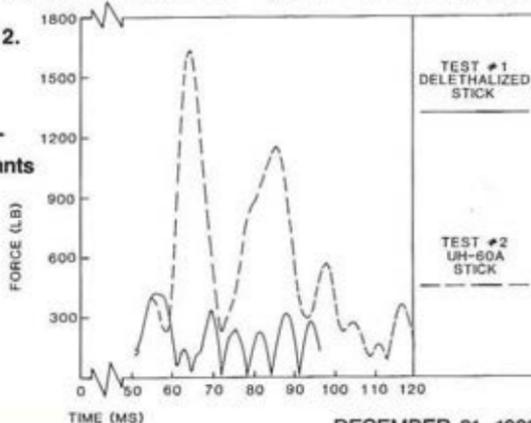
CAA & HUMS

Contracts will soon be awarded to Bristow Helicopters Limited (BHL) and British International Helicopters Limited (BIHL), to provide an analysis of the results of a helicopter Health and Usage Monitoring (HUMS) project sponsored by the British Civil Aviation Authority (CAA).

(Cyclic — cont. on p. 63)

Figure 2.

Stick
Loads -
Resultants



COL Sullivan is Director/Commander, Aviation Applied Technology Directorate, Ft. Eustis, VA.

Hardware:

T800 Engine Program: Adjusting to Changes

by LTC Arnold E. (Sandy) Weand, Jr.



the known changes and to incorporate protective provisions for possible future changes. The LOI followed the general concept of a RFP, but it only addressed changes, additions and/or deletions to what the Army was entitled to under the existing T800 engine contracts.

The two teams submitted their responses to the LOI and a Source Selection Evaluation Board (SSEB) was convened to review, evaluate and score the two proposals to enable the Army to select the contractor team best qualified to continue FSD. The figure below shows the SSEB organization and areas.

The T800 SSEB completed evaluation of the two contractor team's proposals in accordance with the Source Selection Plan and the guidance received from the Source Selection Advisory Council (SSAC). The final source selection SSEB was very much the same organization and operation as the original in 1985. The deputy chairman remained the same and three of the four area (T800 — cont. on p. 63)

ST. LOUIS, MO — In previous issues we discussed how the Army issued a competitive request for proposal for the Full Scale Development (FSD) of the T800 turbine engine for use in the Light Helicopter Program (LHX), and awarded two contracts to competing teams in mid-1985. During the ensuing three year preliminary flight rating phase, the competing teams worked with very little Government involvement, to meet the program requirements. Because of directed changes to the LHX program, certain requirements changed and some milestones became unrealistic.

Restructuring

In January 1988, the LHX Program Manager was directed to restructure the LHX acquisition and development program to eliminate the utility/assault version of the LHX, because of affordability issues. Additional efforts to make the program more affordable also resulted in a schedule slip. The major changes to the T800 program resulting from the LHX program restructuring were a reduction from 10,000 engines to 5,000 engines (based on reduction of 4,500 to 2,100 LHX aircraft) and an extended milestone for T800 production. The first production contract would now be awarded

in June 1993, versus the original November 1990.

Because of these LHX program changes it was necessary to allow the two contractor teams the opportunity to revise and re-price the remaining FSD portion of their contract to take into account the changes in the program.

Letter of Instruction

In March 1988 the Army issued a Letter of Instruction (LOI) to both teams. The purpose of this LOI was to realign T800 engine acquisition with the refocused LHX program and to reiterate the selection criteria provided to them when they signed the original FSD contracts in 1985.

The LOI provided instructions to the contractors on how to prepare a response to cover

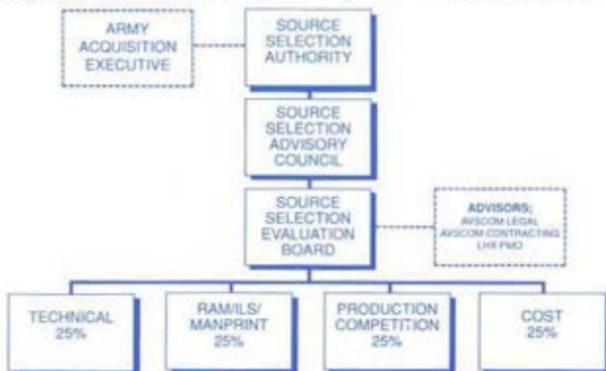


Figure 1. The 1988 SSEB Organization.
Note that the four areas are equally weighted.

LTC Weand is Assistant Program Manager for T800 Engine, St. Louis, MO.

Combat Developments:

Living Within a Constrained Budget

by Colonel Theodore T. Sendak



FORT RUCKER, AL — The Chief of Staff of the Army signed the current approved version of the Army Aviation Modernization Plan (AAMP) in May 1988. The AAMP complies with Congressional and OSD program and fiscal stipulations. It also complies with the 20 January 1988 Deputy Secretary of Defense Memorandum, subject: LHX/Army Aviation Modernization, Program Budget Decision 716 and 975.

Impact of Decisions

Constrained resources and Congressional, OSD, and Army decisions impacted on our procurement strategies during the FY89 execution and revision of the AAMP. The AH-64 APACHE buy was reduced from 975 to 807. Coincidental to this decision, a force reduction initiative dovetailed with the reduction in AH-64 procurement. The OH-58D buy will be stopped at 207 although our requirements remain at 592. This reduction in reconnaissance aircraft will leave a void in our scout/recon ability until the fielding of LHX. The LHX continues to be our number one aviation initiative along with continued procurement of current systems.

Careful scrutiny of the AAMP reveals that modernization is not achievable at \$2.5B annual total obligated authority. A level funding concept of approximately

\$3.5B annually will allow us to modernize. The Defense Resources Board provided sufficient funds (\$3.5B) in FY89 to continue the level funding concept of the AAMP. The 1990-91 President's Budget Submit supports the basic principles of the AAMP, but with some decrements in procurement. Anything less than a level funding concept disrupts the Basic tenets of the AAMP. Once we go below a level concept we no longer have a modernization plan, we have a sustainment plan.

Effect on Individual Units

USAAVNC conducted the Aviation Functional Area Assessment (FAA) and follow-on Warfighting Analysis to determine the effect of the AAMP on individual units. Aircraft retirements will reduce the fleet by approximately 2,000 airframes as modernized aircraft are fielded. Most aviation units will see a reduction (downsizing) in aircraft and corresponding crew members. However, the modernization/downsizing effort supports retention of aircraft maintenance personnel, fuel handlers, and ammunition specialists at current level. Our airframes will be more capable, and we will realize a greater ratio of maintainers/supporters to aircraft.

We share the field's concerns that the AH-64A Attack Helicopter Battalions (AHBs) are not sufficiently robust to accomplish the assigned mission. We are work-

ing on several alternatives to improve the situation. The May 1989 Defense Review Board directed elimination of seven AH-64 battalions, and the remaining 40 AHBs downsize to a 15 AH-64/10 OH-58/3 UH-60 design beginning in FY91. However, in September 1989 the Vice Chief of Staff directed retention of current design, and enhancement of 35 people per battalion, with priority to forward deployed units. We are working with DA, TRADOC, MACOMs and the Reserve Components to effect these changes.

The TRADOC Analysis Command (TRAC) is leading a team of analysts drawn from selected TRADOC schools, TRAC Centers, AMC laboratories and commands to develop a comprehensive LHX Cost and Operational Effectiveness Analysis (COEA) that will support a full scale development decision in December 1990. The LHX COEA is assessing the operational suitability and costs of all systems having potential for modernizing attack helicopter battalions, cavalry troops, Field Artillery Aerial Observer (FAAO) units, and special forces units currently equipped with the obsolete AH-1, OH-58, and OH-6 helicopters.

Updating Equipment

As the modern battlefield becomes more lethal, the equipment and tactics must become more sophisticated in order to survive. With the OH-58D we take a giant step up from outdated equipment. Arming the OH-58D makes it more survivable and one of the most cost effective aircraft available today. HQ TRADOC tasked the Aviation Center on 21 April 1989, to determine the best choice of aircraft

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

for a reconnaissance team. The Combined Arms Center approved our assessment that a pair of armed OH-58Ds is the best recon team around (OH-58D (Armed) Assessment July 1989). Due to the obvious merit of the program, the Secretary of the Army directed the arming of 207 OH-58Ds on 8 August 1989 (without holding a formal Army Systems Acquisition Review Council (ASARC) meeting).

TRADOC Proponent

The USA Aviation Center, Ft. Rucker, AL, is the TRADOC proponent for LHX. We are conducting six of the 11 COEA subanalyses and we contribute extensively to the other five. The analysis efforts include extensive methodologies designed to address all decision maker issues, Essential Elements of Analysis (EEA) and study objectives. The focus of each individual, within the analytical groups, is on the need for a comprehensive document which provides high quality results at a critical decision point in the evolution of the LHX.

First, we define the threat to Army Aviation missions in the next century. Then we examine what options we have for countering the threat, and describe how we would employ each option. We also define the logistical support requirements, training and manpower requirements, and total program costs to the Army for each alternative. We devote a significant amount of analysis time to developing and running realistic computerized simulations of battlefield scenarios with which we measure the effectiveness of attack helicopter battalions, air cavalry troops, and FAO units equipped with each of the alter-

native aircraft systems. Results from all 11 analyses will then be evaluated to produce an overall ranking of the alternatives. We are working to develop final draft reports on all six subanalyses for submittal to TRAC by the end of October 1989. The proponent will present a program recommendation in December 1990. Our efforts will then be directed towards supporting the remaining subanalyses and preparing the series of briefings required to staff the program.

