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AH-64D Apache Longbow

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January/February 1993

Aviation Digest

Professional Bulletin

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1 **Fighting Army Aviation at the Tactical Level,** MG Dave Robinson
3 **Views From Readers**
8 **Integration of Deep Attack,** Lt Col Dale R. Hanner
13 **AH-64 Apache Program Update,** COL David F. Sale and CPT Gregory J. Lund
17 **Kamov's KA-50 Hokum Helicopter,** CW4 Charles T. Robbins
27 **Answers to Crossword Puzzle: Army Aviation,** CW4 James T. Chandler
28 **Aviation Digest's 1992 Subject Index**
32 **Parker Award,** LTC Gerard Hart
34 **Cargo Helicopters in the Korean Conflict, Part 2,** Dr. John W. Kitchens
40 **Crossword Puzzle: Aerodynamics,** CW4 James T. Chandler
43 **The New UH-60Q Black Hawk MEDEVAC Helicopter,** CPT Gregory D. Fix
45 **Fundamentals at the NTC,** MAJ Wm. Fred Jernigan Jr, CPT(P) Robert Johnson, CPT Grant A. Webb, CPT Jeff Mowery, CPT William Kuchinski, and CPT Daniel G. Modica
49 **Aviator/Logistician,** MAJ William M. Gavora
52 **Aircrew Survival Armor Recovery Vest,** CPT Sheila M. Ryan
54 **Air Assault Security, A Procedural Review,** CPT John T. Hansen
57 **Aviation Personnel Notes: Why did he get promoted?**
59 **ATC Focus: Training at the FAA Academy,** MSG Robert F. Lesure
60 **DES Report to the Field: Changes to TC 1-215,** CW4 Donald D. Savage
61 **Aviation Logistics: Aircrew Training Program for the AVIM Commander,** MAJ Russell M. Stansifer
63 **USAASA Sez: NOTAMs,** MSG Kathleen Odom
64 **Air-to-Air Combat,** Ms. Mary Mueller
65 **Soldier's Spotlight, Physical Fitness,** CSM Fredy Finch Jr
Back Cover: **Kamov's KA-50 Hokum Helicopter**

Cover: **The AH-64 Apache has given Army Aviation vastly expanded opportunities to impact the deep battle. The AH-64D Longbow increases significantly the effectiveness of the Apache's multirole mission against future threats. The lead article, "Integration of Deep Attack," page 8, discusses the integration and coordination of deep attack operations in a joint Air Force and Army effort--exploiting the Apache's capabilities. Leaders and commanders at all levels are asked to recognize the growing need for joint warfighting doctrine for the deep attack. Photo courtesy of the American Helicopter Society, *Vertiflite,* and McDonnell Douglas Helicopter Company.**

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Major General Dave Robinson

Fighting Army Aviation At The Tactical Level

America's Army is a force projection Army with the mission to rapidly deploy decisive force anywhere in the world under any circumstance. Though smaller than the Cold War Army, the 21st century force will optimize emerging technologies to meet any adversary. Technology will dramatically increase force lethality and battlefield mobility. Battlefield command and control will greatly improve through information management derived from the power of the micro-chip. The battle calculus will become more complex as operational tempo increases.

The Army must be capable of supporting national and international interests. The post-Cold War environment demands a focus on regional conflicts, crisis response, power projection, and joint and combined operations. Operations from civil disturbances, national disasters, to lesser and major regional contingencies are certain to challenge future planners. The force must be a total force consisting of National Guard, Reserve, and Active forces trained together and capable of delivering decisive victory with minimum casualties.

Fast moving forces, instantaneous information, and unprecedented lethality will characterize the battlefield. While there are certain to be close battles, many high-technology weapons arrays will have the "effects of mass" yet may be elusive, low dwell time targets operating from ranges beyond the close fight. There may be a blurring between the tactical and operational level as commanders simultaneously focus close and deep fires against the enemy's arsenal, his intent and will. Armed reconnaissance and attack aviation commanders will need to possess a degree of mental agility to think simultaneously in tactical and operational terms.

Real-time information will be required to develop intelligence and synchronize the employment of forces and systems to destroy the enemy's warfighting capabilities. Sensors will find and accurately locate targets; lethal weapons will engage enemy forces, many beyond visual range. Land maneuver forces, operating in all dimensions of the ground regime, will overwhelm and destroy the enemy around the clock in all types of weather.

Battle tactics will be inextricably linked to our ability to project contingency forces into a battle area. Once deployed, we must be capable of protecting the force, winning the information war, con-

ducting precision strikes throughout the battlefield, and dominating the maneuver fight.

Now, you might be saying what do all these operational notions have to do with tactics? Because the intended purpose of the *U.S. Army Aviation Digest* is to provoke discussion and dialogue, I make the hypothesis that the difference between tactics and operational art in the third dimension of the ground regime (the dimension of Army Aviation operations) is a difficult distinction. In a classical sense, tactics often are described as maneuvering to gain an advantage or success. However, when force agility is increased such that maneuver can be done at speeds more than 100 knots, one might argue there is a blurring between tactical and operational maneuver. A dash across the battlefield, a quick-stop, and final positioning to attack a high-value target compress the essentials of tactics and operational maneuver into a very short period.

Attack helicopters, modern artillery, and missiles with requisite range and munitions are paramount to conduct these precision strikes. Even now we are quite advanced in achieving digital communication across the battlefield. Targeting information in bits and bytes is burst-transmitted at lightening speed to a firing system. These firing data, possibly derived from a laser spot and correlated with position location confirmed by global positioning systems, require virtually little effort from the aircrew. Certainly, such communication networks are essential to conduct synchronized, decisive operations against enemy forces throughout the battlefield.

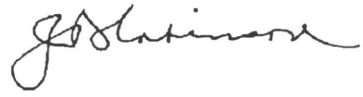
Decisive operations culminate with the destruction of the enemy's land combat capability. The Army will maintain an overmatching combined arms maneuver force. Real-time, fused intelligence must be available to the maneuver task force commanders. To win, the commander must combine direct and precision fires to achieve land force dominance and swift, decisive victories.

Army Aviation brings powerful capabilities to the combined arms team in the form of security, armed reconnaissance, attack, assault, logistics, and special electronic mission aircraft operations. The ability to place the enemy in a position of disadvantage through the flexible application of this combat power in the third dimension is the notion advanced through maneuver by air. These operations are essential in the project, protect, win the information war, conduct precision strikes throughout the battlefield, and dominate in maneuver battle notions just discussed. However, such operations are not for much duration without a "lead with logistics" commitment.

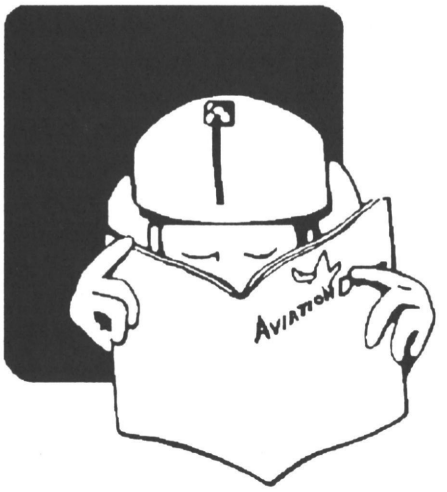
Tactics associated with screen, cover, guard, all forms of reconnaissance, and attack battledrill are necessary but not a sufficient condition to win on future battlefields. Such tactics must be given rapid expression in agile maneuvers at the operational level to challenge enemy weapons that have the effects of mass. Theater ballistic missiles are appearing in increasing numbers around the world. Such weapon systems are relatively cheap compared to large, standing forces and have considerable destructive potential.

Given our emergence into the post-Cold War environment, it seems our battledrill regimes need expansion to practice simultaneous close and deep operations. These "expanded tactics" certainly will stress the communications networks and challenge logistics support capabilities of the combined arms team. Today, aviation tactics must be practiced with the combined arms team in terms of projecting the force, protecting the force, winning the information war, conducting precision strikes throughout the battlefield, and dominating the maneuver battle.

More than ever before, we must exploit simulation and combined arms training opportunities to achieve a total force that is trained, ready, and capable of decisive victory. As commanders of all components begin to address the challenges of operational maneuver, it is Army Aviation that offers that extra dimension of capability—operational capability in the third dimension.



VIEWS FROM READERS



Editor:

This letter is in reference to the article "Warriors At Sea," in the November/December 1992 issue by Frank Colucci. It would seem as if credit for the Warriors' success in Operation Prime Chance II is a bit off base. During November 1987, a selected group of individuals were ordered to Fort Bragg, NC, to form, equip, train, and deploy a special unit to the Persian Gulf. The two prime individuals involved in this rather formidable task were Lieutenant Colonel (LTC) Edmund E. Hughes, III (Retired) (commander, Task Force (TF) 118), and Sergeant Major (SGM) Danny P. Elzie (Retired) (command sergeant major, TF 118). I know of the long, unselfish, and devoted hours these two key individuals spent in making sure the mission was accomplished. Deployment schedules (rotations), transportation, orders, pay and allowances, securing required equipment, and continental United States training for replacement personnel were all accomplished by LTC Hughes and SGM Elzie.

The first two detachments were deployed on 22 February 1988, only 138 days after the first personnel arrived to the unit. This was a very distinguished accomplishment. Also instrumental in this and deserving of honorable mention were First Sergeants (1SGs) Terry Weese (Retired) and Sherman Rowell (Retired).

LTC Bruce Simpson had absolutely no part in starting or sustaining this mission. LTC Simpson assumed command of the 4th Squadron, 17th Cavalry (formerly TF 118) on 15 January 1991, and was involved with the unit in Desert Storm and when the unit was withdrawn from the Persian Gulf in October 1991.

I should know the facts. I was in the unit from November 1987 to August 1991. I deployed with the first two detachments as noncommissioned officer in charge in February 1988 and was the 1SG, Headquarters and Headquarters Troop, 4-17th Cavalry when LTC Simpson assumed command. With respect, I hope you can publish an article to give LTC Hughes, SGM Elzie, and 1SGs Weese and Rowell the accolades they so richly deserve.

SFC(P) J.T. Smith
Killeen, TX

Editor:

As the Senior Air Force Representative to Fort Rucker, AL, I must point out some inaccuracy in the article by Captain (CPT) (P) Brian J. Boquist, "Will the Pentagon's Force Mix Meet the Future Threat?" in your September/October 1992 issue. The text in question follows:

"Can armor and mechanized forces be projected to move 1,000 to 8,000 miles in a few days or weeks? No. Can armor or mechanized forces be airlifted to the battlefield by the U.S. Air Force (USAF) or aircraft from the Civilian Reserve Air Fleet (CRAF)? No. Army's Abrams tank and Bradley fighting vehicle are too large or heavy for the USAF's C-130, C-141A, C-141B, and C-5A while CRAF aircraft face similar problems."

In the interest of brevity, I will let the two relativistic questions, and their associated absolutist answers, slide as hyperbole; but, this is at least the second time that I have recently seen the last assertion (in part flat wrong) in an Army document, so I will respond directly to it.

The main point is that the C-5A (and C-5B) can carry both the Abrams and Bradley. While a realistic load of one Abrams or a couple of Bradleys may not seem like much, 50 or so sorties a day delivered to virtually any part of the

world add up quickly. The pros and cons of airlift versus sealift are well known. **Q**: Would you rather have an immediate and continuous stream of a few items at a time, or would you rather wait a couple of weeks for it to arrive all at once? **A**: It depends! As the United States shifts its thinking from a monolithic Soviet threat to smaller less predictable scenarios, the transportation method of choice probably will tend to move from the sealift end of the spectrum to the airlift end.

CPT (P) Boquist is completely correct about the Abrams and Bradley being too large and/or heavy for the CRAF and the C-130. The C-141 can carry one Bradley, but I understand that it is a real pain to cram it in there, so it is probably not a realistic load. (All of the C-141s are now B models except for four aircraft, and they are not in an operational status, so you can forget about the A models.)

One last point. The Army and Air Force worked hard together to make sure that the C-5 met Army needs; they redoubled their joint efforts on the C-17, which is coming off the production line now. If the key word in the second question was "battlefield," then you will be glad to know that the C-17 can deliver C-5 sorts of loads to C-130 sorts of airfields.

COL William D. Patton, USAF
Senior Air Force Representative
Fort Rucker, AL

Editor:

I take issue with the article "Will the Pentagon's Force Mix Meet the Future Threat?" by Captain (CPT) (P) Brian J. Boquist in the September/October 1992 issue. The article does not address the issue of "force mix," but instead uses inaccurate information to "sell" the need for the National Guard and Reserve forces to have a larger role at the expense of the Active Component. The mix of forces between Active and Reserve Components must be based on a present or future threat, not parochialism. We must learn from our past mistakes on force mix, and not pay for our parochialism with American soldiers' lives! Both heavy and light forces are important! Heavy forces can be airlifted by C-5 Galaxy and C-141 Starlifter aircraft, but light forces are a better use of these limited airlift assets. The on-again, off-again armored gun system for light forces appears to be on again and promises to give light forces the firepower necessary to conduct a successful defense against mechanized forces until heavy forces arrive.

The popularity of wheeled vehicles with budget limited nations is the result of their reduced initial costs, higher road speeds, and reduced maintenance complexity and costs, not combat qualities. Cross-country movement is where tracked vehicles excel. Terrain that is slow-go for tracked vehicles cross-country movement is generally no-go for wheeled vehicles.

The mission CPT(P) Boquist feels could have been done by the antiarmor battalions with Special Forces augmentation is right out of Field Manual 17-95 and one of the types that U.S. cavalry units habitually train for. The cavalry squadrons are organized to perform the mission and their habitual "slice" gives them everything else that may be required. Light division cavalry squadrons presently are outfitted with the same equipment as the antiarmor battalions. There has even been discussion within the U.S. armor community about the need for a "light" cavalry regiment to deploy with XVIII Airborne Corps.

Raids against advancing Iraqi armored forces were planned by both XVIII Airborne Corps and U.S. Army Forces Central Command to delay and attrit advancing forces. The concept was to use multiple launch rocket system, AH-64 Apache, and U.S. Air Force aircraft to achieve the desired effects. Infantry of the 82d and 101st were not going to have to fight alone. However, everyone breathed a sigh of relief when the 24th Mechanized Infantry Division and 3d Armored Cavalry Regiment arrived and deployed forward.

The issue of professionalism and readiness is obviously emotional to both Active and Reserve Components. What defines a professional versus a careerist is hotly debated by all concerned. One thing is certain, professionalism is not determined by how many weekends a month or total months in the field the individual spends away from their family. The issue of readiness is discussed thoroughly in CPT Joseph E. Neilson II article "The Army's Mobilization of National Guard Units," (Sep/Oct 92 issue). No unit, Active, or Reserve Component required 7 months' trainup. It required 7 months for the political elements to come to a decision on a course of action and to deploy sufficient forces for successful execution of that course of action. To declare otherwise displays a clear lack of understanding of the decision-making process at the National Command Level.

The issue of what is the "militia" is another controversial subject. It cannot be dismissed with a simple comment. At the time the Constitution was written, every able-bodied man was considered to be a member of a local militia. The militia was organized and lead by the members who were not paid, clothed, or armed by the state or local governments. The British-appointed "state" governors had no physical control over the local militia and could only ask for a levy from the local militia if the Crown forces needed more manpower. In fact, before the Revolution, the British authorities around Boston sought to disarm the local militia by confiscating individual weapons. Arguments that the National Guard is not the "militia" specified in the Constitution are that they are controlled by the state government, therefore, not the people themselves receive Federal funds; and can be Nationalized by Presidential Order.

The cost of the Revolution was still fresh in the minds of the writers of the Constitution when they wrote the Bill of Rights. They wished to ensure that U.S. citizens in the future were guaranteed the rights they had fought and paid so dearly for.

In this time of reduced funding, all elements of the total force must look realistically at what future threats lie ahead and what forces will be necessary to defeat them. We must not focus on the last war but look ahead to the future battles. Three of the five countries identified as potential hot spots in the article have large armor and mechanized force structures. Other Third World nations are using the breakup of the Soviet Union as an opportunity to buy modern weapons at rock-bottom prices.

To defeat these nations' forces, the U.S. military must continue to upgrade our own weapons systems and forge the right mix of combat forces. We must not let parochialism determine the force mix or we will again suffer events like Task Force Smith.

MAJ William C. Barker, Aviation
U.S. Army
Fort Rucker, AL

Editor:

I read the article "Aircraft Call Signs," July/August 1992, and can't resist commenting that what the author wrote was absolutely true; however, he didn't tell us how difficult and unlikely it is to get a suitable nontactical call sign.

When we had to stop using our unauthorized Vietnam-error lineage call sign in 1989, we immediately submitted a request to use it according to the regulation only to discover that it and most other good words were reserved. The U.S. Air Force (USAF) controls and reserves all the tactical and nontactical call signs.

Unless you are talking directly to the USAF, you will probably send in your call sign requests according to the regulation to the U.S. Army Aeronautical Services Agency (USAASA), Alexandria, VA, until you retire and never get a suitable nontactical call sign for your unit.

After many iterations and disappointments, we called the USAF directly with USAASA's permission, and the master sergeant helped us find a call sign that the commander could stomach.

USAASA should get the USAF to give us some of the words they control so Army units with a valid need can get decent call signs. I believe some of the so-called reserved words might not be in use anymore because of the draw-down. It shouldn't be so difficult to get what we need. Aim high!

CW4 Thomas M. Valentine
A Co, 3d MI Bn
Unit 15218, Box 409
APO AP

Editor:

The U.S. Military Academy (USMA), Department of Social Sciences, West Point, NY, is looking for company grade Reserve Officers' Training Corps and Officer Candidate School officers interested in teaching political science or economics. If you are from basic year groups 1986-90 and are interested in civilian graduate study followed by a teaching assignment at West Point, please contact us. We are considering applications of officers who might be available to start graduate study in the summer of 1994 or later. For more information write to Department of Social Sciences, USMA, ATTN: Personnel Officer, West Point, NY 10996.

CPT Dana M. Isaacoff, U.S. Army
Assistant Professor and Assistant Personnel Officer
USMA
West Point, NY

Editor:

The U.S. Army Aviation Center, Fort Rucker, AL, Reserve Component Course Configuration (RC^3) Branch currently has several aviation-related courses available for both officer and enlisted guard and reserve personnel. A list of quality exportable training material available upon request follows:

- Aviation Officer Advanced Course
- Air Traffic Control Officer Course (15E)
- Aviation Senior Warrant Officer Training Course
- Master Warrant Officer Training Course
- Aviation Accident and Mishap Prevention Course (enlisted additional skill identifier A2)
- 68N10 Avionic Mechanic
- 93B10 Aeroscout Observer
- 93C10 Air Traffic Control Operator
- 93P10 Aviation Operations Specialist
- 68L30 (Basic Noncommissioned Officer Course (BNCOC)) Phase II Avionic Communication Repairer
- 68N30 (BNCOC) Phase II Avionic Line Supervisor
- 68Q30 (BNCOC) Phase II Avionic Flight Systems Repairer
- 68R30 (BNCOC) Phase II Avionic Radar Repairer
- 93B30 (BNCOC) Phase II Aeroscout Observer
- 93C30 (BNCOC) Phase II Air Traffic Control Operator
- 93D30 (BNCOC) Phase II Air Traffic Control Equipment Repairer
- 93P30 (BNCOC) Phase II Aviation Operations Specialist
- 68P40 (Advanced Noncommissioned Officer Course (ANCOC)) Phase II Avionic Maintenance Supervisor
- 93C40 (ANCOC) Phase II Air Traffic Control Supervisor
- 93D40 (ANCOC) Phase II Air Traffic Control Equipment Maintenance Supervisor
- 93P40 (ANCOC) Phase II Aviation Operations Supervisor

Information concerning the requisition of course material can be obtained from reading U.S. Army Training and Doctrine Command and U.S. Army Forces Command Regulations 135-3. Contact your unit training personnel if you are interested in any of the courses. Additional information or questions may be directed to Directorate of Training and Doctrine, Total Force Integration Development Branch (RC^3), Fort Rucker, AL. Those individuals seeking officer course information call commercial 205-255-5397/2452/4750 or DSN 558-5397/2452/4750. Information on enlisted courses can be obtained by call-

ing commercial 205-255-4008/3602 or DSN 558-4008/3602.

Editor:

This notice is for those who want to apply to the U.S. Army Engineering Test Pilot Training Program (AETPTP) but feel they have no chance of being accepted.

The AETPTP—with its foundation rooted in math, physics, and engineering—is designed to train experienced Army aviators to become qualified engineering test pilots.

As newer aircraft roll off the production line and the Defense budget shrinks, there must be a pool of qualified engineering test pilots to field these programs.

The 11-month course is divided into academic and flight phases: academic—aerodynamics, thermodynamics, static and dynamic stability, aircraft and engine performance, and other aeronautical engineering subjects; flight—planning and flying engineering data flights, in a variety of fixed- and rotary-wing aircraft, and preparing technical reports on the test data obtained. Engineering test flights are conducted except for flights for aircraft familiarization, instrument qualification, and night proficiency. Students make field trips to various government flight test facilities.

Department of the Army Circular (DA Cir) 351-90-1, "***Army Aviation Engineering Test Pilot Training Program,***" available through your Personnel and Administration Center, outlines the application procedure.

Until this year, the Army selected eight commissioned officers and one warrant officer (WO) for the U.S. Naval Test Pilot School (NTPS), Patuxent River, MD. This unbalanced ratio of commissioned officers to WOs primarily was due to the readily available and, in most cases, previously obtained civilian education credentials of the commissioned officer; and the existing positions on the table of distribution and allowances (TDAs) at the U.S. Army Aviation Technical Test Center (ATTC), Fort Rucker, AL, and the U.S. Army Airworthiness Qualification Test Directorate (AQTD), Edwards Air Force Base (AFB), CA.

Military Personnel (MILPER) Message 92-59 (Update One), 7 December 1992, states "This year's board will select three commissioned and six warrant officers." The Army Acquisition Corps (AAC) was set up in 1990 to develop a dedicated pool of highly qualified acquisition specialists to fill designated critical acquisition management positions.

One AAC goal is to provide the Army with a highly competent group of professionals efficient in developing and procuring dependable Army materiel. Another goal is to provide career opportunities to meet future challenges through professional development, education, and training.

Recently, the AETPTP was moved from under the Aviation Plans and Programs to the AAC to help set up a viable career track for test pilots, which previously had not existed; and to increase the potential for promotion. With this decision, MILPER Message 92-59 mandated all "commissioned officers selected to attend NTPS be automatically accessed into the AAC where they will serve the remainder of their careers."

Upon graduation from the AETPTP, commissioned officers now will be assigned, by law, to approved AAC positions. Not all of the experimental test pilot positions at ATTC and AQTD are AAC–approved. Because of this policy, coupled with the high percentage of commissioned officers graduating each year, some graduates would not be able to be used in active test pilot positions.

Further, commissioned officers could plan on only one tour as a test pilot if they expected to attend required career development schools, hold other key assignments, and eventually be promoted. This one–tour concept did not meet the needs of the Army to ensure an experience base and project continuity in the test community.

However, the WO is unaffected by AAC, approved positions, and frequent moves. The ratio of WOs entering the AETPTP was increased and the TDA positions at the two test facilities have been changed to reflect WO billets. These measures will allow the WO to be trained and to function long term as an experienced engineering test pilot at Edwards AFB or Fort Rucker. Current indications are this ratio of WOs to commissioned officer test pilots will remain the same or increase over the next few years.

The minimum prerequisites for the AETPTP (DA Cir 351-90-1) are—

- Possess pilot status code 1.
- Have completed college algebra, calculus, and physics with above average grades (B or higher). Completion of differential equations, although not mandatory, is a highly desirable.
- Be dual rated with a minimum of 1,000 hours of military flying time.
- Be able to pass the Navy swim qualification test.

The circular states the flying requirements can be waived; however, as far as academics are concerned, requirements are firm; it states "a college degree in an engineering discipline is desirable, but not required. The grades attained in college mathematics and engineering subjects are very important and are weighed accordingly during the selection process."

Most commissioned officers who attend NTPS have completed a Master's Degree in aerospace or aeronautical engineering. The WO applying to the AETPTP often lacked the math and engineering prerequisites to compete successfully at the board and in the school. At NTPS, calculus, differential equations, Laplace transforms, propulsion, thermodynamics, stability and control, subsonic aerodynamics, and helicopter performance are studied daily.

We want qualified WOs to apply to the AETPTP. With the WO Branch, steps are being taken to increase the chances for fully funded education for those WOs with the potential to compete successfully for, and complete the AETPTP. TDA positions for WOs at

ATTC and AQTD are being coded Advanced Education Requirements Study (AERS). A possible cooperative program for WOs, similar to the Naval Postgraduate School/NTPS Cooperative Program (DA Cir 351-90-1) for commissioned officers, is being studied.

These two actions should increase the chances for WO civilian education through the military. If you receive a degree on your own and intend to use it to fulfill NTPS requirements, make sure it has a concentration in math and engineering so you will not lose eligibility for a government-funded degree nor the competitive edge for the AETPTP.

MAJ Patrick G. Forrester
U.S. Army Technical Test Center
Fort Rucker, AL

Editor:

Army noncommissioned officers (NCOs) (E-5 through E-8) looking for a challenging and rewarding career opportunity in over 80 countries worldwide are being sought for duty in the defense attache system (DAS).

The DAS is recruiting highly motivated and qualified NCOs seeking joint service staff assignments within American embassies throughout the world. NCOs selected are given the opportunity to represent the U.S. Army in diplomatic assignments within Europe; North, Central, and South America; Africa; the Far East; and the Middle East.

According to Sergeant First Class (SFC) John Currier, Enlisted Assignments Coordinator, "no other Army program provides soldiers with the opportunity to live and work in so many different countries (from Austria to Zimbabwe, from Brazil to Finland, and from Canada to Turkey). These worldwide diplomatic assignments offer a challenge quite like no other."

NCOs considering attache duty must be cleared for special intelligence, have a general technical score of 115 or higher, a clerical aptitude area score of 120 or higher, and a typing score of 40 words per minute or higher. Soldiers also must test 100 or higher on the defense language aptitude battery or be a skilled linguist. Computer (word processing) skills are helpful as well. All family members must be U.S. citizens and meet the medical standards for the country of assignment.

Prerequisites, application procedures, and countries available within the program can be found in Army Regulation 611-60.

For more information, contact SFC Currier at commercial 410-677-2134 or 7361, extension 2633; FAX 410-677-5352 or DSN 923-2134 or 7361, extension 2633; FAX 923-5352.

Editor:

If you flew helicopters in Southeast Asia during the Vietnam War (1961-75), you are eligible to join the Vietnam Helicopter Pilots Association (VHPA). VHPA is a nonpolitical, nonprofit, tax-exempt, war veterans' organization. It publishes a regular newsletter featuring VHPA events, member letters, articles, and an annual directory of its members.

The directory contains 7,000 names, addresses, present occupations, dates, and entries of each Vietnam tour and flight school class number of each member. The directory also has a list of killed in action or missing in action and those who have died after tour. As an example, I have located seven of the nine Scout pilots from A Troop, 7-17th Air Cavalry, who I served with in Vietnam from information contained in the directory and at the reunions.

