Special Focus: Product Support and Maintenance

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ARMY AVIATION

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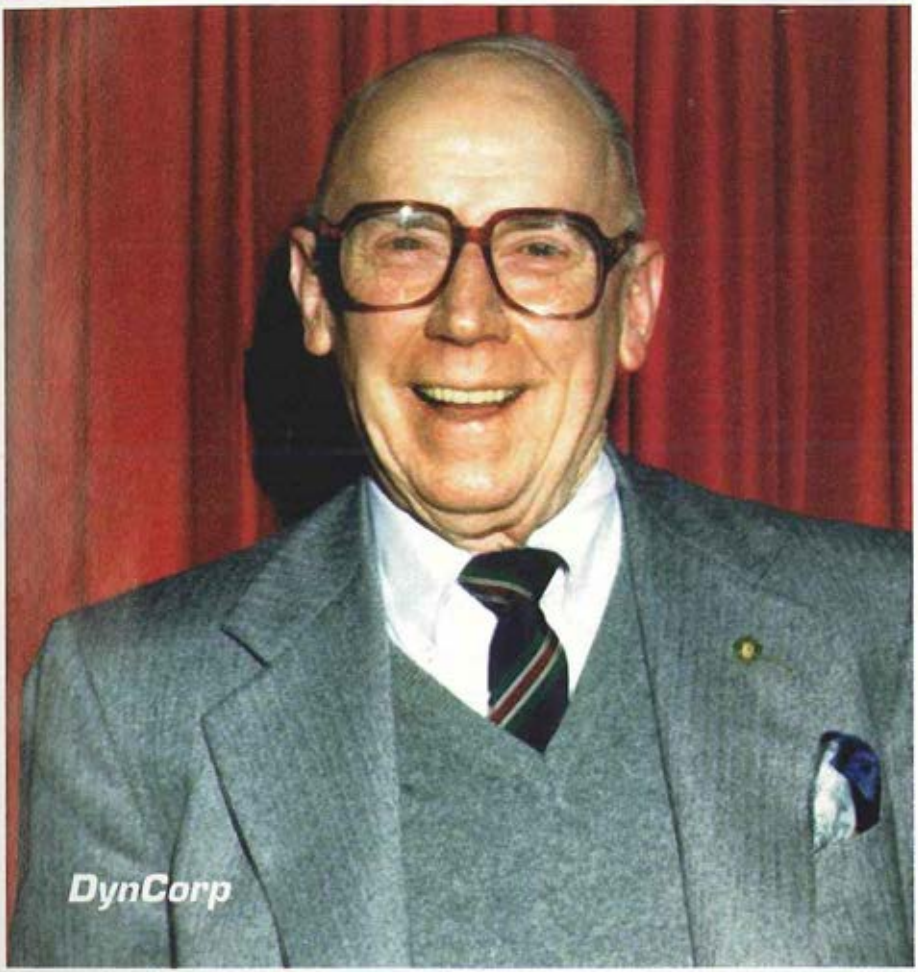

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FORTHCOMING ISSUES

February 1997 — UH-60Q MEDEVAC and Weapons Systems.

March-April 1997 — AAAA Annual Convention Issue.

Briefings

The **1st Armored Division Association** will hold its 50th reunion on 19-23 August 1997 at the Ridpath Hotel in Spokane, WA. Interested individuals can contact **Joseph S. Theriot** for more information at POB 2088, Elizabethtown, KY 42702, (502) 737-0901 or (502) 765-7313.

The **Army Otter-Caribou Association** will be holding their 12th Annual Reunion during the period of 20-24 August 1997 in Albuquerque, NM. Please contact **Bruce Silvey**, P.O. Box 20471, St. Petersburg, FL 33742, Tel: (800) 626-8194 for membership and reunion information.

Twelve U.S. Army AH-64A Apaches have been delivered to the Royal Netherlands Air Force (RNLAF) for use by its Air Mobile Brigade until new AH-64D Longbow Apaches are ready to enter service. The RNLAF has ordered 30 Longbow Apaches from **McDonnell Douglas Helicopter Systems**, Mesa, AZ, which developed and also is producing AH-64Ds for the U.S. Army and the United Kingdom. The AH-64As will be based at Gilze-Rijen Air Base, and will allow The Netherlands to transition to the AH-64Ds through the turn of the century.

In other Longbow Apache news, new flat-panel Multipurpose Displays (MPDs) will replace the standard monochrome Multifunction Displays (MFDs) in use today. The first preproduction MPDs, produced by **AlliedSignal**, Teterboro, NJ will be installed for flight tests scheduled for early this year. The first production MPDs will be installed in U.S. Army Longbow Apaches in March 1998, and will be standard on all AH-64Ds for the United Kingdom and The Netherlands.

The **National Aeronautic Association** announced on 22 August 1996 that **Jean Kaye Tinsley** had been selected as an Elder Statesman of Aviation. Tinsley began her aviation career in San Francisco, CA during the mid-1940s, and has served the industry in the capacity of Applications Engineer and as technical editor and writer on all types of manuals for operation and maintenance, overhaul and field instruction as well as many types of brochures. The FAA has designated her as a Written Test Examiner and an Accident Prevention Counselor. In 1965, she attended the annual convention of the "Whirly Girls" and then became Whirly Girl No. 118. Since that time, she has held several offices in the organization and is currently its Executive Director. Tinsley was co-founder of the Helicopter Club of America, is charter member No. 1, and was its first president.

James J. Morris has been named vice president and general manager of **Boeing Defense & Space Group, Helicopters Division**, Philadelphia, PA. Previously, Morris served as vice president and Comanche Joint Program Office director since January 1994, deputy director since 1992, and Engineering director since 1989.

VOLUME 46 ARMYAVIATION NUMBER 1

FEATURE ARTICLES

MAINTENANCE AND PRODUCT SUPPORT

DEPARTMENTS

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THE AVIATION FORWARD SUPPORT BATTALION: A PROVEN DESIGN

Historically, Army Aviation has been one of the most flexible deterrent options deployed in a crisis. Versatility, self-deployability, and rapid mobility make aviation a force of choice. No other force spans the entire division area of operations (AO) like the Aviation Brigade does. Therefore, aviation logistic operations must also span the entire division AO, be as versatile and flexible as the aviation force it supports, and be embedded within the aviation scheme of operations. The Aviation Support Battalion (ASB) is key to making this happen.

The ASB allows the Aviation Brigades to capitalize on their advantages.

As the Division's fourth Forward Support Battalion (FSB), it focuses logistics support for the aviation brigade and provides critical links with other Division Support Command (DISCOM) elements in the brigade support areas, division support areas, and Corps Support Command (COSCOM). The ASB fulfills the brigade's support requirements by *anticipating* and *integrating* logistics operations with brigade operations, and providing *continuous* and *responsive* logistics support. It is a habitual support relationship—one which supplies dedicated direct support (DS) level combat service support. Further, the ASB provides a single point of contact and dedicated staff to ensure availability and pre-positioning of support equipment, supplies and transportation assets for the Aviation Brigade. This relationship allows the Aviation Brigade commander to focus more on warfighting and less on establishing new logistics support linkages as the brigade moves throughout the division AO.

Over one year ago the 1st Armored Division roared into Bosnia and Herzegovina, ready for war but prepared to bring peace. The 127th ASB (Workhorse)—the first FSB deployed to Operation Joint Endeavor (OJE)—supported a high OPTEMPO under austere initial entry conditions for almost two months—until the DISCOM fully deployed the Main Support Battalion (MSB) and remaining FSB's into theater. We are very proud of the job our great

(DESIGN — continued on page 10)

BY LTC JAMES McGAUGHEY

THE 127TH AVIATION SUPPORT BATTALION (ASB)

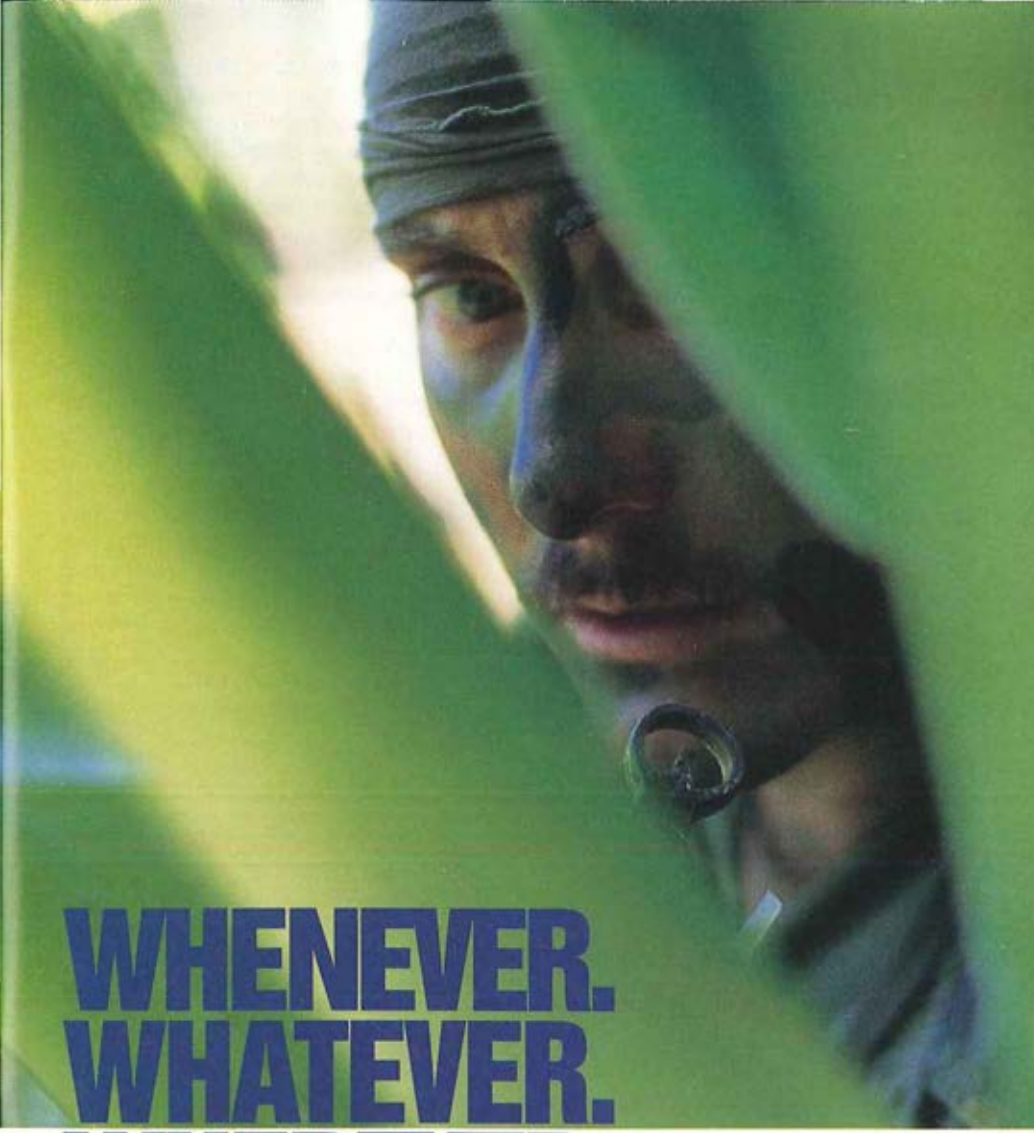
Earning its spurs during Operation JOINT ENDEAVOR.

Operation JOINT ENDEAVOR (OJE) provided a myriad of opportunities to assess the capabilities inherent in a dedicated support battalion for the Heavy Division Aviation Brigade. The soldiers of the 127th ASB (Workhorse), 1AD attempted to exploit every one of those opportunities by turning the year-long, OJE deployment into a "battle lab".

The 127th ASB began deploying from Germany in December 1995 to provide Combat Service Support (CSS), to include Direct Support (DS) supply of Class II, III, IV, VII, IX (Air and Ground), as well as DS Maintenance and Aviation Intermediate Maintenance (AVIM) for the 27 M1s, 50 M3s, 41 tracked and 815 wheeled vehicles, and 130 helicopters assigned/attached to the 4th Aviation Brigade and other Task Force Eagle (TFE) units located throughout Bosnia, Croatia, and Hungary.

The decision to deploy a significant aviation maintenance capability early in the flow allowed TF Eagle aircraft to arrive and begin immediate operations in a demanding, uncharted, and treacherous environment. That decision also required the DISCOM Commander to rely on the 127th ASB to establish the initial logistics support umbrella for the 1AD and Task Force Eagle within the theater of operations. Highlighting this, as the Aviation Brigade completed their deployment through Hungary and into Bosnia, the 127th ASB was required to aggressively move to supporting split operations. Over 120 Workhorse soldiers were sent into Bosnia to accommodate (without augmentation) the AVIM and DS maintenance missions, as well as the receipt and distribution management of all classes of supply (less CL I, V and VIII) for all TFE units in the vicinity of the Tuzla Valley for almost two months.

Although the forward element of the battalion maintained a robust capability, due to space requirements it never exceeded more than 25% of the battalion's assigned strength. Throughout the deployment, the other 350+ soldiers assigned to the battalion established a maintenance "hub" at Workhorse International Army Airfield (WIAAF) in Kaposvar, Hungary.



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That "hub" became the aviation maintenance center of excellence for the theater where the 127th ASB continued to juggle and improve their support for split operations as well as improve, manage, and secure a major base camp, maintenance facility and airfield.

It is important to remember that the current structure of the Aviation Support Battalion allows it to function as any other FSB, dedicated to supporting the peculiarities of its Brigade with the DISCOM commander retaining the flexibility to task organize as the mission dictates. Having an understanding of the peculiarities of supporting aviation operations, as well as being tied directly into the Brigade command and control structure, allowed the 127th ASB staff to deliberately coordinate plans rather than simply react to situations.

The success of any support battalion is reflected in the maintenance rates of their customers, and the 127th ASB is no different. Consider that the Task Force Eagle Apache and Black Hawk (as well as the Chinook, Kiowa, and Cobra) helicopters which deployed to Operation JOINT ENDEAVOR flew three times their normal OPTEMPO while maintaining FMC readiness rates at least 12-15% above the DA averages for ten consecutive months. Those extraordinary rates were sustained as Task Force Eagle aviation units flew over 31,000 helicopter flying hours in large part because the 127th ASB completed 52 phase inspections on AH-64, UH-60, EH-60, OH-58, and AH-1 aircraft.

Bottom line: Workhorse soldiers and contract maintenance personnel assigned to the ASB completed over 90% of the phase maintenance for the UH-60 and OH-58 equipped, 7-227th, General Support Aviation Battalion, and approximately 66% of the phase maintenance support for the 2-227th Attack Helicopter Battalion.

Additionally, the Workhorse mechanics and technicians completed over 5,100 AVIM work orders during this same period. All of this was accomplished while the ASB and the Aviation Brigade underwent major MTOE changes, which required, among other things, the turn-in of eight AH-1s, eight OH-58Ds, and eventually four OH-58Cs.

