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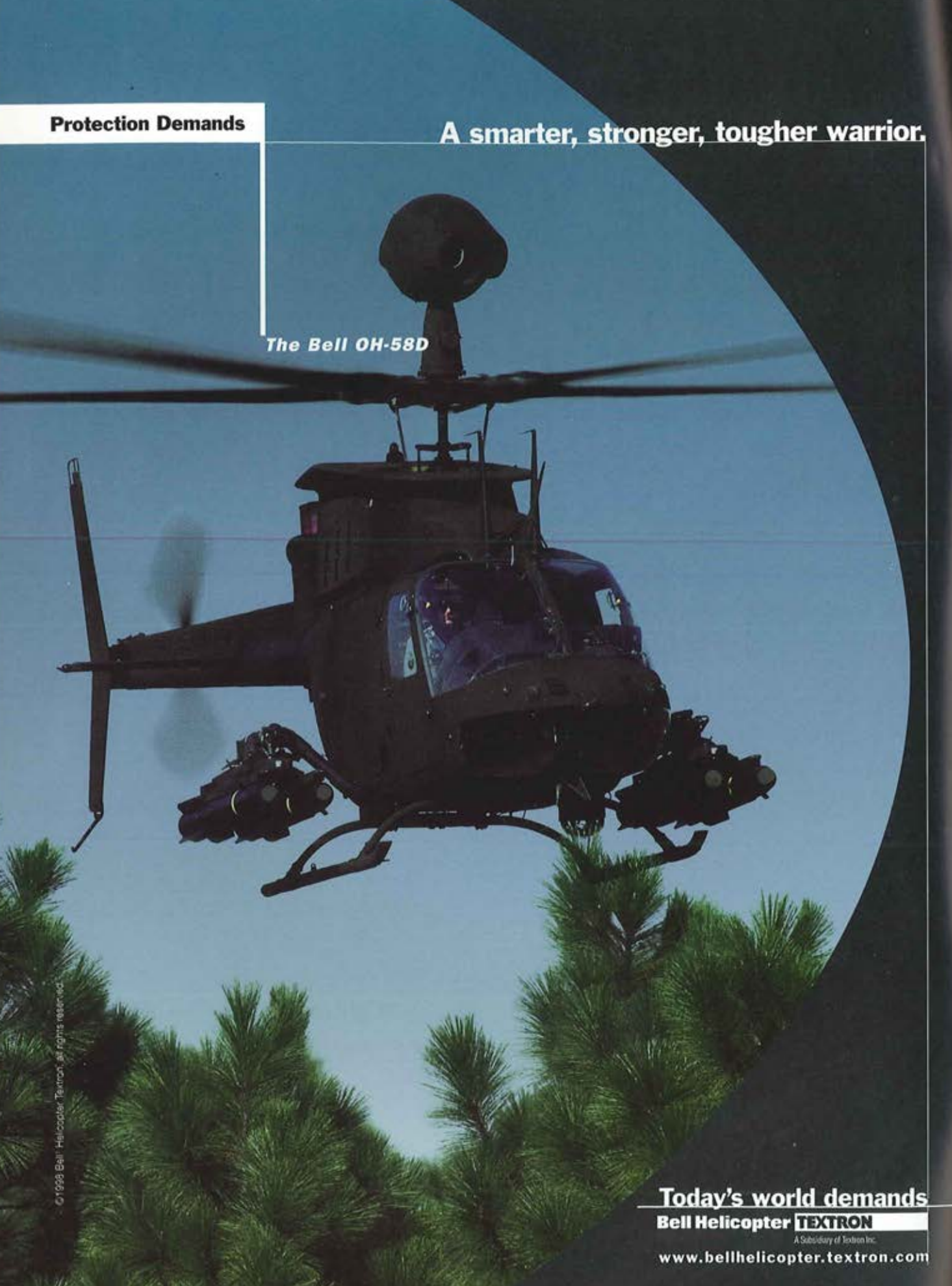
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on the cover

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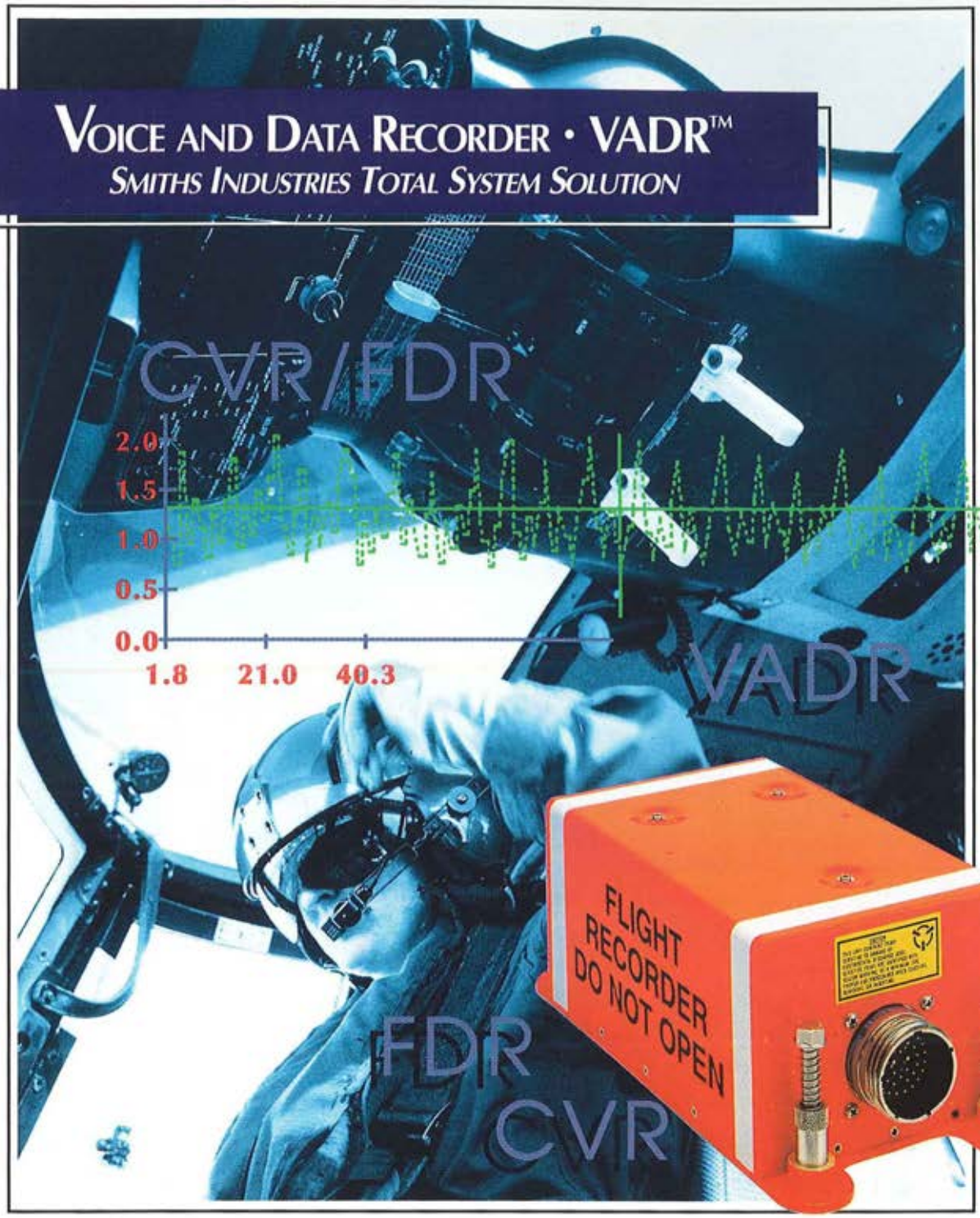