If you are a Vietnam helicopter pilot and want to get acquainted with old buddies from flight school or your old unit, don't miss the reunion on the 4 July 1993 weekend. The 1993 10th Annual Reunion will be held at the Registry Resort and Scottsdale Plaza, Scottsdale, AZ.

To join 4,000 plus other Vietnam helicopter pilots, contact VHPA, 7 West 7th Street, Suite 1990, Cincinnati, OH 45202, commercial 513-721-VHPA, FAX 513-721-5315.

Membership dues are $30.00 annually or $450.00 lifetime.

COL Charles R. Rayl
State Army Aviation Officer
Kansas Army National Guard
Member Executive Council
VHPA

Editor:

The 11th Armored Cavalry Regiment (Blackhorse) will hold its Silver (25th) Annual Reunion at Fort Knox, KY, 18 and 19 June 1993. This reunion is open to all Blackhorse Troopers (commissioned, warrant, and noncommissioned officers, or enlisted) from any period of service.

For more information write to Bill Squires, Secretary, Blackhorse Association, P.O. Box 11, Fort Knox, KY 40121, or call commercial 502-351-5738.

Editor:

The Air Cavalry Troop (Vietnam), 11th Armored Cavalry Regiment, will celebrate its 9th Annual Reunion, 23 through 27 June 1993 at Laurel, MD.

If you have questions or need additional information contact James Angelini, 2512 Lower Hunters Trace, Louisville, KY 40216-1352 or phone commercial 505-449-0296.

Editor:

P-47 Thunderbolt Pilots Association, Limited celebrates their 31st Annual Reunion , 2 through 7 June 1993.

For information contact either Glenn Crum, 14527 River Oaks Drive, Colorado Springs, CO 80921-2841 at commercial 719-488-2762, or Bob Richards, P.O. Box 3299, Topsail Beach, NC 28445-3299 at commercial 919-328-8781.

Editor:

The Army Aviation Branch Ball sponsored by the Mid-American Chapter of the Army Aviation Association of America will be held 29 April 1993 at the Houston Street Ballroom, Fort Riley, KS.

All those interested , please call DSN 856-8160 or commercial 913-239-8160.

INTEGRATION OF ATTACK DEEP

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"The depth of the battlefield is evolving. Modern capabilities afford the opportunity to strike simultaneously *in-depth* at enemy formations....With the evolution are a host of unresolved issues."

Major General (MG) Wesley K. Clark

(Comments by MG Clark, former Deputy Chief of Staff for Concepts, Doctrine, and Developments, Headquarters, U.S. Army Training and Doctrine Command, Fort Monroe, VA, ***Desert Storm Conference Report,*** Office of Public Affairs, 3 March 1992, p. 14.)

The advent of the AH-64 Apache attack helicopter has provided the U.S. Army with vastly expanded opportunities to impact the deep battle. The Apache's range and ordnance load gives it the ability to operate in areas previously considered the sole domain of fixed-wing aircraft. Furthermore, the addition of Apache units to corps-level aviation brigades, at last, provides the organizational structure to effectively focus the Apache's capabilities on the deep battle and the destruction of follow-on forces. With this relatively new capability, a need has arisen to take a fresh look at the integration and coordination of deep attack operations within the U.S. Air Force interdiction campaign.

While the doctrinal question of Apaches operating in the deep arena may be the subject of some discussion, certainly everyone must agree that the ***capability*** is there. This article does not define whether Army Attack Aviation or the Air Force is best able to accomplish a certain deep mission. Instead, given that there are instances where it will be to the corps commander's advantage to exploit his Apaches' "deep" capabilities, this article provides some good reasons why integrating the deep battle into a joint effort, while inherently difficult, is a smart way of doing business.

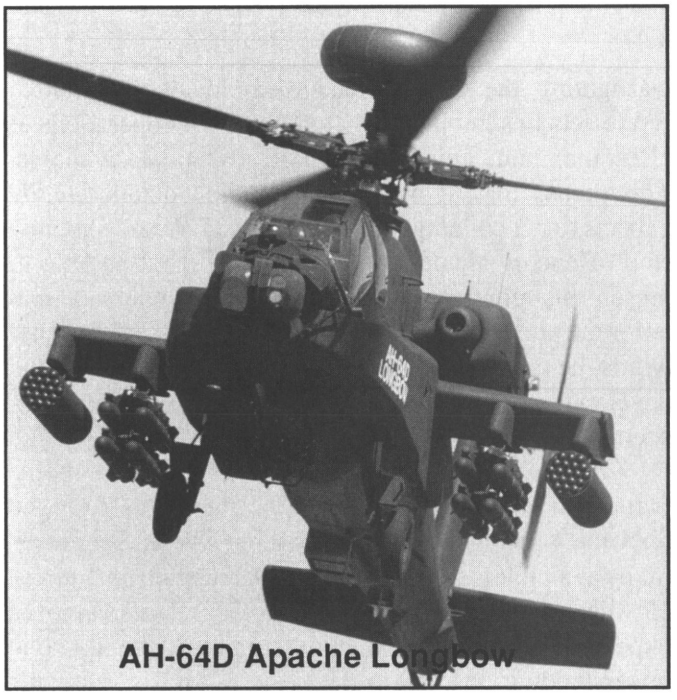
Why Coordinate?

The fire support coordination line (FSCL) is a "permissive" fire support measure. This means any fires short of this line must be coordinated with the Army ground commander. Doctrinally, however, fires beyond this line do not have to be coordinated with anyone. (In theory, at least, the joint force commander can, and often does, specify certain coordination for deep fires must take place.) In any case, there are good reasons why it is to the mutual advantage of both the Air Force and Army Attack Aviation to have the interdiction campaign and Army deep operations thoroughly and effectively coordinated. Here are a few—

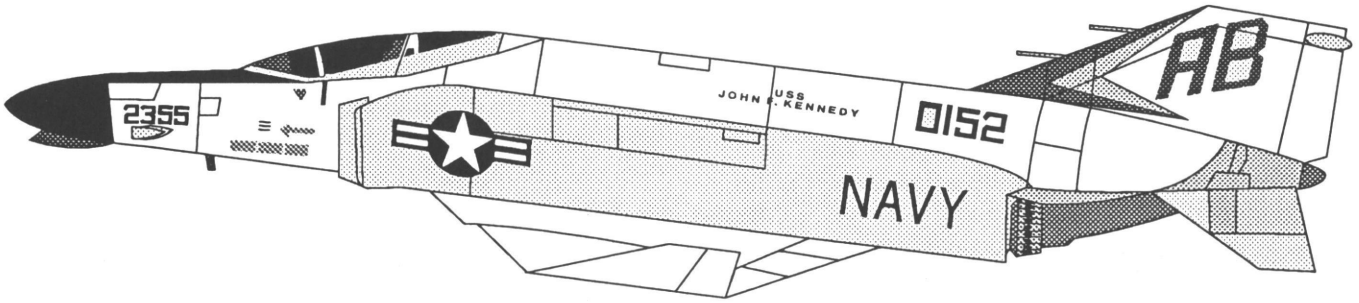
• ***Target detection and acquisition.*** The integration of Apaches and fixed-wing aircraft provides for increased lethality by combining the best attributes of each to detect, acquire, and destroy hard-to-find targets. Air Force fast movers can cover wide areas of the battlefield and bring massive firepower to bear; however, they are limited in their ability to see and react to small, camouflaged, or entrenched targets.

Conversely, the ability of the Apache to fly low and slow, combined with its outstanding target acquisition systems, gives it an excellent ability to find and fix targets. This is merely one area in which attack helicopters and fighter aircraft complement each other's capabilities; however, to be completely effective, these efforts must be coordinated. Coordinated Air Force and Army Apache operations might produce many synergistic advantages. Bomb damage assessment and threat reporting to each service might be improved, for example. The end result—a more effective "joint" fighting force.

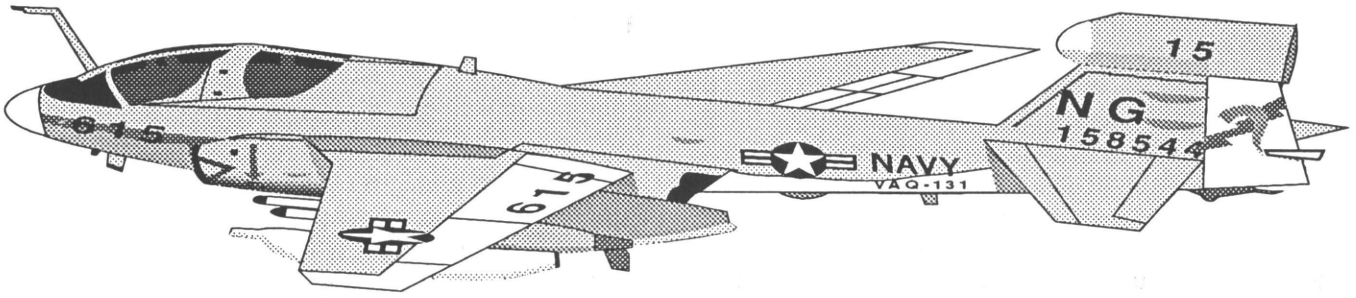
• ***Deep JAAT opportunities.*** Another advantage of improved coordination is the expanded opportunities for conducting "***deep joint air attack team*** (JAAT)" operations. One normally thinks of JAAT as being conducted with close air support (CAS) aircraft in relatively close proximity to the forward line of own troops, but this need not necessarily be the case. Deep JAAT—that is, JAAT conducted beyond the FSCL—provides an excellent way to bring multiple fires on enemy second-echelon forces. However, a deep JAAT operation in a high-threat environment is fundamentally different from a normal CAS JAAT in one respect. How? Air Force assets don't merely flow to targets deep in enemy territory as they do in the case of CAS. For maximum survivability, major elements of a deep mission, including routes, tactics, and time-on-target, must be precoordinated with all players before execution of the attack. In deep JAAT operations, this planning must include both fighter and attack helicopters.


AH-64D Apache Longbow

• ***Realistic employment of EW and SEAD assets.*** Every good Apache mission planner considers and integrates Air Force and U.S. Navy electronic warfare (EW) assets (EF-111 Raven, EA-6B Prowler, and F-4G Phantom II) into the attack plan. In reality, however, there are simply not enough of these specialized assets to cover every Air Force interdiction package, much less individual Apache deep attacks. Certainly "special" deep attack missions will be provided unlimited support. However, for day-to-day



F-4G Phantom II



EA-6B Prowler

warfighting, the key to effective employment of limited EW assets lies in our ability to consolidate operations to effect maximum coverage from the few sorties available. This means that, if an Apache mission planner ***really*** expects to get coverage from Air Force EW and suppression of enemy air defense (SEAD), he must be able to present his requirements to the campaign planners, and tailor the attack plan to the available EW assets. In other words, he must make his inputs ***in conjunction with*** the development of the interdiction campaign, not after it has been put together.

• ***Use of command and control assets.*** Airborne battlefield command and control center (ABCCC) and airborne warning and control system (AWACS) are normally available to assist Army Attack Aviation operations. However, these command and control (C^2) assets cannot be expected to provide meaningful support without a solid understanding, on a day-to-day basis, of Attack Aviation's plans and intentions.

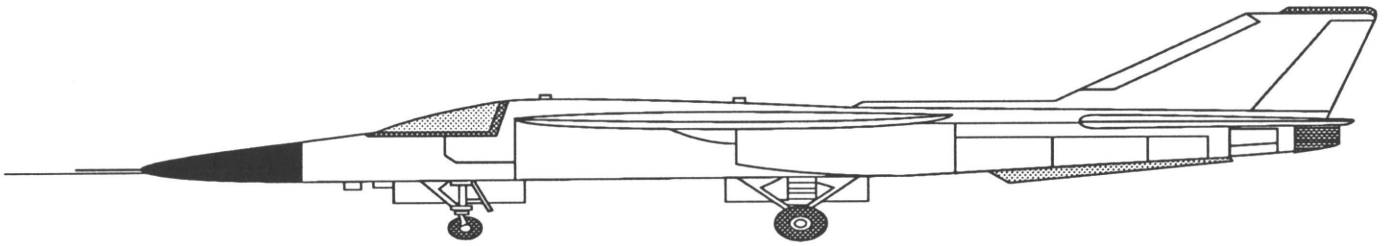
• ***Decreased risk of fratricide.*** There are several ways to mort friendly aircraft in combat—midair, fragmentation, or accidentally being shot down. While the risk of a midair in combat is significant but relatively minor, frag deconfliction is a serious concern. The potential of flying through someone else's ordnance fan can be significant. The "see-and-avoid" principle doesn't work, and the fragments of a 2,000 pound bomb is almost a mile in diameter (for about 30 seconds, anyway). The best method of reducing this risk is by close, real-time coordination, deconflicting attacks to the maximum extent possible.

Being shot down by "friendly" fighters also may be a serious threat. The ability of the fighter pilot to distinguish a friendly helicopter from an enemy one, either visually or electronically, is limited. Short of the FSCL, this risk is lessened because Air Force pilots are aware of the fratricide potential, and they are generally in radio contact with ground forces. However, the potential increases dramatically as AH-64s fly deep, because Air Force planners and pilots may have a limited idea of when and where Apaches are operating.

In Southwest Asia (SWA), restricted operating zones often were established over huge areas of ***potential*** interdiction territory, so there would be no possibility of bombing or shooting at a friendly helicopter. This is certainly ***not*** optimal. This method of deconfliction worked in SWA simply because the maximum application of firepower really was not required to defeat the enemy.

The Problem

So fighting the deep/interdiction battle as a joint team is the best, most efficient, and safest means of killing bad guys. Yet, integrating Army Apache deep operations with the Air Force air interdiction (AI) planning process is about as easy as splicing the chromosomes of an eagle to those of an odd-toed ungulate. (It's real hard, but if it works you've got a rhinoceros that flies!)



EF-111 Raven

Why is this little feat of genetic engineering so difficult? The basic building blocks of the Army's warfighting methodology are the "commander's intent." His intent describes to each lower echelon ***what*** will be accomplished, leaving the commander at that level to best determine ***how*** to achieve the task. Both ***execution*** and ***control*** are exercised at the lowest level. In nearly all instances, the "chain of command" is sacred.

The amino acids of an AI campaign are radically different. A land component commander (LCC) hardly ever tasks a particular tank to attack a specific target. Not only does the LCC not have the time or the staff to do so, but about six echelons of command would have a serious problem with him if he tried.

Yet in the Air Force, that is precisely what the air component commander (ACC) does with each and every aircraft in the theater. In the case of interdiction assets, the ACC specifies exact "desired mean point of impact," ordnance, fuel load, and time-on-target for every mission flown.

The nucleus of this highly centralized campaign is the air operations center (AOC) (previously the tactical air control center). In wartime, the AOC is a vast machine with intelligence people, photo interpreters, planners, and operations personnel who orchestrate and manage the war, both long range, and day-to-day.

The ACC receives guidance from the joint force commander and, through the efforts of the AOC, turns that guidance directly into ***specific tasking for every flight leader*** who will fly a mission that day. Individual units only concern themselves with generating sorties and planning the details of getting to and attacking the target. In other words, the Air Force campaign uses the principles of ***centralized control and decentralized execution.***

Each system, in its own right, best serves its user. But one doesn't have to be Gregor Mendel to see these essentially are dichotomous structures, polypeptides not easily formed into protein. One system coordinates directly from the highest level to the lowest, monitoring all operations from one central location (the AOC). The other system simply defines more and more refined objectives for each progressively lower echelon, leaving the details to that level.

So how does one integrate these two very different nucleotides into a functioning double-helix? The first step simply is ***recognizing*** the problem—recognizing that the Army has evolved in its capacity for affecting the long-range battle and now has an increased need to coordinate and integrate its Attack Aviation assets with the Air Force interdiction campaign.

The Air Force has acknowledged this recently by authorizing tactical air control parties and air liaison officers (ALOs) for all aviation brigades. The ALO can play an important role within the aviation brigade. Often, he is the only Air Force person who is aware of the planning and support needs of Army Aviation units. He is in a position to provide valuable information to Air Force planners and leaders, as well as to his Army counterparts. His physical separation from the AOC, however, severely limits his ability to be directly involved in air campaign planning.

Genetic Engineering

Creating a new species of death-dealing winged mammals may be out of the question. If so, here are a few gene-splicing ideas at least to begin the task of engineering a joint warfighting monster.

• ***Involvement in the air campaign planning process.*** Any effort to establish close, continuing coordination between the Air Force and Army Aviation must begin at the AOC. The AOC contains a core of permanently assigned

mission planners. However, one ***vital*** key to the success of the air campaign in SWA was the ***augmentation of the AOC by mission planners from each wing.*** These individuals were highly experienced planners, normally weapons and tactics officers. They performed long-range planning, day-to-day mission planning, and coordinated last minute changes. More importantly, they provided the Air Force leadership with direct information and advice about how to best employ each aircraft. ***Every wing provided at least one planner to the AOC, so that the resulting tasking best fit that wing's capability to contribute to the war.***

For the Army, this coordination is the job of the battlefield coordination element (BCE). However, in Attack Aviation, the BCE generally does not contain the direct contacts or the detailed knowledge of current events down in the battalion to be able to energetically represent Attack Aviation during air campaign planning (besides performing all its other important liaison functions). This can only be accomplished well by having knowledgeable, experienced, and energetic liaison officers from each Attack Aviation brigade or group attached ***directly*** to the AOC, with the authority to represent the interests of lower echelons directly to Air Force planners. Why the AOC (rather than corps)? Because a lot of big picture Army planning may go on at corps, but the nuts and bolts of the Air Force war (read interdiction and deep war) are planned at the AOC. Real, direct interface only can occur there.

• ***Involvement in the ATO.*** Another area that should be addressed is the involvement of Army Attack Aviation in the air tasking order (ATO) process. However, this is ***not*** to suggest that the ATO should task Army Aviation. One of the great strengths of Attack Aviation is its flexibility, the ability of the Army commander to quickly focus massed firepower at the decisive point. On the other hand, Army involvement in the ATO is already significant, and not merely in the targeting arena. Army fixed-wing assets often are included in the ATO to provide deconfliction. Air defense procedures are included. Army airspace C^2 requirements are included in the airspace control order (ACO), which is an annex to the ATO. Special instructions (SPINS) include combat search and rescue procedures that may be pertinent if Army personnel or assets are involved.

So while direct tasking by the ATO is generally neither desirable nor feasible for Army Attack Aviation units, levels of participation and cooperation in the ATO process still are potentially advantageous, without degrading the inherent flexibility of Attack Aviation. Publication in the ATO each day of all ***known*** Attack Aviation activities, with the resulting flow of information to planners at all levels in both services, would certainly enhance our combat capability.

• ***Distribution of the ATO.*** Army Aviation units have a demonstrated requirement to receive the ATO, ACO, and SPINS. The ATO, ACO, and SPINS are published daily and cover all airspace and, to the extent possible, fixed-wing activity for a 24-hour period. Aviation units now obtain the ATO by calling the friend of a cousin who knows someone who can get a copy. A good test of individual initiative, but clearly not an optimum solution! The Army is currently working on a method of distributing the ATO through the maneuver control system. If actually implemented, this will be a significant improvement. An even better solution would be to equip Army Aviation brigades or groups with a "contingency theater air control system air planning system." A follow-on to computer automated force management system (CAFMS), this system is essentially a local area network (LAN) using a SUN Sparc Two computer and existing communication links. More than simply a method for distributing the ATO and ACO, LAN allows users to ***interact*** with the AOC to sort through the ATO, ACO, and SPINS; provide planning inputs on a real-time basis; send and receive reports concerning activation of airspace, status of resources, etc. In essence, LAN is a direct link to the AOC planners.

Summary

Now, more than ever before, the corps commander owns ***organic*** assets that influence the battlefield ***in-depth.*** This capability, combined with the ever-present need to reduce the risks of fratricide, screams for improved coordination between the Air Force and Army Attack Aviation. While this integration is inherently difficult because of the different C^2 philosophies of the two services, ***better coordination and integration has the following advantages:***

• ***Improved target detection and reaction.***

• ***More opportunities to conduct deep JAAT operations.***

• ***Realistic employment of Air Force EW and SEAD.***

• ***Improved use of Air Force C^2 assets (ABCCC and AWACS).***

• ***Reduced risk of fratricide by deconflicting deep attacks.***

Some ideas for improving coordination include—increasing the ground commander's involvement in the air campaign planning process by assigning Army Aviation planners directly to the AOC; publication of Army Attack Aviation deep operation activities in the ATO; and organizational support for distribution of the ATO to aviation brigades and groups.

These ideas are not represented as THE ANSWER to the growing needs of "joint" warfighting doctrine for deep attack. Most importantly, leaders and commanders at ALL LEVELS must RECOGNIZE and ADDRESS the vital need for the integration and coordination of Army deep attack operations and the Air Force AI campaign.

AH-64 APACHE PROGRAM UPDATE

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U.S. Army Aviation Center
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Background

During the early stages of the Vietnam War, the Army defined the need for a helicopter with the sole mission of delivering massed fire on an enemy. As a result of that requirement, the Army obtained the AH-1 Cobra attack helicopter. Since that time, the Army has continued to rely on the attack helicopter to deliver effective fires on enemy forces.

The AH-64 Apache is the best fielded helicopter in the world and performed superbly during combat operations in South West Asia. Its performance highlighted the need for an even more capable attack helicopter.

The complete development of a new aircraft is time consuming and expensive; upgrades of an existing aircraft are faster and more affordable. These requirements translate into the Army's Apache Modernization Plan (AMP) (figure 1). This plan calls for incorporation of leading edge technologies into the current AH-64A, making it the AH-64A+ and then the AH-64C and AH-64D Longbow.

Introduction

This article addresses the ongoing Apache Modernization Program from the user's representative, TRADOC, point of view. This program is driven by Battlefield Development Plan (BDP) deficiences; and planned enhancements to increase capability and emerging tactics, techniques, and procedures to maximize the effectiveness of modernized Apaches.

The Army team that manages the Apache Modernization Program includes the TRADOC system manager, the combat developer who sets the requirements; the material development team—two program managers—Longbow and Air-to-Ground Missile—who are overseen by program executive officers, Aviation and Tactical Missiles. The industry team consists of Martin Marietta and Westinghouse, the joint venture team, and McDonnell Douglas Helicopter Company, the Longbow Apache System integrator.

Battlefield Development Plan

The need for the Apache Modernization Program is outlined in the BDP. The major deficiences of Army Aviation addressed by the Apache Modernization Program are—

- Adverse weather capability: Current fielded weapons systems are constrained by climatic conditions that reduce visibility.
- Multiple target engagement capability: To increase the effectiveness of the aircraft, it must be able to successfully engage a large number of targets simultaneously.
- Enemy air defense (AD) suppression: With the increased sophistication of the available antiaircraft weapons, the Apache must be able to suppress those weapons systems autonomously.
- Battlefield survivability: To achieve success on the battlefield, the Apache and its crew must be able to perform increasingly dangerous missions and return safely.
- Air combat survivability: With increasing availability of high tech helicopters to third world countries, it is imperative the

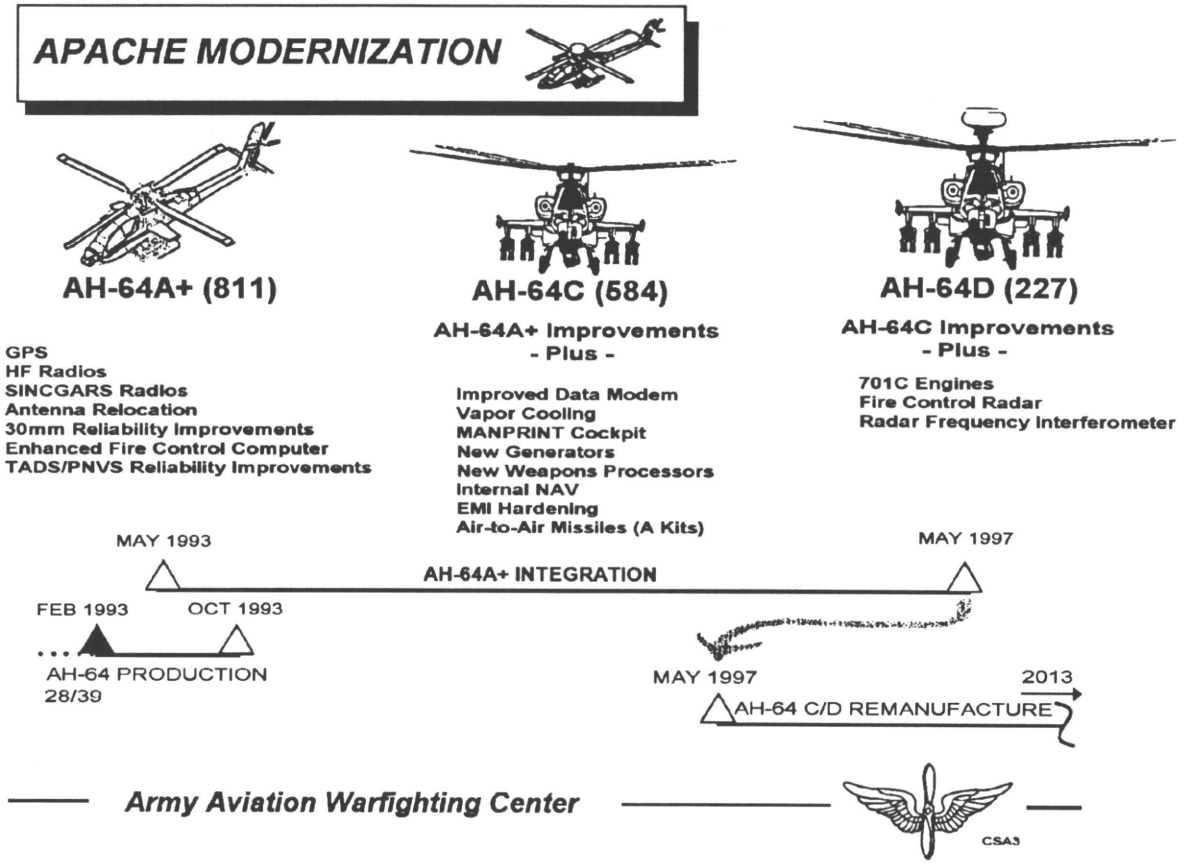

Figure 1. AH-64 Apache Modernization Plan

Apache be able to engage and destroy those threats.

- Fire and targeting capability: The control of friendly fires in the engagement area is a must to reduce fratricide and to distribute friendly fires evenly.
- Target detection, classification, and prioritization: Once a threat is detected, it must be processed quickly so the pilot can decide his courses of action.

The Army has committed itself to an extensive Apache Modernization Program to address these BDP deficiencies. The program calls for the remanufacture of 811 AH-64As (less attrition) into 584 AH-64Cs and 227 AH-64Ds.