To maximize aircraft availability and readiness, the AVIM also maintained and controlled all of the operationally ready float (ORF) aircraft deployed in support of Task Force Eagle and the 1st Armored Division, including: two AH-64s; one UH-60; one EH-60; two OH-58Cs; and two AH-1s. During the deployment they completed 34 ORF aircraft transactions providing great flexibility to the deployed battalions in term of readiness and "bank time". In the end, the "One Team, One Fight" approach to support proved invaluable and contributed greatly to the fact that the 4th Aviation Brigade redeployed to Germany with higher readiness and more aircraft flying hour "bank time" than when it deployed (for both the UH-60 and the AH-64).

Those incredible results occurred because every aspect of the aviation maintenance and supply support structure melded perfectly. The success was the result of a true team effort involving the AVUMs, contractor maintenance personnel, LARs, CFSRs, as well as soldiers on temporary duty from other Divisions and the Army National Guard. Additionally, logistic assistance provided by the operations centers at 200th TAMMC and ATCOM resolved potential problems before they impacted readiness and cannot be minimized.

In retrospect, the support provided by the 127th ASB was significant because it

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highlighted the inability of the AVUMs to sustain a high OPTEMPO for an extended period without a significant amount of "unit level" maintenance support from the AVIM. This should cause an examination of the recent shift in aviation doctrine which "limits" the AVIM to 25% "back up" AVUM maintenance support, and "eliminates" the requirement for "pass-back" maintenance support.

It is important to remember that it is not only aviation maintenance that keeps aviation readiness high during long deployments. Ground support equipment as well as vehicles and power generation equipment proved vital to maintaining aircraft availability. The success the Workhorse Battalion had in sustaining the Brigade aircraft readiness was duplicated with the Brigade's 835 vehicles and pieces of power generation equipment which maintained a consistent readiness posture above 95% throughout the year-long deployment.

Despite the obvious supply challenges associated with supporting such a high OPTEMPO, the 127th ASB's Supply Support Activity processed over 22,000 CL IX requisitions while accommodating the conversion to SARSS-O. During OJE, Workhorse soldiers also successfully operated virtually every aspect of Class III operations, including: operating a 24 hour, four-point hot and cold aircraft refuel operation and retail vehicle fuel points at WIAAF in Hungary and Eagle Base in Bosnia; managing an 80K bulk fuel storage and distribution point at Comanche Base in Bosnia, and; operating the only fuel lab deployed in support of OJE. In all, the Battalion handled in excess of 4.2 million gallons of JP8 without an environmental incident.

Each of these accomplishments created an atmosphere that established camaraderie and esprit with supported units, and built a trust between the "operators and the supporters" that contributed to the Aviation Brigade flying a World Record OPTEMPO, with World Record Readiness, and a World Record Safety record. Hold your heads up, WORKHORSE "Spur Holders"!!

★ ★

LTC McGaughey is the Commander, 127th Aviation Support Battalion, Germany.

DESIGN
(Continued from Page 5)

aviation soldiers accomplished during this and previous operations. LTC James McGaughey, the current commander of the 127th ASB, describes the unit's participation during OJE in his article on page 6 of this issue.

We all have seen the effectiveness of the First and Third Armored Division's ASB's and their contribution to Desert Storm. To date, all but two ASB's have been activated—the 1CD (which has a provisional battalion) and the 2ID (which will receive their ASB at the beginning of FY98). The Army will complete the organization of all National Guard ASB's by the year 2000.

Both Desert Storm and Operation Joint Endeavor proved the relevance and effectiveness of the ASB. Clearly, the division aviation brigades must continue to receive dedicated, direct logistic support to capitalize on their distinct advantages they offer the CINCs. The ASB, born out of necessity and tested in combat, is a proven design and combat multiplier that significantly contributes to the Aviation Brigade's flexibility and versatility.

★ ★

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

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GE Aircraft Engines

BY COL ROBERT HOPPES

YOUR AVIATION LOGISTICS SCHOOL

Ensuring the foundation is sound at the U.S. Army Aviation Logistics School.

Repeated downsizing, constant reorganizing, increased personnel turbulence, continued modernization, all in an era of austere resourcing, have put pressure on numerous elements that influence aviation readiness and sustainability.

Fundamental to the sustainability of any aviation weapon system are three of these elements, which I consider the "foundation for readiness." These three elements are: Comprehensive weapon system technical data/drawings; institutional training products/processes that are based on comprehensive and technically accurate data; and reliable, user friendly test equipment. Weakness in any of the three elements impacts the other two, and will lead directly to readiness degradations, loss of maintainer quality of life, and increased aviation operations and support costs.

During the weapon system acquisition process, decisions are made concerning the amount of technical data that will be provided to the Army's maintenance system. Many factors drive these decisions, but they can also be based on overly optimistic expectations concerning on-aircraft test equipment or even the funding that is available for this purpose—if a weapon system program is under financial pressure, a possible outcome is reduced technical data requirements.

Element 1: Technical Data. During the 1980s, the Army adopted a "Remove and Replace" maintenance concept, which was envisioned to be more affordable and more compatible with our advanced/more reliable and maintainable weapon systems. Under this concept, less repair was intended at the field level (AVUM and AVIM), and more unserviceable, reparable subsystems would migrate into the wholesale system for repair. This maintenance system change also resulted in less technical data/fewer drawings being included in the technical publications available to aviation maintainers. The thought process apparently went something like this, "if our CMF67 soldiers are only removing and reinstalling components, how much

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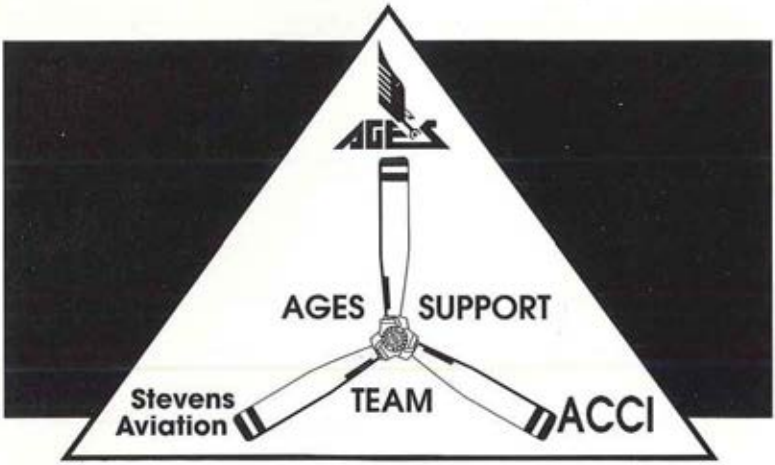

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system theory and technical data do they really require?" With the implementation of the Stock Funding of Depot Level Reparables (SFDLR) initiative, this issue became even more pronounced. While TRADOC was training a "remove and replace" concept, commanders were forced to insist on accurate fault isolation before replacement. Clearly, the training philosophy and field requirements were inconsistent. In retrospect, we now know that regardless of the maintenance concept or the weapon system's reliability, what our maintainers must have is sufficient technical information to FAULT ISOLATE.

Today, two of our modernized aviation weapon systems have technical data that is often not sufficient to allow our CMF67 soldiers to accurately fault isolate. During the Apache Operating and Support (O&S) Cost Reduction effort, it became apparent that the lack of technical data in the Technical Manuals (TM) and poor wiring schematics were contributing to the replacement of components and Line Replaceable Units (LRU) that were not faulty. No Evidence Of Failure (NEOF) rates clearly have a direct relationship on O&S cost increases.

The Apache Program Manager's (PM) office has recognized this deficiency and is actively taking steps to improve the technical data available to our soldier/maintainers. The U.S. Army Aviation Logistics School (USAALS), in coordination with the PM, the manufacturers and TOE units is currently leading an O&S Cost Reduction subgroup in an effort to determine just how significantly this lack of technical data is influencing O&S costs. During the validation of technical and training data for the AH-64D, which is currently

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ongoing, the Apache PM's office is working closely with the USAALS and the manufacturer to ensure that we have better technical data for use by our soldiers.

Element 2: Training Products/Processes. A fact that is frequently not apparent to many senior aviation soldiers/leaders, is that the technical data that drives the composition of the TMs, also drives what can be taught in the TRADOC training base, i.e., USAALS. In other words, if the Army cuts corners on providing technical data and schematics via the technical manuals, the problem is doubled, because TRADOC then has no access to material to develop better programs of instruction (POI).

The best examples are the totally inadequate wiring schematics for the AH-64, which are not nearly as exhaustive as those of the non-modernized AH-1F. The TOE Army and USAALS have known for years that these marginal wiring schematics were causing fault isolation and NEOF problems in our aviation units. Even armed with this awareness, the Army was unable to attack the problem from within the training base because USAALS couldn't get better schematics to improve the fault isolation training for our armament NCOs and our aviation maintenance warrant officers. The Apache PM and USAALS are currently working a strategy to acquire more comprehensive technical data and wiring schematics which will then lead to better training products and processes.

Element 3: Test Equipment. The third element of our foundation is user friendly test equipment in the hands of our soldiers, not just in the hands of contract field service representatives (CFSR). Built-in-test-equipment (BITE) provides a great tool for our soldiers/aviators to use in isolating faults. Where we have erred in the last 15 years is over-reliance on test equipment built into our weapon systems, at the expense of independent, software-driven test equipment that can truly assist soldiers in their fault isolation processes. One day, on-aircraft-test-equipment will live up to its advertising, but until then we must have state-of-the-art test equipment, ideally from an Integrated Family of Test Equipment. We have all experienced problems fault isolating, only to have a CFSR show up on the flight line with a piece of test equipment developed by the company he/she works for, and within minutes the CFSR has the LRU out and on its way to the shop. It's not magic nor more knowledgeable, smarter operators—it is test equipment that is user friendly and high tech. It could be just as effective in the hands of our soldiers, assuming the soldier received training on it or was at least familiarized with it in the training base.

Many of you have probably seen the Digitized Troubleshooting Aid (DTA) in our Apache armament shops that when used with AH-64 Fault Detection and Location System (FDLS), allows our armament personnel to fault isolate to an LRU, canon plug, or wiring harness. Just prior to DESERT STORM, the DTAs were fielded to all of our Apache organizations, and these organizations were trained on how to effectively use the device. Unfortunately, the training base was never included in the fielding, and it wasn't long until this perishable knowledge was a casualty of personnel turbulence. We are now getting the DTA into the appropriate POIs so it can once again be used effectively in the field. But even with this effort, five years later the DTA is no longer state-of-the-art test equipment available for fault isolating TADS/PNVS. The CFSRs come to the airfield even better armed to support the user. We must ask the question, "If the manufacturer of the subsystem can design and field support test equipment for use

(FOUNDATION — cont. on page 29)

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ATCOM MAINTENANCE: THE FINAL YEAR

When AMCOM stands up on 1 Oct 97, the traditional functions of Maintenance and Materiel Management will be combined into a new Aviation Systems Directorate (ASD), the aviation heart of the new combined air/missile IMMC.

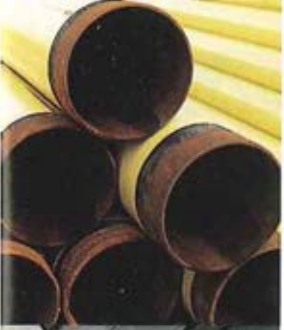
The ASD will bring item managers together with equipment specialists, provisioning and publications specialists in a product-line organization. This group, with support of the merged Logistics Systems, Readiness, and Business Management Directorates, will be responsible for full range of sustainment logistics for Army aviation. The new teaming arrangement promises to give us better integrated and quicker business decision-making: the challenge will be to sustain our mission and critical processes during the transition period.

The BRAC mandated closure of ATCOM is less than nine months away and transition planning for our move is now in full gear.

Significant improvements have been made in the automation of Maintenance and Overhaul packages. Implemented in August 1996, Maintenance Analysis Checklist in Support of Competition (MACSOC) is an automated evaluation of a Maintenance and Overhaul data call request to determine if a Depot Maintenance Work Requirement (DMWR) and required parts covering the National Stock Number (NSN) item to be input and output from overhaul is available.

MACSOC not only draws on information from the Provisioning Division Automated Publication Tracking System (PTS), but also retrieves data from the Commodity Command Standard System (CCSS) and the Engineering Flight Safety Parts (FSP) Database. This allows equipment specialists to have the most current data possible to complete their analysis. The need for hard copy correspondence has virtually been eliminated with the use of electronic signature certification.

The ATCOM Maintenance Directorate, in cooperation with the Department of the Army (DA), DLA and FAA, is currently modifying regulation DOD4140.1-R to provide for a Flight Safety Critical Aircraft Parts (FSCAPs) Program. Generally speaking, this policy controls the release of military surplus aviation components into the civilian market. The program implemented at proponent commodity commands assures that all military surplus aviation parts are properly demilitarized and prevents the



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release of unsafe FSCAPs.

As an interim measure, ATCOM has implemented a process that temporarily uses the Demil Code to identify FSCAPS. Work is in progress to assign Criticality Codes of "E" and "F" to identify FSCAPs. When all Criticality Codes have been assigned ATCOM will begin reverting the Demil Codes back to their original designation.

All ATCOM managed FSCAPs now require a document for turning in the part to the Defense Reutilization Marketing Office (DRMO) prior to disposal. The generated document contains descriptive and historical data about the serialized part from the Aircraft Component Tracking System (TACTS) Data Base. This document also provides the recommended disposition of the serialized part. Only two types of disposition are given: AUTHORIZED for Issue/Sale, or DESTROY. This disposition works in conjunction with the DD Form 1577 tag to ensure all condemned items are destroyed prior to sale.

We are on the verge of a whole new age in publications. The UH-60 has already been supported by the Interactive Electronic Technical Manual (IETM) for over two years. We are heavily into the verification of the IETMs for the AH-64D Longbow. All other TMs are currently being scanned to permit ultimate distribution via compact disc. But this is only the immediate future. The future of TMs lies in a complete rethinking of the strategies for communication of operation and maintenance policies. In future systems, it is envisioned the TM will not exist as a separate entity. Instead, all of the data required to operate and maintain a weapons system will be integrated into the weapons system itself. In addition to the procedural steps now provided, a soldier will be able to take a refresher course on a given topic. The built in manuals will even advise the soldier when to service the aircraft or when and inspection is due. Down loading of information after a flight will outline most of the system maintenance requirements. Improved communications technology will permit the soldier to go on-line to ask questions of specialists at the Aviation Missile Command or a prime manufacturer. Quick concise and tailored communication of all data required to operate and maintain an aircraft is the future.

