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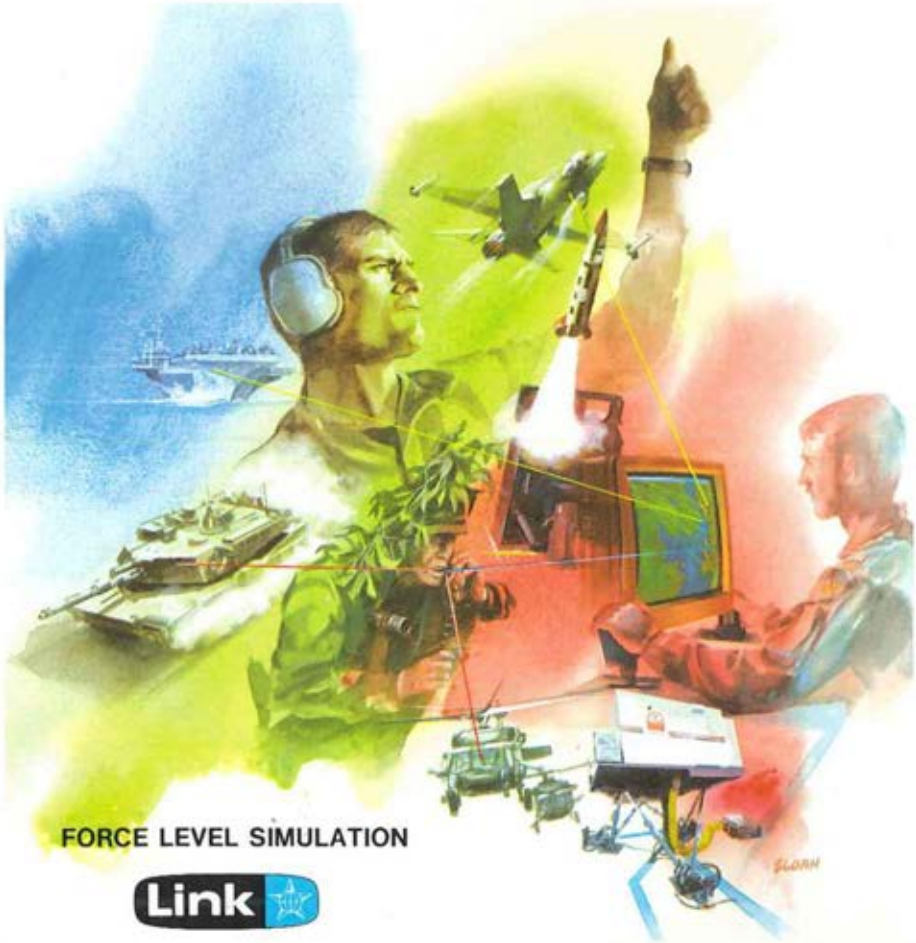

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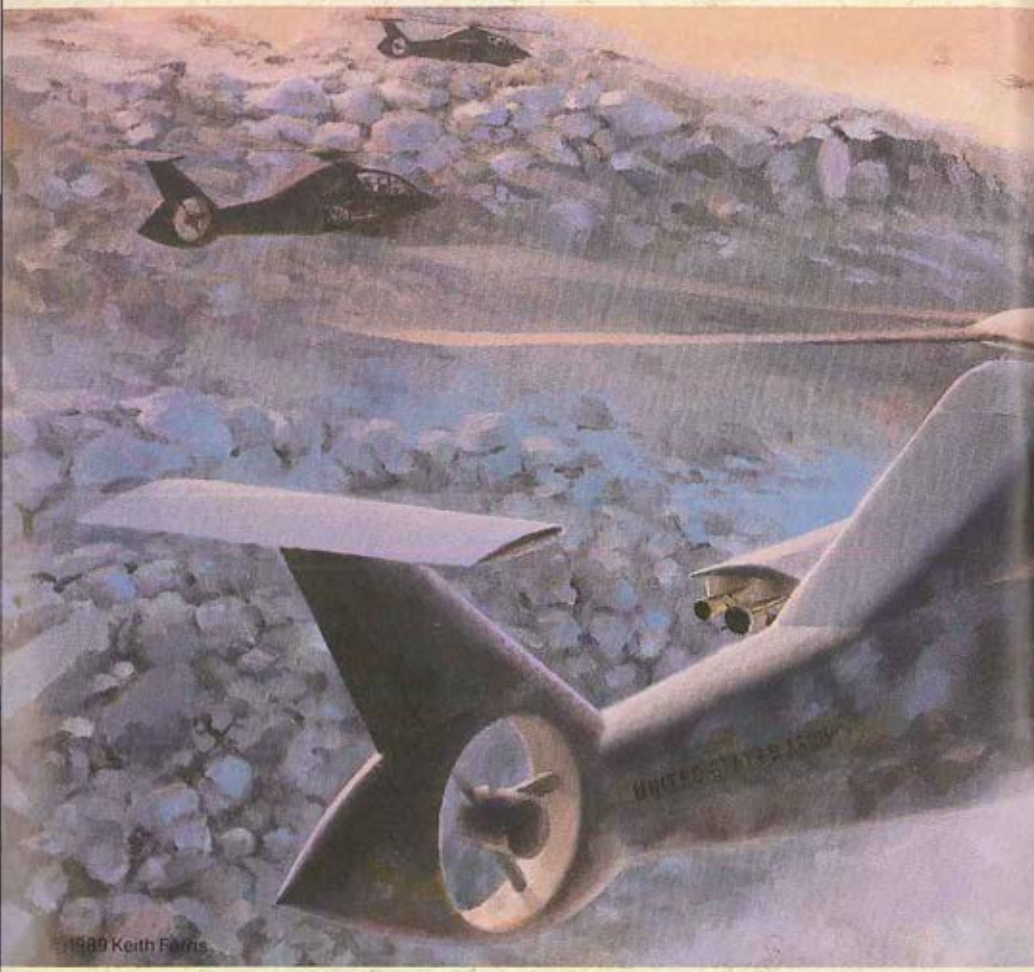

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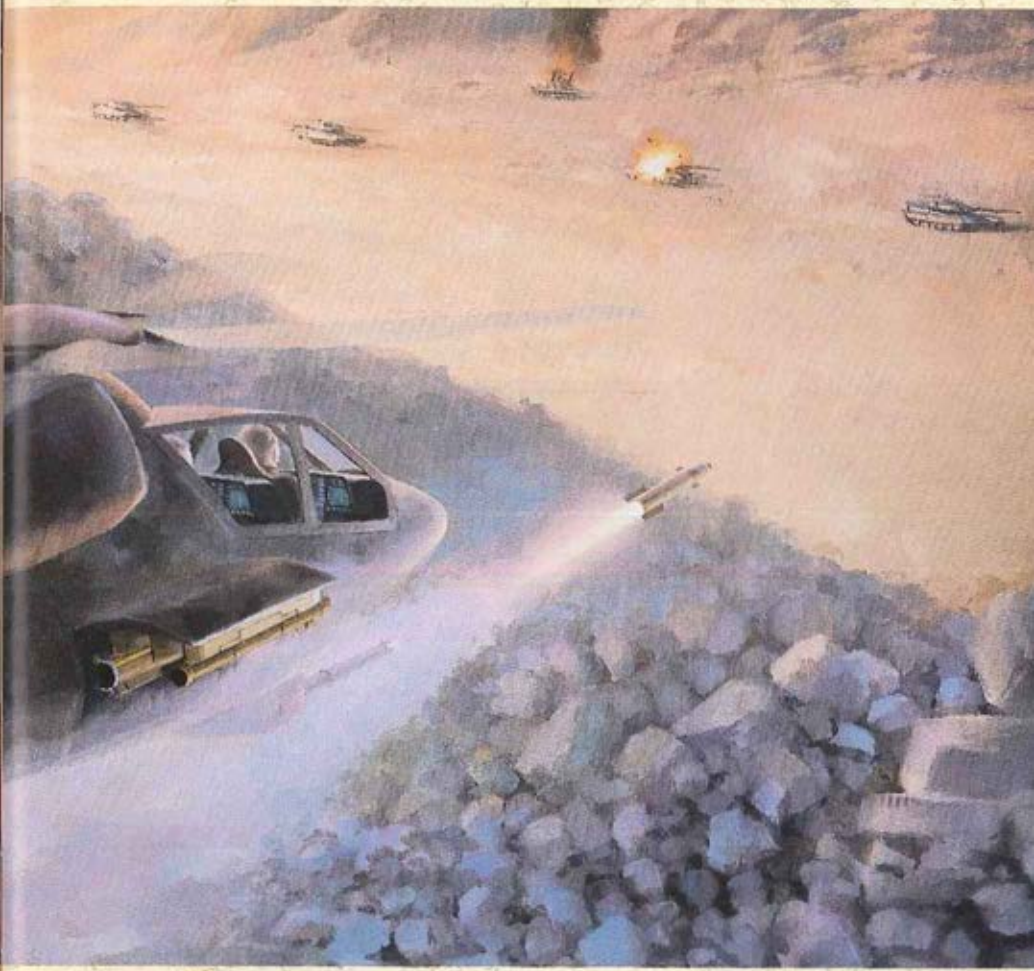

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Army Aviation: A Deployable Force

By Major General Rudolph Ostovich, III

In the heat of this past summer, Iraq's president Saddam Hussein made things a little hotter by invading his tiny neighbor, Kuwait. The question was: Would Saddam continue his aggression and attack Saudi Arabia? The event sent military and political leaders scrambling to develop a proper response.

Defense contractors and suppliers, who only a month before were facing sharp cutbacks, suddenly found themselves working around the clock on emergency contracts in support of the crisis. Think-tank experts and consultants were inundated by reporters and others seeking information on Iraq and the Persian Gulf. The military's crisis response team was suddenly placed on alert at the National Command Center in the Pentagon.

After many days of analyzing options, military planners agreed it would take at least several months to fully mobilize and deploy the total numbers of U.S. forces required. Time was critical. Because of their ability to respond quickly with credible combat power, the National Command Authority decided that the initial wave of troops should be soldiers from the Army's famed 82nd Airborne Division. Accompanying the all-American paratroopers was their organic AH-64 Apache attack battalion. The combination of these ground and air maneuver combined arms forces formed a "Heavy" Division Ready Brigade (DRB).

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

The 101st Air Assault Division quickly followed, bringing to the area more Apache battalions and helicopter units of all kinds. Next came the 24th Mech Infantry Division, 1st Cavalry Division, XVIII Airborne Corps' Aviation Brigade, and 3rd ACR, each deploying additional aviation brigades. It was soon made apparent that Army Aviation would play a substantial role in Operation DESERT SHIELD.

DESERT SHIELD is taking place in a particularly difficult theater of operation because of the extended distances and heavy concentration of Iraqi armor. These heavy forces posed an obvious threat to our lighter rapid deployment forces during this initial stage. The Army's Apache attack helicopters, however, quickly became the great equalizer—organic aerial firepower for our land forces in the desert battlefield. Working together with our combined arms team members, sister services, and allies we have demonstrated a new dimension of contingency force combat effectiveness.

Getting helicopters, tanks, trucks, equipment, and war supplies from the U.S. to Saudi Arabia—9,000 miles away—was a challenging task, to say the least. Nevertheless, it was only a matter of days after Iraq's president Saddam Hussein attacked and conquered Kuwait that aircraft and ships, loaded with military hardware, ammunition, food, fuel, and other supplies headed for the Persian Gulf. This was the first large scale U.S. deployment since the Vietnam era. In fact, it was the largest short-notice air and sealift operation to date.

The U.S. troops deployment to Saudi Arabia was a massive undertaking and a magnificent example of a successful large force deployment. The success of this operation was due in large measure to having a force trained and ready. On a moment's notice, Army units from across the nation were ready to deploy and to successfully accomplish the mission. Their preparedness came in part from tough, realistic training. Training is our cornerstone of readiness. It prepares soldiers, leaders, and units to fight and win. Because our top quality soldiers are well trained, they have been able to sustain a high rate of readiness in spite of the inhospitable environmental conditions.

Should conflict erupt, victory in the Gulf is now clearly within our capability and Army Aviation is in position to contribute as an integral part of our land forces.

Base Case

The Army Chief of Staff's vision for the Army predicted we would face unprecedented challenges in an increasingly complex, volatile, and unpredictable world. Saddam Hussein has made that vision come true. Our Army is the best trained, most ready force in our nation's history. Our soldiers, doctrine, force structure, training, materiel, and leaders are a winning combination and manifest the value of the Chief of Staff's imperatives. Operation DESERT SHIELD will most likely become a base case for conflicts in the 90s.

Yes, Army Aviation today and even more so in the future will capitalize on our inherent qualities of versatility, lethality, and deployability. We've come a long way—yet more is needed. Our accomplishments are many and there is every reason to be optimistic about the future. Army Aviation, in partnership with the other elements of our armed forces and helped by civilians and industry, will meet the tough challenges ahead. When called upon, you can rest assured, we'll be there! IIIII

UH-60 Flight Simulator Update

By Major Robert Havicon

"Still fielding and improving" continue to be the words that appropriately describe the Black Hawk Flight Simulator program. To date, seventeen production simulators have been put into service in Europe, Korea, Hawaii, and the continental United States. The latest flight simulator fielded was at Ft. Carson, CO, in September 1990. The last of eighteen flight simulators being procured by the U.S. Army, which is scheduled to be delivered and installed in Alaska next year, is being retained in plant for integration and testing of the Global Positioning System (GPS) modification. On an international note, a slightly modified version of the Black Hawk Flight Simulator is currently being produced for the Saudi Arabian government under a foreign military sales agreement. Designated the Desert Hawk flight simulator, this system will replicate the Desert Hawk aircraft configuration and includes a visual data base that depicts a desert terrain with specific Saudi Arabian features.

MAJ Havicon is Project Director, UH-60 Flight Simulator, PM Trade, Orlando, FL

The Black Hawk flight simulator is an incredibly complex piece of equipment. As a result, many changes and improvements have been identified since the fielding of the first simulator. These changes and improvements are included in a modification contract called the UH-60FS Block Update (BUD). The BUD modifies all simulators (both fielded and in production) to maintain configuration with the UH-60A Black Hawk aircraft, enhances the capabilities of the Instructor Operator Station (IOS), and adds hardware and software improvements identified by the user during the first two years of simulator fielding.

As of September 1990, all of the fielded flight simulators have had the BUD kits installed. Thanks to the invaluable input from the UH-60 flight simulator community and the Software Center, Aviation Training

"The Black Hawk flight simulators will continue to be improved and fielded well into the next century. . ."

Devices, Ft. Rucker, AL, we have been able to thoroughly evaluate the new simulator configuration. Worldwide distribution of the final BUD simulation software will be made after final verification, scheduled for December 1990. But for those of you who are not familiar with BUD, here's a quick snapshot of what this BUD will do for you:

- implement latest changes for cockpit ANVIS capability;
- provide M43 protective mask mounts;
- make all cockpit air ducts operational;
- make ALQ-144 and M130 Chaff Dispenser effective against threats;
- install thirteen new or revised aircraft malfunctions;
- provide new sling load models of howitzer and towed Vulcan;
- expand the various options of external stores;
- add blowing sand, dust, and water simulations;
- add tactical Non Directional Beacons (NDBs) at all inverted "Y" locations;
- add shipboard landings;
- add enhanced threat capabilities;
- provide maintenance test pilot training modifications;
- make several instructor operator station changes;
- have cockpit lighting installed to simulate daytime conditions;
- expand the searchlight capabilities;
- and expand the control of icing.

The Future

Let's now look at what's next for the Black Hawk Flight Simulator. As alluded to in the first paragraph, the contract to simulate the operation of the Global Positioning System (GPS) in the UH-60FS was awarded earlier this year with integration in the test bed (the Alaska device held in-plant) scheduled to begin in November 1990. Further information about the operational features of GPS can be found in the February 1990 issue of ARMY AVIATION MAGAZINE concerning UH-60 aircraft enhancements.

The introduction of the UH-60L Black Hawk helicopter has expanded the training requirements for flight simulation. Since the UH-60FS would only require instrumentation changes and simulation software modifications to replicate the UH-60L, it is planned to develop kits that would allow all existing UH-60 flight simulators to simulate either the "A" or "L" configuration. The kits would allow conversion from one configuration to the other in a relatively short period of time. These kits are envisioned to be a very efficient, cost effective method of providing the additional training capability regardless of simulator and aircraft locations.

The existing procurement of eighteen simulators was designed to fill the training requirements for a fleet of 1,100 aircraft. However, with current force structures being revised, several more simulators will be required to insure that Army and National Guard pilots remain highly trained and thoroughly capable of executing complex mission requirements. The Black Hawk flight simulators will continue to be improved and fielded well into the next century which will insure that Army aviators will train with world class flight simulators incorporating the latest state of the art technological advances. IIIII

AH-64 Combat Mission Simulator (CMS)

By Eric Routledge

Continuing to meet the challenge to provide high fidelity combat "mission" training, the CMS Program has kept pace with the ever changing combat mission environment and the simulation of newly introduced/updated aircraft equipment and systems.