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Warrant ACIP Equity Achieved

As you recall in my June 30,1998, editorial in this same space, AAAA raised the issue of warrant officers being inadvertently left off the final pay charts that accompanied the approved conference committee bill in last year's Defense Authorization Act. This would have resulted in our warrant officers NOT receiving the increase in Aviation Career Incentive Pay from a max of $650.00 per month to $840.00 per month, nor being eligible for Aviation Officer Retention bonuses like their commissioned officer flight-crewmates.

This would have undone 12 years of AAAA effort from the late 1960s until 1981 when flight pay was finally equalized. The logic behind the AAAA resolution that was delivered to the secretary of defense in 1969 is of course still valid.

I am happy to report certain objections by the Office of Management and Budget were overcome and a few days ago as I write this, the 1999 Defense Authorization Act that corrects this problem was passed by Congress. This was a direct result of your grassroots effort in response to our June battle cry and efforts by the AAAA national organization through letters to the key decision makers and visits and phone calls by AAAA Executive Director Bill Harris to staffers on Capitol Hill. We are also very proud of our membership in The Military Coalition (TMC) and our representative to them Col. Sy Berdux, (Ret.). When Sy brought this issue to them we gained their full support. The clout of our combined 1.6 million members guaranteed that we would carry the day.

CWO 5 Joel Voisine, in DCSPER, with whom we worked most closely during the struggle, said it best in an e-mail to Bill Harris recently: "I want to thank you for jumping into the breech and putting in a great lobbying effort on our behalf. I'm not sure we would have accomplished the task (given the cog we were up against) without the help of AAAA and the Military Coalition."

How many times have we heard the question: "What does AAAA do for me?" Please spread the word to our non-AAAA member warrant officers. Let them know what AAAA did for them 17 years ago when we achieved the first victory on flight pay. Let them know that we have prevailed again in this battle. And let them know that we will be there for them in the future as we have been in the past. Our actions are our credentials.

John D. Robinson
Major General, Retired
President, AAAA

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The Case For 15Ds
Do We Need Full-Time Aviation Loggies or Not?

by Lt. Col. James W. Kelton

There have recently been some suggestions that we should do away with commissioned officer Area of Concentration (AOC) 15D (Aviation Logistician) and use AOC 15B (Combined Arms Aviator) officers in these positions. It is the U.S. Army Aviation Center's position that the investment in aviation systems is so great and the warfighting contributions so important that we cannot afford to have "generalists" becoming amateur logisticians with responsibility for sustaining the aviation force. There are several myths which seem to perpetuate the argument for getting rid of 15Ds.

Back in the days when we only had our legacy systems there was a core of professional aviation logisticians, most with back-to-back years of experience at all grades. But for myriad reasons we have been slowly losing our "specialists." This systemic problem has been recognized by the Army's senior leadership and is why the Army chief of staff has directed the implementation of Officer Personnel Management System XXI (OPMS XXI). Numerous AOCs in various branches also suffer the same problems of a system that produces "generalists." So OPMS XXI is an idea whose time has come, and not a moment too soon!

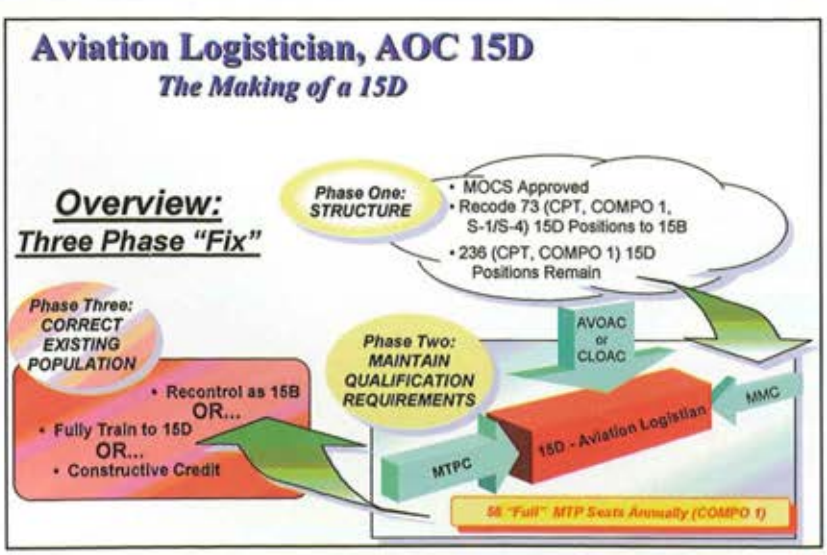
Being a 15D goes well beyond knowing retail logistics. It includes an understanding of such complex processes as wholesale logistics, pieces of contracting and acquisition/materiel fielding, information management/STAMIS and all of Integrated Logistics Support (ILS). Some officers underestimate the breadth and depth of aviation logistics and advocate an "easy fix" by doing away with 15Ds and using 15Bs to do the job. But that course of action is shortsighted, glosses over the problem, places the branch at risk to sustain the force and would put the officers who have to serve in these complex positions in risk of failure. Further, it is a step backwards from OPMS XXI goals to develop specialists rather than generalists.