During FY96, successful development of the NDI technical manuals and associated training video tapes was achieved. The manuals contain new procedures that are enhancements of original NDI requirements specified in the various aircraft -23 series TMs. There are approximately 427 new procedures developed for six series aircraft (AH-1, UH-1, CH/MH-47, OH-58, AH-64, and UH/MH-60). Of the 427 procedures, 384 are Eddy Current (ET) applications, with the Bondmaster and X-Ray making up the rest. Several of the TMs have been installed on the menu driven CDs. This state-of-the-art concept allows the NDI inspector to carry a lap top computer with CD drive along with the portable NDI equipment to the aircraft to perform on-aircraft inspections. The intent of the enhanced inspection procedures, videos, and CDs is to save time for maintenance personnel and to have a positive impact on the usage of spares. The U.S. Army Aviation Logistics School (USAALS) at Ft. Eustis, VA provided excellent support for the NDI TM verifications and video productions. The user can expect to receive copies of the completed NDI TMs and videos at the same time NDTE fielding occurs at each field activity, planned to begin January 1997.

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BY LAWRENCE J. SIMONE

CORPUS CHRISTI ARMY DEPOT (CCAD): HEADING INTO THE 21st CENTURY

Each month as I read my copy of ARMY AVIATION Magazine, I am amazed at the amount of changes and preparation taking place across the Army Aviation spectrum in preparation for the 21st century. It seems each article details changes taking place within the operational units, major commands, the support organizations, and the training centers. At Corpus Christi Army Depot (CCAD) the Army's only aeronautical depot, we too are part of the exciting and dynamic changes occurring in Army Aviation.

"The world is changing around CCAD, and CCAD needs to change with it."

Since my first assignment at Corpus Christi Army Depot in 1979 as a young Army Aviation NCO and later chief warrant officer, to now, as a DoD civilian employee, things are definitely different, and constantly changing. Our current Commander, COL John Penman, tells members of his depot that "The world is changing around CCAD, and CCAD needs to change with it."

To describe the organizational, technological and facility changes CCAD has experienced over the past decade would require multiple articles. Instead, let me take you on a guided tour of CCAD and let you look around and see the changes for yourself.

If we were to get in one of our flyable Apaches and view CCAD through the TADS/PNVS at a 500 foot hover, we would see a vast industrial plant of 154 acres located at Naval Air Station Corpus Christi, on the Gulf of Mexico undergoing physical change. We would see some new building, road, and parking lot construction, as well as additions and renovations to almost every original structure.

Back on the ground, we can start our tour through the new spacious 15 bay Pre-Shop Analysis (PSA) and aircraft disassembly area. This is the building where aircraft entering the overhaul process begin their journey. There are several "new" types and varieties of aircraft being disassembled and inspected here compared to years ago. Next to some Army UH-60As is an Air Force MH-60 Pave Hawk undergoing Joint Depot Level Maintenance (JDLM), then a CH-47D, an AH-64 Apache, some AH-64A Longbow pre-mods, a few Navy, USAF, and USMC UH-1Ns, and a crash-damaged OH-58D. This is far different from the days

of an old dimly lit, greasy disassembly hangar bay crowded with UH-1Hs, AH-1Ss, and OH-58As. Here, a visitor can get a real sense of the automation effort ongoing for the shop floor production control system. Each part leaving this PSA area has a critical path developed through a computer process mapping and scheduling system. This system will order materials, track parts and components through the various process shops, provide work instructions and predict work completion.

Within this new building are bright workstations where highly experienced aircraft examiners calculate and formulate aircraft repair packages, complete with handling automated aircraft records, from all four military services.

Leaving the disassembly area we walk outside and into the main "big" assembly hangar of Building 8. Over the years, this has transformed from a fast moving Huey assembly production line to a dock stage assembly area for the Black Hawk and Pave Hawk aircraft. Wrapped around each aircraft are yellow custom-built personnel safety workstands, along with state-of-the-art electrical power and hydraulic carts with various diagnostic special tools and test equipment. This is a significant difference to the home-made hydraulic jeeps, 28 volt power carts, and the B-2 maintenance stands of the past.

Parts that were once delivered by forklifts here now arrive mysteriously by a fleet of Automated Guided Vehicles (AGVs). These vehicles retrieve parts from a fully modern and automated five-story warehouse, the tallest building on the base—proudly displaying FLY ARMY to its Navy neighbors.

Adjacent to the assembly line is the Automated Technical Data Division staffed with government employees and civilian contractors. This facility houses thousands of volumes of aircraft technical data, complete with prints, military standards of which are downloaded electronically. JEDMICs on-line electronic data, containing commercial and government information, is housed here and in other locations throughout the depot. This office has a big job keeping its 77 remote libraries complete and current. Now staffed with computer technicians, this division awaits the flood of Electronic Technical Manuals (ETMs) and other electronic digitized tech data soon to come from ATCOM and other customers.

Outside the "main assembly line" we look right and see the rotor blade whirltower with its adjoining state of the art rotor blade restoration facilities, complete with a 50 foot autoclave (vacuum oven), x-ray, paint stripping, and paint booth. Nearly every blade in the Army, Navy and Air Force inventory is repaired and whirl tested. A second multimillion dollar whirltower is currently being dismantled and moved to CCAD from the Pensacola Navy Aviation Depot.

Across the street from this blade facility is the Fuel Control Division, a complex organization staffed with highly experienced employees that went from carburetors to fuel controls to the hydro-mechanical/electronic units (HMU/ECUs). This shop is currently negotiating to become an FAA certified facility.

At the other end of this street protrudes the new advanced Composite Repair Division offering Kevlar and other composite repairs and manufacturing, complete with water and laser jet cutters, autoclaves, and repair and fabrication stations all housed in an environmentally safe, dust-free area. A far cry from the old cowling, glass, and plastic shop.

Across the street is the Avionics and Accessories Directorate, housed in another modern two level facility that repairs electrical components. Here, the Electronic Equipment Test Facility (EETF) and other sophisticated test and diagnostic equipment is housed in an environmentally-controlled

shop. With the transformation from analog to digital avionics in modern aircraft, this building was constructed from the ground floor up with this advanced technology in mind. Throughout this building, brightly colored electronic work stations with technicians wearing shop coats and ESD wrist bands can be seen repairing most electrical components from the Apaches, Black Hawks, Chinooks and other aircraft. Technicians here are certified in soldering per Mil-Standard 2000. Recently, this division was chosen by ACAL command to be the depot to overhaul selected Apache armament components. Any Black Hawk or Apache crew that comes to this building can see several familiar cockpit components being tested and overhauled here.

Attached to this is the depot on-site calibration facility as well as the Analytical Investigation Division. This team of people investigates all Army helicopter mishaps when summoned by the Army Safety Center at Ft. Rucker, AL. Employees are becoming formally certified technicians in accident and safety investigations.

Adjacent to this building is the Bearing Restoration Facility, another state-of-the-art building that overhauls nearly every bearing used in helicopters. They even have capabilities to restore bearings for the Army M-1 tank and the Air Force F-15 fighter. Within this building, virtually all bearings and gears inside a transmission, engine, and gear box are inspected and processed for repair. This shop is one of three DoD authorized bearing restoration facilities.

Turning right on the next street, past the large environment safe aircraft paint hangar, is the most modern Advanced Metal Finishing facility in DoD. With the recent ribbon cutting in October 1996, this facility added significant improvement to CCAD's overhaul capabilities. In this three story building, 22 types of metal finishing are performed, including Ion Vapor Deposition (IVD). What makes this facility most impressive is that it operates with a fully staffed chemical lab, machine shop, chemical storage area, and training classrooms. The designers claim this building is incapable of developing a chemical spill that would contaminate the earth due to its below-ground funnel trap system. The facility is an OSHA and EPA paradise.

Across the street from this facility is the new office building for our resident Army and Navy engineering staff. This is a significant change from the old WW II Navy mess hall that they once occupied. This spacious building houses 34 ATCOM engineers and technicians, along with U.S. Air Force and Navy liaison engineers, and the Sikorsky on-site engineer. Engineering requests can be electronically transmitted to and from the worksite when necessary.

Also part of this building is a warehouse and lab/shop that houses the Storage Analysis for Reclamation (SAFR) project. This is an award winning ATCOM program that looks at overhauled parts that are beyond repair limits to be reviewed for possible restoration. This facility is staffed with contractor employees under the supervision of ATCOM engineers.

Continuing up the street, we see a recently renovated two story wood structure that houses training classrooms on the lower floor and the Industrial Risk Directorate and labs on the top floor. The safety folks, both government and the civilian contractors, stay busy keeping the plant environmentally and physically safe. They do this well during these difficult times when OSHA and EPA laws are constantly changing and hazardous waste removal is more critical than ever. They are proud of their recent award for Industrial Environment Excellence presented by the Governor of Texas and the EPA. This directorate is also about to launch an impressive employee wellness program.

Within the downstairs training classrooms,

A&P, FCC, ISO 9000 training, as well as other industrial training and certification, is being conducted. CCAD has contracted with the local junior college and a major university to enhance all aspects of its employee training and sustainment programs. Supervisors also are required to attend leadership courses at the nearby university. Near this building, construction is beginning on a training facility that will house helicopters and classrooms for hands-on, in-house technical training (a mini Ft. Eustis-South). A big difference from the one room apprentice training classroom of the mid 1960s!

Coming around the back entrance to Building 8 we enter the Powertrain Directorate with its million dollar computerized transmission and gearbox test cells for the Apache, Black Hawk, Seahawk, AH-1W, and CH-47D. Soon on-line will be the $4M OH-58D transmission test stand, which will replace the aging OH-6 transmission test cell. Near these cells are various other component test facilities, such as the $2M Hot Air Test Facility (HATFAC) that tests complex AH-64 parts such as the SDC and ENCU. It's equipment like this that gives CCAD its depot capability. Pilots and crews who visit this area are always amazed at the amount of strenuous testing a gearbox, transmission, or valve is put through.

Farther into the plant we see the Engine Production Directorate with its rows of engine parts being painstakingly inspected, repaired, and assembled on work benches and assembly stands. The popular T-53 assembly line, which still does Foreign Military Sales (FMS) and field support, has been virtually transformed to support the demanding T-700 modular workload. The T-700 family seems to be the mainstay of the engine workload; however, some T-55, T-53, T-63, and U.S. Navy Hovercraft TF-40 engines are still being produced. With a slight reduction in engine workload (due to a superior engine design technology and field units replacing modules instead of engines) several employees are being retrained to work in other areas of the plant. A transformation process developing Airframe and Powerplant (A&P) employees is being felt here. In the near future, this directorate is looking into Auxiliary Power Unit and T-800 production workload.

Surrounding the engine assembly areas are machine shops, metal spray shops, robotics welding, and balancing support shops. In the back of this facility, engine monorail installation and removal systems allow quicker processing of engines through the eight fully computerized engine test stands that put the engines through a rigorous test. Currently, all engine test stands are going through a million dollar upgrade of its computers and software.

This area is also where you can find the famous Engine Service Center staff of CCAD government employees that man a 24 hour Hot Line for engine assistance. Their reputation both over the phone and in the field is second to none. Every maintenance officer worth his weight should have their phone number close to them (if you are a new maintenance officer, write this number down—DSN 861-2651/2).

Finishing up in Building 8 we see expansion projects in the Hydraulic Division. This shop caught the greatest impact to the force modern fleet of aircraft as they transformed from repairing ground handling wheels to complex landing gear systems, and from the simple, flimsy, single stroke, low pressurized servo actuators, to the multistage, complex, dual actuator, high pressure, hydro-electric, ballistic-tolerant cylinders and stabilization actuators ... say that in one breath. Today's employees have to know as much about electronics as they do hydraulics.

The Parts Cleaning Division saw great changes to their processes and equipment as the environmental laws changed. Outlawed

chemicals that used to clean parts quickly and accurately are now being replaced with aqueous-type products that take extended process time—often requiring one-on-one chemical lab assistance. Visitors are always amazed to see helicopter parts being stripped with wheat starch, CO_2 pallets, soda-bicarbonate, or high pressurized water machines.

As we walk across Ocean Drive, we find the five massive WWII vintage hangars along the seawall undergoing production changes and facelifts too.

In Hangar 47, all Navy SH-60 Seahawk and U.S. Marine Corps AH-1W Super Cobra undergo Standard Depot Level Maintenance (SDLM). This new workload was transferred to CCAD as the result of the BRAC 93's decision to close down the Naval Aviation Depot in Pensacola, Florida. In some of the offices of this hangar is a full complement of Navy, USMC, and USAF Liaison and support staff. AH-1G/Ss of the past are no longer found in this facility.

In Hangar 46, the "ole Aircraft Delivery Office" (a familiar home to flight crews delivering or receiving aircraft at CCAD), helicopters are awaiting depot induction or ready to reissue to the field. This area, formerly managed by CCAD's Directorate of Supply, has been transformed to a full DLA facility with maintenance contractor personnel performing "make-ready" maintenance. Equipment to palletize helicopters for C-5 shipment is also found here.

Hangar 45 is completely designated for CH-47D refurbishment and AH-64 assembly. Working alongside CCAD employees are some Contractor Field Service Teams augmenting CCAD personnel performing CH-47D assembly production. With the assistance of contractor consultants, CH-47 process mapping has been completed, which will make this hangar highly efficient. This hangar years ago can best be remembered as the area where "cross service" aircraft and tailbooms and skids were overhauled.

Hangar 44 continues to serve as the test flight area, where our customers can see their helicopters come alive and fly. Our pilots boast a record-setting safe flying tradition with no accidents for over two decades. Housed within this building is the Plastic Media Blasting facility, that can virtually remove every bit of paint from an entire fuselage in hours—with about a bucket of hazardous waste.

The last hangar, Hangar 43, conducts the major structural and electrical overhaul for the entire fuselage. Within it are housed the various one-of-a-kind fuselage alignment fixtures for all aircraft currently in the fleet. In this area, a visitor can see a twisted and crashed damaged fuselage being transformed into a flyable aircraft again. The towering white "Erector Set"-looking fixture there is the AH-64A Machine Mate and Alignment Fixture. It was designed, built, installed, and optically aligned at CCAD by CCAD employees. It is the only one in the world. Once this was completed, CCAD was contracted by the USCG to design and manufacture a similar structure for the HH-65 French Dalphine helicopter.

Also in this hangar is the electronic circuit analyzer, or DIT-MA-CO, that analyzes thousands of circuits of helicopter wiring through a sophisticated computer system. Its software is capable of analyzing over 20,000 test points on the AH-64 alone. It is not unusual to see fly-in aircraft from the field being used to troubleshoot an electrical problem that the field manuals cannot solve.

As you can see, if a CCAD "ghost of the past" visited today, they would be lost with the physical and technological changes that the last decade has brought. The changes, though costly, were necessary to keep CCAD competitive and capable to overhaul the force's modern fleet of helicopters into the next century.

What this walking tour cannot show are

the "organizational changes" that have taken place at CCAD. With the DoD downsizing its industrial bases and Army Materiel Command mandates to have two levels of supervision and to realign the infrastructure, CCAD participated in three major and nine minor reorganizations. Like all changes, the reorganization of people and jobs is always the hardest.