Through a closely coordinated "Concurrency" program, the CMS maintains its reputation for providing superior training through accurate simulation and replication of the current aircraft configuration and the combat environment in which our aircrews must operate. The AH-64 CMS Concurrency Program utilizes a Concurrency Update Group (CUG) which enlists the combined expertise and program knowledge of the CMS prime contractor, Project Manager for Training Devices (PM TRADE), Program Manager Advanced Attack Helicopter (PM AAH), Directorate of Training and Doctrine (DOTD) Ft. Rucker, AH-64 Apache aircraft prime contractor and major subcontractors, Project Manager Aircraft Survivability Equipment (PM ASE), and qualified aviator/subject matter experts from the U.S. Army Aviation Center (USAAVNC). Participation by other individuals and organizations is requested on an "as needed" basis. The CUG team meets as necessary (usually quarterly) to review all acquired data (to include all aircraft ECPs) to determine applicability to the CMS and to group the requirements into logical blocks of CMS updates. These logical groupings of updates are then incorporated into Block Upgrade Configuration (BUC) programs for the CMS, or, if necessary, an individual priority CMS ECP is initiated. At present, four separate BUC programs and one priority CMS ECP have been identified.

Mr. Routledge is Project Director, AH-64 CMS, PM TRADE, Orlando, FL.

Block Upgrade Configuration I—On 7 September 1990 the CMS at Ft. Campbell, KY, became the final fielded device to be retrofitted in a worldwide upgrade program

SIMULATOR ENHANCEMENTS

* Computer Upgrade
* Enhanced Threat Scoring
* Hostile Air Targets
* On-Line Auto Test Guide
* Additional Graphics Display Monitor in IOS
* Threat Library Expansion
* Metal Cockpit Enclosure
* Enchanced Near Miss/Hit Motion Cues
* IR/Chaff Simulation Upgrade
* Comm System Upgrade
* BUCS Upgrade
* Additional APR-39 Threat Indications
* Alphanumeric Display
* TADS Boresight Error Simulation
* TADS/PNVS Point Indicator
* Install IOS Glareshield
* Single Point Turn-On Capability

AIRCRAFT ECP's

* ECP 189R1	- TEU Card Update
* EX-0226	- TADS Com Program Update
* 260R3	- CBR Mask
* 261R2	- Main Rotor/Eng Speed Droop
* 376	- Stab Aural Tone Wire Change
* 409R1C1	- IHADSS Change
* 421R1	- CPG Lighting Change
* 498C1	- Fuel Xfer Lights
* 504	- UHF/AM Radio
* 635C1	- De-Ice Controller
* 650R1	- Fire Ctrl Pnl Lighting
* 652R1	- VSI Lighting
* 716	- BUCS Change
* 931	- FCC Update
* 734C1	- Eng Out Warning
* 779C1	- FCC MUX Switch Guard
* 798	- Anti-Ice Change
* 811	- ECS Change
* 844	- ASE CB
* 870	- Collective Change
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* 879	- Park Brake Change
* EO-186891/2	- APU Change
* EO-206106	- PLT INS PNL Changes
* EO-207449	- PLT/CPG Brake Sys Installation
* EO-209428	- CPG LT Hand Console Change
* 624R1	- ICOM/RTSS Installation

Figure 1

that began in September 1988. Among the many aircraft configuration changes and simulator enhancements was the update of the Fire Control Computer (FCC) and software to the -47 configuration, expansion of the threat library, and a major device computer upgrade. A complete list of installed changes is provided at Figure 1.

Block Upgrade Configuration II—On 30 March 1990, the second major device upgrade was initiated to further insure that the CMS maintains concurrency with both the evolution of the aircraft and the projected combat mission environment. A computational system enhancement called the "Terrain Information System" will process up to two hundred feature correlations per second thereby allowing the introduction of an increased number of interactive weapons and threats to be displayed on the ATACDIG visual system. Essentially, this provides the capability for the depiction of a "busier" battlefield combat environment. Also included in the many enhancements made possible through the BUC II upgrade is the expansion of the data base to provide a 80km X 100km gaming area, threat networking and numerous changes to accommodate aircraft ECPs. BUC II changes are scheduled for incorporation into all fielded devices by early FY 92. BUC II changes are:

- Threat Library Upgrade
- TADS/PNVS Power-Up Time (ECP-903)
- Terrain Information System (TIS)
- PLT Radar Jammer Ind Lamp
- Multiple Weapons (ECP-918)
- Threats Fire While Moving
- ATT/Hover Hold Switch (ECP-1088)
- Threat Networking
- Ice Detect Probe (ECP-920C3)
- Expand Database (80km X 100km)
- Chg AN/ASN-128 to AN/ASN-137
- Reactive Armor (Granite) (ECP-924-R1C1)
- Autorotational Improvements
- Restraint Harness Lock (ECP-996)
- AN/APR-39(V) Radar Wrn Rcvr
- Primary Output PWR (ECP-1012R1C1)
- AN/AVR-2 Laser Warning System
- Chg Engine to 701C
- IFF Panel Config Change
- AAU-32/A Encoding Alt (ECP-1077C2)
- HOD Neutral-Density Filter
- Increase Number of Tee's to 40 (EX-0182C2)
- MPS Rocket Motor/ARCS Panel Chg
- TADS Power-Up Sequence (EX-0200)
- Aux Fuel Tanks Sim

(AH-64 CMS continued on page 37)

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Interoperability

By CW3 Charles Fullmer, Pamala S. Woodard, & Ron Matusof

(This Article was excerpted from a paper delivered at the Twelfth Interservice/Industry Training Systems Conference, 5-8 November 1990, Orlando, FL)

The operational requirements of a training system are directly related to the set of tasks which are to be trained or rehearsed. Theoretically, operational requirements dictate the level of fidelity required within a training system. In practice, however, the limitations of available technology have often constrained the type and level of training available.

For training systems, fidelity is the degree of similarity between the simulator (training system) and the mission being simulated, including both the equipment used and the mission's operational environment. It is a measurement of the physical characteristics of the simulator (the appearance, or physical fidelity) and the informational or stimulus and response options of the equipment (the behavior or functional fidelity). The required fidelity level is also a function of the anticipated interaction between individual members of a crew, or between various crews within a combat team.

Team training requires two or more players to interact with each other, as well as with the environment in a realistic manner. Interconnecting simulators into a network of full-and-selective fidelity systems provides an attractive team training solution from both an operational and cost viewpoint. This concept is not only feasible, but is a demonstrated fact. Simulator networking remains an attractive alternative only as long as a sufficient level of interoperability exists between each of the individual systems on the network.

In its simplest terms, interoperability refers to the ability of two or more systems to perform a set of coordinated tasks with the expressed intent of achieving a common goal. Interoperable systems do not necessarily perform tasks identically or to the same level of fidelity, but operation of

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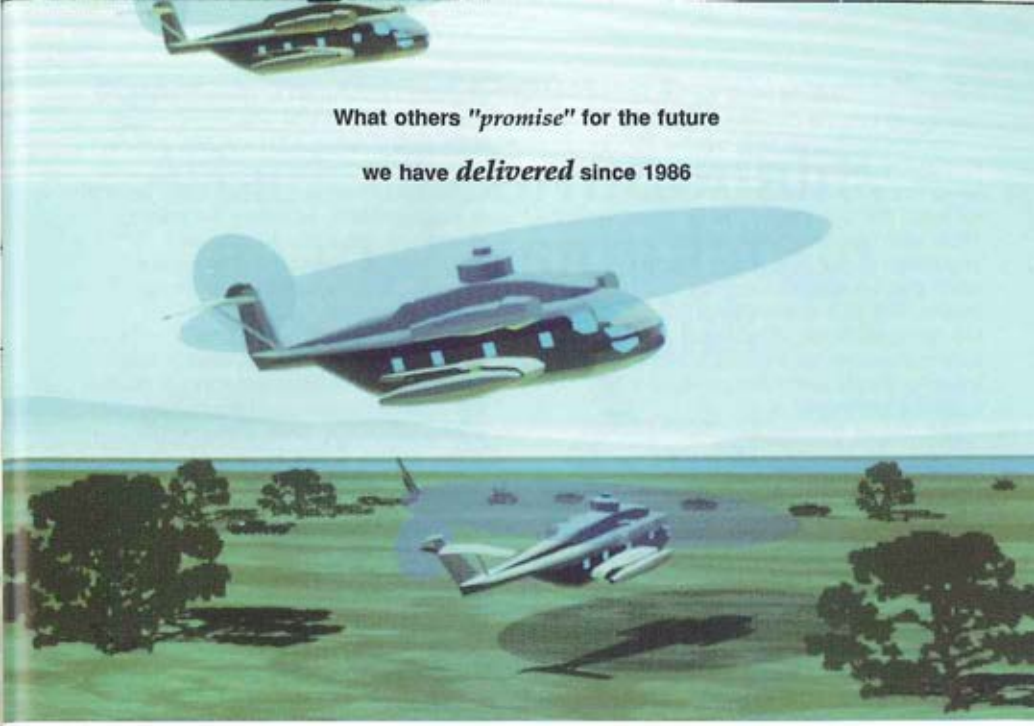

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interoperable systems must be similar enough to provide consistent results.

Interoperability has long been a concern of mission planners and combat system designers. It became a major concern following the U.S. invasion of Grenada in 1983, when ground forces found it impossible to call in close air support or naval gun fire without resorting to unusual means. The lack of interoperability between the Army, Air Force, and Naval communications systems impacted the invading force's ability to operate in a fully coordinated manner.

The degree of interoperability required between two systems is defined by a "fidelity differential." The fidelity differential determines the acceptance level of difference between the operations of two or more systems and provides a method of expressing the required fidelity level relative to the required interactions of the systems. Interoperability and the fidelity differential are important for the military mission, since the typical mission is performed by more than a single crew or individual and using a variety of equipment types.

Benefits of Interoperability

Military trainers have agonized for centuries over how to put more realism into their training. Some training efforts use or have used live ammunition, which definitely adds realism to the training, but severely limits the number of mistakes a trainee may make. Other approaches, using umpires or scoring systems similar to the MILES-AGES system, allow units the opportunity to learn from mistakes at the cost of a reduction in realism and, when umpires are used, a loss or lessening of objectivity. Interoperable training systems can provide realism, objectivity, and the ability to identify and subsequently correct aberrant tasks or maneuvers.

Mission rehearsal operations represent an obvious and, as of late, highly publicized use for an interoperable training system. The concept can be applied to other larger military operations that occur on a much more regular basis. For example, the concept can be applied strictly to training scenarios such as FTXs (Field Training Exercises) and to Low Intensity Conflicts, such as Operation JUST CAUSE.

In addition to enhanced training capabilities, there are several other benefits of interoperability, including the training economics, the ability to practice contingencies, applications to mission planning, and the security benefit to mission rehearsal.

Economic benefits are gained from a variety of sources. Not the least of these benefits is the obvious reduction of fatalities and injuries occurring during training. During fiscal year 1989, a loss of 173 million dollars in calculable personal injury-related costs were suffered by the U.S. Army alone. The price of a life and the loss of the accumulated knowledge of an experienced crew or team member can not be determined. Costs related to losses, failure, and maintenance of systems and the cost of expendables (ammunition, fuel, rations, etc.) can all be drastically reduced. Long-term cost advantages will occur due to a reduction in the amount of time a system is in operation. Reducing the amount of time devoted to training on a particular piece of equipment by increasing the amount of viable training performed in interoperable training systems will increase the usable life and availability of the system.

Currently, tradeoffs are made in the level of fidelity versus cost when considering the economic benefits of an individual training system. The cost-effectiveness of a trainer is determined by evaluating the return on investment of increasing levels of fidelity and capability. This evaluation will become increasingly complicated as the cost effectiveness of interoperability is evaluated.

One of the factors that may weigh heavily in evaluating the cost-effectiveness of interoperable simulations is the list of benefits it brings to mission planning and rehearsal. Mission planners are extremely concerned with Operational Security (OPSEC) since it often means the difference between mission success and failure. The planning and execution of the 1980 Iranian hostage rescue attempt was critiqued by the Holloway Commission, which found that

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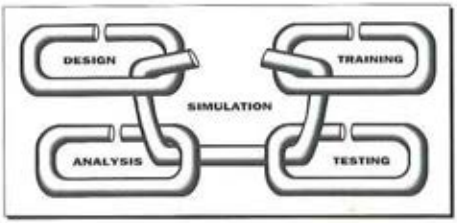

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OPSEC concerns prevented a comprehensive, full-dress rehearsal involving all participants. The lack of this dress rehearsal, because of the perceived security risks, was found to result in some operational problems not being identified that eventually occurred in the mission. Interoperable simulations do not require the movement of large amounts of equipment for a rehearsal, and simulator networks may use data encryption techniques, developed and approved by appropriate security agencies and operational security officers, to secure the data passed between simulators. Interoperability does not eliminate OPSEC considerations, but it does minimize their impact and allows full-dress rehearsal to become a realistic alternative for both mission planners and participants.

Technological Implications

Networking of training systems is much less concerned with the physical interoperability of the individual systems (the ability to physically replace the black box from one system with the black box from another) than it is with the functional interoperability between individual systems (the ability of two systems to produce a common response to a common environmental input). For example, when simulating similar equipment which can not be interchanged between F-15 and F-16 aircraft, it is not necessary to design simulation software and hardware which is interchangeable between simulators. Interoperability occurs by each simulation providing similar perceptions of the environment to the crews of the individual training systems on the network. The level of similarity of the information required by the crews in the training system is dictated by the level of similarity which occurs in the real world.

The current team training environment and, more importantly, the requirements for team interactions imposed by mission rehearsal make it essential that interoperability be provided between both newly procured and existing systems. In addition to the logistical problem of providing interoperability between existing and new systems, there is the technical challenge of integrating emerging technologies and training concepts with older training systems designs.

The Standard Simulator Database (SSDB) defined by Project 2851 may serve as the basis of correlated databases required for interoperability. A means must be developed to categorize features and terrain details as essential/nonessential for a variety of training tasks and scenarios. Tri-Services is working on solutions to these problems and as the product matures it should become more flexible to meet the database requirements of the simulation community.

Even a mature Project 2851 standard cannot, by itself, solve the correlation problems inherent between interoperable simulations. Perfect correlation of the coarse visual and imagery databases does not account for the distortions and data omissions which can occur due to differences in visual display systems. Although this issue is clearly outside the scope of the Project 2851 effort, it is important to understand that the value of team training tasks, such as air-to-air combat, is often comprised by the type of visual display system available on the participant simulators.

Each participant simulator brings to the simulator network a fixed (albeit in some cases flexible) design architecture. Many of the design decisions that were made when producing an individual participant have profound impact on the ability of that simulator to interoperate with others. For example, the choice of a navigational coordinate system usually involves tradeoffs between complexity (and associated cost) of implementing a given coordinate system versus training requirements. Simulations which do not require traversing large areas can often be supported by flat-earth approximations. Although these approximations may perform admirably for the stand-alone simulation of a participant, they may introduce correlation problems when networked with a simulation which traverses large areas and therefore utilizes a spherical or elliptical earth. This problem is

further complicated by the fact that U.S. military mapping uses several different ellipsoids which are not automatically correlated to each other.

Time and spatial relationships are important to all members of the mission team. Therefore, in the networked environment the correlation issues that affect man-in-the-loop players also apply to pseudo-intelligent or semi-automated forces. The purpose of a threat simulation in a stand-alone simulation is to train crews to engage and defend against threats with limited interaction from other crews. The stand-alone threat models are not suitable for networked operations since, on the network, each threat must make engagement choices against a variety of simulators and react accordingly. The threat's engagement tactics must account for the fact that any participant man-in-the-loop simulator may be friend (blue team), foe (red team), or neutral (gray team).

For interoperable simulations, the selection of a threat or force-on-force simulation, like the selections for a visual/sensor database, weather, and navigation coordinate system, must optimize the resources of the network and be fully correlated with it.

Conclusions

Training system interoperability is a concept that is rather easy to grasp and appeals to both industry and the user. The reality of interoperable training systems will occur only through painstaking effort. Since the level of interoperability is a variable, and dependent upon requirements and situations, the maximum fidelity differential must be identified. Three factors need to be considered in determining the fidelity differential: the mission, the players, and the capabilities of the systems which process the data.

Interoperable simulators must be capable of operating from a database which provides the commonality required to meet specific training requirements. The level of commonality necessary will vary with the training task, increasing as the level of coordination required between simulators increases.

Formation flight between networked simulators requires that each see the other positioned accurately, but the out-the-window and other sensor presentations need only present the same general scene. Correlation of all data is not required.

However, if the two aircraft are performing a refueling operation, the degree of correlation required between the two simulators increases dramatically. Not only does the visual representation need to be accurate, but system connections that occur between the aircraft in the real world must be authentically replicated, as well as aerodynamic and electromagnetic effects of one aircraft upon another.

Target handoff/handover tasks between networked simulators require that all involved be presented with the same threat environment. The individual targets may not have to look identical in each participant simulator, but they must all be present, positioned accurately, and operate (or appear to operate) the same. Simulators involved in combat simulation against other networked simulators, or performing real operations against automated, doctrinally correct threat forces require a very high level of fidelity. If a participant thinks that he is hiding behind a ridge or tree line, those specific features must actually hide the player from other participants.

Generation of interoperability standards for simulation is the goal of a number of joint industry/service working groups. While the efforts of these groups may provide interoperability in future procurements, the need to network with existing simulations should not be overlooked. Interoperability standards should be applied as they are developed and evaluated to determine their ability to support different training requirements. The interoperability standards will have to be refined over time and throughout experience so that application of the standards does not detract from the training value of the simulation. All elements which contribute to the time/spatial relationships and information flow between participants must be considered.

(Interoperability — continued on p. 44)

A History of Special Operations Aviation Simulation Efforts

By Captain Timothy M. Boswell

In January 1987, the U.S. Army Training and Doctrine Command approved the Required Operational Capability (ROC) to provide Black Hawks and Chinooks used by Special Operations Forces (SOF) with a mission equipment package to support special operations forces missions. The modified special operations aircraft have been designated the MH-60K and the MH-47E, respectively. The SOF ROC includes a requirement for training devices to be in place at the training base before the first unit is equipped with the aircraft, thus providing a ready-for-training capability to support fielding of the aircraft prior to Initial Operational Capability (IOC). The unit identified as the primary user of the MH-60K and MH-47E aircraft is the 160th Special Operations Aviation Regiment (Abn).