MDR

The ASARC Milestone Decision Review (MDR) I B, held in July 1989 authorized Army Aviation to proceed with the Development/Production Proveout (D/PP) Initial Design Phase (IDP) for LONGBOW applications on four AH-64 APACHES. This authorized development of major upgrades necessary to integrate LONGBOW; specifically, additional cooling and expanded forward avionics bay.

The next milestone decision review for LONGBOW is a MDR II scheduled for May 1990 to consider full scale development. Coincidental to this initiative a MDR V will consider retrofit and/or production incorporation of the LONGBOW configuration APACHE upgrade. This review will consider the number of upgraded aircraft, fleet mix, and potential bill payers.

DCD developed a requirements program for a Multi-Stage Improvement Program (MSIP) for the UH-60. Although the Army did not fund the MSIP UH-60, Congress directed that the Army competitive bid the new engines. General Electric won the competition with the T700-GE-701C engine. An Army Program Re-

“Once we go beyond a level (funding) concept, we no longer have a modernization plan, we have a sustainment plan.”

view approved the new UH-60 engine, with an improved durability main transmission, to be designated the UH-60L. First deliveries will be during first quarter FY90 to the Texas National Guard. All subsequent procurement of UH-60s will be of the “L” model configuration.

ETP

USAAVNC recently approved and released to the field an Exportable Training Package (ETP) for air combat maneuvers. This training package contains academics and flight instruction to qualify aviators in basic air combat pilot skills.

The ETP is the first step in a crawl-walk-run training strategy for implementing air combat into all aviation training programs. Its primary purpose is to improve pilots' skill and provide crew drills to implement the doctrine in FM 1-197 (Air Combat Operations). This ETP is not the final answer for air combat training. It is a first step in a new mission area which is sure to evolve with time.

As you can see, our optimism is faced with constraints which we must work around to create an effective modernized Army Aviation force for the battlefield of the future. We are actively working to create that modernized force.

IIII

Test & Evaluation:

LHX Operational Assessment

by Colonel Tommie A. McFarlin



FORT RUCKER, AL — Since its establishment as a member of the TRADOC Test and Experimentation Command (TEXCOM) in 1988, the TEXCOM Aviation Board (formerly U.S. Army Aviation Board) has conducted user testing of aviation-related equipment, concepts, and training programs. In addition to user testing, the Aviation Board has also participated in development tests, conducted other types of tests and evaluations as directed by TRADOC, plus provided user test advice and guidance to materiel developers, producers, and to private industry.

Our primary mission has been and is to ensure the equipment, concepts, and training programs meet the user's needs, principally in the areas of operational effectiveness, logistics, safety, and Reliability, Availability, and Maintainability (RAM).

Normally our role in the acquisition process begins after the equipment, concepts, and training programs have been developed and assessed. However, in furthering our commitment to support the user, we have broadened our role in this process.

The Aviation Board is currently planning the operational assessment portion of the Demonstration/Validation (DEM/VAL) Phase of the Light Helicopter (LHX) Program. The technical and operational McFarlin is Commander, TRADOC Test & Experimentation Command (TEXCOM), & President, TEXCOM Aviation Board, Ft. Rucker, AL.

tional assessment of the proposed LHX aircraft designs will be conducted during the DEM/VAL. These assessments will look at system/subsystem technical and operational capabilities via flight and full-mission simulators.

The LHX will be a light-weight, low-cost, twin engine, advanced helicopter capable of performing armed reconnaissance, light attack, air combat, and deep attack missions. It will retire the current fleet of tactically obsolete AH-1, OH-6, and OH-58A/C helicopters. The LHX will be equally effective day or night, in adverse weather, in Nuclear, Biological, Chemical (NBC), and in Electronic Warfare (EW) environments. It will be self-deployable to Europe, Southwest Asia, and Latin America.

Two contractor teams, Boeing/Sikorsky (First Team) and McDonnell Douglas/Bell (Superteam), will conduct flight and handling qualities, part-task, and full-mission simulations using simulation models that are consistent with their proposed full-scale development aircraft designs.

No prototype aircraft will be built during the DEM/VAL phase. The operational assessment will be conducted entirely using full-mission simulators. Upon completion of the DEM/VAL, one contractor team will be competitively selected to proceed into the full-scale development phase.

The assessments of the two competing contractor teams will

be conducted in June (Stratford, CT) and July (Mesa, AZ) 1990. The assessment will examine each contractor's full mission simulator for operational effectiveness and suitability. The assessments will also examine mission effectiveness, aircrew workload, Mission Equipment Packages (MEPs), and battlefield communications. The operational assessment results will be provided to the Source Selection Evaluation Board (SSEB) as a part of the Program Manager's overall assessment and be used to support the Milestone II decision.

Two teams of six FORSCOM and two Engineering Test Pilots will fly the assessment scenarios, covering a three-week period. The first two weeks of each assessment will be a training period conducted by the contractors to familiarize the pilots with their particular simulator. The actual assessment will be conducted during the third week.

Currently, both the First Team and the Superteam are experimenting with 32-bit signal data processors instead of the standard 8-bit, using Very High Speed Integrated Circuitry (VHSIC) technology. The LHX and all other highly automated electronic integrated systems are driving the need for state-of-the-art test instrumentation and associated ADP support to identify and handle the data elements and requirements.

The TEXCOM Aviation Board's participation in the LHX Program represents a new milestone in our commitment to the user. The Board's part in the LHX DEM/VAL process is only the beginning as we expand our capabilities to conduct major system operational tests. We will continue to strive for new and better ways to support the field operational user. IIIII

Product Assurance

AVSCOM Product Assurance Update

by Mr. Daniel H. Kruvad



ST. LOUIS, MO — Insuring the quality conformance and safety of the aircraft and spare parts AVSCOM procures is our most important responsibility in Product Assurance. The AVSCOM Flight Safety Parts (FSP) Program is our key to executing the critical quality controls necessary to safely procure FSP in today's competitive environment. Progress continues on both the surveillance and documentation aspects of the program which began in 1985 in response to a Vice Chief of Staff Army challenge. A good overview of the program is provided by a FSP video which is currently being distributed to aviation units through DA channels.

Documentation

Under the documentation effort, critical quality inspection characteristics are identified and called out on engineering drawings. This effort is now either ongoing or complete for all FSP currently identified by AVSCOM. Critical characteristics are highlighted to both the contractor and the government Quality Assurance Representative (QAR) during the procurement process to insure 100% conformance. Technical manuals are also being updated to provide FSP installation or maintenance warning information to maintainers. Such information was published

in the August 1989 Change of BLACK HAWK manuals.

Surveillance tests have been performed on hundreds of FSP specimens ranging from new bracket items to parts slated for retirement. Testing is designed to confirm, on a recurring basis, the safe life remaining on FSP to preclude the risk of failures due to unknowns in the field environment or new sources. Results have confirmed qualification data and the current Time Between Overhaul (TBO) criteria in virtually every case.

Corrosion Prevention

The Corrosion Prevention and Control (CPC) Program is also making significant progress. Field testing of Water Displacing Compounds is ongoing in four locations worldwide to determine what compounds are most effective for corrosion protection on known trouble areas of the Force Modernization aircraft. Corrosion awareness videotapes are being utilized to provide the Army Aviation community an introduction to corrosion mechanisms and known problems on specific aircraft. These videotapes have been distributed to AVSCOM elements, PMs, and Logistics Assistance Representatives (LARs).

Efforts are continuing to provide more effective Warranty and Quality Deficiency Reporting (QDR) Programs with reduced administrative burden to the field. The systemic warranty concept

currently being implemented is moving from logbook serial number records to reporting via the existing QDR system, resulting in a warranty "transparent" to the user while still protecting the government from significant quality or reliability shortfalls. Improved QDR exhibit return has been implemented to provide funding and local authorization for direct commercial air returns of critical (Category I) QDR exhibits for analysis.

In addition to warranty claim reporting, the QDR system continues to be our primary means of obtaining rework or replacement of nonconforming supplies from AVSCOM contractors. Likewise, Sample Data Collection (SDC) continues to be in high demand as the prime source of RAM data for Army Aviation. Efforts in SDC are being directed towards an effective transition to the future Logbook Automation System (LAS) environment.

Contractor Certification

Our major new initiative currently is the Contractor Performance Certification Program (CP2). Under this program we intend to reduce government quality oversight of contractors who demonstrate commitment to Total Quality Management (TQM) resulting in world-class standards of quality and performance. Certified contractors may ultimately gain benefits in the source approval and competitive awards process because of their proven quality capabilities.

The efforts outlined in this article are providing benefits in the quality of AVSCOM systems and spare parts being procured today. Continued emphasis will put us on the path of long-term quality improvement in support of the Army Aviation of tomorrow. IIIII

Mr. Kruvad is Director of Product Assurance, U.S. Army Aviation Systems Command, St. Louis, MO.

Hardware:

The OH-58D: A Status Report

by Colonel Ted D. Cordrey



FORT RUCKER, AL — As the new TRADOC System Manager for the OH-58D, I welcome the opportunity to provide an update on one of our most successful Army Aviation development and fielding programs. The OH-58D continues to have a positive impact on the combat effectiveness of every organization in which it is fielded. Reports from the National Training Center (NTC), feedback from exercises in Europe, and analysis of real world contingency operations all extol the virtues of this superb aircraft.

Our current efforts are focused primarily in the areas of fielding, readiness, and refinement of the requirement to arm the system with an Air-to-Ground (ATG) weapons suite.