From a Vietnam era peak strength of 4,200 DoD civilians and military employees, to today's 3,100 government, 13 military (six Army, four USMC, three Navy), and a few hundred contractor personnel, CCAD is experiencing some significant changes, and a great challenge ahead. Although seldom seen in the past, today contractor personnel are necessary and needed to offset the DoD hiring freeze and to help CCAD accomplish its changing mission. Contractor Field Service Representatives (CFSR) from General Electric, MDHC, Boeing, AlliedSignal, and Sikorsky have become a vital support function to CCAD and its mission. Numerous vacancies left by retiring employees are being filled by personnel from other DoD depots and facilities that were affected by DoD downswing decisions. In some CCAD shops, former experienced Air Force technicians working on Air Force fighters and C-5s last year are now working on Army UH-60s and CH-47Ds, USAF MH-60s, Navy SH-60s, and USMC AH-1Ws.

To keep the workforce abreast of the changes and challenges, they are linked together by E-mail, the depot's own TV LAN station, and satellite conferencing. A new fiber optic LAN will be operational by December 1997. ISO Standard 9000 certification is knocking at our door and will be a great challenge and an AMC requirement. Certifying our employees with A&P, FCC, and other industrial certificates has begun and will continue. Staying focused on the Flight Safety Program (FSP), Statistical Process Control (SPC), Business Process Improvement, and other initiatives will be most challenging. Our senior management is constantly looking at ways to improve our operation and to make us competitive in facing the next century. Directorates that were part of CCAD years ago have been divided, combined, or eliminated. Even self-managing work teams are being tested in some areas, with proven success. Besides all this, CCAD's customers have changed from all Army to Navy, Marines, and Air Force. Assignment to CCAD as a civilian employee today is vastly different from past military assignment. I can report to the field that, despite these changes, CCAD is seeing, every employees focus is still to provide the Soldier, Sailor, Airman, or Marine the safest product possible to fly. The endurance, determination and talent found in the south Texas culture to survive and succeed during these times is alive and well at CCAD.

I'm not sure how many other DoD industrial sites or commercial facilities could undergo the vast changes CCAD has faced these past years. Bringing on five major weapon systems such as the AH-64, OH-58D, SH-60, MH-60, and AH-1W, as well as absorbing another DoD depot's workload while undergoing a hiring freeze, downsizing, and reorganizing, was a monumental challenge and a sure sign that "change" is alive and well and spelled C-C-A-D.

CCAD's customers need to feel free to communicate to CCAD via QDR, E-mail (CCAD now has its own web page), DSN, or FAX. Maintenance NCOs and Officers as well as ATCOM LARS need to make CCAD a part of your professional training and TQM plan. There is a wealth of aviation maintenance knowledge here.

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ARMY AIRSPACE COMMAND AND CONTROL (A2C2)

"If the U.S. Army does not have airspace, it is then a direct fire Army." Key areas of controversy that a presidential commission considered during the allocation of roles and missions of the services were the questions of which service or services should be responsible for Close Air Support (CAS), Theater Missile Defense (TMD), and deep attack.

"The Army's traditional view of management of airspace must change."

Before the Persian Gulf War, insufficient attention was given to these issues. Systems that were built during the Cold War were proven during DESERT STORM. To operate those systems requires something in common—airspace. The Army's traditional view of management of airspace must change. The United States Air Force's view of the management of airspace over the land commander has changed and they have an active campaign to expand that management to the point of trying to gain control of proven modern weapons systems and divest themselves of technology and burdensome missions and equipment that do not contribute to their perceived role in the joint warfight.

Certainly, during the Cold War, the airspace management mission in the Army was given less attention than it merits today. To some extent, this lack of emphasis may have been the result of the belief that it was just too tough to bother with in the light of the other real and perceived threats during a time of large force structure and expenditures.

The Gulf War changed that approach forever. There is no question that tactically and operationally speaking, the availability or nonavailability of airspace had a direct effect on the outcome of that conflict. Land warfare is not just pursued on land, associated airspace is inextricably connected to and required for successful operations. Airspace (Battlespace) is dynamic and must keep pace with ground forces and their weapons systems.

Fighting industrial age wars on land, where the ultimate determination of winning and losing occurs, has not demanded an active Army presence in airspace management in the past or the Army's use of significant resources to support A2C2. But there are good and sufficient reasons to show that Army requirements, particularly in wartime, in the information age demand that airspace be the responsibility of the Army in a theater. Airspace man-

agement cannot be relegated to support status dependent on an outside agency, the United States Air Force, to furnish a product in response to a request from a land commander in the field.

Modern technology has made available a wealth of systems that transcend the areas of interest of a traditional "land army". This is especially true in the fields of intelligence, communications and logistics, and it has a major effect on operations and fire support.

Current doctrine has the battlefield artificially divided and segmented, across the ground; rear, close, deep, and interdiction by lines on the ground such as unit boundaries, FEBA, FSCL, RIPL. The battlefield is also artificially divided vertically low and high by means of "coordination" altitudes. Army A2C2 and Air Force TACS are duplicative in purpose and are currently based on who can, and not on who should.

The potential of Army control of its airspace to contribute directly to mission accomplishment by even the smallest task force commander requires a direct linkage between him and the availability to manage and control the airspace above the land that he is charged with. In practical terms, that means that a field commander must be able to task, directly through his own agent, the use of that airspace to enable the intelligence collector, the logistics provider, the fire support platform, or the weapons delivery system to complete its mission.

With digital technology, the commander can "see deeper," can observe enemy activities as they occur and can monitor the execution of his own operations as they are happening. The term "deep battle" has lost an exact definition. Modern technology also provides the land commander with systems that can strike deep. These are basic needs never best satisfied by an outside agency asked to provide airspace or to cooperate or to allocate among competing demands.

Specifically, a land force commander needs to do airspace management for the following reasons:

- Prevent denying the ground commander control of one or more dimensions in their battlespace, as this cripples C2 and warfighting ability.
- Enabling land forces operations, providing real time maneuver control and reaction capabilities.
- Nearly all operations in a theater are in support of ground forces as directed by the Joint Force Commander.
- Providing logistical operations to ensure constant, continuing resupply, avoiding bottlenecks.
- Accelerating activities in response to enemy actions.
- Allows commanders seamless control of the battlespace (airspace) from shore through Corps to deep. Lines on the ground like FSCL may not be needed.
- Unburdens other services the additional task of providing airspace management to the Army combat commander.

The alternative to an Army-run airspace management system is a joint airspace management agency or the assignment of this critical warfighting resource to a single military service, one that would act as the executive agent for the Joint Force Commander. In practice, neither of the alternatives has ever proven satisfactory over a long period.

The Joint airspace doctrine and the United States Air Force, in the long term have added a layer of bureaucracy but have not truly improved services to the warfighter in the field. The services have all retained a part of the system, but the focus is to have a Joint Air Component Commander that also acts as the JFC airspace manager.

On occasion, the assignment of a function to a single service has satisfied a requirement. For the most part, however, time proves that the services supported by a joint air commander/JFACC are dissatisfied with the role and response provided, object to the priorities extant and have to make modifications to satisfy their own needs. The US Marine Corps may have the right idea, they control their land and the airspace over them.

In the final analysis, it will be the joint task force commander or warfighting CINC who will determine the proper mix and prioritization of airspace users. Each of the components—land, air, and sea—will play lesser or greater roles in the management of airspace. One thing is an absolute: there will be few very limited one service missions that do not involve land forces, either Marine or Army. The commander of the land force components must have the capability to employ his weapons systems in airspace in the most effective way to accomplish his mission. No one is better qualified to orchestrate the actions of the forces under his command than the individual who has spent his lifetime perfecting the expertise required to win on the land. The Army ground winning role justifies the existence of an A^2C^2 System that controls all the airspace from shore through Corps to the deep battle.

Army Aviation was the proponent for A^2C^2. It has experience in providing support to all the BOS and mission areas/airspace users through its ATS units. Aviation DTLOMS must be modified to expand and adapt from that base to provide control and access to the LCC (Army) for this critical resource.

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COL Hufford is the former Director, U.S. Army Aeronautical Services Agency, 1993-1995.

FOUNDATION
(Continued from Page 16)

by CFSRs, why can't the Army get this same test equipment into the hands of its soldiers?" And the answer is, we can and we should! For example, the Longbow Apache program will continue to rely on on-aircraft-test-equipment, but the maintainers will also have the Soldier Portable On-line Repair Tool (SPORT) from the IFTE family to help him fault isolate. The PM, USAALS and the manufacturer are all focused on minimizing the number of pieces of test equipment, but ensuring that which is fielded, is state-of-the-art. We have the best original equipment manufacturers (OEM) in the world with great CFSRs, but they won't/can't be at all of the forward area rearm/refuel points (FARP) where our systems arrive with problems.

Not any one MACOM or activity can guarantee the soundness of this foundation. As you have seen, TRADOC, PEO-AVN, and Aviation and Troop Command all play vital roles. Where USAALS has a special role is as the User's Representative—articulating where we recognize the foundation has grown weak, and putting strength back into it. We do our job as the User's Representative with over 500 senior aviation NCOs/Officers who are our subject matter experts (SMEs)—most of whom have recently come from TOE assignments from all over the world. But even with this wealth of talent, input from our operational units is still essential to ensuring this FOUNDATION REMAINS SOUND.

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BY CPT JOHN R. KENEFICK

A COMPREHENSIVE PT PROGRAM

In today's army aviation community, commanders are confronted with a plethora of leadership challenges. The shrinking military budget may be the cause of most of these challenges, and it is the main reason our units must learn to "do more with less." Due to the diminishing budget, army aviation has been compelled to change the way it did business in the past. Specifically, the aviation branch encourages leaders to be creative and to produce more from less.

"...we must do all we can to guarantee our soldiers the best opportunity for promotion."

General Reimer stated at the 1995 AAAA Annual Convention, "...we've made reengineering and reinventing more than just buzz words; they are the way we do business, the way we make things more efficient." Aviation warrant officers are no longer just technicians, they are leaders in every sense of the word; consequently, they perform in duty positions that were once the exclusive domain of the commissioned officer. Our senior and junior NCOs hold more responsibility than ever before, and the soldiers arriving from the army's Advanced Individual Training (AIT) sites are more intelligent and capable than ever before. The direction army aviation is heading is bright and full of opportunities, and yes, it has a lot of unique challenges.

Our nation's leaders have decided that the army must decrease the size of its force. This fact has compelled many outstanding soldiers of all ranks out of the army. Today, soldiers are all too familiar with the word "discriminator." Soldier's records are painstakingly scrutinized, not only by the individual, but also by the promotion board members. These unseen board members have the tremendous responsibility of deciding which soldiers should stay and be promoted and which should not. Negative discriminators, such as black and white DA photos, minor administrative errors on the ORB, and failure to meet the AR 600-1 height/weight standard must be avoided at all cost.

As commanders and/or leaders, we must do all we can to guarantee our

soldiers the best opportunity for promotion. Although all negative discriminators are equally important and deserve discussion, this article will focus on how commanders can help their soldiers meet the Army Height/Weight standard by instituting a comprehensive unit physical training (PT) program.

In most aviation units, mission tempo is so fast that the maintenance and flight platoons, as well as the rest of the unit, are struggling to conduct regular PT sessions. As a result, some soldiers are not meeting AR 600-1 height/weight standards. How can an aviation unit satisfy the aforementioned requirements? The unit must design a realistic and challenging program. We all understand that time is valuable, so the program must make the best use of the limited time aviation units have available for PT. The good news is that 45-60 minutes is all that is required to help our soldiers increase physical fitness, reduce stress, burn fat, and lose weight!

"The key to success is to make your unit's PT sessions high-intensity!"

Everyone has probably heard the widely-held tenet that low-intensity exercise burns more fat than high-intensity exercise. There are two problems with this theory and its adaptability to Army Aviation. First, the time constraints involved in low-intensity workouts and second, the inaccuracies of the theory.

There are numerous, confusing studies which recommend running slow as the best way to burn fat. Normally, this corresponds to a heart rate of just 55 to 60% of maximum heart rate (MHR). These studies make the low-intensity workout seem like a great idea, but that's only at first glance. For example, a study at the University of Texas found that if athletes exercised at 50% of their MHR, fat provided 90% of the calories burned. When the athletes increased their MHR to 75%, fat provided about 60% of calories burned. It is an easy mistake to assume that the low-intensity session burned more fat. However, when you scrutinize the study, it is clear that the higher-intensity session actually burned more fat calories!! The facts of the study established that the 50% MHR workout burned only 7 calories per minute, while the 75% workout burned 14 calories per minute. A little simple math reveals that the high-intensity workout consumed 8.4 fat calories (60% (14) per minute, contrasting a mere 6.3 fat calories (90% (7) for the low-intensity workout.

There are other studies which report similar findings. For example, according to a study conducted at Quebec's Laval University, which is one of the most highly respected fat-metabolism labs in the world, high-intense exercise sessions burn fat 9 times greater than low-intense exercise sessions. Additionally, the study reports that vigorous exercise leads to better fat utilization in the post-exercise state. Furthermore, the high-intensity workout leads to metabolic adaptations that help the body use fat as a preferential energy source, even when the body is at rest. An additional factor aiding fat loss in response to high-intensity workouts is that the appetite is suppressed (research show that this is known to follow high as opposed to low-intensity workouts).

(PROGRAM — continued on page 34)

A SIMULATOR TO DO FLIGHT TEST?

A state-of-the-art flight test tool to reduce risk and cost.

Today, when you mention a flight simulator to Army aviators, training is the thought that most often comes to mind. Although training has been the primary use of simulators to date, it is quickly becoming only one of the ways simulators can and will be used for the remainder of this decade and beyond.

As we are preparing to move into the 21st Century, the U.S. Army Test and Evaluation Command (TECOM) and specifically the U.S. Army Aviation Technical Test Center (USAATTC) at Fort Rucker, AL propose to use a simulator to reduce the cost, risk and schedule in flight testing. Ultimately, this effort is focused on the RAH-66 Comanche developmental flight test program. The name of this simulator is the Flight Test Simulation Station (FTSS).

The RAH-66 FTSS is a state-of-the-art flight testing tool that integrates simulation into real world flight testing by validating a Flight Dynamics Model (FDM) using real world data. The FTSS reduces risk and cost of the overall flight test program through application of model derived data into the flight test results. In other words, if we can determine that this model acts just like a Comanche, we could use it as an accurate predictor of flight performance thereby possibly reducing the number of developmental flights.

As the first Comanche prototype is flown at the Sikorsky Development Flight Test Center (DFTC) in West Palm Beach, FL data is downlinked into the Airborne Data Acquisition and Processing System (ADAPS). From this computer, control states are input into the FDM which runs on an ONYX computer. The FTSS outputs information about the model reactions/body states, a cockpit display and a chase view of the aircraft. The FTSS can also accept manual inputs to allow the test pilots to "pre-fly" a test flight.