AH-64A+

The remanufacture is scheduled to take place from FY1994 to FY2012. This extended fielding plan will leave some AH-64s in the field for up to 20 years after their original manufacture. Therefore, the Army identified a need to perform an interim update to the AH-64A that will result in an AH-64A+. The AH-64A+ will incorporate a number of modifications to the existing aircraft to enhance it. These changes are—

- Global positioning system (GPS): Before and more so during Operation Desert Shield/Storm, the number of one priority from field units for the Apache was to incorporate a GPS. This upgrade will do this. It will interface with the aircraft's present doppler navigation system and the fire control system.
- High-frequency (HF) radio: During deep attack missions, the current radios on board the Apache do not possess a long-range capability. This results in the crew's being unable to receive needed update information once a mission begins. The extended range capability of the HF radio will solve that problem.
- SINCGARS (single channel ground and air radio system) radios: The future radio of the ground commander will be the SINCGARS. To maintain secure communication with him, the Apache needs this radio.
- Nap-of-the-earth (NOE) communications: The Apache has suffered from the inability to communicate with ground commanders while flying in an NOE mode. Boosters for the radio along with relocating antennas will solve this problem.
- 30mm gun reliability and accuracy improvements: Enhancements to the current feeder assembly for the M230 cannon

will reduce the number of stoppages that occur while firing. Also, software changes will be made to increase the accuracy of the 30mm.

- Upgrade the fire control computer (FCC): To enable the accuracy upgrade for the 30mm, the memory and throughput capability of the FCC must be increased.

These improvements will be made in a programmatic way so as not to interfere with the Longbow conversion to AH-64C.

AH-64C/D

The AH-64A+ will help improve some of the capabilities of the Apache; however, it does not solve all the BDP deficiencies. The AH-64C/D Longbow conversion does. Figure 2 identifies the major modernized components of the AH-64D Longbow. To take full advantage of the Longbow system, the Army will remanufacture some of the AH-64As and A+'s into the AH-64C/D. The added modifications will include—

- Longbow fire control radar (FCR): The new FCR provides the AD-64D with many new operational capabilities. These include the ability to rapidly scan a target area, identify and classify targets, then engage those targets under visibility conditions that would be prohibitive for the current Apache. Also, the FCR can be used to aid the crew in terrain avoidance while en route to a target area. The air mode of operations allows the aircraft to seek out any air threats also. Finally, incorporated into the FCR is a radar frequency interferometer (RFI) that detects and identifies threat AD systems, which enable the Longbow to rapidly engage those systems.
- Improved weapons processors: All of the weapons systems and sensors are linked together. This allows rapid interface among all the components to increase the lethality of the Longbow.
- MANPRINT (manpower and personnel integration) cockpit (Glass cockpit): The original AH-64A used old technology switches and guages to relay information and accept input from the pilot and gunner. In the AH-64C/D, these antiquated techniques have been replaced by state of the art multifunction displays and a single keyboard entry pad.
- Improved data modem: This modem is well advanced over

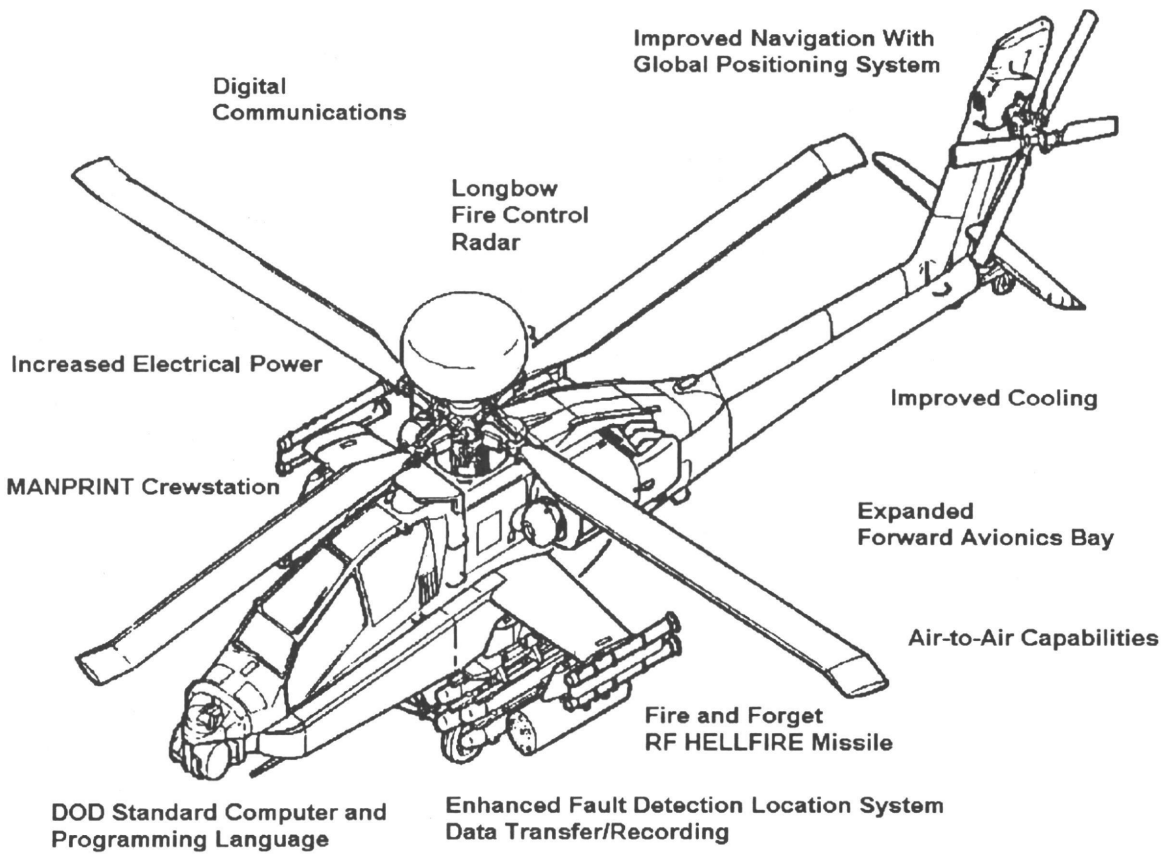

Figure 2. AH-64D Apache Longbow

the airborne target handoff system (ATHS) currently in service. Triservice compatibility allows rapid exchange of information with virtually any aircraft, artillery battery, or command center in jam-proof "data bursts." Four channel simultaneous data transmissions are easily accommodated. Combined with the high accuracy of the GPS/INU (inertial naviation unit), precise targeting and attack coordination information, including accurate prediction of target behavior, can be exchanged quickly while minimizing crew workload. Rapid coordinated target engagements are the result.

- Improved navigation system: In the original AH-64A, the aircraft used a gyro-controlled heading and attitude reference system (HARS); the AH-64C/D will use a ring laser gyro for inertial navigation along with an embedded GPS to provide constant updating.
- Increased electrical power: With the increase in electrical requirements, the AH-64C/D will have two 45 kilovoltampere (kVA), 115 volt, 400 hertz (Hz), 3-phase generators to supply alternating current (AC) power. Direct current (DC) power is provided by a 24-volt battery.
- Reduction of electrical wiring: The entire wiring of the AH-64C/D is being redesigned using lessons learned from the AH-64A. Improved wire routing, connectors, and testing points are all being designed to make the AH-64C/D more maintainable.
- Improved cooling: The environmental control system for the Longbow is a vapor cycle system that will use the auxiliary power unit (APU) or main engine bleed air instead of the integrated pressurized air subsystem (IPAS). This will eliminate the need for the shaft-driven compressor that has been a contributing factor in serveral aircraft fires.
- 701C engines: The incorporation of the 701C engine in the Longbow will provide the added power required to maintain the air vehicle performance requirements. In the high, hot environment, 4,000-ft pressure altitude and 95 degrees Fahrenheit (F), the Longbow can obtain a verticle rate of climb that exceeds 450 feet per minute.

The AH-64C will be the same aircraft as the AH-64D except that it will not have the 701C engines, FCR, and its associated RFI and their supporting line replaceable units (LRUs).

Tactic, Techniques, and Procedures

Along with the technology improvements made in the AH-64C/D, the correct tactics also must be developed to maximize the effectiveness of the system. During force development testing conducted at McDonnell Douglas Helicopter Company from October to November 1992, These basic tactics were developed.

The Longbow's FCR enables the aircraft to detect, classify (i.e., tracked, wheeled, AD, hovering, flying), and engage those targets with radar frequency (RF) HELLFIRE missiles. Since visual line of sight to the target is not mandatory, Longbow Apache crews can employ the RF missile during periods of poor visibility when laser, optical, and forward-looking infrared (FLIR) sensors are degraded.

Since funding will not allow all AH-64s to be converted to the AH-64D, present plans call for for a mix of AH-64Cs and AH-64Ds. Studies are under way to determine the most effective ratio. With this in mind, it becomes apparent that each attack helicopter company will have to task-organize into two teams, AH-64Ds and AH-64Cs.

From this basic principle, tactics were developed. With all aircraft equipped with both the RF and laser HELLFIRE missile, the AH-64D can scan the engagement area with its FCR, then prioritize all targets and hand them off to the other AH-64Cs. With this completed, the aircraft can start engaging all of the targets at the same time. The actual time between initial acquisition of the targets by the AH-64D and the starting of fires is short.

Also, with the one aircraft assigning targets for everyone, there is virtually no chance of any target being shot at twice. Thus, the entire time the AH-64D Longbow must remain on station to destroy its target is greatly reduced. This, in turn, enhances the survivability of the aircraft and its crew.

The RFI on board the Longbow also the system to identify accurately specific AD threats to the pilot and allow him to engage those threats before the AD unit can complete an engagement sequence. This capability also greatly enhances the survivability of the aircraft.

These techniques of engagement can be applied within all the parameters of the modern battlefield, which includes deep, close, and rear area operations.

Conclusion

The Army is taking full advantage in leading-edge technologies and applying them to both the AH-64C and AH-64D. These changes will mark the end of the AMP. With these advances, Army Aviation will continue to be a viable force on the battlefield well into the 21st century. ❐

Kamov's

KA-50

Hokum

Helicopter

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An impromptu fly-by at an aviation exhibition outside Moscow in August 1992 marked the first public view of what the West knows as the Hokum helicopter (figure 1). That example of the Kamov Design Bureau's new KA-50 was a flight test vehicle and no close inspection was possible. However, a month later, at the Farnborough Airshow in England in September 1992, a production standard Hokum for the Russian Army was on static display for all to inspect (figure 2).

Also available to answer questions were representatives of the Kamov Helicopter Scientific and Technology Company and Peter G. Hunter of Group Vector, a company based in Alexandria, VA, with the rights to market the KA-50 in the Middle East, South Africa, Greece, Italy, Spain, and the United States. Much of the information for this article came from these sources.

Named the "Werewolf" by the Russians, the KA-50 recently won the competition against the Mil Mi-28 Havoc as the primary fighter/attack helicopter to replace the Mi-24 Hind series in Russian Army aviation (figure 3). Stated missions for the new KA-50 are close air support, antitank and armored vehicle support, and air-to-air combat. Operations are intended using night vision devices in an all weather environment.

The KA-50 was designed initially in 1977 and the first flight was on 27 July 1992. Five prototypes were produced, four in single-pilot configuration and one tandem two-seat trainer. In addition, at least one KA-32 Helix-C was rebuilt into an early KA-50 test vehicle. The first standard production batch for the Russian Army was in 1991, and initial deployment and operational tests were in 1992.

The most notable features of this aircraft are the co-axial, counterrotating rotor system; the single-pilot configuration; and, for the first time on any helicopter, a pilot ejection system.

The co-axial rotor system, a trademark of the Kamov Design Bureau, has seen extensive Russian Naval Aviation service with the KA-25 Hormone antisubmarine helicopter in service since 1961 and later with the improved KA-27 Helix. Coupled with the autopilot, the KA-27 is very stable and can perform a fully automatic attack mission from take-off to torpedo delivery, requiring only one pilot. The upgraded KA-32 Helix-C with improved autopilot has demonstated normal flight with no crew in the cockpit.

. . . the "Werewolf" replaces the Hind. . .

Figure 1. A flight test vehicle over Zhukovsky Airbase outside Moscow marked the first public view of a Hokum.

Figure 2. Sporting the Russian national flag, the KA-50 was a star attraction of the Farnborough Airshow.

Figure 3. The Werewolf emblem leaves no doubt as to what the Russians want this aircraft to be called.

The KA-50 uses a highly modified KA-32 rotor system plus upgraded autopilot features. The two main rotor disks, mounted one above the other, rotate in opposite directions. Each disk has three composite rotor blades mounted with elastomeric bearings to a titanium hub and mounted to a titanium mask.

Since no power is required for antitorque or heading control, 100 percent of available power can be used for lift. Also the no tail rotor requirement results in safer nap-of-the-earth (NOE) flight. Loss of tail rotor effectiveness (LTE) is not a factor for the KA-50.

Recently, the maximum sideward flight limitation has been raised to 180 kilometers (km) per hour (97 knots), updating the tabulated data supplied by Kamov. The lack of a tail rotor also increases combat survivability. In one test of an air vehicle, the tail section, which provides for streamlining and forward flight, was shot off and the aircraft was able to land under control.

The main transmission to airframe connection uses "nodal beam" vibration dampning similar to the Bell Longranger and Bell 214 helicopters.

Traditionally, the Mil Design Bureau produced the Soviet Army's helicopters, while the Kamov Design Bureau produced the Soviet Navy's helicopters. With that, many expected the Mil Mi-28 to be the lead contender for the Army's requirements. However, the stability and autoflight features of the Kamov design convinced the Army that pilot workload could be reduced low enough to allow single-pilot operation of the attack helicopter. This was a major factor in the Army's selection of the KA-50 instead of the Mi-28, although a few Havocs probably will still enter service.

Unique in the helicopter world is the KA-50's Zvenda K-37 pilot ejection system (figure 4). Operation is by pulling one of two red handles between the pilot's seat and the cyclic. Explosive blade retaining bolts allow separation of the six main rotor blades as the top of the canopy is simultaneously jettisoned. One third of a second (sec) later, a rocket motor mounted just aft and above the pilot's seat, is ignited and pulls the pilot vertically out of the cockpit by his parachute risers and harness into which he is normally strapped. The seat remains in the helicopter. If all goes well, 2.2 sec are required to clear the helicopter once the han-

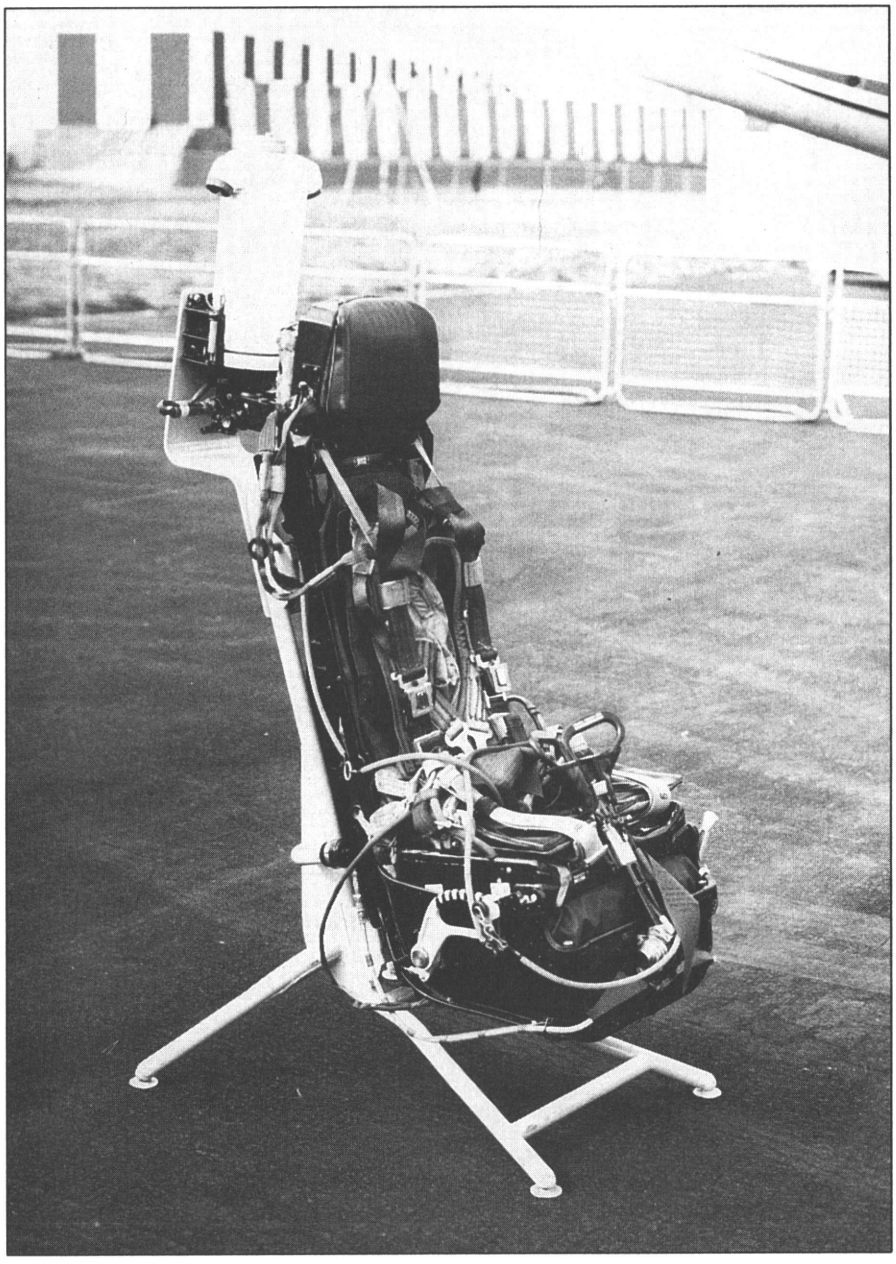

Figure 4. The Zvenda K-37 pilot ejection system. The white rocket above and behind seat pulls pilot out through the jettisoned canopy top.

dle is pulled, or 6.0 sec total for the pilot to land on the ground if the helicopter were on the ground at handle pull.

The main structural member of the fuselage is a 1 meter by 1 meter square tube of graphite/kevlar composite material, running the length of the fuselage, to which powertrain and loadbearing components are attached. Thirty-five percent of total airframe weight is of composite material.

Three hundred and fifty kilograms of steel armor is used for protection of pilot and critical areas of the transmission and hydraulics. Original specifications called for protection against U.S. 20 millimeter (mm) cannon, but only 23mm cannons were available for testing purposes so that standard was used for armor protection. Production KA-50s have complete canopy glass protection to 12.7mm (figure 5). The cockpit is over-pressurized, and the nuclear, biological, and chemical filtration equipment is located behind the pilot in the accessory area, which is also shielded against 23mm.

The primary mission equipment is the new tube-launched, supersonic, laser beamriding Vikhr missile. Each Vikhr contains two warheads, a point detonating shaped charge for antiarmor use and a proximity fused high explosive (HE) for antiaircraft use. The pilot selects warhead primacy according to the target. Missile range is 10 km, but target acquisition is accurate only to 8 km. Armor penetration is up to 900mm. A total of 12 missiles can be carried (figure 6). (Other reports stating 16 missiles are incorrect.)

The 2A42 30mm cannon mounted on the right side of the fuselage is the same gun used on the BMP-2 armored personnel carrier (figure 7). Equipped with a dual-feed mechanism, the pilot can select from 250 rounds (rd) of HE, or 250 rd of armor-piercing according to the target. Gun elevation is 12 degrees; depression is 30 degrees. Azimuth control is by the helicopter's heading. Maximum effective range is 3 km with suppressive capability out to 4 km.

Up to 80 unguided 80mm rockets can be carried in four rocket pods mounted under the wings. Each of the four underwing pylons is plumbed for use by underwing fuel tanks. The windtip pods carry chaff/flare dispensers. Some aerodynamic lift is provided by the 24-foot span wings in forward flight.

Contained in the nose section is the low-light TV (LLTV) (figure 8) (preferred by the Russians instead of a forward looking infrared

Figure 5. Pilot access into the well-armored cockpit. Steel armor resisted 23mm at 100 meters in tests. Canopy glass is bullet proof to 12.7mm.

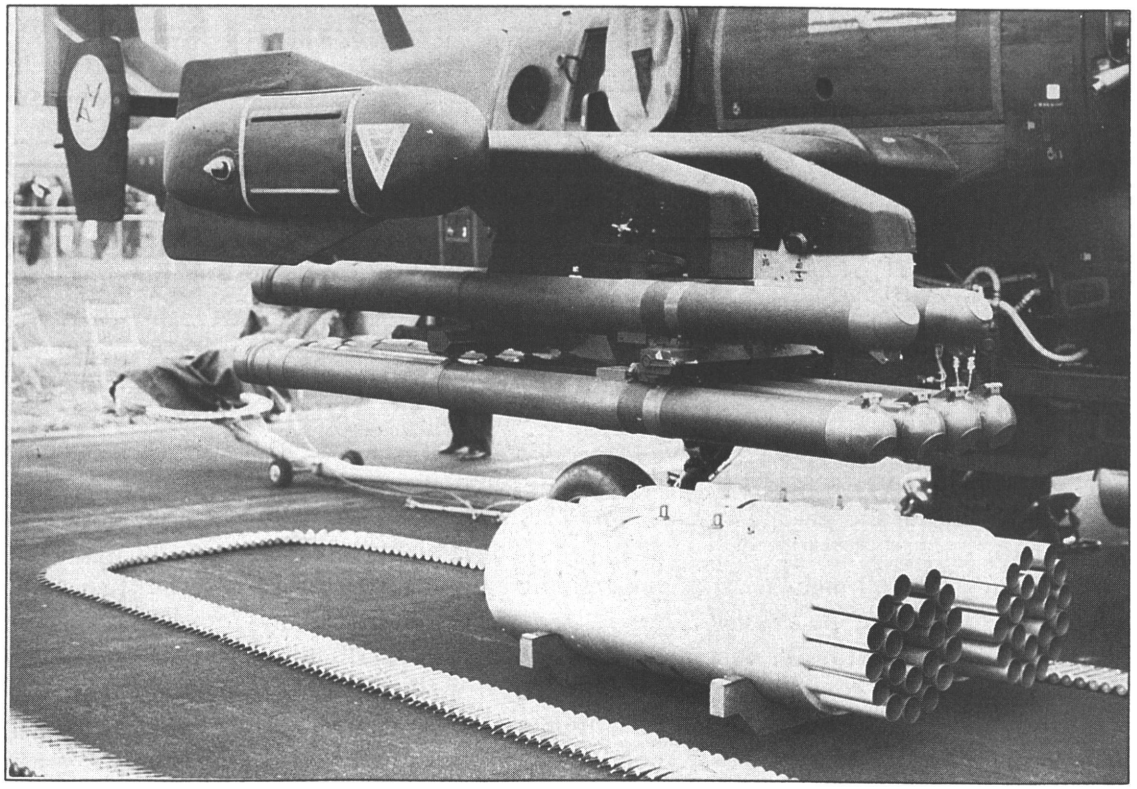

Figure 6. Six tube-launched, laser beam riding, anti-armor/anti-aircraft missiles are mounted on each outboard pylon. The wingtip pod contains chaff/flare dispensers.

Figure 7. The 2A42 30mm cannon, the same as on the BMP-2 armored vehicle, carries 500 rounds of ammunition. Two UV 80mm rocket launchers, a total of 80 rockets can be carried.

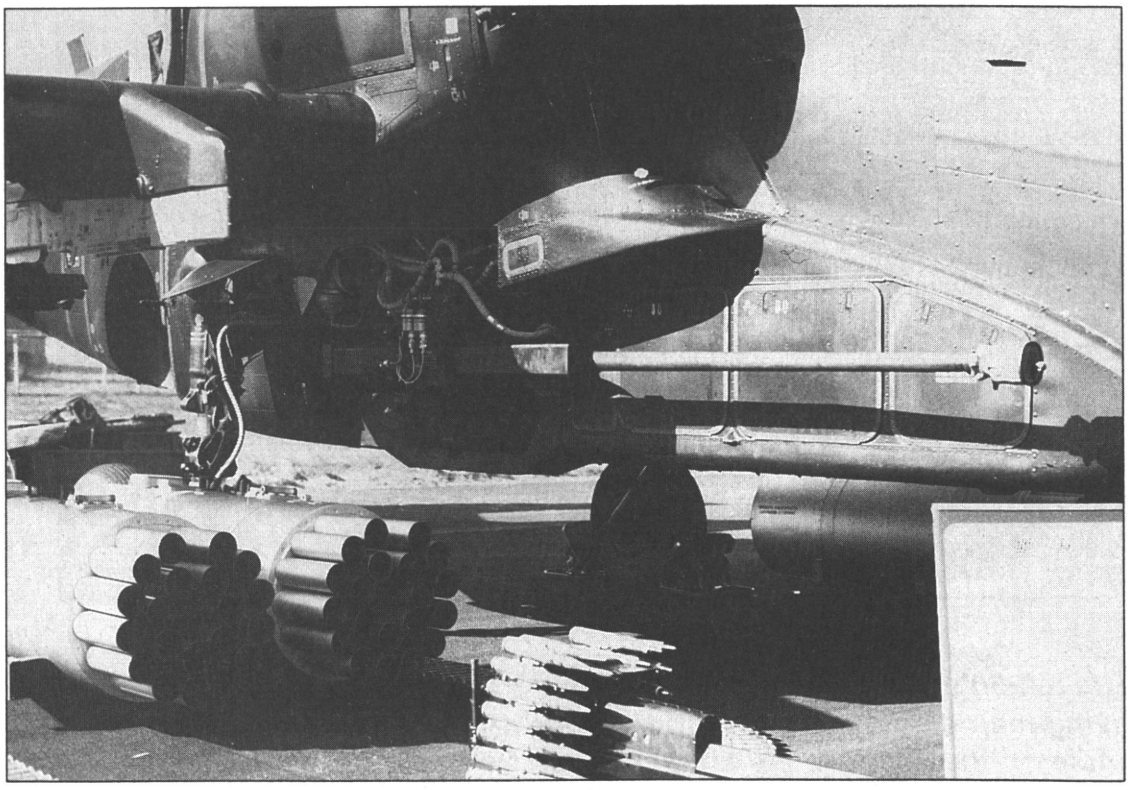

Figure 8. The low-light TV and lasers are housed under the nose. Air data sensor probes protrude out the nose. The pilot's panoramic rear view mirror is above the canopy.

system), the laser to control the Vikhr missiles, and another laser for target designating. Targeting information is presented on the pilot's heads-up-display (HUD) and helmet-sighting system (figure 9).

Targeting information can also be sent to, or received from, other aircraft or ground stations via data-link. The integrated navigation system includes Doppler navigation, radar altimeter, inertial navigation (INS), and eventually the GLONASS System, the Russian equivalent of the U.S. military's global positioning system (GPS), expected for completion by 1996-97.

Navigation information is presented on the HUD and on a moving map display located just to the right of the LLTV screen, which holds center position on the pilot's instrument panel.

Data-link also provides for helicopter control from another aircraft or ground station. With this autoflight and targeting capability, the aircraft can fly from homebase to a target, engage target, and return home without pilot input, a concept used by Russian intercepter aircraft for decades. If during a mission the pilot is wounded but still able to press one emergency button, the aircraft can return home automatically, navigating off the INS. A pilot is needed, however, to start the aircraft, pick it up to a hover, land from a hover, and shut it down. At a hover, the semi-retractable tricycle landing gear can be manually extended by personnel on the ground should that need arise.

Data-link is limited by line-of-sight transmission and, if used, would tend to keep the KA-50 higher than NOE modes of flight. This would be consistent with the Soviet/Russian philosophy of using attack helicopters in higher and faster flight modes. Thus, the incentive to try to make them impervious to hostile fire, as they would be more visible than helicopters employing U.S. tactics.