The requirements for the Special Operations Aviation (SOA) training devices were initially developed by the Directorate of Combat Developments at the U.S. Army Aviation Center (USAAVNC) at Fort Rucker, AL, and the U.S. Army John F. Kennedy Special Warfare Center and School at Fort Bragg, NC, and are included in the training annex to the SOF ROC. At the time the SOA training requirements were defined, the technology for providing a mission rehearsal training capability was limited and no clear definition of mission rehearsal existed. Consequently, the ROC training annex identifies mission rehearsal as a desired capability instead of a training requirement.

CPT Boswell is in the Aviation Simulation Materiel Development Branch, DOTD, USAAVNC, Ft. Rucker, AL.

After the MH-60K and the MH-47E airframe contracts were signed with Sikorsky Aircraft and Boeing Helicopters, the Program Manager for SOA in St. Louis, MO, appointed the Project Manager for Training Devices (PM-TRADE) in Orlando, FL, as the executive agent for procuring training devices. This appointment gave

PM-TRADE authority to contract Link Flight Simulation Division of CAE-Link Corporation to build a simulation training device for each aircraft.

Integrated Avionics Subsystems

The SOA simulators currently being developed by CAE-Link replicate the SOA cockpits in form, fit, and function. The "heart" of the cockpit is the Integrated Avionics Subsystem (IAS). Four multifunction displays (MFDs) and two control display units (CDUs) replace the instrumentation in a conventional Black Hawk or Chinook. In the fully integrated SOA aircraft, all instruments and navigation radio controls are displayed on the MFDs. For example, the co-pilot's left MFD might display the digital map indicating present position, while the right MFD might display the horizontal situation indicator (HSI) showing an ILS approach. Concurrently, the pilot's left MFD might display the engine instruments, while the right MFD displays a checklist. In all there are over 200 possibile combinations on the four MFDs. The CDU is used as a scratch pad for the pilot or co-pilot to enter data for the avionics systems. Data for the Airborne Target Handover System (ATHS) or any of five checklist pages may be entered through the CDU. The only reminder in the SOACMS of a conventional aircraft flight simulator is the presence of back-up instruments located just above the center console on the instrument panel. These instruments were retained in the aircraft to provide a "get home" capability in case of a complete electrical failure.

To meet the SOF mission requirements, the SOACMS training device includes a capability to train aerial refueling and shipboard operations. To provide this capability, a data base (i.e., the visual systems terrain) was developed for the SOACMS that represents a hybrid of the UH-60A and the AH-64A data bases. The Apache data base is used to provide interactive threat training and Forward Looking Infrared (FLIR). The interactive threat is the primary reason the simulator is called a Combat Mission Simulator (CMS). To provide training in shipboard operations, the SOACMS data base includes a body of water with two ships on which the SOA aviators can land. The level of fidelity for this training is not real-life, but represents a significant step toward it.

Standardization

During the development of the data base, considerable time and effort was expended at data base conferences held at the CAE-Link Advanced Programs Office in Sunnyvale, CA. The data base that has emerged for the SOACMS device is the result of a cooperative effort involving engineers from Link and Army pilots from the 160th. The Link engineers lent technical expertise and experience from previous simulation development programs, while the Army aviators provided subject matter expertise concerning special operations mission and training requirements. The Army subject matter experts were provided by the 160th SOA Regiment's Systems Integration Maintenance Office (SIMO).

The SOACMS devices were originally intended for use at Fort Rucker to support transition in the SOA aircraft; however, since most training in special operations aviation takes place at Fort Campbell, KY, a decision was made in 1989 by then MG Parker, then USAAVNC CG, to place the device and the SOA aircraft designated for transition training at Fort Campbell. A Memorandum of Agreement identifying major proponent responsibilities was signed between Forces Command (FORSCOM) and Training and Doctrine Command (TRADOC). The memorandum designated the Directorate of Evaluation and Standardization (DES) as the proponent for standardization.

The special operations aviation training taking place at Ft. Campbell was formerly designated the "Green Platoon" and is now designated the Selection and Training (S&T) Detachment. Ultimately, the SOACMS will be used for transition into the MH-60K and the MH-47E aircraft within the S&T Detachment. The SOACMS will also be used for continuation training with the unit and

(SOA — continued on page 45)

DESERT SHIELD: The Challenges

By Colonel Thomas W. Garrett

The first part of August found the members of XVIII ABN Corps CPXing a possible attack on Saudi Arabia by Iraq. For realism, participants were issued desert "chocolate chip" BDUs complete with floppy hats. We complained that the uniforms were hot, and mused at how long an operation this would be. Little did we know or suspect that, only weeks later, we would be living it.

The deployment was a masterpiece. The 101st Airborne Division (Air Assault) is quite accustomed to no notice rapid deployments, but none of us had experienced anything of this magnitude. With portions of units going both by air and sea, lean aviation units were spread thin as C-5s were outloaded, helicopters were flown to port, and unit vehicles were packed and marshalled for convoy, often simultaneously.

As leaders fine tuned force packages to support anticipated missions, task force organizations took shape, load plans were developed, and movement priorities established. Task Forces then marshalled their equipment, drew ammunition, PORed soldiers and moved out, leaving Fort Campbell almost deserted.

At the other end, most units found that they had to build a base literally from the ground up. The environment introduced itself immediately with temperatures in mid-August averaging 135-140 degrees Farenheit in the sun. The weather people reported high temperatures in the shade of 115 degrees. The fact is, there isn't much shade, and men and machines face a severe test. The sand poses another challenge. It is inescapable. Even when not whipped up by rotor wash, it stays suspended in the air, blown by winds averaging from 10 to 20 knots all day, most days. It gets into everything, no matter how tightly sealed.

Though on the verge of war, we are still

COL Garrett is Commander, Aviation Brigade, 101st Abn Div (Air Assault), Ft. Campbell, KY

in the deterrence mode, and this situation has created some challenges. The first of these was basing. After the first few units arrived in country, there was no place to put units arriving later. Airfields and other hardstands for maintenance operations were quickly maxed out. If a state of war existed, abandoned towns and villages would have afforded helicopter units plenty of potential assembly area sites, but these were still inhabited.

Even at semi improved areas, the sand and dust quickly began to exact a heavy maintenance toll. Blade erosion, engine problems, and avionics trouble were the most worrisome. Our newest aircraft have faired the best. AH-64, OH-58D, and newer UH-60s (in order) have held up well. Dust control has become a major concern. Low cost, widely available, and easily applied dust control measures are urgently needed.

Desert night flying has proved to be the toughest of challenges. We are adjusting tactics and techniques to allow us to continue to accomplish our mission, but we had to learn the hard way. Heads-up displays for goggles, continued goggle refinement in the areas of acuity and field-of-view, forward looking radar altimeters, and aural altitude warning would greatly enhance our ability to conduct safer night desert operations. A system like the USAF's "Harvest Bare" needs to be reviewed by Army Aviation. Crew rest in this environment, especially for night crews, is next to impossible. A portable base like "Harvest Bare" would be a present from Heaven for many an aviation brigade here in Saudi Arabia.

Accurate navigation in a featureless desert, day or night, has been challenging. Old maps coupled with shifting dunes and lake beds make even doppler update waypoints suspect (if you're lucky enough to have doppler), allowing drift errors to build. We must press on with GPS. Hand held commerical LORANS have been a life safer.

Despite these challenges, Army Aviation is "doing its thing" in Saudi Arabia. The flexibility and adaptability of aviation units and soldiers is assuring mission accomplishment. The responsive firepower, the tactical mobility advantage, and the superior technology of our modern fighting helicopters has caused them to be employed early, up front, in depth, and in every phase of the operation.

The 101st Airborne Division (Air Assault), with its powerful fleet, is able to cover vast areas of the desert, shift rapidly as required, and sustain itself far from base areas. DESERT SHIELD is proving the helicopter is an indispensible member of the combined arms team, not just "nice to have." IIIII

Control Measures for Crossing the FLOT

By Captain Allen L. Peterson

The phrase Night Deep Attack (correctly defined as a night raid) is becoming more and more commonplace in the Army Aviation vocabulary, especially as the AH-64 fielding matures. These missions are characterized by an extreme high risk mission versus an extreme high payoff target relationship. This forces the Corps or Division Commander to select targets of the highest importance in order to achieve the high payoffs that warrant such risk. In order to achieve a reasonable chance of mission success, both the executing unit and its higher headquarters must conduct extensive premission planning and coordination. One of the problems encountered during deep attack planning is how to keep a unit organized as it crosses the Forward Line of Own Troops (FLOT) so that it can quickly get on to its objective. This becomes especially critical during Corps level attacks that may go 100 kilometers or more beyond the FLOT (150 kilometers from the last FARP). The focus of this article is to suggest and/or emphasize the use of a few control measures that will help to facilitate a successful crossing.

CPT Peterson is Commander, A Troop, 4th Squadron, 6th Cav Bde (AC), Ft. Hood, TX.

The FLOT

The FLOT on the modern battlefield will likely be difficult to predict, in terms of its physical location and level of activity, at any particular time in the raid planning sequence. As the night fighting capabilities increase on both sides, significant changes in the location of the FLOT could occur even as the attack unit is enroute to the passage point. What looked like an outstanding passage point at the time of the Brigade or Squadron brief, might be several kilometers inside friendly (hopefully) or enemy territory by F-Hour (FLOT crossing time). This makes the practice of crossing at an eight digit grid coordinate passage point, precisely at F-Hour,

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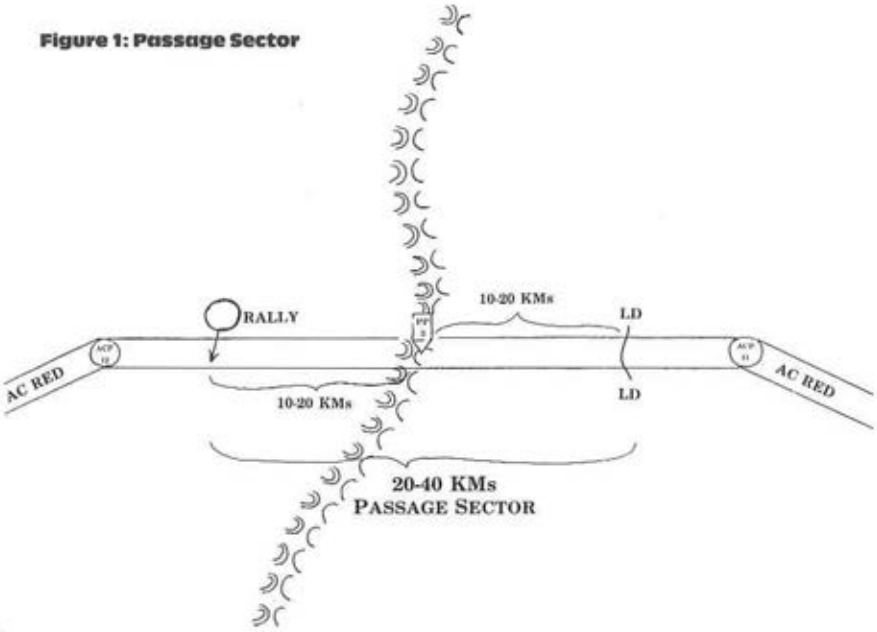
Figure 1: Passage Sector



essentially worthless except as a peacetime training and evaluation tool.

Additionally, the level of enemy and friendly activity at the FLOT will be equally difficult to predict. If a crossing is attempted during a time of high activity, even the most highly-trained units are likely to experience some level of chaos as they run "the gauntlet" into enemy territory. Those units that come under fire can expect their elements to scatter as evasive maneuvers are performed under the night system. If severe terrain or adverse weather are encountered, contact between elements of the same unit may be lost. If all three conditions are encountered at the same time, the problem increases geometrically. Some aircraft will slip right through, while others are likely to be damaged or destroyed. Regardless, the unit crossing the FLOT is likely to become disbursed or disorganized to some extent.

The most common methods used in training the cross FLOT mission focus on an intact unit crossing the FLOT at a specified time and location. The unit generally remains intact throughout the crossing and drives on to the objective via the planned course. While this is an outstanding, well-defined set of training goals for a unit beginning deep attack training, it is not a very realistic representation of what is likely to be encountered on the modern battlefield.

Control Measures

Let's consider for a moment dropping the concept of an F-Hour tied to a fixed eight digit grid passage point, and replacing it with a more flexible "passage sector." This passage sector (for lack of a better term) would be that portion of the Air Corridor (AC) defined by a Line of Departure (LD) on the friendly side and a rally point on the enemy side. These two control measures would be approximately 20-40 kilometers apart (based on the METT-T) and roughly centered on the proposed passage point briefed by higher headquarters (see Figure 1, above). This distance can easily be

covered in 5-10 minutes by an attack unit flying at 120 knots, allowing for the precise timing necessary in a crossing operation.

A line of departure is defined by FM 101-5-1 as "a line designated to coordinate the commitment of attack units, or a start line." This seems ideally suited for defining the location where an attack helicopter unit converts from its enroute flight mode to combat operations mode in order to breach the FLOT. The LD should be drawn across the AC approximately 10-20 kilometers from the passage point. As always, METT-T should be used in determining the exact location, however additional emphasis must be placed on locating the LD on an unmistakable landmark. This provides all of the aircraft with a final precise doppler update point prior to executing the crossing.

All adjustments to airspeed to make F-Hour are done prior to crossing the LD. The LD is crossed at the appropriate time, based on the planned crossing airspeed, so that the briefed passage point will be crossed at F-Hour if no resistance or difficulty is encountered.

However, the focus after crossing the LD is on conducting a successful crossing rather than on precise timing. As the situation develops, the actual time the FLOT is crossed will probably not be known, but it will fall within the planned F-Hour window (including associated SEAD, EW, and deception plans). Thus, a small shift in the location (5-10 kilometers) of the FLOT or passage point will have little or no effect on the mission planning.

Upon crossing the LD, the unit must be prepared to cross the FLOT at any time (all weapons, ASE, IFF, and targeting systems fully operational as per SOPs) and it must be focused on the rally point as its short term objective. No mission changes, other than an abort, should be sent or accepted until the crossing is complete at the rally point.

FM 101-5-1 defines a rally point as "an easily identifiable point on the ground at which units can reassemble/reorganize if they become disbursed." The purpose of the raid rally point is to provide a location where the unit can momentarily delay after crossing the FLOT, if necessary, to regroup before continuing the mission. As with the LD, the rally point should be a prominent landmark on the AC approximately 10-20 kilometers from the FLOT. While all the factors of METT-T are again considered, additional emphasis must be placed on the enemy's disposition when choosing the rally point location. If the unit is intact upon reaching the rally point, it can simply serve as a good doppler update point enroute to the objective.

However, the rally point becomes critically important if the unit has been separated (due to enemy fire, weather, terrain, etc.). If all aircraft accomplished a good doppler and map update at the LD, the surviving assets should be able to reassemble quickly at the rally point in order to continue the mission. The deeper the raid, the more crucial it becomes to reorganize ASAP to conserve fuel and reduce exposure time. If individual elements are left to themselves to make their way to a battle position 150 kilometers away, there is little chance of an effective coordinated attack taking place. Individual attack units will need to establish SOPs as to how the rally will be conducted and the maximum delay allowable.

Summary

The passage sector and these control measures can be adapted to work with penetration by fire, force, and stealth. The unit is ready and focused to cross the FLOT at any time after crossing the LD, thus eliminating the impact on planning of any minor changes in the passage point location. The unit also has a preplanned rally point to facilitate a rapid reorganization if the chaos associated with the FLOT crosiing causes disbursion. These same concepts can also be modified and applied to the egress route crossing.

Regardless of what method an attack helicopter unit uses to cross the FLOT, these simple control measures should enable them to adapt to any changes in the situation and complete the mission. And that's what mission training and planning are all about! IIIII

Keeping the Apaches Firing

by Captain Bruce Moore and CW2 Alex R. Bedard

Katterbach, FRG—The 3rd Battalion (Night Eagles), 1st Aviation Regiment, commanded by LTC David W. Swank, deployed to Katterbach, West Germany, home of the 4th (Iron Eagle) Brigade, 1st Armored Division, in June 1989. This move followed a successful Apache train-up at Fort Hood.

The battalion negotiated the unit training program at Fort Hood as most others do, with eighteen factory-new aircraft. Maintenance and armament results were outstanding with all twenty AH-64s validating during commanders' tables, and nineteen of twenty firing during crew gunnery.

Unfortunately, just weeks prior to deployment to Germany, a freak storm (referred to as "The Mother's Day Massacre") reaped havoc on Fort Hood and took fourteen of 3-1's AH-64s out of action; these aircraft were well known and considered very dependable by battalion maintenance personnel. The battalion arrived in Germany with four of the original fleet, plus eight from various units at Fort Hood and six picked up from U.S. Army Europe (USAREUR) based units.

CPT Moore recently commanded D Co, 3-1 AVN, and is currently Asst. S-4, 4th Bde, 1st AD.

The battalion's first major exercise was crew gunnery at Grafenwohr Major Training Area in October, 1989, just three months after arrival in country. The Battalion Armament Officer prepared the 30mm guns IAW 9-1090-208-23-1. According to the PMCS chart in paragraph 4-5-1, the only three items that require attention prior to firing the M230 Automatic 30mm gun are:

- General cleaning and lubrication of the gun track assembly (with the gun assembled);
- Recoil adaptor inspection to ensure serviceability;

CW2 Bedard is the Battalion Armament Maintenance Technician for 3-1 AVN.