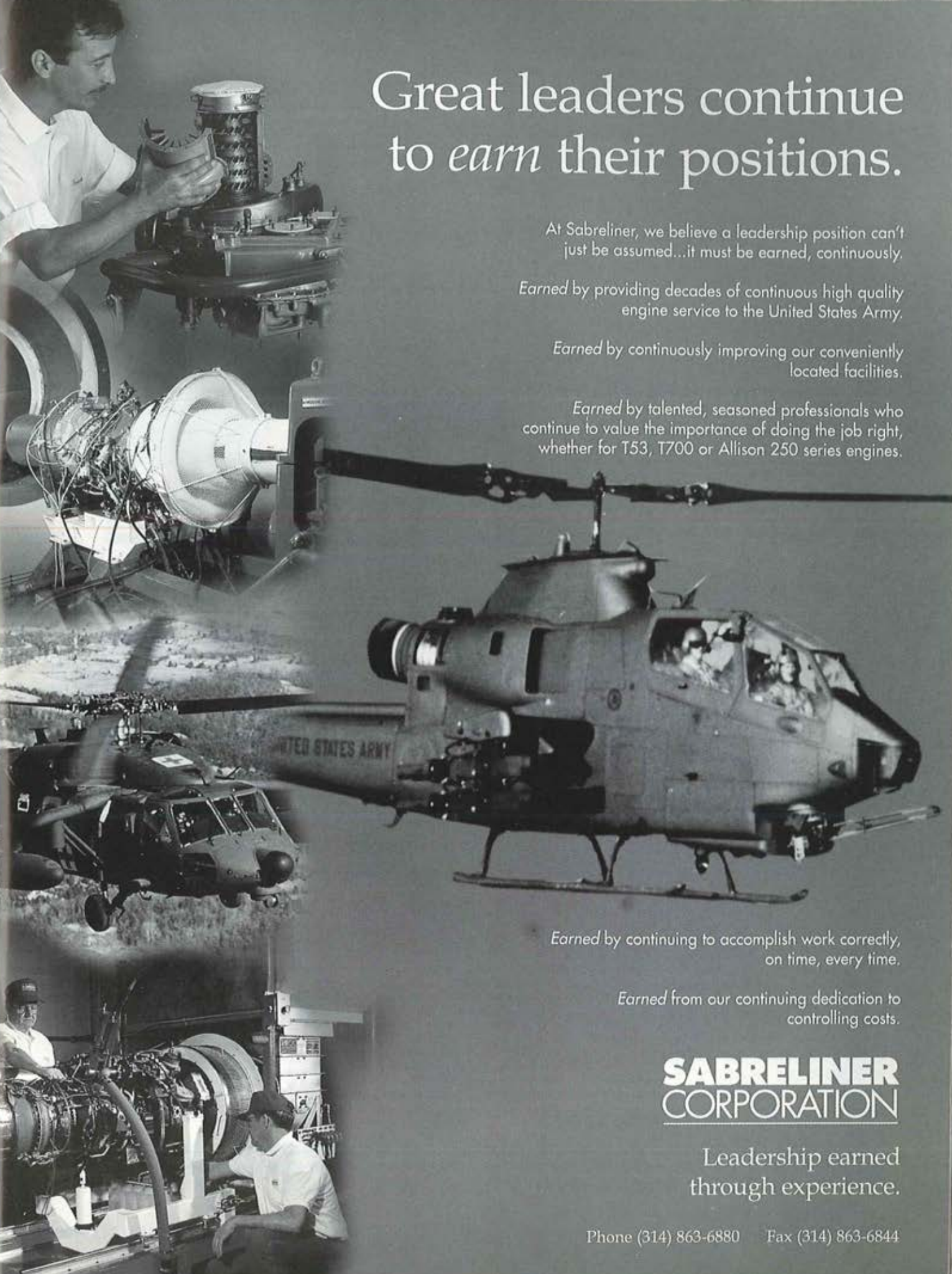
Proponents of abolishing AOC 15D argue that aviation maintenance warrant officers can pick up the slack for the 15Bs who migrate into these positions. Army aviation has always been proud of its aviation warrant officers, and any 15D worth his or her salt will readily tell you that they were trained and mentored by good aviation maintenance warrants. But it would be a mistake to essentially turn over to them total responsibility for fleet sustainment. That is the responsibility of commanders, who must know and understand the logistics system and have the ability to make it work for them.

Some of the proponents for abolishing AOC 15D cite examples of 15Bs who have been able to do 15D jobs. Top-quality officers have demonstrated that it is possible to "cross-over" from 15B to maintainer jobs and do both very well, but should this be the model? Such examples appear to be the exception rather than the rule. The complexity of current logistics systems demands specialists, and OPMS XXI is built around this premise.

There are three requirements for an officer to be designated an aviation logistician: graduation from the Aviation Officers Advance Course (AVOAC) or the Combined Logistics Officers Advance Course (CLOAC); the Maintenance Mangers Course (MMC); and the Maintenance Test Pilot Course (MTPC). We are just now recovering from a period during which 15D MTPC training seats had to be borrowed from Warrant Officer Branch. Some 15Ds didn't get the MTPC, and the signal to our "loggies" was one of confusion and inconsistency. Fortunately, this has now been corrected; training seats for MTPC have been re-established and the career pattern is now back on track *(see Figure 1 at left)*.

There is also a misconception that battalion command opportunity for 15Ds is worse today than in the past.





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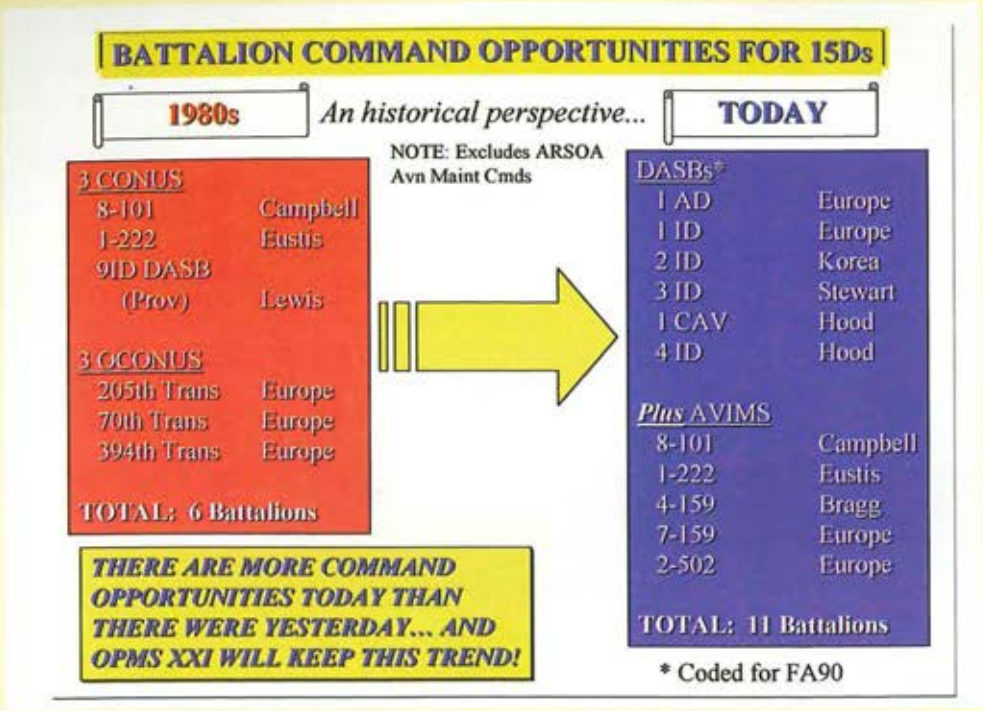

Figure 2

Figure 3

Figure 2 explodes that myth.