The KA-50 is powered by two Klimov TV3-117V turboshaft engines of 2,225 horsepower each; the same engine pack on the Mi-28 Havoc (figure 10). The widely separated engines common on

Figure 9. The KA-50's HUD is at top center, below is the low-light TV screen, and the moving map display to its right. Handles are for ejection system. The handle on the cyclic is a manual release for the wing stores.

Crew	(1) pilot
Engines	(2) x TV3-117v @ 2,200 shp each
Fuselage length	15.0m (49.2 ft)
Total length, rotors turning	16.0m (52.5 ft)
Rotor diameter	14.5m (47.6 ft)
Height	4.93m (16.2 ft)
Wing span	7.34m (24.1 ft)
Max speed in a shallow dive (VNE)	350 km/h (189 kts)
Verticle rate of climb at 2500m	10m per sec (1,960 ft/min at 8,200 ft)
Hover ceiling OGE	4,000m (13,120 ft)
Sideward flight	80 km/h (43.2 kts)
Rearward flight	90 km/h (48.6 kts)
Std T/O Wt	9,800 Kg (21,610 lbs)
Max T/O Wt	10,800 Kg (23,814 lbs)
Max Load Factor	3 Gs
Weapons Systems	Primary: (12) "Vikhu" supersonic, laser beam riding, antiarmor/antiaircraft missiles, plus (40) 80mm rockets. Alternate: Up to (80) 80mm unguided rockets. Plus (I) 30mm cannon with 500 rounds ammunition.

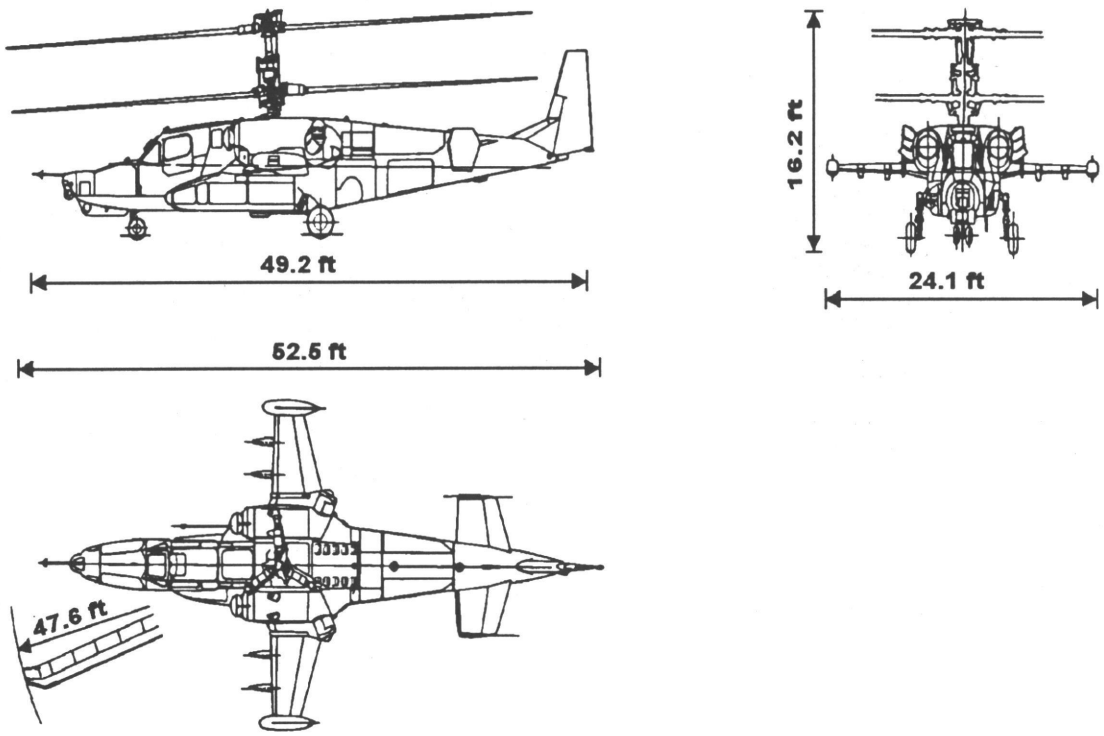

Figure 10. KA-50 Specifications, Kamov Helicopter, Scientific and Technology Company, Lubertsy Moscow Region, Russian Federation 14007

most newer attack helicopter designs increase survivability from combat damage. An internal auxiliary unit provides all ground electrical and hydraulic requirements (figure 11).

Aircraft systems malfunctions trigger prerecorded voice instructions telling the pilot what procedures to take. A "sexy" female voice is used as Russian research indicates that sexy female voices are those most attended to by pilots. Written instructions are also presented on the HUD.

Arriving at Farnborough was not only Kamov, with the never-before-seen Hokum, but 20 more aircraft of the latest Soviet/Russian design, including the latest version of the Backfire bomber. All these aircraft are up for sale or possibly available for modification to Western standards—avionics, engines, weapons, and service support.

The stated price for the KA-50 in a Russian Army configuration was $13 million per copy. However, it is possible for the next Hokum to be seen outside Russia to have Western up-grades and perhaps sporting a Middle Eastern desert paint scheme. ❐

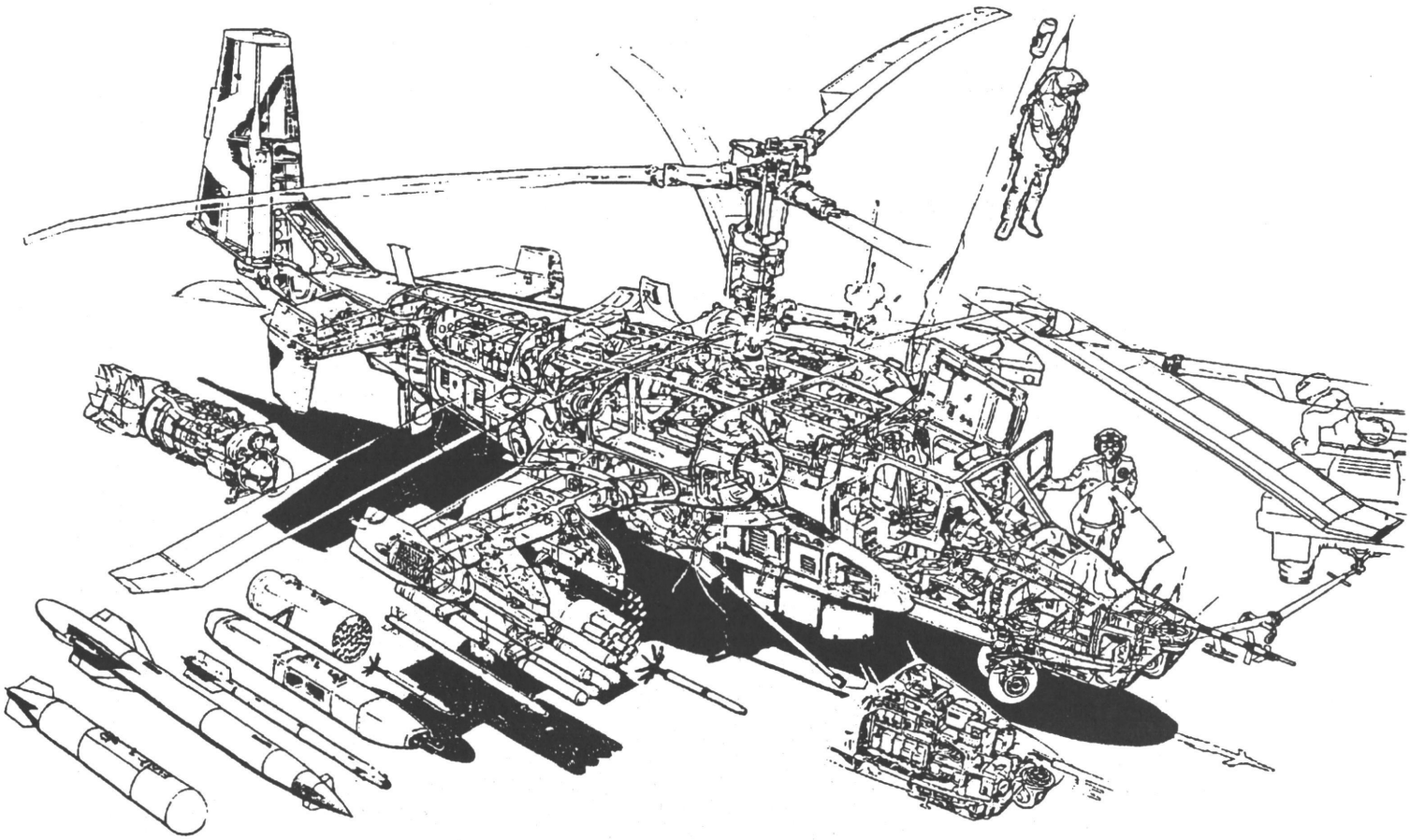

Figure 11. KA-50 Hokum

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Answers to the last *Aviation Digest* Crossword Puzzle

Here are the answers for the Crossword Puzzle in the last issue of the *Aviation Digest.*

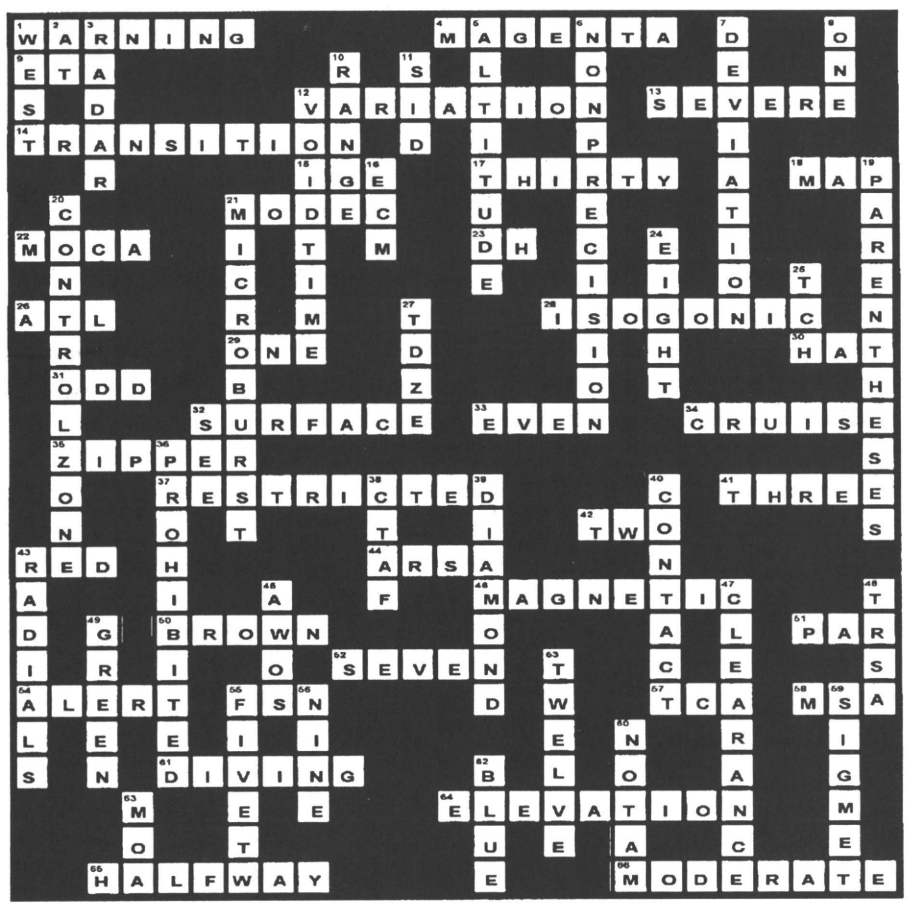
That puzzle and these answers relate to subjects asked on annual proficiency and readiness tests.

If you forgot to work that puzzle, which was the first one published in this series of puzzles, you may find it on page 36 of the November/December 1992 issue of the *Aviation Digest.*

Puzzle information will remind you about important Army Aviation subjects.

More puzzles will appear in future issues of the *Aviation Digest.* We hope you enjoy them.

And Good Luck!



Aviation Digest

1992

Subject Index

AH-1 COBRA
Gunfighters Jan/Feb
Helicopter Maintenance Through The Years Sep/Oct

AH-64 APACHE
Gunfighters Jan/Feb
Operation Provide Comfort Nov/Dec
Sudden Thunder Jul/Aug
Training for Night JAAT Sep/Oct

AH-64 LONGBOW APACHE
The ARMY Mar/Apr

AIRCREW TRAINING PROGRAM
ASET II Mar/Apr
Commander's Task List Mar/Apr
Maintenance Test Pilot Standardization Mar/Apr
New Direction for Aircrew Training Mar/Apr
Nonrated Crewmember Standardization Mar/Apr
(see TC 1-210)

ARMY REPROGRAMMING ANALYSIS TEAM Jul/Aug

ATC FOCUS*
ATNAVICS is on Way! Jan/Feb
Maintenance AMF to AMSF Mar/Apr
ATS L-Series TOE May/Jun
Mystery or Magic? Jul/Aug
Area Maintenance and Supply Facility Reimbursable Operations Sep/Oct
U.S. Army's ATC Facility of Year Nov/Dec

AUTHORS' GUIDE Jan/Feb

AVSCOM*
Human Factors in Aircraft Maintenance and Inspection Jan/Feb
Army Oil Analysis Program in Wartime Mar/Apr
ALAT May/Jun
Engine Support Center Jul/Aug

AWARDS
Ellis D. Parker Award Mar/Apr

BATTLEFIELD AIR SUPPORT
Deep Attack and Counterartillery Battle Jan/Feb

BATTLE LABS
Army Aviation's Role in Future Nov/Dec
U.S. Army Aviators Support Dismounted Battle Labs Nov/Dec

CH-47 CHINOOK
DES Revises CH-47D Operator's Manual and -CL Nov/Dec

COMANCHE (RAH-66)
Comanche Deploys May/Jun
Comanche Early Operational Capability Unit May/Jun
COMANCHE—Restructuring to Meet Requirement May/Jun
Supportability May/Jun
The ARMY Mar/Apr
TRADOC System Manager for COMANCHE-FORWARD May/Jun
Training for Night JAAT Sep/Oct
T800 Engine Update May/Jun

COMMANDING GENERAL PAGES*
Let's Exchange Ideas Jan/.Feb
Aircrew Coordination Mar/Apr
50th Anniversary of Army Aviation May/Jun
Army Aviation's Role in Counterdrug Operations Jul/Aug
Total Force Sep/Oct
Army Aviation's Role in the Future, Defined Through Battle Labs Nov/Dec

1992 Subject Index

COMPUTERS
ASET II — Mar/Apr
Distributed Training Program — Jul/Aug
Tactical Army Computer — Jan/Feb

COMMAND AND CONTROL
Army Aviation in Level III Rear Operations — Sep/Oct
Army Aviation's Role in the Future — Nov/Dec
Deep Attack and Counterartillery Battle — Jan/Feb
Operation Provide Comfort — Nov/Dec
Reserve Forces—A New Beginning — Sep/Oct

CONTESTS
Air Assault Challenge — Jan/Feb
Fort Rucker Holds First Air Assault Challenge — Jan/Feb
Gunfighters — Jan/Feb
Howze Helicopter Gunnery Competition — Jan/Feb
USAAVNC Hosts 2d Annual Air Assault Challenge — Nov/Dec

DESERT STORM
Apache Armed Reconnaissance Operations — Jan-Feb
Army's Mobilization of National Guard Units — Sep/Oct
Attack Troop in Gulf War — Nov/Dec
Aviation Logistics Mobility — Mar/Apr
CG Page One—Aircrew Coordination — Mar/Apr
Design for Tempo, Part 4: Army Aviation and Counterfire Mission — Jan/Feb
How Do Newspapers Report Army Aviation Aircraft Mishaps? — Sep/Oct
Total Force Partnership — Sep/Oct
Warriors at Sea — Nov/Dec
Women in Army Aviation—Changing Paradigms — Nov/Dec

DES REPORT TO FIELD*
DES Trends Affect Aviation Medicine — May/Jun
Equivalency Evaluations — Sep/Oct
Mission, Process, and Product — Nov/Dec

ELECTRONIC WARFARE
Deep Attack and Counterartillery Battle — Jan/Feb

EXERCISES
Cope Thunder — Jan/Feb
Deep Attack and Counterartillery Battle — Jan/Feb
Key Points on Total Force — Sep/Oct
Total Force Partnership — Sep/Oct

FM 100-5
A Paradigm for Adaptation — Jul/Aug

FORCE DESIGN
Design for Tempo, Part 4: Army Aviation and Counterfire Mission — Jan/Feb

FORCE STRUCTURE
Will Pentagon's Force Mix Meet Future Threat? — Sep/Oct

HISTORY
Army Aviation Between WWII and Korean Conflict — Sep/Oct
Army Aviation: A Branch Founded by Dreamers and Doers — Jan/Feb
Cargo Helicopters in Korean Conflict, Part I — Nov/Dec
Helicopter Maintenance Throughout Years — Sep/Oct
Henry Post Army Airfield — May/Jun
Organic Army Aviation in WWII Part I — May/Jun
Organic Army Aviation in WWII Part II — Jul/Aug
Parker, Ellis D. — Jan/Feb
Women in Army Aviation — May-Jun
50th Anniversary of Army Aviation — Mar/Apr

HOWZE, HAMILTON , GEN
Gunfighters — Jan/Feb

JUST CAUSE OPERATION
Design for Tempo, Part 4: Army Aviation and Counterfire Mission — Jan/Feb

LEADERSHIP
Leader Development in the 1990s — Sep/Oct

LIGHT INFANTRY DIVISION
Deep Attack and Counterartillery Battle — Jan/Feb

LOGISTICS*
Flight Line Maintenance — Jan/Feb
Aviation Logistics Mobility — Mar/Apr
Aircraft Armament Maintenance Technician Course — May/Jun
OH-58D Kiowa Warrior Training — Sep/Oct
New Breed — Nov/Dec

1992 Subject Index

MAINTENANCE
Helicopter Maintenance Through The Years Sep/Oct

MANEUVERS (see Operations)

MEDICINE
Flying High Jul/Aug

MEDICINE REPORT*
Diet for Enhanced Aviator Performance Jan/Feb
Dustoff Black Hawk—The UH-60Q Mar/Apr

METT-T
Deep Attack and Counterartillery Battle Jan/Feb

NBC
NBC Decontamination Jul/Aug

NATIONAL GUARD
Army's Mobilization of NG Units Sep/Oct

NIGHT VISION DEVICES
Deep Attack and Counterartillery Battle Jan/Feb
How Do Newspapers Report Army Aviation Aircraft Mishaps? SepOct
NVG Training Update Mar/Apr
Training for Night JAAT Sep/Oct
Warriors at Sea Nov/Dec
What is SPH-4B? Mar/Apr

OH-58 KIOWA
The ARMY Mar/Apr
Capabilities and Expectations Jul/Aug
Warriors at Sea Nov/Dec

OPERATIONS/TACTICS/MANEUVERS
Apache Armed Reconnaissance Operations Jan/Feb
Army Aviation in Level III Rear Operations Sep/Oct
CONPLAN BUGLE Nov/Dec
Deep Attack and Counterartillery Battle Jan/Feb
Desert Storm (see Desert Storm Operation)
Design for Tempo, Part 4: Army Aviation and Counterfire Mission Jan/Feb
FM 100-5 Jul/Aug
Hurricane Andrew—A Most Devastating Disaster Nov/Dec
Just Cause (see Just Cause Operation)
Operation Prime Chance and Provide Comfort
Aviation Supply Support for Operation Provide Comfort Nov/Dec
Combat Search and Rescue: Whose Responsibility? Nov/Dec
Warriors at Sea Nov/Dec
Operations in Desert: A Postscript Nov/Dec

PEARL'S*
Survival Tip: Dry Feet; Western Region Survival School Jan/Feb
Proper Food Preparation; Hypothermia; Air Bathing Mar/Apr
Need for a HEED; Now Heed the Need May/June
Who Is Responsible? Sep/Oct

PERSONNEL NOTES*
Army Aviation Personnel Plan; Green Tabs; Revisions for MOSs 93C and 93D Jan/Feb
Aviation Drawdown Mar/Apr
Enlisted Aviation Personnel Structure Beyond 2000 May/June
Aviation Branch Insignia Jul/Aug
AWO Utilization Sep/Oct
Dual Tracking Nov/Dec

PROTOTYPES
The ARMY Mar/Apr

RISK MANAGEMENT
Risk—Its Assessment and Management Jan/Feb

SAFETY
Anatomy of an Air Crash Sep/Oct
Big Picture On Human Error May/Jun
How Do Newspapers Report Army Aviation Aircraft Mishaps? Sep/Oct
Soldiers' Spotlight Jan/Feb
Taking Safety to Heart Nov/Dec

SIMULATORS
Design for Tempo, Part 4: Army Aviation and Counterfire Mission Jan/Feb
Simulation and Training Jul/Aug
Simulators Make Me Sick Jul/Aug

SOLDIERS' SPOTLIGHT*
Safety Jan/Feb
Arming AH-1S Cobra Mar/Apr

Personnel Management During Army Drawdown — May/Jun
Are We Really Qualified? — Jul/Aug
What's in Future for ANCOC CMF 67? — Sep/Oct
Change of Custodianship — Nov/Dec

TACTICS (see Operations)

TEXCOM*
Heavy Equipment Transporters — Jan/Feb
MATTAX — Mar/Apr
Testing by Simulation — May/Jun
Test Community Celebrates Aviation Anniversary — Jul/Aug
UAV — Sep/Oct
Fratricide — Nov/Dec

THREAT
Will Pentagon's Force Mix Meet Future Threat? — Sep/Oct

TOTAL FORCE
Army's Mobilization of National Guard Units — Sep/Oct
CG Page One—Total Force — Sep/Oct
Key Points on Total Force — Sep/Oct
Reserve Forces—A New Beginning — Sep/Oct
Will Pentagon's Force Mix Meet Future Threat? — Sep/Oct
Reshaping An Army — May/Jun
Total Force Partnership — Sep/Oct
U.S. Army Aviators Support Dismounted Battle Labs — Nov/Dec

TRAINING
Aircrew Training — Mar/Apr
Aviation CSS at NTC — Sep/Oct
JRTC Uses Soviet-Built Helicopter — Nov/Dec
New Direction for ATP — Mar/Apr
OH-58D Kiowa Warrior Training — Sep/Oct
Training for Night JAAT — Sep/Oct
Training Scenarios — Mar/Apr

UH-1 IROQUOIS (HUEY)
Deep Attack and Counterartillery Battle — Jan/Feb
Helicopter Maintenance Through The Years — Sep/Oct

UH-60 BLACK HAWK
Capabilities and Expectations — Jul/Aug
Deep Attack and Counterartillery Battle — Jan/Feb
Dustoff Black Hawk—The UH-60Q — Mar/Apr
Nonrated Crewmember Standardization — Mar/Apr

UNIFORM
Aircrew Battle Dress Uniform — Jul/Aug

USAASA SEZ*
Military Training Routes — Jan/Feb
Improving FLIP — Mar/Apr
How Is Your Happy Home? — May/Jun
Aircraft Call Signs — Jul/Aug
MAMS — Sep/Oct
Airspace Reclassification Process — Nov/Dec

VIETNAM
Army Aviation—Branch Founded by Dreamers and Doers — Jan/Feb
Design for Tempo, Part 4: Army Aviation and Counterfire Mission — Jan/Feb

WARFIGHTING
Design for Tempo, Part 4: — Jan/Feb
Warfighting 91 — Jan/Feb

WOMEN AVIATORS
Women in Army Aviation — May/Jun
Women in Army Aviation—Changing Paradigms — Nov/Dec
Ludowese, Jill Cornell, CPT
Murphy, Sally, LTC

---

* Departments

BATTALION EVALUATION PACKAGE CONTENTS

PART 1
Administration

TAB A
Contents

TAB B
Category

TAB C
Endorsements

TAB D
POC Information

PART 2
Evaluation Areas

TAB A
Mission Statement

TAB B
Commander's Intent

TAB C
Safety

TAB D
Leadership

TAB E
Training

TAB F
Maintenance

TAB G
Cost versus Savings

TAB H
Innovations

PART 3
Additional Information

ARMY CHIEF OF ELLIS D.

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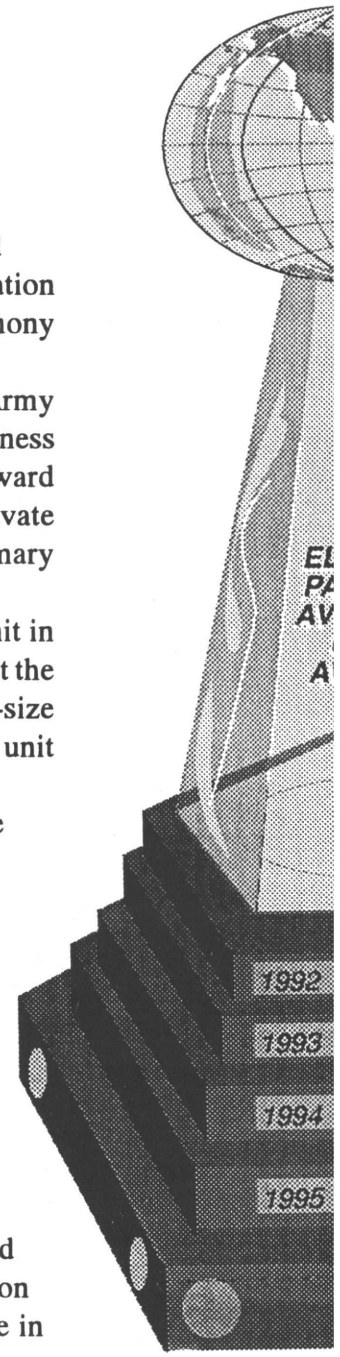


Army Chief of Staff, General Gordon R. Sullivan, approved the Lieutenant General (LTG) Ellis D. Parker Award for 1993 in a briefing 29 January 1993. General Sullivan had directed the creation of the Parker Award to honor the top aviation battalion in the Army during LTG Parker's retirement ceremony 31 January 1992.

The Parker Award recognizes excellence throughout Army Aviation. The selection process is designed to enhance readiness and improve efficiency among aviation units. The Parker Award supplements awards already available in the Army and the private sector by focusing on the aviation battalion as the primary warfighting Army Aviation force.

The CSA will present the Parker Award to the winning unit in December of each year. The trophy will be kept on display at the U.S. Army Aviation Museum, Fort Rucker, AL. A half-size replica of the Parker Award will be given to the winning unit during the CSA's annual presentation.

Consideration for the top aviation battalion will cover the Total Force in Army Aviation.