- Lubrication of the ammunition handling system (lubricate the rails with grease).

We deployed to Grafenwohr and experienced misfeeds, rail assembly disfigurements, bent carriers, and gun damage. These results were truly unexpected, considering the demonstrated reliability of the Apache at Fort Hood.

Armament crews worked diligently and selflessly trying to correct the malfunctions. Many elements were against the unit; freezing temperatures, precipitation, limited aircraft availability due to an in progress major safety-of-flight message, and unfamiliar-firing aircraft. All the experts on the scene, AVSCOM, McDonnell Douglas, personnel from 4-229 Aviation and 2-6 Cav, and even the Gun God himself, Kingsley Smith from AMCCOM, said we were doing everything by the book. The obvious answer: the book was incomplete!

Eventually, we solved our major difficulties, conducted three successful JAAT exercises, and departed Grafenwohr in search of answers.

Present Accomplishments

The Night Eagles embarked on an intensive and ambitious course to ready the aircraft for the next gunnery. All gun systems were gutted and AVUM armament personnel reassembled each system from scratch. Each carrier was measured; each rail and flex chute was inspected and lubricated; each gun was disassembled, inspected, cleaned and lubricated; rounds were cycled through each aircraft, checking the forward flex chutes; finally, each gun was boresighted. The entire process took in the excess of two months.

The battalion once again deployed to Grafenwohr in May, 1990. This time, armament personnel knew the systems they would service, the element that produced the winning edge at Fort Hood. In short, the battalion fired over 23,000 rounds of 30mm with no major system failures; a near flawless gunnery.

It's obvious that Apache live fire operations can be enhanced by going beyond the book requirements. In our opinion, the following actions must be taken prior to gunnery:

Carrier Rails and Tracks:

Perform a complete inspection of the left and right carrier rails, all elbow assemblies, 90° twist chutes, aft flex chute in the ammunition bay, and forward flex chute. Look for rails that are bent, that don't have a smooth, even track within the chute itself, and any possible hang-up points in these components, to include where they join.

Give special attention to the distance between rails or tracks and the feet on the carriers. If this distance is out of tolerance, the carriers are allowed to come off the carrier tracks and total destruction of the system could result.

30mm Chain Gun:

Ensure correct timing of the gun; change 6, TM 9-1090-208-23-1, dated 25 Jan 90, is still incorrect. The information service notice #42, distributed by the McDonnell Douglas Helicopter Company, continues to be the best information on the street. Double-check the pinion gears for improper installation.

Ammunition Magazine:

Check the timing of the carrier drive to the ammunition magazine; it has a tendency to move while dropping the carrier drive onto the guide pin holes on the magazine. Check this timing just prior to the actual live fire. Due to recurring inspection of the fuel fittings, the magazine pack may be dropped by 67Rs and, therefore, not properly installed or timed.

Additional Items:

- Perform complete MOCs on all loaders/downloaders; count and inspect each carrier and measure the tensioners.
- Verify all timings by putting rounds all the way into the magazine.
- CBHK the TADS/PNVS, gun, and pylons.
- Constantly lubricate the forward flexchute during live fire, with CLP or Breakfree.

The AH-64 will be an impressive and devastating force on the modern battlefield. Appropriate numbers of maintenance personnel, equipment, and technically correct training manuals will ensure this aircraft remains fully mission capable. IIIII

The Attack Helicopter Company in the Assembly Area

By Captain John C. Harrison

The Attack Helicopter Company assembly area must be a well organized, secure area where maintenance, rest, and continuous mission planning can be conducted. FM 1-112 (Attack Helicopter Battalion) and ARTEP 1-187-30 MTP give guidelines on where and how we must operate our assembly areas. This article will discuss in one document those tasks required to establish and operate an Attack Helicopter Company assembly area.

Doctrine requires the assembly area (AA) to be out of range of enemy medium-range artillery. This places the attack company at least 30 kilometers behind the Forward Line of Own Troops (FLOT). The most serious threat the company faces in this area is that of Spetsnaz, terrorist, guerilla, and sabotage forces. These elements may already be in place as part of the civilian populace (sleepers) or they may be forces that are deployed once hostilities begin. Soviet airborne and air assault forces (Level 3) are also a definite threat. A company cannot defend against this size of threat with its organic weapons and personnel. This article will discuss three major tasks associated with the Attack Helicopter Assembly Area: reconnaissance, occupation, and operations.

CPT Harrison was Commander, B Troop, 4-6 Cav, Ft. Hood, TX, when this article was written.

Reconnaissance

Choosing the correct site of the assembly area is the first critical task. The Company or Battalion Commander will probably have little to say about where this area will be located due to the limited space available in the Corps or Division rear areas. Therefore, it is important that a thorough map reconnaissance followed by an area reconnaissance be conducted prior to choosing the exact position the company will occupy. That reconnaissance should focus on an area that provides adequate space to disperse the company's

helicopters. This area should be well drained to preclude the aircraft from sinking. The area should have adequate foliage to enhance the unit's limited camouflage capability for tentage, aircraft, and vehicles. Other considerations are proximity to the Battalion Tactical Operations Center (TOC)—preferably within two to three kilometers or terrain dependant—location of main supply routes and access roads, communications capability, and defensibility. During this reconnaissance, a holding area 2-3 km (in the opposite direction of the TOC) from the AA should be identified. This holding area can be used to hold the company's aircraft to deconflict traffic when the entire battalion is returning from a mission. It can also be used as a "bug out" area in the event the AA is compromised by enemy forces and the unit must execute the "bug out" plan. An aerial radiological survey and possibly a chemical survey should be conducted if nuclear or chemical weapons have been used in the area.

An additional consideration would be to choose an area that was built up in such a manner to allow covered maintenance and shelter for personnel (i.e., abandoned farm houses, barns, and factories). Although we are restricted in peacetime, the use of these facilities has proven very worthwhile in all previous wars.

Occupation

The occupation is actually a three phase operation; advance party, main body, and aircraft occupation. Each phase is important to the occupation and should be briefed thoroughly. Each member of the company must understand their job and how it fits into the overall scheme of the operation. Crew drills such as chemical survey, securing the unit position, tent and camouflage erection, commo wire emplacement, and aircraft occupation must be practiced often to assure a quick and efficient occupation.

Advance Party—the advance or quartering party is the first element to enter the area and is responsible for security and identifying the location for all equipment in the assembly area. Normally, the advance party should enter the new assembly area in Mission Oriented Protective Posture (MOPP) 4. The equipment required will differ from unit to unit and should be by SOP. The minimum essential equipment is as follows:

- 1 FM radio with secure capability (PRC-77 or VRC-46) each;
- 2 TA 312 field phones with wire to reach the battalion TOC and LP/OPs;
- 1 Radiac meter, 1 M256 chemical detection kit, 1 M8 chemical detection alarm each;
- At least one crew-served weapon (M-60 MG) with qualified operator;
- AN/PVS-5 night vision goggles for night ops for vehicle drivers and guards;
- Bean bag lights or chem sticks for marking landing areas;
- Flashlights for all personnel.

As the company advance party reaches the release point, they will normally break off from the battalion convoy and continue directly to their respective assembly area. If not in MOPP 4 at this time, they should stop and assume that posture before continuing. At this point, a chemical survey should be conducted throughout the assembly area. As the party sweeps across the area they ensure that all areas are covered and any suspicious wet droplets or puddles are tested with M8 paper. Personnel must also search the area for mines, trip wires, and booby traps and mark all suspicious debris or clutter. As the sweep is being conducted, the advance party NCOIC will select areas for tentage, fighting positions, aircraft landing areas, and LP/OP positions. Each member of the party should understand their responsibilities due to the difficulty in communicating in MOPP 4.

Once the area is secured and no obvious signs of chemicals are found, M256(A1) chemical tests must be conducted. If the tests are negative, the unit will then conduct unmasking procedures. The results of the chemical survey are reported to the battalion TOC. A positive test for chemicals should trigger the unit to request an alternate assembly area. If the

area is clear, the party NCOIC will then issue orders to individuals to carry out tasks.

Additional security, if needed, must be set up. The minimum security should be a Listening Post and/or Observation Post (LP/OP) on the main mounted avenue of approach into the area. Wire must be laid to the battalion TOC and the LP/OP and backed up with FM secure radios. Based upon the arrival time of the aircraft, landing areas should be prepared. Preparation of the landing areas may be as simple as establishing a landing "Y" and as complex as cutting brush and identifying the individual aircraft positions with chemical sticks. Establishing the command post should be the next step and once again will be based on unit SOP whether the advance or main body carries this equipment. The party leader should then send a guide to the Release Point (RP) to bring the main body into the assembly area.

Main Body—The main body should enter the area without stopping until told to do so by the guide. Equipment should be dropped off at exactly the point where it will be used and vehicles moved quickly into the trees or under camouflage. The completion of the AA should begin quickly and security positions improved based on Mission, Enemy, Terrain,Troops, and Time Available (METT-T).

Aircraft—Assuming the aircraft occupation is at night, several factors will determine how the unit will occupy. Ambient light, dispersal area, foliage, and collective aircrew proficiency will all determine the method used. A good method to identify individual company assembly areas is to use different chemical sticks in locations where low flying aircraft can identify the colors (unit SOP). The sticks are picked up once all aircraft in the battalion have occupied. OH-58s and AH-64s should not attempt to land at the same time in a tight area due to the overwhelming rotorwash put off by the Apache. Scout aircraft may be sent in early to coordinate the operation or provide security for the occupation. The unit must limit time flying and hovering around the area to avoid detection. Ground guides may be used to recover aircraft, chemical sticks may be placed in individual aircraft positions, or crew members may pick up their own landing areas. The most preferred method is to have ground guides position aircraft because they have walked the ground and know the positions that are safest and can best support the security plan. Night occupation is both difficult and potentially dangerous, and should be planned and briefed in depth. Frequent practice will help to insure an orderly and safe occupation.

AA Operations

All operations in the assembly area should be coordinated closely with the Company Commander and the 1SG. Many different tasks must be accomplished simultaneously in order for the Attack Helicopter Company to complete its primary mission of destroying enemy armor forces. Performing all tasks in a NBC environment is inherent to the overall mission and all tasks should be trained to standard in MOPP 4. Those critical tasks that must be performed are as follows:

- Secure Unit Position
- Provide Maintenance Support
- Maintain Communication
- Provide Field Sanitation
- Plan For Operations

Security—Once the unit confirms the area is clear of mines, booby traps, chemical/biological agents and enemy, a perimeter and fire plan must be established.

Due to the limited personnel in the Attack Helicopter Company and the necessity for securing such a lucrative target, attempts should be made to co-locate with ground units, receive attached personnel, or a combination of both. The unit must have a plan that allows for contingencies and they must continue to improve their position as METT-T allows. The number of personnel on the perimeter and pulling roving guard should be based on the threat level and risk assessment provided by the S2. At a minimum, an LP/OP should be established early and set up to cover the most likely

mounted avenue of approach.

A roving guard should be maintained during the hours of darkness and whenever personnel are not actively moving about the assembly area conducting normal maintenance activities. This roving guard also provides a safety measure to insure no tracked or wheeled vehicles go through the area, and can act as a fire guard. Expedient early warning devices and M-8 alarms should be emplaced and monitored. As the security posture continues to improve, fighting positions should be identified for all personnel and weapon systems.

Crew served weapons (M60 MG) should be positioned to cover those main avenues of approach and M-16 and .38 Cal firers should be positioned to cover the heavier foliaged areas. Each firer in the company should be briefed and familiar with their individual fighting position and fields of fire. As time permits, each individual should improve their position. M203 grenade launchers and Claymore mines should be used to cover dead space.

Artillery support should be coordinated and planned by the S3 or Fire Support Officer. Once all positions have been identified and briefed, the Company Commander should approve and submit the plan. Audio signals should be established SOP that notify all personnel to man the perimeter or move to the aircraft to execute the "bug out" plan. The bottom line for the security of the perimeter is that a plan with good contingencies must be established. The implementation of contingencies will be based on threat level, reaction time, and the amount of risk the commander is willing to accept.

Maintain Helicopters—Maintenance operations in the company assembly area will be austere at best and the ability of the attack company to provide support is limited. Contact teams attached to the unit consisting of technical inspectors, avionics and armament personnel will greatly increase the capability to fix problems and get broken aircraft back into the flight. An electrician is also needed in this contact team but based on the current authorization of one per battalion, electronic problems must be identified quickly to the battalion AVUM and they in turn prioritize the electrician's efforts. Due to the night fighting capability of the AH-64 and the scheduled and unscheduled maintenance, Apache mechanics must use all available time to rest when the aircraft are on a mission.

Maintain Communications—Maintaining communications with the battalion TOC is absolutely imperative. Wire communication to the TOC and the LP/OP is preferred, with an FM secure backup. A dedicated radio operator shift should be created and strictly enforced. One missed radio call could have dire consequences for a supported unit or the company.

Field Sanitation—Based on the time spent in an AA, this task can be extremely important to the health and morale of the unit's soldiers. Spraying for insects and trapping or poisoning rodents should be considered as the assembly area is established. Messing areas should be kept clean and trash should not be allowed to collect in the area. Latrine facilities should be established and strictly enforced. Water-points should be established and all soldiers should be able to purify drinking water.

Plan For Operations—Once receiving an order from higher headquarters, the company commander should utilize all available time to plan his operation. Although the one-third, two-thirds rule for planning should be in effect, based on the flow of the battle, planning time could be reduced significantly. In any case, the commander can best be served by setting up a planning cell consisting of his platoon leaders, IPs, and line pilots. This saves the Commander time and utilizes the tremendous amount of experience he has available in his warrant officers.

Specific planning actions can be delegated to individuals, thus providing ample time to create a good product. The CO must assess each mission and decide which planning tasks are relevant to the

(Assembly Area — continued on p. 44)

Coaches Shouldn't Train Centers to Make End Runs

By Robert Howard

Nobody expects a football center to run like an end, any more than anybody expects a baseball pitcher to hit like an outfielder. By concentrating day-to-day training on their particular strong points, team players strive to make the whole greater than the sum of its parts. Everyone must know each other's job and must be reasonably capable of adapting to out-of-specialty requirements, but there isn't time to train each individual to excel in several specialties; nor would it be reasonable to expect one person to absorb such training. The Army's "coaches" do not always embrace that philosophy.

The Army battlefield team comprises a number of speciality areas. However, a mentality prevails that being a "soldier" means carrying a rifle to the front lines, and *that* must be everyone's *foremost* training objective. Who in the maintenance business hasn't heard the timeworn "soldier first, mechanic second" espousal?

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That espousal implies that a crew chief repairing an aircraft in a hostile zone is not being a "soldier"; or that a repairman tearing an engine apart in the middle of the night to get one more Apache up for tomorrow's battle is less important than an infantryman carrying an M-16 rifle to the battle. Comparing a rifle's firepower to that of an Apache is ludicrous, which is to say the battlefield "team" needs an Apache repairman whose peacetime training was spent fixing helicopters, not running the hills with a rifle.

The crew chief's weapon system is his helicopter. Virtually everything he does in peacetime should be geared toward assuring he will be able to keep that system operational during wartime. His peacetime training must center on that objective, with other training requirements being secondary. Unfortunately, several studies—and continual comments from the

field—show the reverse to be true.

The average Army aircraft repairman spends less than 3 hours a day working in his prime Military Occupational Speciality (MOS). The rest is consumed by extraneous duties and training in non-MOS related functions. In essence, he spends 30% of his peacetime workday training for what he'll be doing more than 90% of the time in battle, and 70% on things he'll rarely encounter after arriving on the battlefield. The impact of this "short" maintenance workday on peacetime aircraft readiness has been a prime factor in the current Armywide trend toward contractor maintenance support. Much of that contracting stems from shortages in maintenance personnel authorizations, but a good part of it is because our trained uniformed maintenance maintainers are not being allowed to work on aircraft. That is, the Army pays contractors to fix aircraft so uniformed maintainers can do other things. To prepare for war, we need to contract the other things and let Army maintainers fix aircraft.

The ultimate fix is command priority on MOS training—the *real priority, at all levels.* Technicians need to be fit, but they don't need to undergo the same physical training as an infantryman. How often will an aircraft repairman parachute into a maintenance area, or go on a night patrol?

Like the football team, all soldiers should be familiar with all battle team functions, but they had better be *100% proficient* in their individual specialties if the battle is to be won. Let the bulk of their peacetime day be spent on MOS training, the rest on associated requirements—not vice versa, as it is now.