In addition to command opportunity for aviation logistics commands, two to five AOC 15D officers have historically been selected to command category 4E (general aviation) organizations each year. In 1998 there were seven 15D90 officers selected to command in the 4E category. Further, 15D90s can also compete for "ground" FA90 (Multifunctional Logistician) commands (MSB, FSB, DISCOM COSCOM) in addition to 15D and 4E commands. Figure 3 above paints a very positive picture regarding command opportunity for 15Ds at the lieutenant colonel level, compared to their 15B peers.

In conclusion, 15Ds are critical to sustaining warfighting effectiveness and combat readiness. Using 15Bs in 15D positions would put the branch and individual officers at risk. We have an approved career strategy for 15Ds (which includes the "full-up" Maintenance Test Pilot Course). The career strategy, coupled with implementation of OPMS XXI, has the potential to fine-tune AOC 15D in the near future. Any changes should be made after a maturation period, and any such changes are expected to be evolutionary rather than revolutionary.

For more information, refer to the 15D White Paper located on the Aviation Proponency website at www-rucker.army.mil/ap/ap.htm.

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Lt. Col. James W. Kelton is the chief of the Aviation Proponency Office at the U.S. Army Aviation Center, Fort Rucker, Ala.

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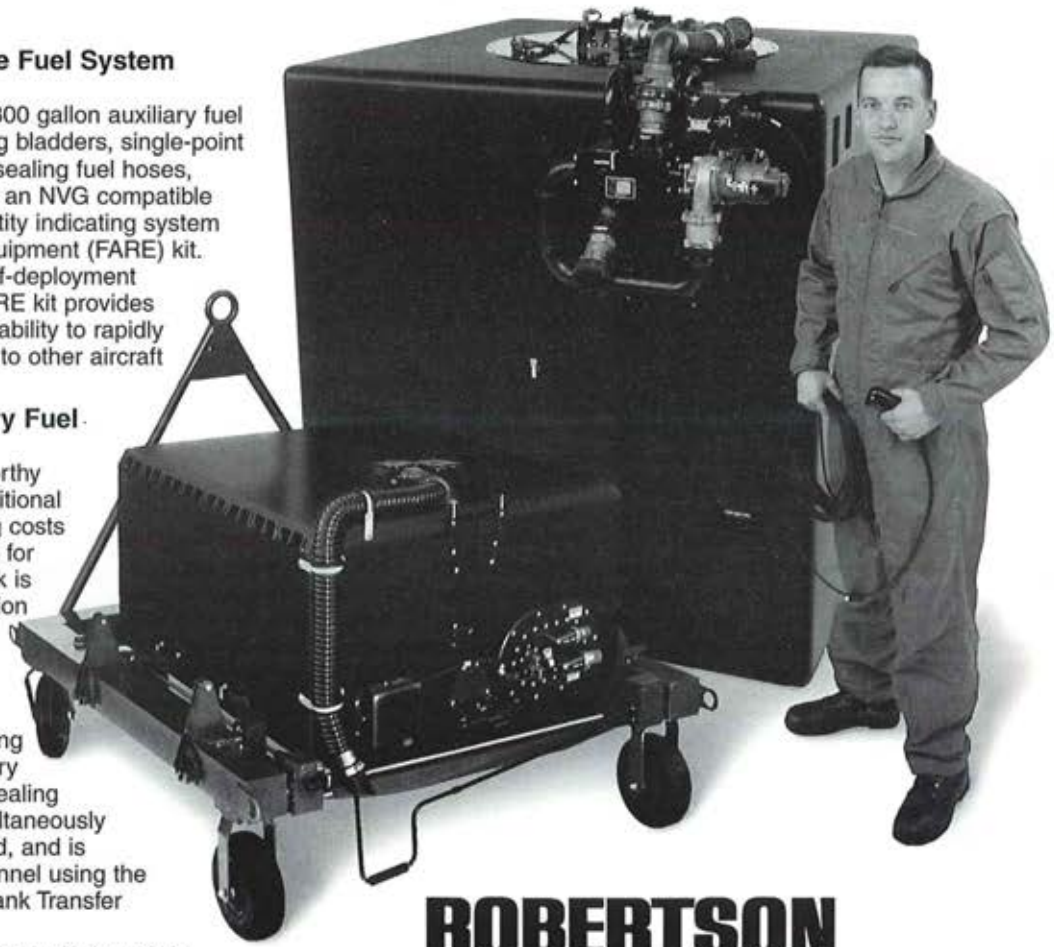

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PM AEC – Protecting the Force

The information age is upon us. Never before in the history of military operations have commanders had the ability to acquire, process and distribute information so rapidly and accurately across the battlefield.

By Larry D. Johnston and Lt. Col. Larry A. Carpenter

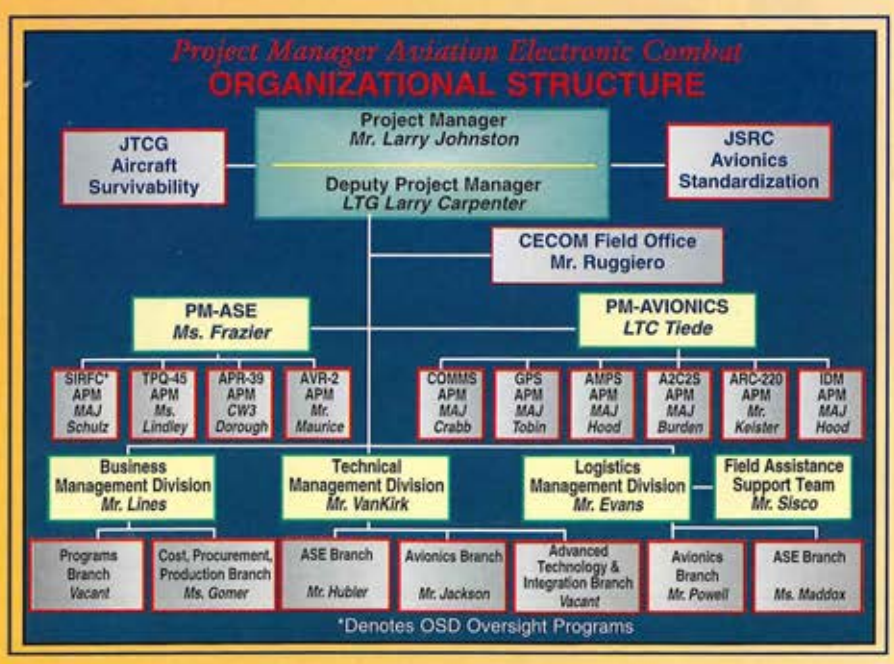
In Operation Desert Storm, for example, commanders were able to observe in near-real time, orient in minutes, decide in hours and act in the same day. In the future, this decision cycle will be drastically reduced as technology advances. The digital communications architecture being developed today as a part of the Army digitization effort will allow the commanders of the future to maneuver at three times the speed of today's divisions. This operational tempo will require a superior electronics suite, which is truly capable of "Protecting the Force" across the full spectrum of operations.