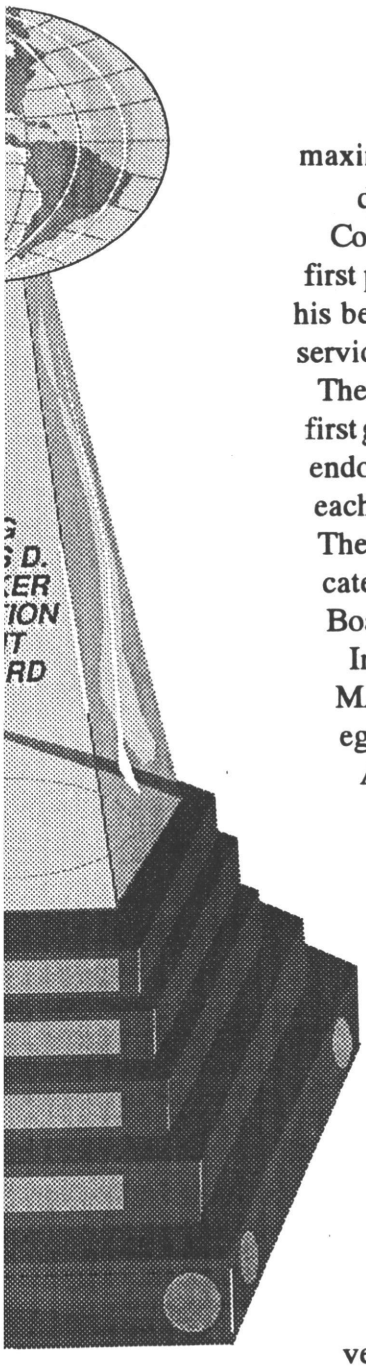
"I want the competition to include the Total Force. Reserve and National Guard units must have the same opportunity to win as the Active units," stressed General Sullivan in approving the award concept.

Any battalion-size unit can compete for the Parker Award. The four main categories, based on unit missions, include combat, combat support, combat service support, and table of distribution and allowance (TDA) units.

The primary criteria for selection will be demonstrated success of an aviation battalion in accomplishing its mission essential tasks. Main areas of emphasis include excellence in maintenance, leadership, training, and safety.

The Parker Award application will be submitted in a 2-inch binder. The Battalion Evaluation Packet (BEP) will contain three sections: Administrative Information, Evaluation Areas, and Additional Information. The battalion should identify its most significant accomplishments in the evaluation areas. The

STAFF APPROVES PARKER AWARD



maximum for each subarea should be no longer than two double-spaced typewritten pages.

Competition will be conducted in two phases. During the first phase, the aviation brigade commander will nominate his best battalions in the combat, combat support, combat service support, and TDA categories.

The brigade commander will forward nominations to the first general officer in the chain of command. He will select, endorse, and forward the names of the best battalions in each category to the major Army command (MACOM). The MACOM, in turn, will select its representative in each category and forward that name to the DA Evaluation Board.

In Phase 2, the DA Evaluation Board will consider all MACOM submissions and select the best in each category. From these four, the board will select the Parker Award winner.

The other finalists will be recognized by the Aviation Branch chief for being the best in their particular categories.

The DA Evaluation Board will convene at Fort Rucker in November to select the Parker Award winner. The board's composition will reflect the Total Force with representatives from the active component, Army National Guard, and USAR.

Data for the Parker Award will be based on fiscal year (FY) cycles. The BEPs should be completed by mid-October of each year and forwarded to Fort Rucker by 1 November.

The DA Evaluation Board will convene in early November to consider all MACOM nominations. The award will be presented annually in December.

The first Parker Award will be given in December 1993 based on FY 93 data. Guidance how to prepare and submit the Parker Award BEPs will be sent to the field during the spring of 1993.

SUBJECTS TO BE ADDRESSED IN THE BEP

* **Leadership**
  - Retention Program
  - Chain of Concern
  - Soldier Education
  - Command PT Program
  - Unit Awards and Citations
  - AWOL Rate
  - Community Involvement
  - Awards Program
  - UCMJ
  - Standardization Program
  - Community Involvement
* **Maintenance**
  - Overall Equipment Readiness
  - Aircraft Availability and Hours Flown
  - Wheeled Vehicles Readiness
  - Equipment Over 90 Days NMC
  - ASE Readiness
  - Average Phase Inspection Length
  - TAMMS/PLL Certification Program
  - PLL Zero Balance Rate
  - Property Accountability
* **Training**
  - ARTEP
  - ARMS Results
  - Individual and Crew-Served Weapons Qualification
  - NVG Training
  - Standardization Program
  - Crew Coordination Training
  - METL Training
  - Aviator Readiness Level Training
* **Safety**
  - Overall Unit Safety Program
  - Safety Record
  - Unit Munitions Handling Procedures
  - ALSE
  - Unit Refueling Operations
* **Cost versus Savings**
* **Innovations**
  - Quality of Life for the Soldier
  - Tough, Realistic Training
  - Improved Readiness
  - Safety

The first H-19 Chickasaw helicopter used by the U.S. Army in a combat zone hovers for a landing at Ascom City, Korea, in 1953. This helicopter, one of many organic to the 6th Transportation Helicopter Company, provided short-haul air support for tactical operations in Korea.

Part 2 of 2

Cargo Helicopters in The Korean Conflict

Dr. John W. Kitchens
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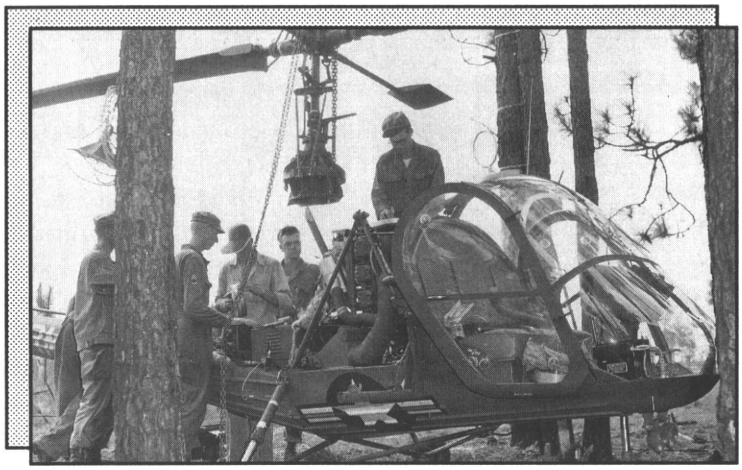


Southern Pine and Snowfall...

Above: ***Members of the 6th Transportation Helicopter Company, Fort Bragg, NC, service a Hiller H-23 reconnaissance helicopter in 1951 during Exercise Southern Pine, a joint Army-Air Force effort to observe and evacuate the wounded.***

Right: ***Men of the 6th Helicopter Company, Camp Drum, NY, position a blade in 1952 during Exercise Snowfall, another joint Army-Air Force effort.***

Training

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

Officers of the company were all veteran helicopter pilots. Enlisted men were selected on the basis of prior mechanical experience. Many of them were sent to the Helicopter Mechanics Course at Fort Sill.

The warrant officers started training on 1 June 1951 in the Army Helicopter Transport Pilots Course, Department of Air Training, Field Artillery School, Fort Sill.

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

The first operational mission of the unit was Operation Southern Pine, Fort Bragg, NC, in August 1951. The unit was equipped with seven Hiller H-23A reconnaissance helicopters.

Officers performed all of the flying as the warrant officers were not yet qualified. The first class of warrant officer helicopter pilots graduated on 1 December 1951.

In Exercise Snowfall at Camp Drum, NY, in January and February 1952, warrant officer aviators had their first experience in operating as a unit; they used 10 H-13 helicopters in this maneuver.

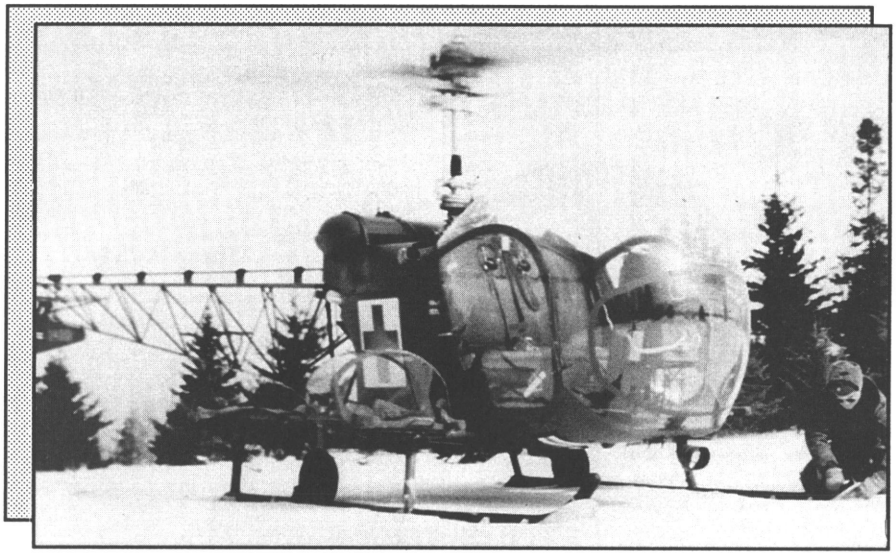
The Army obtained its first Sikorsky H-19 cargo helicopter just before the next unit operation—Exercise Longhorn. This maneuver was conducted as a joint exercise with the Air Force at Fort Hood, TX, in March and April 1952. In addition to the one H-19, the company used nine H-13s.[1]

There were clashes between the Army and the Air Force over two policy questions during this exercise. First, the Air Force blocked the Army from several functions. These functions were conducting maneuvers involving resupply of a surrounded unit, movement of an infantry company to a front line position, and the evacuation of an infantry company from an exposed position.

Air Force spokesmen contended it was contrary to established policy for the Army to conduct such missions.[2] Consequently, Army helicopters were consequently used only for aeromedical evacuation from front lines to battlefield clearing stations.

The second dispute with the Air Force during Exercise Longhorn concerned aeromedical evacuation. On the orders of an Air Force officer and for the purpose of enforcing the Air Force interpretation of established policy, a casualty was unnecessarily unloaded from an Army aircraft and transferred to an Air Force aircraft for movement to a medical facility.[3]

In the summer of 1952, the 6th Transportation Company moved to Fort Bragg where it was placed



Warrant Officer Glenn Wheeler, 53d Medical Detachment, tests the experimental plywood snowshoe attached to the skids of an H-13 helicopter ambulance during Exercise Snowstorm, Camp Drum, NY, in 1953.

under command of the XVIII Airborne Corps. In the late summer of that year (almost 2 years after it was organized), the company received 21 Sikorsky 19C helicopters and began a concentrated training program, including ship to shore operations. On 10 September 1952, the company was reorganized under TO&E 55-57A of 8 August 1952.[4]

In the meantime, two other transportation companies had been organized and were being trained. The 13th Transportation Helicopter Company was activated in August 1951 and the 506th several months later.

According to General Orders 76, dated 11 August 1952, all logistical support functions for Army aircraft were transferred from the Ordnance Corps to the Transportation Corps.[5]

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

During Exercise Snowstorm, there was another dispute with Air Force personnel over evacuation of casualties. The Army evacuated casualties according to its interpretation of the 1952 memorandum of understanding (MOU), and insisted that, especially in cases of actual casualties, the evacuation be done by the fastest available means. The Air Force did not concur and demanded only the Air Force evacuate casualties by air before linkup by ground forces.[6]

What were the purposes of these and other exercises conducted by helicopter transportation companies during 1952 and 1953? To train personnel and to test Army doctrine, tactics, techniques, and equipment under various climatic conditions. The equipment proved to be generally adequate, but several supply and maintenance problems were encountered and partially corrected.[7]

Transportation Helicopters in Korea

The 6th Transportation Company received overseas orders in November 1952 and sailed from San Francisco, CA, on 16 December. They arrived in Chunchon, Korea, on 6 January 1953. During the months of February and March, company aviators travelled to Japan and piloted their helicopters, in four groups of five each, from Kisarazu Air Force Base, Japan, to Airstrip A-5 near Chunchon.[8]

The 6th received its "Baptism of Fire" on 20 March 1953 in the performance of an emergency resupply mission for forward elements of the 3rd Infantry Division, which had been cut off from normal supply by floodwaters. Two platoons of the company moved 33,925 pounds of supplies to forward positions about 7 miles from the supply point.

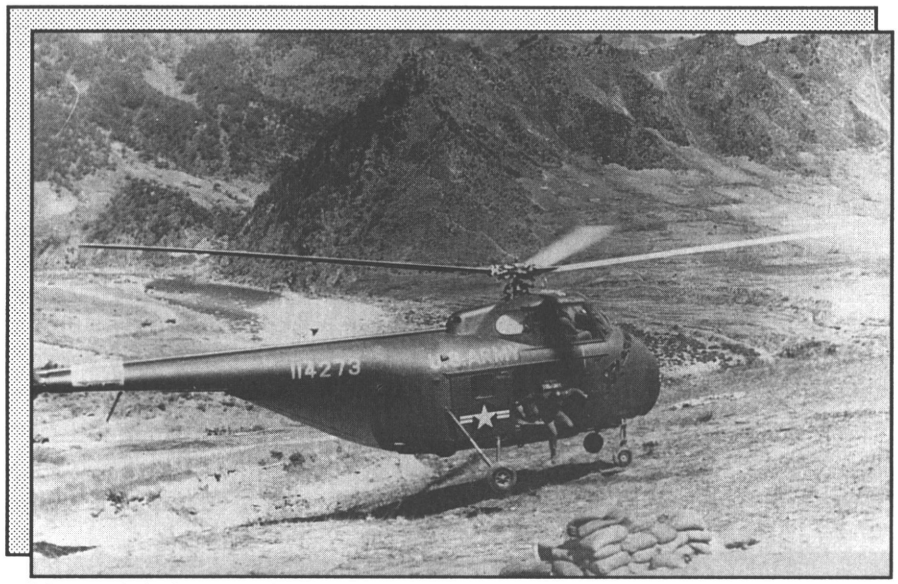
On 23 March 1953, the company evacuated casualties from forward areas resulting from action on "Old Baldy." The H-19s picked up wounded soldiers at regimental clearing stations and transported them directly to a hospital near Seoul.[9]

The first mass use of cargo helicopters in medical evacuation occurred from 20 through 26 April 1953 in Operation Little Switch. The H-19s of the 6th Transportation Company evacuated a total of 683 sick and wounded United Nations and Republic of Korea prisoners of war. This took place from Panmunjon to various hospitals and hospital ships in a total of 124 flights during the 7 days. During the exercise, the men of the 6th developed efficient procedures for loading and unloading patients and arranging litters in the aircraft.[10]

On 22-24 May 1953, 12 H-19 helicopters of the 6th Transportation Company conducted Operation Skyhook, which consisted of furnishing logistical support for three infantry regiments of the 25th Division for 3 days.

Helicopters were the primary means of resupply during this period. Most supplies were carried externally with cargo nets. In a total of 722 flights, the H-19s moved 610,000 pounds of cargo. This operation was deemed to be particularly successful because of adequate planning time.[11]

The 6th used lessons they learned from Operation Skyhook to make



The 40th Infantry Division participates in a field exercise with the 6th Transportation Helicopter Company, 8th Army, Korea, in 1953.

Operation Skyhook I even more successful. In this operation, conducted from 7 to 11 June 1953, over 2 million pounds of supplies were delivered to units of the 25th Division. The average load per flight was 1,022 pounds.

This operation demonstrated conclusively that internal loading, as opposed to the use of cargo nets, significantly increased load capacity and usually more than compensated for the additional time required for loading and unloading.[12]

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

Soldiers of the custodian forces of India board an H-19 helicopter from the deck of the U.S. Naval Ship Point Cruz, Inchon Harbor, for flight to the neutral sector of Korea in 1953. This transporting of troops was Operation Byway, the largest ship-to-shore movement of troops by air during the Korean Conflict.

Following the arrival in Korea of the 13th Transportation Company, the Eighth Army developed a battalion headquarters TO&E and activated the 1st Transportation Army Aviation Battalion (Provisional), consisting of the 6th and 13th companies. The TO&E was a flexible concept providing from two to four helicopter companies in each battalion. The battalion furnished technical supervision, control, and coordination for the two companies and also a channel for requests for helicopter cargo missions.[14]

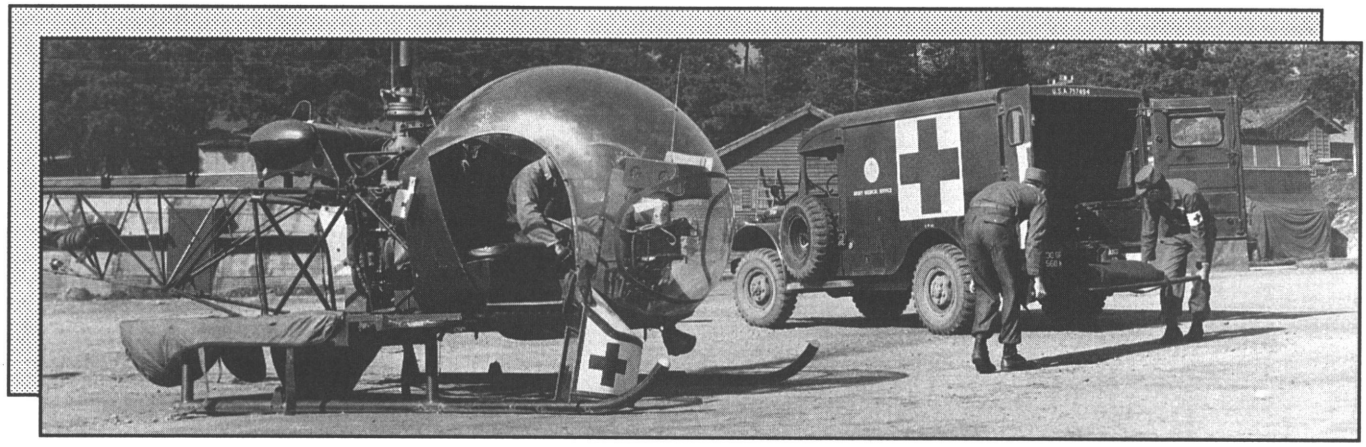
Both the 13th and the 6th companies participated in an operation on 15 June 1953 in support of the United Nations positions in the Christmas Hill sector. During the few hours they had to perform the mission before dark, the helicopter units moved about 700 South Korean troops into a blocking position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

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

After the truce, the 13th (with elements of the 6th serving as backup) conducted Operation Big Switch. In this operation, which lasted from 5 August through 6 September 1953, the 13th Transportation Company transported all sick and wounded exchange prisoners of war from Munsan-ni to United States and Republic of Korea hospitals.

Many healthy prisoners of war were also airlifted to the Army unit in Inchon. During the 33-day period, 5,674 repatriates were transported in a total of 1,173 flights.

The principal joint helicopter operation in Korea was Operation Byway



The 1st Helicopter Ambulance Company move the wounded from helicopter to ambulance in 1954. The six Army helicopter ambulance detachments that served in Korea at the end of the conflict used techniques that helped to develop the outstanding helicopter ambulance services during the Vietnam Conflict years later.

during September and October 1953.

The 1st Transportation Army Aviation Battalion, consisting of the 6th and 13th companies, and HMR 161 Marine Squadron of the 1st Marine Division used a total of 28 cargo helicopters to transport more than 6,000 troops in 1,288 flights. Most of the men moved were Indian custodial troops who moved 34 miles from an aircraft carrier in Inchon Harbor to the Panmunjon area in the demilitarized zone.[15] During the few months cargo helicopters operated in combat in Korea, their activities were hampered by some of the same problems that plagued utility helicopter operations. There were delays in obtaining replacement parts, many parts had a shorter life than expected and there was a shortage of properly trained maintenance personnel.

The transfer of responsibility for logistical support of Army Aviation from the Army Ordnance Corps to the Army Transportation Corps in 1952 was a step in the right direction, but by no means eliminated all difficulties.[16]

No major problems concerning liaison or command relations occurred. Army commanders came to consider the cargo helicopter as another mode of transportation available for the accomplishment of their missions. Consequently, they integrated the employment of cargo helicopters into the normal Transportation Corps control channels. Since few cargo helicopters were available, however, they were considered a limited and high priority means of transportation.[17]

According to the 1952 MOU between the Army and the Air Force, this was the primary mission of Army cargo helicopters: to provide short-haul air transport to expedite tactical operation and logistical support in the forward areas of the combat zones. Their secondary mission was medical evacuation—but only to points within the combat zone.[18]

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

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

During the few months cargo helicopters were used in combat, some commanders became aware of their potential. The commander of the X Corps in Korea, for example, observed "the helicopter delivery of lightly equipped combat elements directly to critical blocking and holding positions ... is a practical maneuver."[19]

Also, the Eighth Army commander, General Maxwell D. Taylor, wrote that "the cargo helicopter, employed en masse, can extend the mobility of the Army far beyond its normal capability. I hope," he continued, "that the U. S. Army will make ample provisions for the full exploitation of the helicopter in the future."[20]

Secretary of the Army Frank Pace, Jr, was perhaps even more farsighted. In 1952, he wrote that the Army should provide itself with helicopters "that are integrated into the tank-infantry-artillery team."[21]

During the Korean Conflict, cargo helicopters aided the Army in discovering the path that would eventually lead to airmobility-air assault. Cargo helicopters also helped Army Aviation become an accepted member of the combined arms team.

— N O T E S —

1. "Army Helicopters," report from Army Chief of Transportation, 1 Jan 54. Richard P. Weinert, Jr., A History of Army Aviation, 1950-62 (Ft. Monroe, VA: TRADOC, 1991), pp. 28-32.

2. Weinert, loc. cit.

3. Memo, Frank Pace, Jr., Secretary of the Army for SECDEF, 3 Oct 52, Aviation Branch Command Historian Office; Author's interview with members of 6th Transportation Co., Jun 92.

4."Army Helicopters," loc. cit.

5. Weinert, p. 20. McClendon, Army Aviation, 1947-53 (Maxwell AFB, AL: Air University, 1954), pp.3l-33.

6. "Army Helicopters," Tab F, Ltr, LTG W. A. Burress for Chief Army Field Forces, 31 Mar 53.

7. Weinert, loc. cit.

8. "Army Helicopters," pp. 25-27. Helicopters in Korea, 1 Jul 51 to 31 Aug 53 (Ft. Eustis, VA: The Transportation School, Apr 55), p. 6.

9. "Army Helicopters," p. 27. Helicopters in Korea, pp. 6 and 25-26.

10. Helicopters in Korea, pp. 21-23.

11."Army Helicopters," Tab K. Helicopters in Korea, pp. 27-29.

12. Helicopters in Korea, pp. 29-31.

13. Ibid., p.7.

14. "Army Helicopters," loc. cit.

15. Helicopters in Korea, pp. 21, 23-24, and 42-44.

16. Transfer according to GO 76, 11 Aug 52 and used by 8th Army 1 Sep. "Army Helicopters," loc. cit. Helicopters in Korea, pp. 53-67.

17. "Army Helicopters," loc. cit.

18. Department of Army TO&E 55-57A, 17 Aug 53. Helicopters in Korea, p. 21.

19. "Army Helicopters," loc. cit.

20. "Army Helicopters," Ltr, GEN Maxwell Taylor to BG Paul F. Yount, Acting Chief of Transportation, 1 Oct 53.

21. Bykofsky, The Support of Army Aviation, 1950-1954 (Washington: Office of Chief of Transportation, 1955), Memo, Frank Pace for CSofA, 10 July 52, subj: Army Helicopter Plan, p. 25.

The Ist Battalion, 14th Infantry Regiment, 25th Division, and men of the 13th Helicopter Company, 45th Helicopter Battalion, participate in airlift exercises in Korea in 1954.

The OH-13 has the additional duty of medical evacuation.

Crossword Puzzle

ACROSS

2. Drag from non-lift producing components
8. Airfoil which has an increased lift-drag ratio (OH-58 and UH-60)
9. _____ flow causes vibrations at airspeeds below ETL on takeoff and after passing ETL during landing
11. Airflow which changes angle of attack
13. Must be within for safe flight (ABR)
14. AIR in motion with respect to airfoil, not air disturbances caused by in-laws (ABR)
15. Occurs when a secondary vortex ring develops before settling with power
20. _____ with power
23. This blade produces less lift in forward flight
25. This occurs about 16 to 24 knots
27. Rate of descent in hundreds of feet needed to get into settling with power (or greater)
28. Region 30% of blade radius that produces drag during autorotation
29. Resonance that can quickly destroy a helicopter with a fully articulated rotor system
30. Tendency of rotor disk to tilt aft in forward flight due to flapping
31. Angle between chord line and RRW (ABR)
32. Region 25-70% of blade radius that produces forces needed during autorotation
33. Drag produced by frictional resistance as blade or wing passes through air
34. Condition of improved performance while aircraft is near ground (ABR)
35. All rotor blades do this
37. An object has this static stability if it returns to its equilibrium position after it has been moved
40. Rotor system that can flap, feather, and hunt
42. Line that connects leading and trailing edges

DOWN

1. Movement of blade forward and aft
2. _____ action
3. UH-1H rotor system
4. Out of ground effect (ABR)
5. Abbreviation for 12 down
6. Area on height velocity diagram where constant pilot alertness and rapid reactions are needed to accomplish safe autorotational landing
7. Area on height velocity diagram where airspeed-altitude combinations from which autorotational landing would be extremely difficult without incurring some degree of aircraft damage or occupant injury
10. Point where total drag is lowest
12. Force that acts at center of pressure including airfoil lift, induced drag, and parasite or profile drag
15. Best climb speed for maximum altitude over distance (ABR)
16. Equal and opposite to drag in unaccelerated flight
17. Compensated for by blade flapping and cyclic feathering
18. Discovered the three laws of motion
19. Greatest when an aircraft is heavy, clean, and slow
21. Newton's third law explains this
22. Objects have this static stability if neither returns to nor rolls away when displaced
24. At about 1 1/4 rotor diameter and above, this effect is zero
26. Father of venturi effect
32. Aerodynamic force that opposes thrust
36. Autorotative region that includes inboard 25% of blade radius causing drag that slows rotor RPM
38. One axis of rotation
39. Airspeed for most altitude gained over time
41. Not AC

Army Aviation

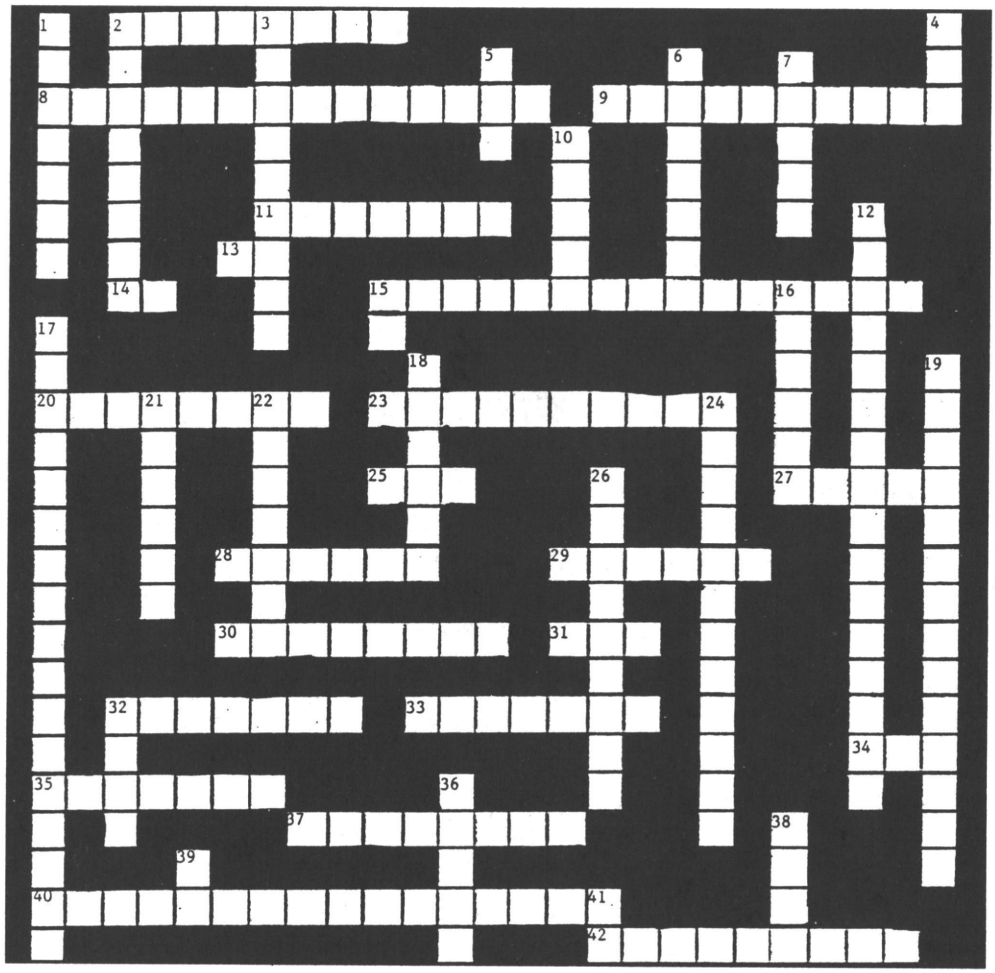
This crossword puzzle is the second in a series.