The FTSS has the following objectives:

- enable the test to be visualized prior to actual test flight
- develop a test procedure database that will assist in Engineering Change Proposal (ECP) design
- improve the quality of flight test

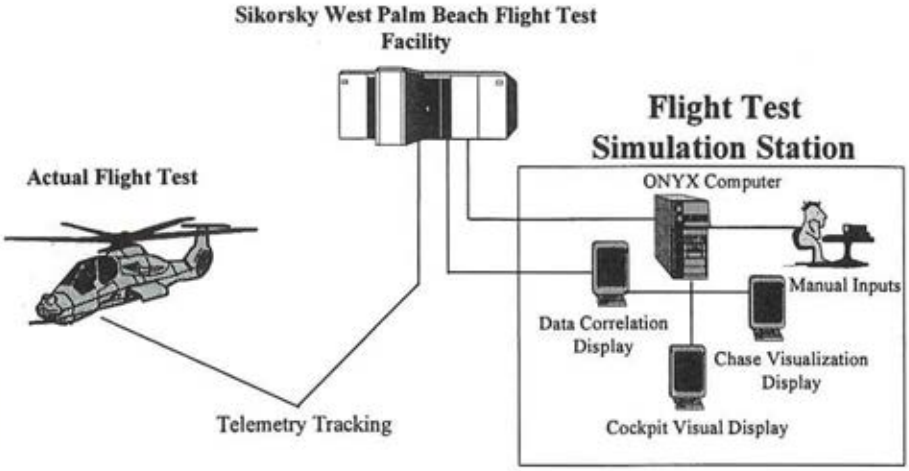

Figure 1

reporting
- explore telemetry driven simulation

Test Visualization. Test visualization is an excellent way to reduce risk for a flight test program. The FTSS can accept manual inputs and will allow a test pilot to look at certain aspects of the flight prior to heading for the flightline. This is particularly useful for high risk test points during envelope expansion. By "flying" the FTSS first, the test pilot will have a good idea of what to expect during the actual test flight. If the model indicates that the aircraft will not fly well, then a much more conservative incremental buildup technique can be used in the test flight. Additionally, test flights can be "reflown" on the FTSS to aid in the detailed data analysis that accompanies any flight test program. Since there are several test pilots on the RAH-66 program, the FTSS may be used as a means to pass on useful information when crews change.

Test Procedure Database. The FTSS will aid in the development of a test procedure database. This database will significantly help in the formulation of flight test cards. This database will also aid in the flights that involve hardware or software changes on the aircraft. The T800 engine upgrade is an excellent example of this invaluable benefit. By incorporating the new T801 software into the FTSS, flights can be modeled and performance predicted prior to any flights occurring. This will indicate any potential problem areas early in the testing process. The FTSS will also incorporate a "hot bench" capability which will allow the

test team to perform hardware-in-the-loop (HWIL) tests on virtually any aircraft component.

Quality Test Reporting. The FTSS willimprove the quality of test reporting by allowing reports to be published on CD-ROM. This capability will allow reports to be more easily understood by incorporating a wealth of data that will include animated sequences from actual test flights to highlight specific results.

Telemetry Driven Simulation. Finally the FTSS will reduce the risk of the Comanche flight test program by exploring the technology of telemetry driven simulation. The FTSS will have the capability of running the FDM simultaneously with a test flight and will be driven by the telemetry inputs on a real-time basis. This technology will reduce risk in that it will allow two or more test pilots to fly on the same flight. The pilot watching the FTSS output can alert the test pilot of undesirable model reactions prior to any high risk test points.

The FTSS can be an outstanding tool to use for flight test, but model output cannot be incorporated into the program for decision making purposes until the system undergoes verification, validation and accreditation (V,V&A). In a nutshell V,V&A is the process by which a model is measured on its ability to replicate the real world entity. Accreditation is the final step and involves an agency giving approval for the model's data to be used for a specific purpose.

Within the next year, the FTSS will be installed at the DFTC and begin reducing the risk of the overall Comanche flight test program. After its accreditation, the FTSS will become an integral part of the flight test reporting process. While helping ensure that no stone is unturned in the Comanche's engineering flight test program, the FTSS will play a major role in helping conserve defense dollars within the Army's premier helicopter program ... the RAH-66 Comanche.

★ ★

MAJ Haider is the Test Director, RAH-66 Developmental Testing, U.S. Army Aviation Technical Test Center, Fort Rucker, AL.

PROGRAM
(Continued from Page 31)

The key to success is to make your unit's PT sessions high-intensity! An example of an intense workout would be similar to the following:

2-3 minutes of warm-up exercises
3-5 minutes of light stretching
10 minutes of fast and intense push-up or sit-up type exercises
20-30 minute run at 85% MHR
3-5 minutes of light stretching

As commanders and leaders in today's Army Aviation community, we must overcome the myriad of leadership challenges. Leaders must take care of the soldiers entrusted to them, and this includes improving their chance for promotion. If your aviation unit does not have a lot of time available, and you want to help your soldiers stay in shape, reduce stress, burn fat, lose weight, and improve their probability for promotion, then remember the advice of today's leading exercise researchers: Make the workout sessions a high-intensity rather than low-intensity workout.

★ ★

CPT Kenefick is the Commander, F Company, 1-14th Aviation Regiment, Ft. Rucker, AL.

THE FLIGHT COMPANY TEAM

How teamwork is the foundation of success for Army Aviation operations.

An expert in command, leadership, or leadership philosophies, I am not. A football fan, I am. Understandably, I am much more confident in my ability to converse with regards to the pigskin and gridiron. Consequently, to better relate, I find myself discussing leadership philosophies in football jargon. One analogy is my idea of how an Army Aviation Flight Company achieves success if they function as a football team does.

I envision an Aviation Flight Company not as a gathering of Officers, Warrant Officers, Noncommissioned Officers and Soldiers but as a team; a football team. They must work together as one if they expect victory. Rank and position certainly separate the players but they must function as a cohesive unit, offense and defense to win games. The offense scores the touchdowns by completing missions successfully, the defense keeps the offense on the field and sets them up for success with properly maintained aircraft.

THE TEAM. To visualize the "Flight Company Team" one must understand the players and their roles. The soldiers and officers in a company have specific duties and responsibilities just as players and coaches on a football team have areas of expertise and assignments. Each excels in his particular resource area and for the most part, remains detached enough from his teammates to allow them to perform their specialty. Members of a flight company compare to a football team as follows in Figure 1.

THE COACHES. The head coach (Commander) is ultimately responsible for everything the team does or fails to do. If the team wins, the coach is popular with the owner and fans. Conversely, if the team loses, fingers are pointed at the coach and he takes the brunt of the ridicule. When a team loses consistently, they relieve the commander not his players.

The head coach chooses the best positions for each player, organizes practices (training), and molds the players to fit his style of play. He issues guidance to his assistants and players and allows them to conduct practices in accordance with this guidance. Oftentimes he is the person

THE ARMY AVIATION TEAM

HEAD COACH	=	THE COMMANDER
ASSISTANT COACHES	=	PLATOON LEADERS
OFFENSIVE COORDINATOR	=	STANDARDIZATION INSTRUCTOR PILOT
DEFENSIVE COORDINATOR	=	MAINTENANCE TEST PILOT
QUARTERBACK	=	PILOTS-IN-COMMAND AND AIR MISSION COMMANDERS
OFFENSIVE PLAYERS	=	PILOTS
LINEBACKERS	=	PLATOON SERGEANTS AND FLIGHT LINE NCOs
DEFENSIVE PLAYERS	=	CREWCHIEFS
REFEREE	=	AVIATION SAFETY OFFICER

who constructs the plays (OPORDS) in the playbook, but he is rarely the person on the field, or in the air in this case, leading the team during the game (missions). The coach must ensure he has instilled a winning spirit in his soldiers as well as provided the most and best practices possible. Since the coach cannot always be on the field, he must lay out his game plan (intent) on how the team should approach the enemy clearly so his offensive coordinator, quarterback, defensive coordinator, and linebackers can successfully conduct the game.

The assistant coaches (Platoon Leaders) serve in a role similar to the head coach only they have more direct contact with the players. They aid the head coach in developing orders and players. They are the ones that communicate the head coach's intent to the rest of the team and ensure that it is carried out. In the absence of the head coach, the assistant will make key decisions. The assistant coaches, in essence, are students under the tutelage of the head coach in preparation for the day they become head coaches themselves and obtain their own teams to lead.

The Offense. Acting as the offensive coordinator, the Standardization Instructor Pilot (SIP) works to develop the war fighting skills of the individuals on the offense. The offense being the unit that scores points with successful missions, he advises the head coach on all matters pertaining to its operation. He ensures his players (Pilots, Pilots-in-Command, and Air Mission Commanders) are trained to execute all the plays in the Commander's playbook. He leads the offense in training by conceiving the flight schedule

as well as determining which players need practice on which missions. When the offense is ready to step up to the next level of play, the offensive coordinator informs the coach as such. During the game the SIP with the Commander, calls the offensive plays and controls the movement of the ball.

The Pilots-in-Command (PICs) and the Air Mission Commanders (AMCs) are the team's quarterbacks. Since this is the most valuable position on the team the coaches must select these individuals carefully. The quarterback controls the offense on the field. The coaches and coordinators are not always on the field during the mission so the quarterback must not only be a skillful pilot but also a leader who understands the capabilities and limitations of his offense. He must be able to see the entire field and use it to his advantage. If, for example, the opposing team lines up in an unfamiliar formation, the quarterback has the trust of the coaches to audible at the line-of-scrimmage and change the called scheme of maneuver or if dumbfounded, call a time out to parley with the coach. Of course, if the quarterback changes the play, the new play must fit into the Commanders intent. Even though the head coach is ultimately responsible, the quarterback is the player who can most influence the game's outcome.

The offensive players consist of all other pilots within the company. They train with the quarterbacks and each other so each will comprehend the others assignments once the ball is snapped. If proper coordination is not accomplished, blocks will be missed, balls fumbled, or passes dropped. A good offensive group will function as one, drive the ball down field smoothly and error free and put it in the endzone, all with the coaches on the sidelines.

The Defense. The defensive coordinator (Maintenance Test Pilot) is the coaches' advisor on all defensive aspects or maintenance operations. He guides the defense during games and uses valuable practice time to guarantee his players (Crewchiefs and Flight Line NCOs) have grasped the fundamentals of a good defense (aircraft maintenance). The defensive coordinator oversees the company's maintenance program by scheduling maintenance practices (aircraft phase inspections) and keeping the team abreast of defensive decisions made by the head coach. "The key to a good offense is a solid defense" holds true for a flight company as well. If the offense does not have properly maintained aircraft, they certainly are not as apt to score points and complete missions.

Just as the quarterbacks control the offense on the field, the Platoon Sergeants and Flight Line NCO's control the defense. These linebackers are the defensive captains that crewchiefs look toward for the on-the-field decisions made during the game. They are the defensive leaders that carry out the coaches' intent for maintenance. Like quarterbacks, linebackers must see the entire field and have the ability to adjust their formation to outsmart the opponent. The linebackers are the backbone of the team who not only instruct other defensive players but also must be the most versatile players on the field. When the ball is snapped, the linebacker, reading the other team, must decide whether to step up, act as a lineman and fill a key gap, or drop back, set up as a defensive back and cover a pass receiver. On the flight line, he determines which is more important, assist a crewchief with unscheduled maintenance (fill-

ing the gap) or concentrating more on phase maintenance for better long term results (covering the pass). Each time the ball is snapped, he makes a decision based upon the situation and the Commander's intent for aircraft maintenance. The head coach and defensive coordinator have faith in the linebacker's ability to make this judgment.

The crewchiefs are defensive players that get the ball back for the offense with good field position. They provide well maintained aircraft thus setting the pilots up for success. Often times these players are overlooked as superstars when in fact they are key to a winning team. They kick and fight down in the trenches, often bloodying noses and knuckles and only get recognition if they make a big play such as intercept a pass or sack the quarterback. The fans love the glory-boy pilots for scoring touchdowns and forget the crewchiefs when they are the ones who got the ball back, and shaped the offense for victory. Within the company, crewchiefs practice long arduous hours, including weekends producing fully mission capable aircraft so the pilots can win the mission and fame. It goes without saying, without a steady maintenance program, the pilots step onto the field doomed for failure. The crewchief is the player that produces steady maintenance.

The Referee. The company's Aviation Safety Officer is a full-time referee for the team during both training and games. He watches intently both offense and defense, all the while making sure no one breaks the games rules. When someone breaks the rules (commits an unsafe act) the referee blows his whistle, throws his flag, and stops play. This causes the players and coaches to reevaluate the manner in which they have been conducting business. They then alter their methods, whether practice or mission profile, and find a safer, more within the rules way of operating. Of course the Safety Officer does not necessarily have to wait until a rule is broken to throw his flag. Actually it is preferred if he works with and advises the team as they progress. If he points out a potential rule infraction beforehand, he could save the team valuable penalty yardage by avoiding a safety hazard. In essence he both advises and referees the team, ensuring rules are not broken, therefore preventing mishaps and injuries.

The Conclusion. Dissecting an Aviation Flight Company and comparing it to any ordinary football organization illustrates how the company should function as a team. One unit, made up of individuals with varying responsibilities, striving to accomplish a common goal. Each player tends his duties and relies upon his teammates to accomplish theirs, thus the entire process is completed individually with team effort. If one offensive lineman misses a block or a defensive back gets 'beat deep', it is a personal failure but he has also failed his teammates. Of course, if that player continuously misses blocks or gets 'beat deep' then the coach has failed. But if the individuals within the team function as single entities rather than as an integral part of the unit, I hope they are prepared for a losing season. On the other hand, if they function as a cohesive unit, they are Sugar Bowl bound.

★ ★

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DOWNSIZED AND CONSOLIDATED! U.S. ARMY AVIATION TECHNICAL TEST CENTER

Downsizing and consolidation! These are words that permeate the popular culture today. Their meaning is certainly not unknown in today's Army. Neither has the business of Army Aviation Development Testing been untouched by what these words represent.

Despite the downsizing of the force, the mission remains the same.

The U.S. Army Aviation Technical Test Center (ATTC) has both downsized and consolidated at Ft. Rucker, AL after previously operating out of two test locations, Fort Rucker, AL and Edwards AFB, CA.

ATTC is one of six test centers belonging to the U.S. Army Test and Evaluation Command (TECOM) which is headquartered at Aberdeen Proving Ground (APG), MD. Other test centers in TECOM are the: Aberdeen Test Center (ATC), APG, MD; Dugway Proving Ground (DPG), UT; Redstone Technical Test Center (RTTC), Redstone Arsenal, AL; White Sands Missile Range (WSMR), NM; Yuma Proving Ground (YPG), AZ.

Additionally, other main test sites within TECOM are: the Electronic Proving Ground at Fort Huachuca, AZ, which is a subordinate of WSMR, and the Cold Regions Test Center at Fort Greely, AK, which is a YPG subordinate.