Fielding

Fieldings, past and future, are reflected on the accompanying chart. The recent introduction of the OH-58D into the V Corps and VII Corps Target Acquisition and Reconnaissance Companies (TARC) completed the fill of aircraft for the Active Army Aerial Fire Support Observer (AFSO) mission. Next on the agenda are those OH-58D reconnaissance aircraft prioritized into the 82nd Airborne Division and 11th and 2nd Armored Cavalry Regiments. The aircraft going to these three units represent the end of the

COL Cordrey is the TRADOC System Manager for OH-58D Helicopters, USAAVNC, Ft. Rucker, AL.

current production contract. As of now, Congress is debating the issue of continued OH-58D production. The Army has built a solid case for a positive decision.

Readiness

Readiness of the OH-58D fleet has unfortunately shown a steady downward trend over the past 12 months and is now a major concern of the entire aviation community. The reasons for the decline cross the boundaries of several issues, not the least of which has been the on-again, off-again nature of OH-58D procurement. Fixing the problem will not be easy or quickly accomplished. However, several in-

itiatives have been undertaken which should help reverse the downward trend in the near term and provide the framework for sustaining readiness rates at or above DA Fully Mission Capable (FMC) goals. Some of these initiatives are listed below.

- COL Jim Huey, the OH-58D Program Manager, and the major contractors (Bell and McDonnell Douglas) have developed a list of 54 actions directed toward improving Mast Mount Sight (MMS) readiness. To date, 33 of the actions have been completed and closed out. Several of the remaining items focus on actions which cannot be considered satisfactorily completed until readiness goals are achieved.

- The average depot repair turn-around time for selected components has been reduced from 140 days to 60 days. Additional tooling, test equipment, and spares are being procured to further reduce this time.

- Training of OH-58D unique

OH-58D Fieldings

Unit	Number of Aircraft
Completed Fieldings	
2nd Armor Division	6
1st Armor Division	6
3rd Infantry Division	6
3rd Armor Division	6
8th Infantry Division	6
XVIII Corps	15
2nd Infantry Division	6
9th MTZ Division	6
24th Infantry Division	6
1st Cavalry Division	6
1st Infantry Division	6
4th Infantry Division	6
5th Infantry Division	6
V Corps TARC	15
VII Corps TARC	15
Future Fieldings	
82nd Airborne Division	18
11th ACR	18
2nd ACR	18

troubleshooting and repair procedures for MICOM Logistic Assistance Representatives has been instituted. Several short, intense four-week long classes have been scheduled, the first of which began on 16 October 1989 at Ft. Gordon, GA.

• PM, TSM, and MICOM personnel have accelerated the number of on-site visits to OH-58D units. The feedback being obtained from these trips is proving to be invaluable to the overall effort.

Other activities are being studied to determine their feasibility in an overall get well program. The field has our attention fixed squarely on the readiness problem.

ATG Weapons Suite

On 8 August 1989 the Army made the decision to proceed with an effort to arm the OH-58D

with an ATG weapons suite. The armament package includes a combination of the HELLFIRE missile, the Hydra 70 Rocket System, and 50 Caliber Machine Gun. An armed OH-58D provides Army Aviation with an opportunity to upgrade the air cavalry force structure. The armed OH-58D's ability to fight at night will significantly improve the battlefield capabilities and contributions of these organizations. In addition, with minor modifications, the armed OH-58D can provide our Rapid Deployment Forces with a flexible, easily deployable, hard hitting weapons platform to meet the Army's needs.

The OH-58D program is providing the field commander with the ability to see and fight on the battlefield at night. I look forward to providing you with future status reports.

IIII

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I certify that the statements made by me in this statement and dated September 15, 1989 are correct and complete.

Lynn Coakley
Publisher



Operations:

VII Corps: The Place To Be For AOE

by Lieutenant Colonel William H. Bryan



APO NEW YORK — Geographically located in the southern portion of the Federal Republic of Germany, VII Corps is a great place to live and work. Not only is the Corps located in one of the most picturesque areas of Europe in close proximity to alpine ski slopes and fairy tale castles, but it also offers a highly modernized force, organized and equipped under the Army of Excellence (AOE) concept.

The Corps Aviation Brigade, the 11th Aviation Brigade, is commanded by COL Johnnie B. Hitt. Formerly the 11th Aviation Group located in Schwabebisch Hall, the 11th Aviation Brigade moved to Illesheim in 1988. Currently, the Brigade has two APACHE battalions, 2/6 Cav and 4/229. The third APACHE battalion, 6/6 Cav, is scheduled to arrive in September 1990. The CH-47D and UH-60A companies, A Company, 5-159 and C Company, 6-159, respectively provide the Corps with combat support. The 4th Battalion, 159th Aviation provides the Corps' general support.

Illesheim Face Lift

Illesheim is undergoing a major face lift to accommodate these changes. Hangar renovations and a major airfield construction project will complement the new aircraft. It's central location, modern equipment and facilities, and "pure" aviation

tenants give Illesheim the potential to be the best Army Aviation assignment in the Army.

The 4th Brigade, 1st Armored Division, the "Iron Eagles", is commanded by COL Patrick J. Bodelson. Located in Ansbach near Nurnberg, the 4th Brigade is the most modern in VII Corps. It consists of two APACHE battalions, 3/1 and 2/1 (2/1 will return in June 1990), Task Force Phoenix, and the two air cav troops of 1/1 Cav.

Katterbach Renovation

The Katterbach Airfield has been almost completely renovated to accommodate these AOE changes. A multi-million dollar airfield construction project was completed in 1987. A new hangar was built and an existing one totally renovated. All the barracks have been completely remodeled. The Iron Eagle Brigade continues to be one of U.S. Army Aviation's premier assignments.

The 4th Brigade, 3d Infantry Division, the "Wings of the Marne", is commanded by COL Albert Ferrea. Located in Giebelstadt, 25km south of Wurzburg, the 4th Brigade begins its modernization under AOE this year. The two attack battalions, 2/3 Avn and 3/3 Avn, will convert to APACHE in FY91 and FY92, respectively. Combat support is provided by Task Force 23. The Brigade's two air cav troops are located at Schweinfurt with the

3/4 Cav Squadron. A major airfield construction project will begin in FY91. Many new facilities have been added in the past few years at Giebelstadt with most soldiers living in modern barracks. The "Giebel People" will tell you: Giebelstadt is a well kept secret.

The 4th Squadron, 2d Armored Cavalry, located at Feucht Army Airfield in Nuernberg, continues to patrol "freedom's frontier" daily. The "Red Catchers" anxiously await the exchange of their AH-1F and OH-58C aircraft for the AH-58D, hopefully, in FY92.

MI Battalion

The Corps' Aerial Exploration Battalion, the 2d MI Battalion, located in Stuttgart at Echterdingen Army Airfield, has seen a significant improvement in facilities. In 1987, a new barracks complex was completed and in 1989, the base operations facility and gymnasium were completely renovated.

The Corps also boasts an Aviation Intermediate Maintenance (AVIM) battalion, the 7/149th Aviation Regiment, located in Stuttgart at Nellingen Barracks, which has had all of its aviation maintenance hangars renovated. "Keirse's Raiders" provide the best intermediate maintenance support in the Army. Air-to-Air Stinger (ATAS) for OH-58C and External Stores Support System (ESSS) for UH-60A will be fielded soon, greatly enhancing our current capabilities.

If you are interested in a challenging assignment with excellent training opportunities, modern equipment and facilities, and a location that is unsurpassed, come to VII Corps — the place to be for AOE. IIIII

LTIC Bryan is Deputy Corps Aviation Officer, VII Corps, APO New York.

Reserve Components:

'Active Reserves'

by Don L. Hamblin

ST. LOUIS, MO — There's a common misconception that the U.S. Army Reserve (USAR) is a sleepy little community of "week-end warriors" who "play" Army a couple weeks a year. People who think like that need to look at C Company 2/158th Aviation Regt., in "sleepy" Olathe, KS.

If you found your way out to Aviation Support Facility (ASF) 37 at Olathe Industrial Airport, the first thing you might notice could be a brand new "D" model CH-47 CHINOOK. The new kid stands out in the midst of a sordid group of field proven "C" models, awaiting their "make over" at the Boeing Helicopter Company plant.

Not Just Any Reserve Unit

Why would the Army waste the newest member of the cargo fleet on an Army Reserve unit? This isn't just any Reserve unit. History proves it.

During the planning for the CH-47D fielding to U.S. Army Europe (USAREUR), the Army needed to find a better way to retrograde the displaced "C" models to Army Reserve units in the continental U.S. (CONUS). Normally, the losing units would need to bring their displaced aircraft up to transfer standards,

Mr. Hamblin was a Logistics Support Officer, HQ DA, Aviation Logistics Office, Washington, D.C. when this article was written. He is currently assigned as a Logistics Management Specialist, in the AVSCOM, Directorate for Readiness, St. Louis, MO.

and then deliver them across CONUS. But the USAREUR units were busy preparing for their transition, U.S. Forces Command (FORSCOM) CH-47 units were employed in exercises and deployments just about everywhere, and the U.S. Army Materiel Command (AMC) depot assets were already fully employed.

An agreement was struck between AMC, CH-47D Program Manager (PM) office, USAREUR, and FORSCOM, to pool their resources in an effort to do what was best for the whole Army. The agreement called for personnel from one of the CONUS USAR units to do a "cursory" inspection of the displaced aircraft, assist in "C" model preparation for shipment to the CONUS port, delivery to gaining USAR units across CONUS and to prepare "D" models for shipment to Europe. The attitude was "work smart, not hard."

Geographic Considerations

Geographic considerations pointed to the heart of America as a logical source for the necessary resources. The CHINOOK unit in Olathe, KS had developed a good reputation over the years, was on a C-5 capable airfield and since they were going to have to live with a third of the displaced aircraft, they were tagged. For the next few months, gainers and losers were face-to-face, parts and tool

inventories were verified together, and the USAR got quality deployment training. The Army saved time, money, and personnel. Success!