The Project Manager's Office for Aviation Electronic Combat (PM AEC) is responsible for developing, procuring and fielding state-of-the-art electronic systems for all of Army aviation. We have material acquisition responsibility for Aircraft Survivability Equipment and those avionics that form the nucleus of the aviation mission area digitization effort.

The organization is similar in structure to most other PMs, with a few noteworthy exceptions. One is our association with the Joint Technical Coordination Group for Aircraft Survivability (JTCG-AS), of which PM AEC is the Army's principle member. This group answers to the Joint Aeronautical Commanders Group (JACG) and controls three subgroups associated with vulnerability reduction, susceptibility reduction, and methodology and simulation. PM AEC's other unique involvement is its participation as the Army's principle member on the Joint Service Review Committee (JSRC) for Avionics Standardization. This group continually reviews ways in which avionics requirements can be standardized across the services.

The third area which makes PM AEC unique is the Assistant Project Manager (APM) structure for ASE and avionics projects. The broad spectrum of ASE and avionics requires an Integrated Product Team (IPT) approach for each of our programs. The APMs manage their project cost, schedule and performance requirements. However, they receive overall leadership and guidance from two board-selected product managers, who in turn report to the AEC PM. The PM/APM teams draw on the breadth of knowledge — including both technical and programmatic skills - of the Technical, Logistics and Business Management divisions within the program office.

This team of government and contractor personnel has been extremely effective and efficient in developing and managing each system. Our field office at Fort Monmouth, N.J., provides a link between the U.S. Army Communications-Electronics Command (CECOM) and PM AEC,



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while our Field Assistant Support Team (FAST) gives us a quick-reaction capability to support unit deployments or react to specific field requirements and issues.

Aircraft Survivability Equipment

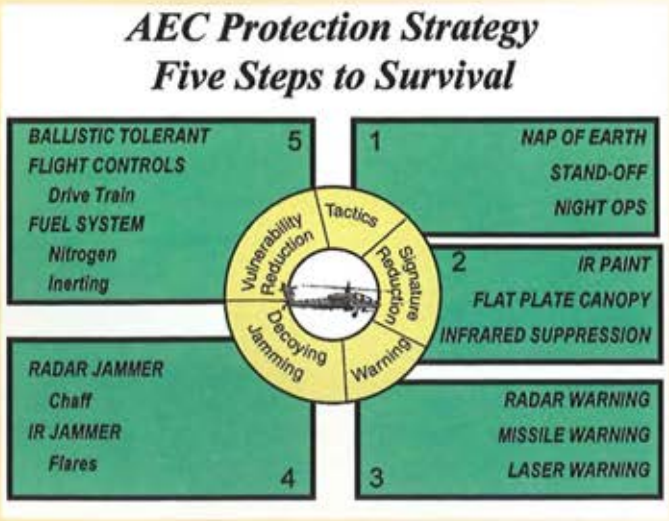
Our ASE mission covers a wide range of potential threat systems, including several categories of infrared (IR) threat missiles (both surface-to-air and air-to-air), radar guided weapons (surface-to-air and air-to-air) and the ever-increasing number of sophisticated electro-optical/laser guided weapons emerging on the battlefield. The proliferation of optically guided weapons from small arms to main battle tank guns is a threat for which aviators must also plan and with which they must contend.

Unfortunately, no single piece of ASE can yet defeat all of these threat weapon systems. We attempt to counter them by combining tactics with aircraft design, augmented with the most affordable and capable ASE suite.

First, we attempt to use the synergism of tactics, nap-of-the-earth (NOE) flight and night operations to reduce detection and susceptibility to threats. Second, we attempt to reduce aircraft detectability by using signature-reduction techniques such as applying IR paint, modifying the aircrafts' radar cross section and installing IR-suppression kits. Third, in order to provide the pilot with necessary information to employ appropriate tactics, the flight crew has on-board warning systems (such as radar warning and laser warning) which are designed to help identify hostile threat systems.

The next layer of defense involves active countermeasures, which are designed to defeat or counter enemy threat systems. These countermeasures may involve deploying decoys or jamming the threat systems — whether radar or IR. Finally, to account for those weapons that can manage to make it through each of these layers of defense, some level of reduction in vulnerability is integrated into the aircraft design in the form of armor protection, ballistically tolerant components, "run dry" transmissions and/or system redundancy.

This synergistic approach to ASE is critical in ensuring the suite is not only mission effective, but that it is also affordable. Tactics may be implemented as an inexpensive solution, but the cost for each subsequent layer of protection becomes increasingly more expensive. Aircraft design changes intended to reduce aircraft vulnerability are not only expensive, they may also be costly in terms of aircraft weight and/or aircraft performance. We are continually evaluating our protection strategy to ensure we optimize aircraft survivability while producing the most mission-capable and cost-effective solution.



Aircraft Survivability Equipment Trainers (ASET)

Maintaining pilot ASE proficiency in the past has been very difficult. However, with the development of our Aircraft Survivability Equipment Trainers (ASET) pilots now have more opportunities to remain proficient. Our ASE training strategy involves a number of

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training devices designed to address training requirements from desktop units (ASET II), to individual flight training, to collective field training through the use of such actual threat simulator emitters as the ASET IV.

SET IV consists of six threat-emitter simulators mounted on 10,000 pound High Mobility Multi-Purpose Wheeled Vehicles (HMMWVs). The system is intended to simulate potential enemy air defense systems, both IR and radar.

The system consists of a command-and-control vehicle; one radar-directed, surface-to-air missile simulator; two radar-directed gun simulators; and two vehicle-mounted IR missile simulators. In addition to these six vehicles, there are also six man-portable IR surface-to-air (SAM) simulators that form the air defense simulator team. At the National Training Center (NTC), Joint Readiness Training Center (JRTC) and Combined Training Center (CTC) the ASET IV forms the heart of the training system, providing direction and guidance to the other threat simulators during a tactical training exercise.

During training exercises the ASET IV is capable of simulating a radar-directed, surface-to-air missile system, which includes the equipment necessary to initiate aircraft-mounted radar-warning and radar-jamming systems. ASET IV contains a simulator for missile firings, and each of the ASET IV systems includes MILES/AGES laser-engagement systems to allow interactive training and recording/scoring of engagement.

Unfortunately, ASET IV training today only occurs at sites such as NTC, JRTC and CTC. However, we are currently working the funding/sustainment issues to ensure ASET IV systems are available for training at Fort Hood, Texas, Fort Campbell, Ky., and Fort Bragg, N.C. We anticipate these posts will soon have the capability to train flight crews at their home stations prior to deployments, NTC rotations or training exercises.