TECOM, a major subordinate command of the U.S. Army Materiel Command (AMC), supports the Army acquisition community and AMC during materiel development and throughout the life cycle with a world-class development tests capability. ATTC is TECOM's test center that focuses solely on *aviation* development testing in support of Army Aviation. Development testing and aviation test support are provided to the U.S. Army Program Executive Office, Aviation; the U.S. Army Aviation and Troop Command; and other major elements of the Army involved in aviation-related materiel development and acquisition. Testing covers the broad fields of air vehicle performance and flight characteristics, system and subsystem performance, human factors engineering design (MANPRINT), reliability, maintainability, and system safety.

Since the advent of Defense downsiz-

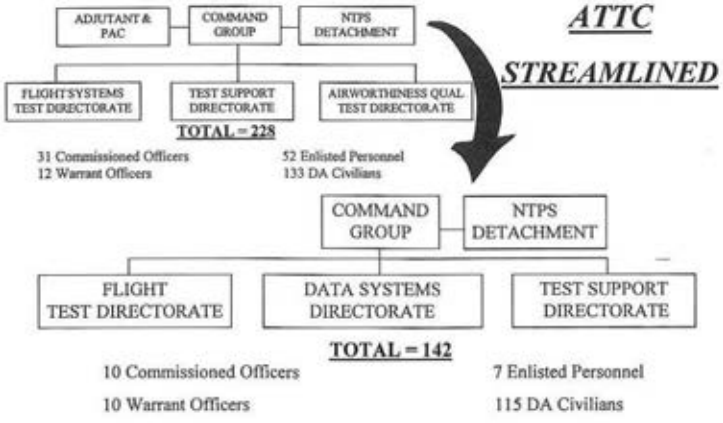

Figure 1

ing, TECOM had studied how aviation development testing might be reorganized to accommodate personnel and budget reductions. Additionally, an unrelated reduction of military positions within AMC and the resultant drastic reduction in military tester positions that this entailed for ATTC made consolidation at a single test site an absolute imperative. For example, in ATTC the Soldier Operator-Maintainer Test and Evaluation (SOMTE) positions were reduced as follows: commissioned officer positions were reduced from 31 to ten, warrant officers from 12 to ten, and enlisted personnel from 52 to seven.

In June 1995, the Secretary of the Army tentatively determined that the preferred consolidation site for ATTC was Ft. Rucker, AL, and that armament and sensor testing would continue to be conducted at YPG. After staffing and approval of an Organization Concept Plan (OCP) and Army Regulation (AR) 5-10 Reduction and Realignment Documentation were completed, final approval was given on 20 February 1996 to transfer ATTC's Airworthiness Qualification Test Directorate from Edwards AFB, CA, to consolidate with the remainder of ATTC at Fort Rucker. This consolidation, which was completed on 1 October 1996, brought the air vehicle performance and flight characteristics test mission to Fort Rucker. This consolidation of testing permitted an approximate 35% reduction in the test aircraft required by ATTC.

After being downsized in personnel by more than 37%, ATTC is a considerably leaner organization as shown in the accompanying figure. The Flight Test Directorate is responsible for all testing; the Data Systems Directorate is responsible for test data acquisition and processing;

and the Test Support Directorate is responsible for advanced planning, resource management, and test aircraft maintenance. The NTPS Detachment, consisting of two highly experienced experimental test pilots, is assigned to the Naval Test Pilot School (NTPS), Patuxent River Naval Air Station, MD to provide for training of new Army experimental test pilots. The commissioned and warrant officers remaining in the new organization are experimental test pilots, graduates of NTPS, and are the Aviator-SOMTE capability within ATTC.

The very small number of enlisted personnel remaining in the new organizational structure comprise the Maintainer-SOMTE positions and provide the core of expertise for assessment of such key areas as design for maintainability and suitability of tools, test equipment, and manuals. The civilian personnel reductions from 133 to 115 were principally in administrative and support positions as opposed to the scientific, engineering, and technical areas; thus, preserving civilian personnel strength, "where the rubber meets the road," in testing.

Despite the downsizing and consolidation, the ATTC mission remains unchanged. Concisely, it is to: *Plan, Conduct, Analyze,* and *Report* on Airworthiness Qualification and Development Tests of Aircraft, Aviation Systems, and Related Equipment *during development* and *throughout the life cycle.*

ATTC is, and will continue to be, the *only* TECOM test center whose testing focuses on the aircraft, the associated equipment, the aviator, and the maintainer as comprising a total, integrated Army combat aviation system. TEST ABOVE THE BEST!

★ ★

Mr. McCrory is the Technical Director, U.S. Army Aviation Technical Test Center, Ft. Rucker, AL.

■ ESSAY

BY CW4 ROBERT E. HOWARD, RET.

INCREASE AIRCRAFT AVAILABILITY: GIVE MAINTENANCE ITS CHANCE

The third prize winner in the AAAA Essay Contest.

Now that I'm out chewing grass in the pasture, after 40 years or so of stumbling around the Army aviation business, I can sit down, reminisce, and objectively jot down some personal thoughts about the pluses and minuses of how the Army, over time, has adapted to supporting battlefield commanders with airborne vehicles. I have to begin by saying that my own experiences, and those gleaned from talking around, have shown that—because of the many strong pluses—there has been a subtle tendency to discount some of the minuses—particularly one.

The pluses are easy. Mainly, they're tied to the explosive increases in helicopter technology that have taken us from transporting the wounded, cargo, and equipment around the Korean battlefield to now providing awesome firepower, rapid movement of masses of fighting troops, and pinpoint reconnaissance of enemy activity. Today, the helicopter is viewed as the Army's premier weapons platform, troop transporter, and scout vehicle. Further, U.S. Army chopper pilots are generally considered the best trained and most adept in the world.

The minuses can be placed into two major categories: weather restrictions and aircraft availability. Because aircraft move so fast and rely heavily on ground reference points (and often the quick avoidance of same), weather is obviously a more crucial consideration during operational planning than it is, for instance, when thinking about using tanks. That restriction has in fact been given its due during new aircraft development. The aforementioned high-tech improvements have included night and bad weather flying provisions that give modern Army helicopters an almost all-condition flying capability.

Much of that capability, however, has been negated by the second minus: lower than desired aircraft availability—read that aircraft maintenance support. It is in fact a problem that has gradually worsened over the years.

The problem does not have its roots in constrained training of aircraft maintainers, or from shortages of repair parts. Of

course there is some of that; there always will be because of budget restrictions. But if those things were the villains, why do some units attain 80%+ aircraft availability, while many similarly provisioned units struggle with rates of less than 50%? Excepting special consideration given to a few quick-reaction forces, most Army aviation units get their repairmen from the same pool and use the same logistical and maintenance support systems.

The fact that a few units do maintain high availability rates demonstrates that existing Army aircraft maintenance and supply systems can work. So if the main problem is not one of poor training or faulty support systems, what is it? The answer is maintenance priority—or the lack thereof—at all levels.

"So if the main problem is not one of poor training or faulty support systems, what is it?"

My earliest remembrances bring to mind an aviation "family." Pilots, operational flight schedulers, crewchiefs, maintenance and supply supporters, and everyone else that had anything to do with the Army's aviation mission all functioned in unison—no element took precedence over the other. We caught some "white scarf" barbs back then from non-family members, but none of us ever wavered in our in-house cohesiveness.

Perhaps there is a touch of rose coloring to my glasses, but as I look back, I see that cohesiveness as the impetus for the ultimate progression of aviation to the forefront of the Army warfighting team. The two major umbrella categories of the Army aviation force—operations and maintenance—were as one. Those who scheduled and flew the birds lived shoulder to shoulder with those who fixed them.

It was not unusual to find pilots helping out in the hangar, and crewchiefs often accumulated more "stick time" than many of those wearing aviator wings. Operations schedulers asked "maintenance" for mission aircraft by type—without even thought of asking for specific tail numbers, because that was the maintenance chief's decision. In essence, maintenance "owned" the aircraft, and everyone accepted that.

But all that is gone; some of it unavoidably, some of it unnecessarily.

The high-tech electronic systems found in current Army helicopters preclude pilots bootlegging stick time to crewchiefs as they did during the days of reciprocating engine, hydro-mechanical flight control aircraft. Similarly, aviators are rarely found working the myriads of test equipment and special maintenance requirements associated with today's aircraft; shade-tree mechanics have limited value around such sophisticated "electronic nightmares." Thus, unfortunately, much of the old sharing of duties among aviation family members—informal as it was—has gone the way of the hula hoop; and with it, much of the close mutual respect that emerged from such a relationship. That, sadly, is one of the inherent fallouts of progress in any line of business.

Adding fuel to the fire, during the time this gap between operators and maintainers was widening, unprecedented budget and manpower cuts started taking place across the Army, particularly after the Vietnam war ground to a halt. The combination of the two circumstances led to a continual downslide in aviation mainte-

nance priority and capability. This occurred for several reasons.

As the Army slashed overall manpower levels, decisions had to be made on where within the aviation arena reductions should be applied. In the true "tooth-to-tail ratio" spirit that has dominated military leadership thinking since 1776, the "tail" (maintainers) invariably took the brunt of personnel cuts so that maximum "tooth" (aviator) power could be preserved. That is, the equal-status relationship between operators and maintainers that existed in the past became just that, a thing of the past.

The result of such cuts brought our maintenance force to dangerously low levels in relation to the maintenance-man-hour requirements generated by a more advanced helicopter fleet (a fact clearly manifested during the Gulf deployment). Crewchiefs found themselves more and more serving as squad leaders, tool room keepers, and a variety of other duties in addition to trying to keep their helicopters airworthy. In some instances, crewchiefs are now assigned on a less than one-per-aircraft basis.

Concurrently with all that, and adding more fuel to the fire, the infamous "soldier first, mechanic second" mentality has become the driving force behind aviation crewchief/repairmen training schedules, most notably in combat divisions. Crewchiefs and repairmen are increasingly dragged off to mandatory "lightfighter" training, jump qualification, physical training "silver streamer" competitions—and just about every other fighting-warrior program—on a blanket basis with line soldiers whose primary value in battle relies on such training. Add that to the rock painting/bus-monitor type details that plague every Army organization, and not much hangar time is left.

The catchy "soldier first, mechanic second" axiom that many division commanders have pushed "with no exceptions" onto subordinate aviation unit commanders was, and still is, one of the most demoralizing, devastating blows to aviation maintenance to ever come down the pike. The implication is that maintenance people are "straphangers"; the only real soldiers are those ready to parachute in and attack the enemy with fixed bayonets, and that mission should drive the training priorities for everyone wearing an Army uniform.

In all the years I spent in Army aviation units in many places, I never once saw an aircraft electrician parachute into a maintenance site, but I've seen many of them send helicopters back into the fray, to the undying gratitude of battlefield commanders. We seem to have lost sight of the fact that, in wartime, the value of aircraft maintainers to the battle is directly proportional to their skills as technicians; that is where the priority for their peacetime training should lie.

However, mundane things like fixing airplanes are virtually relegated to "when there's time" training priorities. I have to think that, in addition to those who actually work in maintenance and live with the problem, one would be hard pressed to find *anyone* in Army Aviation who isn't by now aware that study after study, and survey after survey, have disclosed that today's aircraft maintainer averages less than three hours a day working on aircraft related duties.

These studies and surveys have been going on a long time and there's been a lot of *talk* about them, but the only thing that's come out of them is that each one verifies the accuracy of the other.

It doesn't take a rocket scientist to figure out that cutting the number of maintainers, then reducing the time maintainers spend working in their school-trained specialty severely handcuffs aviation maintenance capabilities, which in turn significantly lowers aircraft availability rates. Further, the situation leads to an erosion of technical proficiency and has virtually destroyed the esprit that existed in yesterday's Army Aviation maintenance force.

Crewchiefs once looked at their aircraft as exactly that: *their* aircraft. They were authorized in adequate numbers, and along with maintenance assistants were, more often than not, given the time to keep their aircraft in flyable status. The personal pride each crewchief took in *his* aircraft led to a highly competitive atmosphere in terms of keeping logbooks clear of discrepancies and minimizing the number of red (grounded) days. *He* was in charge of all unit maintenance performed on his aircraft, which translated to safe aircraft and high availability rates.

Now, a crewchief is apt to return from a week of combat arms training or special detail to find his aircraft in a hundred pieces strewn around the hangar floor. And, usually, because of personnel shortages in his own unit, he does not get to accompany his aircraft when it goes to the Aviation Unit Maintenance facility for phase inspections. The bottom line is that crewchiefs have lost the pride of ownership so prevalent in earlier years. The impact on maintenance initiative is obvious: not many people wash rent-a-cars.

Low priorities accorded the aviation maintenance world have not been restricted to the "people" side. Similar problems exist on the material side. As one who personally toiled in the combat developments area for many moons, I can well attest to the low-man-on-the-totem-pole position occupied by maintenance support equipment programs in relation to aircraft system enhancement programs initiated by the "tooth" combat developers.

Without exception, every time a budget cut for aviation development programs comes down, ground support equipment becomes target number one. A philosophy has taken hold over the past couple of decades that any program that doesn't directly improve aircraft "shoot-move-communicate" features (another cute, catchy phrase like "soldier first, mechanic second") is dismissed as a "nice to have" idea, and placed first in line for the chopping block. In that atmosphere, try getting funding for a badly-needed new item of aircraft ground support equipment when the money goes toward that or improving a helicopter's airspeed by five knots. The "speed" wins every time. The part of the equation always left out is that for the helicopter to go that much faster, it has to be able to get up into the air first.

Example after example could be cited on the indicators of low aviation maintenance priority that, as discussed, exists from the top decisionmakers and commander down to unit-level operations. Many of those indicators are only obvious to those who work day in and day out in the maintenance end of the business. Others may in fact be recognized by decisionmakers throughout the upper command channels, but little has been done to change the situation.

Senior level decisionmakers and commanders need to get off the tooth-to-tail ratio kick when looking at mandated personnel cuts, and look more at impacts on battlefield responsibilities and firepower. Aircraft repairmen are responsible for keeping weapon systems with enormously destructive capabilities in operable condi-

tion. From an overall Army perspective, in terms of firepower, keeping an infantryman who carries a rifle while cutting an engine repairman or crewchief responsible for putting an Apache into the battle doesn't wash very well. Within the aviation spectrum, keeping a full stock of aviators without an adequate number of maintainers merely congests airfield pilot lounges.

Those aviation commanders who complain their availability rates are low because of personnel shortages need to realize that a concerted effort to allow their repairmen and crewchief to work on aircraft six hours a day instead of three would equate to doubling the size of the workforce. It's numbers of maintenance manhours that fix airplanes, not numbers of people. The units that *do* achieve good aircraft availability rates are those that have learned that flyable helicopters are more enchanting than painted rocks and silver streamers. They put high priority on maintenance operations.

