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ARMY AVIATION

SPECIAL FOCUS: ROTARY & FIXED WING UPDATES

ARMY AVIATION

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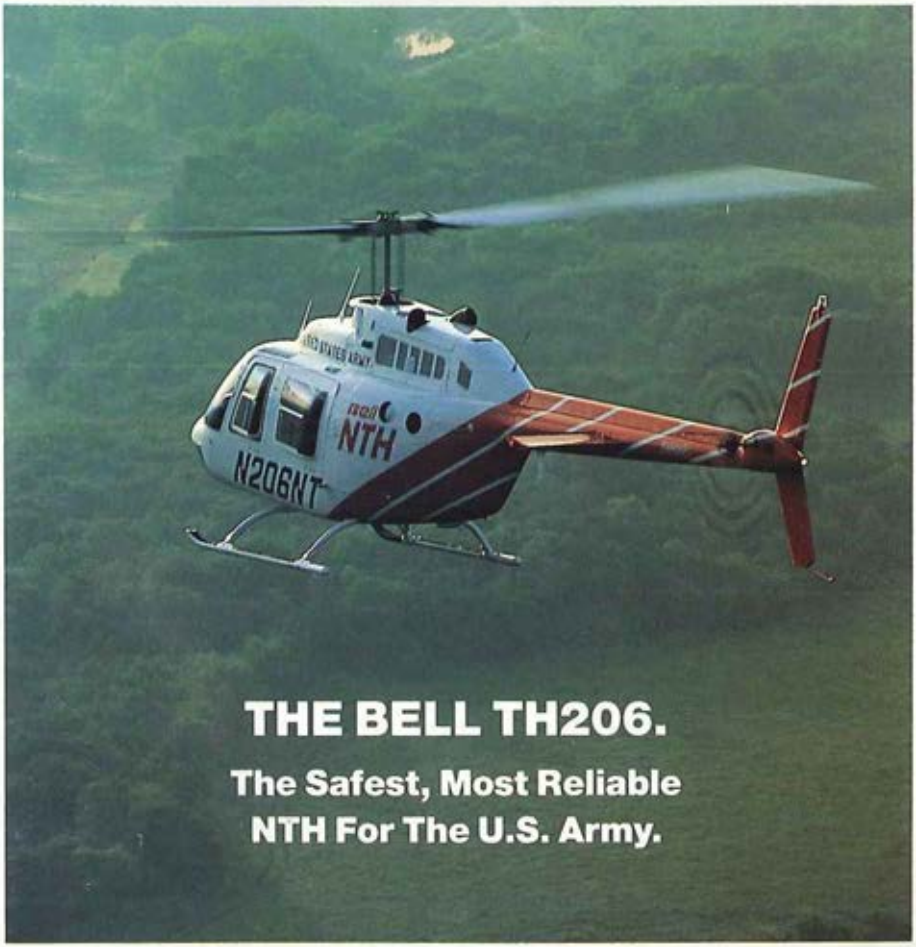

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ARMY AVIATION

VOLUME 41 NUMBER 11

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Warrant Officers: Warfighters of the 21st Century Army

by Major General John D. Robinson

It is the first day of October 1992. Looking across the parade field at the Army Aviation Warfighting Center, the flags of our fifty states wave majestically in a gentle Fall breeze. The last refrain of Gary Owen drifts away while young soldiers and their families view static displays of the OH-58D Kiowa Warrior and the RAH-66 Comanche. Moments ago, history was made as 554 warrant officer candidates were appointed to the rank of Warrant Officer 1, and Master Warrant Officer Dave Helton promoted to Chief Warrant Officer 5. This day also included the opening ceremony of the Warrant Officer Career Center, ushering in a new era for Warrant Officers in the United States Army.

Shortly after assuming duties as the Army Chief of Staff, General Gordon R. Sullivan stated the Army needed to develop a "blue print" to fully integrate warrant officers in all functional areas into the Army of the 21st century. With the adoption of the 1982 Warrant Officer Management Act (WOMA), the 1985 Total Warrant Officer System (TWOS), and the approval of the 1992 Warrant Officer Leader Development Plan (WOLDP), the Army met the challenge.

While it has taken more than a decade to implement all aspects of the warrant officer education system, we are beginning FY93 with a military education program for warrant officers that mirrors those established for our commissioned and noncommissioned officers.

The warrant officer's military education commences with the Warrant Officer Candidate School and culminates with attendance at the Warrant Officer Senior Staff Course. The focal point for the warrant officer education program is the newly opened Warrant Officer Career Center.

The role of the aviation warrant officer has changed dramatically since I entered Army aviation thirty years ago. Aviation warrant officers were viewed only as highly proficient flying technicians. Over the years, aviation warrant officers have earned great respect for their leadership and management abilities; they possess enormous potential to serve the Army in expanded responsibilities.

Aviation commanders now view the warrant officer as a critical member of their staff. While they may be experts in aviation standardization, maintenance or safety matters, they have earned increasing respect as subject matter experts on the employment of aviation in the combined arms fight. Experienced senior warrant officers have shown they have what it takes to be warfighters. While traditional warrant officers roles will continue to be important, we can no longer constrain the ability of these great Americans to contribute to the combat potential of their units.

The Army's dependence on the warrant

MG Robinson 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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officer will expand significantly as we proceed with further personnel reductions. Duties traditionally performed by commissioned officers, such as platoon leader and staff planner, will be done more frequently by warrant officers in the days to come.

While we face significant personnel drawdowns, the fact remains our nation will always have a need for a strong, well trained military force capable of decisive victory. The Army goal, as of this writing, is to reduce active duty warrant officers, all functional areas, by approximately 480. The aviation portion of the cut will be approximately 180 personnel. Voluntary methods will be used to the maximum. However, if insufficient numbers volunteer, then involuntary separations will be required.

There are no plans to hold a warrant officer Reduction in Force (RIF) Board during Fiscal Year 93. However, the Deputy Chief of Staff for Personnel (DCSPER) stated the Army will conduct a Regular Army (RA) Selective Retirement and Other Than Regular Army (OTRA) Warrant Officer Release From Active Duty (REFRAD) Board. The goal of this board is to target "non-performers" and release them from the Army's ranks, regardless of MOS.

The following is a list of the eligibility criteria for these boards:

- CW2: Not considered by this board
- CW3/CW4/MW4/CW5: Total of 20 or more years of Active Federal Service (AFS) as of 27 October 1992
- Not in a promotable status (on standing promotion list). Those officers who have been promoted recently and withdrew previously submitted retirement paperwork to accept that promotion are eligible.
- Do not have an approved volunteer or mandatory retirement date during FYs 93 or 94. While there is some uncertainty about our final end strength numbers, this is not the first time that we have experienced a reduction in force structure. Army Aviation will endue this process and emerge stronger for it.

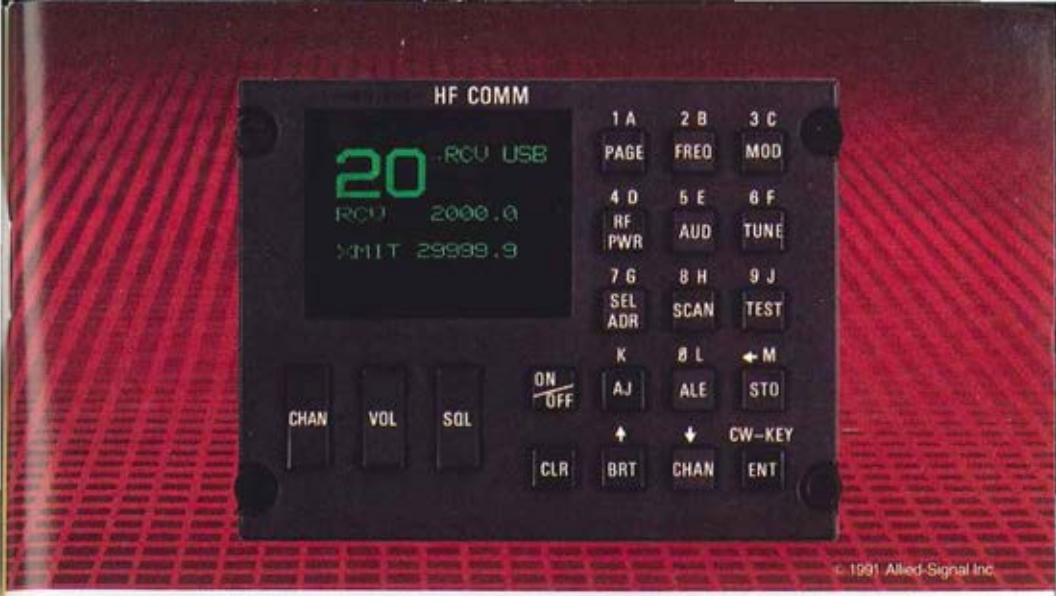
The Best and Brightest

Aviation continues to assess the best and the brightest soldiers into its ranks. The quality of the soldiers entering the warrant officer program is unsurpassed. While these young soldiers are extremely motivated and intelligent, they still require mentoring to reach their full potential.

Senior warrant officers can be role models for our junior officers in both the warrant and commissioned ranks. The professionalism displayed by our senior warrant officers serves as the baseline to which all should aspire. Senior warrant officers have served as instructors for years. As unit instructor pilots, safety officers and maintenance officers, they have taught us the essence of the flying profession. It is by sharing the experiences of the senior warrants that our commissioned officers learn valuable lessons which help them be better commanders.

"As we proceed with efforts to reshape our forces, our reliance on the warrant officer will expand. Many challenges lie ahead. Warrant officers will help lead us through these challenging times into the 21st century."

As we proceed with efforts to reshape our forces, our reliance on the warrant officer will expand. Many challenges lie ahead. Warrant officers will help lead us through these challenging times into the 21st century. For more than 40 years, warrant officers have been a centerpiece in Army Aviation. As we look toward the next century, we will always be able to count on warrant officers to do their part in helping ensure decisive victory on any contingency battlefield. IIIII



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Currently in service with the U.S. Army and Navy on seven different rotary and fixed-wing aircraft types, including EA-6Bs and VIP VH-3s, the AN/ARC-199 has also been selected for the USMC OV-10 and follow-on vertical lift requirements. And a variant of the AN/ARC-199, the ARC-200, is flying in the USAF F-16 ADF, as well as in export versions of the F/A-18.

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New Trainer Helicopter (NTH) Update

by Paul L. Hendrickson

The NTH Program continues on schedule. The responses to our Request for Proposal arrived on 10 August from four serious competitors: American Eurocopter, Bell Helicopter Textron, Enstrom Helicopter, and Grumman Aerospace. Grumman is teamed with Schweizer Aircraft and UNC in this endeavor. American Eurocopter is proposing two aircraft which are primarily the same except for the power plants. One aircraft has a Turbomeca engine, while the other is Allison powered.

All five aircraft arrived at the site of the "fly-off" as required on 14 September. After the requisite administrative processing and ground schooling, the flight evaluation started with experienced Army Instructor Pilots at the controls on 28 September 1992. Despite several minor problems encountered during the fly-off thus far, resolutions were swift and the program is proceeding on schedule.

The Training Effectiveness User Evaluation or fly-off portion of the evaluation process is scheduled to be completed by 27 November 1992. The findings will then be passed to the Source Selection Evaluation Board (SSEB) to be integrated into the total evaluation package.

Mr. Hendrickson is the Deputy Product Manager, New Training Helicopter (NTH), Program Executive Office, Aviation, St. Louis, MO.

Other Actions

In the meantime, the SSEB will be conducting evaluations into all the other areas of the program to include Management structure, logistics support, design and performance data (as verified by the Federal Aviation Administration), and past performance assessment for each of the competitors. And, of course, the proposed cost programs will be given a very thorough analysis and evaluation.

During this process, the SSEB will communicate with the competitors about any omissions, errors, or areas the evaluators deem needing clarification. They will also meet with the competitors in "face to face" discussions to give them a chance to

Every year scores of training days are lost or severely limited at the Army Aviation Training Center at Ft. Rucker. Sometimes it's truly bad weather, but more often than not, the culprit is a strong gusty wind or the high density altitude of a hot Alabama day. The result is a waste of taxpayers' money.

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But the AStar doesn't just look good on the performance charts, it feels good to fly. Instructors and students alike can have confidence that the AStar will effortlessly fulfill the requirements of the training syllabus without ever approaching the edge of its performance envelope. Add this to the fact that the AStar offers optional air conditioning, and you have the safest, most comfortable and effective training platform available for NTH today. Even when Mother Nature heats up.

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"[The] results to date indicate that objective can be met with equipment currently proposed and being evaluated."

amend their proposals to more closely meet the government's requirements. After all this, the competitors will be given an opportunity to provide their Best and Final Offer (BAFO). After receipt of the BAFOs, the SSEB will then complete their initial evaluation findings and present these to the Source Selection Advisory Council (SSAC). When the SSAC is satisfied that the findings were accurately obtained and based solely on the criteria laid out in the approved Source Selection Plan and evaluation criteria, they will have the SSEB finalize the findings and present these to the Source Selection Authority (SSA).

Making the Decision

The SSA, when satisfied that the findings are thorough, complete, and relevant will make the selection decision and advise the contracting officer to proceed to award. This action is currently scheduled to occur in late February 1993. With contract award at that time, the initial NTH deliveries should begin arriving at Ft. Rucker, AL, in March of 1994. Sufficient quantities of the aircraft should be on hand to permit actual training in these aircraft by September or October 1994. Earlier delivery and initiation of training could occur depending on the final proposal by the winning contractor.

The NTH program team continues its intense effort to obtain and field an effective, reliable helicopter for the important role of Initial Entry Rotary Wing training. Results to date indicate that objective can be met with equipment currently proposed and being evaluated. No problem is forecast in meeting the Army's "best value" objectives within the logical constraints of affordability.

Kiowa Warrior Courses Under Way

by Colonel Ted Cordrey

On 17 June 1992, the Army Aviation Center at Fort Rucker, AL, began to train and qualify pilots to fly and operate the newest aircraft in the Army inventory—the OH-58D Kiowa Warrior. This current technology armed reconnaissance helicopter provides a highly mobile aerial platform to execute the critical scouting functions of AirLand Operations doctrine.

The two new courses are the OH-58D Supplemental Aviator Course (six weeks and three days) and the OH-58D Aviator Qualification Course (eleven weeks and one day).

The addition of weapons systems to the OH-58D brought with it a change to the crew composition. The Army has had in its inventory since 1986 about 170 unarmed OH-58Ds. The unarmed model was flown by one aviator (right seat) and one non-rated crewmember (left seat). The left-seat crewmember operated the aircraft Mission Equipment Package (MEP). The armed aircraft crew will be two rated pilots. In addition to the armament systems, these aviators will receive formal institutional instruction on the full MEP suite to include the Mast Mounted Sight (MMS) and the Airborne Target Handover System (ATHS).

COL Cordrey is the Training System Manager for OH-58D Kiowa Warrior, Ft. Rucker, AL.

The OH-58D Aviator Qualification course will qualify a rated aviator to perform the full complement of duties associated with each seat of the aircraft. The Supplemental OH-58D Aviator Course will qualify those aviators who had previously attended the unarmed curriculum. The focus of the Supplemental Course will be MMS, ATHS and the weapons systems. Classes in each course will initially have ten students each.

The Kiowa Warrior is the only helicopter in its class that gives its crew the capability to defend themselves against enemy fire. Procuring the Warrior has given Army Aviation an aeroscout helicopter with the flexibility to fire in self-defense, to protect other

members of the Combined Army Team, or to engage enemy forces when necessary. The primary mission of Kiowa Warrior is armed reconnaissance.

The aircraft's survivability gear will be augmented with an infrared jammer, a voice radar warning receiver and a laser warning receiver. The jammer confuses enemy heat-seeking missiles by sending out false heat signatures. The radar and laser warning receivers warn the crew vocally when the aircraft is "painted" by radar or lasers.

The Kiowa Warrior has Universal Weapons Pylons (UWP) on each side of the aircraft capable of mounting any of several weapon systems.

The weapon systems options are a .50-caliber machinegun with 500 rounds of ammunition (left side only), Hydra 70mm rockets, Hellfire missiles, and air-to-air Stinger missiles. Unit commanders will select the appropriate weapons systems depending on mission.

As more Kiowa Warriors are put into the field, OH-58A and OH- 58C model helicopters will be phased out of the aeroscout role. All unarmed OH-58D aircraft will ultimately be retrofitted to the Warrior configuration. There are 19 Warriors at Fort Rucker now, with six more to be phased into the "schoolhouse" training fleet.

Until the late 1987-early 1988 timeframe, the OH-58A, C and D model Kiowas could perform only unarmed aeroscout missions.

Fifteen Special Mission OH-58Ds were configured with "add-on" weapons systems to support U.S. operations in the Persian Gulf. The success of these 15 armament "add on" aircraft underscored the decision to integrate weapons systems into the production OH-58D Kiowa Warrior.

During the war with Iraq, Army Aviation soldiers used the non-integrated armed OH-58Ds to perform missions against oil platforms that were being used as enemy air defense and anti-ship missile sites and way stations for patrol and fast-attack boats. The "add-on" armed Kiowas also provided protection for search and rescue missions.

These same Special Mission aircraft were directly responsible for the first recapture of Kuwaiti Territory.

Among the unarmed missions performed by the OH-58D were terminal guidance for laser-guided munitions such as Hellfire missiles and Copperhead artillery rounds. They also conducted screen and reconnaissance missions and provided forward observation for field artillery units.

The Kiowa Warrior is an aircraft capable of diverse missions, limited only by the imagination of unit commanders.

The aircraft still has little ballistic protection, but nevertheless it provides Army Aviation an interim armed scout with significant night-fighting capabilities until the RAH-66 Comanche can be fielded. IIIII

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RAH-66 Comanche Program Manager's Update

by Brigadier General Orlin L. Mullen

The Comanche program continues to undergo a major restructuring in accordance with direction received from the Office of the Secretary of Defense in January 1992. Since the time that the Boeing Sikorsky team was awarded a contract to conduct the Demonstration/Validation (Dem/Val) Prototype phase, changing economics and world conditions have dramatically affected the Defense budget and have significantly altered the approach to weapon system development. As a result of funding reductions instituted by the President's fiscal year (FY) 93 budget, the Secretary of Defense directed the Army to submit a plan to restructure the Comanche development contract to prove out all critical components, including avionics, a growth T800 engine and Longbow radar integration, within available funding constraints. Fiscal year 93-97 funds now available for the Dem/Val Prototype phase are in the approximate amount of $1.6 billion, a $2 billion reduction from the original development program.

BG Mullen is the Program Manager, RAH-66 Comanche PM Office, St. Louis, MO.

The restructured program schedule defers the start of the Engineering and Manufacturing Development (EMD) phase by extending the initial Dem/Val Prototype phase by an additional two years. The first flight of a Comanche prototype aircraft is planned for August 1995, and the Dem/Val Prototype phase will be completed by September 1997. The revised schedule tentatively extends the date of Initial Operational Capability (IOC) to January 2003.

Although the Comanche program focus is now concentrated on Dem/Val-type activities, the aggressive pursuit of new technologies is still essential in order to provide a system with leap-ahead capabilities. Nothing we do in the Dem/Val Prototype phase will preclude the planned transition into the EMD and production phases of the program. The concurrent engineering design process continues and the MANPRINT/Supportability design influence is being maintained. Although we

recognize that the original program goals may change, we have retained them in order to discipline the development process. It is extremely critical that we complete all design activities that will translate into a superior armed reconnaissance helicopter capable of being produced and placed in the hands of the user. Following is a list of the critical components and technologies that will be demonstrated during the Dem/Val Prototype phase.

Mission Equipment Package:

- Centralized processing architecture with Ada software.
- Target acquisition system (TAS) with aided-target detection/classification and automatic target tracking.
- Night vision pilotage system (NVPS).
- Wide field-of-view (35°x52°) helmet mounted display (HMD).
- Longbow fire control radar.
- Digital map.

Air Vehicle With Growth T800 Engine:

- Increased flight performance (dash speed, vertical rate-of-climb).
- Improved maneuverability (turn-to-target, mask and lateral displacement, constant airspeed/altitude turn).
- Low observables (radar, infrared (IR), acoustic).
- Sealed overpressured cockpit.
- Primary digital flight control system and core automatic flight control system.
- Air transportability.

A key component of the restructured program is the Longbow fire control radar, a system that offers improved target detection and classification, and extends the ability to operate in adverse weather and battlefield obscurant conditions. Key Longbow tasks include integration risk reduction, which will demonstrate flight handling qualities, flight loads, and performance impacts. Also, rotor dynamic/aeroelastic characteristics will be verified and the integration effects on low observability will be explored. A demonstration of Longbow's technical performance will be conducted to investigate improved target detection, classification and recognition via simultaneous display of electro-optical and radar frequency (RF) targets; and reduced false alarms (manual sensor information fusion), which, in addition, helps to reduce fratricide. In order to control costs and take advantage of previous development efforts, Longbow Apache hardware and software will be utilized to the maximum extent possible during the Comanche Dem/Val Prototype testing. Finally, the primary objective of the Longbow radar integration, during the Dem/Val Prototype phase, is to prove-out and demonstrate that the integral Comanche provisions for Longbow are adequate, and that the Longbow radar can be installed without major modifications to the aircraft.

The T800 engine, developed by the Light Helicopter Turbine Engine Company (LHTEC), was originally designed to achieve a 1,200 shaft horsepower intermediate rated power (IRP) rating at sea level standard conditions, with a dry weight of 300 pounds. Based on lessons learned from Operation DESERT STORM, the Army determined that kits previously envisioned for high frequency radio, crew floor armor, IR/RF jammers and a radar warning receiver/radar frequency interferometer would most likely be used for the majority of Comanche's missions, and should therefore be included in the aircraft mission weight. With the addition of the Longbow radar, the accumulation of weight for the added systems, combined with a historical 5-7% weight empty growth from design to production, led to the decision to increase the installed engine power by approximately 12%. The extra power will be achieved by increasing the air flow through the engine and increasing operating temperatures by approximately 30° F. External dimensions of the engine will remain unchanged. Since the growth engine is based on the strengths of the existing engine, proven out by years of development and testing, the growth engine program is considered to be low risk. The Assistant Secretary of the Army for Research, Development and Acquisition agreed with this decision to increase power and directed that the growth engine program proceed to enable use of growth engines on Comanche Dem/Val flight test prototypes.