Why More ASE?

Providing protection to Army aviation platforms mandates that we stay one step ahead of the ever-changing threat.

However, many of the electronic systems on today's aircraft were designed to cover the threats common from the 1960s into the early 1980s. These older systems are not only reaching the end of their useful lives, the operating and support (O&S) costs are increasing while system readiness is decreasing. To ensure our forces have the most capable and cost effective ASE suite we are therefore continually evaluating our older systems to determine if they should be upgraded, eliminated or replaced with newer and more capable systems. One of the critical systems required for protecting the force is the Suite of Integrated Radio Frequency Countermeasures (SIRFC) *[which is addressed in the accompanying article by Maj. Robert Schulz].*

ASE Evolution

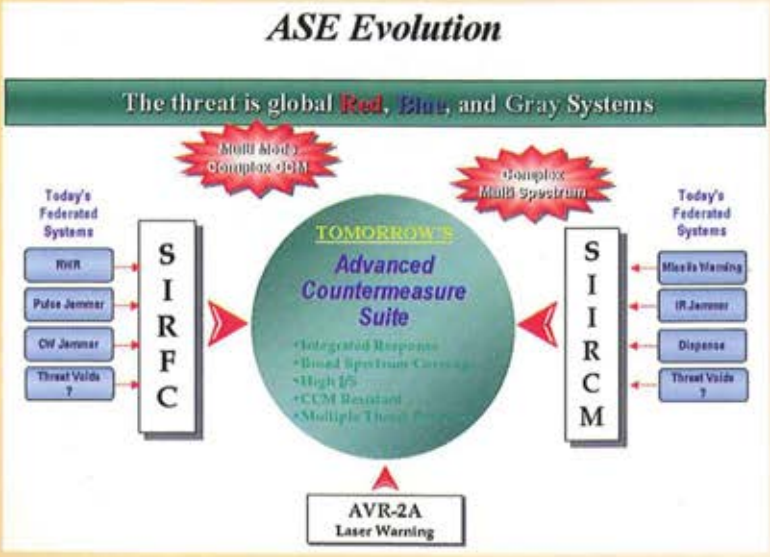
Changing threat environments require countermeasures for a mix of threat systems, which are much more effective and capable than our current ASE suites. In an effort to provide this improved protection, we not only have to be concerned about the increasing capability of the threat, we must be concerned about the very limited space, weight and power constraints of the aircraft.

Our approach is to develop integrated countermeasure suites that combine the functions of radar warning, radar jamming, missile warning and IR jamming into a single, integrated unit. The overall result will be a much more capable countermeasure suite, which has a reduced space, weight and power requirement. SIRFC will provide Army aviation with an integrated ASE suite that is capable of defeating any current or projected enemy RF threat by providing superior warning and jamming capability. We work closely with PM ATIRCM to ensure the Suite of Integrated Infrared Countermeasures (SIIRCM) and Common Missile Warning System (CMWS) are capable of being fully integrated with the SIRFC system. This integrated ASE suite will provide a quantum leap in capability, as well as superior protection against projected threats.

Avionics

"Protecting the Force" not only requires a state-of-the-art ASE suite, it also requires a state-of-the-art avionics suite. Our avionics programs are progressing rapidly toward the First Digitized Division (FDD). We have developed and are fielding precision navigation systems that take advantage of the Global Positioning System (GPS). How-ever, our efforts in the area of GPS are be-coming much more challenging. We are planning up-grades while at the same time we are actively involved in the Joint Precision Approach and Landing System (JPALS), the Global Air Traffic Management (GATM) system and the Navigational Warfare (NAVWAR) program. These programs will significantly enhance our ability to achieve precision navigation worldwide.

The Aviation Mission Planning System (AMPS), the Improved Data Modem (IDM), the Army Airborne Command and Control System (A2C2S) the AN/ ARC-220 High Frequency Radio .and the Joint Tactical Radio System (JTRS) are all key digitization systems for the Army. These programs lay the foundation for Army aviation's entries to



Force XXI and the Army After Next (AAN) *[see the accompanying articles by Maj. Patrick Burden and Lt. Col. Corwyn Tiede for more detail on these programs]*. Information will be collected, processed and distributed in real time across the battlefield. This unprecedented capability will significantly enhance our warfighting capabilities. We intend to have these systems available for the Army's First Digitized Division/ Digitized Corps between fiscal years 2000 and 2004.

Life-Cycle Cost Management

We are beginning to evaluate all of our existing electronic systems from the bottom up to determine their readiness rates, mission capability and costs of operation. This Life-Cycle Cost Management (LCCM) initiative will provide us with the data needed to develop a plan to upgrade, modify or eliminate systems from the Army inventory. The LCCM will be a continual process with an initial emphasis on data from the field. These critical data will be used to identify high O&S cost drivers in the field. Once the high cost drivers are identified a strategy may be implemented to replace high-cost components with such lower-cost solutions as commercial circuit cards versus military specification cards.

If the LCCM is successful we will be able to significantly improve unit readiness, reduce O&S costs, modernize systems through concepts such as Modernization Through Spares (MTS) and eliminate equipment which has reached the end of its useful life. The LCCM process will also allow us to make smart business decisions on where and when we should make investments in upgrading or removing systems from the inventory.

Summary

Electronics are becoming more and more crucial in "Protecting the Force." Equipped with state-of-the-art electronics, the divisions of the future will have the ability to shoot, move and communicate at speeds and a level of lethality never before experienced. Commanders at all levels will have the accurate and real-time information they need in order to make critical decisions — information that is imperative for success.

"Protecting the Force" for Army aviation requires an electronics suite which is fully digitized, provides precision navigation, secure real-time digital and voice communications and on-board ASE systems capable of defeating any threat on the battlefield. The information age is upon us and as we move into the future PM AEC is laying the electronic combat foundation for "Protect-ing the Force" today and tomorrow.

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Mr. Larry D. Johnston and Lt. Col. Larry A. Carpenter are, respectively, the Project Manager and Deputy Project Manager, Aviation Electronic Combat, at Redstone Arsenal, Ala.

Force Protection & Avionics

Lt. Col. Corwyn B. Tiede

We normally do not associate avionics — the electronic hardware and software that collectively enables aircrews to navigate, communicate, pilot the aircraft and maintain situational awareness — directly with force protection. However, avionics is a major contributor to force protection by allowing aircrews to:

- Know their position on the battlefield.
- Know the enemy's position on the battlefield.
- Communicate this information to others in order to avoid danger or bring firepower to bear.

Additionally, the designers and developers of avionics equipment give much consideration to those attributes that do, in fact, contribute to aircraft and aircrew survivability. Speed, security, accuracy and robustness are always high on the user's priority list for an effective avionics suite.