Several years ago, my friends and neighbors at the Aviation Logistics School (now virtually defunct, another blow) happened to select me (while I was TDY) to conduct a DA-directed survey of aviation units across the Army to identify problems that were negatively affecting aircraft availability rates. Although there were many variables in the scores of units I visited, two things were totally consistent with the few high-availability units: they had intense maintenance management programs in place ("bank time" monitoring, organized work areas, programs to minimize deferred maintenance buildups, etc.), and *people were working on every aircraft in for maintenance.* In some cases, units with low TOE personnel fills had more people continually laboring in the maintenance areas than did other units with more assigned people.

In the same vein, budgeting decision-makers within the aviation community need to acknowledge the criticality of maintenance people and equipment to the success of the Army's aviation mission. No matter how great the shoot-move-communicate characteristics of an aircraft are, not one of those characteristics helps the battlefield commander while the aircraft is sitting in a hangar somewhere in the rear sector. Multi-million dollar whiz-bang helicopters are hollow buys without concurrent life-cycle funding support and adequate prioritization for keeping those helicopters airworthy.

It has now been more than two decades since the Army has engaged in sustained warfare. During that time, Army Aviation has formed its own branch, experienced undreamed of organizations, and gone to centralized distribution of aircraft assets.

As all those gold plated advances were taking place, the "old team" maintenance element lost a lot of visibility—and steam. Each facet of progress has occurred in a sterile context with little talk about maintenance implications. New super-duper aircraft improvements are demoed by contractors in "bagged" environments, field exercises are usually "pre" loaded for success (*pre*positioned refueling stations, *pre*-exercise flying stand-downs, etc.) and, lately, virtual reality has taken over in lieu of in-the-mud maneuvers (computer helicopters don't get sand in their engines). In essence, a strong assumption now prevails that maintenance in a given; it is "just there".

But *I* know better (chew, chew).

★ ★

CW4 Howard, Ret. spent 21 years of active military service working exclusively in the Army Aviation field.

BY MAJ ROBERT W. WERTHMAN

SPECIAL OPERATIONS AVIATION MISSION PLANNING PROCESS

How SOA is tailored to meet the ground commander's intent.

The desired outcome of an effective mission planning process is the synchronization of total combat power on the battlefield. The 160th Special Operations Aviation Regiment (Airborne) seeks this goal by using a tactical decision making process and troop leading procedures that are tailored to their unique aviation capabilities and to the different types of ground forces that SOA supports. This article's intent is to define aviation's mission planning process and focus on SOA's integration with the Special Forces Battalion's mission planning.

One of the few arenas in today's Army that fosters this total integration is at the Joint Readiness Training Center (JRTC). Normally, the majority of support that SOA provides to the Special Forces Command is in direct support of "A" teams and not the Special Forces Battalion (FOB). JRTC brings these two unique Special Operations Forces (SOF) together, placing them under the control of a Joint Special Operations Task Force (JSOTF) and allows them to operate in woodland, mountain, maritime and desert environments.

The first step to defining SOA's mission process is understanding the command and control structure. The JSOTF has direct control of the FOB and control of SOA assets through the Joint Special Operations Aviation Component Commander (J-SOACC). SOA's relationship to the FOB is Command less OPCON in Army terms and administrative control (ADCON) by Joint doctrine. The JSOTF through the J-SOACC has complete control of SOA's airframes, leaving the FOB CDR to deal with SOA's force protection, messing, billeting, etc.. The fundamental corollary of ADCON is that the FOB must inform the JSOTF of any intent to use the aircraft. This command relationship could change to "attached" if the FOB is working in an immature theater without a JSOTF or JSOACC.

A 96 Hour Special Operations Mission Planning Process is used by the JSOTF and compliments the command and control structure. Joint Publication (JP) 3-05.3 outlines this basic message structure

96-HOUR SO MISSION PLANNING PROCESS

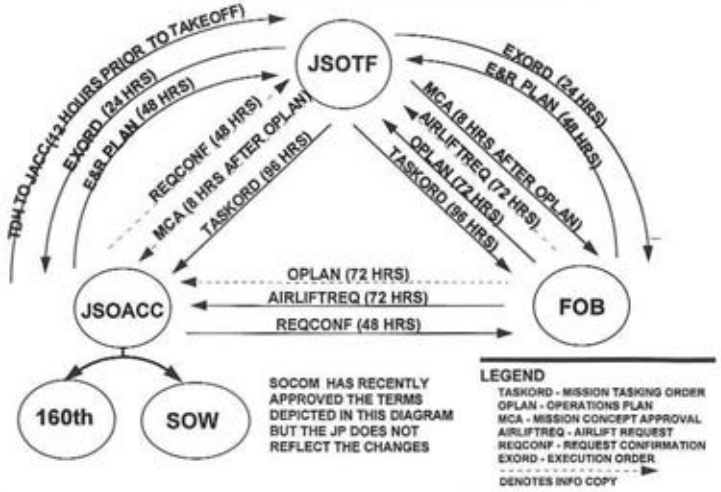

Figure 1

for planning and coordination of aviation support. 96 hours is a base timeline for mission support but METT-T can increase or reduce the timeline as required. The timeline is derived from the earliest anticipated launch time (EALT) which is J-SOTF's best estimate of mission execution. The TASKORD is sent by JSOTF through the Joint Aviation Operations Center (JAOC) to SOA 96 hours prior to the EALT.

SOA begins mission planning based on this EALT but determines the actual launch time to meet the time-on-target (TOT) after METT-T analysis. An important aviation link in this process is airspace coordination which is handled both at the JAOC and the Joint Airspace Control Center (JACC). The JAOC is the single air manager for SOF aviation and will deconflict JSOTF fixed-wing and rotary-wing assets. The JACC is located at the Joint Task Force (JTF) and will deconflict theater assets and produce the Air Tasking Order (ATO) and the Airspace Control Order (ACO). The other elements in this process are explained in detail in the Joint Publication and are beyond the scope of this article.

C^2 and the 96 hour mission flow define JSOTF's planning sequence and provide the subordinate commands limits and boundaries to their mission process. SOA's next task which is vital to mission success is understanding and integrating into the FOB's mission planning process. Normally, the FOB conducts a deliberate decision making process which takes 12-20 hours based on the tactical proficiency of their battlestaff. SOA's key link to this process is their aviation LNO attached to the FOB. SOA receives the TASKORD at approximately the same time as the FOB and conducts parallel

FOB TACTICAL DECISION MAKING PROCESS

Message / Activity	Decision point	From	To / Info	When	Duration
Mission Tasking (TASKORD)		Higher	FOB/ Supporting Unit	H - 96 hrs	
Disseminate TASKORD		OPCEN	Centers	H - 96 hrs	0:15 hrs
Gather Facts. Mission Analysis. Initial IPB					1:45 hrs
Restated Mission. Commanders Guidance.	DP 1 Restated Mission	FOB Staff	CO	H - 94 hrs	0:30 hrs
COA Development. Staff planning.					1:30 hrs
COA Wargaming					1:00 hrs
COA Selection & Commanders Guidance.	DP 2 COA Decision	FOB Staff	CO	H - 91 hrs	0:30 hrs
Warning Order (WARNORD) / Isolate Team		FOB	Executing Detachment/ ISOFAC	H - 90 hrs	
OPORD Approval.	DP 3 OPORD Approval	FOB Staff	CO	H - 87 hrs	0:30 hrs
OPORD (Written)		FOB	Executing Detachment	H - 85 hrs	

Figure 2

planning. This allows the LNO to receive initial guidance from the aviation commander and input those limitations and constraints into the FOB's COA development. LNO input at this stage is critical to ensure that aviation survivability and support for the ground forces' COAs is feasible. This early input reduces planning time through elimination of impracticable aviation COAs. The LNO wargames with the FOB staff determining decision points and abort criteria that are crucial to mission success. Throughout the entire process, the LNO is keeping the SOA S3 informed of the mission's direction and the FOB CDR's CCIRs and intent.

The LNO participates in the OPORD brief to the detachment by giving the ODA CDR the capabilities of the aviation assets supporting his team. The ODA CDR determines when the LNO can meet with his team to ascertain the preliminary ground plan and any rehearsal plan. This first meeting with the detachment is usually 8-12 hours after the FOB's mission brief. During this period, the detachment is conducting their TDMP and completing the aviation mission checklist that discusses infil, exfil, contingencies, communication, etc.. This checklist if fully understood and completed in detail ensures that the initial LNO/detachment meeting is productive and focused.

The LNO takes the preliminary tactical plan, the rehearsal plan and the completed checklist to the aviation S3 who analyzes and disseminates the information to the air mission commander (AMC) and the flight lead (FLT LD). If the rehearsal is complex, the FLT LD will alleviate the LNO of that responsibility and conduct a face-to-face with the detachment to develop the plan. The next meeting that occurs NLT the team's backbrief to the FOB

FOB TACTICAL DECISION MAKING PROCESS

(CONTINUED)

Message / Activity	Decision point	From	To / Info	When	Duration
OPORD (Mission Brief)		FOB	Executing Detachmen	H - 82 hrs	0:30 hrs
Detachment Mission OPLAN	DP 4 OPLAN Approval	Executing Detachmen	FOB	H - 74 hrs	0:30 hrs
Operation Plan (OPLAN) Message		FOB	Higher / Supporter	H - 72 hrs	
Air Lift Request (AIRLIFTREQ) Message		FOB	Supporter / Higher	H - 72 hrs	
Mission Concept Approval (MCA)		Higher	FOB / Supporter	H - 64 hrs	
Request Confirmation (MSC)		Supporter	FOB / Higher	H - 48 hrs	
Back brief	DP 5 Readiness Approval	Executing Detachmen	FOB	H - 24 hrs	1:00 hrs
Execute Order (EXORD)		Higher	FOB / Supporter	H - 24 hrs	1:00 hrs
Launch Approval	DP 6 Launch Approval	FOB	Executing Detachmen	H - 2 hrs	0:10 hrs
Launch				H - Hour EALT	0:00 hrs

Figure 3

CDR and after rehearsals is between the detachment and the FLT LD. The FLT LD with his planned routes will finalize the tactical plan, the E&R plan, the communications plan and any other contingencies that may need adjustment after the rehearsals. Threat and mission updates from the ODA are disseminated by the LNO and FLT LD until mission launch.

SOA conducts a tailored decision making process that parallels the FOB. SOA's process mirrors the Quick Decision Making methodology more than the Combat or Deliberate process as outlined in FM 101-5. Several factors favor the Quick process over the other two systematic approaches. SOA's primary mission is to nurture a habitual relationship with the ground force and support that force with as many assets as the mission requires. This type of support forces SOA to react and adjust to the ground CDR's tactical plan which limits SOA's COAs and planning time. Moreover, the AMC's and FLT LD's input to the decision making process is so encompassing and detailed that the staff normally reacts to their plan rather than providing estimates and developing COAs. Limited time, COAs, and staff input combined with detailed mission analysis and wargaming by the AMC and FLT LD support the Quick Decision Making Process.

Throughout mission planning, SOA must remain flexible and adaptable to the ground force CDR's intent. Without the ground plan, SOA's COAs are limited to asset availability, FARP capability and scheme of maneuver. SOA can develop and request SEAD and fire support but the ground force must integrate those requests into the tactical plan. SOA will wargame the entire tactical plan and finalize full mission profile rehearsals only after the FOB CDR approves the ODA plan. Special Reconnaissance (SR) and

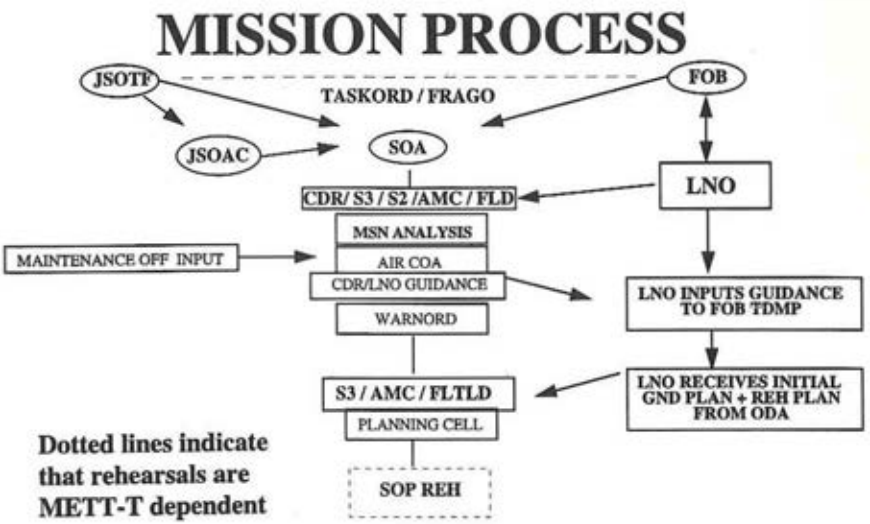

Figure 4

Foreign Internal Defense (FID) missions may not require complex analysis and only static rehearsals (rock & contingency drills) because those missions usually entail straight forward infil/exfil operations. However, Direct Action (DA) missions are normally intricate operations that require detailed wargaming and flying rehearsals. Synchronizing the planning, focusing the key players, conducting rehearsals and doing pre-combat checks/pre-combat inspections (PCC/PCI) are the cornerstones to SOA's mission planning process and the keys to mission success.

SR001's planning timeline charts illustrate the integrated mission process which incorporates the 96 hour plan and the C^2 structure. The timeline begins 106 hours prior to takeoff which also coincides with the EALT. The charts show the events and products conducted or submitted by each element and depicts a parallel planning process occurring between the FOB and SOA. SOA conducts a majority of their planning during the late afternoon and evening allowing the flight lead and crews to maintain a reverse cycle posture for mission execution. The first chart clearly illustrates the continuity factor and information flow that the LNO brings to the process.

After initial TDMP, the planning cell which is established by the AMC & FLT LD begins developing the tactical air routes and air scheme of maneuver. Staff elements integrate with the planning cell and provide intelligence, fires & EW support, logistical estimates, etc.. The planning cell continues to refine the mission data and produce the necessary charts and kneeboard products for the air mission brief (AMB).

The third chart illustrates the cornerstones to 160th SOAR (A) success — **PCC/PCI and rehearsals.** Flying rehearsals, rock drills, COMMO checks, confirmation

MISSION PROCESS (CONT)

Figure 5

briefs, and weapons test fires prior to mission execution ensure asset readiness, plan refinement, mission comprehension and tactical success.

Conclusion. An implied warfighting task is knowing your own combat power so that pressure can be applied on the battlefield at the right time. The aviation mission planning process tailors tactical decision making and troop leading procedures towards the Special Forces Battalion, ensuring that this implied task is not overlooked. However, Special Operations Forces that fail to understand each others' tactical capabilities and limitations will render this process ineffective and jeopardize mission success. 160th SOAR's future success will rely heavily on a mission planning process that fosters effective analysis, is timely in its approach and is tailored to meet the ground force commander's intent. To meet this goal in the 21st century, 160th SOAR (A) must define its doctrine, broaden its warfighting techniques and apply the lessons learned from the CTCs and other Joint Warfighting environments.