Because many of Comanche's EMD and production-related tasks have been deferred, logistics efforts have been significantly scaled back during Dem/Val. However, the impor-

tance of logistics concerns has not been dismissed from the program. Logistics issues will continue to influence the design to ensure that the aircraft is supportable and easily maintained by soldiers in the field. During the Dem/Val Prototype phase, logistics support analysis will be retained at the component level. In order to be able to analyze aircraft parameters, we will build and test a prototype Portable Intelligent Maintenance Aid (PIMA). A prototype Built-In-Test (BIT) verifier will be used to determine the functioning of line Replaceable Units/Line Replaceable Modules (LRU/LRM) at the user level. The MANPRINT program will be continued, and future training needs will be analyzed.

We will continue RAM design emphasis throughout the Dem/Val phase. Although no dedicated RAM tests will be conducted, RAM testing will be piggy-backed with scheduled flight test activities, and data will be collected as a fallout of those tests. We intend to track failures and analyze them, but we will defer implementation of the fixes until the EMD phase of the development program. The Comanche's design will include built-in diagnostics, and of course, the total quality management concept will be sustained. Minimal producibility efforts will be accomplished which include the building of basic tooling (no automated features) and planning facilities for the three prototype aircraft. We will continue to emphasize producibility during the design process to ensure easy transition into production.

The Comanche flight test program retains the vast majority of originally planned Dem/Val testing, as well as incorporating Longbow and the T800 growth engine requirements. Although the number of prototype aircraft have been reduced from four to three, more test months are now available as part of the restructured program. A total of 100 flight hours were added for Longbow and T800 growth engine testing. The Government will participate as part of a Combined Test Team that will collect data for independent technical, logistical and limited operational assessments. The flight test program is designed to ensure demonstration of critical technologies and the conduct of airworthiness and flight characteristic testing required for the Dem/Val phase.

Exit criteria have been retained as a means of measuring results obtained during the Dem/Val Prototype phase, as well as providing a focus for achievement of critical system capabilities. The specific exit criteria to be demonstrated by the end of Dem/Val, including the selected demonstration method, are:

- Vertical Rate of Climb—flight performance survey.
- Night FLIR Recognition Range—TAS performance survey.
- NVPS Field of View—lab measurement.
- Radar Cross-Section (RCS) Signature Reduction—RCS flight survey.
- IR Signature Reduction—IR flight survey.
- Longbow Moving Target Classification Range—Longbow Performance survey.
- Ballistic Vulnerability—controlled damage and ballistic tests.

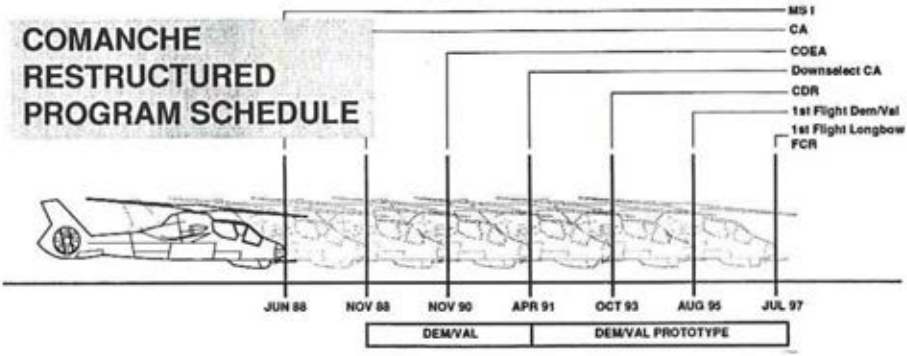
Since the program focus has been placed on Dem/Val design and test activities, and because of the significant reduction in the program's budget, a number of tasks have been deferred until the EMD phase. The primary tasks deferred are:

- Optimization of automatic flight control modes and development of the flight director.
- Detailed design of survivability combat kits (floor armor, RCS kits).
- Design and development of the fire control solutions and boresight subsystem for the 20mm gun.
- Stinger missile universal launcher and external stores platform development.
- Design and development of integrated communication, navigation, and identification avionics; and Aircraft Survivability Equipment (ASE), and EMD.

In addition, test activities that include the propulsion system test bed, survivability, reliability, development, fatigue and live fire have been scaled back.

We are currently in the process of favorably restructuring the Comanche development contract to align it with the program as it now exists, and to make effective use of our existing funds. We have also requested LHTEC to submit a proposal for a growth T800 engine program. We have

COMANCHE RESTRUCTURED PROGRAM SCHEDULE



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eliminated as much as possible any unnecessary administrative burden on the contractors that would have consumed funds that otherwise could be productively spent on program execution. Specifically, partial terminations for convenience were issued to stop work that could be deferred until EMD, such as additional prototype aircraft; ASE; and integrated communication, navigation, and identification avionics. We also instructed the contractors to discontinue efforts on any proposals that the Government had previously requested for several contract modifications, such as RF/IR jammer analyses and diagnostics demonstrations.

A cost plus-incentive fee (CPIF) type contract is used on the Comanche development contract and for the T800 growth engine and air vehicle support contract. A significant feature of the air vehicle development contract is its award fee provision that addresses comprehensive program execution to include technical, RAM/quality, ILS/MANPRINT, producibility/competition, life cycle cost and operational suitability. The current contract award fee plan will be revised following completion of negotiations in order to maintain contractor design flexibility and to provide performance incentives. All of these elements must be optimized in a balanced approach if the contractor is to earn a maximum award fee. An Unpriced Contractual Action (UCA) which outlined major program objectives was issued in April 1992, and Boeing Sikorsky submitted its proposal in mid-August. Completion of proposal evaluation and contract negotiations will be accomplished by the end of November, with execution of a definitized contract modification to occur in December 1992. The growth engine contract process will follow a similar schedule if the expected approval to award the contract is received.

Maneuvers (Time to Execute):

- **Turn to Target (180° Hover/45 kt Wind) 4.7 sec**
- **Mask & Lateral Displacement 10.6 sec.**
- **Constant Airspeed/Altitude Turn (90°) 5.5 sec.**

Despite the economic uncertainties which continue to shape the future of our program, Comanche continues to progress and it remains the Army's priority to fill a vital combat need that is lacking with the current light helicopter fleet. Comanche will provide commanders a keen situational awareness on the battlefield, maximize deployability and survivability, and enable forces to stay in the fight with improved maintainability and survivability. Comanche provides maximum flexibility on a single platform, provides tomorrow's electronic battlefield communication capability at the battalion/squad level, and the technological edge which is so essential with a downsized force structure. The RAH-66 Comanche is the best solution to existing deficiencies and it remains the most cost-effective replacement option for the aging light fleet. IIIII

Longbow's Potential Contribution to Battlefield Intelligence

by Lieutenant Colonel Jack O. Shafer

In much the same manner that the British introduced a deadly new weapon to the fields of Crecy and Agincourt during the Hundred Years War, providing then total dominance on the battlefield, the U.S. Army is preparing to introduce a revolutionary new weapon to the modern day battlefield. Both weapons are known as Longbow; the first a bow and arrow, the latest an Apache helicopter (already the most lethal attack helicopter in any arsenal) equipped with a millimeter wave Fire Control Radar (FCR) and Radar Frequency (RF) Hellfire fire-and-forget missiles. As its predecessor and namesake accomplished previously, the AH-64D Longbow will provide overwhelming combat power to our future soldiers and serve as a major force multiplier.

Longbow provides a significant enhancement in war fighting capability that will provide the commander an enormous tactical advantage on the modern battlefield. To exploit this new capability, however, requires the review and modification of operational concepts, tactics, and doctrine. New concepts for target management and operational employment must be developed in relation to combined arms team integration, the ability to achieve AirLand Battle tenets, and the potential integration in the AirLand Battle-Future doctrine. These new concepts are essential to exploit the Longbow system capabilities and fully capitalize on the potential combat effectiveness of the AH-64D.

LTC Shafer is the Product Manager, Fire Control Radar, St. Louis, MO.

The AH-64D will dramatically increase the effectiveness of the attack helicopter battalion from a weapons delivery standpoint. However, we are rapidly recognizing other advantages that the Longbow system brings to the Combined Arms Team. Longbow is a weapon system that can provide real-time situational awareness and intelligence of the battlefield to the commander during periods of degraded visibility

AWESOME.

AND THEN SOME.

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

So, what's different? Integration of the new Longbow radar and fire-and-forget Hellfire missile provides more combat capability in all weather conditions. It can see farther. See more. And fight through smoke, rain and fog. AH-64D Longbow Apache can detect, classify, prioritize and engage more targets, and do it faster.

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

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

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APACHE OWNS THE NIGHT

caused by battlefield smoke/obscuration and adverse weather. Therefore, in addition to providing an enormous tactical advantage by exploiting the RF Hellfire missile's fire-and-forget capability, the AH-64D will significantly enhance the commander's ability to gather real-time battlefield intelligence. When coupled with other battlefield intelligence data systems, Longbow becomes truly combined arms integrated and a superb combat multiplier.

The presence of an organic, multimode surveillance and fire control radar operating on airborne platforms throughout the Area of Operations (AO) is unprecedented in the history of U.S. Army operations. The FCR provides rapid and automatic detection, classification, prioritization, and precise location of multiple ground and airborne targets in the presence of battlefield obscurants and adverse weather. The short search time delivered by the FCR limits the exposure of the AH-64D to all potential enemy threats. This capability to locate ground and airborne targets combined with the inherent maneuverability and increased survivability of the AH-64D means that a wealth of real-time target and intelligence information will be available.

Designed Functionality

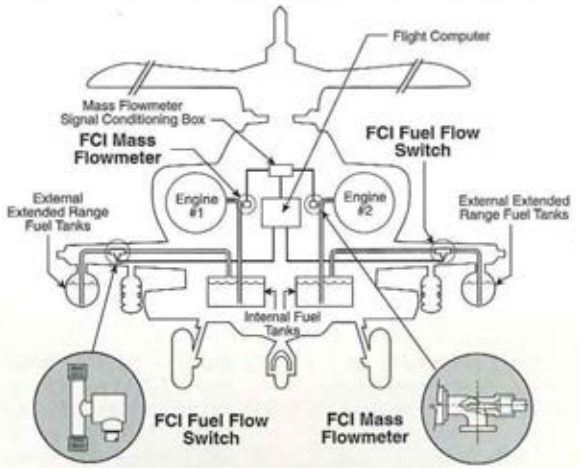
The FCR has been designed to pass all detected targets to the AH-64D weapons processor for presentation on the Tactical Situation Display (TSD) Page of the aircraft Multi-Function Displays (MFDs) and to make this information available to other Longbow aircraft for potential assignment to onboard RF Hellfire missiles. This information is normally passed between Longbow aircraft via the Improved Data Modem (IDM). Aviation units with attack and reconnaissance missions and Army airspace command and control elements will use the IDM to provide a data burst communication capability for command and control, precise target handover, and fire distribution. The AH-64D crew interfaces with the IDM through the MFD. Specifically, the TSD, Communication Pages, and the FCR Pages are utilized to configure the IDM and transmit, accept, review, and reject messages. The TSD provides a relative picture of the battlefield that is common to all team members. The IDM provides the ability to transmit data which enables the crew to select target files and any other data associated with the common graphics to transmit. When combined with the AH-64D Global Positioning System/Inertial Navigation System's accuracy and the target state estimator, this capability enables the receiving aircraft to predict the location of the handed over target which significantly reduces the associated search time. Further, this capability allows the attack team leader to graphically describe the attack plan on the TSD and transmit the plan to all team members in one transmission. The receiving aircraft receive a relational picture of their area of responsibility as well as specific targets.

Target Engagement

With the inherent capability to locate stationary and forward advancing enemy vehicular and airborne targets, the FCR provides an excellent source of intelligence on the battlefield that will be extremely valuable for immediate reaction by tactical operation centers to engage targets with long range weapons or to reposition friendly ground or airborne forces to counter the threat if not engaged by Longbow.

The location of vehicular targets in the search area of the Longbow system is pinpointed by the FCR with substantial precision at the time of the measurements, and the design supports rapid passing of this data via the IDM. Information collected by the Longbow FCR is accurate at the time of data collection and will remain valid for stationary targets. For moving targets, the accuracy of the information will decay in time due to the uncertain movement of the targets after they are detected. Target location error at the time of detection would be significantly less than 100 meters. Considering the time delay between the measurements and the utilization of the data, the accuracy should be excellent for planning and coordinating efforts. The data collection and processing effort takes a relatively short time—seconds—so the target location error

NO MOVING PARTS.



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". . .the AH-64D Longbow can. . .supply a new dimension for effectively planning, coordinating, and controlling all available Air-Land Battle firepower against enemy forces in future modern warfare."

will depend on the delay for communications, decision-making, and engagement of the targets. This delay will be minimized by IDM communications with a ground-based tactical operations center or airborne command and control center where immediate action can be planned for the effective engagement of Longbow-reported targets using artillery, air strike, or direct fire weapons.

In addition to detection of stationary and moving ground targets, the FCR can be used to detect and locate airborne targets. These may be engaged or evaded by the detecting aircraft, depending on the situation. While the location of enemy aircraft may not be predictable for engagement by other than immediate reaction systems, their presence in particular locations in conjunction with the ground force deployment may provide significant information in evaluation of the overall enemy intentions.

Data Transfer Capabilities

The interface of the IDM within the AH-64D will facilitate rapid transfer of mission and target data from the FCR to and from other IDM users using a tri-service compatible protocol. The IDM forms the data link from aviation assets to Army airspace command and control elements; links information between aircraft, companies, and battalions for reporting, mission changes, target handovers, and intelligence updates; provides the capability to accept Forward Area Air Defense System Command, Control, and Information (FAADSC^{2}I) air target tracks for processing information and calculating intercept data for display in a situational format; and permits target transfer digital coordinates from Army to other services' onboard fire control systems.

The IDM will provide a direct interface for the rapid dissemination of Longbow-collected battlefield intelligence information via the Army Tactical Command and Control System (ATCCS) to the Maneuver Control System (MCS) to assist in force level control decision making, to the Intelligence and Electronic Warfare All Source Analysis System (ASAS) to assist in the development of Enemy Order of Battle, to the Advanced Field Artillery Tactical Data System (AFATDS) for target servicing, and to the Air Defense Command and Control System (ADCCS) for warning and potential cuing information for Air Defense weapons.

Real-Time Intelligence

With the added capability of the IDM, the FCR will enable the AH-64D to provide real-time battlefield intelligence for coordination of Close Air Support (CAS), Battlefield Air Interdiction (BAI), and Suppression of Enemy Air Defenses (SEAD) missions along with the added dimension of providing the battle commander another option to perform deep precision strikes. This will enable the integration and coordination of air strikes, ground attacks, and artillery barrages. The IDM will also be installed on the other services' tactical aircraft providing a much improved coordination capability for a Joint Air Attack Team (JAAT). This same capability will be available to send data to other systems such as Joint Surveillance Target Acquisition Radar System (JSTARS), where it can be integrated with data from other Longbow teams and the JSTARS radar.

Thus, with the FCR's capability to rapidly detect, classify, and accurately locate enemy ground and airborne targets in battlefield obscuration and adverse weather, combined with the unique data sharing capability provided by the incorporation of the IDM, the AH-64D Longbow can provide battlefield intelligence data to fill in gaps in coverage from other systems and supply a new dimension for effectively planning, coordinating, and controlling all available AirLand Battle firepower against enemy forces in future modern warfare. IIIII

AH-64 Apache Readiness

by Captain Donald L. Scantlan, C.P.L.

"Those who say it can't be done, should stay out of the way of those doing it." While these words are attributed to an old Chinese proverb, they frequently apply to Apache maintenance organizations. Several units have been recently recognized for "doing it" while receiving the Apache Masters of Readiness Award. For Calendar Year (CY) 1991 the awards were given to: 1-6 CAV (for 86% Mission Capable [MC] rate for the year), 1-101 AVN REG (for being above the DA MC goal of 75% for all 12 months), 4-229 AVN REG (for having highest MC rate [82%] among OCONUS units), and 1-151 South Carolina National Guard (for highest MC rate [69%] among National Guard units). Each of these units' accomplishments demonstrated how effective leadership and motivated teamwork, balancing mission, maintenance, and training, can result in outstanding readiness levels.

CPT Scantlan is the APM-Readiness in the Apache Program Office, St. Louis, MO.

The entire Apache community has additional cause to be proud of themselves and their equipment since the AH-64 "system" won the Daedalian Award for CY 1991. This award is given to the "most outstanding weapon system" which operates in the aerospace environment. This year the competition was especially keen since all of the weapon systems were battle tested.

The accomplishments which led to Apache's selection for this award were truly a team effort. The maintainers in the field kept the Apache MC rate near 90% for Operation DESERT SHIELD/STORM; the supply and transportation people made the Aircraft-On-Ground and Desert Express procedures work; the Apache Action Team (now known as Apache Readiness Improvement Program [ARIP] made up of users, materiel developers, and producers from government and industry) tackled user presented problems/issues in a "get it solved now" format; and "Team Apache",

AH-64 RAM FOLLOW-ON ASSESSMENT **FIGURE 1**

	REQUIREMENT	RESULTS
A/C MISSION	19.5 HRS MTBF	24.2 HRS MTBF
A/C SYSTEM	2.8 HRS MTBF	6.6 HRS MTBF
TADS MISSION	125.0 HRS MTBF	145.4 HRS MTBF
PNVS MISSION	160.0 HRS MTBF	581.8 HRS MTBF
TADS SYSTEM	63.0 HRS MTBF	212.5 HRS MTBF
PNVS SYSTEM	160.0 HRS MTBF	390.0 HRS MTBF
MMH/FH	13.0 HRS	4.4 HRS MTBEMA
ESSENTIAL MAINTENANCE ACTIONS	N/A	3.3 HRS MTBEMA
MEAN TIME BETWEEN MISSION AFFECTING FAILURE	N/A	62. HRS MTBMAF

the ATCOM spares inventory team, slashed through "business as usual" procedures to get parts to the field. All of these people and many others put forth extraordinary efforts to make being a member of the Apache community a great place to be.

It's obvious that the aggressive, continuously improving Apache community will achieve even more this year. Despite the much feared implementation of stock funded repairables, the extensive inspections and repair of DESERT STORM aircraft, and even the changing of chargeability of depot maintenance actions, Apache MC rates are again consistently at or above DA goals.

The Apache's RAM (Reliability, Availability, and Maintainability) growth continues to be healthy. There are five areas where reliability improvements have been demonstrated. Most of the materiel improvements which led to these figures are in the supply system and are being fielded as the older less reliable components are replaced.

Additionally, during a RAM assessment conducted by the Operational Test and Evaluation Command during 1991, the aircraft and the Target Acquisition Designation System/Pilot Night Vision System (TADS/PNVS) system demonstrated system and mission reliability exceeding all specification requirements. Figure 1 shows the reliability figures for the aircraft and TADS/PNVS which were demonstrated during this evaluation.

Enough said about the past. Where are we going? Even without a crystal ball, it is easy to see things getting even better for the Apache user/maintainer. Several of the hardware reliability improvements which have been identified and tested could not be produced/fielded because Apache program funding had not been released. By the time this is printed, we expect that the funding will be released, and these hardware upgrades will be showing up in the field.

Not too far over the horizon should appear: improved shaft driven compressors, 30MM reliability improvements, fire control computer software improvements for accuracy, TADS/PNVS reliability upgrades, improved radios and antennae, and the long awaited GPS navigation system.

In closing, if you are having problems with your Apache or its subsystems, there are a lot of people who would like to help you solve them. Give the PM office a call and we will work to get the problems fixed or find the people responsible for fixing your particular problem. POCs are (CML (314) 263 or DSN 693) CPT Donald Scantlan, X-1904, or Mr. Hopkins or Ms. Mayo, X-1946/48. If you can't reach them, call the Program Manager, COL Jim Snider, X-1911. IIIII

Black Hawk on Track

by Colonel Gerald C. Green

Every program goes through periods when everything seems to go wrong at the same time and then there are those times when everything just seems to fall in place like you planned it. It is every program manager's desire to be in command when things are going well and your major concern is keeping the program headed in the right direction and keeping up the momentum. Now is such a time for the UH-60 Black Hawk program and all that have contributed to this success can enjoy the benefits of their hard work. There are so many positive things happening at this time for the UH-60 series helicopter and its derivatives that it is difficult to predict which effort will be the most productive.

Since the late 70's the UH-60 has been the Army's choice for the utility role in the aviation mission scenarios. It is doubtful that those who worked on the UH-60 program in the early days could have imagined the success that the program would achieve in the 90's. The program and field representatives that were close to the program and knew its potential have always known that some event would display those capabilities to the world and then everyone would share in the knowledge that the UH-60 is the best utility helicopter ever built. That event occurred in late 1990 when the UH-60's were called into service to support the DESERT SHIELD and then the DESERT STORM Operations.

COL Green is Project Manager for the Utility Helicopter, St. Louis, MO.

The changing combat mission requirements of the Army in an environment that made the simplest of missions difficult to perform provided the UH-60 the opportunity to prove itself and become known as the aviation "workhorse" of the U.S. Army. Approximately 400 Army Black Hawk aircraft were deployed to the Persian Gulf by virtually every means possible. They went by Sea, Air Transport and Self Deployment from all parts of the world, in every

conceivable configuration with the single purpose of fulfilling their mission as the utility aircraft of choice.

During the DESERT SHIELD and DESERT STORM Operations, the UH-60s performed a full range of missions, including transporting troops, supplies and artillery, command and control, search-and-rescue and MEDEVAC. They flew over 44,000 hours in the most hostile environment that can be envisioned for helicopters. They operated out with the troops, which meant down in the sand and rocks that at times meant zero visibility and only minimal or no maintenance facilities. Through all of those hardships the UH-60s were maintained at a 90% availability when the ground operations commenced in February 1991. That record is a credit to the design and manufacturing standards that go into the UH-60 helicopter as well as to the training and dedication of the Army personnel who supported, maintained and operated the UH-60's under the most demanding of field conditions in Saudi Arabia.