Look on the next page to find the answers to this puzzle and the last Army Aviation crossword puzzle.

The reason for the puzzles is simple: To provide another way for the Army Aviation community to review important training and doctrinal information.

This puzzle relates to aerodynamics.

For comments, phone the author, CW3 James T. Chandler, DSN 238-8917, Annville, PA.



Hint: You can find all answers in FM 1-203.

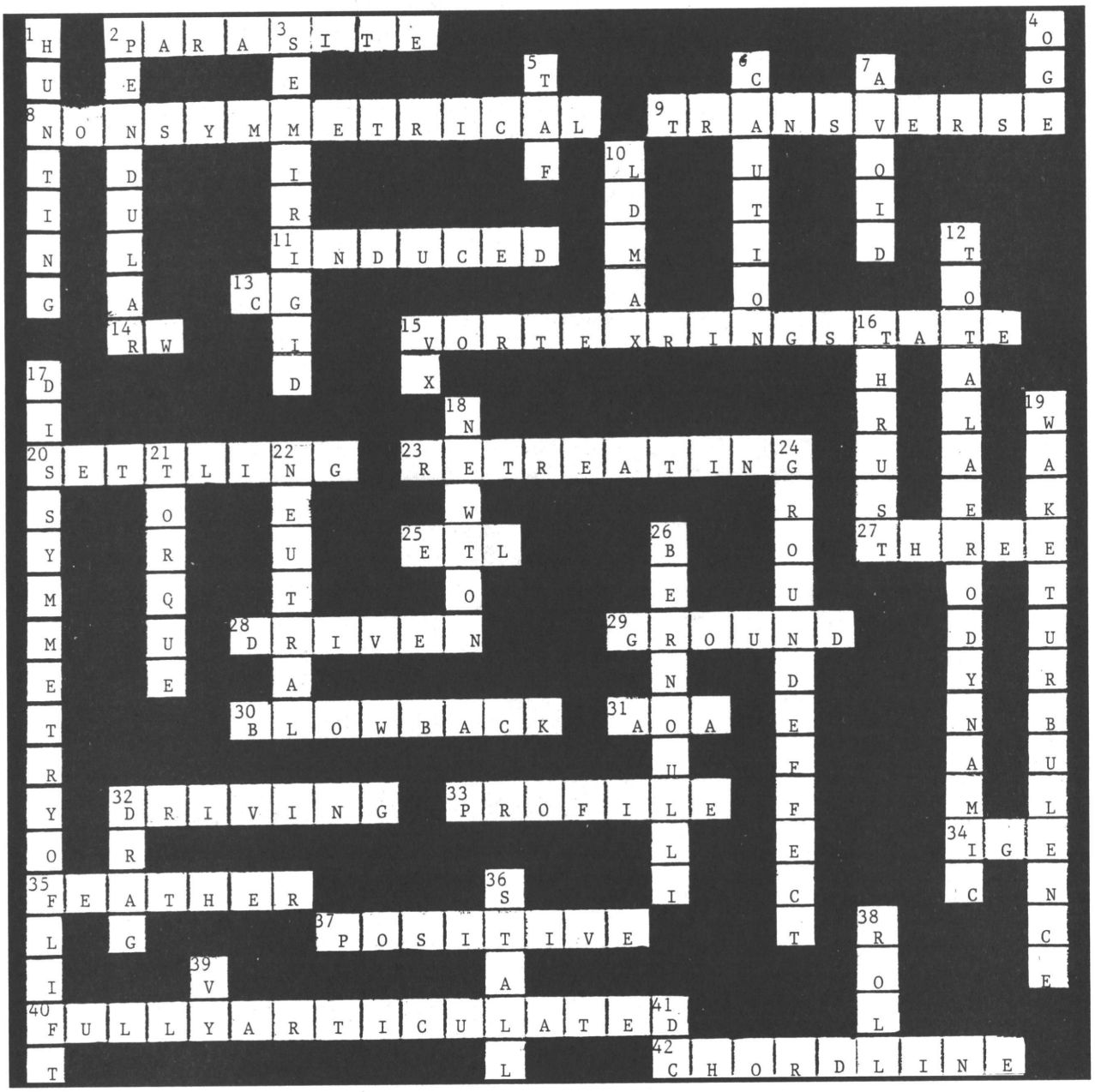
If you have completed this aerodynamics puzzle without referring too often to FM 1-203, *Fundamentals of Flight*, then you are ready to ace your APART oral evaluation!

This challenging puzzle is another form of "refresher thinking for fun."

However, it is just as sincere in its intent to relate important Army Aviation subjects as it is in its purpose to entertain.

Look in future issues of the *Army Aviation Digest* for puzzles about tactics and night vision devices.

Point of contact is CW4 Jay Chandler, DSN 238-8917, Annville, PA. He is willing to listen to your comments.



Here are the answers to the aerodynamics crossword puzzle found on the previous page.

The New UH-60Q Black Hawk MEDEVAC Helicopter

Captain Gregory D. Fix
MEDEVAC Proponency Division
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Fort Rucker, AL

The Army recently displayed the next generation air ambulance for General Gordon R. Sullivan, U.S. Army Chief of Staff, during his visit to the U.S. Army Aviation Center (USAAVNC), Fort Rucker, AL. The UH-60Q "Proof of Principle" aircraft made its first flight on 31 January 1993 at Lexington Blue Grass Army Depot, Lexington, KY. This aircraft is being developed to support the expanding medical evacuation (MEDEVAC) mission, with primary support to our soldiers, and civil relief and humanitarian aid throughout the world.

The aeromedical evacuation mission is diverse and includes the following tasks:

- Tactical medical evacuation.
- Shore to ship to shore medical evacuation.
- Movement of medical personnel and equipment.
- Class VIII resupply (triservice).
- Downed aircrew rescue.
- Civil support, to include disaster relief.
- Humanitarian aid.

All tasks involved in the aeromedical evacuation mission have been done since the Army first dedicated aircraft for evacuation in the early 1960s. During this period, we saw two primary airframes doing this mission.

The UH-1V Iroquois carried a large part of the MEDEVAC workload from Vietnam through Operation Desert Storm. It has been the "backbone" of aeromedical evacuation and Army Aviation. However, limitations in range, airspeed, useful load, navigation equipment, medical equipment, and communication capabilities make it difficult in today's environment to perform the MEDEVAC mission on a global scale. Throughout the world, support for these missions requires an aircraft that can operate at high density altitudes, in harsh environments, day and night, in inclement weather, and with few navigational aids.

The UH-60A configured with the carousel litter system and internal rescue hoist was the next step toward modernizing the MEDEVAC fleet. The modified UH-60A solved some problems with range, airspeed, aircraft survivability equipment (ASE), and increased lift. However, enhanced navigation, communication, and medical capabilities were needed. In addition, the need for forward looking infrared, advanced personnel locator system, and autohover hold for overwater operations arises as the aeromedical evacuation mission expands to joint service support missions.

The UH-60Q now leads MEDEVAC into the 21st century as an aircraft that can "be there," with advanced navigation/communication capabilities. The UH-60Q also provides definitive en route medical care through an extensive medical package.

The U.S. Army Medical Department (AMEDD), U.S. Army Health Services Command, Fort Sam Houston, TX, conceptualized the UH-60Q in 1991 and, by June 1991, received the "Q" series designation approval. Since then, an intense effort between the AMEDD, U.S. Army Aviation and Troop Command (ATCOM), St. Louis, MO, and the USAAVNC has produced the UH-60Q "Proof of Principle" aircraft. The aircraft, as equipped, is the first step toward determining the final "Q" configuration. Extensive testing is necessary to decide how the production "Q" will be equipped. The UH-60 Program Manager, ATCOM, is looking at many "Q" systems as possible upgrades for the UH-60 fleet.

UH-60Q Mission Enhancements

Medical Package: The medical package is designed to provide the future battlefield and civilian community with emergency medical care, movement of medical personnel, supplies, and equipment. In addition, this package will provide disaster relief and crash rescue capability. The UH-60Q can transport up to nine litter patients, nine ambulatory, or combination thereof in full MEDEVAC configuration, which includes an externally mounted rescue hoist. The medical package also includes an oxygen generating system, environmental control system, dual air/suction system, solution warmer/cooler, defibrillator capability, and medical equipment storage.

Avionics/Mission Equipment: The UH-60Q provides a cockpit management system that will greatly reduce pilot and flight operations workload. This system, which manages all communication and navigation equipment, will give the air ambulance commander the ability to program an entire area of operations into a data bank and load it into the aircraft on the ramp. The redundant navigation system includes inertial navigation system, global positioning system, and enhanced doppler. In addition, tactical air navigation has been added to provide interoperability with the other services. Communication upgrades include multiband, high frequency, satellite communication, and in-flight telephone tied into the aircraft intercom system. The addition of the laser warning receiver will increase aircraft survivability when coupled with existing ASE. The new externally mounted rescue hoist is electrically powered and does not affect patient/internal load capacity. A new intercom system now allows hands-off communication between crewmembers and the cockpit for performing medical tasks and hoist operations.

The UH-60Q is an example of exciting new technology that will allow the AMEDD to support the warfighters in the future. These new capabilities in an air ambulance will increase the standard of medical care while doing the global aeromedical evacuation mission. ❐

Fundamentals at the NTC

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Attack Helicopter Company/Air Cavalry Troop Trainers
Captain Daniel G. Modica
Target Acquisition and Reconnaissance Platoon Trainer
Eagle Team
National Training Center
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We have observed many aviation units perform in a tactical environment at the National Training Center (NTC). This article outlines fundamental areas in aviation that make the difference between killing or being killed by opposing forces (OPFOR). We have concentrated on observations from the perspectives of our operations trainers, attack helicopter company/air cavalry troop trainers, and target acquisition and reconnaissance platoon (TARP) trainers. We recognize that units arrive at the NTC at different training levels. However, our mission in the Eagle Team is to ensure that your unit leaves the NTC better trained than when it arrived. Maybe these observations can be helpful.

Operations

Operations is a nonbattlefield operating system description of an area of endeavor that could be called "winning," "destroying the enemy," "the cutting edge," or simply "making things happen." By whatever definition, a key element of successful operations is the disciplined and structured use of time.

Meetings are a good reflection of efficient time management. Do your meetings have an agenda, a time limit, and someone in charge? Are they used to issue and receive guidance, exchange information, or are they social events?

Now, consider your decision/staff planning process. Do you have a structured, maximum time allowed procedure for actions taken on "receipt of" and "order from" your higher headquarters? How soon must a warning order be issued to your subordinate units? How many hours can be used to write the operation order (OPORD)? Who enforces these time lines? When are the graphics issued? Is your backbrief to the commander scheduled immediately following the OPORD brief? Is the one-third to two-thirds rule for planning time an inherent part of your time organization or an afterthought? Is it, with the current crew endurance cycle, the first consideration for implementing your planning time line?

Your responsibility for time use goes beyond issuing the order. Wargaming stops with the selection of a course of action. Does yours continue into the backbrief and rehearsal? If so, the pilots

never have a clear plan to follow. There must be a "good idea cutoff point."

Finally, what is the status of your planning for "be prepared" and "on order" missions, and who is working on your contingency missions that are either assigned or implied by the situation in your area? Use the rule of the pessimist, if you think you have "finished," you have forgotten something.

Command and Control

Standing Operating Procedures (SOPs). Good unit SOPs can save much time and effort for the commander and staff during orders preparation and for controlling execution. Bad unit SOPs, however, can cause confusion among the aircrews. Some common problems we see with unit SOPs are as follows:

- The SOP is so thick and cumbersome that no one reads or understands it. Even good SOPs must be read and understood.
- The SOP is hot off the press and the NTC rotation is the first use of a new SOP. Normally, units will be better off updating their SOP after the rotation instead of before the rotation.
- The unit shows up with a brigade, battalion, and company SOP. When a pilot hears "SOP," he does not know which reference to use.

Tactical Decision Making Process. Remember that commanders make decisions; however, the staff will help make and discuss those decisions and ensure the decisions are executed. Tactical decision making is a very dynamic process that requires decisions about current operations to occur simultaneously with decisions and planning of future operations. To do this difficult task with the austere J-series table of organization and equipment, the staff should be proficient in basic staff procedures; i.e., information handling and collecting, tracking the battle, influencing the battle, and time management. A good reference guide on this subject is Command and General Staff College Student Text 100-9, Techniques and Procedures for Tactical Decision Making, and Center for Army Lessons Learned Newsletter Number 91-1, April 1991, "Rehearsals."

Orders. All orders are written or oral communications that convey information governing action. Good orders are clear, complete, brief, and timely. The three most common orders used are operation orders, warning orders, and fragmentary orders (FRAGO). A written order always seems more effective than oral orders. The written order allows the company commander to concentrate on the intent of the order and any questions he may have, instead of trying to write down everything the briefer is saying. Time permitting, the company commander also should be issued a copy of the graphics, ideally before the order being issued, so the pilots can start transcribing the graphics onto their flight maps while the commander is attending the brief. When the order is briefed, do not forget to cover all the "on order" and "be prepared" missions. Plan and brief these missions early instead of constantly being in the reactive mode.

Battalion Rehearsals. Rehearsals are essential. They ensure all personnel know what the commander intends to do, and how he intends to do it. The type of rehearsal conducted will be time dependent. Enough time also should be allowed for subordinates to conduct their rehearsals. As a minimum, a backbrief should be conducted. The best benefit of a backbrief is to clarify the commander's intent. The time remaining before execution also will affect the selection of the rehearsal technique. Some techniques are map, radio/telephone, sand table/terrain model, rock/stick drill, and tactical exercise without troops. A decision support template should be used to provide direction for the rehearsal and to ensure synchronization of the participants in support of the plan. Last, do not let the rehearsal turn into a wargaming cession. Rehearsals should clarify, not change, the plan.

Attack Helicopter Company/Air Cavalry Troop

Mission Analysis/Mission Statement. After the company commander backbriefs his commander and understands his intent, he should take the time to analyze properly the mission to kill the OPFOR at NTC. Recently, some commanders did not analyze the mission and have merely recited the battalion's OPORD. This action results in an oral mission statement that is incomplete and cannot be restated when the crews ask questions. Without a detailed mission analysis and a complete mission statement, the company cannot direct its efforts to kill the enemy.

Company Orders. Fill-in-the-gap company OPORD/FRAGO formats, which maximize the use of the unit's SOP, hasten the orders process at company level. Some commanders attempt to write a company order from scratch. This process usually takes a long time and often results in the omission of important pieces of information. These fill-in-the-gap formats allow the commander to complete the order quickly and ensure all the mission critical elements are covered. This procedure gives the crews the maximum time available to prepare for and do the mission.

Backbriefs. The company/troop commander should conduct a backbrief after every OPORD he issues. It is not time consuming and the benefits are great. The commander should tell his crews, before he issues an OPORD, that he will ask one of them to recite, in summary, the same OPORD immediately after he issues it. This requirement causes all crews to pay better attention to the order because they may be called upon to backbrief. The biggest pay off, of course, is that the crews will understand the mission before they attempt to execute.

Planning Cells. Some company commanders come to the NTC and attempt to do everything. In about 3 days, the company commander is so tired that he can only marginally lead his company. One solution to this problem is the designation of planning cells. These are groups of two or three people that are responsible for a portion of the mission planning and preparation. These planning cells may be responsible for navigation and doppler cards, communications cards, communications security, mission graphics, weather data, fuel planning, etc. The use of these cells reduces the burden on the commander, allowing him to concentrate on leading his company.

Battle Positions (BPs) and Actions in the BPs. BPs are not always selected to allow for engagements at the last one-third of the intended weapon system. At the very least the BPs should be selected outside the maximum effective range of the intended target. Too often we have seen AH-64 Apaches shot down by BMPs (combat vehicles, infantry [amphibious armored]) and T-72s (Soviet tanks). Additionally, select BPs that are best suited for helicopters. That means do not select a BP that is next to a ground unit. Select a BP (using background, range to target, altitude, sun, shadows, cover and concealment, rotor wash, adequate maneuver area, fields of fire [BRASSCRAF]) that is on the side of a mountain where you can be assured that there will not be any OPFOR (including dismounted reconnaissance teams) in the same area. Crews should occupy their BPs according to the unit SOP, identify their priority targets using the target distribution plan, and then engage rapidly. It is obvious that crews do not rapidly engage during gun camera tape review. Crews become mesmerized and watch half the OPFOR motorized rifle regiment roll by before they start to engage.

Cross Talk. Company/troop commanders do not talk to each other during mission execution. The battalion/squadron command net is supposed to be used by commanders. Communication between company/troop commanders can be valuable to the whole battalion/squadron. The battalion/squadron commander and his staff will gain valuable information about the battle by listening to cross talk between company/troop commanders that are fighting the battle.

Battle Handover (BHO). Units must establish an SOP for BHO between companies/troops. Aviation manuals do not give an example of a standardized format. The following formats are good examples:

Departing unit provides the following:

- Enemy size, activity (are they reacting to your flight?) and location.
- Location of friendly units (with call sign and frequencies).
- Recommended BP and/or BHO line.
- Current artillery missions (with call sign and frequencies).
- Current joint air attack team/close air support (JAAT/CAS) status (with call sign and frequencies).

Arriving unit provides the following:

- Forward arming and refueling point status update.
- Recommended egress route.

Often, a BHO takes place but not all the pertinent information is passed between units. A standardized format carried by crews in the cockpit will ensure that a thorough BHO occurs.

Spot Reports. Many crews are experiencing difficulty in sending spot reports. Crews do not know the format and are not taking the time to send the reports properly. The crews must know the unit's SOP and the correct format for spot reports. Some commanders have solved this problem by making a knee-board sized spot report form that the crews fill out while flying. The use of this form ensures that the format is correct and gives the crews a quick reference. Additionally, the form can be used as a debrief form for the crews to provide information to the battalion intelligence officer after the crews have landed.

Army Airspace Command and Control (A^2C^2). An overwhelming majority of staffs and aircrews do not understand the A^2C^2 system. The aircrews do not understand basic terms such as restricted operations zone (ROZ), high-density airspace control zone (HIDACZ), and procedural/positive control or how to enter restrictive airspace.

Aircrew Training Manual Proficiency. Attack crews are not proficient in gunnery skills. Training in acquisition techniques, target tracking, and clear fire control procedures is needed. Navigation proficiency cannot be overemphasized. This basic building block skill is critical to mission accomplishment.

Radar Avoidance Techniques. During recent attacks against the radar facilities at China Lake, CA, crews demonstrated limited knowledge of radar avoidance techniques. Commanders should ensure that all their crews review Field Manual 1-101, Aviation Battlefield Survivability. Crews must have a good understanding of their aircraft survivability equipment, terrain masking, minimum radar cross section, and the doppler effect. The sophistication of the systems at China Lake allows the crews to employ both active and passive radar avoidance techniques and see the effects of each.

TARP

Integration into the Scheme of Maneuver. The TARP cannot be integrated into the plan as an afterthought. It must be fully integrated into the scheme of maneuver either in the event or synchronization matrix. The TARP should be listed as a component of the matrix under maneuver, fire support, or even intelligence. When operating in the intelligence gathering or fire support role, the TARP needs to be supported with all maneuver graphics specific to their mission such as OH-58D Kiowa observation posts, routes, angle "T" restrictions, named areas of interest, and target areas of interest. As with any well thought out plan, the plan must have a discernible end. A discernible end can either be event- or time-driven but not simply "when they run out of time." This requirement can easily be done with a utilization window. Finally, the questions concerning who specifically controls their movements and actions during the mission and who their spot reports and situation reports go to must be established in advance.

Minimum of Team Employment. The TARP experiences a much higher attrition rate when employed individually rather than in teams. OH-58Ds frequently are shot down by dismounts or combat vehicles that are allowed unknowingly to close within 100 meters (m) of the aircrafts' position. Often when aircraft are operated individually, the crew is so preoccupied with the thermal imaging system (TIS) or day television display they fail to detect any close in threat. When employed in teams, one aircraft can concentrate on long-range threat detection while the other aircraft provides 360-degree security. Additionally, the second aircraft can assist in maintaining communications with higher headquarters, which is often a problem when aircraft are operating well forward of the forward line of own troops. Team employment allows aircraft to clear well ahead of themselves before moving into observation posts and allows a much more detailed reconnaissance.

Utilization Windows. OH-58Ds have greater success when their mission profile is flown entirely at night. Night missions provide the TARP with greater survivability and allow them to use their superior night systems (both the aviator's night vision imaging system [ANVIS] 6 fully compatible cockpit and the TIS). Although OH-58Ds consistently detect battalion sized OPFOR elements at 10 to 15 knots, positive visual identification usually cannot be achieved outside 2,500 to 3,000m. Darkness allows the TARP to close within positive visual range without being detected (also avoids fratricide). When these aircraft are operated in daylight, they experience a very high attrition rate. Because of their criticality (only six organic to the division), they must be micro managed. Establishing a utilization window for each 24-hour period (in advance), based on mission, enemy, terrain, troops, and time available and the illumination chart, will ensure maximum protection for the OH-58Ds and will help employment by taking the guesswork out of the TARP availability.

Exploit the System. The OH-58D was designed with many systems to enhance its mission performance; however, for one reason or another, crews simply refuse to use them. The airborne target handoff system was designed to provide a digital link with both CAS and artillery. This system enhances security of communications, clarity of spot reports, and significantly reduces pilot workload by allowing most fire missions and movement messages to be preformatted before takeoff. The TARP seldom attempts to get a digital link before entering the battle. As a result, the platoon must wait in line to send radio traffic voice on nets normally so congested it is almost impossible to do once the battle is joined. Use of Have Quick or secure ultra high frequency/ very high frequency radios is not practiced, resulting in nets being intercepted by OPFOR electronic warfare units. Finally, normal precombat checks (laser boresight, doppler calibration, airborne calibration, graphics loading, etc.) are frequently not conducted at all. This action significantly degrades the navigation system and the target locate/designate capability of the laser system. Precombat checklists are essential.

Conclusion

This article concentrated on tactical operations in aviation units. The observations that we outlined are not gathered from isolated incidents. They are trends that have been set at the NTC by many units. These observations and recommendations will help your unit become more tactically proficient and ultimately successful on the battlefield. ❐

Aviator/Logistician

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Because of real and perceived problems within the 15D career field (i.e., poor promotion potential), the Aviation Branch helped create and will participate in a new functional area (FA) for logisticians—FA9O. FA90 will give aviation logisticians the opportunity to compete for multifunctional command and staff positions, thus improving their chances for promotion. The Army established FA9O to develop a group of officers through the rank of colonel (COL) who are competent to plan and direct multifunctional logistics. The new functional area was approved for immediate implementation by the Deputy Chief of Staff for Personnel (DCSPER) on 2 November 1992.

The Aviation Branch, in a separate but parallel initiative, will merge the 15D and 15B areas of concentration (AOCs). The intent of this action is twofold. First, the former 15Ds and current 15Bs will compete equally for both operational and logistics/maintenance command and staff positions. Second, the Aviation Branch will train, develop, and grow professional aviation warfighters who better understand logistics and how it is integrated into operations.

In the future, the Aviation Branch must internally identify the aviation commissioned officers (ACOs) who will participate in the new multifunctional logistics program (FA9O). The intent is to access those ACOs who are branch qualified and express a desire to participate. The Combined Logistics Officer Advance Course (CLOAC) will be the preferred, but not necessarily the required, advance course for branch qualification.

The following questions and answers were developed to explain the details and intent of these initiatives:

1. What are the perceived and real inadequacies of the 15D program?

Answer: Many 15D ACOs believe that they are considered "second class" officers; i.e., aviators think 15Ds are "loggies" while logisticians consider aviators as "prima donna fly-boys/fly-girls." Consequently, they are unable to compete fairly for promotion, schools, and command. This opinion is partially true. The 15D selection rates for promotion to major (MAJ) and lieutenant colonel (LTC) and equivalent level schooling (Command and General Staff College [CGSC]) have been very competitive compared to other aviators and the Army as a whole. Promotions to COL, however, have recently lagged more than 10 percent lower than Aviation and Army averages, and more than 30 percent below Combat Service Support (CSS) promotion rates. The probable cause of this deficit is the lack of command opportunities for the 15D at the grade of 0-5 (LTC).

2. What are the current LTC/COL command opportunities available for the 15D Officer?

Answer: Currently, there is one 0-6 15D command (Corpus Christi Army Depot, TX) and six 0-5 commands (Germany - 3; Fort Campbell, KY; Korea; and Fort Eustis, VA). Additionally, the "drawdown" will eliminate one aviation intermediate maintenance (AVIM) battalion in Germany in January 1993.

3. What are multifunctional logistics?

Answer: Multifunctional logistics are logistics operations that cut across the entire spectrum of logistics functions, i.e., arming, fueling, fixing, moving, and sustaining the force.

4. Why establish a separate FA for logistics?

Answer: Because the Army fights and supports the force on a multifunctional basis, it has become necessary to develop a group of officers through the rank of COL who are competent to plan and direct multifunctional logistics.

5. Is FA9O an FA or an AOC?

Answer: In reality, FA90 is an AOC for logisticians and is open only to officers in the following branches: Ordnance Corps (OD), Transportation Corps (TC), Quartermaster Corps (QM), Military Service Corps (MSC), and Aviation (AV). If FA9O were truly a FA, technically it would have to be open to all branches. It is being handled as a FA; however, because U.S. Army Total Personnel

Command (PERSCOM) cannot manage officers by additional skill identifier (ASI).

6. Why is the Aviation Branch merging the 15D and 15B AOCs?

Answer: The Aviation Branch will merge the two AOCs for two reasons. First, it helps solve the "15D problem" by allowing all aviators to compete equally for both maintenance and operational command and staff positions. Second, the Aviation Branch will train, develop, and grow professional aviation warfighters who know and understand logistics and how to integrate it into their operations.

7. What is the status of the FA9O program?

Answer: On 2 November 1992, the Army DCSPER approved the FA9O program for immediate implementation. Two primary actions must now take place. First, the U.S. Army Combined Arms Support Command (CASCOM) must begin the coding/recoding of FA9O positions throughout the Army—they are working on this action and should complete it soon. Second, PERSCOM must conduct an initial selection board for the accession of officers into the FA. This accession board should convene soon.