Another year rolled around and it was Korea's turn to be fielded "new" "D" models. The initial plan was to contract shipment preparation of the new aircraft. But some of the old "work smart, not hard" folks got together and looked into using the USAR again.

Olathe had the most recent training in shipment preparation, they were still centrally located, and all they needed was transition training to do the whole job.

The CH-47 New Equipment Training (NET) team was brought into the act, and "magically", C Company 2/158th was the only "D" model trained USAR unit in the Army. They were prepared to operate and maintain the modern aircraft.

Factory Pickup

USAR personnel began picking up new "D" model aircraft from the factory, flying them to the CONUS port and preparing them for shipment to Korea. At the same time, they were moving "C" model aircraft to the Boeing plant for rebuild. Easing the fielding burdens, training the USAR, and saving the Army over \$300,000 - once again, success for the whole Army.

Throughout this period of "other duties as assigned", the unit's organic aircraft were being maintained with the high level of pride the Army has grown to expect from USAR aviation units.

All this leads up to their most recent success. Political events in Central America had over-taxed CH-47 assets in the region. (Reserves - cont. on page 63)

Should Warrant Officers Wear the Branch Insignia ?

by CW4 Harry P. Arthur, AAAA NEB Member-at-Large

(CW4 Arthur is Personnel Policy Integrator, Officer Division, ODCSPER, The Pentagon)

As many of you are probably aware, LTJ Ellis D. Parker, when he was the Aviation Branch Chief, submitted a suggestion to the Army Staff requesting three changes to the warrant officer uniform. These include the wearing of branch insignia, and, for commissioned warrant officers, the wearing of the commissioned eagle on the saucer cap and gold braid on the overseas cap. This request is now being staffed for MACOM recommendations on each of the issues.

I updated the AAAA National Executive Board (NEB) on the "branch insignia" issue at our meeting on October 16, 1989, in Washington, D.C. Following discussion, the NEB accepted the recommendation of the AAAA president, BG James M. Hesson, Ret., that the AAAA conduct a similar survey to validate the results of the AVIATION DIGEST survey. The results will be provided to MG Rudolph Ostovich, III, Aviation Branch Chief, and an AAAA position prepared, if appropriate, for submission to the Deputy Chief of Staff for Personnel.

I strongly encourage our full membership to participate in this survey. Active participation is essential to validate the AVIATION DIGEST survey results and to establish a credible AAAA membership position for communication to the Army Staff. This is your chance to be heard.

This is not an issue which is without various viewpoints, strong feelings and emotion. The article in the AVIATION DIGEST summarized the viewpoints on each side of the issue very well, so I won't cover them again in detail. However, it is important to consider a few of the perceptions commonly held by some warrant officers.

To begin with, this is not a management issue. It should not be considered a "first step" toward management by branch and particularly not a danger to the viability of our management system. The Total Warrant Officer System was approved by the Army Chief of Staff in 1985 and has been implemented to the fullest extent possible under current law. It has been institutionalized by policy decisions such as rank coding of warrant officer positions, automatic Regular Army integration at promotion to CW3, establishment of a life-cycle career plan for WOs, and creation of the Master Warrant Officer designation.

Only legislative action remains for the complete installation of the Total Warrant Officer management system similar to that for commissioned officers under the Defense Officer Personnel Management Act (DOPMA). The prospects for successful completion of the legislative action requested by DoD, known as the Warrant Officer Management Act, during the 101st Congress are excellent.

Warrant officers are officers first and technicians second. It is counterproductive to a cohesive officer corps

to continue to foster the "us and them" philosophy. It is past time to fully integrate warrant officers into the Army officer corps. Warrant Officers have come a long way, not because we have successfully avoided branch affiliation, wear the warrant officer eagle, or silver braid on our overseas caps, but because our inherent value and unique contributions to the Army are well recognized by the Army leadership as well as by many members of Congress.

Wearing branch insignia in no way threatens cohesion between warrant officers. In fact it improves cohesion not only with the warrant officers with whom we most often associate (those within our branch), but with the other officer and enlisted members of our branch as well. Furthermore, we will continue to wear warrant officer grade insignia which more than adequately distinguishes us as technical experts and reflects our significant contributions.

Branch insignia are important symbols, just as is the warrant officer eagle. They symbolize equality within the branch and within the officer corps. They symbolize contribution to the branch as a team effort. They are in no way a threat to the Army's warrant officer program or its warrant officers.

On another subject, a recent ARMY TIMES article (Rick Maze, "Pay raises for pilots take off" ARMY TIMES, 20 November 1989, p. 21) is an excellent summary of the primary features of the Aviation Career Improvement Act of 1989 which was included in the Defense Authorization Bill approved by House and Senate conference committee on November 2, however it contains a serious error which requires immediate correction and dissemination to all warrant officer aviators.

That error involves a misunderstanding of the compensation portions of the legislation which apply to warrant officers, particularly the statement in the TIMES article, tenth paragraph, which states that "after 18 years of service, an officer or warrant officer (emphasis is mine) with 18 to 20 years of service will get \$584 a month..." implying that warrant officer Aviation Career Incentive Pay (ACIP) is subject to the same reductions past the 18 year point as is non warrant officer ACIP. This is not correct. The warrant officer specific section of the ACIP pay table, as amended by this act, has always reflected an increase of \$250 over the current maximum rate, which does not reduce in later years, recognizing the fact that warrant officers are expected to perform primary flying duties for their entire aviation career and that their contributions to Army Aviation are recognized and appreciated by Congress and the leadership of the Army and the Department of Defense. ■■■■

AAAA Membership Survey

All AAAA Members — Voice Your Opinion by 15 February, 1990!

Should Aviation Warrant Officers be allowed to wear
Aviation Branch Insignia?

Yes No

Should all Warrant Officers be allowed to wear
their Branch Insignia?

Yes No

Should wearing of Branch Insignia by Warrant Officers
be left up to the Branch Chief?

Yes No

Should the wearing of Branch Insignia be authorized
for wear by the unit commander?

Yes No

Should Warrant Officers who are commissioned wear commissioned
hat devices (i.e. commissioned eagle/gold trim)?

Yes No

Which category best describes you?

<input type="checkbox"/> Active Army	<input type="checkbox"/> DA/DoD Civilian	<input type="checkbox"/> Foreign Military Service
<input type="checkbox"/> Reserve	<input type="checkbox"/> U.S. Army Retired	<input type="checkbox"/> Foreign Defense Industry
<input type="checkbox"/> ARNG	<input type="checkbox"/> U.S. Defense Industry	<input type="checkbox"/> Other _____

Current Rank/GS grade (if applicable) _____ Date of birth _____

Initial year of AAAA membership: _____ ZIP code: _____

Your opinion counts! Please fill this survey out and mail to the AAAA National Office, 49 Richmondville Avenue, Westport, CT 06880-2000 by 15 February, 1990. Return this page. Do not reproduce this survey. Copies will not be accepted! Results will be published in a future issue. You may also express more detailed views by writing to the Editor, ARMY AVIATION at the aforementioned address.

LHX Status (continued from page 6)

Depot. There will no longer be an intermediate unit maintenance (AVIM). This is made possible because the LHX will be easier to maintain in the field due to innovative design and engineering concepts, i.e. the aircraft's Line Replaceable Units (LRUs) and Line Replaceable Modules (LRMs) are being designed to be changed out by one soldier in 15 minutes or less without using special tools. Emphasis on Reliability, Availability, and Maintainability (RAM) factors has been designed into the aircraft from the start.

The twin 1200 SHP T800 engines that will power the LHX will be the only Government Furnished Equipment (GFE). These powerplants are a mechanics dream. There are only six tools required to maintain the engine at the user level.

Program Description

The LHX program is currently in the midst of a 23-month Demonstration/Validation (DEM/VAL) Phase of development scheduled for completion in September 1990. During this phase two contractor teams, McDonnell Douglas Helicopter Company and Bell Helicopter Textron (the Super-team) and Boeing Helicopter Company and Sikorsky Aircraft (the First Team) are conducting continuous efforts in testing and proving the technologies to be included in the LHX.

During the DEM/VAL phase, each team is conducting demonstrations of the MEP and computer hardware. These demonstrations will consist of laboratory tests and flight demonstrations on surrogate aircraft. This phase will especially focus on the following areas:

- Cockpit Design.
- Flight Control Design and function.
- Drive System Design.
- Brassboard and Breadboard tests of the electronic components.
- Design of a System Integration Lab. The Lab will validate the integration of all the systems to be included in the LHX design.

At the completion of Demonstration/Validation phase, the Army will select one of the contractor teams to enter Full Scale Development (FSD) in December of 1990. The first flight will occur during FSD and is scheduled to take place in August 1990. Production is scheduled to begin in November 1994 and we will attain our Initial Operations Capability (IOC) with the LHX in November 1996. First rate production will run from 1995 through 2007.

Beginning with Lot Four, the winning team members will compete for production shares under fixed-price contracts.

Milestone II

Concurrently with DEM/VAL, the Training and Doctrine Command (TRADOC) and the Army Materiel Command (AMC) are conducting the Milestone II Cost and Operational Effectiveness Analysis (COEA) to support the December 1990 FSD Decision. The COEA's primary purpose is to evaluate and identify the most cost effective weapons system (either the LHX or one of the alternatives) to perform the AirLand Battle missions of Army Aviation.