As the old saying should have gone, "good news travels fast". It was not long after the successful completion of the DESERT STORM effort that the many stories of the outstanding performance and capability of the UH-60s started to spread. Not all of the operations performed by the UH-60s can be released at this time but it can be said that when the Army needed a reliable piece of equipment to support the most urgent of missions, the UH-60 performed admirably. As the Army reflects back on the missions it had to perform and the changing combat mission roles for the utility helicopter fleet, it is clear that added mission capabilities must be provided. It is this effort that is now the challenge for the project manager to evaluate and assure that the ever diminishing resources are maximized to provide those new core capabilities for the next time the UH-60 is called to service. Be it peace or war time.

To provide some insight to the many things that are in the developmental process and/or planned for the UH-60 in the coming months and years, a brief overview of the priority efforts are provided for your information.

UH-60L Production

On 28 April 1992, the U.S. Army Black Hawk continued its role as the Army's leading multiyear acquisition program. This contract strategy began in 1982 as the Army's first multiyear program and has continued through four very successful multiyear contracts that has afforded the Army savings that are the equivalent of every tenth UH-60 being free. The signing of the fourth consecutive multiyear contract is unsurpassed by any other Department of Defense (DoD) program and is attributed not only to the dollar savings but also the product quality, program stability and importance of the UH-60 program to the Army.

This latest procurement will bring the total of UH-60s procured to over 1,400 and continued production through the June 1997 time frame. During these times of reduced resources this is a big commitment on the part of the Army and indicates the level of confidence and support for the program by DOD and Congress. While the reorganization of the Army force structure continues and therefore the material needed to support the new force is not totally defined, it is estimated that the total number of UH-60s to be procured will exceed 2,300 and extend the production requirements into the 21st century.

This latest procurement of 300 UH-60Ls, to be produced between now and June 1997, is part of the Army's initiative to upgrade and modernize the equipment of the Army Reserve and National Guard forces. As the force structure changes to a rapid response, quickly deployable fighting force, the Army and its reserve elements must have the most reliable and survivable equipment available to ensure that it gets to the field of battle ready to fight. As we saw during the DESERT SHIELD and DESERT STORM Operations, the Reserve and Guard forces were integral to the fighting force that deployed and therefore had to be trained and equipped on the same level as the active contingency forces. For this reason the production effort for at least the next

five years will be dedicated to support this cause.

Refurbishment/Standardization

During the planning phase for the modernization of the Army Reserve and National Guard, it was realized that the latest and most capable equipment must be deployed based on mission need. To maximize the efficiency and effectiveness of the total force structure, the plan that evolved includes a redistribution of the UH-60As that are currently assigned to contingency units. This assures the best equipment will be in the hands of the first to fight units regardless of location or organization. As we look at the next 300 production UH-60Ls and the current force structure, the distribution will be 74 aircraft for the Army Reserve and National Guard and 226 for the active forces.

The redistribution of the earlier fielded UH-60As requires some basic refurbishment efforts for those aircraft to bring them up to an acceptable transfer criteria. This also allows us the opportunity to standardize our UH-60As. As we look back over the configuration changes that have been implemented since the initial delivery, most have taken place from 1978 to 1985 with minimal changes in the 1985 through 1989 UH-60A configuration. What we are attempting to achieve is a baseline configuration for all UH-60As. While many of these aircraft have non-standard mission and mission equipment, the baseline configuration should be common. This provides benefits in all aspects of support; supply, maintenance and training.

The UH-60A Refurbishment/Standardization as currently approved will bring the oldest 300 UH-60As in the fleet up to the 1985 through 1989 configuration which is our baseline UH-60A. This is a very complex program because of the many variables in existing configurations, location of aircraft, scheduling of major components to meet the needs of the refurbishment effort and finally the installation of the standardization kit. The plan is to conduct the UH-60A Refurbishment/Standardization program concurrent with the production deliveries from the current UH-60L production deliveries. To meet this schedule we will utilize four facilities; Groton, CT and Fresno, CA Aviation Classification and Repair Activity Depots (AVCRADs), Corpus Christi Army Depot (CCAD), and Sikorsky Support Services, Inc. (SSSI) in Troy, AL. Each location will have the same basic capabilities, with CCAD and SSSI more capable of doing the aircraft that require extensive depot level repair.

The program is progressing on schedule with all of the non-recurring effort on contract with Sikorsky to include the prototype aircraft, the validation aircraft and two verification aircraft that will be completed at the AVCRADs. As part of the contract, Sikorsky is responsible for developing the MOD kit installation instructions and the initial training of the AVCRAD personnel. The initial 60 kits for the standardization effort is on contract and planned for delivery beginning early in 1993 with the first completed UH-60A being delivered around mid year. This effort will continue for five years and is a key element in the aviation modernization of the Army Reserve and National Guard forces.

UH-60Q Medevac

One of the lessons learned from the DESERT SHIELD/DESERT STORM Operations is that the mission requirement for medical evacuation is changing. With the combat tactics utilized today there are no battle lines which means the distances that must be traveled to return the injured back for medical care is greatly extended. In most cases it's the care received during the initial hour after being wounded that is critical. The existing MEDEVAC system on the UH-60s was not designed for this type of care and will not provide the MEDEVAC support that is needed in future combat and emergency medical situations.

The UH-60Q represents significant improvements in patient care, air vehicle survivability and mission capability over the existing system. Its tactical missions include medical evacuation of the wounded, movement of medical treatment teams, transport of medical equipment and supplies, and

the rescue of downed aircrew.

Better patient care will be afforded by the addition of an alternative litter arrangement, a private cabin intercom system, treatment provisions in the cabin, an oxygen generating system and an environmental control unit. The litter arrangement places up to three litters against both sides of the cabin with the medic sitting between them and three litters on the aft cabin wall. One litter pan on each side can serve as a seat for three ambulatory patients. When this configuration is used the cabin can accommodate the crew chief, the medic and up to nine patients which is three more than the current system.

Treatment provisions in the cabin include a system that monitors the patient's heart rate, pulse rate, blood pressure and EKG. It also includes ventilators, oxygen and suction ports, blood box and intravenous treatment provisions and infusion pumps. Oxygen is obtained from an onboard oxygen generating system that eliminates the logistic problems associated with oxygen bottles. Air conditioning and heating is provided by an environmental control unit located within the cabin area.

The existing internal rescue hoist will be replaced by an external rescue hoist to alleviate the clutter in the cabin and provide for better personnel movement and access to the patients. A forest penetrator is included with the hoist as is a remote control that provides the hoist operator full control from his position. A dual mode infrared/white searchlight is added to assist in nighttime hoist operations.

Avionics additions include the Enhanced Position Location Reporting System (EPLRS), the Global Positioning System (GPS) and the Tactical Air Navigation System (TACAN). EPLRS will enable air ambulances to maintain battlefield situation awareness and data burst of patient status to hospitals. GPS is a proven navigation system that was installed on most of the UH-60s operating in DESERT STORM. TACAN provides distance measuring to improve peacetime patient evacuation flights and instrument approaches and is a must for off-shore operations with U.S. Navy ships.

Additional systems that are being considered include a FLIR, a weather radar, ANVIS heads up display and a digital map. In peacetime operations the UH-60Q will be able to communicate on civil hospital radios as they supplement the Emergency Medical Services during times of local or national emergencies.

This program is currently in the proof of principle phase with one UH-60A modified to include all of the components identified above. This effort is underway at the Lexington Bluegrass Army Depot and is scheduled for completion by the end of 1992. Most of 1993 will be devoted to evaluation of the various subsystems and components and their placement within the cabin area. A final configuration will be approved early in 1994 and a formal integration effort and kit development will follow.

Command and Control

The requirements to have a command and control system available for the combat commanders is not a new issue, but the missions requirements and priority of this system changed based on the experiences during DESERT SHIELD/DESERT STORM. The commanders, to include GEN Schwarzkopf, found that the UH-60 command and control capability would allow them to leave their ground command post and still maintain direct high-level contacts in the United States.

The AN/ASC-15B command and control systems installed in the UH-60s were used to coordinate close air support, artillery, attack and maneuver elements. The success of those systems has resulted in a recognized need for fielding of more than 300 command and control equipped UH-60s. An improved version of the AN/ASC-15B is being considered along with possible upgrades to the mission equipment for the designated command and control UH-60s.

The improved command and control system will include long range high frequency radios, secured standard press-to-talk very high frequency FM/AM radios, ultra high frequency FM/AM radios, a satellite communications system and a commander's map console. Additional capabilities will

be considered as the program continues and the mission requirements become more defined.

The command and control system has become a high priority mission requirement and added resources and program effort are beginning to surface to move this program forward.

Block Modification

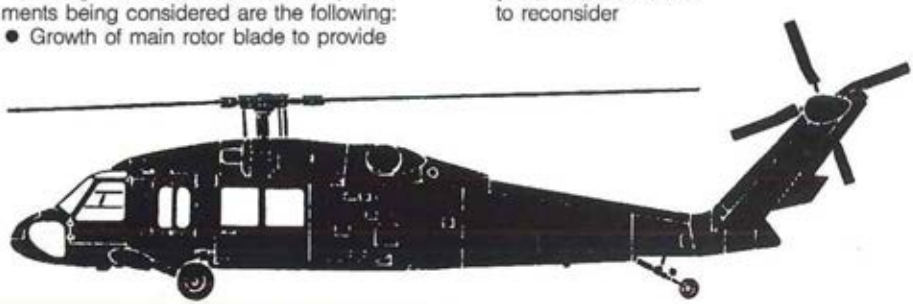
Over the past 15 years we have worked hard to make the UH-60 Black Hawk helicopter the world standard for utility combat helicopters. Our vision of tomorrow maintains that position through continuous improvement. Faced with reduced budgets and a drawdown in combat strength we will have to depend more heavily on upgrading our current equipment rather than developing new weapon systems.

Among the Block Modification improvements being considered are the following:

- Growth of main rotor blade to provide increased lift. As currently planned the blade will have a 12 percent wider chord than the current blade and its tips will be swept down in an integral fashion.
- Growth of main engines will be needed to provide the power needed to lift the increasing payloads required by the expanding UH-60's combat mission roles.
- Inlet particle separators to protect the helicopter's engines and auxiliary power units from the blowing sand and harsh environment conditions.
- Sealed main rotor dampers and rotor pitch change rod end bearings with elastomeric bearings also designed to combat the effects of sand intrusion and corrosion.
- Improved visibility thru new windshield designs that will improve visibility while resisting erosion and also providing laser protection. A new digital flight control computer with altitude hold to decrease pilot work load.
- Integrated Data Bus system that will provide for digital avionics and the addition of mission equipment that is currently limited due to the lack of cockpit space.
- Reliability improvements that will aid in providing longer lives for the components on the aircraft thereby providing for reduced operation and support cost.

As we continue to refine the force structure and the combat missions change due to new technologies and changing world situations, the UH-60 will be ready to meet the need.

World events over the past couple of years have caused us to reconsider our priorities and have resulted in our scope of effort expanding beyond the combat zone. We now must look at the domestic needs as well as the combat missions. Programs such as the new UH-60Q that have both a combat and domestic role will be the type of program that I believe will be continued regardless of the changing times.



As the Project Manager for the UH-60s, I want to thank everyone who has served on the Black Hawk team for making the UH-60 the success it is today, and I know it will continue to serve and protect our service members and fellow citizens for many tomorrows. IIIII

Black Hawk = Best Value

by Nathan Cleek

Utility helicopters play an increasingly important role on the modern battlefield. The speed and agility of modern rotary-wing aircraft have made them particularly valuable for inserting assault troops, delivering priority supplies, planning and coordinating movements of combat power, and evacuating casualties. The Army is now fielding the UH-60 as its primary aircraft to fulfill these missions. However, due to recent decisions, there is a large shortfall in the procurement of UH-60s relative to the force structure requirements for the utility aircraft. In 1987, the Army decided not to pursue the Light Helicopter Family (LHX) utility helicopter option. Due to budget constraints, the Army elected in 1990 to terminate the UH-60 production at 1,143 aircraft. Recent Congressional action extended the UH-60 production for the Army by 300 aircraft. Even with this addition, the fleet falls far short of the number of new aircraft needed for full modernization of the utility helicopter fleet. The Army must determine how it will fix this shortfall.

Mr. Cleek is a Civilian Analyst, Directorate for Combat Developments, Ft. Rucker, AL.

Army Aviation is currently making up this difference, which comes to 1,200 aircraft principally employed in command aviation and medical evacuation (MEDEVAC) units, by supplementing the UH-60 utility fleet with the older UH-1H and OH-58A/C aircraft. These aircraft now have an average age of more than 25 years, obsolete avionics suites, and supply problems associated with the older technology engines and avionics. The capabilities of these aircraft also fall short of those needed for the missions they are called upon to perform.

During the Aviation Systems Program Review, July 1990, the Vice Chief of Staff of the Army (VCSA) directed the United States Army Aviation Center (USAAVNC) to develop a solution to the utility fleet modernization void. Furthermore, the U.S. Congress wanted the Army to report to the House

Appropriations Committee with its plan to replace the obsolete UH-1H.

To provide analytical basis in support of its recommendation, USAAVNC conducted a Utility Aircraft Requirements Study (UTARS). The UTARS identifies the mission and requirement gaps in the utility fleet that the Army is now filling with older utility aircraft. The study report identifies alternative solutions and evaluates their effectiveness and cost in order to recommend a preferred fleet alternative.

There should be enough UH-60s in the Army inventory to fill all the assault and attack unit requirements. Command aviation units, flying command & control (C&C) missions, and MEDEVAC units are the principal users left with the older utility aircraft. The C&C mission requires that the aircraft transport from four to seven passengers, contain a command & control radio console, and provide more range and endurance than a UH-1H. The MEDEVAC mission requires speed and survivability beyond that of the current UH-1V. These two missions are the focus of the UTARS report.

The UH-1 Dilemma

A replacement for the UH-1H is clearly necessary. The Army has recognized the significance of the utility helicopter for quite some time. During the Persian Gulf War this importance was highlighted as assault aviation units carried troops across enemy lines and into battle. The Army needs a first rate utility helicopter for more than just air assault. Combat maneuver commanders credited having a compatible C&C aircraft with increasing their combat effectiveness by a factor of 10 to 15 percent.

Let us look at possible replacements for the UH-1H and OH-58A/C aircraft in utility roles. The Army could consider a utility version of the RAH-66 Comanche. This was not looked at by UTARS. The 20 year life cycle cost, minus manpower, in FY88 dollars for 1,910 LHX-UTAS vehicles was $23.65 billion. From this, one can crudely approximate that the cost of 1,200 aircraft adopted to the utility role from the RAH-66 Comanche would cost approximately $19 billion in FY92 dollars.

The utility version of Comanche would meet all mission needs for C&C aircraft and MEDEVAC aircraft operating forward of the Brigade Support Area (BSA). It would also help to standardize the Army fleet and be a state-of-the-art aircraft. However, a utility version of the Comanche would not be available until the middle of the next decade. Fifteen years is too long to wait. The Army needs to replace the obsolete UH-1H in the near future, so this alternative was excluded from consideration.

As part of the UTARS analysis, USAAVNC considered several alternative aircraft within various fleet mixes.

The Alternatives

To maintain the base case utility fleet with UH-1H and OH-58A/C in their current configuration over the next 20 years would cost about $4.5 billion. (All further dollar figures in this article are in FY92 dollars and represent the 20 year life cycle cost, minus manpower, of 1,200 aircraft.) The UH-1 Service Life Extension Program (SLEP) for all 1,200 aircraft would cost at least $5.0 billion. This particular SLEP would consist of upgrading the existing engine, strengthening the airframe, and replacing aging avionics. Doing more than this would cost proportionally more money.

A SLEP for the UH-1 is merely a bandaid on a laceration that deserves far more attention. The SLEP approach meets no more than minimum mission needs and merely buys more time for an existing airframe while extending the problem of having an old, obsolete fleet.

A Non-Developmental Item (NDI) aircraft is another potential solution. To replace all 1,200 aircraft with an NDI aircraft, one already in civilian market or foreign military production, would cost approximately $12.4 billion. Industry could provide an NDI aircraft that would satisfy most mission performance requirements and be suited for most military environments of constant field use. Aircraft are available that manufacturers could adapt to include several key safety and crashworthiness features peculiar to Army needs. In fact, the UTARS

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ATCOM's Aviation Systems Management Directorate

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

Now that the U.S. Army Aviation Systems Command (AVSCOM) and the U.S. Army Troop Support Command (TROSCOM) have completed their merger to become the U.S. Army Aviation and Troop Command (ATCOM), it seems appropriate to inform activities and directorates worldwide where the management of fielded aviation systems and equipment fit into the new command.

During this past year leadership, as well as organization structure, has again changed. Prior to July 1992, this directorate was referred to as the Directorate for Fielded Aviation Systems of the Logistics Center. I was appointed Director in March 1992, following the appointment of Colonel James Bennett as the Director of Maintenance.

As a result of the merger, a new center was formed, the Weapon Systems Management Center (WSMC), which has as its Executive Director, Mr. James Emahiser. This center joins the other centers—Acquisition, Logistics and Technical—to form the nucleus of ATCOM. The mission of the WSMC is the acquisition, sustainment and retirement of selected aviation and troop systems. It is composed of two directorates, Aviation Systems Management and Troop Systems Management.

COL Weand is Director, Aviation Systems Management Directorate, ATCOM, St. Louis, MO.

The mission of the Aviation Systems Management Directorate is to provide centralized management for the acquisition and support of assigned aviation programs, systems and items to include as applicable procurement, materiel changes, fielding, sustainment and retirement. Assigned materiel includes rotary wing aircraft, fixed wing aircraft, system peculiar and common support equipment and tactical and fixed base air traffic control equipment. The directorate continues to provide officer development for future Aviation Project Managers; this remains a prime objective of the organization. Product Manager assignments

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UH-1 Iroquois: The "Heartbeat" of the Fleet

by Lieutenant Colonel Terrance L. Reininger

First flown on 22 October 1956, the Bell XH-40 was powered by an XT-53-L-1 engine. The basic Required Operational Capability (ROC) was for a utility helicopter capable of carrying 800 pounds at speeds up to 100 knots for a mission radius of 100 nautical miles. The "Huey", as it came to be known, has served the U.S. Army well during the past 37 years. It has functioned in many roles including gunship, medevac, night fighter (Fire fly), slick, and training machine. This variety of configurations is a testament to the versatility of the Bell design and the ingenuity of the American soldier. During the height of the Viet Nam conflict, Bell was producing over 100 aircraft per month. During the period from 1959 to 1976 almost 9,500 UH-1A/B/C/D/H, and M aircraft were delivered. The UH-1 reached a significant milestone in its history in June of this year. While the Army Aviation was celebrating its fiftieth birthday, UH-1 SN 62-2109 celebrated its thirtieth birthday and its 20,000th flight hour. Aircraft 2109 continues to serve as a primary trainer at Fort Rucker, AL where it has spent the majority of its career with the exception of a tour in Viet Nam.

LTC Reininger is the Weapon System Manager for the UH-1, ATCOM, St. Louis, MO.

Combat Veteran

The Iroquois is a proven combat veteran participating in four conflicts including Operations DESERT SHIELD and STORM. During the nine month desert operation, over 400 UH-1H/V aircraft performed a variety of missions. While flying over 31,000 hours, the fully mission capable rate remained stable at the 70 percent level. These figures represent over 20 percent of the helicopters in the theater and 21 percent of the flying hours. These are impressive statistics for an old war horse.

Current Inventory

The current inventory of Hueys exceeds

50TH ANNIVERSARY ARMY AVIATION 1942 – 1992

U.S. Army/Bell Helicopter Textron
Job Well Done
UH-1H 62-2109
20,000 Hours – 30 Years

2,800 and they are assigned to 250 plus units throughout CONUS and overseas theaters of operation. The aircraft are equally distributed between the Reserve Components and the Active Forces. The Iroquois flying hour program represents better than 30% of the Army's total program. The Aviation Center represents the largest single user of the aircraft and flies in excess of 200,000 hours annually.

Future

What is the future of the UH-1? The future of the UH-1 is at once certain and uncertain. The Army's preferred choice for the Utility Helicopter is the UH-60 Black Hawk. However, funding limitations have prevented the procurement of adequate airframes to meet all requirements. Therefore, the UH-1 will surely see the 21st century. Between FY92 and FY99, approximately 1,200 aircraft will be retired as a result of modernization or force reductions. These aircraft are being offered to foreign military customers through the Defense Security Assistance Agency (DSAA). Aircraft which are not sold overseas will be disposed of in accordance with current DoD policy. The disposal process is managed by the General Supply Agency (GSA). A quick look at the above photo shows that there will be significant numbers of UH-1 aircraft remaining in the force structure after the turn of the century.

Product Improvements

Over the years the Army has recognized the need to improve the mission equipment on the UH-1. Currently there are 14 approved material changes. The majority of these changes address deficiencies in the navigation and communication equipment. Limited funding has resulted in a slower than desired application rate of these changes. Only that part of the fleet which will remain in service beyond the turn of the century will be modified. There are several significant modifications which are not avionics related. The Oil Debris Detection System (ODDS) provides improved filtration (three micron) and chip detector burn-off capability. This system will eliminate false chip lights and significantly reduce the number of unscheduled landings. The Im-

proved Particle Separator (IPS) has been a real winner. The system, produced by Pall Land Marine, removes up to 95 percent of all debris from the air ingested into the engine. The IPS was put to the ultimate test during DESERT SHIELD and STORM. Aircraft equipped with the system achieved significant increases in engine life while decreasing the loss of performance due to compressor erosion.

The implementation of the Defense Business Operating Fund (DBOF) has changed the way units conduct maintenance. It has become painfully obvious to most units that aviation maintenance is an expensive business. The availability of UH-1 spares is at an all time high approaching 90%. Aircraft inventory and flying time statistics indicate that the fleet wide Fully Mission Capable (FMC) rate hovers around seventy percent while the Non Mission Capable Rate Supply (NMCS) is 5% or less and the Non Mission Capable Rate Maintenance (NMCM) exceeds 20%.