Nobody's ever said Joe Montana's a football player first and quarterback second. People in that business realize that training as a quarterback *is* training as a football player. We need to realize that training as an aircraft repairman *is* training as a soldier. IIIII

AH-64 CMS
continued from page 12

- PNVS Pwr-Up Sequence (EX-0200-1)
- Outfront Boresite Manual Adjust
- PLT Overhead CB Guard (ECP-818)
- Winchester Disk Drives
- Change PLT CB "EL DC" (ECP-901)
- Hellfire "C" Model Capability

Block Upgrade Configuration III—The third major upgrade to the CMS will be the largest and most complex upgrade to date. Basically, BUC III incorporates all necessary changes to replicate the AH-64B model aircraft which includes Airborne Target Handover System (ATHS), Air to Air Stinger (ATAS) missile system, Global Positioning System (GPS) and more. An FY 92 contract award is expected with a ready for training date in late FY 94. This block upgrade is of paramount importance not only to the goal of accurate simulation of the "B" model aircraft, but additionally, the many complex changes embedded within this modification are required "stepping stones" that are prerequisite to BUC IV which will simulate the capabilities of the Longbow configured aircraft. BUC III changes are:

- Airborne Target Handover System/Avionics Integration (ATHS/AI)
- Optical Improvement Program (OIP)
- Air-To-Air Stinger Missile (ATAS)
- Global Positioning System (GPS)
- Fire Control Computer (FCC) Update
- Laser Protective Visor (LPV)
- Secure Lighting
- Main Computational System Upgrade
- Single Pylon Inhibit
- VHF-AM/FM Antenna Change
- Change GFE Radio To RT1518/ARC 164
- Remove Aft Cockpit Vert Glare Shld
- Add Cutoff Switch For Turbine Str
- Replace Hi Volt Sup IHADSS DAP
- Modify Fuel Ctrl/Caution Warn Pnl

Block Upgrade Configuration IV—The fourth major CMS upgrade will incorporate all the features and simulated capabilities of the Longbow configured AH-64C aircraft and aircraft systems. This will include the "glass cockpit" configuration. Current plans are to provide a "reconfigurable" device capable of operating in more than one configuration (e.g., B and C model). This upgrade will be executed in a two phase program (R&D and Production Retrofit phases). Contract award is projected for mid FY 92 (R&D portion) with Longbow training capability available at approximately the same time as the First Unit Equipped date for the Longbow configured aircraft.

Priority ECP for AH-64 CMS

Action is currently underway to incorporate the Hellfire "C" model missile simulation. An interim "C" Model Hellfire simulation capability was provided in October 90 as an early delivery under BUC II. A full five degrees of freedom flying model will be delivered with this ECP II starting in late 91. Of primary concern to Apache crews is the lower trajectory of the "C" Model which in certain modes makes it less susceptible to loss in low ceiling conditions.

In addition, the instructor will be provided with a missile trajectory plot in real time. This will consist of an altitude plot with cloud ceiling and a top view depicting lateral movement. Missile obscuration of the TADS sensors will also be incorporated for the appropriate conditions. It is essential that an extremely high fidelity Hellfire/TADS simulation be provided. This is imperative as the use of the CMS is essentially the only method for providing Hellfire training due to the prohibitive cost of live fire training.

During this era of changing threats and relationships, the CMS has maintained its ability to react quickly to the training challenges. PM TRADE, through the collective efforts of the members of the CUG team, remains ready to provide both normal and emergency solutions to AH-64 training problems. At the time of this writing, several initiatives associated with training support to Operation DESERT SHIELD are being pursued (e.g., provisions for a desert data base). As in the past, the continued utility and versatility of the CMS has proven to be a valuable and cost effective investment for the U.S. Army. IIIII

Pride Of Ownership

By Lt. Colonel (P) Robert B. Kean

As Army Aviation progressed from the 1940s on through the Vietnam conflict, crewchief names and aircraft tail numbers became synonymous. Mentioning tail number 919 was mentioning SP/5 Smith, and vice versa. If a support unit found a bunch of discrepancies on a work-ordered aircraft, that reflected on the crewchief *by name*, and he was the goat at the club that night. The reverse was also true; a crewchief swaggered into the club when "his" aircraft was found to be in top condition.

This close identification with aircraft instilled strong pride of ownership. When aircraft were on the ground, crewchiefs worked diligently on them—cleaning, inspecting, clearing write-ups from logbooks. When aircraft were flying, crewchiefs helped each other. Each honchoed his own periodic/phase inspections, using other crewchiefs as a work crew.

Of course, crewchiefs walked guard, took physical training, pulled details. But supervisors tried to schedule such duties around the mission of maintaining aircraft. Primary MOS duties could not *always* be given first priority, but that was *always* the goal.

Times have changed.

Research by the Directorate of Combat Developments, Aviation Logistics School, Ft. Eustis, shows that, because of low personnel authorizations, crewchief assignments to aircraft are not always one-to-one. One person might maintain several aircraft, and have other major duties.

Where crewchiefs *are* assigned to one per aircraft, priorities are often diverted to non-maintenance functions—sometimes because of priority mandates from above, sometimes because of unit directives. In any event, many crewchiefs spend too much time on things unrelated to their MOS. Further, crewchiefs no longer control phase inspections. The phases are done at

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the supporting Aviation Unit Maintenance (AVUM) or Intermediate Maintenance (AVIM) Company. Crewchiefs often do not accompany the aircraft because of other unit taskings.

Such factors dilute the vital "ownership" incentive that once existed in Army Aviation. This situation decreases aircraft readiness rates—a decrease erroneously blamed on Phase Inspection (PI) because of long turnaround times, e.g., the *average* fleetwide Black Hawk PI time exceeds 80 days. However, since the Air Force PI average for the exact same aircraft is nine days—using the identical inspection book—something other than the PI *concept* is amiss.

The PI problem is multi-faceted. Unplanned aircraft scheduling and poor pre-inspection preparation are two culprits. Another is the shortfall in day-to-day crewchief maintenance. For many crewchiefs, working on "their" aircraft is the exception rather than the norm. Not only is work deferred, but the quality of work performed when they *do* work on aircraft drops because of a lack of incentive.

Consequently, logbooks are littered with write-ups when sent to the AVUM/AVIM, and PI initial inspections reveal absurd numbers of new discrepancies—including safety of flight items. While the Army talks *pages* of write-ups, Air Force data shows a fleetwide average of less than four write-ups per aircraft at any time. Clearing discrepancies is what consumes PI time, not actual inspection steps. The better aircraft are maintained between PIs, the fewer PI discrepancies.

Commanders and supervisors *at all levels* must take pains to restore good daily maintenance. Increasing maintenance personnel authorizations is a battle being fought by the force structure people at the Aviation Logistics School. In the field, realigning priorities, putting aircraft maintenance subjects on training schedules, establishing aircraft condition standards, and closely monitoring logbooks are some of the ways to show crewchiefs that "their" aircraft are what the unit is all about—and it is.

We might also take a lesson from other services, where formal recognition programs ("Crewchief of the Month", etc.) are taken very seriously, with outstanding results.

If we want safe aircraft and high readiness rates, we must ensure that crewchiefs look at their aircraft as truly being "theirs." Nobody washes a rent-a-car.

MAINTENANCE:

MAINTENANCE TRAINING AT CCAD

BY CAPTAIN WILLIAM J. TRAVIS

FORT HOOD, TX — Training soldiers is the key to sustaining the mission. Finding new and imaginative ways to get the best training for the least expenditure of time and money is the challenge faced by every military leader.

Once the soldier graduates from his Advanced Individual Training (AIT) and arrives at his first unit, he is ready to put to good use the training he has already received. His unit usually places him under the watchful eye of a more experienced soldier until he has mastered the local policies and has convinced his supervisors he is ready to tackle the more difficult tasks with less supervision. Through continuation training, the soldier's technical abilities improve as he spends more and more time working in his Military Occupational Specialty (MOS). This continuation training is a difficult task for many units to implement and manage, especially in the low density MOS'. But there is a training facility available to all Active, Reserve, and National Guard soldiers, especially those located in and around Texas, that can aid commanders with this training.

In southern Texas, there is an extraordinary facility called the Corpus Christi Army Depot (CCAD). Located on the Gulf of Mexico, it is the Army's primary aircraft rebuild facility. CCAD remanufactures the UH-1, AH-1, OH-58, CH-47, and UH-60, as well as supplies the Army with rebuilt engines, transmissions, rotor heads, and many more aircraft components. Did you know they also have an MOS enhancement and sustainment training program? I didn't, and I'm sure that there are many other Army Aviation maintenance managers who don't know, either. This program will provide individual training for over 2,600 National Guard, Reserve, and Active duty soldiers this year alone.

MOS enhancement is available for: 35B, 35H, 35K, 35L, 35M, 35P, 43M, 44B, 44E, 62F, 66J, 66N, 66S, 66T, 66U, 66V, 66Y, 67N, 67S, 67T, 67U, 67V, 67Z, 68B, 68D, 68F, 68G, 68H, 68J, 68K, 68M, 76C, 76D, 76P, 76V, and 94B.

Within each speciality, there are many areas of emphases in which the soldier can be trained. For example, if you are a maintenance officer of an AH-1 attack battalion and have a powertrain repairman (68D) that you would like to provide more indepth training, you can design a program to match your unit requirements. He could spend a day rebuilding main rotor heads, representing each type of aircraft in the unit, then spend a day or two rebuilding each type transmission. He could then finish up the program with the final installation of these components.

The recommended training period is two weeks in length with some specialized programs lasting up to 30 days. Billeting is normally available within walking distance from the Depot, making a personal car not necessary. The Navy Mess is across the street and accepts the Army's meal card, so meals are not a problem. The "bottom line" is you can send a soldier to a tremendous training opportunity for minimum cost, especially if you can utilize military transportation.

Scheduling training is relatively easy with some coordination. The most difficult time to arrange training is during the summer months when the National Guard and Reserves are accomplishing their two week Annual Training. Most other times during the year can be accommodated. To arrange training for your soldiers contact the Training Coordinator at DCN 861-2606/2617, Commercial (512) 939-2606/2617, or write Commander, CCAD, ATTN: SDSCC-PT, Corpus Christi, TX 78419.

Maintenance is the life's blood of any unit, especially aviation. Training of those maintenance personnel is critical to sustaining an effective maintenance program and a direct reflection of a unit's operational readiness. The training capabilities at CCAD can help any commander enhance his maintenance mission and, in turn, improve his combat readiness. IIIII

CPT Travis was Commander, D Troop, 4-6 Cav Bde, Ft. Hood, TX, when this article was written.

TRAINING:

TODAY'S GOLDEN HAWK

BY COLONEL BRIAN P. MULLADY

FORT RUCKER, AL — From a unit in which one of every ten soldiers of the Vietnam era was assigned, to one that touches eighty percent of today's aviation force, the 1st Aviation Brigade (Air Assault) continues to be tremendously important to the Aviation Branch. The brigade's current mission is to provide the best quality training to soldiers and officers at the Aviation School and to ensure the combat readiness of the FORSCOM units assigned. This 6,000-man brigade is a diverse and complex organization. It consists of both TRADOC and FORSCOM battalions. The TRADOC units in the Brigade are the 1-10th Aviation Regiment, the 1-13th Aviation Regiment, and the 1-146th Aviation Regiment. Making up the FORSCOM side of the 1st Aviation Brigade are the 2-229th Aviation Regiment and the 46th Engineer Battalion.

The 1-10th Aviation Regiment, commanded by LTC Bert Lennon, provides command and control for all military personnel, except flight instructors, assigned or attached to the Aviation Center. The 1-10th is a unique battalion with more than 1,500 permanent personnel from private to Major General assigned. Along with the aviation soldiers, the 1-10th includes C Company, 509th Parachute Infantry Regiment, the MPs, the Band, the Air Assault School, and the 260th Field Artillery Detachment. It has been said that the 1-10th is only a few tanks away from becoming a truly combined arms outfit.

The 1-13th provides command and control for the AIT, Graduate Flight Training and Aviation Officer Advanced Course (AOAC) companies. The task of providing this command and control falls to LTC Paul Hay. As MG Ostovich wrote in the June issue of ARMY AVIATION MAGAZINE, Paul is currently working on adding approximately 48 additional hours of maintenance courses to the advanced course focusing on what company commanders need to know.

The 1-145th, commanded by LTC Jim Diamond, is also changing to better meet the Branch's needs. The 1-145th includes the Army's Warrant Officer Candidate School, all flight school students (Warrant Officer Candidates and Commissioned Officers), the Aviation Officer Basic Course (AOBC), and all foreign students. These are dynamic times for the Officer Basic Course as we institute a new Program of Instruction. Beginning in September, the Aviation Lieutenant receives the four-week Phase I of Basic Officer Training followed by flight training. Upon completion of flight school, the Lieutenant will return for Phase II, five additional weeks of primarily hands-on training concentrating on Platoon leading skills. Once implemented, this concept will allow our Lieutenants to be better prepared for the challenges facing them today.

COL Mullady is Commander, 1st Aviation Brigade (Air Assault), USAAVNC, Ft. Rucker, Alabama.

The 2-229th Aviation Regiment is the best AH-64 Battalion in the Army today. LTC Bill Bryan has just assumed command of this battalion from LTC Mike Pascoe. In wartime, the battalion would be a part of the 18th Airborne Corps and it proudly wears the maroon beret of the airborne forces. The unit just returned from a very successful two-week deployment to Fort Hood, TX. The battalion self-deployed with *all* 34 aircraft, conducted both gunnery and field training exercises, and maintained a 96% FMC rate for the 18 Apaches, while flying 580 AH-64 hours. The unit has every reason to be extremely proud of that record. The future is bright for the 229th with sustainment training, Light Helicopter Concept Testing, and Air-to-Air Combat Tests scheduled during the next 12 months. Also, ground breaking on a permanent facility for the 229th at Knox Army Heliport is scheduled for April 1992 with a completion date of April 1993.

The fifth battalion of the brigade makes this the only Avia-

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OPERATIONS:

4-228TH AVN MAKES HISTORY

BY CAPTAIN WILLIAM A. PIERCE

APO MIAMI — The 4th Battalion, 228th Aviation Regiment, of the 128th Aviation Brigade commanded by LTC David Pickett, is a new battalion which was activated on 16 January 1990. During its initial formation in Panama, soldiers from the new battalion participated in Operation JUST CAUSE. Their actions were in keeping with the finest traditions of Army Aviation and were the inspiration for the battalion's motto, *"Born Under Fire."*

A Composite

This battalion, which is still in its development stages, is a composite of different units from installations throughout the United States. The battalion has two permanent companies, HHC commanded by CPT Mike Horton and B Company, a general support company consisting of UH-1s which has one platoon forward-deployed in El Salvador, commanded by CPT Carl Horrell. The battalion has three temporary companies and a MedEvac detachment that rotate on a four month basis from various units throughout the United States. Currently, soldiers from Ft. Lewis, WA, and Ft. Benning, GA, are augmenting this battalion. Specifically, from 2-9 and 3-9 Aviation Regiment, Ft. Lewis; Charlie Company (UH-60), commanded by CPT William Pierce; Charlie Company, 214th Aviation Regiment (CH-47), commanded by CPT Gary Gosch, and D Company (Maint), commanded by CPT Randy Bentz. From Ft. Benning, A/498th Medical Detachment, commanded by CPT Vincent Carnazza.

These attached units help 4-228th Aviation Regiment support Joint Task Force-Bravo (JTF-B), which is commanded by COL Hallums. JTF-B's mission in Honduras is three fold: training, contingency planning and support, and nation building. Training is broken down into four areas: deployment for training, Joint Chiefs of Staff exercises, JTF-B exercises, and the host country civil and military organizations. Contingency planning and support is the second mission of JFT-B. JFT-B is prepared for any contingency whether it be military or civilian oriented.

Most Important Mission

The third and probably the most important mission is that of nation building. JTF-B emphasizes military and civilian cooperation in helping the host nation help herself in the development of a strong infrastructure that will help legitimize the democratic struggle nationwide. JFT-B has the largest military civic action program in the Department of Defense.

Since its formation, 4-228th Aviation Regiment has set the pace in aviation support for JTF-B. During its short history, 4-228th has deployed aircraft to El Salvador to support the Vice President of the United States, his wife, the American Ambassador, and numerous dignitaries during the funeral of the former President of El Salvador, President Duarte, and transported numerous military and civilian dignitaries in Honduras, including the CINC, GEN Thurman.

It also provided MedEvac support during a terrorist attack on U.S. servicemen in Tegucigalpa, and flown in support of numerous civil/military actions, such as the construction of roads and schools. At one time, the 4-228th had aircraft deployed in five different countries simultaneously: Belize, Guatemala, El Salvador, Honduras, and Nicaragua.

VIP Visit

The 4-228th made history when it was deployed to Managua, Nicaragua, to support the Vice President of the United States during the inauguration of President Chamaro. This mission was the first time UH-60A Black Hawks were allowed into Nicaragua.

The delegation admitted into Nicaragua consisted of two UH-60As from Charlie Company, 2-9 Aviation Regiment, Ft. Lewis, WA; one MedEvac UH-60 from 498th Medical Company (AA), Ft. Benning, Georgia; and sol-

CPT Pierce is Commander, Charlie Company, 4-228th AVN RGT, Soto Cano Airbase, Honduras.

Aviators from the 4-228th Avn Rgt meet Nicaraguan helicopter pilots in front of a Nicaraguan Mi-8 "Hip" helicopter in Managua, Nicaragua.

diers from the HHC 4-228th Aviation Regiment.

Upon its arrival in Managua, Nicaragua, the crews from the 4-228th were greeted by members of the American Embassy stationed in Nicaragua and by pilots of the Sandinista Military. An atmosphere of friendship and mutual respect for one another was quickly apparent as the Sandinistas led the pilots of the 4-228th through the capital city of Managua as they reconned possible evacuation sites for the Vice President.

It was apparent during the tour throughout the city that soldiers of the 4-228th were the first Americans many of the Nicaraguans had ever seen. At every stop there were lots of stares and curiosity as the first American soldiers in many years toured their city. Upon return to the airport, the Sandinista pilots offered the crews from the 4-228th a tour of their helicopters. This was a chance of a lifetime for the pilots and crewchiefs to get an up-close look at helicopters that up until now had been nothing more than pictures in a book.