The LHX will play a major role in the Army's ability to fight and win on the AirLand Battlefield at the turn of the century and beyond. This weapon system will see more, kill more, and survive to fight again. The LHX is the centerpiece of the Army Aviation Modernization Plan (AAMP) and is vital to the successful completion of the mission of Army Aviation. IIII

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Cyclic — cont. from p. 50

The British Government is attempting to improve the safety record of commercial helicopter operations, focusing on those servicing the North Sea oil platforms. As a result, they initiated a project to investigate an experimental HUMS.

BHL and BIHL are major helicopter operators and are presently investigating the benefits of a HUMS on their operational fleet of Super Pumas and S-61N helicopters. The HUMS units are designed to monitor aircraft systems and vibrations to determine the health of critical components (i.e., gearboxes). Based on various analysis techniques processed on-board, the pilot may be warned of incipient of impending failure.

HUMS includes oil debris monitoring, airframe and rotor vibration analysis and monitoring of engine operating characteristics including output torque, generator and power turbine speeds, and gas generator outlet temperature.

We are asking the contractor to provide functional specifications for a HUMS suitable for military application and to perform a projected cost benefits analysis. This data is expected to help the Army to assess the suitability, reliability and capability of an on-board health and usage monitoring system in improving helicopter operation, safety and maintenance. IIIII

T800 — cont. from p. 51

chiefs from the first board returned also, as well as many evaluators from the 1985 board. The only basic change to the evaluation process was going

from five areas of evaluation to four — technical, RAM/ILS/MANPRINT, production competition, and cost. Each area was equally weighted, therefore, none was more important than the others, and there was no benefit to sub-optimize any area.

Last Opportunity

The sensitivity and timeliness of the SSEB was not lost on anyone associated with the source selection process. The board was the last opportunity to lock in commitments and guarantees while still under competition. The source selection had to be made and a contract award (modification) signed on or before 31 October 1988, the end of the contracting year, for the Army to avoid incurring additional cost.

Finally, because one of the terms would — as a result of the decision — stand to lose millions in investment and possibly future business opportunities, the evaluation had to be objective, thorough, and flawless.

The findings of the board were presented to the SSAC on 18 October 1988. The SSAC concurred in the board findings and their recommendation was presented to the Army Acquisition Executive on 24 October, and approved by the Source Selection Authority on 26 October. The Secretary of the Army signed the Memorandum of Decision on 27 October. The winner was announced 28 October and the contract modification was signed with the winner, LHTEC (Allison & Garrett), on 31 October 1988.

The T800 program, and in particular the final SSEB, have been heralded by the senior Army leadership as an overwhelming success. The next and final atti-

cle in this five part series will detail the performance, commitments and guarantees the U.S. Army and LHTEC have agreed to. IIIII

Reserves — cont. from p. 59

The U.S. Army South (USARSO) in Panama wasn't due to be fielded "new" aircraft for many months, so a method to supplement the region's assets was devised. Reputation catching up with them, C Company, 2/158th, surfaced as a possible source for resources. Back in business again.

The CH-47 PM office, USARSO, and the DA Staff started working out the details. USARSO aircraft were scheduled into rebuild early, and Olathe's best aircraft were transferred to USARSO. Then came the final payback. Somebody had to fly the Olathe aircraft to Panama, and who better qualified than C Company, 2/158th crews.

Like the arrival of the "horse cavalry" in an old western movie, three fully mission capable U.S. Army Reserve CHINOOKs landed in Panama, flown by USAR crews! This wasn't a case of the reserves "bailing out" the active — rather, it was an example of the total system working together for what's best for the whole Army.

Attention to a key factor was critical in these successes: attitude! An attitude that the system can work when everyone involved wants it to, and an attitude that we're all part of the total Army.

So watch what you say about weekend warriors who only "play" Army — You might be overheard by somebody from Olathe, KS. IIIII

BRIEFINGS



The completion of the five-year **U.S. Army EH-60A QUICKFIX** aircraft modification program was recently commemorated in ceremonies at Tracor, Inc., headquarters in Austin, TX. The ECM/ESM QUICKFIX modification, provides tactical Signal Intelligence/Electronic Warfare (SIG-NET/EW) and Direction Finding (DF) capabilities and interfaces with similar airborne and ground units via secure voice and data links. The EH-60A also contains mission electronics with intercept/DF and intercept/jamming capabilities.

Extensive field testing on U.S. Army helicopters offers conclusive evidence that **Aeroquip's Tedeco Oil Debris Detection System (ODDS)** can help reduce mission aborts caused by no-fault or nuisance chip lights, while also improving the reliability and maintainability of engines and gearboxes. The ODDS system is designed for use on UH-1/AH-1 helicopters. The heart of the system is a power module installed in the helicopter's nose electronics bay, which activates the burn-off chip detectors and provides annunciation of detected debris on the cockpit master caution panel and chip light.

The **Allied-Signal Aerospace Company's Bendix Field Engineering Corporation (BFEC)**, Columbia, MD, has been selected by the U.S. Army to provide support services for the Aerial Gunner Range Complex (AGRC) at Ft. Rucker, AL. A new exhibit on aviation pioneer **Igor Sikorsky** has opened at the **Smithsonian's National Air and Space Museum**, in Washington, D.C. Many of the materials have been provided by Soviet authorities and have never before been viewed by westerners. The exhibit will run through 1990.

AWARDS AND HONORS

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

Air Traffic Control Basic Noncommissioned Officer Course Class 89-9 (08/24/89): SGT James M. Bowman, Distinguished Graduate.

Flight Operations Coordinator Basic Noncommissioned Officer Course Class 89-4 (08/24/89): SSG Dean E. Bushnell, Distinguished Graduate.

Aviation Senior Warrant Officer Training Course Class 89-8 (08-25-89): CW2 Jeffery E. Prouty, Dist. Graduate; CW3s Ronald M. Toth, James L. Lambert, Douglas H. Nutter, and Thomas H. Trammell, Honor Graduates.

Initial Entry Rotary Wing Aviator Course Class 89-6 UH-1 Track (09/20/89): 2LT Matthew M. Reed, Dist. Graduate; 1LT James F. King, Jr. and 2LT Virginia M. Burns, Honor Graduates.

Initial Entry Rotary Wing Aviator Course Class 89-6 UH-1 Track (09/20/89): WO Roger D. Cline, Dist. Graduate; WOs Trenton V. Smith, David B. Higginbotham, and William J. Mathews, Honor Graduates.

Initial Entry Rotary Wing Aviator Course Class 89-6 OH-58 Track (09/20/89): 2LT Richard B. Stairs, Dist. Graduate; 2LT Mark W. Weiss, Honor Graduate.

Initial Entry Rotary Wing Aviator Course Class 89-6 OH-58 Track (09/20/89): WO James W. Guy, Dist. Graduate; WO Joseph F. Speal, Jr., Honor Graduate.

Initial Entry Rotary Wing Aviator Course Class 89-5 UH-60 Track (09/20/89): 2LT Michael L. Shenk, Dist. Grad.

Initial Entry Rotary Wing Aviator Course Class 89-4 AH-1 Track (09/20/89): WO Vincent J. Stella, Dist. Graduate; WO Andrew M. Derwinski, Honor Graduate.

Traffic Control Operator Basic Noncommissioned Officer Course Class 89-10 (09/22/89): SGT James M. Brandt, Distinguished Graduate.

Aerescout Observer Basic Noncommissioned Officer Course Class 89-2 (09/22/89): SSG Robert W. Payton, Distinguished Graduate.

Avionic Maintenance Supervisor Advanced Noncommissioned Officer Course Class 89-04 (10/06/89): SSG Randy L. Mason, Distinguished Graduate.

ATC Systems, Subsystems & Equipment Repairer Supervisor Advanced Noncommissioned Officer Course Class 89-2 (10/06/89): SSG David M. Palmer, Dist. Graduate.



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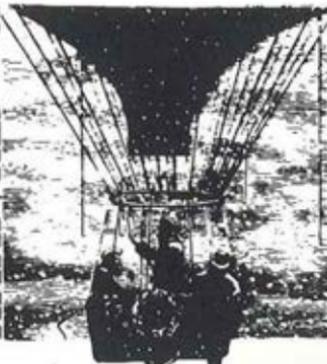


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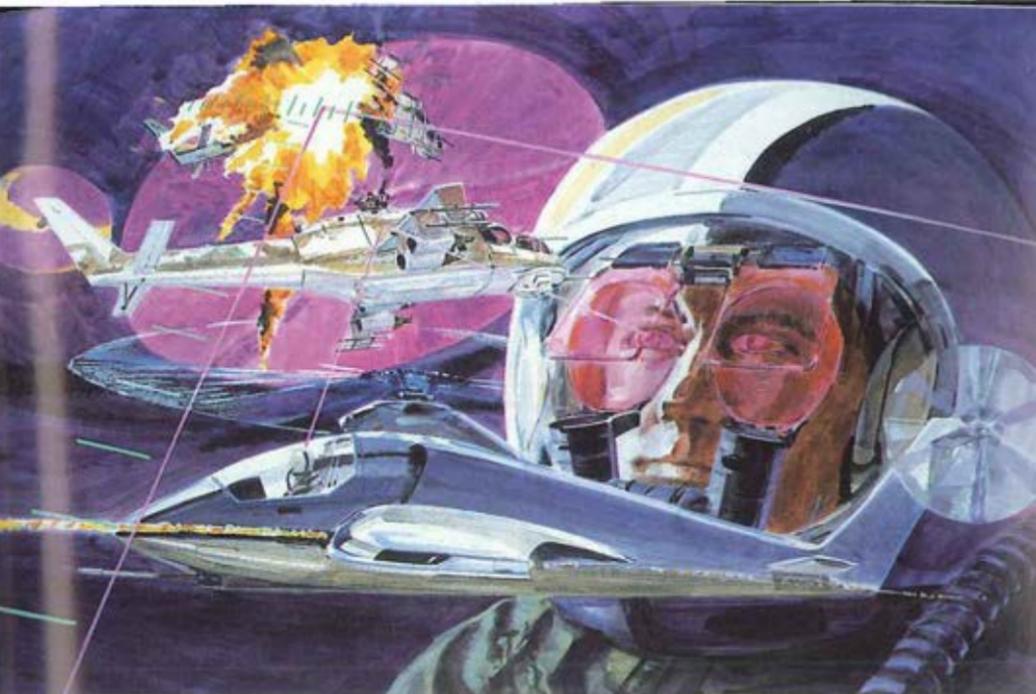
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KILLEEN, TX 76543