Commercial Activity

While the Army has no intention of initiating a large scale modernization of the UH-1, there is considerable interest in the commercial market for an upgraded Huey. These upgrades target improved avionics as well as improved performance at high temperatures and altitudes. In addition, improved reliability and reduced maintenance man-hours per flight hour are achieved. Three of the major efforts involve replacing the T53-L13B engine. A consortium of firms consisting of Bogan Aerotech, Bell Helicopter, and Textron Lycoming are proposing the HUEY II. The modification involves the installation of the T53-L703 (Cobra) engine, the Bell 212 rotor and drive system, to include the tail boom and tractor tail rotor. In addition, the aircraft will be rewired and receive an updated military avionics package.

The second candidate is powered by the General Electric T700. This aircraft has undergone the same structural modifications as the HUEY II, however, the contractor is proposing a commercial avionics package. This is a joint venture between UNC, Inc. and GE. These proposals result in increased gross weight and performance capability. The third candidate is a joint effort by the Light Helicopter Turbine Engine Company (LHTEC) and Global Helicopters. This change involves the installation of the T800 engine. The primary goal of the modification is improved reliability, reduced maintenance man-hours, and reduced fuel consumption. The T800 operates on 50% less fuel than the T-53, thereby increasing endurance by one hour.

In summary, the UH-1 has become Army Aviation's standard for "Best Value". Over the past 33 years, the UH-1 has flown 25 million hours in support of military and humanitarian operations. It is simple to maintain, inexpensive to operate, and dependable. This is a combination that is tough to beat. The UH-1 Iroquois is the "heartbeat" of the Army helicopter fleet. IIIII

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are filled by members of the Army Acquisition Corps.

In addition to the changes made at the directorate level, changes also have been made at the PM level. The PMs for UH-1 and LOH have been redesignated to Weapon System Managers. However, they retain the same mission; to exercise executive authority for centralized life management of assigned systems and for meeting force structure requirements while simultaneously retiring aircraft. The Log/Tech Division is now the WSM for Integration and Retirement. This WSM serves as the principal coordinating office for fleet wide readiness and sustainability for assigned aviation systems, provides command management of all aspects of the aircraft retirement process and is responsible for directorate-wide integration and coordination of mission activities that involve more than one PM or WSM.

As you see by the other articles in this issue on "matured aircraft", systems, and aviation ground support equipment, there are many activities underway which are necessary to ensure our customers' needs are kept in the forefront. This is our primary goal. Our focus is on equipping and sustaining a safe and reliable fleet that can be counted on to meet all challenges. IIIII

What's Happening for the AH-1 Cobra Fleet

by Lieutenant Colonel Donald S. Burke, Jr.

As the Cobra Product Manager, I have two very diverse missions. First, retire all obsolete aircraft and, second, as dictated by the Army Aviation Modernization Plan, sustain and extend the service life of the remaining AH-1F aircraft well into the next century.

My office, in concert with the Aviation and Troop Command (ATCOM) staff, now supports four different aircraft models, comprising today's fleet of 875 AH-1 Cobra aircraft. The only sound, economical choice is to remove from the inventory all of the older model (S, P, and E) aircraft as soon as we can; our goal is by 1995. Since last year, we have reduced the fleet by 120 aircraft through retirements, reclamation programs, joint U.S. Army (USA)/U.S. Marine Corps (USMC) programs, and Foreign Military Sales. Now there are only 379 to go.

During 1992, as part of our sustainment mission, I have had to continue fielding AH-1Fs to Regular Army and National Guard units while, at the same time, applying prudent material changes to the AH-1F weapon system.

LTC Burke is the Cobra Product Manager, Aviation Sys. Management, ATCOM, St. Louis, MO.

Just recently, we completed Regular Army fielding of the AH-1F when the 7th and 25th Infantry Divisions received their aircraft. Next to receive AH-1Fs will be Texas, Michigan, Wisconsin, Pennsylvania, and Rhode Island National Guard units. Several National Guard Aviation Classification Repair Activity Depots (AVCRADs) have already been provided AH-1Fs to begin training their personnel.

In our continuing efforts to sustain and improve the AH-1F, we are nearing completion of C-NITE modifications and fielding to the Eighth U.S. Army (EUSA) in Korea. In August, we had a very successful C-NITE TOW 2A firing demonstration, with 12 out of 14 TOW 2A missiles destroying their targets through smoke, haze, fog, and at night. Additionally, during 1992, we provided

AIM-2 Lasers to several Regular Army units and initiated nonrecurring engineering efforts to place the Global Positioning System (GPS), Oil Debris Detection System (ODDS), ANVIS Heads-Up-Display, and Improved Body and Head Restraint System (IBHARS) on the AH-1Fs. Further, production began on the AVR-2 laser warning device, with applications scheduled to start 4th Quarter FY93.

While these address a limited number of materiel changes and some of the DESERT STORM Lessons Learned, I must also accomplish my second and far more challenging mission, that is, keep 411 F-models flying out to 2010.

My two immediate challenges in extending F-model service life are:

- KAPTON wire bundle deterioration.
- An obsolete M-65 TOW Missile System

First, the user's number one complaint, that of deteriorating KAPTON wiring, leads to excessive maintenance manhours and high rates of blackbox false removals. To counter this, we have initiated a program with the National Guard to produce non-KAPTON wire bundles for the AH-1F. A pilot program with the Missouri AVCRAD will produce 34 new wire bundles, with plans to later facilitize the Connecticut AVCRAD. We will provide EUSA with 20 of the new wire bundles for installation on C-NITE F-models. A Republic of Korea cost-sharing program with EUSA will provide the funding for the expense of the installation on those aircraft.

The second problem with the M-65 TOW Missile System is one of parts obsolescence and vendor base deterioration. This is being addressed through technology insertion in a USA, USMC, and Israeli Air Force (IAF) reliability and maintainability program. This program will improve reliability and maintainability, reduce annual depot costs, and maintain compatibility between the USA's M-65 TOW missile system and Night Targeting System (NTS) used on the USMC AH-1Ws and IAF Cobras.

Even if all the programs mentioned above are successful, only a limited number of the AH-1F fleet will be affected. To prevent a progressive degradation to readiness, safety, reliability, and maintainability, a collective decision is now needed on the part of Army Aviation to prioritize the necessary resources to extend these and other programs across the AH-1F fleet. Let's take the Lessons Learned from DESERT STORM; make use of previous Apache and Kiowa Warrior development programs; and, through technology insertion at our depots, AVCRADs, or at contractor facilities, accomplish a Service Life Extension Program for the AH-1F Cobra.

If we are to keep this less sophisticated, less complex, yet ever-present attack fleet capable, viable, and lethal out to 2010, the resources must be made available now. IIIII

AWARDS AND HONORS

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

Initial Courses:

Class 92-02 UH-1 Track (22/7/92): 2LT Matthew S. Fitzpatrick, Dist. Grad.; 2LT Kelly A. Keenan, Honor Grad.

Class 92-02 OH-58 Track (22/7/92): 2LT Jeffrey C. Weber, Dist. Grad.

Class 92-02 OH-58 Track (22/7/92): WO Richard E. Arnold, Jr., Dist. Grad.

Class 92-01 UH-60 Track (22/7/92): 2LT Michelle M. Bailey, Dist. Grad.

Class 91-25 AH-1 Track (22/7/92): 1LT Gary C. Fahrni, Dist. Grad.

Class 91-25 AH-1 Track (22/7/92): WO Kevin L. Johnson, Dist. Grad., WO James W. Dickinson, Honor Grad.

Class 92-03 UH-1 Track (5/8/92): CPT Brian R. Benjamin, Dist. Grad.

Class 92-03 UH-1 Track (5/8/92): WO Todd A. Romain, Dist. Grad., WO Carl M. Saporito, Honor Grad.

Class 92-03 OH-58 Track (5/8/92): 1LT James E. Baker, Jr., Dist. Grad.

Class 92-03 OH-58 Track (5/8/92): WO Todd E. Evans, Dist. Grad.

Class 92-02 UH-60 Track (5/8/92): 2LT Gary R. Weigmann, Dist. Grad.

Class 92-01 AH-1 Track (5/8/92): 2LT Anthony J. Wilkins, Jr., Dist. Grad.

Class 92-01 AH-1 Track (5/8/92): WO Richard I. Payton, Dist. Grad.

Class 92-04 UH-1 Track (19/8/92): 2LT Brian E. Rae, Dist. Grad., 2LT Dirk Ames, Honor Grad.

Class 92-04 UH-1 Track (19/8/92): WO Michael W. Young, Dist. Grad.

Light Observation Helicopters

by Major Wayne P. Johnson

The Light Observation Helicopter (LOH) Weapon Systems Management Office (WSMO) remains a key player in Army Aviation's battlefield helicopter fleet. With more than 1,800 operational aircraft, we are continually looking for ways to improve reliability, availability and maintainability. The Army's Aeroscout fleet continues to serve the Combined Arms Team as a result of the best efforts of Commanders, NCOs, Soldiers, Managers and System Specialists, both in the field and throughout the Army Materiel Command (AMC). Despite the aircraft's age and size, it remains vital to the day-to-day business of Army Aviation—to support the ground commander.

During the past year we have taken lessons learned from Operations DESERT SHIELD, DESERT STORM and PROVIDE COMFORT to improve the operational readiness and combat effectiveness of the OH-58A/C Kiowa. The emphasis has been on improving the durability of aircraft operating in desert environments.

MAJ Johnson is the Weapon System Manager for LOH, ATCOM, St. Louis, MO.

The stunning success of our high tech weapon systems was eroded by unforeseen environmental factors which had a significant impact on scheduled and unscheduled maintenance requirements. Field expedient methods dealing with sand and dust contamination have been refined and we are now seeing the results applied fleetwide. The Special Technical Inspection and Repair (STIR) Program is a formal implementation of maintenance action which is directly attributable to Operation DESERT STORM.

Following the discovery that aircraft fuel systems were seriously affected by sand and dust contamination from Persian Gulf operations, we quickly developed an Airframe Inline Fuel Filter Modification Work Order (MWO) to restore operator confidence and aircraft readiness. The result has been a best value program which meets or

". . .the OH-58A and OH-58C remain valuable aviation assets into the 21st century, [while] our retiring OH-6A aircraft are proving effective in another area of national security operations."

exceeds all design goals. The system has virtually eliminated fuel system contamination from reaching the critical Engine-Driven Fuel Pump and Fuel Control Unit. The system also provides redundant cockpit warning of an impending Filter Bypass condition—a plus for both aircrews and maintainers.

Operation in desert environments impacts the engine oil system as well as the fuel system. As a consequence, we are in the final stages of developing an External Engine Oil Filter MWO for the OH-58A/C fleet. Any reduction of thermal stress should improve engine performance and longevity. A potential benefit may be an increase in the engine oil change interval, saving both manpower and materiel.

The OH-58A Engine Upgrade Program, often referred to as the OH-58A+, continues on schedule, with 325 of 1,000 aircraft completed to date. Scheduled completion for the OH-58A fleet is September 1994. This program is of primary importance to the Army Reserve/National Guard which is replacing their OH-6A aircraft as we move toward a more standardized LOH fleet. The benefits of the T63-A-720 engine are improved High-Hot performance, accompanied by a significant increase in engine life.

The OH-58C Air-To-Air Stinger (ATAS) is the first Army aircraft to integrate a defensive counter-air, fire-and-forget weapon. The system carries two Stinger missiles, adding approximately 129 lbs. to the aircraft's operational weight. Initial materiel fielding of CONUS and USAREUR is complete. A decision has been made to modify all OH-58C Round Glass (RG) aircraft to incorporate the ATAS Airframe-Kit (A-Kit). This strategy gives Aviation Commanders the flexibility to switch the missile launcher and electronics from originally designated ATAS aircraft to any other OH-58C RG airframe; particularly useful during phase maintenance inspections. Operational readiness of OH-58C ATAS systems should be significantly enhanced. When complete, 232 OH-58C ATAS systems will be fielded within the RG fleet of 302 aircraft.

A development effort is underway to integrate the Allison 250-C20R2 engine in two OH-58A+ aircraft. Originally conceived during Operation DESERT SHIELD, the purpose of the program is to demonstrate improved engine erosion resistance in desert operational environments. If design goals are met the engine should provide reduced Operating and Support costs. During Operation DESERT STORM, units experienced engine compressor section erosion requiring replacement in less than 100 flight hours. The Allison 250-C20R2 is visually and dimensionally similar to the T63-A-720 engine; however, it features a more rugged compressor section and additional power output, which, when flat-rated, yields improved High-Hot performance. This engine may be the powerplant of choice beyond the year 2000.

Federal law enforcement agencies are employing both OH-6A and OH-58A+ aircraft in the War on Drugs and Border Patrol activities. There are 70+ Special Mission Kiowas equipped with Forward Looking Infrared (FLIR) surveillance capability actively involved in drug interdiction operations. The OH-6A continues to serve with the Border Patrol, with some aircraft employing the T63-A-720 engine and night surveillance capability.

The programs outlined above are in response to specific requirements, all of which will ensure that the OH-58A and OH-58C remain valuable aviation assets into the 21st century. In the meantime, our retiring OH-6A aircraft are proving effective in another area of national security operations. Whatever the program, large or small, we are striving to provide reliable, capable and cost effective Aeroscout aircraft as the Army transitions to a modernized fleet of OH-58D Kiowa Warrior and RAH-66 Comanche aircraft. IIIII

The Fixed Wing Fleet

by Lieutenant Colonel Randall G. Oliver

The size and structure of the Army's fixed wing fleet will continue to go through some dramatic changes over the next several years. As the older aircraft in the fleet are retired, a few new aircraft will be entering service. The Fixed Wing Product Management Office is responsible for coordinating the retirement of older aircraft and procuring new aircraft, as well as logistical support of the existing fleet of over 450 airframes.

During the past year, a large portion of the Army's reciprocating engine aircraft were retired from service. A total of 93 aircraft are scheduled to retire which include the C-7A Caribou, U-8F Queen Air, T-42A Beech Baron, and various other aircraft obtained through the confiscated/excess aircraft program. The reduction has been directed by DA to meet the fleet requirements for the Operational Support Airlift (OSA) mission.

The OV/RV-1 Mohawk fleet continues to get smaller and smaller as the Army retires complete units. The 151st Military Intelligence Battalion (MIBN) in the Georgia National Guard (NG) stood down at the end of June 1992, and the 641st MIBN, ORARNG will follow by the end of September. Current plans are to retire the OV-1's in the 1st MI and the 15th MI Battalions next fiscal year. The spare/repair parts and depot level repairable parts are on contract to support the remaining fleet but will require intensive management as the fleet becomes smaller to ensure proper distribution and availability. Logistical support of the Mohawks will be a real challenge as these aging airframes get closer to their scheduled retirement in Fiscal Year 1996.

Beginning in FY93 the Army will initiate the retirement of U-21 aircraft at the rate of 4-6 per year. The first U-21 aircraft entered service in May 1967, and the high time aircraft has over 15,000 hours on the airframe. On the horizon, efforts are underway to formalize the requirements for the OSA replacement aircraft which is identified as the C-XX. A draft mission

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need statement is currently being staffed for comments by Combat Developments, USAAVNC, Ft. Rucker, AL. The C-XX will be an off-the-shelf commercial aircraft that meets the requirements of the OSA mission. Production of the C-XX is expected to begin in the year 2000.

Another significant development is the consolidation of CONUS TDA C-12 and U-21 aircraft for active Army and selected U.S. Army Reserve (USAR) units. The Operational Support Airlift Command became operational 1 October 1992 under the new hubbing concept. Approximately 56 C-12 and 65 U-21 aircraft moved from 45 bed down bases to 16 hub locations to support this mission. This consolidation and the formation of the OSA Command at Davison Army Airfield, Ft. Belvoir, VA. is expected to enhance mission accomplishment at a reduced cost. The Army will realize immediate savings in the hubbing effort by consolidating support equipment and reducing contractor personnel.

Aircraft Procurements

- **C-23 Sherpa:** Sixteen C-23B aircraft have been procured for the Army National Guard (ARNG), ten of which were delivered in FY90 and six in FY92. FY91 and FY92 Congressional Appropriations added funding to the ARNG budget for an additional 20 C-23 aircraft which are projected to begin delivery in FY 95. These aircraft will be Model Designated "C-23C" aircraft and are expected to be commercial aircraft modified to the C-23B configuration. The Army is currently staffing this contract for the procurement, refurbishment and modification of Shorts SD3-60 commercial aircraft, into C-23C aircraft. The contract includes the design, development, and manufacture of modifications and installation of those modifications to convert the SD3-60 aircraft into C-23C aircraft. The requirement is to make the C-23C version of the Sherpa configured the "same as" the C-23B and capable of performing the same missions.
- **C-26 Metroliner:** Two C-26 aircraft were procured for the ARNG and delivered during FY 90. An additional seven ARNG aircraft are under contract with four delivered in FY 92 and three in FY 93.
- **C-12 Huron:** The USAR has received funding for three new production C-12F aircraft. Contract award is anticipated in April 1993 and aircraft delivery will commence 12-18 months later.

A number of modernization/upgrade programs are being developed for the utility aircraft fleet. These include a Ground Proximity Altitude Advisory System and improved fire detection system for the C-12. The most significant effort is under the C-12 Avionics Upgrade program which will provide modern communications and navigation equipment for the fleet. Based on the C-12F model, this upgrade will provide a standard cockpit configuration for the C-12. Prototypes will be developed during the next year with fleet modification beginning in FY 95.

Fixed Wing Logistical Support

The management of the logistical support for the fixed wing fleet continues to be simplified by the Life Cycle Contractor Support (LCCS) concept. This cost effective means of providing total logistical support to the Army's fixed wing fleet has gained considerable notoriety in recent months. As the Army faces continued reductions in personnel end strength, LCCS becomes a viable alternative for supporting the older aircraft systems that will remain in the inventory. Total contractor support for aircraft maintenance, repair parts and overhaul provides the Army with savings in the personnel area as well as the training base that would be required to provide MOS-qualified soldiers to do this work. This program has provided a majority of the fixed wing community with effective, reliable logistical support for many years during peacetime and in direct support of DESERT STORM.

The fixed wing fleet presents numerous management challenges over the next few years. The needs of the Army's leadership, the passengers and the crews of these aircraft will continue to determine the priority for modernization programs. As resources become more scarce in the near future, it will be necessary to selectively implement programs that meet the needs of the field yet remain within the Army's budget to keep the fixed wing fleet flying safely. IIIII

Integration and Retirement

by Mr. Paul D. Kerby

As you read through the articles in this issue, you may witness an often repeated theme being echoed by the leadership of Army Aviation, "resources to accomplish our mission will become more scarce in each subsequent year". We will continue to be responsible and morally obligated to accomplish our current mission, to maintain a highly trained and mobile force structure. Painfully, we have accepted this challenge and are executing plans to be in consonance with stated directives. A significant component of these mandated reductions which will impact Army Aviation the greatest is the retirement of older fixed and rotary wing aircraft. As we entered the era of mandated retirements, there were over 7000 non-force mod aircraft, referred to hereafter as "matured aircraft", in our inventory. This means that by the turn of the century, we must reduce our matured fleet by over 3,500 aircraft.

This situation presents three major challenges: sustainment of our force structure in a ready and trained state; sustainment of the remaining matured fleet with significantly reduced budgets while maintaining our enviable safety record; and retirement of aircraft which we no longer can afford to sustain.

The first concern of how to maintain highly trained personnel with significantly fewer aircraft and a reduced flying hour program has often been addressed in previous issues of this magazine and will surely be addressed in forthcoming issues. Secondly, the many discussions of how we are to sustain the remaining fleet of matured aircraft with drastically reduced budgets, often center around only those O&S costs incurred by the units. However, there are other significant costs that must be dealt with, such as the associated costs of those personnel employed at the wholesale and retail levels of supply, logistic assistance reps, and depot repair and overhaul programs. As the flying hour program and force structure is reduced, then too

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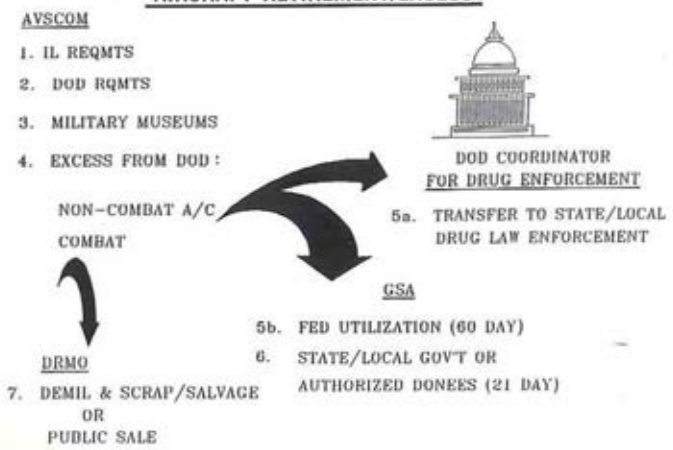

must the support structure at all other levels be comparably reduced.

The result of this scenario is that not only must we reduce the numbers of fine dedicated and experienced personnel—some of them young soldiers and civil servants who would be the support structure of the future, but we must also retire those matured aircraft that have been the force structure of Army Aviation for many years. Many of the Cobras, Hueys and LOHs must make room for the Apaches, Black Hawks, Kiowas and CH-47Ds that are also now serving with the matured aircraft. Large numbers of these aircraft still remaining in the inventory at the turn of the century present a very significant problem: how to sustain these aircraft with less and less resources, and concurrently plan for and execute a very comprehensive retirement plan as directed by DCSOPS and Congress?