Faster and more secure communication, such as that achieved through digital-burst transmission, reduces transmit time and exposure to enemy position-locating devices. Faster transmission rates and higher bandwidths allow increasingly larger quantities of information to be put "through the pipe." Aircrews use this abundance of information to optimize mission execution while minimizing exposure to threats. Highly accurate position-locating data, such as that provided by the Global Positioning System (GPS), directly improve situational awareness, reduce the risk of fratricide, and reduce the incidence of inadvertent incursion into dangerous airspace. Robust avionics systems fail infrequently, in spite of harsh operating environments. Collectively, these attributes make avionics a major contributor to force protection.

The Department of the Army and the Program Executive Officer, Aviation, chartered the Project Manager for Aviation Electronic Combat (PM AEC) to provide common items of avionics across all modernized Army platforms. These avionics products promote force protection by providing the requisite situational awareness and command and control (C2) noted above. Each contributes to force protection by either helping aviators know where they are (e.g., GPS), helping them to know where the enemy is (e.g., Improved Data Modem and Aviation Mission Planning System), or helping to communicate this information to others (e.g., AN/ARC-220 Radio and Improved Data Modem).

Global Positioning System

PM AEC is executing two GPS programs — the Doppler GPS Navigation System (DGNS) and the Embedded GPS-Inertial (EGI) system. DGNS is a Doppler navigation system with a GPS module embedded in the Systems Display Controller (SDC). It is used in the UH-60A/L Black Hawk and CH-47D Chinook helicopters. The DGNS is integrated with the flight instruments, provides precise location (with 16m accuracy) and can hold up to 100 pre-programmed waypoints. It can operate in pure-Doppler, GPS-only or mixed-navigation modes.

The EGI is found in the AH-64A/D, OH-58D, MH-60K/L and MH-47D/E helicopters. It is compatible with a 1553 data bus, and has a Mean Time Between Failure (MTBF) of 6,500 hours. EGI provides precise location (with 16m accuracy) and velocity (INS - .8M/S). It provides universal timing, and is integrated with on-board systems to facilitate target acquisition and situational awareness.

Improved Data Modem (IDM)

The IDM is Army aviation's link to the tactical internet. In its current configuration, IDM allows for transmission and receipt of digital messages over SINCGARS and

Havequick radios in either Air Force Applications Program Development System (AFAPDS) or TACFIRE formats. The speed of transmission (up to 400 kilobytes per second) allows for a greater volume of information exchange while minimizing "on-the-air" time. An IDM pre-planned product improvement (P3I) will incorporate the Army's Embedded Battle Command (EBC) system and allow for digital message flow in Joint Variable Message Formats (JVMF).

Aviation Mission Planning System (AMPS)

AMPS is the common mission planner and data loader for Army aviation. AMPS connects to the Army Tactical Command and Control System (ATCCS) and allows aviation mission planners to download both friendly and enemy situation information needed to plan missions. It also initializes the aircraft's navigation, communications and weapon systems. The AMPS displays map data on the Lightweight Computer Unit (LCU) screen and enables planners to develop routes and control measures. AMPS can generate 3D computer images of the terrain using Digital Terrain Elevation Data (DTED) and the digital map, and pilots can use these images to facilitate mission rehearsals by "stepping through" the mission at 200-meter intervals. A key feature of the AMPS is its ability to graphically portray "threat domes" based on the reported locations of threat weapon systems. This helps planners and pilots select routes that minimize exposure to threat systems. Future versions of AMPS will allow pilots to fly simulated missions in real-time.

AN/ARC-220 High Frequency Radio

The AN/ARC-220 High Frequency (HF) radio will allow Army aviators to communicate while operating at nap-of-the-Earth (NOE) altitudes, and at ranges beyond the capability of tactical UHF and VHF radios (up to 300 kilometers). The ability to communicate while flying NOE reduces susceptibility to enemy detection and target acquisition and increases the likelihood of mission success. The AN/ARC-220 incorporates Automatic Link Establishment (ALE), an Electronic Counter-Countermeasure (ECCM) feature, pilot-directed position reporting and a limited data transmit/receive capability. The AN/ARC-220 HF began fielding late in fiscal year 1998.

In summary, avionics do contribute to force protection, if only indirectly. By providing detailed situational awareness, robust C2, rapid and secure communications, accurate position reporting and a high rate of availability, avionics systems reduce aircraft susceptibility to threat detection and acquisition. PM AEC continues to ensure that fielded and future avionics systems provide the capabilities needed to help protect our forces.

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SLOW & LOW No Longer Works!

By Maj. Robert R. Schulz

Each year the Project Manager for Aviation Electronic Combat (PM AEC) sponsors an update in ARMY AVIATION on the status of each project within its mission area for warfighters in the field. The AN/ALQ-211 (also known as the Suite of Integrated Radio Frequency Countermeasures, or SIRFC) is the state-of-the-art project for radio frequency (RF) electronic countermeasures not just for the Army, but for the entire Department of Defense. In addition to providing a project update, this article will address the current capabilities and impacts on operational aviation units.

Figure 1. AN/ALQ-211 Suite of Integrated Radio Frequency Countermeasures (SIRFC)

The ALQ-211 is a suite of integrated capabilities focusing on RF/radar air-defense threats. It contains a radar warning receiver (RWR) capability, a radar-jamming capability and a capability to fuse information from multiple electronic sensors on the aircraft. For both the warning and jamming capabilities, the ALQ-211 can process pulse, pulse Doppler (PD) and continuous wave (CW) signals. This combination of capabilities is unique.

Last year at this time the ALQ-211 had funding in the Army Program Objective Memorandum (POM) for procurement of several hundred systems. Due to extremely constrained resources, ALQ-211 funding in this year's Army POM is limited to 56 systems destined for Army special operations aircraft. While procurement funding has dropped considerably, the requirements appear to be increasing. The current Operational Requirements Document (ORD) for the ALQ-211 requires nearly 1,000 systems for all AH-64, MH-47 and MH-60 aircraft, and for certain UH-60 and CH-47 aircraft. However, the U.S. Army Aviation Center has forwarded a revised ORD to U.S. Army Training and Doctrine Command headquarters for approval requiring over 3,000 systems for virtually every aircraft in the inventory.

Why are the requirements increasing while the funding in the POM is decreasing? Answering this question requires a quick update on threat air defense systems and legacy aircraft survivability equipment (ASE) in the field today. Unfortunately, whenever discussing specific system capabilities and deficiencies, the status becomes classified. This secrecy masks potentially deadly deficiencies and creates an environment for a false sense of comfort and security.