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MCC
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BDM INT'L, VP PROG DEV
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New Members (continued on p. 66)

TAINUS CHAPTER
WIESBADEN, GERMANY

1LT Deborah L. Satterfield
TENNESSEE VALLEY CHAPTER
HUNTSVILLE, AL

Ms. Jody J. Brenner
Ms. Mahona W. Pike
2LT Harold W. Reynolds, Jr.
Mr. Ralph E. Smith
Ms. Laura J. Wyatt

THUNDERHORSE CHAPTER
FULDA, GERMANY

CW2 Vincent D. Kubisch
SGT Joseph P. Saba

WASHINGTON DC CHAPTER
WASHINGTON, DC

Ms. Jean M. Lamb
Dr. Ronald L. White

WINGS OF THE MARINE CHAP.
GIEBELSTADT, GERMANY

PFC John M. Bellochio
CWA Jorg Leo Benge
1LT Harold T. Brandenburg, Jr.
CPT David L. Butler, Jr.
WO1 Robert L. Carter
CW2 Todd A.N. Friel
PFC Ian P. Gull
1LT Darin L. Haines
CPT David L. Logie
WO1 Charles Nanowsky
CW3 John A. O'Mary
CPT (P) Mark J. Reardon
MAJ Melvin A. Robertson
CW2 Charles A. Sykes, Jr.
WO1 Michael W. Thomas
CPT Craig M. Whitehill

UNAFFILIATED MEMBERS

Mr. Wayne F. Baumgarten
Mr. Gary D. Bennett
CPT Mark E. Bergman
LTC James G. Black, Jr.
Mr. Terry A. Bowman
MAJ John M. Braun
CPT Steven J. Campfield
WO1 Janice Captain
Mr. Bill Cornatt
Mr. Jim Driscoll
LTC Jay E. Gillman
WO1 Charles R. Hannigan
Mr. Jack L. Hicks
Mr. Don Hoyt
Mr. David M. Kuhns
Mr. Richard J. Manning
CW3 Donald R. Menig
Mr. Nigel V. Messer
Mr. Paul A. Michlison
Mr. Al Miller
CSM Geno T. Moro
Mr. Lawrence L. Norman
MAJ P. Randall North
MAJ Douglas R. Slater
Mr. Buf Slay
Mr. Joseph F. Tjepanier
Ms. Catherine E. Wright
1LT Rollin J. Young

USSOCOM (continued from page 5)

head of agency authority for developing Special Operations Forces peculiar equipment, materiel, supplies and services. We also have programming and budgeting responsibilities for special operations Major Force Program 11.

The acquisition, development, and programming and budgeting responsibilities are unique to this command and are the first ever assigned exclusively to a unified command. These missions, which traditionally have been performed by the various services, provide us with our greatest challenges.

In essence, we must develop a Program Objective Memorandum (POM) — the POM now includes six years of funding requests — and then execute each FY budget for SOF resources.

Beginning with the fiscal year 1992-97 planning, programming, and budgeting cycle, the Commander-in-Chief, USSOCOM (USCINCSOC) will fully discharge these responsibilities for the first time. This requires close cooperation with the services and the commanders of the other unified and specified commands to gain detailed information about their priority SOF needs.

Our intent under the law is to ensure that Special Operations Forces are adequately equipped to perform the full range of required missions and to take the lead in research, development, acquisition and testing of SO-peculiar materiel.

The MH-47E

This process has been, and will continue to be, vital to force modernization of SOF aviation. Thanks to the Army's efforts, the rollout of the prototype MH-47E recently is a case in point. The improved CHINOOK with more powerful engines, air-to-air refueling capability, added radar, integrated avionics, and electronic warfare equipment will significantly increase SOF capability to perform deep penetration missions in adverse weather — day or night — over any terrain.

What made this modernization effort even more significant is that the pilots who will fly the upgraded MH-47E participated in the redesign of the controls and displays in the cockpit, insuring that we get exactly what we need and want.

The MH-47E is part of a larger program entitled Special Operations Aviation (SOA), which also

includes the modification of the Army UH-60A BLACK HAWKS to the MH-60K Special Operations configuration. By using proven aircraft such as the CH-47D and the UH-60A as basic SOF airframes, costs and program risk are kept to a minimum. In fact, the SOA program has been formally designated by the Army as a Non-Developmental Item (NDI) effort. Cost and risk are further reduced by equipping both the MH-47E and MH-60K with a common avionics architecture.

Integrated Avionics Subsystem

The advanced SOA Integrated Avionics Subsystem (IAS) melds avionics' controls and displays and provides the necessary data for the demanding special operations aviation missions such as low-level night flying. Initial deliveries of the MH-47E are planned for 2nd quarter FY92, and the First Unit Equipped (FUE) date is September 1992. A total of 51 aircraft will be purchased. Initial fielding of the MH-60K will be in 1st quarter FY92, with an FUE date of September 1992. The planned buy of MH-60Ks is 23 aircraft.

Our Air Force component has recently completed conversion of all its H53 rotary wing aircraft to the MH-53J "PAVE LOW Enhanced" configuration. The MH-53J has capabilities similar to those planned for the MH-47E and represents a tremendous increase in SOF mid-range capability to operate in adverse weather infiltrating, exfiltrating and resupplying SOF in hostile or denied areas. The MH-53Js are now undergoing a service life extension program to improve supportability and allow optimal mission effectiveness through the end of the century.

Modernization and acquisition of equipment for SOF do not take place in a vacuum. To insure that we have the requisite capabilities to support the regional CINCs, we have undertaken a Joint Mission Analysis (JMA).

This major initiative, in coordination with the services, theater CINCs, and national agencies, analyzes theater and national mission area requirements for Special Operations, Psychological Operations, and Civil Affairs forces. We're working very hard to build a close working relationship with the five regional warfighting CINCs. Our JMA team, with counterparts from each regional command, develops LIC, regional-contingency, and global war scenarios to establish requirements against which SOF capabilities can be measured. Deficiencies in capabilities

are then identified and provided to USSOCOM components, the appropriate CINCs and agencies for resolution.

During the current budgeting cycle, we are pursuing the acquisition of a low-cost, simple, easily maintained aircraft and an associated training structure to assist Third World nations in meeting their security needs — a direct result of a JMA study of U.S. Southern Command. Future JMA results will also be integrated into the planning, programming, and budgeting system; Joint Strategic Planning System; Joint Operations Planning Execution System and theater plans.

As USSOCOM approaches its third anniversary, much progress has been made towards achieving the Congressional mandate. We have highly-qualified and capable personnel who are receiving better training with an emphasis on jointness and interoperability.

Nowhere is that more evident than within Special Operations Aviation. Already the Army and Air Force vertical lift units are developing standard guidelines to govern operating parameters, common mission planning and tasking, and common conditions and standards to train by.

The Special Operations Aircrew Interchange Program serves to exchange special operations techniques, procedures, and flight planning methods. Efforts are also underway to develop doctrine for logistics and maintenance interoperability to establish a formal single maintenance/logistic organization in theater to support both Army and Air Force aviation assets.

The integrated electronic warfare systems be-

ing developed for the Air Force's MC-130H, COMBAT TALON II are being worked into product improvement and modification programs for all SOF airplanes including SOF rotary wing assets.

Finally, the development of a SOF aircraft with long range, high speed, and vertical takeoff and landing capabilities continues to be one of our highest priorities. Many SOF infiltration/exfiltration missions will require the unique combination of fixed and rotary wing capabilities.

With the right equipment, quality people, and joint training, SOF can maintain the edge in dealing with national security challenges. IIIII

Production (continued from page 20)

In September, another McDonnell Douglas initiative was launched to open the lines of communication between the user and the factory, the "NCO Technical Exchange Program". The purpose of this program is to promote a sharing of knowledge and a better understanding of field needs. The genesis of this program was a directive from the Army Chief of Staff establishing 1989 as "The Year of the NCO".

During my visits to fielded units, I am always impressed with the professionalism of the NCOs and their detailed knowledge of the APACHE. Our program brings the NCO to the factory and includes a half-day of briefings and factory tours followed by a half-day teamed with a McDonnell Douglas APACHE crew chief on the flight line. Following this, we conduct a three to four hour technical session, bringing our engineers, logisticians and trainers together with the NCOs for a technical session — it is definitely an eye opener.

These NCOs are sharp, they know their system, and they don't "pull any punches." Through this program, the NCOs gain an insight of the factory that will benefit them for years and we gain an understanding of what needs to be done to make the APACHE an even better system.

APACHE production continues to proceed on schedule. We are working with the Army, the DoD and the Congress to fulfill the Army's force structure requirements. The LONGBOW APACHE Full Scale Development program is on-going and will provide a significantly enhanced warfighting capability to fielded units beginning in 1995. Above all, we remain committed to successful fielding and support of the APACHE. IIIII

CAREER TRACK

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

Captain, USMA 1981, BSME, seeks R & D program management/engineer position with Defense Industry. Three years experience Aviation R & D Staff Officer, Combat Developments/Test & Evaluation section and Platoon leader, Operations Officer, available February 1990. 11-01



AAAA ASE Symposium Biggest and Best Yet!