Now that we have outlined a few unpopular situations that will confront us for some time, I would like to briefly discuss how we at ATCOM, specifically in the Aviation Systems Management Directorate, will administer the execution of one of these situations; retirement of matured aircraft systems. As stated earlier in the overview article, the Weapon System Manager for Integration and Retirement has been established. One of the functions of this WSM for Integration and Retirement is to manage aircraft retirements. In this capacity we are responsible for the coordination and development of the retirement plan which is Appendix M of the Army Aviation Modernization Plan. We ensure the PM's retirement programs and execution thereof are in compliance with DCSOPs direction and Congressional mandates (Figure 1). Additionally, we are the focal point for inquiries concerning requests for excess aircraft, which includes all DoD, non-DoD activities and even foreign countries desiring to obtain excess aircraft. Requests for excess aircraft are processed according to prescribed regulations and the requestor is advised of a final decision. Currently, all requests that can be complied with under terms of the law are being satisfied. In addition, reclamation and modification programs utilizing excess aircraft are satisfying the need for scarce items of supply and modifications such as the ATAS program.

The bottom line is these aircraft have served well and now other programs beneficial to Army Aviation will be served—a prudent use of taxpayers' dollars. At times, it is painful to see older aircraft, which have served so well, retired from active duty, but we remind ourselves that it must be done in order to make way for technically more efficient and modern state-of-the-art aircraft. This effort, in the long run, promises more prudent use of diminishing resources.

Aviation Ground Support Equipment (AGSE)

by John J. Griffiths

In addition to fuel and crews to operate them, today's Army aircraft also require ground support equipment used in ground operations and maintenance activities. The Aviation Ground Support Equipment Weapon Systems Management (AGSE-WSM) office, U.S. Army Aviation and Troop Command (USAATCOM), St. Louis, MO, has the mission of exercising authority for centralized life cycle management of assigned systems/equipment and assuring readiness of materiel for users, logistical assistance and analysis of fielded systems, and readiness planning for systems under development. In short, the AGSE-WSM is responsible for acquisition of new AGSE and management of existing AGSE for all U.S. Army aircraft. The AGSE team currently manages 257 National Stock Number (NSN) items and 178 systems, ranging from such items as power generating units to high performance rescue hoists. The office is staffed with eleven civilian and military personnel who are dedicated to the support of Army Aviation. The following provides four examples of current AGSE programs and their status.

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Aviation Vibration Analyzer

The Aviation Vibration Analyzer (AVA) is safe, rugged, state-of-the-art equipment providing field technicians a means of performing helicopter once per revolution (1P) vibration maintenance on both main and tail rotors and a means of identifying other rotation induced vibrations by frequency on all Army helicopter systems. The AVA has already been fielded to Panama, USAREUR, and Korea. All FORSCOM units will be fielded by November 92. Fielding for USARPAC began in August 1992 for Alaska and in September 1992 for Hawaii. Total Army-wide fielding will be accomplished by March 1993.

Aviation Ground Power Unit

The Aviation Ground Power Unit (AGPU) is a self-propelled turbine powered cart which provides hydraulic, AC/DC power, and pneumatic power for all Force Modernization aircraft. There will be a total of 525 AGPUs fielded. This does not include 202 planned for the RAH-66. Four-hundred and twenty-one have already been fielded with the remainder to be fielded after FY94.

The USAATCOM will soon release a competitive Request for Proposal (RFP) for an additional quantity of 200 AGPUs for Army, Air Force and Foreign Military Sales requirements. This acquisition will be a small business set-aside using best value criteria. The RFP is scheduled for release by 30 September 1992 with a 2nd quarter FY93 contract award. Lessons learned in Southwest Asia indicate that several modifications/improvements need to be made. These included automatic interlocks to prevent oil pump failure, drip guards to prevent oil from dripping on the tires, ruggedized steering and towing features, ability for "high speed" (60 mph) towing, and a redesign of forklift beam pockets to accommodate all Army forklifts.

Flexible Engine Diagnostics Systems

The Flexible Engine Diagnostics Systems (FEDS) is a new technology engine test system that provides the field technician with the capability to test, detect, and locate engine faults while the engine is removed from the aircraft. This will provide the unit commander an operational cost saving and reduce the quantity of "no fault" engines returned to the depot.

FEDS replaces the obsolete Modular Engine Test System (METS). Current requirements call for 22 FEDS. The first prototype is in place at the Springfield, MO AVCRAD. The second prototype will be tested at Ft. Campbell, KY during 1st quarter FY93 with operational capability by 2nd quarter FY93. The Basis of Issue (BOI) will be one per selected TDA organization. The competitive contract will be awarded 3rd quarter FY93 and the first unit equipped (FUE) is scheduled for 1st quarter FY95.

New Aircraft Tool System

The New Aircraft Tool System (NATS) -95 concept will improve the avaition soldier's maintenance capabilities, provide an enhanced inventory feature designed to eliminate Foreign Object Damage (FOD) and facilitate tool accountability, and improve the quality of the tools used by the soldier. NATS-95 configurations are as follows:

- The General Mechanic's Tool Kit (GMTK), will be modified by replacement of the current tool box with one providing enhanced inventory features and the modification of hand tool contents. The GMTK will retain its current BOI.
- The Aviation Unit Maintenance (AVUM) 1 will be replaced with a man-portable footlocker-size tool box containing tools required for performing preventive maintenance, servicing, and checks. It will be known as the Shop Set, Aviation Foot Locker (AFL). The quality of the tools will be upgraded by selecting Industrial Quality or Aerospace Specification tools. The container will provide an enhanced inventory capability. All AFLs will be configured the same regardless of the type/model aircraft being supported. BOI is one per five aircraft supported at Aviation Intermediate Maintenance (AVIM) level. Fielding is planned to begin during 3rd quarter FY94.
- The AVUM 2 will be modified through the addition of tools formerly contained within AVUM 1 and other identified tool updates. The current AVUM 2 BOI will be retained.

Conclusion

You may contact the AGSE-WSM with any AGSE issues at the following address and/or telephone numbers:

U.S. Army Aviation and Troop Command, ATTN: AMSAT-W-AG, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. Telephone: Commercial (314) 263-2828/ 1347 or DSN 693-2828-1347. IIIII

Guardrail/Common Sensor: The Army's Premier Intelligence System

by

Lt. Colonel Alan J. Bacon & Lt. Colonel Andrew J. Fallon

In support of our Corps Commanders, the Special Electronic Mission Aircraft (SEMA) Product Management Office (PMO) and the Guardrail/Common Sensor PMO are working intensely to incorporate the "leading edge of technology" into the Army's Guardrail/Common Sensor Systems. The SEMA PMO of the Weapons Systems Management Center of the U.S. Army Aviation and Troop Command (ATCOM) manages the development and production of the Army's new RC-12N (Figure 1) and RC-12P Aircraft at the Beech Aircraft Corporation in Wichita and Salina, KS. The Guardrail/Common Sensor PMO of the Electronic Warfare/Reconnaissance, Surveillance, and Target Acquisition (EW/RSTA) PMO and the Program Executive Office Intelligence and Electronic Warfare (PEO IEW) has total system responsibility for Guardrail/Common Sensor, to include managing the development, production, and integration of its Primary Mission Equipment (PME). Under a contract with the EW/RSTA PMO, ESL Incorporated performs the PME integration in Sunnyvale, CA, and at nearby Moffett Naval Air Station (MNAS).

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Premier Intelligence System

Bolstered by the success of our SEMA assets in DESERT SHIELD/STORM, the EW/RSTA PMO is developing Guardrail/Common Sensor as the Army's premier intelligence system. Over 50% of our RU-21 Aircraft and 57% of our RC-12 assets supported our soldiers in Southwest Asia (SWA). Guardrail provided over 3,000 reports during the build-up and combat operations and over 2,000 reports of post war coverage. Additionally, our Guardrail aircrews provided locations of downed aviators to expedite Search

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Figure 1

and Rescue (SAR) extractions and vectored aircrews that were low on fuel to the nearest Petroleum Oil Lubrication (POL) sites.

Plans call for fielding Guardrail/Common Sensor in three battalions. Altogether a Guardrail/Common Sensor System is comprised of twelve RC-12K/N/P Aircraft, four Integrated Processing Facility (IPF) Vans, three maintenance vans, three Interoperable Data Links Antenna Dishes, two power generation and distribution trailers, three storage vans, and one Auxiliary Ground Equipment (AGE) Van. The first Guardrail/Common Sensor System with its RC-12K Aircraft was fielded to the 1st Military Intelligence (MI) Bn Aerial Exploitation (AE) of V Corps in April 91. An improved Guardrail/Common Sensor System with RC-12N Aircraft will be fielded in FY94. A more capable Guardrail/Common Sensor System with RC-12P Aircraft will be fielded in FY96. On 27 March 92, the Army accepted delivery of its first RC-12N from Beech Aircraft before it was flown to MNAS. During the period, April 92-October 93, ESL will install, calibrate, and certify the Guardrail/Common Sensor PME within each RC-12N. This intensive effort will require over 6,000 mission flight hours and thousands of hours of supporting maintenance and ground station work.

The RC-12K, our first complete Guardrail/Common Sensor Aircraft, was the first Army production aircraft to have the Global Positioning System (GPS) integrated with an Inertial Navigation System (INS).

An RC-12N, which is outfitted with one of the Army's most advanced cockpits and most sophisticated Aircraft Survivability Equipment (ASE) suites, is an RC-12K with the following improvements.

- An upgraded and lighter weight payload that has additional capabilities.
- Uprated 1,200 SHP Pratt and Whitney PT6A-67 Engines for greater single engine capability and higher mission altitudes (up to 35,000 ft.).
- A Honeywell MIL STD 1553B Data Bus controlled Aircraft Survivability Equipment/Avionics Control System (ASE/ACS). The ASE/ACS controls all ASE, one of the two ARC-164 HAVE QUICK Radios, the ARC-201 SINCGARS Radio, all GPS and INS operations, TACAN frequency displays, and the aircraft's scrolling check list. The ASE/ACS's Multi-Function Display (MFD) and Keyboard Unit (KU) are shown in Figure 2.

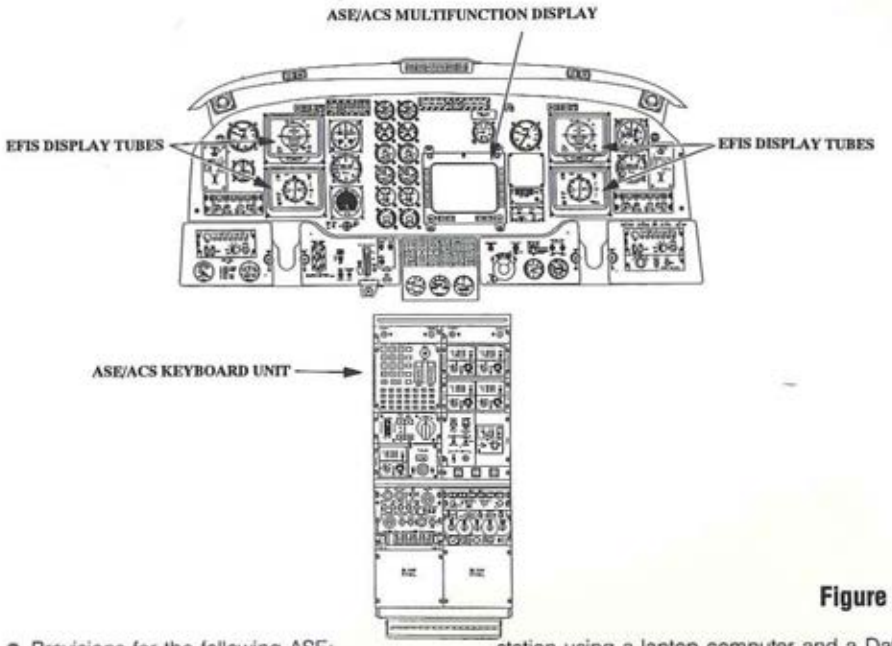

Figure 2

- Provisions for the following ASE: APR-39A(V)2 Radar Detector, ALQ-136 Pulse Jammer, ALQ-156 Missile Detector, ALQ-162 Continuous Wave Jammer, M-130 Flare and Chaff Dispensers, and IR Suppressor Engine Stacks. An automatic display can alert the aircrew of an air defense threat and provide "on screen" data on the MFD if either the Radar Detector or the Missile Detector indentifies a threat. The ASE/ACS can also be programmed to automatically fire the flare and chaff dispensers.
- The Army's first embedded ASE Training Capability. This capability, which is included as an ASE/ACS menu, allows an aircrew to effectively train against air defense threats without organic ASE on board and without flying against emitters on an ASE range.
- Compatibility with the Army Aviation Mission Planning System (AMPS). The EW/RSTA PMO is refining this capability as a Guardrail Mission Planning System (GRMPS) that will be able to load all ASE/ACS data and selected Guardrail/Common Sensor mission data from a ground station using a laptop computer and a Data Transfer System (DTS) disk.
- Installation of the Honeywell Electronic Flight Instrumentation System (EFIS) with cathode ray tubes that can provide multiple projections of the Electronic Attitude Director Indicator (EADI), Electronic Horizontal Situation Indicator (EHSI), extended and close-in route displays, and a weather radar display with a lightning sensor capability.

The RC-12P will be an RC-12N with the following enhancements:

- A more capable payload.
- Smaller, more aerodynamic, wing-tip pods.
- An aircraft-to-aircraft data-link capability.
- Fiber optic cabling. The SEMA and Guardrail/Common Sensor PMOs, which additionally support our fielded RU-21 and RC-12 Aircraft, are also heavily involved in developing the Army's follow-on system to Guardrail/Common Sensor, the Aerial Common Sensor (ACS) that was formerly designated as the Advanced SEMA (ASEMA). IIIII

Cargo Helicopters in the Korean Conflict, Part 2

The conclusion of "Cargo Helicopters in the Korean Conflict, Part 1", which appeared in the October 1992 issue

by Dr. John W. Kitchens

The Army activated the 1st Transportation Helicopter Company at Fort Sill, OK, on 1 December 1950 under provision of TO&E 55-57T. It was redesignated the 6th Transportation Helicopter Company on 1 August 1951.

Officers of the company were all veteran helicopter pilots. Enlisted men were selected on the basis of prior mechanical experience; many of them were sent to the Helicopter Mechanics Course at Fort Sill, OK. The warrant officers started training on 1 June 1951 in the Army Helicopter Transport Pilots Course of the Department of Air Training of the Field Artillery School at Fort Sill.

No cargo helicopters were available for the training of either pilots or mechanics. The pilots trained in H-23s and H-13s, of which there were insufficient quantities, and much of the maintenance training consisted of theoretical classroom work.

The first operational mission of the unit was Operation SOUTHERN PINE, at Ft. Bragg, NC, in August 1951. The unit was equipped with seven Hiller H-23A reconnaissance helicopters. Officers performed all of the flying as the warrant officers were not yet qualified.

The first class of warrant officer helicopter pilots graduated on 1 December 1951. In Exercise Snowfall at Camp Drum, NY, in January and February 1952, warrant officer aviators had their first experience in operating as a unit; they used 10 H-13 helicopters in this maneuver.

The Army obtained its first Sikorsky H-19 cargo helicopter just prior to the next unit operation—Exercise Longhorn. This maneuver was conducted as a joint exercise with the Air Force at Fort Hood, TX, in March and April 1952. In addition to the one H-19 the company used nine H-13s.

There were clashes between the Army and the Air Force over two policy questions

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during this exercise. First the Air Force blocked the Army from conducting maneuvers involving resupply of a surrounded unit, movement of an infantry company to a front line position, and the evacuation of an infantry company from an exposed position. Air Force spokesmen contended that it was contrary to established policy for the Army to conduct such missions. Army helicopters were consequently used only for aeromedical evacuation from front lines to battlefield clearing stations.

The second dispute with the Air Force during Exercise Longhorn concerned aeromedical evacuation. On the orders of an Air Force officer and for the purpose of enforcing the Air Force interpretation of established policy, a casualty was unnecessarily unloaded from an Army aircraft and transferred to an Air Force aircraft for movement to a medical facility.

In the summer of 1952, the 6th Transportation Company moved to Ft. Bragg, where it was placed under command of the XVIII Airborne Corps. In the late summer of that year (almost two years after it was organized) the company received 21 Sikorsky 19C helicopters and began a concentrated training program, including ship to shore operations. On 10 September 1952, the company was reorganized under TO&E 55-57A of 8 August 1952.

In the meantime two other transportation companies had been organized and were being trained. The 13th Transportation Helicopter Company was activated in August 1951 and the 506th, several months later. In accordance with General Orders 76, dated 11 August 1952, all logistical support functions for Army aircraft were transferred from the Ordnance Corps to the Transportation Corps.

In February and March 1953, the 506th Transportation Helicopter Company, along with the 152nd Cargo Helicopter Field Maintenance Detachment, conducted Exercise Snowstorm using one H-23 and 11 H-19 helicopters. The company moved from Ft. Benning, GA, to Camp Drum, NY, with organic aircraft—the first helicopter unit movement over such a long distance.

During Exercise Snowstorm, there was another dispute with Air Force personnel over evacuation of casualties. The Army evacuated casualties in accordance with its interpretation of the 1952 MOU, and insisted that, especially in cases of actual casualties, the evacuation be done by the fastest available means. The Air Force did not concur and demanded that only the Air Force evacuate casualties by air prior to link-up by ground forces.

The purposes of the above-described and other exercises conducted by helicopter transportation companies during 1952 and 1953 were to train personnel and to test Army doctrine, tactics, techniques, and equipment under various climatic conditions. The equipment proved to be generally adequate, but several supply and maintenance problems were encountered and partially corrected.

Transport Helicopters in Korea

The 6th Transportation Company received overseas orders in November 1952 and sailed from San Francisco on 16 December. The men arrived in Chunchon, Korea, on 6 January 1953. During the months of February and March, company aviators traveled to Japan and piloted their helicopters, in four groups of five each, from Kisarazu Air Force Base, Japan, to Airstrip A-5 near Chunchon.

The 6th received its "Baptism of Fire" on 20 March in the performance of an emergency resupply mission for forward elements of the 3rd Infantry Division, which had been cut off from normal supply by floodwaters. Two platoons of the company moved 33,925 pounds of supplies to forward positions approximately seven miles from the supply point.

On 23 March, the company evacuated casualties from forward areas resulting from action on "Old Baldy." The H-19s picked up wounded soldiers at regimental clearing stations and transported them directly to a hospital near Seoul.

The first mass utilization of cargo helicopters in medical evacuation occurred from 20 through 26 April in Operation LITTLE SWITCH. The H-19s of the 6th Transportation Company evacuated a total of 683 sick

and wounded United Nations and Republic of Korea prisoners of war from Panmunjon to various hospitals and hospital ships in a total of 124 flights during the seven-day period. During the exercise, the men of the 6th developed efficient procedures for loading and unloading patients and arranging litters in the aircraft.

On 22-24 May, 12 H-19 helicopters of the 6th Transportation Company conducted Operation SKYHOOK, which consisted of furnishing logistical support for three infantry regiments of the 25th Division for three days; helicopters were the primary means of resupply during this period. Most supplies were carried externally with cargo nets. In a total of 722 flights, the H-19s moved 610,000 pounds of cargo. This operation was deemed to be particularly successful because there was adequate time for planning before it began.

The 6th used lessons learned from Operation SKYHOOK to make Operation SKYHOOK I even more successful. In this operation, conducted from 7 to 11 June 1953, over 2 million pounds of supplies were delivered to units of the 25th Division. The average load per flight was 1022 pounds. This operation demonstrated conclusively that internal loading (as opposed to the use of cargo nets) significantly increased load capacity and usually more than compensated for the additional time required for loading and unloading.

On 1 May 1953, the 13th Transportation Company (Helicopter) disembarked at Inchon, Korea. The company's H-19 helicopters were assembled by the 79th Ordnance Battalion on the docks at Inchon and then flown to Uijongbu (CS 3217), which became the base of operations for the 13th. Nine pilots of the 13th then departed for Chunchon for orientation and training with the 6th, so as to be able to participate in Operation SKYHOOK in late May.

Following the arrival in Korea of the 13th Transportation Company, the Eighth Army developed a battalion headquarters TO&E and activated the 1st Transportation Army Aviation Battalion (Provisional), consisting of the 6th and 13th companies. The TO&E was a flexible concept providing for from two to four helicopter companies in each battalion. The battalion furnished technical supervision, control, and coordination for the two companies and also a channel for requests for helicopter cargo missions.

Both the 13th and the 6th companies participated in an operation on 15 June 1953 in support of the United Nations positions in the Christmas Hill sector. During the few hours that they had to perform the mission before dark, the helicopter units moved approximately 700 South Korean troops into a blocking position to maintain the defense of strategic terrain for the duration of the truce negotiations.

The 13th Transportation Company evacuated a total of 1,547 wounded soldiers during the months of June and July 1953. From 15 through 17 July alone, during a major enemy offensive shortly before the truce took effect, the company evacuated 723 patients.

After the truce, the 13th (with elements of the 6th serving as back-up) conducted Operation BIG SWITCH. In this operation, which lasted from 5 August through 6 September 1953, the 13th Transportation Company transported all sick and wounded exchange prisoners of war from Munsan-ni to United States and Republic of Korea hospitals. Many healthy prisoners of war were also airlifted to the 8057th Army unit in Inchon. During the 33 day period, 5,674 repatriates were transported in a total of 1,173 flights.

The principal joint helicopter operation in Korea was Operation BYWAY during September and October 1953. The 1st Transportation Army Aviation Battalion (consisting of the 6th and 13th companies) and HMR 161 Marine Squadron of the 1st Marine Division used a total of 28 cargo helicopters to transport more than 6,000 troops in 1,288 flights. Most of the men moved were Indian custodial troops, moved 34 miles from an aircraft carrier in Inchon Harbor to the Panmunjon area in the demilitarized zone.

During the few months that cargo helicopters operated in combat in Korea, their activities were hampered by some of the

same problems that plagued utility helicopter operations. There were delays in obtaining replacement parts, many parts had a shorter life than expected, and there was a shortage of properly trained maintenance personnel. The transfer of responsibility for logistical support of Army Aviation from the Army Ordnance Corps to the Army Transportation Corps in 1952 was a step in the right direction but by no means eliminated all difficulties.