The Sandinista pilots let the crews climb in and around their Mi-17 and Mi-8 helicopters. After many questions and many more photos, the soldiers of the 4-228th reciprocated and let the Sandinista pilots tour the UH-60 Black Hawks. The Sandinistas were fascinated with the Black Hawks and were impressed with how candid and straightforward the crews were about their advanced aircraft.

After the tour, the Sandinistas were given a flight in the Black Hawks as they gave the crews an orientation of their city. After the orientation, the aircraft departed for the staging area where the crews would spend the next few days during the Vice President's visit.

The next day, the crews were on standby for any contingencies during the Vice President's stay. The crews got an honor when the Vice President's wife, Mrs. Marilyn Quayle, greeted the crews during a luncheon she was attending. The rest of the day was spent on giving tours of the Black Hawks to military and civilian people who had never seen American aircraft up close. This also gave the crews and Nicaraguans a chance to meet and form new and meaningful friendships.

As the 4-228th prepared to depart on the final day, the American Military Advisor mentioned to the crews that the Nicaraguans were impressed with how open we were and how friendly Americans are.

The soldiers from the 4-228th Aviation Regiment displayed outstanding professionalism and comportment as representatives of the United States Army and have laid the foundation for possible future endeavors in Nicaragua. IIIII

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tion brigade with an Engineer Battalion assigned. Commanded by LTC Bill Reyers, the 46th Engineer Battalion is a NATO-deployable unit which regularly conducts training missions in the National Training Center, Panama, Honduras, and Costa Rica. There is no battalion that works harder or does such great things to help the post than the 46th.

It has been too long since a report was made to the field about the 1st Aviation Brigade. The brigade's mission of producing the highest quality students in the Army today is in good hands. The Aviation Branch is receiving the best Warrant Officer Candidates, Lieutenants, and enlisted soldiers in the entire Army. As we begin to draw down the force, standards will continue to go up in all areas of training.

Since January 1990, flight students have been required to stay with their class or be recommended for elimination. The "setback" is now very much the exception and not the rule. Couple this with the improved AOAC and AOBC and we clearly are providing the highest quality soldiers to the force today. The 1st Aviation Brigade has long stood for Achievement, Development, and Innovation. This still holds true today. IIIII

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situation. The following are specific tasks that can be delegated:

- Doppler Cards and DEK points
- Communication Cards—frequencies, call signs, codes, etc. 3) Battle Position and Engagement Area Drawings
- COMSEC Officer—KY-58s keyed, KIT-1-As keyed
- Strip Maps—distance, headings, and terrain features from check point to check point.
- Standard Performance Planning Card
- Receive current weather forecast and plot
- Identify and plot hazards
- Plot artillery target reference points, unit locations, and frequencies
- Determine Firing Positions
- Obtain FARP sketches
- File flight strip with battalion operations

Once all planning has been accomplished, the company commander will then conduct a comprehensive mission briefing to all participants. Members of the unit will already have a good understanding of the mission because they helped plan it.

In the next war, the threat situation may require moving the Attack Helicopter Company assembly area often. It is therefore crucial that all actions are well planned and focused on the primary mission of the unit: to move by stealth or force to a forward or deep battle position and successfully engage and destroy the enemy's main battle tank formations. IIIII

Interoperability
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The tendency of standardization is to drive the fidelity level of the network to the lowest common denominator. This level may be unacceptable for many of the tasks to be trained or rehearsed. Less than adequate fidelity means that fewer tasks can be trained. However, judicious analysis and implementation of networking standards can be used to raise the level of fidelity of each participant simulator toward the level of the most complex participant.

The decision on how to tailor the application of these standards must consider the training and rehearsal requirements of the training system, as well as design and cost tradeoffs. This consideration should include an analysis of the types of existing simulation systems with which this training system must be interoperable. This information can best be provided by the user since he is the expert concerning the missions to be trained or rehearsed. By prudently applying the interoperability standards and carefully considering the missions to be trained, interoperability can truly be the key to successful team training and rehearsal. IIIII

SOA CMS

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for mission rehearsal, once that capability is designed into the device.

In recent months, several contractors in the simulation and training industrial community have engaged in Independent Research & Development (IR&D) efforts to answer the technical questions associated with mission rehearsal. The U.S. Air Force Special Operations Aircrew Training System (SOF ATS) is currently in source selection for the contractor that will deliver training devices with a mission rehearsal capability. The SOF ATS mission rehearsal requirement, together with PM-TRADE's need for an updated requirements document identifying mission rehearsal as a requirement for SOA training devices, prompted USAAVNC's Directorate of Training and Doctrine (DOTD) to chair a working group to develop a mission rehearsal definition for Army special operations aviation. At the same time, the training annex to the SOA ROC was revised to reflect current user needs. Since Army special operations missions are often performed jointly with the other services, the Army's mission rehearsal definition emphasizes the need for future Army SOF aviation training devices to be interoperable with the joint community (i.e., USAF, Marines, Army, Navy). Thus, the devices must share a common technology with the SOF ATS devices. However, due to the competitive sensitivities involved in the SOF ATS source selection, the Army's view of mission rehearsal cannot be disclosed.

In view of future training and mission rehearsal needs for special operations aviation, the use of simulators is imperative. A SOF ATS similar to the one the USAF is implementing is on the horizon for U.S. Army SOA training. We have just scratched the technological surface in researching capabilities for future devices. It's exciting to work in an environment where training may be provided that is safer, less costly, and more effective due to a greater training capability. IIIII

AWARDS AND HONORS

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

Initial Courses:

Class 90-2 UH-1 Track (07/20/90): 2LT Jennifer Strong, Dist. Grad.; 2LTs Robert C. Mueller and Michael W. Dykes, Honor Grads.

Class 90-2 UH-1 Track (07/20/90): WO Joseph W. Letourneau, Dist. Grad; WO Brian E. Peterson, Dist. Grad.

Class 90-2 OH-58 Track (07/20/90): 2LT John C. White, Dist. Grad; 2LTs Kevin J. Christensen and Steven C. Calhoun, Honor Grads.

Class 90-2 OH-58 Track (07/20/90): WO Eric T. Bentson, Dist. Grad.

Class 90-1 UH-60 Track (07/20/90): 1LT John W. Villacres, Dist. Grad.

Class 89-24 AH-1 Track (07/20/90): CPT Sidney J. Gray, III, Dist. Grad.

Class 89-24 AH-1 Track (07/20/90): WO John J. Kelsey, Dist. Grad; WO David E. Cottrell, Jr., Honor Grad.

Class 90-3 UH-1 Track (08/03/90): 2LT Randy L. Moe, Dist. Grad; 2LT Randall I. Haws, Honor Grad.

Class 90-3 UH-1 Track (08/03/90): WO Herman L. Henkes, Dist. Grad; WOs Daniel A. Fessler and David W. Cannella, Honor Grads.

Class 90-3 OH-58 Track (08/03/90): 2LT Brian L. Thompson, Dist. Grad; 2LT Thomas H. Todd, III, Honor Grad.

Class 90-3 OH-58 Track (08/03/90): WO Glynn P. Corkern, Dist. Grad; WO Daniel J. Duffy, Honor Grad.

Class 90-2 UH-60 Track (08/03/90): 1LT Jay L. Jones, Dist. Grad.

Class 90-2 UH-60 Track (08/03/90): WO Ray A. Hull, Dist. Grad.

Air Traffic Control Operator Advanced NCO Course (07/20/90): SFC Charmaine F. Buchanan, Dist. Grad.

Aviation Operations Sergeant Advanced NCO Course (07/20/90): SSG Linda M. Williams, Dist. Grad.

Aeroscout Observer Basic NCO Course (07/20/90): SGT Timothy L. Fleming, Dist. Grad.

Air Traffic Control Operator Basic NCO Course (07/20/90): SGT Grant R. Merchant, Dist. Grad.

Aviation Operations Sergeant Basic NCO Course (07/20/90): SSG Sheila R. LeMaster, Dist. Grad.

BRIEFINGS

On Oct. 1, 1990 the U.S. Army Aviation Development Test Activity consolidated with the U.S. Army Aviation Engineering Flight Activity. According to **COL Troy E. Burrow,** USAAVNDTA Commander, the Test Activity, located at Cairns Army Airfield, Ft. Rucker, received the initial tasking to implement the consolidation of the two activities on Jan. 27, 1990. USAAVNDTA was one of nine test centers assigned to the **U.S. Army Test and Evaluation Command**, located at Aberdeen Proving Ground, MD, and was TECOM's aviation test center. USAAEFA was assigned to the U.S. Army Aviation Systems Command, St. Louis, MO. The two former activities, now consolidated, have become the **U.S. Army Aviation Technical Test Center**. The new organization is under TECOM's command. USAAVNDTA personnel will remain at Ft. Rucker and USAAEFA's personnel will remain at Edwards Air Force Base. The Test Center's headquarters will be located at Cairns Army Airfield.

The **Livingston Award** was established in memory of **J. Arlo Livingston**. J. Arlo Livingston was an Alaska pioneer helicopter pilot, past president of the **Helicopter Association of America** (now the **Helicopter Association International - HAI**), charter member of **The Men's Auxiliary of The Whirly-Girls** and husband to Nancy Livingston, Whirly-Girl Charter member #4. The Livingston Award, founded by Nancy Livingston, is given annually to a living Whirly-Girl, who personifies the high standards and ideals of women in helicopter aviation. Mrs. Livingston presented the second annual plaque of The Livingston Award during the 22nd Annual Scholarship and 35th Anniversary Banquet of The Whirly-Girls on February 4, 1990 in Dallas, TX to **Lauretta Foy** #46. Lauretta Foy has contributed significantly to aviation beginning as a WASP. She was the first woman demo pilot at Piper Aircraft, a stunt pilot in early films, first woman pilot member of the Screen Actor's Guild and was on President Johnson's Aviation Advisory Committee. She has been a flight instructor for many years.

The **Twelfth Annual Army Operation Aeromedical Problems Course**, will be held March 18 - March 22, 1991 at Ft. Rucker, Alabama. For additional information, contact: Operations Division, U.S. Army School of Aviation Medicine, Fort Rucker, Alabama 36362-5377 or call (205) 255-7460/7464.

Concurrent Computer Corporation has announced that it received a $1.1 million contract from Binghamton Simulator Company (BSC) for the CH-47D Chinook program. BSC is a subcontractor to **CAE-Link Corporation**, the program's prime contractor. The contract calls for six Concurrent 8400 RISC real-time UNIX computer systems and software for one of the first real-time Ada applications to a U.S. Army aviation training program.

CAREER TRACK

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

COL Ret., formerly Navy International Program Office, experienced in State and Commercial export licenses, foreign sales, and recoupment charges owed to Uncle Sam. Have prepared 7,000 licenses and sold 11 major programs overseas. Available immediately. Contact Hank Lavery, Phone (703) 836-9088. 90-10-01

12 years experience in Marketing Communications/Press Relations with contractor for U.S. Army and other Armies. Emphasis on Helicopter Programs. Excellent press contacts. Reside in Wash. D.C. Area. Outstanding references. Available immediately. 90-10-03

Captain, USMA 1984, BS Engineering/International Relations. Experience as Company Commander, Intelligence Officer, and OH-58 Platoon Leader concentrating in low-intensity and NVG operations. Seeking Management/Marketing position with Aviation/Defense Industry. Available immediately. 90-10-02

BRIEFINGS

Loral Electro-Optical Systems, a unit of Loral Corporation, has received a $51.5 million contract from the **U.S. Army Project Manager for Training Devices**, Orlando, FL, to produce the advanced air and ground engagement system, known as **Ages II**. Loral will produce up to 900 systems for use on OH-58D, AHIP, UH-60A Black Hawk and CH-47D Chinook helicopters. The company expects to begin deliveries in 1992.

McDonnell Douglas Helicopter Co. has announced six key management assignments as part of the company's comprehensive reorganization. **Bob Grace** joined the helicopter company in late September as vice president of the newly formed Business Development Division. In his new position, Grace will be responsible for the helicopter company's worldwide business development and marketing activities for all commercial and military product lines. He also will oversee Public Affairs and Civic Affairs activities. **Mark Bingaman,** is now vice president of the helicopter company's new quality processes division. **Andrew H. Logan** is vice president of the advanced product development and technology division. **Frank J. Palminteri** is now general manager of the company's manufacturing center in Culver City, Calif. **Cary Brown** is assuming the deputy leadership of the MD 500 program. **Stephan A. Hanvey** has been named deputy of the AH-64 program, and **Joe Maltese** has been appointed deputy of California manufacturing operations.

CTA Inc's. Simulation Systems Division, located in Englewood, CO, has won the competition for the AH-1S Cobra Flight and Weapon Simulator upgrade. CTA is to deliver a total of nine AH-1S upgrade systems. For this upgrade, CTA will replace the existing simulation software and the host computer for a six degree of motion, full visual, synthetic flight training simulator. The existing assembly language software will be replaced with Ada design software hosted on new state-of-the-art computer systems.

DESERT SHIELD NOTEBOOK

Saudi postal and customs regulations prohibit bringing or shipping into the Kingdom: alcoholic beverages of any kind; narcotics; weapons and explosives (without appropriate permits); pork and pork products; pornography; and material contrary to the Islamic religion. U.S. policy is that U.S. forces in Saudi Arabia will respect the laws and regulations of the Kingdom.

For purposes of mail destined for Saudi Arabia, "pornography" is considered to include depictions of the nude or seminude human body and all sexually-oriented literature and materials. Contrary to widely circulating rumors, there is no ban on photographs showing women and girls dressed according to accepted American standards of good taste.

"Material contrary to the Islamic religion" includes religious literature intended for general distribution. DoD does not envision any problems with mailing religious items for the personal use of individual members of the U.S. armed forces, such as single copies of Bibles or prayer books. There is no objection to greeting cards associated with religious holidays.

There is no substance to rumors of a prohibition on the use of stamps depicting the American flag or various other subjects. Any U.S. postage stamp is permissible.

According to a recent CHAMPUS press release, the Internal Revenue Service has given notice that employers must continue health care coverage for called-up reservists and their families, if the reservists so desire and if they are willing to pay the premium for the coverage. The IRS notice is in Internal Revenue Bulletin 1990-40, published 1 October 1990.

The American Legion has announced a national plan to assist the families of active duty and reservists serving in Operation DESERT SHIELD. The centerpiece of the American Legion Family Support Network is a toll-free number—1-800-786-0901—available to family members around the clock. The service routes specific problems to American Legion and American Legion Auxiliary volunteers.

World USO President Chapman Cox has announced that more than $2 million of TVs, VCRs, camcorders, and tapes have been donated by **Montgomery Ward & Co** for distribution to the deployed troops. In addition, 11,300 portable radios have been donated by the Electronics Industries Association (EIA). USO will ship and distribute these products and is planning to send celebrity shows to, and set up troop and fleet centers in and around the Gulf region. The USO Gulf Crisis Fund, was begun by seed contributions of $500,000 each from **American International Group, Anheuser-Busch, the Coca-Cola Company, and AT&T,** and is maintained by contributions from USO's 900 number (1-900-820-2USO) and private contributions.

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Enterprise, AL 36330
Pate, Lynn A.
111 Villa Drive
Apt. 118
Enterprise, AL 36330
Pepin, Allan M.
C Troop,¼ Cavalry
Box 33
APO New York 09702
Strong, Craig A.
437 Alcalde Avenue
Monterey, CA 93940
Studer, Tracy S.
1121 Old 440 Road
Apt. 4108
Killeen, TX 76542
Sullivan, James E.
94-1428 Kulewa Loop
Apt. C
Waipahu, HI 96797
Wade, Norman M.
R Troop, 4/2 ACR
Box 294
APO New York 09092
Walls, Charles S.
37 Parkview Place
Baldwin, NY 11510
Wargacki, Darrin W.
B Co, 4-228th Avn Regt.
Sota Lano Airbase
APO Miami 34042
Watts, Bobby W.
155 Lakeview Drive
Daleville, AL 36322
Wilkinson, Kenneth M.
230 Keowee Trail
Seneca, SC 29678

MW4s

Hill, Robert D.
6917 Candlewood Drive
Fayetteville, NC 28314
Lee, Larry
PSC Box 996
APO Miami 34001

CW4s

Amodt, Richard G.
94240 Kikiula Loop
Mililani, HI 96789
Bandy, James R.III
1514 Robertson Court
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Case, Larry W.
P Troop, 4/2 ACR
Box 412
APO New York 09092

Glavey, Paul
2903 Woodlern Court
Woodbridge, VA 22194
Hawkins, Robert J.
111-B Gudkana Avenue
Fort Richardson, AK 99505
Loynachan, Richard E.
1650 Via Pacifica
Bldg. E, Apt. E-108
Corona, CA 91720
Merrill, Gary A.
484 Turner Loop
Fort Campbell, KY 42223
Nobles, John C.
23 Hunt Street
Fort Bragg, NC 28307
Rapp, Howard L.
5129 Pead Bear Draw
Hereford, AZ 85615
Tedford, Jon C.
3905 Summerlyn Drive
St. Louis, MO 63129
Ward, Harry R.
HHC Aviation Brigade
Box 21
APO San Francisco 96524
Winston, James E.
210 Richland Avenue
Enterprise, AL 36330
Wojdak, Matthew A.
RR 1, Box 89
Brighton, IL 62012

CW3s

Genaille, Robert S.
C Co, 2-227th AHB
Box 146
APO New York 09165
Johnson, Bradford W.
108 Fall Street
Williamsport, IN 47993
Kenny, Michael P.
56th Aviation Company
70th Trans Bn, Box 43
APO New York 09028
Pena, Alfred
52 E Harris Drive
Fort Rucker, AL 36362