★ ★

MAJ Warthman was the Senior Special Operations Aviation Observer/Controller at the JRTC, Ft. Polk, LA when this article was written. He served with the 1-160th SOAR(A) as an AH-6 platoon leader and Special Mission Unit liaison officer from 1990-1994.

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CSM Grover M. King
SGT Henry L. Kinney
SGT Alvin G. Knight
PV2 Michael P. Koffarunus
SPC Roderick M. Ladd, III
PFC Jason D. Langworthy
PV2 Jason J. Lapine
SPC Georgette C. Lavergne
SPC Louis O. LiCalsi
SGT Larry L. Maldonaldo, II
SPC Lonnie W. Manuel
SGT George E. Maroney
SPC Kevin C. Marshall
PFC Douglas E. Martin
SPC William Edward Martin
SPC Barbara J. Matthews
SGT Sarah A. Mazzella
SPC John R. McArdle
SPC Autumn D. McCauley
SPC Scott W. McGee
PV2 Shacarr L. McIntosh
PFC David R. McKee
SPC Yolanda K. Meaders
SPC Fredrick B. Meekma
PV2 Robert A. Melton
SGT Kenneth W. Melvin
SPC Stephanie A. Messer
PFC Jason A. Milam
PV2 A. Miller
SPC James G. Miller
SPC Yolanda Milliken
SPC Teddy B. Monton
SPC David D. Moore
SGT Sabrina Morgan
SPC Hamid S. Mujahid
SGT Vance D. Neely
PV2 Benjamin R. Newell
PFC Kathy Nguyen
SPC Edward J. Nieme
SPC Willms D. Nolan
PV2 Mark E. Nordby
SPC Laura L. Norvell
Mr. Hyo Won O
SPC Erin M. Obrian
PV2 Thaddeus R. Odell
PFC Robert M. Orellana
SPC Thomas L. Osborne
SPC Christopher O'Sullivan
LTC Barney C. Owens
SGT Faye R. Pacheco
PFC David W. Pankow
SPC Franklin Panoso
SPC Kenneth D. Patterson
CPL Robert A. Paul, III
1SG Roy A. Payne
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PFC Rebekah D. Percival
SPC Jayson D. Phillips
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PV1 William G. Prewitt
SPC Derrick L. Proctor
SPC Steven D. Pry
PV2 Casey L. Ralls
PV2 Felix Ramos, Jr.
PFC Barry W. Reed
SPC Scott F. Reed
PV2 Susan R. Reetz
SGT Arthur L. Rice
SPC Brian A. Richard
SPC Russell C. Richards
SPC Kenneth C. Richman
SPC Sadah L. Ridley-Ali
PV2 Kristopher G. Rigdon
SPC Madeline Rivero
SPC William E. Roberts
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SPC Efrain Rodriguez
PV2 Kristian S. Rolle
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PV2 Steven P. Sannicolas
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SPC Michael J. Sims
SGT Grace E. Sirois
SGT Jason A. Skidmore
SGT Nollie M. Smith
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SPC Darry L. Stevens
SPC Dustin R. Stone
SGT Zena T. Taylor
SPC Paul W. Thornton
SGT Michael L. Thurman
PFC Timmy R. Touscheck
SPC Howard O. Townsend
PFC Christian C. Triance
PFC Terry L. Trish
SPC Yashica D. Troxler
PV2 Gordon D. Tunnell
PFC Robert A. E. Tuskey
PFC James M. Tweedie
PFC Luis L. Vasquez
SGT Robert L. Wagner
SGT Marco A. Walker
SSG Vicki L. Walker
PFC Bobby G. Wallace

PV2 Melody M. Walls
SGT Zenas Y. Walter
PFC Gregory A. Ward
SGT L. E. Westmoreland
SPC Brent W. White
PV2 Anthony L. Wilkes
PV2 Grier E. William
PFC Syleste M. Willis
SPC Jeremie G. Wilson
SGT Scot R. Wilson
SGT Matthew D. Wood
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Mr. Jae Chul Yoo

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N. KINGSTOWN, RI
CW2 Mike Marcott, Ret.

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CW2 Andrew R. Frey

NORTH TEXAS
DALLAS/FORT WORTH
LTC Kenneth R. Cary, Ret.

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FORT WAINWRIGHT/
FAIRBANKS AK
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MAJ Ricardo A. Glenn

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SFC Benjamin E. Ivers

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CAMP ZAMA, JAPAN
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CDT Sherri L. Sharpe

WASHINGTON DC
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LTC Aleksandr V. Grinenko
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MAJ Edward D. Allen, Ret.
CW4 William Atkinson, Ret.
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Mr. Daniel Dufrense
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Mr. Kent D. Loughlin
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Please check one: ☐ **Change of Address;** ☐ **New Membership Application**

I wish to join 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 AAAA's official 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 may be deductible by members as ordinary and necessary business expenses.

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

Signature _____ Date _____

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

AAAA ANNUAL DUES

Applicants other than those listed below:
( ) 1 yr, $21; ( ) 2 yrs, $39; ( ) 3 yrs, $57
Full-Time Students; Enlisted; WOCs; GS-8 DACs & Below; Wage Board 12 DACs & Below:
( ) 1 yr, $14; ( ) 2 yrs, $25; ( ) 3 yrs, $36
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
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Amt $ _____ Exp. Date _____
Signature: _____
Date: _____

Check (✓) Your Professional Qualification:

( ) Army Active Duty	( ) US Defense Industry
( ) DA/DOD 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 _____

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April 23-26, 1997
Louisville, Kentucky

Contact the AAAA National Office for details:
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AAAA SCHOLARSHIPS AVAILABLE

Scholarships "dedicated" to
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& children of AAAA members.

Contact the AAAA Scholarship Foundation, Inc.,
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Tel: (203) 226-8184 • FAX: (203) 222-9863
E-MAIL: aaaa@quad-a.org
for complete details.

Application Deadline: May 1, 1997

Above: Aviation officers graduating from the Army War College, Carlisle Barracks, PA on 26 July 1996. They are, from left to right: Row 1: LTC James W. Ball, Jr., COLs Bruce R. Bodin, Mike Breithaupt, Mark E. Byers, LTC Pete Costilow, COL Gary E. DeKay. Row 2: LTCs Rodney F. Dyer, Clay Edwards, COL Dennis L. George, LTC Gordon D. Griffin, COLs Lee McMillen, Henry A. Moak, Jr. Row 3: LTCs Dennis L. Patrick, Pete Peltier, Dan Pike, COLs Albert A. Rubino, Rodger R. Sexton, LTCs Patrick J. Sheehan, Roger D. Thomas, and LTC(P) William A. Tucker.

Below: COL Bill McArthur (center), Army Astronaut, presented a flag flown in space aboard the Space Shuttle to members of the Potomac Chapter, LTC Tom Petrick, VP Scholarship, COL Bob Godwin, then-Senior VP, SFC Pam Shugart, VP Programs, and MG Richard E. Stephenson, Ret., AAAA President.

New AAAA Chapter Officers

Frozen Chosen:
CDT Patricia L. Cesak (Pres); CDT Trace Johnson (SrVP); CDT Art Galloway (Secy); CDT Tim Tucker (Treas); CDT Christian Hurst (VP, Prog); CDT Kacey Ellerbrock (VP, Awards).

Ragin' Cajun:
LTC Glenn T. Tetreault (President).

AAAA Aviation Soldiers of the Month

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

SGT Steven R. Adams
September 1996
(Narragansett Bay)

SGT Robert W. Allen
November 1996
(Land of Lincoln)

SGT Daniel J. Harrington
December 1996
(Narragansett Bay)

SSG Ronald Smith
December 1996
(Land of Lincoln)

AAAA Aviation Soldiers of the Quarter

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

SPC David J. McDonald
1st Quarter 1997
(Aviation Center)

AAAA NEWS

AAAA Aviation NCOs of the Quarter

A Chapter Program to Recognize Outstanding Aviation NCOs on a Quarterly Basis.

SGT Richard J. Himes
1st Quarter 1997
(Aviation Center)

Aces

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

LTC Ronald H. Alexander
MAJ David R. Brown
1LT Nicholas S. Catchings, II
CW4 Ernest G. Cooper, III, Ret.
Linda S. Dixon
CW3 Raymond G. Giganti
Sharon A. Haynes
CW4 Jimmy B. Johnston, Ret.
CW3 Robert M. Kelly, Ret.
CDT Janet V. Kreckman
James M. LaCour
Joseph G. Ruggiero
CW3(P) Randall M. Rushing
Laurie A. Simcik
Lawrence Simone
1LT Dean D. Wegner
CPT Frederick P. Wellman

Honorary AAAA Members

MG John M. Pickler
CSM Ruben Alexander Blackmon

Above: In June 1996, Dan Rubery (left), ATCOM Deputy Commander and President, AAAA Lindbergh Chapter, presented SSG David M. McDonald (right) with the ATCOM NCO of the Year Award for achievements in 1996. McDonald, a native of Lubbock, TX, entered active duty in July 1982. McDonald's awards, decorations, and honors include the Army Commendation Medal (2OLC), Army Achievement Medal (2OLC), Army Good Conduct Medal, and National Defense Service Medal.

Below: Mr. Rubery also presented the ATCOM Soldier of the Year Award to SPC Tina M. Dellinger (right), originally of Sacramento, CA. Dellinger entered active duty in 1994. Her decorations include the Army Achievement Medal and the National Defense Service Medal.

Above: The Oregon Trail Chapter hosted members of the United States Precision Helicopter Team during a Fall 1996 meeting. Top Row, left to right: MG Raymond F. Rees, Chapter President, CW3 James Jackson and LTC Robert E. Payne, vice presidents, CWO Rodney Comstock, USPHT, SFC Richard Fields, USPHT, CWO Jeffrey Neal, USPHT, MAJ Anthony Helbling, Chapter Secretary. Bottom Row: SSG Jim Brown, CWO Dorothy Paynes, SGT Jeff Haugen, SGT Troy Garza, CPT Jeff Linnscott, CPT Elaine Berryman, and CPT Dan Hokanson, all USPHT.

Below: COL Robert Hoppes (center), Colonial Virginia Chapter President, awarded trophies to the winners of the 1st Annual Bowl-a-thon on 10 October 1996. From left to right: SFC Harvey Fuqua, SSG John Frazier, COL Hoppes, SSG Bill Anthony, SFC Luis Rivera, and SSG John Grant.

AAAA Industry Members

BARCO Chromatics
Tucker, GA

Micro-Surface Finishing Products, Inc.
Wilton, IA

MILTOPE Corporation
Hope Hull, AL

In Memoriam

Charles E. Herschbach

CSM Walter W. Kreuger, Ret.

CPT Joseph O. Reed, III

CW4 Johnnie R. Sandidge, Ret.

AAAA Flight Pay Insurance Program Has Been Approved

See Next Issue for Details!

AAAA NEWS

Hall of Fame Nominations Due July 1, 1997

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

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

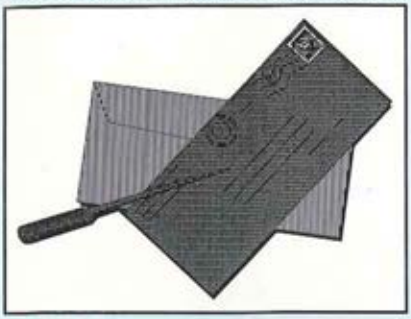
All persons are eligible for induction, except active duty Generals and Colonels. Membership in AAAA is not a requirement.

Contact the AAAA National Office (203-226-8184) for Nomination Documentation requirements. All nominations must be postmarked no later than 1 July 1997.

An eight member Board of Trustees is responsible for selecting a specific number of candidates from all nominations received for placement on the Army Aviation Hall of Fame ballot. The ballot will be mailed to AAAA members with two or more years of current continuous membership in the Fall of 1997.

Above: The Morning Calm Chapter, Korea sponsored 14 U.S. soldiers and one Korean soldier on a three day trip to the resort island of Cheju Do. Front row, left to right: SSG Walker, CPL Jung, PFC Branda; PV2 Hendrickson, PVT Reetz. Second Row: SPC Messer, SPC Sims, CPL Paul, SPC Martin, PFC Taushcheck. Third Row: SPC Licalsi, SPC Buehner, SPC Holmes, SFT Kinney, and SPC White.

Below: During the Aloha Chapter Aviation Ball on 5 April 1996, BG Burt S. Tackaberry, DCG, USAAVNC and Ft. Rucker, AL presented the Bronze Order of St. Michael to the following mebers (left to right): LTC Larry P. Warwick, CW4 Leon J. Golembiewski, Jr., CSM Michael L. Loflin (partially obscured), 1SG Alphonso Moten, and 1SG Peter H. Krulder.



AAAA LOCATOR • AAAA LOCATOR

The AAAA offers its members the opportunity to contact the National Office for addresses and phone numbers of other members with whom they have lost touch over the years.

In addition, as a service to our members, a brief announcement may be placed in these pages to help locate those who are not AAAA members.

COL George A. Lutz, Ret. seeks Joseph Donahue, a former Army Aviator and AAAA member. Mr. Donahue was a marketing representative for Dynasciences in the late 1960s and for Cincotech (and possibly others) in the early 1970s. His offices were at Dulles Airport and later in Gaithersburg, MD. He resided in Potomac, MD with his wife Ellie and two children.

Contact COL Lutz at 3433 Cullen Lake Shore Drive, Orlando, FL 32812-1109.

NEW AAAA E-MAIL ADDRESS!

The AAAA National Office now has a new E-Mail address via the Internet. Our address is: aaaa@quad-a.org

AAAA CALENDAR

A list of upcoming AAAA Chapter and National events.

February 1997

Feb. 3. AAAA Jack Dibrell/Alamo Chapter Order of St. Michael Presentation, Hill County Ballroom, Holiday Inn - Select NE Loop 410, San Antonio, TX. Guest Speaker: BG Charles E. Canedy, Ret. Meeting will be held in conjunction with the Fifth U.S. Army Safety, Standardization, and Training Conference.

Feb. 7. AAAA Scholarship Board of Governors Executive Committee Meeting, National Guard Readiness Center, Arlington, VA.

Feb. 8. AAAA National Awards Selection Committee Meeting to select 1996 National Award Recipients, National Guard Readiness Center, Arlington, VA.

April 1997

Apr. 11. AAAA/Aviation Ball, Hilton Hawaiian Village, Waikiki, HI.

Apr. 23-26. AAAA Annual Convention, Kentucky Fair and Exposition Center, Louisville, KY.

July 1997

July 18. AAAA Scholarship Board of Governors Executive Committee Meeting, National Guard Readiness Center, Arlington, VA.

July 19. AAAA National Scholarship Selection Committee Meeting to select 1997 National Scholarship recipients, National Guard Readiness Center, Arlington, VA.

April 1998

Apr. 1-4. AAAA Annual Convention, Charlotte Convention Center, Charlotte, NC.

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