No major problems concerning liaison or command relations occurred. Army commanders came to consider the cargo helicopter as another mode of transportation available for the accomplishment of their missions. Consequently, they integrated the employment of cargo helicopters into the normal Transportation Corps control channels. Since few cargo helicopters were available, however, they were considered a limited and high priority means of transportation.

In accordance with the 1952 MOU between the Army and the Air Force, the primary mission of Army cargo helicopters was "to provide short-haul air transport to expedite tactical operation and logistical support in the forward areas of the combat zones." Their secondary mission was medical evacuation—but only to points within the combat zone.

In actual combat, the Army's H-19s were used for whatever functions they were able to perform without undue regard for MOUs and TO&Es. When required, they carried patients from the combat zone to hospitals outside the combat zone, and they transported hundreds of armed troops into battle in aerial assault type operations. After hostilities ended, they airlifted thousands of prisoners of war and custodial troops in types of operations unforeseen a year earlier.

The limitations on the missions of Army helicopters incorporated into the MOU of 1952, just as those in the MOU of 1951, proved to be unrealistic and unenforceable under combat conditions. Cargo helicopters entered combat near the end of the conflict, however, and the hot war ended before the full range of their capabilities could be demonstrated under the exigencies of combat.

During the few months that cargo helicopters were used in combat, some commanders became aware of their potential. The commander of the X Corps in Korea, for example, observed "the helicopter delivery of lightly equipped combat elements directly to critical blocking and holding positions ... is a practical maneuver."

Also, the Eighth Army commander, GEN Maxwell D. Taylor, wrote that "the cargo helicopter, employed en masse, can extend the mobility of the Army far beyond its normal capability. I hope," he continued, "that the United States Army will make ample provisions for the full exploitation of the helicopter in the future."

Secretary of the Army Frank Pace, Jr, was perhaps even more farsighted. In 1952, he wrote that the Army should provide itself with helicopters "that are integrated into the tank-infantry-artillery team." During the Korean Conflict, cargo helicopters aided the Army in discovering the path that would eventually lead to airmobility/air assault and also to Army Aviation's becoming an accepted member of the combined arms team. IIIII

REFERENCES

This study was based largely on primary documents. These included correspondence, memoranda of understanding, memoranda for file, training circulares, press releases, study reports, tables of distribution and allowances, and transcripts of oral interviews. Copies of all primary documents used are in the Aviation Branch History Office at the Aviation Center. Much of the correspondence is in a bound volume of documents collected by LTG Robert R. Williams (Ret.), and deposited in the Aviation Technical Library at Ft. Rucker, AL, where it is known as the "Williams Report". Some important references used for this study include the following:

"Army Helicopters Transport and Cargo: An Evaluation of 1950-1953 Experience as a Basis for Current and Future Programming." Report prepared under auspices of Army Chief of Transportation, 1 January 1954.

Bykofsky, Joseph, ***The Support of Army Aviation, 1950-1954.*** Washington: Office of the Chief of Transportation, 1955.

Helicopters in Korea, 1 July 1951-31 August 1953. Ft. Eustis, VA: The Transportation School, 1955.

McClendon, R. Earl. ***Army Aviation, 1947-1952.*** Maxwell Air Force Base, AL, 1954.

Weinert, Richard P., Jr., ***A History of Army Aviation, 1950-1962.*** Ft. Monroe, VA: U.S. Army Training and Doctrine Command, 1991.

Command Leadership in Protecting the Force

by Brigadier General R. Dennis Kerr

Safety in planning, training, and operations is crucial to protecting the force. Command leadership is the first step in moving from "safety consideration" to "safety integration" which is the basis of a good safety program. Integration makes safety a condition and standard for every task, not an add-on "safety" requirement.

Not only is safety important in peacetime, it is even more critical in combat. Our Army doctrine tells us that the most important element of combat power is competent and confident leadership—the other elements being firepower, maneuver, and force protection. Leadership provides purpose, direction, and motivation in combat. It is the leader who will determine the degree to which maneuver, firepower, and force protection are maximized and how they will be brought to bear against the enemy. It is also the leader who ensures that all the elements are effectively balanced.

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Protection conserves a force's fighting potential so that the commander can apply it at the decisive time and place. The objective of safety is to help units protect their strength and increase their readiness through accident prevention. Command leadership is paramount in the accomplishment of this objective—an objective that provides the foundation for winning quickly with minimal casualties. The upcoming revision of FM 100-5: *Operations*, will clearly integrate safety in our operational doctrine, and it will become a recognized component of force protection.

Generators of Accidents

DESERT SHIELD/DESERT STORM was our best wartime safety performance as far as casualties were concerned. But, as in other conflicts, more casualties resulted from accidents than from battle. Figure 1 shows the generators of those accidents, which are also present in training.

Generators of Accidents

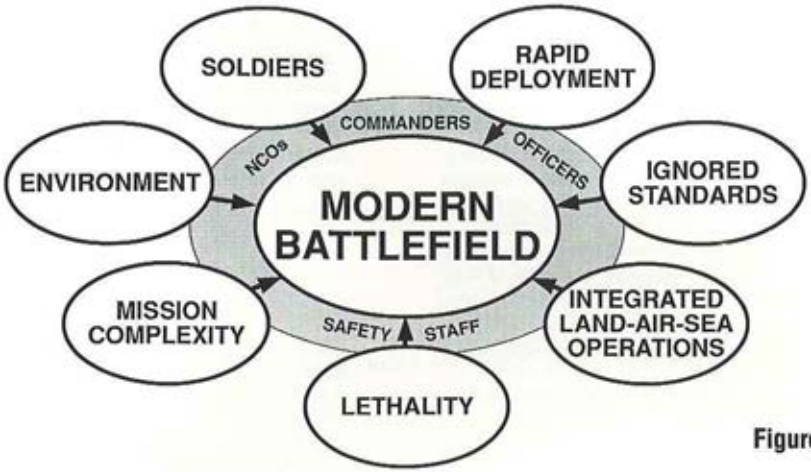

Figure 1

The profession of arms is a risky business, and leaders must develop a higher degree of awareness regarding accidents and their impact on the modern battlefield. This begins by knowing what factors generate accidents and how to reduce the possibilities of their occurrence. Technology has made the modern battlefield more lethal than ever before. We can engage and destroy targets before we can see them. But this capability could also cause a very grave human-error accident—fratricide.

Joint operations also increase the likelihood of human error because of a lack of familiarity with new missions, such as port operations and other service operating procedures. Rapid deployment produces hazards by requiring that soldiers perform difficult, complex missions in a hurry. Complexity increases when operating with allies in unfamiliar terrain and cultures. Current doctrine calls for a CONUS-based Army that is deployable anywhere in the world. As such, units must be prepared to fight in any environment. Lastly, the individual soldier ignoring standards is still the greatest generator of human-error accidents.

Leadership

These seven factors can and often do generate accidents. From a command perspective, these factors are the elements of the battlefield in which the commander's risk management program must work. In other words, the commander must provide the leadership to develop and implement an accident prevention program that recognizes these elements as potentially dangerous to the safety of his organization. The commander must be the dominant figure in minimizing the possibility of accidents.

The commander sets the stage for the leadership climate in his organization. If he does it right, all his officers, NCOs, and safety personnel will be actively involved. These are the people, influenced by their commander, who can reduce and control risks associated with the modern battlefield and conserve combat power for the fight. Because protecting the force is a shared responsibility, the commander must delegate authority and ensure his leadership

team understands that all leaders have a piece of the action when it comes to safety.

Soldiers follow leaders not only because of rank and position but also because of the motivation the leader inspires through the image he creates. The image I refer to basically involves three qualities. First is courage, both moral and physical; second is tactical and technical competence; and third is the ability to act. Soldiers will expect the commander to set the climate for performance to standard both individually and collectively as they maneuver through each of the battlefield operating systems. This climate takes some time to develop, but soldiers will perceive the true values of the commander. Soldiers take note of how the leader handles difficult situations. Does he have courage to act when crewmembers violate known standards? Does he do so consistently?

The commander must do what is right even if it is not popular, expedient, or career enhancing. Sometimes it may seem easier to turn the other way and pretend a violation did not occur, especially if the mission was accomplished without incident or if the violator was a senior officer or NCO. But there should be one rule for everyone—that's what soldiers expect.

Ralph Waldo Emerson said: "Whatever you do, you need courage. Whatever course you decide upon, there is always someone to tell you you are wrong. There are always difficulties arising which tempt you to believe that your critics are right. To map out a course of action and follow it to the end, requires some of the same courage which a soldier needs. Peace has its victories, but it takes brave men to win them."

At the Safety Center, we are developing yet another tool to help commanders raise safety awareness within their units. It is called the *Next Accident Test for Commanders and Leaders*. By answering the questions it asks, commanders and leaders can assess the risk of their personnel causing the next accident and then take action to reduce that risk. It might save a life; it might make a more effective leader—if he has the courage to act on his findings and attempt to change those dangerous attitudes that may be present in his unit.

Summary

Quality leadership is a continuous process, and it provides the direction and necessary guidance to ensure the unit is ready to perform. If the commander has successfully built a cohesive, dedicated unit that respects his abilities and follows his direction in protecting lives and equipment, he can expect performance to standard by his troops in peacetime and war.

As rapid changes are taking place in the Army, commanders will need the kind of courage Emerson spoke of to execute sometimes difficult tasks. Effective command leadership is a crucial element of protecting the force. The challenge for commanders and leaders at every level is to provide the leadership that will maintain "a total force trained and ready to fight, serving the nation at home and abroad—a strategic force capable of decisive victory." Command leadership that insists on integrating safety into all operations is the first step in meeting that challenge. IIIII

Army Aviation's Flexibility in Peacetime Operations: Hurricane Andrew

by Colonel E.E. "Butch" Whitehead

Early Monday morning on the 24th of August, Hurricane Andrew slammed into south Dade County (Miami), FL. CNN started broadcast coverage almost immediately. People were watching TVs everywhere trying to get some idea of how much damage Andrew may have done. Throughout the day questions were being asked if we, the 159th Aviation Group, 18th Aviation Brigade, might be put on alert to assist in disaster relief operations. It wasn't until Thursday, 27 August, at 2000 hours in the XVIII Airborne Corps Headquarters that the order was issued to Corps units to deploy to Miami for disaster relief operations.

The 2-159th Aviation Battalion was alerted at 2100 hours that they would self-deploy their "Silver Bullet" (quick response) package at first light. The 159 Group staff worked throughout the night along with 2nd Battalion, to get them prepared for deployment. At 0630 hours Friday, five CH-47 aircraft departed for Opa-Locka Airport, the Group staging base, in northern Miami. At 0600 hours, vehicles were readied for loading at Pope AFB green ramp for strategic deployment to Miami. At 1330 hours, the five CH-47s arrived at Opa-Locka Airport, where the Citizens Relief Effort, under the Red Cross, had established a large food and clothing distribution point. By 1500 hours, three of the CH-47s had been loaded with relief supplies by 2nd Battalion crewmembers and civilian volunteers and were being flown into south Dade County where most of the damage had occurred. In less than 18 hours from notification aviation elements from the 18th Aviation Brigade were flying relief supplies into south Dade County to needy families left without food or shelter from the hurricane.

COL Whitehead is Commander, 159th Aviation Group (Airborne), Ft. Bragg, NC.

At 0530 hours on the 29th the 159th jump TAC deployed to Opa-Locka to link up with 2nd Battalion. The 159th Group headquarters would provide initial command and

control for all 18th Aviation brigade assets deploying into the disaster relief area. When the 18th Aviation Brigade TOC and the 229th Aviation Group TAC arrived and were capable of assuming command, the 159th would relinquish control of 229th assets to COL Tom Swindell, Commander 229th Aviation Group. 159th Group retained control of its organic assets as well as attached assets from 7-101st. Command and control of all 18th Aviation Brigade assets as well as responsibility for aviation operations within the corps would be turned over to COL Tom Green, Commander, 18th Aviation Brigade (Airborne). This was the first deployment and operation for the 18th Aviation Brigade under its new structure with two active component Groups, the 159th and the 229th.

The most immediate task was to establish liaison with JTF Andrew and the Federal Emergency Management Agency (FEMA) located in the old Eastern Airlines building at Miami International Airport so that the Aviation Task Force could get missions properly prioritized and then begin flying emergency supplies where most needed. The 159 Group organized a liaison cell with two officers and one NCO. Their function was to manage JTF Andrew and FEMA's aircraft mission requests until the JTF had their Aviation Cell up and operational. This cell was critical, they provided an orderly flow of all JTF mission requirements. On 29 August, my crew and I picked up LTG Ebbesen (JTF Andrew Commander) at the FEMA ramp at Miami International Airport and flew him into the disaster area. The further south we flew the worse it became. The film footage on the news channels did show the damage; however, words could not describe the total devastation that we now saw as we looked in all directions. As we arrived at Homestead Air Force Base it reminded me of a scene from the movie *The Day After*. It truly looked as if Homestead AFB had been Ground Zero for a nuclear bomb. Virtually nothing remained standing, and what was standing was severely damaged. The cities of Homestead, Leisure City and Florida City were virtually gone. It was going to require a huge effort to get roads cleared so that relief supplies could be trucked in. Meanwhile, Army Aviation would continue AIR LOG resupply into the stricken area, flying out of Opa-Locka and picking up supplies out of the State Fair Grounds at West Palm Beach.

Along with Aerial Resupply operations there was an immediate requirement to move survey teams around the area. Teams to estimate the damage and repair requirements for power, roads, communications, schools and medical facilities. Doing this by air was really the only option available. There was also an immediate requirement to transport the many VIPs, including the President, that came to the area to assess the damage and to render aid and support.

These missions were flown by UH-1s and OH-58s from 1-159th and the UH-60s and OH-58s from the 229th Aviation Group. On day four of the operations we established an Executive Flight Detachment ran by CPT Brian Barber, Commander A Company, 1-159th, composed of five UH-1s and one UH-60. It was emplaced at JTF Andrew headquarters to fly most VIPs. This reduced the VIP mission load on the rest of the fleet making more assets available for disaster relief operations.

In combat or in disaster relief operations being conducted in Miami, FL, Army Aviation has truly proven that it is the Commander's tool of flexibility. Army Aviation provided immediate response, lifting tons of food and clothing into an area whose ground Lines of Communication were gridlocked by fallen power lines, strewn debris, and uprooted trees. Army Aviation provided airborne command and control assets to all levels of the military command structure from our Commander-in-Chief to the company commander on the ground, making his assessment for work priorities.

The first deployment of the new 18th Aviation Brigade (Airborne) has truly been successful. It was initiated with a rapid response and a combination of self and strategic deployment, then conducted with competent aviation operations in a new and unique environment. This Operation has made all Group and Brigade troopers truly proud of the role we've played in helping fellow Americans reclaim their lives from this tragic disaster created by Hurricane Andrew. IIIII

Best Value

(continued from page 31)

ranked a militarized NDI solution higher in survivability than the UH-1H and the UH-1 SLEP.

Any NDI solution could include the T-800 engine which would standardize its powerplant with the Comanche. The NDI solution would also include Army radios. The NDI buy would bring the avionics on a new utility helicopter in line with other Army equipment. Such an NDI aircraft would fully replace the existing obsolete utility fleet aircraft, not just be a service life extension or an interim substitution. An NDI alternative, one which other military services or allies may even have combat experience with, would be a very low-risk solution.

The last alternative is to reinstate the original plan to replace all 1,200 aircraft in question with additional UH-60 Black Hawk aircraft. This would cost $15.6 billion, but would replace the UH-1 with an aircraft fully capable of doing the C&C and MEDEVAC missions plus a lot more.

Methodology

Let us look at a multiple attribute decision model for the most operationally effective solution to the 1,200 aircraft utility fleet shortfall. The UTARS study team considered several aircraft in the fleet alternatives that were eventually eliminated from consideration due to inability to perform even at minimal levels. All decision criteria are weighted equally. Within each criteria the study ranks each alternative from 0.0 to a top of 4.0. A rank of 1.0 is assigned where an alternative meets the minimum standard of the criteria. The actual UTARS report goes into far more detail in explaining the rankings for each alternative.

Survivability/safety, of necessity, must be a fairly subjective rating since the study did not conduct combat simulation from which to draw reference. The UH-60 is clearly the leader in this category and is assigned a scaler value of 4.0. At the other extreme, the UH-1H is marginal in this category and is rated at 1.0 since it is considered a minimal but acceptable performer. The UH-1 SLEP will not be improved much over the UH-1H in this category and is assigned the value of 1.6. The NDI aircraft may be a military configuration and is rated at 3.6.

At present the UH-1H does not perform the full C&C mission at 4,000'/95°F (but may perform it under less stringent conditions) and is assigned a value of 0.5 in the category. The upgraded engine will allow the UH-1 SLEP to perform the mission at the required ambient condition but it is range or endurance limited. The UH-1 SLEP is rated at 1.0. The NDI aircraft will perform better than the UH-1 SLEP but not as well as the UH-60. The NDI is rated at 2.2 and the UH-60 is 4.0.

At present the UH-1H/V cannot perform the MEDEVAC mission at the required ambient condition and is assigned a value of 0.0. The upgraded engine will allow the UH-1 SLEP to marginally perform the mission in range, speed, and litter capacity. The UH-1 SLEP is rated at 1.0. The NDI aircraft, although not configured as well, will perform better than the UH-1 SLEP but not as well as the UH-60. Since speed is another important criteria in the MEDEVAC mission performance, the UTARS report rated the NDI at 2.7 and the UH-60 is 4.0.

Factors involved in the manpower and logistics requirements area include: RAM considerations, personnel, and logistical support. The fleet standardization that can be achieved by a single type of aircraft, in this case the UH-60, plays an important role and its logistical simplicity outweighs the fact that the UH-60 has greater manpower requirements. The UH-60 will have a significant technological edge over the UH-1H, a UH-1 SLEP and even the NDI when it comes to serviceability in a field environment. This edge will make it more sustainable in a combat environment. Within this criteria there is no clear cut loser and thus the following scaler rankings; UH-1H 2.8, UH-1 SLEP 3.0, NDI 3.3, and UH-60 4.0.

The training evaluation is driven by the total amount of training aircraft, training personnel, and training equipment to support each particular aircraft. Once again, fleet

standardization plays a role in this decision criteria but this time it does not overcome the cost of using a larger aircraft. The scaler rankings for training are: UH-1H 3.5, UH-1 SLEP 4.0, NDI 3.0, and UH-60 2.0.

Two factors must be considered in evaluating the rankings for deployability. One item is the fact that the UH-60 is a truly self-deployable aircraft. The NDI aircraft can probably achieve self-deployability at least over some routes. However, if Air Force assets are used to carry the aircraft to where they are needed, the UH-1H and UH-1 SLEP make less of a demand upon the Air Force assets. None of the aircraft are considered to meet only minimal standards since the UH-1H and UH-1 SLEP are clearly superior in using less assets while the NDI and UH-60 are more suited for self-deployability. The factor of self-deployability is a much clearer evidence of superiority in this field and leads to the following scaler rankings: UH-1H and UH-1 SLEP 3.0, NDI 3.3, and UH-60 4.0.

Simple investigation shows that overall the UH-60 outranks all the other aircraft. TOPSIS analysis proves this and goes on to rank the NDI aircraft second and the UH-1 SLEP finishes third. The UH-1H is in a distant last place. Clearly, from an effectiveness standpoint, the best thing to do for the utility fleet is complete its modernization with the UH-60.

Cost is the only negative criterion in this decision. The UTARS report goes on to evaluate total effectiveness relative to cost against each alternative. When effectiveness and cost are compared and given equal weight in TOPSIS analysis, the all Black Hawk alternative is closest to the ideal solution; i.e., low cost and high effectiveness. Only after cost is weighted at 1.5 times the importance of effectiveness does the pure Black Hawk alternative not remain the optimal solution.

The price of an all-Black Hawk fleet is high. But, for several reasons additional to this UTARS analysis, a pure UH-60 fleet is the most attractive alternative for the Army. Even if cost, many will suggest, is weighted more heavily than effectiveness in a final decision, the all Black Hawk fleet has many advantages worth looking at closely.

Industry designed the UH-60 specifically for the U.S. Army and Army needs. To further integrate this aircraft into the fleet is a no-risk solution. This solution would give the Army a pure fleet of utility units. A pure fleet of UH-60 aircraft would save money in training, logistics, and administrative overhead needed if another aircraft existed within the utility fleet. This benefit is not reflected in the UTARS cost data but is a significant point and should be considered when deciding how to replace the UH-1H.

Furthermore, any new UH-60s would be L models. The newer L model is capable of lifting more than required for the C&C or MEDEVAC mission. These new aircraft could be rotated into combat units and the A models they replace could be used in the C&C or MEDEVAC role. This offers the entire utility fleet the collateral benefit of increasing effectiveness in assault aviation units, too.

A further consideration is that the number of supplemental utility helicopters needed by the Army may decrease even further if Congress reinstates more of the original procurement for the Black Hawk. Also, ARCSA V discussions may decrease the force structure for utility units within the Army. As the quantity of needed aircraft decreases below the study's quantity of 1,200, a pure UH-60 fleet becomes more desirable and less costly.

With the chance of a smaller force structure for utility aircraft very probable, it makes little sense to invest in a small number of NDI aircraft that would add to the Army's fleet diversity and create even more overhead expenses. The capabilities of the UH-1H, or its SLEP, do not make investment in the aircraft seem worthwhile either.

After inspection of all the information available, the proper conclusion therefore seems that the best solution for filling the modernization void left in the utility fleet is the UH-60 Black Hawk despite its greater price. IIIII

REFERENCES

- Utility Aircraft Requirements Study, Main Report (Ft. Rucker, AL, July 1992).
- Benjamin L. Harrison, "AirLand Battle-Future and the Aviation Brigade", ARMY AVIATION Magazine (Westport, CT, July 1991), p. 18.
- Light Helicopter Family Cost and Operational Effectiveness Analysis, Appendix J, Volume V (Ft. Monroe, VA, 1 June 1987), p. J-4.28.

HISTORY:

WOC HALL OF FAME

BY WOC KIRSTEN U. SCHUSTER

FORT RUCKER, AL — Traditionally, our future aviators attended the school as warrant officer candidates and were not appointed until after completion of the Initial Entry Rotary Wing course. Beginning 1 October 1992, WOCs will become provisional Warrants immediately upon graduation of Warrant Officer Candidate School. The face of IERW will be changed and only our WOC Hall of Fame will be there to retain the school's past.