The seventh annual AAAA Aircraft Survivability Equipment (ASE) Symposium was held November 7-8, 1989 in Austin, TX, hosted by Tracor Aerospace at its Austin facility.

AAAA President, BG James M. Hesson, Ret. greeted the record crowd of 171 attendees and introduced this year's host, David A. Rossi, Group Vice President of Tracor. COL James R. Holder, ASE Project Manager, opened the professional sessions and introduced BG Robert S. Frix, Assistant Commandant, U.S. Army Aviation Center, Ft. Rucker, AL, who delivered the Keynote Address, "Army Aviation in the 1990s."

Sixteen technical papers were presented during the classified symposium and included:

"Future Radar Jammer Architecture", by Ronald J. Langietti, Northrop Corporation, Defense Systems Division.

"Advanced Airborne Countermeasures Dispensers for Aircraft and Crew Survivability", by Gerald L. (Jess) Neely, Advanced Dispenser Systems, Tracor Aerospace.

"New Implementation of a Robust ECM Technique", by Joseph Cikalo, ITT Avionics.

"RF Countermeasures for Postulated AH-64 Mission Scenario", by Robert Zanzalari, U.S. Army EWRSTA Center & Cheryl Meier, ASE-PMO.

"Offensive ASE - Fact or Fiction", by John R. Dowalo, AIL Systems, Inc.

"Advanced Digital RF Memory Technology", by Alfred W. Reeder, Sanders Associates.

"Airborne Optical Countermeasure System Technology and Performance Modeling", by LTC William M. Pekny, ASE-PMO and Richard D. Brady, U.S. Army EWRSTA Center.

"Identification of Friend or Foe, Based on High Frequency Modulating Retroreflection Devices", by James L. Ferguson, Optical Shields.

"APACHE Escort Jammer", by Raymond C. Irwin, U.S. Army EWRSTA Center.

"Home-on-Helicopter Missile Performance", by C.N. (Nick) Armstrong, Northrop Defense Systems Division.

"Army Support Jamming", by Austin K. Thomas, Jr., Grumman Corporation.

"MMW: Tomorrow's RWR Technology Today, Part II: A History of the APR-39A Processor",

by MAJ Steve L. Ash, ASE-PMO, Albert Evans, Dalmo Victor and Joseph Klepckick, AEL Defense Corporation.

"Advanced Expendable Countermeasures Analysis for Helicopters", by Gary K. Morris, Tracor Aerospace.

"Infrared Search and Track: A Component of the 1990's ASE Suite", by Gary D. Bennett, General Electric Aerospace.

"AN/AAR-47 Missile Warning System Applications for Army ASE", by Richard J. Manning and David M. Reilly, Honeywell Electro-Optics.

"Advanced Infrared Countermeasure Systems", by Russell O. Stanton, ASE-PMO.

The highpoint of the Seventh ASE Symposium was the presentation of the AAAA "Aircraft Survivability Award" to MAJ Steve L. Ash, USMC.

The AAAA ASE Award, bestowed to the AAAA by Loral Electronic Systems, is presented annually during the ASE Symposium to the individual who has made an outstanding contribution to Army Aviation in the area of aircraft survivability equipment during the previous calendar year. The trophy is on permanent display at the U.S. Aviation Museum at Ft. Rucker, AL.

MAJ Ash has been Assistant PM for Radar Warning Receiver (RWR) Programs, PMO-ASE, and Liaison Officer for all Joint Navy/Army ASE programs since 1985. As an exchange officer from the U.S. Marine Corps to the U.S. Army, MAJ Ash established the Joint Service Program. As APM for RWR programs, he skillfully included joint requirements in the development phase and the Testing and Evaluation program of the APR-39A (XE-2) and was responsible for the initial entry into production of the Army radar warning system, the AN/APR-39A(V)1. As a result of MAJ Ash's leadership and management skills, the ASE Program Office has been elevated to its current position as a leader in joint DoD electronic warfare programs.

Following the last of the presentations, COL Holder made his final remarks and AAAA President Hesson presented certificates of appreciation to COL Holder, PM-ASE, MAJ Joseph A. Durso, APM-ASE and Dottie Mikel of Tracor.



ASE SYMPOSIUM — Top left: David A. Rossi, Group Vice President of Tracor Aerospace welcomes AAAA President BG James M. Hesson, Ret., and USAVNC Assistant Commandant BG Robert S. Frix.

Top right: AAAA Past President MG Story C. Stevens, Ret., (left) and AAAA Executive Director Terry Coakley (center) listen as BG

Frix explains a point.
Bottom: The AAAA ASE Award presentation. ASE-PM COL James R. Holder (left), Acting Aviation PEO Gary L. Smith and BG Frix flank ASE Award winner MAJ Steve L. Ash (USMC), of the ASE-PMO in St. Louis.
Center: The AAAA ASE Award, sponsored by Loral Electronic Systems.



ARMY AVIATION ASSOCIATION OF AMERICA (AAAA)

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Please check one: Change of Address; New Membership Application

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

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

Mailing Address _____

Mailing Address (Continued) _____

City _____ State _____ Zip + 4 Code _____

Active Duty or Civilian Job Title _____

Unit or Firm Name _____

Area Code _____ Office Phone _____ Area Code _____ Residence Phone _____

Nickname _____ Spouse's Name _____

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

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AAAA ANNUAL DUES

Applicants other than those listed below:

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Add \$5 per year if you have a foreign, non-APO address.

Add \$15 if your check is drawn on a foreign bank.

[] Check enclosed made payable to "AAAA,"

or charge to: [] Mastercard, [] Visa

Card No. _____

Am't \$ _____ Exp. Date _____

Signature _____ Date _____

Check (✓) Your Professional Qualification

- | | |
|--|---|
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| <input type="checkbox"/> DA/OSO Civilian | <input type="checkbox"/> Consultant |
| <input type="checkbox"/> Army Part Time | <input type="checkbox"/> Publishing/Print Assn. |
| <input type="checkbox"/> Army Reserve | <input type="checkbox"/> Foreign Military Service |
| <input type="checkbox"/> Army Retired | <input type="checkbox"/> Foreign Defense Industry |
| <input type="checkbox"/> Other US Military Service | <input type="checkbox"/> Other _____ |

Are you a former AAAA member? Yes No

If yes, what year did you join? _____

Print Name of Recruiter _____

New AAAA Officers

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

Samuel "Sam" J. Sutter, Jr., (VP, Memb. Enroll.), Delaware Valley Chapter.

MAJ Michael W. Hacker-son, (Pres.), MAJ (P) Stephen D. Sherrill, (Sr. VP), CPT David S. Pate, (VP Prog.), Ft. Leavenworth Chapter.

CW3 James E. Stone, (VP, Memb.), Hanau Chapter.

Ronald V. Kurowsky, (VP, Memb.), **CW4 Thomas J. Davis**, (VP, Nat'l Guard & Res.), **Charles Marotta**, (VP, Schol.), Monmouth Chapter.

LTC David W. Swank, (Sr. VP), **MAJ James F. Shivers**, (Sec.), **CPT Bruce Moore**, (Treas.), **MAJ David E. Laack**, (VP, Memb.), **MAJ Keenan J. Kline**, (VP, Benefits), **MAJ Kenneth L. Travis**, (VP, Prog.), **CSM Walter L. Jones, Jr.**, (VP, Enl. Affairs), **CPT James W. Arp**, (VP, Resolutions), Old Ironsides Chapter.

LTC John J. Sweeney, (Pres.), **CPT Laurence W. Howl**, (VP, Publ.), Stuttgart Chapter.

LTC Lawrence D. Beard, (Sr. VP), Taunus Chapter.

Jack R. Isom, (Sr. VP), Tennessee Valley Chapter.

Aces

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

Vicki L. Avenevoli

Pete Barrientes, III

CPT Bruce J. Reider

LTC William E. Roberts

MAJ William J. Teeter

Aviation Soldier of the Month

PFC John W. Hallmark,

Hanau Chapter (September)



AAAA Overview



AAAA's National Executive Board (NEB) conducted its fall meeting in Washington, D.C., on October 16, 1989. Among the significant items discussed were:

Awards: Committee Composition. BG Hesson, AAAA President, announced that two enlisted AAAA members had been appointed to the Awards/Scholarship Selection Committee. CSM Roy L. McCormes, AAAA NEB National Member-at-Large, stressed the importance of informing the membership that the selections are made by the Awards Committee without their knowledge of the identity of the applicant. AAAA Executive Director, Mr. Terry Coakley, advised the NEB that the AAAA National Office planned to describe the selection process in detail in conjunction with the announcement of the CY90 scholarship recipients.

AAAA Scholarship Banquet. COL Rudolph D. Descoteau, Ret., AAAA Scholarship Foundation President, advised the NEB that an AAAA Scholarship Banquet would be held on Thursday, February 15, 1990, in St. Louis, MO, in conjunction with the Joseph P. Cribbins Product Support Symposium sponsored by the AAAA Lindbergh Chapter.

Aviation Career Improvement Act. BG Hesson updated the NEB that AAAA, as a 501(c)(4) organization under the IRS code, was not restricted from stating its position on issues having an impact on Army Aviation. CW4 Harry P. Arthur, AAAA NEB National Member-at-Large, advised the NEB that the issue was before the Joint Committee at the time of the NEB meeting and also advised that current Army policy was to support equality of flight pay among the armed services.