CW2s

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612 Paddy Run Road
Clarksville, TN 37042
Crothers, Sean C.
B Co., 7-101st Avn. Regt.
101st ABN Div. (AASLT)
APO New York 09309
Hoard, Keith L.
1219 Willows
Ithaca, MI 48847
Johnson, Michael W.
A Company
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APO San Francisco 96397
Mann, Debra
15014 Densmore Avenue N.
Seattle, WA 98133
McNulty, Thomas M.
103 Glenrose Avenue
Braintree, MA 02184
Strickland, Marcus O.
3633-D Porter Loop
Wahiawa, HI 96786
Welch, Kenneth R.
1830 Wilikina Drive
Apt. 704
Wahiawa, HI 96786

WO1s

Adkins, Shawn J.
1100 14 Street
Marion, IA 52302
Akins, Rex T.
2912 North I Street
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Apt. A-1
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Blood, Jack E.
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4/501st Aviation Regiment
APO San Francisco 96208
Boyd, Stephen R.
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Boston, MA 02125
Branda, Todd J.
A Co, 2/227th Aviation
APO New York 09165
Brookhouser, David L.
B Co, 5/501st, Room 211
APO San Francisco 96397
Dickensheets, John P.
95-786 Lanipaa
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Dodson, Donald A.
9823-A Brearly Loop
Fort Drum, NY 13603
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Duplessie, Mark L.
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Killeen, TX 76541
Eyre, Ryan D.
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Apt. 1118
Killeen, TX 76542
Florentine, Lawrence J.
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PSC Box 5795
APO Miami 34001
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Vancouver, WA 98685
Hebert, Richard F.
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Madison, WI 53705
Kilgore, Steven E.
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McNeal, Andrew S.
1441 Monticello, No. 6
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Rovenolt, Michael A.
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Apt. G
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Wohlars, Peter F.
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502nd Aviation Regiment
APO New York 09028

WOCs

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99 Dunn Street
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Fairbanks, AK 99701

Enlisted

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Box 22
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Worthen, David B. SGT
6th Aviation Detachment
SETAF
APO New York 09168

DACs

Brennan, Randy L. Ms.
505 Eastview Terrace
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Hein, Julius Dr.
6318 Old Lebanon Troy Rd.
Troy, IL 62294
Houchin, Irene M. Ms.
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Apt. 409A
Lockhart, TX 78644
Majerle, Mark S. Mr.
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Apt. 4
Los Gatos, CA 95030
McCarthy, Kevin M. Mr.
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Warminster, PA 18974
Orrell, Herman M. LTC
2898 Centennial Court
Alexandria, VA 22311
Stanfield, John T. Jr. Mr.
7323 South Woodward Ave.
Apt. 310
Woodridge, IL 60517

Civilian

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Apt. 8
Highland, IN 46322
Cronquist, Don
Teledyne Brown Engineearng
2111 Wilson Blvd, Ste 1100
Arlington, VA 22201
Davis, Darrel W.
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Koyn, Brian G.
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Granbury, TX 76048
Morelli, John F.
Binghamton Simulator Co.
203 Court Street
Binghamton, NY 13901
Muanitsky, Jerry
10700 Academy Rd, NE
Apt. 1623
Albuquerque, NM 87111
Overcash, Darrell R.
192 Knightsbridge
Mundelein, IL 60060
Wang, Eric T.
405 Wildwood Drive
Enterprise, AL 36330
Watson, John L.
AEL, St. Louis Reg Airprt
140 E. Circle Drive
East Alton, IL 62024

Retired/Other

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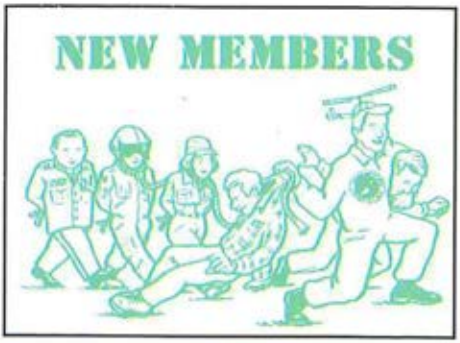
Atlantic Research Corp.
1375 Piccard Drive
Rockville, MD 20850
Baugh, Milton LTC
3006 Alta Vista
San Angelo, TX 76904
Bradley, Lawrence R. CW4
9440 N. 32nd Avenue
Apt. 2164
Phoenix, AZ 85051
Cappone, Theodore T. LTC
6117 Tanager Drive
Apt. 129
Burlington, KY 41005
Dorsett, Michael R. CW3
206 Sandalwood Drive
Lafayette, LA 70507
Fox, Earl R. CPT
Crystal Square West, #517
1515 S. Jeff Davis Hwy.
Arlington, VA 22202
Fraser, Harry L. LTC
B 216, 111 McDade Blvd.
Folsom, PA 19033
Gillman, Jay E. LTC
Route 1, Box 75
Killeen, TX 76542

NEW MEMBERS



AIR ASSAULT CHAPTER FORT CAMPBELL, KY

1LT Gilbert G. Huron

AMERICA'S FIRST COAST CHAP. JACKSONVILLE, FL

CW2 John W. Green
SSG Daniel E. Lux
CW4 James S. McCoy

ARIZONA CHAPTER MESA, AZ

Mr. Joseph S. Gasca
Ms. Barbara A. McEvoy

ARMADILLO CHAPTER CONROE, TX

CPT Bruce L. Bishop, Jr.
CPT J. Karl Clark
CW2 Mark E. Graveline
CW3 James A. McLaughlin
PV2 James Allen Rhame

ARMY AVN CENTER CHAPTER FORT RUCKER, AL

2LT Peter E. Adams
2LT Bryan F. Agena
2LT Nicholas M. Anthony, Jr.
2LT Robert J. Antolick
Mr. John O. Bowden
2LT Leonard W. Bowley
Mr. Winston Brunson
CPT Steven R. Busch
2LT Larry R. Crowl
LTC Charles H. Dove
1LT Joseph P. Gance
2LT John J. Geis
CPT Michael A. Giovino
2LT Mark L. Heffernan
MAJ Stephen F. Koach
2LT Richard F. Kreuscher
2LT Jennifer J. Leech
2LT David J. Long
2LT Russell A. Looney
2LT David P. Mauser
2LT Scott W. McMikle
2LT Michael A. Morotti
1LT Charles S. Olson
2LT Krista M. Owen
2LT Paul T. Saporaro
2LT Samuel A. Sblendorio
2LT Scott W. Trinrud
2LT Janice L. Wagner
CPT John E. Watson
2LT Robert E. Wilson
2LT John W. Wolford

BLACK KNIGHTS CHAPTER WEST POINT, NY

CDT David W. Alley
CDT Matthew C. Hayes
COL Seth F. Hudgins, Jr. Ret.

CENTRAL FLORIDA ORLANDO, FL

Mr. Clifford T. Jackson
Mr. William R. May

CHECKPOINT CHARLIE CHAPTER BERLIN, GERMANY

CW3 Frank S. Cisneros
CW2 Jonathan W. Goode

CHESAPEAKE BAY CHAPTER EDGEWOOD, MD

Mr. Sandy E. Cook
Mr. Rick Davis
Mr. Allen Dolgoff
Ms. Kathy Foreman
Mr. Tom Greshko
Mr. Glen Jackson
Ms. Elizabeth Jessida
Mr. Jerry Lescher
Mr. Ray Nichols
Mr. Brian Post
Mr. Michael Weinberg
Ms. Bonnie Will

CONNECTICUT CHAPTER STRATFORD, CT

SGT James J. Duggan
Mr. Victor Kuziak

CORPUS CHRISTI CHAPTER CORPUS CHRISTI, TX

Mr. John J. Bridevaux
Mr. Oscar Garza, Jr.
Mr. Lawrence J. Herschbach
Mr. Roland E. Leal
Mr. Roberto Longoria
Mr. Horeal H. Saavedra

EDWIN A LINK MEMORIAL CHAPTER BINGHAMTON NY AREA

Mr. Robert M. Echols
Mr. Bruce G. Snyder

GREATER CHICAGO AREA CHAPTER CHICAGO, IL

SPC Linda A. Becker
CW2 James G. Cook

LINDBERGH CHAPTER ST. LOUIS, MO

Mr. Gerald D. Koepke
Mr. Keith E. Paul
COL Thomas E. Reinkober

MAINZ CHAPTER MAINZ, GERMANY

CW2 Rory K. Dodd
SGT Norman R. Savage, Jr.

MID-AMERICA CHAPTER FORT RILEY, KS

CPT Thomas M. Coffey
CW2 Robert G. Doran
CW4 Eugene T. Garrett
CPT Michael G. Hegarty
CW4 William A. King
CW2 Donald S. Kissler
MAJ Mark S. Landrith
2LT Timothy J. Leake
1LT Norman C. Massry
CW2 Thomas D. Perkins
CPT Roy R. Peters
CSM Jacobus Z. tenBroek
LTC Robert Wilson
CPT John M. Wing, MD

MONMOUTH CHAPTER FORT MONMOUTH, NJ

Mr. John S. Banahry
Mr. James F. Baxendale
Mr. Adam S. Bogner
Mr. Jack Brady
Ms. Denise Pulsch Carton
Ms. Gayle D. Grant
Mr. Arlie D. Keister
Mr. Chung R. Kim
Mr. Robert I. Main
Mr. Lockwood W. Reed
Mr. Norman K. Shupe
MG James W. Wurman

MORNING CALM CHAPTER SEOUL, KOREA

SSG Charles H. Carter
CW2 David P. Garrity
SSG Andrew R. Gauthe
CW2 James C. Holbrook
SGT Craig A. Holmes
Mr. Faulton E. Kemph
CW3 Terrance L. Lapp
CSM Hans E. Li
SFC Roger D. Marley, Ret.
CW2 Paul J. Melanson
SSG Steven L. Mosher
SGT William S. Outlaw
SFC James L. Plummer, Ret.
MSG Larry W. Teel
MAJ Stephan J. Tonello
SGT Chris P. Vosberg
MAJ Kermit W. Wade, Ret.
CPT Alvin R. Wells
LTC Dennis W. Wilkinson
CW3 Patrick J. Young

NORTH COUNTRY CHAPTER FORT DRUM, NY

CPT Kevin M. Kepler

NORTH TEXAS CHAPTER DALLAS/FORT WORTH

WO1 Mark W. Boelm

OLD IRONSIDES CHAPTER ANSBACH, GERMANY

CW2 Fernando Martinez

PHANTOM CORPS CHAPTER FORT HOOD, TX

MAJ Robert M. Santry

REDCATCHER CHAPTER NURNBERG, GERMANY

MAJ Margaret R. Champley
CPT(P) Frank M. Cochrane

RHINE VALLEY CHAPTER MANNHEIM, GERMANY

CPT Michael J. Schwarz
CPT Mark L. Shelton

SAN JACINTO CHAPTER ELLINGTON FIELD, HOUSTON, TX

CDT John H. Weidemeyer

STUTTGART CHAPTER STUTTGART, GERMANY

SPC Eric C. Brock
WO1 Edward Cartwright
SPC David A. Davis
SPC Eric L. Edwards
MAJ Robert L. Geren
SPC Todd Pettingil
SPC Paul Sarsky
CPT Lori D. Sorrels
PFC David J. Veronie

WASHINGTON DC CHAPTER WASHINGTON, DC

Mr. James C. Edgar
Mr. Roland P. Mancini
Ms. Susan McGlothlin
Mr. Robert J. Tecklenburg
Mr. Bernard A. Zempolich

WINGS OF THE DEVIL CHAPTER FORT POLK, LA

CW2 Michael K. George
2LT Brian P. Hopkins
1LT Ronald V. Huggins, Jr.
CW3 Anthony E. Irwin
MAJ David A. Kirkwood

MEMBERS WITHOUT CHAPTER AFFILIATION

Mr. Tony Amato
Mr. Dennis Bagwell
Mr. Cliff Buxton
Mr. Bobby G. Christian
SFC Todd E. Duncan
Mr. John P. Eisenhardt
Mr. Charles E. Lee
Mr. Dave Maxfield
Mr. Paul W. McGillick
LTC Henry A. Moak, Jr.
2LT William R. Peaster
CPT Joe Raymone Price, Jr.
Mr. Gerald A. Roberts
Mr. John R. Schulte
Mr. Richard W. Stinson
CPT Anthony D. Taylor
Mr. Jerry Wolski

BEAT THE INCREASE

There hasn't been a AAAA membership dues increase since 1980!

Each member's dues fall $10 short of covering the cost of supplying services to that member — the difference is made up by AAAA Annual Convention exhibit revenues.

To correct for ten years of inflation and just maintain the $10 per-member subsidy, a new Two-Tier Dues Structure will be implemented **1 January 1991.**

TIER I: Includes all Full-Time Students, all Enlisted, Warrant Officer Candidates, GS-8 DACs and below, and Wage Board 12 DACs and below at a rate of $14 for one year, $25 for two years, and $36 for three years.

TIER II: Includes all other members at a rate of $21 for one year, $39 for two years, and $57 for three years.

AAAA Establishes "Two for One" Membership Program

Starting 1 January 1991, AAAA will offer a "Two Years for One" membership for all first-time members at the one year rate for the individual's respective membership category.

RE-UP NOW AND SAVE

Use the form below.

Renewals and new member applications at the old rate must be postmarked by 1 January 1991.

ARMY AVIATION ASSOCIATION OF AMERICA (AAAA)

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

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

I wish to join (renew my membership in) the Army Aviation Association of America (AAAA). My past or current duties affiliate me with U.S. Army Aviation and I wish to further the aims and purposes of the AAAA. I understand that my membership includes a subscription to the AAAA-enforced magazine "Army Aviation", and that my membership will start on the subsequent first of the month. Contributions or gifts to AAAA are not deductible as charitable contributions for federal income tax purposes. Dues payments are deductible by members as ordinary and necessary business expenses.

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

Mailing Address _____

Mailing Address _____

City _____ State _____ Zip + 4 Code _____

Active Duty or Civilian Job Title and Unit or Firm Name _____

( ) _____ Area Code Office Phone ( ) _____ Area Code Residence Phone

Nickname _____ Spouse's Name _____

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

Consent: ☐ I do ☐ I do not consent to the publication or release of the above information to third parties.

Signature _____ Date _____

AAAA ANNUAL DUES

Applicants other than those listed below:
( ) 1 yr, $15; ( ) 2 yrs, $29; ( ) 3 yrs, $43

Enlisted; GS-6 & below; Wage Board 12 DAC's and below:
( ) 1 yr, $10; ( ) 2 yrs, $19; ( ) 3 yrs, $28

Add $5 per year if you have a foreign, non-APO address.
Add $15 if your check is drawn on a foreign bank.

☐ Check enclosed payable to "AAAA" or charge to:

☐ AMEX ☐ Diners Club ☐ Mastercard ☐ Visa

Card No. _____

Amt. $ _____ Exp. Date _____

Signature _____

Date _____

Check (✓) Your Professional Qualification:

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

Are you a former AAAA member? ☐ Yes ☐ No

If yes, what year did you join? _____

Chapter Affiliation Preferred _____

Print Name of Recruiter _____

Solicitation now underway for CY 90 AAAA National Awards: Jan. 15, 1991 suspense date set.

"Award Presentations"

Up to eight AAAA National Awards for accomplishments made during Calendar Year 1990 will be presented at the 1991 AAAA Annual Convention in St. Louis, MO. The individual AAAA National Award presentations will be made on Friday; the unit AAAA National Award presentations will be made on Saturday. Senior members of the U.S. Army will be invited to present the AAAA's top awards on both occasions.

"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.

"Outstanding DAC of the Year Award"

Sponsored by Boeing Helicopters, this award 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 Awards Winners. Copies may be obtained directly from any Chapter Secretary or by writing to AAAA, 49 Richmondville Avenue, 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 Submisson of All AAAA National Awards"** and the accompanying photo(s) should be mailed ON OR BEFORE the January 15 suspense date. Please use stiffeners to protect the photo(s) being submitted. While "nomination" material cannot be returned, photos may be returned on request. Receipt will be acknowledged by the AAAA National Office.

AAAA NEWS

New AAAA Chapter Officers

Bonn Area:
Mr. John Courcha (VP, Publicity)

Edwin Link:
LTC John W. May, Ret. (VP, Membership)

Hanau:
COL Charles M. Burke (President); LTC Billy Stevens (Sr. VP); WO1 Lawrence S. Walker, Jr. (VP, Memb. Renew.); CPT Charles N. Hardy (VP, Prog.); CW2 Arthur J. Gribensk (VP, Pub.); LTC John R. Penman (VP, Corp. Memb.); CSM Hugh P. Tobin (VP, Enlist. Aff.)

Mid-America:
CW3 L.C. LeBlanc (President)

Old Ironsides:
LTC David W. Swank (President)

Rhine Valley:
LTC Henry C. Hostetter (President); CW3 William R. Becker (Sec.); CPT Mark L. Shelton (Treas.); CPT Perry O. Collette (VP, Prog.)

Tennessee Valley:
Mr. John W. Finafrock (Sr. VP)

Aviation Soldiers of the Quarter

SPC Eric C. Brock
Stuttgart (2nd Qtr CY90)

SPC David A. Davis
Stuttgart (2nd Qtr CY90)

PFC David J. Veronie
Stuttgart (2nd Qtr CY90)

SPC Eric L. Edwards
Stuttgart (3rd Qtr CY90)

Top Chapters

The September 30 Membership Enrollment Competition standings have the following chapters ahead with three months left in the CY90 contest ending December 31. The rankings are based on **CY90 net membership gain.**

Master Chapters (231 or more members)

Rank		Net gain
1	Central Florida	55
2	Monmouth	46
3	Corpus Christi	22
4	Greater Atlanta	6
5	Connecticut	4

(The other Master Chapters show a current net loss during the January-September period.)