WOC Hall of Fame

The WOC Hall of Fame came into existence as the WOC Hall of Fame Association on 1 October 1966 at Fort Wolters, TX. It was established by Warrant Officer Candidates to build a lasting and ever-growing collection of memorabilia to uphold the traditions and history of the WOC Aviator School.

The "Hall of Fame" was eventually opened by the Under Secretary of the Army, The Honorable David B. McGiffers on 3 January 1969. The Association itself was dissolved on 29 July 1969 due to conflicting interests between the private sector, to which it belonged, and the Army, which provided space and facilities.

The WOC Hall of Fame arose as a recognized Army Museum on 18 June 1970. As Fort Wolters closed its doors, it was moved along with the primary flight training program to Fort Rucker, AL. The Museum was reopened in its new home in August 1973. Major General William J. Maddox, Jr., the Commander of Ft. Rucker, presided over the opening ceremony on 13 December 1983.

A New Home

Today the WOC Hall of Fame is located at Fort Rucker, on Ghostrider Street in the old A Company, 1-145 Aviation Battalion buildings. The artifacts are spread over two floors. The first floor exhibits photos of the very first Warrant Officer Aviator Class, who graduated on 1 December 1951, at Fort Sill, Oklahoma. One of the highlights of that era was Marilyn Monroe's visit in March 1954. The displays continue on with Fort Wolters' first graduates of 27 August 1957. In a wood and glass case, all flight hats are arranged. A case with handmade beer mugs that were filled with a delicious brew during the solo and phase ceremonies, reminds the visitor of the good times during a usually stressful schooling. That was a tradition soon forgotten as the Army changed its tolerance for alcohol. The next case shows the different WOC Guides that were the "bible" to the candidates. In the center along the dreaded TAC Alley, sits a case displaying the WOC insignia, and Warrant Officer insignia used from 1956 to the present. On the second floor hang plaques dedicated to those who showed exemplary leadership and academic proficiency. Those are only a few of the pieces a visitor might find. The highlight and probably most touching exhibit is the monument for the fallen aviators of the Vietnam era. In June 1992, CW4s had a reunion here at Fort Rucker. A few came to visit the museum. I will never forget the glow in their eyes and the "war stories" they had to tell, all rekindled by the momentos in our museum.

As the WOC IERW comes to a close on 1 October 1992, 41 years after its conception, the preservation of the school's history becomes paramount. With Pink Slips, Disciplinary Tours, the endless rolling of socks, T-shirts, and underwear fading into memory, the WOC Hall of Fame will be here to keep the times of hardship, but also camaraderie and a valuable foundation of leadership skills in our hearts and minds. To assure the WOC Hall of Fame's continued existence, we need your support. Any donations on your behalf, be they photos, drawings, models, or anything else that may help keep our museum out of boxes, are not only greatly appreciated but also direly needed.

For further information contact CW4 William Pfau at (205) 255-4006.

WOC Schuster was a Warrant Officer Candidate, United States Army, Ft. Rucker, AL, when this article was written.

TESTING AND EVALUATION:

LEAD-THE-FLEET TESTING

BY JERRY ROBKE

FORT RUCKER, AL — The Lead-the-Fleet (LTF) Program was established to provide test bed aircraft in a controlled environment as test models for fielded systems. These aircraft are flown at an accelerated rate to exceed the normal flight-hour program of fielded aircraft.

At present, the LTF testing at the U.S. Army Aviation Technical Test Center (ATTC) includes the AH-64A, CH-47D, UH-60A, and UH-60L helicopters logging more than 14,800 test hours. These aircraft also serve as ready test vehicles for Product Improvements Proposals (PIPs) and technical feasibility tests.

Aircraft Survivability Equipment (ASE) testing has also been performed by ATTC using the LTF aircraft as the test bed vehicles. Due to ATTC's flexibility for providing LTF aircraft for long term tests, the ASE project manager, in conjunction with the various aircraft PMs, is able to conduct essential tests without undue delays and interferences.

The chief benefits of the accelerated flight program is that it provides a means of identifying and documenting problems early in a newer aircraft's life cycle. Rapid accumulation of life cycle testing of modifications to fielded aircraft is another primary benefit. Cost savings are acquired by having a ready test vehicle for testing of alternate supplier components and parts as the aircraft manufacturers strive to reduce costs, improve performance, and increase reliability.

The current LTF data collection system is capable of capturing any or all of the following data:

- *Full Reliability, Availability, Maintainability, and Logistical (RAM/Log) Data.* Full RAM/Log is the most intense and complex method of collecting aircraft system and sub-system data. This method involves the use of data collection personnel who physically watch and record the actions taken and time required by crew members or maintenance personnel to accomplish a task. This method is the most accurate in that all incidents are captured, a running record of all sub-tasks required to complete the major task is available, and system availability is recorded to the nearest minute. This method is used when step-by-step corrective actions and time expended to complete the task is required by the program manager.

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- *Modified RAM/Log Data.* Modified RAM/Log has the potential of capturing the same data elements as full RAM/Log with the exception of maintenance man-hours, step-by-step subtasks used to complete the task, and accurate availability data. Most of the data is provided by maintenance documents and debriefings. The majority of the LTF data is captured utilizing this method, and provides the program manager with accurate failure and logistics data.

A Test Incident Report (TIR) is the method for immediately reporting and responding to system failures and problems. The LTF data collection program provides the majority of the information required to complete an accurate and timely TIR. The LTF data collection procedures require the daily monitoring and recording of aircraft system discrepancies that can be identified as potential incidents. Without this established LTF program, many discrepancies may not be readily identified as potentially hazardous to equipment or personnel until a major failure occurs.

LTF ASE testing has provided crucial information to the PM on the reliability and effectiveness of installed ASE. Some of this information was used in DESERT STORM by combat crews. A data base tailored specifically for ASE has been established to provide monthly/special reports and historical reliability and logistical data.

Because of the benefits derived from this program since its inception, all new aircraft added to the Army inventory are already scheduled to be included in the LTF program. IIIII

TRAINING:

AVIATION OPS AT THE NTC

BY COLONEL THOMAS M. HAYES

FORT IRWIN, CA — The time is 0100. Twelve Apaches hover in battle position N09, poised to initiate the destruction of the Independent Tank Battalion (ITB) in Engagement Area (EA) Dracula, over six kilometers away. The ITB moves through a narrow defile in 0% illumination, totally unaware of the destruction that lies ahead.

The Avn Brigade had planned the deep operation from the starting point, back in the unit assembly area. Suppression of Enemy Air Defense (SEAD) targets supported by GS artillery was planned along the route in the EA. The Aviation Brigade had planned the routes for the Attack Battalion, programmed the SEAD and coordinated with the division for Multiple Launch Rocket System (MLRS) fires in the EA. Named Areas of Interest (NAI) had been designated to track the movement of the 48th ITB as it flows into the division sector. The Aviation Brigade commander has told his attack battalion commander to expect to conduct the attack within the next 36-48 hours.

The attack battalion commander returned to his Tactical Operations Center and issued his commander's guidance. He intends to initiate the attack with MLRS fires. He directs his S-3 to use the mass destruction technique of employment. He wants complete surprise, swift action, and simultaneous engagement of the enemy. He intends to destroy the ITB without having to rearm or refuel. Radio listening silence is mandated. Because of the distance from the assembly area to the EA, a jump Forward Arming and Refuel Point (FARP) must be established in the event a follow-on mission is ordered.

The staff completed its planning process, the OPORD was issued to the company commanders, and a sand table walk-through was conducted. The companies began their detailed planning, to include the Doppler Strip Maps, navigation, and commo cards. By the time the planning was complete, it was only a few hours before the Readiness Condition (REDCON) level would be raised to begin the attack.

The Avn Brigade begins to receive intelligence for the division that the 48th ITB will enter the division sector within several hours. The Avn Brigade calls the attack battalion and raises their REDCON status to attack within two hours. The attack battalion commander has already computed it will take him 32 minutes to move to the battle position and an additional three minutes to occupy the fighting positions. The division reports to the Aviation Brigade that the 48th ITB has crossed NAI T16, indicating one hour out of the EA. The timing is perfect as the Apaches move into their battle position minutes prior to the 48th ITB moving into the EA. The OH-58D Kiowa Warriors under Brigade control have been observing the movement of the 48th ITB, and prepare to initiate the MLRS fires upon call from the attack battalion commander.

COL Hayes was the Senior Aviation Trainer, A Co. Operations Group, NTC, Ft. Irwin, CA when this article was written.

The mission and planning described here occurred during a recent Force-on-Force battle at the National Training Center (NTC), Ft. Irwin, CA. Aviation Brigades have become an integral part of commanding and controlling aviation assets on the NTC battlefield. When the Aviation Brigades are deployed to the NTC, the ground brigades do not have aviation assets attached to them, as is the norm on most rotations. The ground brigades must determine their aviation requirements and submit those requirements to the Division G-3 who, after approval, tasks the Aviation Brigade. Aviation Brigade missions are specifically developed and written into the scenarios when the Aviation Brigade deploys as a player.

This has been a long first step. The Aviation Brigades that have deployed to the NTC have learned what it takes to make things happen in a truly free-flowing exercise. We can expect to see more Brigade-level exercises in the future. We are indeed on course and glidepath in demonstrating that the combined arms principle works at the maneuver training centers.

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APO AE 09025

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Colorado Springs, CO 80917

Weber, Jeffrey C.
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MW4s

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Unit 29632, Box 223
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CW4s

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78th Avn Bn
Unit 45007
APO AP 96343

Mankie, James A.
HHC, 2-501st Avn Regt
Unit 15210
APO AP 96271

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Wade, William D.
Unit 31520
APO AE 09832

CW3s

Fagan, Jeffery G.
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Mail Unit 20198
APO AE 09165

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A Troop, 2/6 Cav
CMR 416, Box 124
APO AE 09140

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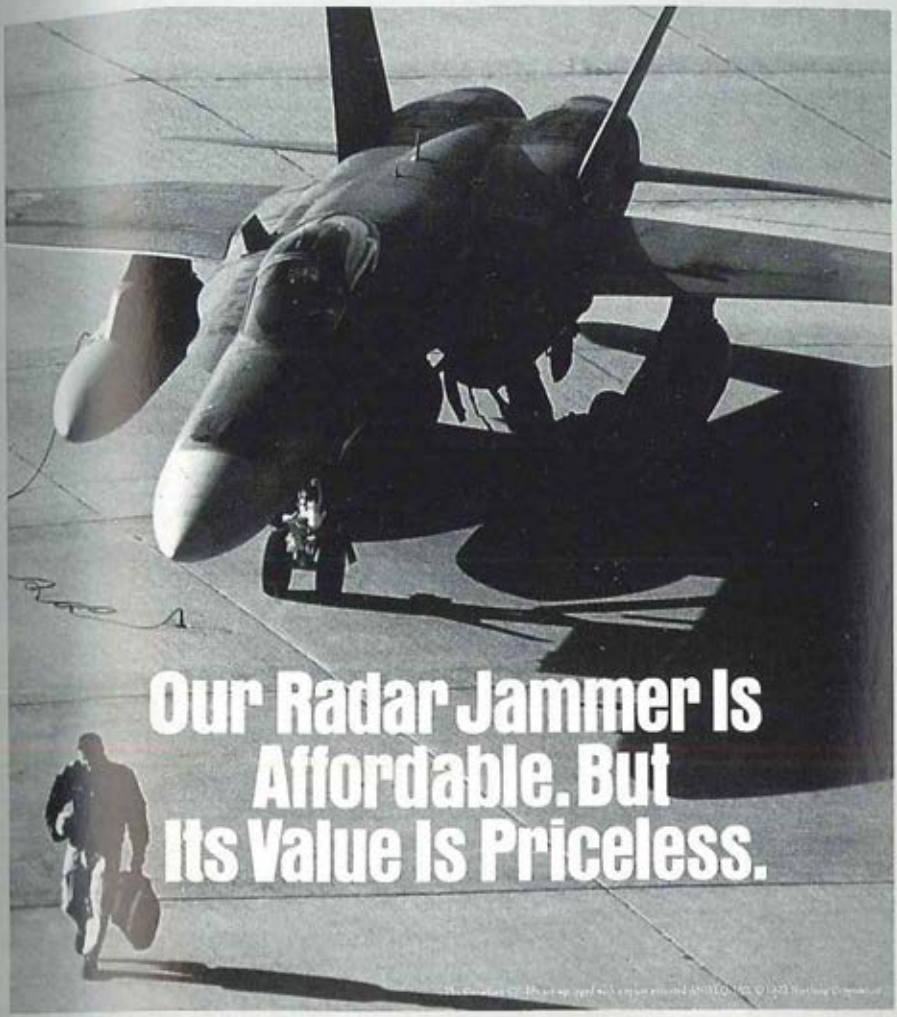
Hummelstown, PA 17036

MacPherson, Patrick A.
235 Iris Drive
Salinas, CA 93906

Peradis, Richard L.
HQ, Flt Det, SHAPE
CMR 450, Box 1491
APO AE 09705



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Loomis, Howard A. 1SG
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MSGs

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APO AA 34004

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Sergeants

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APO AP 96343

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Andover, MN 55304
Lento, Louis W. SPC
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Wallin, Kalvin J. SPC
247 Med. Det.
Fort Irwin, CA 92310

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Sepeda, Jesse Mr.
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Valdez, Alfredo Mr.
4510 Carroll Lane
Corpus Christi, TX 78415
Withers, Bruce A. Mr.
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Newsom, Clifton E.
SciTec Inc.
100 Wall Street
Princeton, NJ 08540
Ropp, Richard F.
107 Bentwood Circle
Conway, SC 29526
Small, Harold I.
EER Systems Corporation
3 Rochambeau Drive
Poquoson, VA 23662
Thomas, Joseph L.
744 St. Louis Street
Edwardsville, IL 62025

Retired/Other

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McEvers, Jim L. CW4
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Belton, TX 76513
Smith, Michael W. 2LT
2910 Williamsburg
Enid, OK 73703
Williams, Joe A. LTC
Box 252
Kalvesta, KS 67856

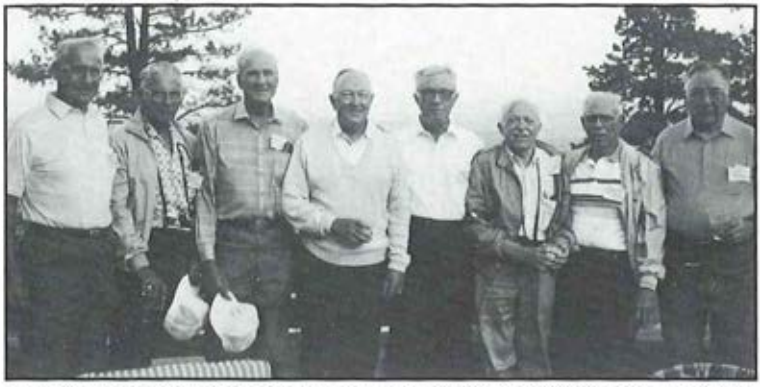
BRIEFINGS

LTG Teddy G. Allen, Director of the Defense Security Assistance Agency, was selected as one of the 1992 Distinguished Alumni Achievement Award Recipients by the George Washington University, Washington D.C. Pictured above, left to right: Mr. Issa Kozeimeh, Chair, Distinguished Alumni Achievement Awards Committee; LTG Allen; Dr. Thomas F. Meaney; Mr. Stephen J. Trachtenberg; Ambassador Edward W. Gnehm; Ms. Patricia A.E. Rodgers; Mr. John W. Snow; and Dr. Edward N. Vest.

The Army Otter and Caribou Association, Inc. will be holding their 8th annual reunion in Colorado Springs, CO, 18-22 August 1993. Former members of Otter or Caribou Army Aviation units who are not already affiliated with this Association can contact Bill Hooks at P.O. Box 6091, Columbus, GA 31907-0073, or by phone at (800) 626-8194 for information.

The **Regimental Signal Symposium** will be held at Ft. Gordon, GA, the Home of the Signal Corps, 7-11 December 1992. The event provides the opportunity to discuss the state of the Signal Corps, where it is now, and the future plans in providing communications. Displays, workshops, and panel discussions will be included. Questions should be directed to MSG George Williams or SGT Roy Truman at Commercial (703) 791-7967, DSN 780-7967.

50 YEARS OF ARMY AVIATION



From Left to Right: LTC Charles W. Lefever, Agoura Hills, CA, COL Robert F. Cassidy, Sunland, CA, LTC Bryce Wilson, Genoa, NV, LTG Robert R. Williams, Ft. Worth, TX, LTC James F. Hill, Ft. Worth, TX, LTC Henry S. Wann, Williamsburg, VA, COL William R. Mathews, San Antonio, TX, LTC John S. Sarko, West Bend, WI

Seven members of the "Class Before One," Army Aviation's initial IEFW class at Ft. Sill, OK, in January, 1942, and one of their pilot instructors, gathered quietly in mid-September in Nevada to celebrate the "50th Anniversary of Army Aviation."

Ten other "Grasshoppers" (WWII L-Pilots), five widows of other 1942 Army aviators, and accompanying spouses made up the 40-member group who celebrated the half-century "June 6, 1942 Birthday."

Co-hosted by CBO members Bryce Wilson and Bob Williams at the spacious mountainside home of the former, the gathering took in the 1992 Reno Air Races (pit passes and all), boated on Lake Tahoe, staggered through a panned-out gold mine in nearby Virginia City, and thoroughly enjoyed the outstanding Nevada countryside and weather over a ten-day period. A group of 14—"those who just wouldn't go home"—also toured nearby Yosemite National Park in two large RVs before bringing the "Let's Do It Again in 50 Years Reunion" to a close.

In attendance were many members of the 1942 "Maytag Messerschmidt" crowd: Colonels Bob Cassidy, Jimmy Hill, Randy Mathews, Chuck Lefever, and John Sarko, all CBOs. LTC "Hank" Wann attended as the CBO "Pilot Instructor."

While not present in "plague" numbers, "Grasshoppers" were nevertheless prevalent. On hand were WWII oldtimers Jerry Byrd, Bruce Ihlenfeldt, Tommy Haynes, Ray Johnson, Art Kesten, Bill Larson, Johnny Oswalt, Wilmot "Dusty" Rhodes, Claude Shepard, and Bob Uricho.

Not anxious to miss any of the daytime fun and a part of every p.m. action at the Reno Hilton were Vivian Bristol, Nell Fortner, Maxine Mahone, Jane Long, Libby Marinelli, Helen Piper, and Margo Piper.

by AAAA Archivist Art Kesten

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Fly with Robertson Aviation's legendary combat-proven range extension fuel systems and you've got the right stuff to double, even triple your range or endurance.

THE RIGHT SIZE. Mission-ready Robertson 28.5 to 800 gal. aux fuel tanks deliver maximum performance in minimum space. Once installed each tank can be removed or reinstalled in 5 minutes or less *without tools.*

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Ms. Nancy J. Spivey
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MAJ William L. Sisson, Jr.
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COL Samuel L. Kindred

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SGT Daniel P. Berndt
CSM Freddy Chapman
SFC Mark DuBuque
Mr. Jon Foster
COL Robert G. Johnson
CPT Karl L. Kearney
CW3 Henri G. Lamont
Mr. Fernand F. Martin
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MAJ Tom G. Moody, Ret.
CW4(P) Donn D. Olson
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2LT Gregory C. Risk
CW2 Jeffrey A. Sumners
Robert R. Taylor
MAJ James R. Tinkham
CW3 Robert P. Whitford

AAAA offers $114,000 in 1993
Two scholarships now open to upperclassmen
One scholarship now open for graduate study

BACKGROUND:

The AAAA Scholarship Foundation, a separate non-profit, tax-exempt corporation created to render financial assistance to members of the Army Aviation Association of America, Inc. (AAAA) and spouses, unmarried siblings, and unmarried children of current and deceased AAAA members, expects to make available $114,000 in assistance funds for the 1993 college-entry year.

SCHOLARSHIP GRANTS AND LOANS:

A minimum of thirty scholarships will be presented to entering freshmen — ranging from $1,000 to $12,000 grants given out as one, two or four year scholarships; five interest-free loans of up to $4,000 ($1,000 a year); a $4,000 scholarship ($1,000 a year) to an eligible applicant pursuing a four-year B.S. degree in an aeronautical-related science.

In addition, one $2,000 scholarship will be "reserved" for spouses of AAAA members, two will be presented to undergraduate sophomores, juniors or seniors ($1,000 a year) and one will be presented ($1,000 a year) for graduate study.

AWARD PHILOSOPHY:

The AAAA National Scholarships are awarded on the basis of academic merit and personal achievement.

APPLICATION PROCEDURE:

To apply, please request a Scholarship Grant/Loan Application and return it to the AAAA Scholarship Foundation, 49 Richmondville Avenue, Westport, CT 06880-2000 on or before May 1 (postmark will govern). On our receipt of the completed application, you will be mailed further instructions and assigned an AAAA interviewer. All forms, together with other supporting data, must be received by the Foundation on or before June 15 for consideration by the AAAA Awards Committee.

ELIGIBILITY CRITERIA:

The applicant must be attending an accredited college or university for Fall entry as a full-time undergraduate or graduate student. No recipient can hold concurrent AAAA Scholarships. The AAAA member to which the applicant is related must have an effective date of membership on or before **October 15** of the year preceding the year in which the applicant is seeking aid unless the member is deceased.

SELECTION AND NOTIFICATION:

Selection of winners will be made by the AAAA National Scholarship Selection Committee during mid-July with each applicant to receive a list of the winners not later than August 1.