8. How many FA9O positions will be available, and what are some examples of future FA9O positions?

Answer: Since the scrubbing and coding of positions is in progress, the number of positions is difficult to project. Most positions currently coded 03A (Logistics Immaterial) and 7Z (Master Logistician) will be coded FA9O. Approximately 150 positions should be available, Armywide. Specific examples of multifunctional jobs are command and staff positions within the division support command (DISCOM), main support battalions (MSBs), forward support battalions (FSBs), and staff positions at Department of the Army (DA), CASCOM, or on higher level staffs. Additionally, the Aviation Branch will have the flexibility to code positions within the aviation community as both aviation and logistics (15B90). The intent is to recode most 15D positions.

9. When will Aviation-specific positions be coded FA9O?

Answer: Coding will begin shortly after results of the February accession board—probably March 1993. The coding process takes approximately 1 year. Aviation Proponency Offices at Fort Rucker and Fort Eustis will work on this action jointly.

10. How many ACOs will be accessed into FA9O?

Answer: The number of officers accessed will be based on total number of accessions allocated to the branch. These numbers are still being determined by PERSCOM; however, all participating branches will receive a fair share allocation. The Aviation Branch has requested a minimum allocation of 12 percent of each aviation year group (YG). Currently, 15D officers make up 12 percent of the Aviation Branch (2 percent of these are now in the Army Acquisition Corps). The Aviation Branch has forecasted 10 percent participation in FA9O.

11. How will ACOs be accessed?

Answer: ACOs will be accessed by YG. Actual accessions will be determined by an Accession Board. The first Accession Board is scheduled to be held in February 1993. Initial accessions must be completed by March 1993 to be included in the fiscal year (FY) 1994 Officer Distribution Plan (ODP). 15Ds in all YGs through YG 87 will be considered for accession. Those selected will be notified formally that they are invited to participate in the FA.

12. Will all 15Ds be accessed into FA9O?

Answer: No, some officers may not be selected by the board or may decline membership. The Aviation Branch has, however, requested a minimum number of accessions that correspond exactly to the number of 15Ds in the Branch. It is the hope then, that all 15Ds will be afforded the opportunity for FA9O participation.

13. What qualifications will be required for accession into FA9O?

Answer: Officers must be branch qualified (see DA Pamphlet 600-3), a member of a participating branch (OD, TC, QM, MSC, AV) and express a desire to participate in the program. The intent within the Aviation Branch is to channel selected 15B ACOs through the maintenance manager/maintenance test pilot (MM/MTP) and CLOAC before FA9O consideration.

14. Who will comprise the FA9O Accession Board?

Answer: The board will be composed of three field grade officers (one will be an 0-6 [COL]) representing PERSCOM, CASCOM, and the branch. The aviation member will have a logistics background.

15. Will CLOAC be required for FA9O accession?

Answer: No, accession qualifications require branch qualification but does not specify CLOAC. CLOAC Phase III contains the Support Operations Course that is required for retention but can be taken in other forums. Additionally, the TC, OD, and QM Officer Advance Courses will be discontinued and replaced by one advance course (CLOAC) by FY 1995. So, in effect, CLOAC will become required for branch qualification for those three branches. It is the intent of the Aviation Branch to channel our FA9O candidates through CLOAC.

16. Can officers apply for FA9O?

Answer: Yes, but usually this action should not be necessary. They will be considered automat-

ically, if they are members of one of the five participating branches.

17. What qualifications must a FA9O officer have to retain the FA?

Answer: At the MAJ level, the FA90 officer must be military education level 4 and have completed 18 months in a coded FA9O position of which 6 months may be education. Exceptionally qualifying positions are executive officer (XO), operations and training officer, and support operations officer (SPO) of an FSB or MSB. The SPO course is required before assuming SPO duties. It can be taken independently at Fort Lee, VA, or as part of CLOAC, the Logistics Development Executive Course, or as an elective at CGSC. We will attempt to include the AVIM commander as an exceptionally qualifying position. At the LTC level, the officer must have completed 48 cumulative months of FA9O coded time. Exceptionally qualifying positions include FSB or MSB commander, Division G4 (Logistics), and the XO or SPO of a DISCOM or Corps Support Group.

18. What will a 15B90's career path be?

Answer: An officer accessed into the Aviation Branch will attend the Aviation Officer Basic Course (AOBC) to include flight school. After an advanced aircraft transition, if required, selected officers will attend the Maintenance Manager/Maintenance Test Pilot Course at Fort Eustis, VA. (**Note**: Many ACOs will attend later.) After an initial aviation assignment to gain flight and troop leading experience, the ACO will attend an Officer Advance Course (AOC). Most will attend the Aviation Officer Advance Course (AOAC) at Fort Rucker; some will attend the OACs of other Combat Arms branches; while others will attend CLOAC at Fort Lee. After the advance course, ACOs will serve a second aviation tour and attend the Combined Arms and Services Staff School during that tour. At approximately the 8th year, officers who meet the prerequisites will be automatically considered for FA9O. Those that receive the FA may seek an initial multifunctional assignment or serve an additional aviation assignment. With the coding of some aviation positions as FA9O, a 15B90 officer can gain credit for both aviation and logistics specialities and ensure "gate" requirements are met. At approximately the 12th year, selected ACOs will attend CGSC. After CGSC, the ACO should be able to serve in two assignments before selection for LTC, most likely alternating between Aviation and multifunctional (just like any other FA) assignments. At approximately the 19th year, some LTCs will be selected for battalion command, while others will serve in joint and higher level staff positions of considerable responsibility. At approximately the 22d year, some ACOs will attend a senior service college. The remaining years of a 15B90 officer's career will be in brigade command or on joint and higher level staffs in either the aviation or multifunctional areas.

19. Will 15B90 aviators be able to meet "gate" requirements?

Answer: See Question 18.

20. Will aviators <u>really</u> be able to compete in the multifunctional world?

Answer: Of course, we will never know for sure until we do it. However, the same question can be asked about the maintenance officer trying to compete in the Aviation operational arena. All indications appear favorable to include very strong support from the CASCOM Commanding General. Ultimately, performance, assignments, and education will/should prevail over the provincial interests of some officers. If this situation develops into a problem, safeguards could be instituted.

21. Who will manage FA9O officers and the multifunctional program?

Answer: The Aviation Branch will continue to manage ACOs, although CSS Branch, PERSCOM will make actual FA9O assignments. The proponent for the multifunctional program is CASCOM.

22. How many ACOs will track maintenance within the branch?

Answer: This number is impossible to determine since all Aviation officers will be permitted to compete for all positions, although 10 to 20 percent of ACOs will be needed to fill maintenance/logistics positions. All officers will receive additional logistics training at the AOBC and AOAC. The Aviation Branch also is considering developing one or two additional logistics courses for prospective aviation commanders to provide them with a logistics overview before command. Ideally, future aviation battalion commanders will have some logistics experience and perhaps even an aviation unit maintenance command.

23. What about the Reserve Components?

Answer: The U.S. Army Reserve and Army National Guard will be integrated fully into the FA9O program. Both organizations have concurred with the program as it is written, and they are ready to begin accession screening and position coding.

All aviation commanders should understand the details of the implementation of these initiatives and the intent. commanders at all levels must advise officers within their ranks and ensure that the tenets of both programs are met to the best of their abilities. Questions concerning the 15D AOC or FA9O should be addressed to MAJ Bill Gavora; U.S. Army Aviation Logistics School; Fort Eustis, VA 23604-5432; DSN 927-6566 or commercial 804-878-6566. ❐

Aircrew Survival Armor Recovery Vest

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In March 1994, aviation units will see a new survival vest in the field. The Aircrew Survival Armor Recovery Vest, Insert and Packets (SARVIP) will replace the SRU-21/P vest.

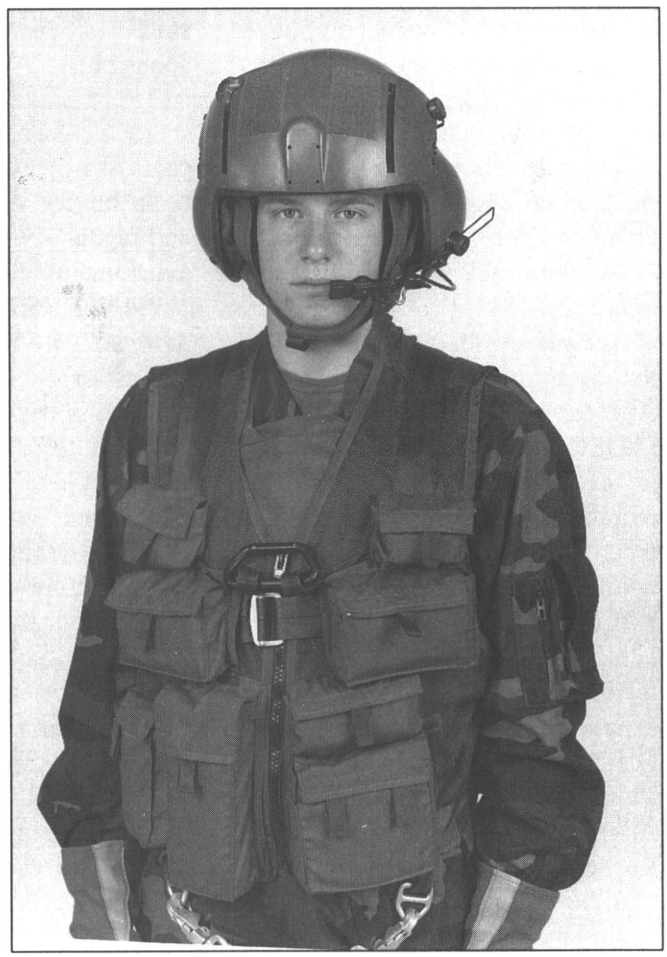
In the early 1980s, the Army recognized the need for a new survival vest for aviators. The new vest would upgrade the ballistic protection and make the armor insert (chicken plate) more comfortable for the pilot. It also would add rescue lift capability and flame protection. In addition, the pockets would be reconfigured to reduce bulk and improve aircraft compatibility.

Engineers at the U.S Army Natick Research, Development, and Engineering Center, Natick, MA, with help from the U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL, and the U.S. Army Aviation Development Test Activity (now U.S. Army Aviation Technical Test Center), Fort Rucker, began developing a vest that would meet these requirements. They increased the ballistic protection of the armor insert from .30 caliber to .50 caliber. They changed the design of the armor insert so that it would not interfere with the pilot's movements and still protect all vital organs. They changed the material from nylon to NOMEX. The placement of the pockets on the vest was checked for compatibility with normal flight functions in all aircraft.

Army testing of the SARVIP included technical testing by the U.S. Army Test and Evaluation Command (TECOM), Aberdeen Proving Ground, MD, at three different sites—Yuma Proving Ground, Yuma, AZ; U.S. Army Tropic Test Center, Panama; and U.S. Army Cold Regions Test Center, Fort Greely, AK. The Ballistic Research Laboratory, Aberdeen Proving Ground, conducted the ballistic testing. Operational testing was conducted by the U.S. Army Test and Experimentation Command (TEXCOM) Aviation Board, Fort Rucker. The test was conducted at Hunter Army Airfield, GA; in the aircrew task simulators at Fort Rucker; and in the underwater egress simulator at Jacksonville, FL.

By the completion of the SARVIP initial operational test and evaluation, several deficiencies had been identified and corrected. The TEXCOM Aviation Board's final test report on the SARVIP was completed in 1989.

The SARVIP in its final form consists of a Raschel knit NOMEX, fire-resistant fabric vest with 12 pockets, 10 outer pockets and 2 inner pockets. The pockets hold all survival, signal, and communications components. The vest



The new SARVIP is designed to be compatible with each helicopter.

SARVIP with all its components.

includes a rescue lift strap, two leg straps, and a chest strap. Additionally, the chest strap provides a means for attaching life preserver units (LPUs). The vest has two small "D" rings attached to the front and sides for attaching the protective mask blower and carrier.

The .50-caliber armor insert is made of laminated ceramic/fiberglass and has a foam pad backing. The carrier for the insert is made of NOMEX and seven layers of KEVLAR, and it has a quick-release strap at the bottom for emergency release of the plate. The packets have vacuum-packed, Nylon-Polyethylene pouches and hold all basic individual and medical survival items.

The Defense Personnel Support Center (DPSC), Philadelphia, PA, has accepted the technical data package for the SARVIP and expects to award a contract for the manufacturing of the vest in March 1993. The 160th Special Operations Aviation Regiment (Airborne), Fort Campbell, KY, will be the first unit to receive the SARVIP. Each aircrewman will be issued the SARVIP vest. Because the pilot seat offers ballistic protection from the back, underneath, and some side angles, the .50-caliber armor front insert will be issued to pilots and copilots only.

The crewchief, flight engineer, and doorgunners will be authorized the current .30-caliber front, back, and groin armor protection. This basis of issue, developed by the Directorate of Combat Developments, Fort Rucker, and the Project Manager-Soldier, Woodbridge, VA, is expected to allow fielding with available funding to 100 percent of Force Packages 1 and 2.

Some active and reserve component aviation units may not receive the SARVIP for another 4 to 5 years. For this reason, the U.S. Army Natick Research, Development, and Engineering Center has developed a modification to the SRU-21/P that will add aerial extraction capability to the vest. The modification consists of the addition of chest, leg, and lift straps. Testing of the modification will be complete soon. Units soon should be able to request a package of patterns and specifications for application of the modification.

Both the development of the SARVIP and the modification to the SRU-21/P are examples of how the U.S. Army Natick Research, Development, and Engineering Center continues to provide clothing and individual equipment for the aviator. ❐

Sergeant I hear choppers, prepare your serials.

Negative, sir, pickup is 10 miles out. The old man said to expect aerial security, uh, Bravo 43, vicinity PZ before the lift birds coming in.

Roger, I have visual now. One OH-58 and two AH-1s as briefed.

Whiskey 88 this is Bravo 43, arrival your location, established north and west of PZ.

Bravo 43 this is Whiskey 88, roger we are set, awaiting the Quebec element, serials set.

Zulu 67 this is Bravo 43, established PZ standby to execute SEAD, confirm 45 seconds' time of flight, over.

Bravo 43 this is Zulu 67, time of flight is 45 seconds, standing by, out.

Bravo 43 this is Quebec 43, inbound at this time, over.

Quebec 43 this is Bravo 43, roger, established north and west of PZ.

Quebec 43 this is Whiskey 88, lift one loaded. This is Quebec 43, roger, out.

Zulu 67 this is Bravo 43, execute SEAD at this time over.

Bravo 43 this is Zulu 67, roger, out.

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Air Assault Security

A Procedural Review

The air assault and air mobile missions are the specialty of the light infantry aviation brigade. Performed most frequently, these missions involve a little bit of everything the aviation brigade has to offer. Both missions employ utility helicopters from the assault helicopter battalion (AHB) of the aviation brigade as a rapid means of transport for troops and equipment anywhere in an area of operations. However, other helicopters should be involved. A sound air assault/mobile mission is not without some attachment of aerial security. Scout and attack helicopters from the attack helicopter battalion or cavalry squadron are well suited to conduct this security mission. These traditional tank killers add flexibility and security to the air assault/mobile mission. The key to success is to coordinate efficiently and effectively these diverse pieces to perform as part of the "Air Assault Team."

The details for planning and execution of the air assault security task are not as doctrinally concise as those of the air assault task. It is important to understand that these tasks together comprise the aviation portion of the Air assault task force commander's mission of conduct air assault. As such, the two aviation tasks are based on the same elements of mission, enemy, terrain, troops, and time available (METT-T). Premission planning and the briefings that follow will address both tasks as one.

Generally the aviation brigade assigns mission planning and execution responsibility to the AHB. Additionally, the AHB is granted direct coordination with the sup-

ported unit. The aviation brigade also designates air assault security responsibility to the attack helicopter battalion or cavalry squadron. Direct coordination between the AHB and the designated attack helicopter unit is essential.

The attack helicopter commander selects the security element leader. The commander must task organize his security element based on all phases of the mission from staging to the ground tactical plan. The ground tactical plan is most important since the task force size and mission will dictate security element size and mission. Furthermore, security element location, positioning in flight, and weapons configuration are based on the ground tactical plan and its respective METT-T.

The security element leader receives the mission and immediately considers task organization and weapons configuration. The security element is task organized into teams to provide a security presence with each lift of utility helicopters. The team remains with their assigned lift for the duration of the mission. The team protects the lift while it is on the ground and in the air from both ground attack and air attack. Additional teams may be necessary to clear routes before mission execution, if required. Clearing routes usually is a good practice, but it may compromise surprise and must be carefully weighed as an option. Generally, the security element's implied tasks may include: provide early warning, provide immediate suppressive direct fires, and execute suppressive and preparatory indirect fires.

Weapons configuration is suppressive heavy. Few, if any, missiles should be taken. Rockets should be a near equal mix of smoke to obscure enemy observation from the ground and high explosive (HE) to suppress identified targets.

After analyzing the mission and making his tentative plan, the security element leader is ready to conduct direct coordination with the lifting unit.

During the premission planning sequence, the lift helicopter air mission commander (AMC), the fire support officer, and the security element leader meet to plan fire support and security team integration with lifts. Details on communications, indirect fire, and direct fire support for landing zone (LZ), primary zone (PZ), and air routes are completed. Once their premission planning is complete, they are ready to attend the air mission briefing (AMB).

The AMB is the critical briefing from supported unit to supporting (lifting) unit. Here the ground maneuver commander in command of the entire air assault task force (AATF) reviews his ground tactical plan upon which the entire air assault/mobile mission is founded. Staging, loading, air movement, and landing plans also are briefed. These plans provide detail on PZ/LZ locations and times, air routes, indirect fire support, communications, etc. The presence of a security element in the lift, its strength and identification are important items of information for the ground commander. The security team leader briefs his concept as part of the fire support portion of the AMB.

Once the details from the AMB are digested and analyzed, the AMC briefs all aircraft pilots in command (PCs) including those in the security element. The AMC for the air assault/mobile mission usually is a lift aircraft PC. The AMC briefs and then, if time permits, conducts rehearsals of each phase of the mission with lift and security aircraft PCs. Communication between the lift and security elements is mission essential. Frequencies, call signs, and brevity code words must accompany the detailed flight coordination briefing, which is the AMC brief.

Solid radio communication is imperative to the success of the air assault mission. All lift and security aircraft must use the same internal radio frequencies. One common ultra high frequency (UHF) and very high frequency (VHF) for all aircraft enables immediate information distribution and response to any threat by all crews. Team separate internal frequencies are cumbersome and dysfunctional in the air assault mission.

Typically the security element arrives at the PZ ahead of the lift element to clear the PZ and provide overwatch during the ensuing PZ operation. The security element establishes radio contact with the PZ control element. Hence, significant direct fires are available at the discretion of the PZ control officer, if PZ security is threatened or compromised.

Once established and overwatching the PZ, the security element also conducts coordination with the fire support element. While awaiting PZ departure, the security element conducts initial calls to the supporting fire direction center (FDC) to prepare for air route suppression of enemy air defense (SEAD) or LZ preparation. (Nonlethal munitions such as smoke are safe and effective SEAD artillery rounds.) The security element leader receives time of flight from the FDC. Having radio and visual contact with the PZ control element, the security team leader executes an event driven, timely SEAD plan and LZ preparation as planned at the AMB.

The elements of METT-T help the security element leader to decide where to place his teams during the air movement phase. The security element will clear the air

route and LZ ahead of the lift element or overwatch the lift element's progress along the route and ultimate occupation of the LZ. If the ground tactical plan requires the flight to progress cross forward line of own troops (FLOT) or if the ground commander desires surprise over security, the security element will travel in overwatch behind the lift element. Conversely, if the ground commander desires security over surprise along the route and in the LZ, the security element will clear the route and LZ ahead of the lift element and provide overwatch behind the lift element.

The security element maintains communication with the LZ controlling officer, once on the ground. Direct communication via designated LZ command frequency is critical to provide immediate support in the event of an enemy surprise while ground forces are in the LZ.

Figure 1 shows a typical communications link between the security element and other air assault/mobile players. It is important to remember that the helicopter is a formidable avionics platform and weapons or cargo platform and enhances the AATF commander's command and control.

The ability to move troops or equipment rapidly anywhere on the battlefield has revolutionized land warfare and adds an intimidating third dimension to the area of operations. It is imperative that, when operating in the fluid airspace immediately over the low-intensity conflict/mid-intensity conflict (LIC/MIC) battlefield, we bring to bear all available helicopter capabilities: attack, reconnaissance, lift, transport, communications, and weaponry dedicated to the security of those capabilities.❐

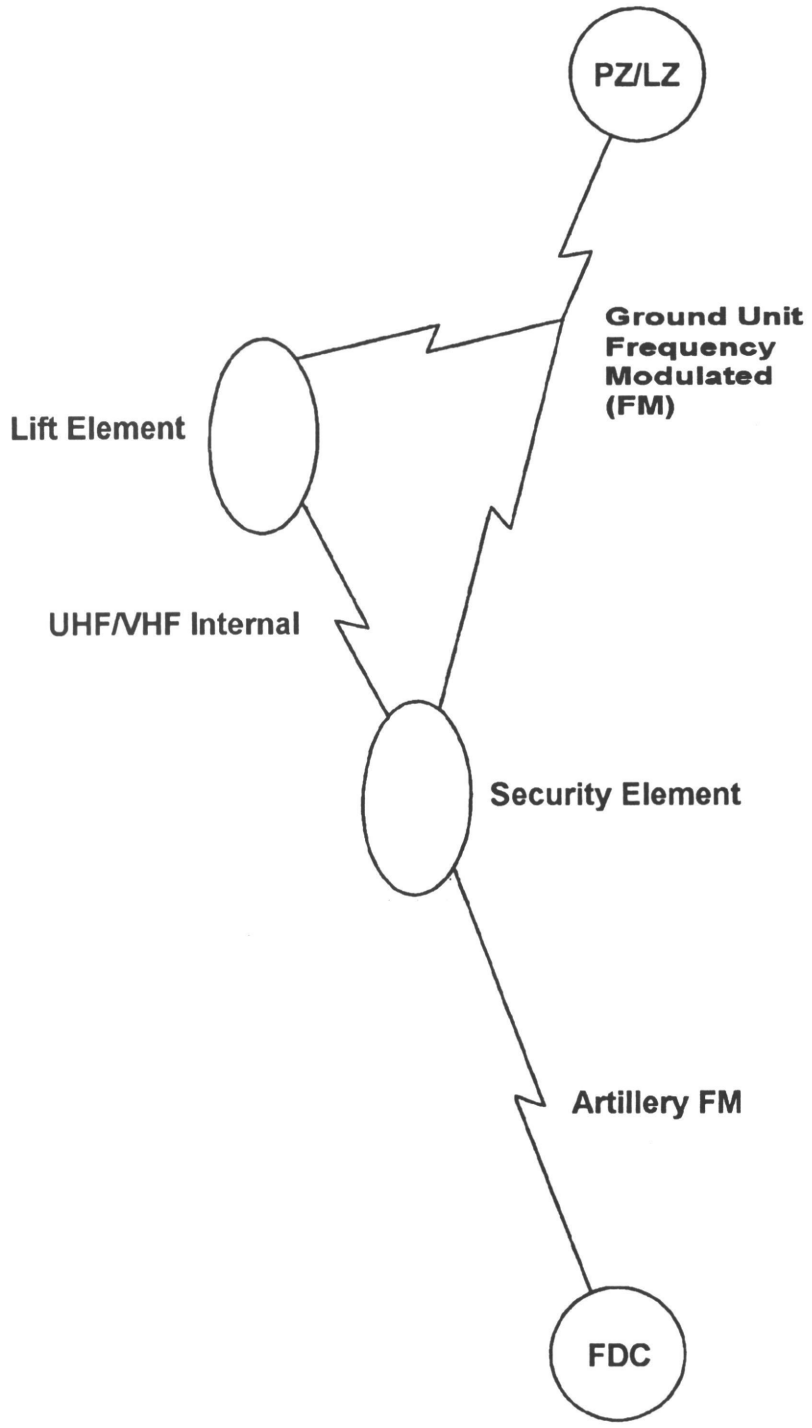

Figure 1. Communications Link

Why did he get promoted?

After careful analysis of the results of the second fiscal year (FY) 1992 sergeant major (SGM) board, Army Aviation continues to excel in the quality of its soldiers selected for SGM and command sergeant major (CSM). Individual records were reviewed several times to ensure that only the best qualified individuals were selected for promotion.

The board process was conducted in the usual manner. Only those fully qualified for promotion were selected. During the CSM selection process, alternates for appointment to CSM and those qualified for the U.S. Army Sergeants Major Academy (USASMA), Fort Bliss, TX, also were selected. The panel selected the best of the fully qualified master sergeants (MSGs) and first sergeants (1SGs) (promotable [P]) and SGMs for resident and nonresident U.S. Army Sergeants Major Course (USASMC) and resident course alternates. Additionally, the sergeants first class (SFCs)(P) were considered for enrollment in the nonresident USASMC. A qualitative management program (QMP) screen was conducted to identify substandard performers.

Many key points were brought out during the board that need to be emphasized. Most important, the overall manner of performance and the degree of an individual's responsibility of assignments, as determined by the individual's Noncommissioned Officer Evaluation Report (NCOER), were considered. Performing well in challenging leadership positions was a key function. Positions such as 1SG, drill sergeant, and recruiter indicated individuals with leadership experience and a willingness to excel.

The results also show that many aviation NCOs were spending extended periods of time as instructors and have little or no time in leadership or supervisory positions. Additionally, many NCOs were developing a pattern of assignments from tables of distribution and allowances (TDA) positions to short tours and then back to TDA positions. These NCOs were at a disadvantage when their records were reviewed. We need to find challenging leadership positions to make ourselves more competitive.

Another area that NCOs should be very concerned with is their height and weight entries on their Department of the Army (DA) Forms 2A and 2-1, Personnel Qualification Records (PQRs), and their NCOER. Most of our aviation NCOs are meeting the standard, but we need to set the standard if we expect to be competitive, especially when we are being considered for promotion. Accurate height and weight entries on your NCOER are essential. Many height and weight entries were questioned by the board because past NCOERs showed that either the NCO did not meet the body fat standard at a lower weight or he had a significant weight gain. Changes in height, weight, or body fat also show up in official photographs. These changes raise questions about the validity of the entries.

PQRs continue to be examined carefully. The DA Forms 2A and 2-1 are considered key documents that display the NCO's administrative data, qualifications, schools, awards, and assignment history. The NCO is responsible for the entries and the appearance of the documents. Many items appear to be lined through or corrected in pen and are often illegible. Often schools are not listed in chronological order, and awards listed on the DA Form 2-1 do not appear in the official photograph. NCOs must review these documents carefully for correctness and legibility before submission. Many PQRs were not reviewed or authenticated. These items detract from the soldier's record and reflect on the individual.

Civilian and military education continues to be emphasized. All the individuals considered were either advanced noncommissioned officer course (ANCOC) graduates or had received constructive credit. Again, the individuals that exceeded course standards were looked on more favorably than those that just passed. Civilian education is viewed as a clear indicator of the individual's desire to enhance his or her self-development. The board considered individual assignments and the opportunities to continue self-development, and generally found that the individuals who were striving for self-development were getting it despite their assignment. Aviation soldiers need to continue to pursue civilian educational opportunities, whenever possible, to maximize their potential and remain competitive.