With respect to AAAA's taking a position on issues having an impact on Army Aviation, COL John W. Marr, Ret., AAAA Past President and NEB Parliamentarian, advised the NEB that historically AAAA's choice has been to support Army policy. BG Hesson stated that the NEB should re-address AAAA's historic position should there be an issue in the future that required the AAAA to counter Army policy.

Hall of Fame: Induction of Congressional Medal of Honor (CMOH) Winners. LTG Robert R. Williams, Ret., AAAA Past President and Chairman, Hall of Fame Board of Trustees, advised the NEB that the Trustees requested NEB approval to induct the three CMOH winners who received the CMOH while serving in an aviation capacity in an Army Aviation unit, into the Hall of Fame. The NEB approved inducting MG Patrick H. Brady, MAJ William E. Adams (posthumously), and E4 Gary G. Wetzel into the Hall of Fame at such time that the U.S. Army Aviation Museum conducts its grand opening ceremonies.

Archives. BG Hesson advised the NEB that he had appointed Mr. Arthur H. Kesten, AAAA Past Executive Vice President, as the AAAA Archivist, to serve on a voluntary basis.

World Helicopter Championships: MG George W. Putnam, Jr., Ret., AAAA Past President and President, Helicopter Club of America, commended the efforts of CW3 Jon Iseminger and his co-pilot CW3 Rudy Hobbs as the individual winners, citing that this was the second time in a row that CW3 Iseminger won the individual competition. MG Putnam also commended the efforts of LTC Robert E. Harry, the team trainer, as evidenced by the fact that the seven U.S. crews won the first seven places and that the seventh place winner's score beat the best 1986 score. MG Putnam also recognized the contributions of the judges, citing that they had spent considerable personal time and expense. MG Putnam also expressed his gratitude to industry for their financial support, without which the teams could not have participated.

AAAA's Position as to Warrant Officers Wearing the Branch Insignia. The NEB approved the AAAA President's recommendation that AAAA publish a survey in ARMY AVIATION MAGAZINE to obtain the opinions of the AAAA membership, provide the results to the Branch Chief, and prepare an AAAA position, if appropriate.

(NOTE: See article and survey on pages 60-61 for more details.)

New Industry Member
International Gear Corporation, Cleveland, OH.

New Sustaining Member
Southtrust Securities, Inc., Enterprise, AL.

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

WASHINGTON D.C. CHAPTER
MG Donald C. Hilbert, Commanding General, U.S. Military District of Washington, Washington, D.C.



CHAPTER PHOTO NEWS

TOP: AAAA National Executive Board member MG Donald R. Williamson (right), is pictured as he assumes command as Commanding General, U.S. Army Aviation Systems Command (AVSCOM) from outgoing CG, MG Richard E. Stephenson (left). LTG Jerry M. Bunyard, Deputy Commanding General RD&A, AMC (center) officiated at the event.

LEFT: The North Texas Chapter of AAAA teamed with Defense Systems Management College to present the 2nd Annual DoD Issues and Perspective Seminar.

Pictured are Dr. Julius Hein (left), Director, Central Region DSMC; Dr. Joann Langston (center), DSMC Army Chair and LeRoy Worm (right), Chapter President.

ABOVE: Connecticut Chapter President Bill Stuck presents BG (P) John D. Robinson, Director of J8 Force Structure for the JCS, with a replica of Igor Sikorsky's first helicopter, the VS-300. BG Robinson addressed the Chapter on Current National Policy and Strategy.

CPT Joe B. Calvin

Captain Joe B. Calvin, 30, a native of Chandler, OK, died at Stansberry Island, UT, on September 6th, 1989.

A distinguished military graduate of the University of Oklahoma, he majored in Commercial Aviation Transportation. He attended the Army Medical Officer Basic Course at Ft. Sam Houston, TX and the Rotary Wing Officers Course at Ft. Rucker, AL. After completing the Aviation Maintenance Officers Course at Ft. Eustis, VA, CPT Calvin was assigned to the 82d Medical Detachment, Ft. Riley, KS, on 13 May 1988.

CPT Calvin was both Rotary and Fixed Wing rated and he wore the Army Aviation Badge. He was Aviation Medical Board Specialty Certified and received the Army Service Ribbon.

CPT Calvin is survived by his parents, Mr. & Mrs. Dale Calvin of Waxahachie, TX, and a sister, Jerri Meigs of Bonham, TX.

MSG Robert H. Colwell

AAAA member, Master Sergeant Robert H. Colwell, Ret., passed away on 28 April 1989 of a massive heart attack. The 45 year old native of St. Louis, MO is survived by his wife, Elaine, of Eufalia, AL and his son and daughter.

504th Avn Co. Reunion (1956-1961)

A reunion of the 504th Aviation Company is currently being planned to run concurrently with the 1990 AAAA Annual Convention in Orlando, FL, 11-15 April 1990. Interested ex-members should contact:

C.P. Frinks, 10137 Sassafras Woods Court, Burke, VA 22015
Telephone: (703) 250-7995.



Chapter News



TALON CHAPTER, APO NEW YORK — Due to the restationing in VII Corps both the 11th Aviation Brigade and the 4-159 Aviation Battalion moved to Illesheim Army Airfield leaving only two companies and an ATC platoon at Schwaebisch Hall. A new chapter, the Talon Chapter, has been activated at Illesheim and has absorbed the remaining members of the Schwaebisch Hall Chapter. The Talon Chapter encompasses all AAAA members at Storck Barracks, Illesheim, APO New York 09140, and at Dolan Barracks, Schwaebisch Hall, APO New York 09025.

The Chapter activation meeting was held at Storck Barracks, Illesheim, 2 August 1989. At this meeting, the following actions were accomplished: The Chapter was officially named the Talon Chapter, and the following officers were elected: COL Johnnie B. Hitt, Pres.; LTC Gerald D. Saltness, Sr. VP; CPT Gary B. Brown, Sr. VP; CPT Garrett P. Jensen, VP Memb.; CSM James C. Hart, VP Enlisted Memb.; CPT Gregory N. Brooks, VP Prog.; LTC Terry W. Branham, VP Prof. Development; CPT Robert S. Bryce, II, Sec.; and CPT Wayne C. Parks, Treas.



AAAA Calendar



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

December, 1989

■ ■ Dec. 7. AAAA Aviation Trainer of the Year Award Presentation, Fort Rucker, AL.

■ ■ Dec. 8. AAAA National Executive Board (NEB) Meeting, Fort Rucker, AL.

February, 1990

■ ■ Feb. 3. AAAA National Awards Committee Meeting to select CY89 National Award Winners.

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

■ ■ Feb. 15. AAAA Outstanding Aviation Logistics Support Unit of the Year Award Presentation & AAAA Industry Award Presentations, Stouffer Concourse Hotel, St. Louis, MO.

■ ■ Feb 15. 1st Annual AAAA Scholarship Found'n Banquet, Stouffer Concourse Hotel, St. Louis, MO.

April, 1990

■ ■ April 11-15. AAAA Annual Convention, Orange County Convention Center, Orlando, Florida.

■ ■ April 11. AAAA NEB Meeting, Orange County Convention Center, Orlando, FL.

July, 1990

■ ■ July 14. AAAA National Awards Committee Meeting to select CY90 National Scholarship Award Winners.

September, 1990

■ ■ Sept. 11-13. AAAA Army Aviation Electronics Symposium. Sponsored by the Monmouth Chapter of AAAA. Berkeley Carteret Hotel, Asbury Park, NJ.

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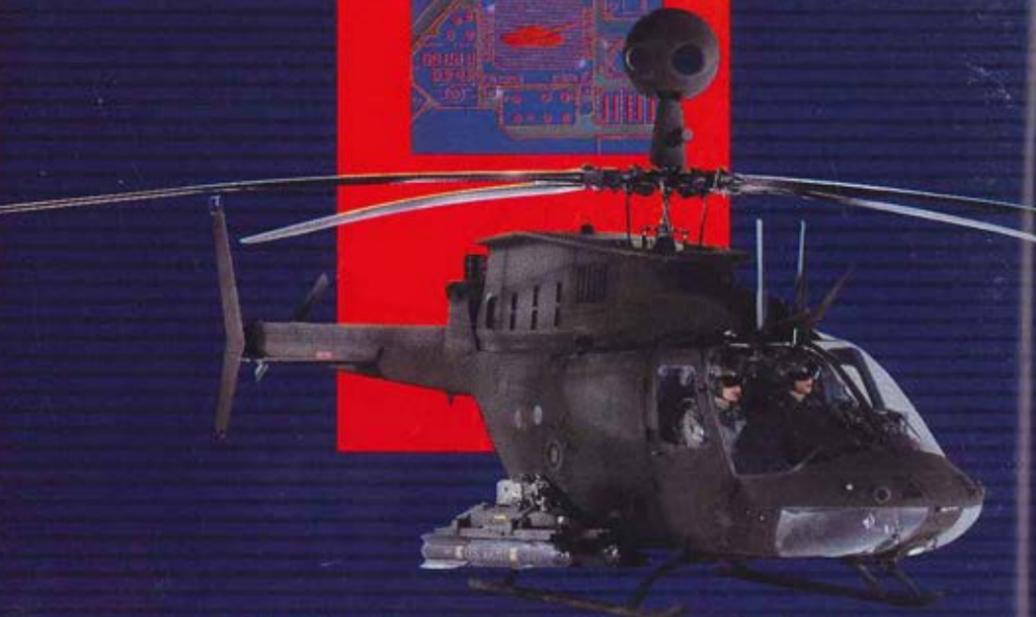
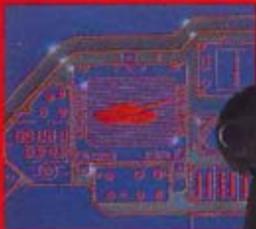
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