AAAA NEWS

New AAAA Chapter Officers

Aloha:
LTC Craig K. Madden (Sr VP)
Aviation Center:
COL Sam P. Walker (VP, Chapter Scholarship)
Checkpoint Charlie:
CW4 John D. Carlson (Senior Vice President)
Mid-America:
COL Thomas M. Crews (Pres); LTC Mark E. Warner (Secy); CW2 Brenda M. Hellerman (Treas); LTC Merle W. Converse (VP, Memb); CW4 William A. King, Ret. (VP, Civ. Aff); MAJ(P) Stephen D. Mundt (VP, Prog); MW4 Robert V. Rector (VP At Large)
Morning Calm:
LTC John R. Martin (Sr VP); MAJ Wesley D. Potter (VP, Prog); LTC Garry P. McNiesh (VP, Chap. Awards); LTC Carl J. Kropf (VP, Central); LTC Richard M. Johnson (VP, East)
Rhine Valley:
MAJ Beth Garrity (Sr VP); 1LT Richard M. Clark (VP, Volksmarch Affairs)
Rochester:
CW3 Anthony F. Castiglione (VP, Membership)
Talon:
MAJ David F. Swafford (VP, Memb Enroll); CPT Grady S. King (VP, Programming)

AAAA Aviation Soldiers of the Month

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

SPC John R. Taylor
Mid-America Chapter
September 1992

NEB Minutes

AAAA's National Executive Board (NEB) conducted its Fall meeting at the Sheraton Washington Hotel in Washington, D.C. on 12 October 1992. Major actions included:

AWARDS: DISTINGUISHED GRADUATE AWARDS PROGRAM. The motion to expand the Distinguished Graduate Awards Program and establish the annual funding at $6,700 was approved. MG Drenz expressed the NEB's appreciation to those who had participated in preparing the report, specifically CSM Finch.

BY-LAWS AND LEGAL: PETITION TO AMEND BY-LAWS SECTION 3. The motion to Amend the By-Laws Section 3, Government, to have the Regions listed in the AAAA By-Laws conform to the Regions of the U.S. Army was approved.

BY-LAWS AND LEGAL: PETITION TO AMEND BY-LAWS SECTION 11. The motion to Amend the By-Laws Section 11, Insolvency suggested by the Department of the Army in order to have AAAA listed in AR 210-1, was approved.

BY-LAWS AND LEGAL: RATIFICATION OF NEB APPOINTMENTS. The motion to approve the appointment of COL Berdux as Chairman of the Industry Affairs Committee and Mr. Gallagher as an AAAA Member-at-Large was approved.

ENLISTED AFFAIRS: SURVEY OF AAAA'S ENLISTED MEMBERS. CSM Finch presented the results of the survey of AAAA's enlisted members. Discussion focused on the need to make enlisted members more aware of AAAA's membership benefits, specifically the AAAA Awards and Scholarship Programs. MG Drenz advised the NEB that he would prepare an article on the AAAA Awards and Scholarship Programs including an explanation of the selection process for ARMY AVIATION Magazine. The motion to task the Executive Group to formulate a program to implement the recommendations was approved.

INTERNATIONAL AFFAIRS: RELATIONS WITH GERMAN ARMY AVIATION ASSOCIATION. The motion to: 1) formalize the exchange of magazines by notices in those publications and call for articles of interest to the counterpart magazine, to be provided in the language of the counterpart country; 2) designate the USAREUR Regional President as AAAA's official liaison officer to the German organization and request the German organization to appoint a formal liaison officer to AAAA; and 3) encourage attendance from the German organization at the AAAA Annual Convention.

POLICY & PLANS: PROPOSAL TO ESTABLISH AAAA ANNUAL ESSAY CONTEST. The motion to establish an AAAA Annual Essay Contest drafted as a result of the CGO Survey recommendations was approved.

CONVENTION: 1993 FORT WORTH CONVENTION. MG Drenz briefed the NEB on the changes that the Executive Group had made with respect to the AAAA Annual Convention Schedule of Events, specifically noting that with the approval of the Presentations Chairman, MG John D. Robinson, Branch Chief, professional sessions would be held only on the mornings of Thursday, Friday and Saturday, leaving non-competitive time in the afternoon to visit the exhibits; the presentation of the Unit Awards by the Chief of Staff, U.S. Army, would be held on Thursday morning following his keynote presentation; the presentation of the Individual Awards would be held on Friday morning; and that the Awards Banquet program would consist of head table recognition of the awardees, entertainment, and a keynote address by the Secretary of the Army.

Above: SGT Daniel P. Berndt (left), N (Nomad) Troop AH-1F Gun Platoon Sergeant, receives The Order of St. Michael Bronze Award from LTC Gratton O. Sealock, II, Commander, 4th Squadron, 3d Armored Cavalry Regiment, Ft. Bliss, TX. Established in 1990 as a joint venture between the AAAA and the U.S. Army Aviation Center (USAAVNC), the Order of St. Michael recognizes individuals who have contributed significantly to the promotion of Army Aviation.

Below: LTC Michael E. Freeman (center), former Commander, 2d Battalion, 158th Aviation Regiment, accepts an Order of St. Michael Bronze Award from COL Joseph W. Eszes, then Commander, 6th Cavalry Brigade (Air Combat), Ft. Hood, TX

AAAA Aviation Soldiers of the Quarter

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

SGT Ann Jill Holcomb
SPC Kevin L. Williams
Aviation Center Chapter
October-December 1992

Aces

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

Mr. Eddie Farias
Ms. Virginia R. Hatley

New AAAA Sustaining Members

Auto Glass & Upholstery Center, Inc.
Clarksville, TN

Carl's Mid-South Rent All Center
Clarksville, TN

China-Star Restaurant
Clarksville, TN

Crossroads Cafe
Clarksville, TN

Farm Bureau Insurance Co.
Clarksville, TN

Four Seasons Florists
Clarksville, TN

Heilig-Meyers Furniture
Clarksville, TN

Loan Ranger Pawn
Clarksville, TN

Oakgrove Auto Parts
Oak Grove, KY

Honorary Members

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

MG Paul E. Blackwell
BG Joseph E. DeFrancisco
Savannah Chapter

Top Chapters

The 1 November 1992 Membership Enrollment Competition standings have the following chapters ahead with one month left in the CY92 contest ending 31 December. The rankings are based on **CY92 net membership gain.**

Master Chapters (160 or more members)

Corpus Christi	165
Savannah	121
Iron Mike	96
Air Assault	80
Greater Atlanta	27
Southern California	5
Central Florida	2
Colonial Virginia	1

Senior Chapters (90-159 members)

America's 1st Coast	31
Monterey Bay	16
Talon	15
Edwin A. Link	12
Mid-America	6
Aloha	5
North Country	3

AAAA Chapters (25-89 members)

Minuteman	62
Wings of the Marne	45
Hudson-Mohawk	17
High Desert	6
San Jacinto	5
Citadel	4
Old Tucson	4
Isthmian	1

Above: LTC Robert L. Boylston (center), former Commander of 4th Squadron, 6th Cavalry Brigade (Air Combat), accepts an Order of St. Michael Bronze Award from then Commander of the 6th Cavalry Brigade (Air Attack), COL Joseph W. Eszes.

Below, left to right: Mr. Joseph P. Cribbins, then Chief, Aviation Logistics Office, ODCSLOG, pins the silver oak leaf of a Lieutenant Colonel on AAAA member LTC Nancy J. Burt, Assistant Executive Officer, DCSLOG. Joining them are Ms. Jean Ross Howard, one of the original Whirly Girls Women's Air Service Pilots (WASPs), and Mr. Jim Phelan, a World War II Army Air Corps pilot.

AAAA Annual Essay Contest

To be conducted for the first time in 1993, the contest is designed to encourage the writing of original essays on topics that further the general knowledge of U.S. Army Aviation. Suspense Date is 1 July 1993.

DOCUMENTATION

The official application form should be used and is attainable from the AAAA National Office, 49 Richmondville Avenue, Westport, CT 06880-2000; Telephone: (203) 226-8184; FAX: (203) 222-9863. The form may be reproduced locally.

SELECTION

The essays will be reviewed by members of the AAAA Awards Committee appointed by the AAAA Awards Committee Chairman.

AWARD PRIZE

The essays will be selected for prizes. First prize earns a $500 honorarium; second prize earns a $300 honorarium; and third prize earns a $200 honorarium.

PRESENTATION

The three winning essays will be published in ARMY AVIATION Magazine. Essays not awarded prizes may also be published in ARMY AVIATION. The winning essay may also be considered for presentation at the AAAA Annual Convention.

AAAA CALENDAR

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

November, 1992

- **Nov. 4-5.** 10th AAAA Aircraft Survivability Equipment Symposium hosted by Lockheed Aeronautical Systems Co., Marietta, GA.
- **Nov. 4.** AAAA ASE Award Presentation, Atlanta Marriott Northwest, Atlanta, GA.
- **Nov. 21.** Minuteman Chapter Professional-Social Meeting, Westover Airpark.

December, 1992

- **Dec. 2.** AAAA National Executive Board Meeting, Ft. Rucker, AL.
- **Dec. 3.** AAAA Aviation Trainer of the Year Award Presentation, AAAA Air/Sea Rescue Award Presentation & AAAA ROTC Award Presentation, Ft. Rucker, AL.

February, 1993

- **Feb. 3-5.** 19th Annual Joseph P. Cribbins Product Support Symposium, sponsored by the AAAA Lindbergh Chapter, Stouffer Concourse Hotel, St. Louis, MO.
- **Feb. 3.** AAAA Outstanding Logistics Support Unit of the Year Award Presentation & AAAA Industry Award Presentations, Stouffer Concourse Hotel, St. Louis, MO.

March-April 1993

- **Mar. 31-Apr. 4.** AAAA Annual Convention, Tarrant County Convention Center, Fort Worth, TX.
- **Mar. 31.** AAAA National Executive Board Meeting, Tarrant County Convention Center, Ft. Worth, TX.

Top Guns as of 23 October 1992

The member who sponsors the greatest number of new members during the contest year ending 31 December 1992 wins an all expense-paid trip to the AAAA Annual Convention as well as a $300 cash award, and receives a plaque at the AAAA Membership Luncheon.

Mr. Fernando P. Gomez	68
Mr. John H. Bae	38
CW3 Roger K. Garner	36
LT Kurt G. Moses	24
Mr. Joseph A. Caines	20
CPT Glenn A. Rizzi	20
Ms. Susan E. Barnes	17
CW2 Dale A. Williams	17
2LT Thomas S. Turman	17
CW2 Michael C. Tuten	17
WO1 Andrew V. Smith	16
SSG Christopher T. Wolfla	15
CW2 Michael P. Allard	14
CW4 John R. Kemp	14
LTC Herman J. Kuhn, Jr.	13
LTC Peter A. Marchiony, Jr.	13
Ms. Martha R. Colmenero	12
Ms. Janet J. Garmon	12
MAJ Gregory Williamitis	11
CW4 James E. Stone	11
CPT Patrick E. Tierney	10
MAJ Bryan E. Campbell	9
Ms. Lois Contreras	9
CPT Bruce V. Sones	9
Mr. James A. Tschoepe	9
CW3 Clifford J. Evans	8
Mr. Juri Koern	8
MAJ Robert M. Maiberger	8
Mr. William A. Martin	8
CPT Louis P. Schurott	8
Mr. Ernest Guzman	7
CPT David A. Palmer	7
MAJ Paul M. Stites	7
CW2 Ronnie M. Ashcraft	6
MW4 Vance L. Barton	6
CPT William J. Davisson	6
MAJ Michael A. DiGennaro	6
Ms. Werner J. Eichelberger	6
Mr. Eddie Farias	6
CW4 William R. Halevy	6
Mr. Joe Maus	6
CW2 Michael F. Monaghan	6
LTC William H. Smith	6

Solicitation now underway for CY 92 AAAA National Awards:

NOMINATIONS DUE AT THE AAAA NATIONAL OFFICE ON OR BEFORE JAN. 15, 1993.

"Award Presentations"

Up to eight AAAA National Awards for accomplishments made during Calendar Year 1992 will be presented at the 1993 AAAA Annual Convention in Fort Worth, TX. Senior members of the U.S. Army will be invited to present the AAAA's top awards to the 1992 winners.

"Outstanding Aviation Unit Award"

Sponsored by the McDonnell Douglas Helicopter Company, this award is presented annually by AAAA "to the Active Army aviation unit that has made an outstanding contribution to or innovation in the employment of Army Aviation over and above the normal mission assigned to the unit during the awards period encompassing the previous calendar year." Any Active Army Aviation unit that has met the foregoing criteria is eligible for consideration.

"ARNG Aviation Unit of the Year Award"

Sponsored by Textron Lycoming, this award is presented annually by the AAAA "to the Army National Guard aviation unit that has made an outstanding contribution to or innovation in the employment of Army Aviation over and above the normal mission assigned to the unit during the awards period encompassing the previous calendar year." Any Army National Guard aviation unit or organization that has met the foregoing criteria is eligible for consideration.

"USAR Aviation Unit of the Year Award"

Sponsored by Textron Lycoming, this award is presented annually by the AAAA "to the U.S. Army Reserve aviation unit that has made an outstanding contribution to or innovation in the employment of Army Aviation over and above the normal mission assigned to the unit during the awards period encompassing the previous calendar year." Any U.S. Army Reserve aviation unit or organization that has met the foregoing criteria is eligible for this award.

"The Robert M. Leich Award"

Sponsored by the Grumman Corporation, this award is named in memory of Brigadier General Robert M. Leich, USAR, the AAAA's first president (1957-1959) and its Awards Committee Chairman for 23 years. It is presented periodically to a unit for sustained contributions to Army Aviation, or to a unit or an individual for a unique, one-time outstanding performance.

"Army Aviator of the Year Award"

Sponsored by the Sikorsky Division of United Technologies Corporation, this award is presented annually through the AAAA "to the Army Aviator who has made an outstanding individual contribution to Army Aviation during the Awards period encompassing the previous calendar year." Membership in AAAA is not a requirement for consideration. A candidate for this award must be a rated Army Aviator in the Active U.S. Army or Reserve Components, and must have made an outstanding individual achievement.

"Aviation Soldier of the Year Award"

Sponsored by Bell Helicopter Textron, this award is presented annually by AAAA "to the enlisted man serving in an Army Aviation assignment who has made an outstanding individual contribution to Army Aviation during the awards period encompassing the previous calendar year." Membership in AAAA is not a requirement. A candidate for this award must be serving in an Army Aviation assignment in the Active U.S. Army or the Reserve Components, and must have made an outstanding individual achievement.

"James H. McClellan Aviation Safety Award"

Sponsored by General Electric Aircraft Engines in memory of James H. McClellan, a former Army Aviator who was killed in a civil aviation accident in 1958, this award is presented annually to an individual who has made an outstanding individual contribution to Army Aviation safety in the previous calendar year." The award is NOT intended to be given for the accumulation of operational hours without accidents by any aviation unit.

"Joseph P. Cribbins DAC of the Year Award"

Sponsored by Boeing Helicopters, this award is named for Mr. Joseph P. Cribbins, the award's first recipient in 1976. It is presented annually by AAAA "to the DAC who has made an outstanding individual contribution to Army Aviation in the awards period encompassing the previous CY." Membership in AAAA is not a requirement. A candidate for this award must be a current Department of the Army Civilian.

Administrative Details

ACCOMPANYING DATA FOR INDIVIDUAL AWARDS: A standardized **"Nomination Form for Submission of All AAAA National Awards"** is the sole form utilized by the Awards Committee in its selection of annual AAAA National Award Winners. Copies may be obtained from any Chapter Secretary or by writing to AAAA, 49 Richmondville Ave., Westport, CT 06880-2000.

The form should be accompanied by a recent photo and biographical sketch of the nominee. Photos of the commander and the senior NCO must accompany each unit nomination. The **"Nomination Form for Submission of All AAAA National Awards"** and the accompanying photo(s) must be received at the AAAA National Office on or before January 15. Please use stiffeners to protect the photo(s) being submitted. The receipt of each nomination and seconding nomination will be acknowledged by the AAAA. However, awards nominations materials - to include photographs - cannot be returned.

The AAAA Joseph P. Cribbins Product Support Symposium

The AAAA Lindbergh Chapter annual Joseph P. Cribbins Product Support Symposium will be held in St. Louis on February 3-5, 1993 at the airport Stouffer Concourse Hotel. It will emphasize readiness and support of the U.S. Army aircraft fleet with special emphasis on force modernization systems.

The symposium will start with opening remarks by MG Dewitt T. Irby, Jr., President of the Lindbergh Chapter. Industry Keynote speaker will be Mr. Eugene Buckley, President of Sikorsky Aircraft.

A series of presentations by the Aviation PEO and Program Managers are planned for Thursday morning with a break for a luncheon with a speaker (TBA) and the afternoon will continue with Program Managers. A dinner on Thursday evening will honor industries, individuals and the military through the presentation of AAAA Army Aviation Materiel Readiness Awards and the AAAA Outstanding Aviation Logistics Support Unit of the Year Award.

The 1993 ATCOM Competition Advocates Shopping List (CASL) and Spare Parts Symposium will precede the AAAA Product Support Symposium at Stouffer Concourse Hotel. There will an opportunity to obtain information about ATCOM's CASL Program, Technical Data Packages, Overhaul, Source Approval Requests and other related subjects.

The CASL Workshops and Parts Symposium will commence at 0830 on Monday, February 1, 1993 and conclude at 1800 on Wednesday, February 3, 1993. AAAA Product Support Symposium attendees are encouraged to attend. For more information, contact Roger Boeckman at (314) 263-1712.

WEDNESDAY, 3 FEBRUARY 1993

1600-2030 Registration and Ticket Sales
1830-2030 Early Bird Reception

THURSDAY, 4 FEBRUARY 1993

0730-1600 Registration and Ticket Sales

MORNING SESSION

0830-0845 Opening Remarks
0845-0915 Government Keynote Speaker TBA
0915-0945 Industry Keynote Speaker Mr. Eugene Buckley
1015-1045 Aviation PEO
1045-1115 Comanche PM
Advanced Attack Helicopter PM
1115-1330 Luncheon with Speaker TBA

AFTERNOON SESSION

1330-1600 Longbow PM
Kiowa Warrior PM
Utility Helicopter PM
CH-47PM
Special Operations Aircraft PM
New Training Helicopter PM
Aviation Electronic Combat PM
Aviation Life Support Eqpt. PM
1600-1630 Q&A

EVENING SESSION

1800-1930 Reception
1930-2200 Dinner

FRIDAY, 5 FEBRUARY 1993

0730-0800 ATCOM Overview
0800-0830 Acquisition Center
0830-0915 Aviation Research Development and Engineering Center
0945-1045 Weapon Systems Mgmt. Center
1045-1130 Integrated Materiel Mgmt. Ctr.
1130-1200 Q&A
1200-1215 Closing Remarks

1993 AAAA Joseph P. Cribbins Annual Product Support Symposium Advance Registration Form

STOUFFER CONCOURSE HOTEL — ST. LOUIS, MO — 3-5 FEBRUARY 1993

SPONSORED BY THE LINDBERGH CHAPTER OF THE ARMY AVIATION ASSOCIATION

ADVANCE REGISTRATION DEADLINE: 20 JANUARY 1993

FULL NAME: _____

RANK/TITLE: _____

COMPANY: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

OFFICE PHONE: _____ BADGE NAME: _____

IF YOU WORK FOR A DEFENSE CONTRACTOR ON A FULL-TIME, PART-TIME OR CONSULTING BASIS, YOU ARE NOT ELIGIBLE FOR GOV'T/MIL REGISTRATION FEE, EVEN IF YOU ARE RETIRED MILITARY. AAAA MEMBERSHIP IS REQUIRED TO ATTEND THE AAAA PRODUCT SUPPORT SYMPOSIUM. NON-MEMBERS WILL BE CHARGED A $21 MEMBERSHIP FEE APPLIED TOWARDS A ONE-YEAR MEMBERSHIP IN THE AAAA. THIS REGISTRATION FORM & FEES LISTED DO NOT COVER THE CASL WORKSHOP 1-3 FEBRUARY 1993.

ARE YOU PLANNING TO ATTEND CASL WORKSHOP 1-3 FEBRUARY 1993? _____YES _____ NO

	3-5 FEB 93 REGISTRATION	4 FEB 93 LUNCHEON	4 FEB 93 BANQUET	4-5 FEB 93 PROCEEDINGS	1 YEAR MEMBERSHIP	TOTAL PAID
INDUSTRY FEES	_____ $175	(Included)	(Included)	(Included)	_____ $21	$ _____
GOV'T/MIL FEES	_____ $10	_____ $15	_____ $25	_____ $10	_____ $21	$ _____
SPOUSE FEES	N/A	_____ $15	_____ $25	N/A	N/A	$ _____

CIRCLE FORM OF PAYMENT: Cash Personal Check Business Check Grand Total $ _____

MAKE CHECK PAYABLE TO: AAAA PRODUCT SUPPORT SYMPOSIUM

IF CANCELLATION IS NECESSARY, REFUNDS OF REGISTRATION FEES WILL BE PROVIDED ONLY UPON RECEIPT OF:
WRITTEN NOTICE OF CANCELLATION — POSTMARKED NO LATER THAN 20 JANUARY 1993

*** MAILING INSTRUCTIONS ***

PLEASE RETURN COMPLETED REGISTRATION FORM AND FORWARD WITH APPROPRIATE FEES MADE PAYABLE TO: **AAAA PRODUCT SUPPORT SYMPOSIUM, ATTN: SUSAN WERKMEISTER, TEXTRON LYCOMING, 500 NW PLAZA, SUITE 813, ST. ANN, MO 63074**

Inquiries should be directed to Susan Werkmeister at (314) 298-2786 or Jan Garmon at (314) 263-1117

*** HOTEL RESERVATIONS ***

TO MAKE YOUR HOTEL RESERVATION, **CONTACT THE HOTEL DIRECTLY NO LATER THAN 20 JANUARY 1993 at: (314) 429-1100** STOUFFER CONCOURSE HOTEL, 9801 NATURAL BRIDGE RD., ST. LOUIS, MISSOURI 63134. In order to receive reduced rates, please refer to "AAAA Product Support Symposium" when making reservations. **Reservations received after 1/20/93 will be on a space available basis only.**

AN/ARC-217

HIGH HF STANDARDS FOR DEEP-STRIKE MISSIONS.

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

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

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

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

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

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

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

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

Rockwell International

...where science gets down to business