Senior Chapters (116-230 members)

Rank		Net gain
1	Monterey Bay	53
2	Greater Chicago Area	13
3	Wings of the Marne	10
4	Tennessee Valley	2

(The other Senior Chapters show a current net loss during the January-September period.)

AAAA Chapters (25-115 members)

Rank		Net gain
1	Old Ironsides	23
2	North Country	16
3	Mid-America	13
4	Armadillo	9
5	Jack H. Dibrell/Alamo	4
6	Checkpoint Charlie	1

(The other AAAA Chapters show a current net loss during the January-September period.)

The year-end membership totals of each of AAAA's 55 chapters for CY90 contest will appear in Jan. 31 issue.

Top Guns as of October 22, 1990

The member who sponsors the greatest number of new members during the contest year ending December 31, 1990 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. Ronald V. Kurowsky.....39
MSG John H. Bae.....37
CPT John P. Connell.....28
CPT Brian W. Magerkurth...22
MAJ William J. Teeter.....20
LTC John R. Fischetti.....19
Ms. Janet L. Garmon.....18
CW3 L.C. LeBlanc.....18
Ms. Nancy A. Alexander...17
Mr. Jerry L. Reed.....16
Ms. Susan E. Barnes.....14
LTC Eber E. Brown, Jr.....14
MG J. Klingenhagen, Ret..14
CW4 J.D. Badgley.....13
MAJ David E. Laack.....13
2LT Joe M. Trawinski.....13
LTC R. Gillingham, Ret.....12
CW4 William R. Halevy.....12

AAAA anticipates offering $100,000 aid in 1991 for college-entry Freshmen

BACKGROUND:

The AAAA Scholarship Foundation, a separate non-profit, tax-exempt corporation created to render financial assistance to selected members of the Army Aviation Association of America, Inc. (AAAA) and selected spouses, unmarried siblings, and unmarried children of current and deceased AAAA members, expects to make available $100,000 in assistance funds for the 1991 college-entry year.

SCHOLARSHIP GRANTS AND LOANS:

A minimum of thirty scholarships will be presented — One $12,000 four year grant ($3,000 a year); two $10,000 four year grants ($2,500 a year); other grants ranging from $1,000 to $5,000 given out as one, two or four year scholarships; five $4,000 interest-free loans ($1,000 a year); a $2,000 scholarship ($1,000 a year) to an eligible applicant pursuing a two-year associate degree in an aeronautical-related science; a $4,000 scholarship ($1,000 a year) to an eligible applicant pursuing a four-year B.S. degree in an aeronautical-related science; and a $3,000 scholarship available to students planning to attend St. Louis University.

AWARD PHILOSOPHY:

The AAAA National Scholarships are awarded primarily 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, 1991 (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 returned to the Foundation on or before June 15, 1991 for consideration by the AAAA Awards Committee (postmark will govern).

ELIGIBILITY CRITERIA:

An applicant must be a citizen of the United States who has been admitted to an accredited college or university for Fall 1991 entry as a freshman. The AAAA member to which the applicant is related must have an effective date of membership on or before March 31, 1990. All eligible applicants shall first be considered for scholarship grants and then, if requested by the applicants, considered for the loan program.

SELECTION AND NOTIFICATION:

Selection of winners will be made by the AAAA National Awards Committee during mid-July with each applicant to receive a list of the winners not later than August 1, 1991.

Aces

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

COL Sidney W. Achee, Ret.
LTC Eber E. Brown, Jr.
Mr. Terry Coakley
LTC Robert C. Codney, Ret.
LTC R.I. Gillingham, Ret.
COL L. Haselgrove, Ret.
Ms. Jo Ann Henderson
Ms. Deborah L. Horne
LTC C.H. Jacobus, Ret.
MAJ David E. Laack
CW4 Windell R. Mock
CW3 Gregory T. Schullo
CW3 Geoffrey T. Schwind
CPT Edward M. Szeman
Mr. Leroy L. Worm

New Industry Members

National Airmotive Corp.
Oakland, CA

New Sustaining Members

Barr, Brunson, Wilkerson, & Bowden, PC
Enterprise, AL

See You In St. Louis!
10-14 April 1991
AAAA Annual Convention

The Indiantown Gap Chapter held its First Annual Shrimp Frenzy on Saturday, 4 August 1990, at the Fort Indiantown Gap Area 12 Picnic Grove. The event drew almost 50 people, including eight members of the Chesapeake Bay Chapter. Pictured above are unidentified, frenzied, eat-all-you-can-eat shrimp consumer attendees, who also indulged in volleyball, horse shoes, and general fun and games.

Saturday, 14 September 1990 saw AAAA Executive Director Terry Coakley attending a Tail Gate Party sponsored by the Black Knights Chapter at West Point. Pictured from left to right, below are: CPT Richard H. Digiovanni, Senior VP; CPT James Moentmann, Social Chairman; Terry Coakley, Executive Director, AAAA; CPT Matthew J. Herholtz, President; MAJ Robert J. Schuett, Secretary; and MAJ John C. Adams, VP Programs.

Old Ironsides Chapter Secretary James F. Shriver reported on two recent chapter events that really illustrate what AAAA is all about. The first, pictured above, was the chapter's $1,000 donation to the Red Cross to support CPR training in the Ansbach community. Left to right are: MAJ(P) Ken Travis, Chapter VP; Ms. Frankie Brost, American Red Cross Assistant Station Manager, Ansbach; LTC Dave Swank, Old Ironsides Chapter President; James Cataldo, American Red Cross Station Manager, Ansbach; and CPT Sal Freda, Chapter Member. In the second event, barely visible below in the background are members of the Old Ironsides Chapter who have just presented $1,000 worth of games, books, and kitchen supplies to the Ansbach Youth Service Program. The children pictured are from the Katterbach "Latch Key Program."

Obituaries

BG William H.L. "Moon" Mullins, Ret., USAF

Air Force BG William H.L. "Moon" Mullins, 55, survivor of 116 missions over North Vietnam, was killed 29 September 1990 in the crash of a restored WWII P-51 fighter plane.

BG Mullins, a resident of Fairfax Country, VA, for more than 20 years, died when the vintage aircraft crashed into woods near Chatham, MA. Also killed was the plane's pilot, George F. Enhorning, 63, of Wolcott, CT.

Federal Aviation Administration officials visited the site to investigate the crash, but no immediate report on the case was given.

BG Mullins retired from the military in 1979 and was a vice president for government affairs at General Dynamics. Born in Independence, MO, he graduated from the United States Military Academy in West Point in 1957 and was an All American lacrosse player. He earned his pilot's wings in 1958 and, in 1966, received a master's degree in business administration from the University of Arizona. During his 22-year career, BG Mullins flew 146 combat missions, 116 over North Vietnam.

His decorations include the Distinguished Flying Cross, Bronze Star, Meritorious Service Medal, and Air Force Commendation Medal.

Surviving him are his wife, the former Florine Magnani of St. Petersburg, FL, and his two sons, Todd and Daniel.

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 6-7, 1991 at the airport Stouffer Concourse Hotel. The symposium will continue to emphasize readiness and support of the U.S. Army aircraft fleet with special emphasis on best value, the acquisition process and business opportunities. The symposium will start with a kick-off luncheon on Wednesday, 6 February, 1991. Dr. Joann H. Langston, the Competition Advocate General of the Army will be the luncheon speaker. Industry/Government panels are planned for Wednesday afternoon and Thursday morning. A dinner on Wednesday evening will honor industries, individuals and the military through the presentation of the AAAA Army Aviation Materiel Readiness Awards and the AAAA Outstanding Aviation Logistic Support Unit of the Year Award for 1990. General William G. T. Tuttle, Jr., Commanding General U.S. Army Materiel Command, has been asked to speak at the Awards Dinner.

A series of panels are planned to present industry and government views on timely topics and to permit audience participation with panel members. Opportunities for doing business with AVSCOM will also be presented.

The 1991 AVSCOM Competition Advocate's Shopping List (CASL) and Spare Parts Symposium will precede the AAAA Product Support Symposium at Stouffer Concourse Hotel. There will be an opportunity to obtain information about AVSCOM'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 Tuesday, February 5, 1991 and conclude at 1100 on Wednesday, February 6, 1991. AAAA Product Support Symposium attendees are encouraged to attend. For more information, contact Roger Boeckman at (314) 263-1712 or Judy McCollough at (314) 263-1046.

TUESDAY, 5 FEBRUARY 1991

1600-1900 Registration and Ticket Sales
1830-2030 Early Birds Reception in Conjunction with CASL Workshop Reception.

WEDNESDAY, 6 FEBRUARY 1991

0800-1600 Registration and Ticket Sales
1100-1300 Lunch — Guest Speaker: Dr. Joann H. Langston

AFTERNOON SESSION

1300-1310 Opening Remarks
1310-1430 Best Value Panel to include Q&A
1500-1630 Acquisition Business Process Teamwork Panel to include Q&A

EVENING SESSION

1800-1930 Reception
1930-2200 Awards Dinner and Presentation

THURSDAY, 7 FEBRUARY 1991

0700-0800 Continental Breakfast
0800-0830 Aviation Life Cycle Support
0830-1000 Quality and Timeliness of Acquisition Process Panel
1030-1100 PEO Business Opportunities
1100-1130 AAMP Update
1130-1215 Panel Presentation by all Speakers to include Q&A
1215-1230 Closing Remarks

1991 AAAA Joseph P. Cribbins Annual Product Support Symposium Advance Registration Form

STOUFFER CONCOURSE HOTEL — ST. LOUIS, MO — 5-7 FEBRUARY 1991

SPONSORED BY THE LINDBERGH CHAPTER OF THE ARMY AVIATION ASSOCIATION

ADVANCE REGISTRATION DEADLINE: 21 JANUARY 1991

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, YOUR 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 $15 MEMBERSHIP FEE APPLIED TOWARDS A ONE-YEAR MEMBERSHIP IN THE AAAA. THIS REGISTRATION FORM & FEES LISTED DO NOT COVER THE CASL WORKSHOP 4-6 FEBRUARY 1991.

ARE YOU PLANNING TO ATTEND CASL WORKSHOP 4-6 FEBRUARY 1991? _____YES _____ NO

	5-7 FEB 91 REGISTRATION	6 FEB 91 LUNCHEON	6 FEB 91 BANQUET	6-7 FEB 91 PROCEEDINGS	1 YEAR MEMBERSHIP	TOTAL PAID
INDUSTRY FEES	_____ $160	(Included)	(Included)	(Included)	_____ $15	$ _____
GOV"T/MIL FEES	_____ $10	_____ $12	_____ $23	_____ $10	_____ $15	$ _____
SPOUSE FEES	N/A	_____ $12	_____ $23	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 21 JANUARY, 1991

* 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

* HOTEL RESERVATIONS *

TO MAKE YOUR HOTEL RESERVATION, **CONTACT THE HOTEL DIRECTLY NO LATER THAN 21 JANUARY, 1991 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 1/21/91 will be on a space available basis only.**

AAAA CALENDAR

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

November, 1990

✓ **Nov. 17.** The Leavenworth Chapter's Eight Annual Aviation Ball. Guest speaker: MG Rudolph Ostovich, III.

✓ **Nov. 20.** Central Florida Chapter membership meeting. Guest speaker: Gary L. Smith, PEO, Aviation.

✓ **Nov. 29 - Dec. 6.** Second Annual Apache Top Gun Competition, USAAVNC, Ft. Rucker, AL.

December, 1990

✓ **Dec. 6.** AAAA Aviation Trainer of the Year Award; Howze Gunnery Award; & Top ROTC Cadet Award Presentations, Fort Rucker, AL.

✓ **Dec. 7.** AAAA NEB Meeting, Fort Rucker, AL.

✓ **Dec. 14.** The Morning Calm Chapter's Annual Christmas Ball, to be held at the Seoul Inter-Continental Hotel, Korea. 1800 Hrs.

✓ **Dec. 14.** Old Ironsides Chapter's "Iron Eagle Christmas Ball" at the Forst Haus Hotel, Feurth, Germany.

February, 1991

✓ **Feb. 2.** AAAA Nat'l Awards Committee Meeting to select CY90 Nat'l Award Winners.

✓ **Feb. 6-7.** 17th Annual Joseph P. Cribbins Product Support Symposium sponsored by the AAAA Lindbergh Chapter. Stouffer Concourse Hotel, St. Louis, MO.

✓ **Feb. 6.** AAAA Outstanding Aviation Logistics Support Unit of the Year Award Presentation and AAAA Industry Award Presentations, Stouffer Concourse Hotel, St. Louis, MO.

April, 1991

✓ **April 10-14.** AAAA Annual Convention, Cervantes Convention Center, St. Louis, MO.

✓ **April 10.** AAAA NEB Meeting, St. Louis, MO.

Hall of Fame Nominations Due 1 July 1991

An AAAA-sponsored Army Aviation Hall of Fame honors those persons who have made a) an outstanding contribution to Army Aviation over an extended period, b) doctrinal or technical contribution, c) an innovation with an identifiable impact on Army Aviation, d) efforts that were an inspiration to others, or e) any combination of the foregoing, and records the excellence of their achievements for posterity. All persons are eligible for induction, except active duty Generals and Colonels. Membership in AAAA is not a requirement for individuals nominated for the AAAA Hall of Fame. Any individual, military or civilian, may nominate an individual for AAAA Hall of Fame consideration.

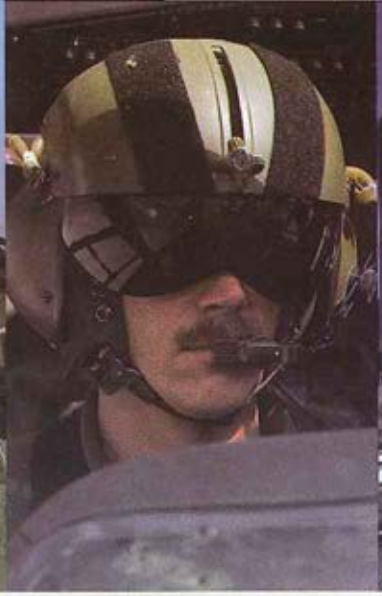
DOCUMENTATION

Please contact the AAAA National Office for the official AAAA Hall of Fame Nominations Form: AAAA, ATTN: Chairman, Hall of Fame Board of Trustees; 49 Richmondville Avenue, Westport, CT 06880-2000. Completed nominations should be postmarked not later than **1 July 1991**, and mailed or express-mailed to theChairman, Hall of Fame Board of Trustees, at the aforementioned address.

SELECTION AND BALLOTING

An eight member Board of Trustees composed of members of the Hall of Fame is responsible for selecting a specific number of candidates for placement on the AAAA Hall of Fame Ballot. The ballot will be mailed to AAAA members with two or more years of continuous membership. These members will be asked to elect a specified number of Inductees from those candidates appearing in the ballot. Balloting is conducted triennally.

The next induction will occur at the AAAA Annual Convention in April, 1992. The elected Inductees will be inducted in the Army Aviation Hall of Fame in ceremonies during the AAAA Hall of Fame Induction Luncheon. The actual Hall of Fame is located in the U.S. Army Aviation Museum at Ft. Rucker, AL, where the portraits of the Inductees and descriptive narratives will be displayed.



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COLLINS ATHS.

The Collins CP-1516/ASQ Automatic Target Handoff System (ATHS) helps ensure clear, quick, C²I communications. It facilitates air/air and air/ground interoperability and provides target steering cues on HUDs or CRT displays.

Instead of vulnerable voice communications, Collins ATHS uses digital data bursts to minimize jamming and to reduce enemy detection while speeding the transfer of accurate battle information.

The system uses any MIL-STD-1553B or ARINC 429 transceiver to resolve target location and exchange target information between force elements. It's totally transparent to the system architecture.

ATHS provides data for such HUD symbols as target I.D., range and steerpoint.

Now flying on U.S. Army OH-58Ds and AH-64s, the 10-lb. Collins ATHS can be easily integrated into aircraft and ground vehicles. And it's interoperable with TACFIRE and the Battery Computer System.

For more information contact: Collins Avionics and Communications Division, Rockwell International, Cedar Rapids, Iowa 52498. (319) 395-2208. Telex 464-421 COLLENGR CDR.

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...where science gets down to business

THE DECIDING FACTOR:

ONLY ONE LH HAS NO TAIL ROTOR.

Do a 180-degree turn-to-target in five seconds or less? If the helicopter is equipped with the revolutionary NOTAR™ anti-torque system, you can even do it in 45 knot winds.

Such maneuverability has never before been experienced in helicopter flight with such low pilot workload. And it's part of the SuperTeam's Light Helicopter (LH). Only our NOTAR system provides this level of standard-setting performance.

By eliminating the tail rotor, we've also lowered noise, visual and radar signatures for greater stealth on the battlefield. This added safety feature means no tail rotor strikes, no hazards to ground crews, and no loss of tail rotor effectiveness. And the NOTAR system operates effectively even in desert sands.

With years of flight experience already on record, the NOTAR system has proven it can perform. And when it is integrated with an advanced airframe, our revolutionary 680 rotor, an unparalleled mission equipment package, and a proven, workload-reducing fly-by-wire flight control system, only the SuperTeam's LH has what it takes to meet the Army's needs for a capable, cost-efficient 21st century combat helicopter. One that gives the pilot, the maintainer and the commander the "deciding factor" needed to win tomorrow's airland battle.

LHX MCDONNELL DOUGLAS SUPERTEAM BELL HELICOPTER TEXTRON

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