The NCOER continues to be the single most important document that the board reviews. Often, the lack of quarterly counseling or the lack of counseling by the rater became obvious. Raters need to ensure that this counseling is done correctly and timely to ensure a proper performance rating. The NCO also is responsible, especially if counseling is not being done. No bullet comments or excellence ratings without proper supporting bullet comments continues to be a problem. There were instances of successful ratings without comments. These items did not present favorably to board members. NCOs and raters need to take the time to ensure credit is given to the soldier when it is due. But raters also need to point out where performance is lacking.

Senior rater comments were considered critical in the selection process. Potential bullets were deemed necessary and should be specific and consistent with a check in that block. Reviewer comments also were considered in cases when the rater and senior rater evaluations were not

consistent. The reviewer's comments were considered important to clarify differences and to document properly an individual's performance and potential. In this way the board was able to make a more accurate assessment of the individual.

Vast improvements on the quality of individual microfiche were noted by the board members. Many records still had documents that did not belong to the individual or derogatory/disciplinary information that could have been removed. NCOs should review their microfiche routinely to ensure they are correct and up to date.

The following comments or recommendations were provided by the selection board:

- Strive for excellence of performance in every assignment.
- Seek out high risk jobs such as recruiter, drill sergeant, 1SG, etc.
- Set goals for yourself and try to achieve excellence in training, physical training, etc. Always set the example, not just meet the standard.
- Continue your education, both military and civilian. Your minimum education should be an associate's degree, and you should strive to continue to better yourself. Go to military schools, both career management field (CMF) specific and non-CMF specific.
- Try to be actively involved in your assignment selection. You should balance your long and short tours, tables of organization and equipment (TOE) and TDA. Do not "homestead" anywhere.
- Your NCOER must be accurate and reflect positively on you. Ensure that counseling is conducted on yourself and the individuals you rate. Assure that you are in an "authorized" position.
- Always review and correct your personnel records, DA Forms 2A and 2-1, and microfiche. Make corrections and changes immediately, when errors are noted. You are responsible for keeping your records accurate and up-to-date.
- Ensure you have a current official DA photograph on file. Review the photograph and ask someone in your chain of command to review it.
- Be a model soldier. Get involved in military and civilian community activities.

Aviation Proponency Office

Send matters concerning aviation personnel notes to: Chief, Aviation Proponency Office, ATTN: ATZQ-AP, Fort Rucker, AL 36362-5000; or call DSN 558-5706/2359 or commercial 205-5706-2359.

Correction

On page 49 of the November/December 1992 issue, Figure 1. ACIP For Officer, Phase II, the title was incorrectly listed as **Years of Aviation Service**. The correct title should be **Years Total Federal Officer Service (TFOS)**. A corrected version of the Phase II portion of Figure 1 is at the right.

Phase II

Monthly Rate	Years Total Federal Officer Service (TFOS)
$585	Over 18
$495	Over 20
$385	Over 22
$250	Over 25

U.S. Army Class A Aviation Flight Mishaps

Fiscal Year	Number	Flying Hours	Rate	Army Fatalities	Total Cost (in millions)
FY 92 (through 31 December)	5	326,107	1.53	4	$20.3
FY 93 (through 31 December)	9	313,084 (estimated)	2.87	10	$37.6

Training at the FAA Academy

by Master Sergeant Robert F. Lesure

The Federal Aviation Administration (FAA) Academy, Oklahoma City, OK, is the FAA's principal source of technical training. Each year, thousands of personnel receive standardized training in state-of-the-art technology for FAA specialties needed to operate and maintain our National Airspace System (NAS). More than 20,000 students (including Department of Defense [DOD]) are trained each year in over 300 resident courses and through correspondence and computer-based instruction. Other learning resources, such as videodisc, slide tape, and textbooks, are used with computerized materials. Governments from around the world rely on the Academy's facilities for training. Personnel from over 130 countries have been trained at the Academy and at various FAA field facilities.

The FAA publishes a catalog of training courses that includes a brief description, length, and the organization's responsibilities for that training course. The FAA is noted for high-quality training in meeting today's ever-changing needs generated by the NAS.

All faculty and field instructors acquire standardized training skills at the Academy. They are trained to design, develop, and validate courses. They also are trained to analyze and revise course materials.

Specialized courses are provided to train electronic technicians and engineers, who install and maintain the radars, navigational aids, communications equipment, computers, and environmental support systems of the NAS. These courses are examples of the training provided by the FAA Academy.

Flight inspection pilots and technicians are trained to carry out the agency's flight inspection responsibilities. They check the accuracy of signals emitted from ground facilities, which enable flight navigation and instrument landings.

The Academy is on the Army Training Requirements and Resource System under School Code 013. The primary point of contact (POC) and quota control office for Army personnel requesting training at the FAA Academy is at Headquarters, U.S. Army Forces Command, ATTN: FCJ3-TSF, Fort McPherson, GA. You may telephone this office at commercial 404-669-6574/6524 or DSN 367-6574/6524.

The FAA Academy representative for DOD is assigned to the U.S. Army Air Traffic Control Activity (USA-ATCA), Fort Rucker, AL. However, he works at the FAA Academy and performs the function as the Training Program Management Office (TPMO) for DOD. This office is the direct interface with the Academy for DOD and can be reached at commercial (405) 680-4160.

Because of other training commitments, money constraints, personnel rotations, or other circumstances, some regions cancel their enrollments or do not use their full allotment of training allocations. These situations makes the space available or standby system possible. Additionally, requests for training allocations received from DOD after training class schedules are developed and established for each region may be accommodated on a space-available basis only.

Often the request for training allocations requires extensive coordination, working closely with the FAA headquarters staff, regional TPMOs, Consolidated Personnel Management and Information System (CPMIS) staff, Academy branches, and course managers. Enrollment of DOD personnel in courses is accomplished on a reimbursable basis. The DOD student enrollment applications are processed by the FAA Academy Representative for DOD through the Academy's CPMIS.

The reimbursable course cost information is obtained from the Fiscal Year Schedule of Reimbursable Costs, which is published annually. The FAA Academy Representative for DOD provides copies of this publication to the DOD service POCs and other appropriate personnel.

Annually, the DOD POCs are asked to solicit their subordinate elements for their training requirements and forward the consolidated information to the FAA Academy Representative for DOD. The DOD training requirements are compiled and submitted to the Academy for input into CPMIS each year. These training requirements are verified then. Corrections, additions, and deletions are submitted not later than the middle of February each year.

Continued on page 62.

Changes to TC 1-215

by CW4 Donald D. Savage

Most of us get frustrated when we receive a revised manual containing major changes for no apparent reason. The updated OH-58 Kiowa and OH-6 Cayuse Aircrew Training Manual (ATM) will be arriving in your units shortly. To help keep you informed, this article will discuss some major changes, and the reasons behind them.

Chapter 1 (Introduction) is now much shorter. Information about the annual proficiency and readiness test (APART), flight activity category (FAC), multiple aircraft designation, and readiness level (RL) progression has been deleted since it is addressed in the Training Circular (TC) 1-210, Commander's Guide.

Chapter 2 (Qualification Training) now includes Air-to-Air Stinger (ATAS) qualification and series qualification for the OH-58A, A+, and C models. Additional guidance is given for aerial observer (AO) qualification in the OH-58 and OH-6, if the AOs are trained initially in one aircraft and require training in the other aircraft as unit aircraft change. Several tables have been changed or deleted to update, modernize, and streamline them.

Chapter 3 (Refresher Training) has been rewritten to state clearly the requirements for refresher training. Again, training tables have been modified or deleted.

Chapter 4 (Mission Training) has one major change, the addition of maintenance test pilot training.

Chapter 5 (Continuation Training) has several major areas of change. Aviators are required to fly 3 hours of hooded flight semiannually. These are not additional flying hours, but a part of the normal semiannual requirement for the FAC level of the pilot. AO hands-on training tasks and hour requirements have been changed to incorporate the latest Department of the Army (DA) message guidance. Besides the battle-rostered pilot in charge (PC), unit trainers (UTs) are authorized to conduct the hands-on training. Some base and mission tasks have been added or deleted and will be discussed later. The aviator and AO mission task lists have been combined to avoid duplication.

Chapter 6 (Aircrew Tasks) contains many changes. The first change is the addition of crew coordination instructions for each task. Paragraphs 6-3 through 6-5 discuss crew coordination in detail. Each task has been rewritten to include crew responsibilities for all crew members. This change is consistent with all aircraft ATMs as they are updated. To help ensure that units are briefing and training crew coordination, Task 1000 (Conduct Crew Mission Briefing) has been added to all ATMs.

Many individual tasks have changed. Task 1007 (Perform Engine Start, Run-up, Hover, and Before-Takeoff Checks) has been rewritten to incorporate the landing checks and after-landing tasks since the standards are the same, and they are interrelated.

Task 1030 (Perform a Shallow Approach to a Running Landing) and Task 1031 (Perform Confined Area Operations) are part of Task 1028 (Perform Visual Meteorological Condition [VMC] Approach). The landing area reconnaissance that was described in the confined area task is a consideration for all approaches, so Task 1028 now contains the reconnaissance. A running landing is one method to terminate a VMC approach, so it also is included.

Task 1032 (Perform Slope Operations) now contains instructions for landing up and down slope and the traditional cross slope.

Task 1064 (Perform Terrain Flight Navigation) has been incorporated into Task 1035 (Perform Terrain Flight) as it was in the October 1984 ATM. These tasks usually are not performed separately and have been combined.

Task 2018 (Reconnoiter and Recommend a Landing Zone [LZ] or Primary Zone [PZ]) and Task 2020 (Call for and Adjust Indirect Fire) have been updated to reflect the current guidance in the appropriate field manuals.

Task 2007 (Perform Aerial Observation) has been designated as base Task 1067. This task is inherent to and used by all OH-58 and OH-6 crewmembers when performing tactical or nontactical flights.

Task 1089 (Perform Refueling or Rearming Procedures), Task 2021 (Transmit Information Using Visual Signalling Techniques), Task 2065 (Call for a Tactical Air Strike), and Task 2108 (Direct a Close Air Strike) have been deleted. These tasks are specialized, and they are covered by unit standing operating procedures (SOPs) or the mission briefing.

Task 2040 (Select a Combat Position), has been added. This task contains the information necessary to select a firing position, battle position, or observation post.

Tasks 2100 to 2107 (Various Specialized Artillery Calls) have been deleted. Task 2020 (Call for and Adjust Indirect Fire) covers them adequately.

All 2000-series night vision goggle (NVG) tasks have been incorporated into the appropriate base task under night/NVG considerations.

Continued on page 62.

Aircrew Training Program for the AVIM Commander

by Major Russell M. Stansifer

As commander of an aircraft maintenance company, aviation intermediate maintenance (AVIM), how you develop your Aircrew Training Program (ATP) may cause some headache and questions. The best answers are in the new Training Circular (TC) 1-210, Commander's Guide, and in Field Manual (FM) 1-544, Standardized Maintenance Test Flight Procedures.

When an AVIM commander develops the ATP, he must evaluate the mission essential task list (METL) to determine the unit training requirements for both rated and nonrated crewmembers. The commander also evaluates each tables of organization and equipment/tables of distribution and allowances (TOE/TDA) position to determine its relationship to the AVIM's mission. This evaluation includes determining if the AVIM must have maintenance test pilots (MPs), maintenance test flight evaluators (MEs), and nonrated crew members current in aircraft types other than aircraft organic to the AVIM (customer unit aircraft types). The commander then builds his ATP around the AVIM's organic aircraft, usually the UH-1 Iroquois or UH-60 Black Hawk, and on the tasks that are required to do the mission.

As stated earlier, there may be a need to assign additional or alternate aircraft training tasks based on what is owned by the customer unit and how frequently the AVIM is required to do maintenance test flights (MTFs) on customer unit aircraft. If you are separated from your customer units by significant distances, you may experience embarrassing and costly delays just to get the MTF completed. As a 15D, if you want to see some poor customer relations, just tell that attack battalion commander that his AH-64 Apache has been down for 5 days waiting for an MTF. You must avoid these situations and plan your training to do your mission. For example, you may not own an AH-64, but if you own an electronic equipment test facility (EETF), you may have frequent MTF requirements. It may be necessary to borrow an MP from the customer unit to finish the work.

Delays are frequent because the customer MP is busy with aviation unit maintenance (AVUM) work and slow to respond to AVIM needs. Your best solution is to keep your AH-64 MP (if you have one assigned) current by assigning the AH-64 to him as an additional aircraft. Nondivisional AVIM commanders must plan to receive the doctrinally planned 25-percent passback work load from the divisional AVIMs you support. So, it may be highly beneficial to your mission to keep pilots trained in aircraft types owned by your customer units.

Now that you have built your METL, have looked over your personnel and their duty positions, and have formed a good idea which aircraft your personnel need to fly to do your mission, you are ready to write your commander's task list (CTL). TC 1-210, pages 3-7 through 3-11, explains the process well—with one major exception. Paragraph 5 on the CTL example (page 3-10) says to use Department of the Army (DA) Form 5051-R to list the semiannual MTF tasks. Do not use DA Form 5051-R as a task list. We will delete DA Form 5051-R because it is redundant. You will tack the performance of your MP/ME task iterations using DA Form 4889-7-R (Individual Training Record).

Flight activity category (FAC) is a major consideration in the CTL. The TC 1-210 recommends that MPs be designated as FAC 2 aviators because they require less tactical proficiency than FAC 1 positions. Additionally, FAC 1 pilots must be battle-rostered, which requires crew training and crew evaluations. It is your decision to decide the FAC. If you want a FAC 1 crew, then "go for it." However, the administrative and additional training requirements that go with FAC 1 could overburden your MTF requirements.

Multiple aircraft designations must be considered as discussed earlier. When thinking about multiples, remember to consider the additional training, flying hours, and evaluations the aviator must contend with. A multiple aircraft aviator does give the AVIM commander additional capability. However, the aviator must remain proficient in the multiple aircraft types, which requires additional time and effort.

The CTL must include all ATP requirements for the crew member filling the TOE/TDA position. At the AVIM, all aviators assigned in maintenance officer or maintenance technician positions (except the commander) must do at least four maintenance task iterations annually in each rotary-wing aircraft type in which MP proficiency is required. The Directorate of Evaluation and

Standardization (DOES) recommends that commanders use a separate DA Form 4889-7-R to list maintenance tasks and number of iterations or attach a locally generated list of maintenance tasks and required iterations as an enclosure to the CTL.

You should state the crew station (seat) from which the tasks are to be done, remembering that MEs must practice from both stations. You should state the evaluations required to complete the annual proficiency and readiness training (APART), remembering that MP/ME evaluations are required for all aviators assigned to maintenance officer/maintenance technician positions at the AVIM, except the commander. Finally, both you and the aviator must sign the CTL. This CTL is a training contract between the two of you, and it must be legally binding.

As the AVIM commander, you should know what to look for when you review the individual aviation training folder (IATF). You should use TC 1-210 as your official guide.

We hope this article will help with some specifics that are expected from your CTL. Remember, it is your CTL. These MPs and MEs work for you. They were trained at considerable government expense, and you are expected to keep them proficient and ready to do your mission.

MAJ Stansifer is Director, Directorate of Evaluation and Standardization, U.S. Army Aviation Logistics School, Fort Eustis, VA.

U.S. Army Aviation Logistics School

Readers may address matters about aviation logistics to: Assistant Commandant, U.S. Army Aviation Logistics School, ATTN: ATSQ-LAC, Fort Eustis, VA 23604-5415

Continued from page 59.

During scheduled training conferences, training allocations are established for each region. These conferences are attended by FAA headquarters, regional, Army liaison, and Academy representatives for each specific training program area. The submission of training requirements, training resources available, and efficient use of prior year training allocations are major factors in determining quota allotments.

The fiscal year class schedules usually are published each year in late June. After receiving the schedules, the FAA Academy Representative for DOD reviews them to determine the quotas allocated to DOD. Each DOD POC is notified of the quota allotted to each of the services (based on the requirements submitted). Enrollments can be processed when fiscal year class schedules are received.

Course date changes or class cancellation information is provided to the DOD POCs when the information is identified by the FAA CPMIS. The DOD students are provided an information packet before reporting to the FAA Academy for course attendance.

The FAA plays a key role in supporting highly specialized DOD training requirements directly affecting DOD's readiness, rapid mobility, and deployment in meeting its overall contingency mission.

MSG Lesure is assigned to the U.S. Army Air Traffic Control Activity, Fort Rucker, AL.

U.S. Army Air Traffic Control Activity

Readers may address matters concerning air traffic control to: Commander, USAAVNC, ATTN: ATZQ-ATC-MO, Fort Rucker, AL 36362-5265.

Continued from page 60.

Chapter 7 (Maintenance Aircrew Tasks) now contains all maintenance test flight tasks and procedures that were found previously in Field Manual (FM) 1-544. This chapter covers both OH-58 and OH-6 maintenance test flight tasks.

Chapter 8 (Evaluations) is unchanged, except the addition of the battle-rostered crew evaluation and maintenance test pilot evaluation requirements.

Chapter 9 (Aircrew Grading System) has added the required gradeslips for the battle-rostered crew and maintenance test pilot evaluations. The maneuver grade slips for aviators and AOs have been reformatted to include all tasks in the order they are listed in chapter 6.

We would like to thank those individual who took the time to submit DA Forms 2028. We hope that we have improved this manual. Continue to send the DA Forms 2028 when you have suggestions for improvement in the future. To ensure timely delivery of your revised ATMs, please ask your publication officer to update your unit's 12-series publication account.

CW4 Savage is assigned to the Scout/Attack Branch, Flight Standardization Division, Directorate of Evaluation and Standardization, Fort Rucker, AL.

Directorate of Evaluation and Standardizaton

DES inquires may be sent to: Commander, USAAVNC, ATTN: ATZQ-ES, Fort Rucker, AL 36362-5208; or call DSN 558-3504 or commercial 205-255-3504. After duty hours call DSN 558-6487 or commercial 205-255-6487 and leave a message.

NOTAMs

by Master Sergeant Kathleen Odom

A recent article in the *U.S. Army Aviation Digest* correctly highlighted some problems associated with the U.S. Notice to Airman (NOTAM) system. It is not a perfect system, but efforts are under way to improve the situation. Aviators and airfield operations personnel must improve their understanding of the system, use it as effectively as possible, and make known the problems being encountered.

In past years, Department of Defense (DOD) operated its own NOTAM system through Carswell Air Force Base, TX. In 1989, the DOD and the Federal Aviation Administration (FAA) integrated the military system with the civil system into what is now officially titled the U.S. NOTAM Office, Washington, DC. Daily operations are conducted at the FAA Headquarters, Washington, DC. Three military NOTAM specialists are available, on site or on call, 24 hours a day, to help their respective military services with the NOTAM system.

The new NOTAM system has been a learning experience for both the civilian and military specialists at FAA. New software has been introduced. Challenges exist, but improvements are being made daily, and more are on the way.

Army Aviation has joined the effort with the acquisition of the Automated Weather Distribution System (AWDS). The AWDS is a computerized system that gives aviators and flight operations personnel the capability of receiving, processing, storing, and distributing NOTAM information. Many Army airfields either have the equipment or will have the equipment installed soon.

Aviators can request and receive NOTAMs for up to 10 locations via the AWDS terminal. They also can receive the current North American summary with hourly summary updates. Flight operations personnel can input NOTAMs and Airmen Advisories, besides maintaining the NOTAM log within the terminal.

Problems have been identified, however. Aviators complain that the system is too slow in responding. The DOD's program manager, the U.S. Air Force Flight Standards Agency, has introduced an engineering change proposal that should help aviators retrieve information faster through the AWDS terminal.

Other improvements to the system include a new format for NOTAMs, to be effective during the summer of 1993. Then, NOTAMs will be published in a plain language format.

Users also can help the system. Currently, the NOTAM system is working at almost full capacity and, at times, becomes overloaded. Airfield operations are not abiding strictly with Army Regulation (AR) 95-10, which directs that NOTAMs are not to be published for conditions that are expected to last for more than 90 days. These conditions must be submitted to the appropriate office for inclusion in Flight Information Publications (FLIPs).

Additionally, many airfield operations submit NOTAMs for publication, and then forget to cancel them once the condition has been terminated or published in FLIP. Sometimes, two different offices on an installation submit NOTAMs for the same condition. Because of this lack of local coordination, duplicate NOTAMs get into the system. These duplications are noted and corrected rapidly by the military NOTAM coordinators at FAA. Meanwhile, the system has been overburdened needlessly. Airfields commanders and air traffic control authorities should review their NOTAM system procedures and ensure that they are according to AR 95-10.

The system is not perfect, but it is what we have to use. The problems existing in Europe or the Pacific are not the same as those in the United States. Progress is being made; however, and the work goes on. Suggestions for improvement are always welcome. As we noted earlier in this article, assistance is available. For Army users outside the European theater, contact MSG Kathleen Odom, FAA Headquarters, Washington, DC, DSN 851-3410/3411 or commercial 202-267-9285. European users should contact the U.S. Army Aeronautical Services Detachment, Europe (USAASDE), Heidelberg AAF, Germany. The USAASDE's telephone number is ETS/DSN 370-8079/6426.

MSG Odom is the U.S. Army NOTAM System Coordinator, Aeronautical Information Division, U.S. Army Aeronautical Services Agency, Alexandria, VA.

U.S. Army Aeronautical Services Agency

USAASA invites your questions and comments and may be contacted at DSN 284-7773/7984 or write to: Commander, U.S. Army Aeronautical Services Agency, ATTN: MOAS-AI, Cameron Station, Alexandria, VA 22304-5050

Air-to-Air Combat

by Ms. Mary Mueller

"Bengal 66, this is Bengal zero-3. Enemy armor in march formation entering engagement area Blister. Move to and occupy battle position 2-Alpha. Orient on target, reference point 23. Engage with missiles. Over."

"Gun one. Bandit 360. Dig!"

"Gun 2. Right side taking fire!"

"Gun one. Tally two bandits. Engaging."

As the battle raged on, the aviators from Company C, 2d Battalion, 229th Aviation Regiment (Flying Tigers), 1st Aviation Brigade, Fort Rucker, AL, had to defend themselves against enemy fire from both the ground and air threat forces. This scenario was used by the U.S. Army Test and Experimentation Command, Fort Hood, TX, to test the effectiveness of Army Aviation units to conduct attack and air cavalry missions on today's Air-Land battlefield.

In mid-August 1992, a team of military and civilian testers from the TEXCOM Aviation Test Directorate, Fort Hood, TX, went to Fort Rucker to conduct the Air-to-Air Combat (ATAC) Force Development Test. The second round of validation of current and emerging Army counterair doctrine was conducted at the Directorate of Simulation, Warfighting Simulation Division, Aviation Test Bed (AVTB), U.S. Army Aviation Center, Fort Rucker, AL.

AVTB is in a developmental stage for the emerging technology of combined arms battle simulation designed to permit threat and friendly forces interaction in manned and unmanned aircraft and in ground vehicles. The AVTB manned simulators provide realistic cockpit control displays and out-the-window display interactions for each crewmember. These features allowed the crews involved in the test to navigate, avoid obstacles, detect and identify targets, employ weapons, and communicate just as they would on the battlefield.

Photo by John L. Brady

The ATAC test team from TEXCOM's Aviation Test Directorate used an aviation simulator at the USAAVNC's Aviation Test Bed (AVTB), Fort Rucker, AL, to conduct the ATAC test.

The baseline for ATAC II was conducted in 1986 at Fort Hunter Liggett, CA, using four helicopters in one-on-one and two-on-two configurations. It provided the data needed to learn how to test ATAC doctrine. The AVTB allowed the base line to be expanded and include the influence of ground-based weapons, intelligence, and involve realistic combined arms engagements with both friendly and threat forces.

During the 8-week test, more than 200 trials were conducted. Most trials pitted four "Flying Tiger" AH-64 Apache crews against Mi-24 HIND threat pilots from the Threat Support Activity, U.S. Army Operational Test and Evaluation Command, Fort Bliss, TX. Additional subject matter experts came from Fort Rucker and the British Royal Army Air Corps. U.S. Air Force A-10 pilots from Pope Air Force Base, NC, also participated.

Extensive data were collected on the "Flying Tigers'" capability to meet with and destroy, or elude, threat helicopters in the rear area; deep and close-in operations while conducting reconnaissance; security missions; and antiarmor operations. Command, control, and communications procedures used in the execution of these missions also were evaluated.

The data collected from this test will be used by the USAAVNC to write field manuals for ATAC tactics, battle drills, techniques, and procedures.

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Test and Experimentation Command

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Command Sergeant Major Fredy Finch Jr

Physical Fitness—Who is in charge of you?

Why are physical training (PT) scores used to judge whether or not I am a good soldier? Why do the weight control and PT standards keep getting stricter? These questions arise in many frustrated soldiers' conversations in these days of downsizing our Army. Unfortunately, many soldiers believe that the Army only cares about high Advanced Army Physical Fitness Test (APFT) scores and a low number on your weight. Yes, these numerical data are a solid way of clearly delineating who does and does not meet the Army's standards. However, the Army's emphasis on physical fitness and weight control is part of a philosophy of total well being, hence, the name "total fitness trainer."

This evolution of physical training began during the early 1980s, when the Army began to make use of the extensive research performed by sport's fitness and health professionals. The wise advice of "know thyself" now encompassed a new meaning. Now, to embrace this philosophy, soldiers and leaders learn about how the body works, nutritional needs, and how to maximize the efficiency of physical training sessions while preventing injury. Exhaustive research has been conducted on how to get and maintain optimum health and fitness, and this research continues. Magazine racks are full of fitness-related publications, health clubs are everywhere, and commercials on television tell us to watch our fat and cholesterol intake. The Army got on the bandwagon by teaching its new philosophy of total fitness. The information is available. This approach is completely different from the old "daily dozen," followed by a bacon and egg breakfast. Some soldiers are very unhappy about these new demands, and they consider them as some sort of punishment. This theory is not true.

Being physically fit is probably the best thing that you can do for yourself. Being fit means that you are in charge of yourself; you do not waste time complaining about how others are responsible for your woes. Being fit means that you have self-discipline; a quality that is essential for success in any endeavor and key to effective military leadership. Being fit means that you are strong enough to withstand stresses peculiar to soldiering and ultimately, combat. Being fit means that you look like a soldier; you stand up straighter, your bearing is evident, and you walk with purpose. Being fit means that you are not lazy, that you have enthusiasm for life. These are good reasons for the Army to evaluate your physical fitness as an indicator of what type of soldier you are.

The health benefits of being fit are numerous, and their effects overlap, causing a positive chain reaction. These benefits include: reducing high blood pressure, strengthening the heart, slowing aging, keeping bones strong, elevating moods, fighting diabetes and cancer—keeping you living longer.

With all the benefits of fitness, it seems ridiculous that any of us would choose not to adopt the total fitness lifestyle. If there could be such thing as an elixir that promised good health, vitality, and even good looks, the total fitness lifestyle is as close to it as we will ever come.

The next time you are wondering why your PT test and weight measurement are so important, think about the benefits of fitness. You should decide how to be in charge of you, remain physically fit, and stay ahead of the game. Do it for the Army and for yourself.

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