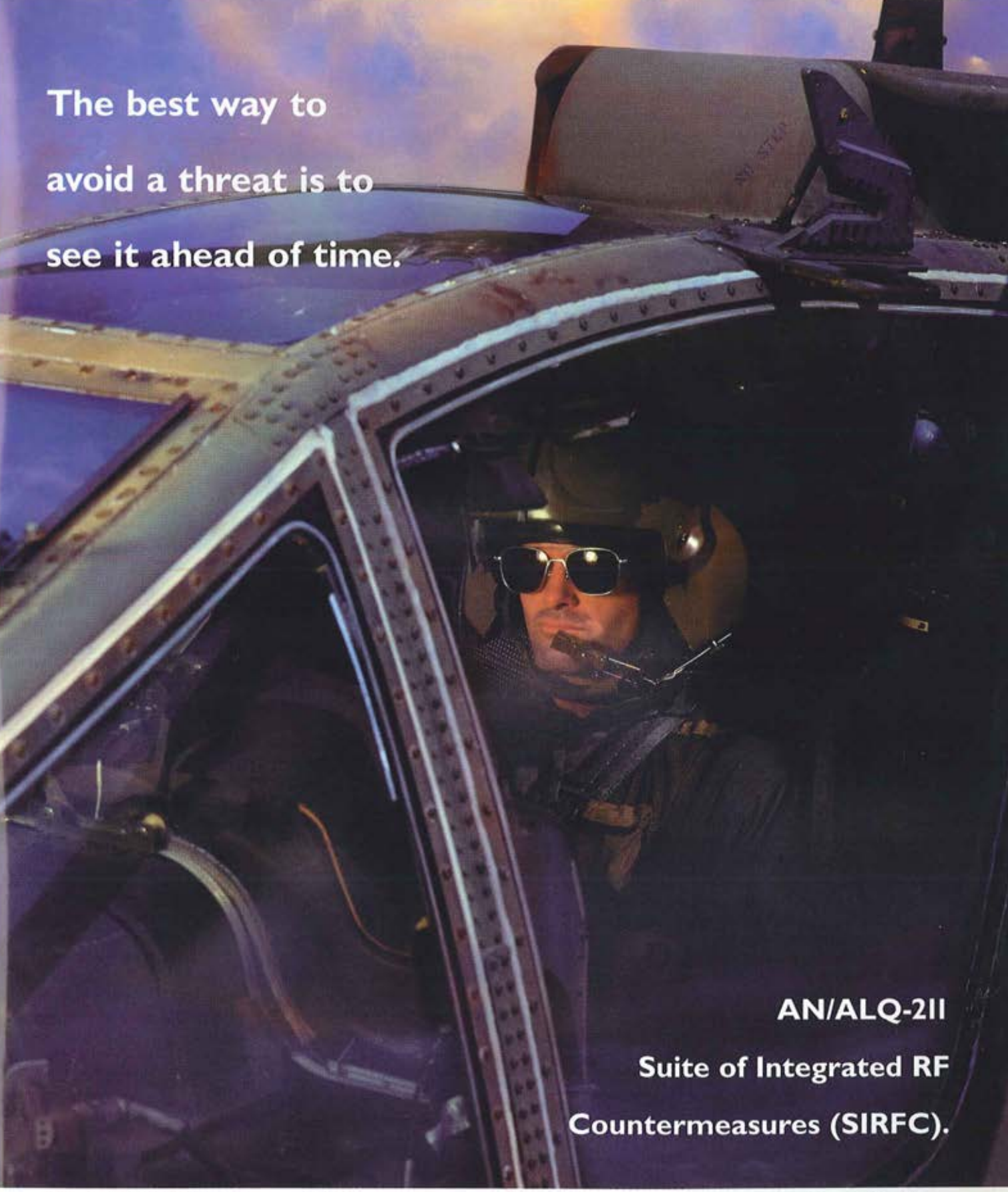
When the Army developed the currently fielded ASE in the 1970s and 1980s threat air defense systems were very rudimentary and had limited capabilities. Fielded ASE is still effective against the older threats that it was designed to detect and jam and which have proliferated worldwide.

However, nations everywhere are now leveraging the explosive growth in technologies such as pulse Doppler (PD), millimeter wave (MMW), fully active RF guidance, command, control and communications (C3) technology and multi-spectral technology, all of which have greatly improved the ability of air defense systems to find and destroy aircraft. Each of these improved technologies has a particular application against helicopters. Combining these improvements, newer threat air-defense systems are much more sophisticated, more deadly and more common than ever before.

Engineers often refer to the technologies highlighted above without stating the operational impact on warfighters. Older ASE systems such as the APR-39 RWR and the ALQ-136 RF jammer use pulse waveforms to perform their functions. Pulse waveforms work well against moving targets, but not as well against stationary targets. When helicopters hover over the ground, pulse-based air-defense systems are less effective. Pulse Doppler (PD) technology takes advantage of the spinning rotor of a helicopter to aid the air defense system in its mission, even when the helicopter is stationary.

Another defensive tactic for helicopters is nap-of-the-earth (NOE) flight. This tactic made the job of air-defense systems more difficult because the radar reflections from trees and ground clutter became mixed with the radar reflections from the low-flying aircraft. However, millimeter-wave (MMW) technology allows air defenders to separate aircraft from the ground clutter. In other words, the old tactic of "go slow and low" is no longer as effective a defense for helicopters as it used to be.

Fully active RF guided missile technology eliminates another standard helicopter defensive measure, that of hiding behind structures or topographic features. Older RF air-defense systems use "RF command guidance," which



With the ALQ-211 Suite of Integrated RF Countermeasures, you're ready for the demands of the modern battlefield. SIRFC provides the accurate threat warning information and robust countermeasures capabilities you need, and can rely on. It identifies radar detection and threat lethality envelopes. SIRFC also fuses its data with other sensors to give you a complete picture of air defense threats on the battlefield — total situational awareness. With SIRFC, you can fly with confidence in your ability to evade or defeat enemy threats, stay focused on your critical mission ... and get home safely.

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requires an operator at a terminal to track the anti-aircraft missile during flight. The command vehicle uses radar to send guidance signals to the missile while in flight to guide it to the target. Because electromagnetic signals are line-of-sight, the command vehicle loses control of the missile when it flies behind a hill where the signal can not follow it.

However, fully active RF guided missiles — such as the AH-64D Longbow Apache's RF Hellfire — carry their own radar. At launch, a fully active RF guided missile is programmed with the location of the target. While in flight the missile uses its on-board radar to search for the target. As it gets closer, the missile radar tightens its search envelope and kills the target. Air defenders can thus launch a fully active RF guided missile in the general direction of a "hiding" helicopter and, once the missile crests the hilltop or other obstacle, the on-board radar will look down and home onto the masked helicopter. This capability seriously weakens the old defensive tactics of helicopters.

Technological advances — particularly in command, control and communications (C3) technology - have also altered the way in which we suppress enemy air defenses. In the past, each part of an RF air-defense system's operation — search, acquisition, targeting and launch — was vulnerable to countering or defeat by the aircraft because the air-defense system actively radiated.

Knowing that aircraft targeted close-battle air defense systems, however, armies developed C3 systems whereby the killer systems do not radiate until they are ready to launch. By then, it's too late to suppress the air-defense

Many operational aviators believe that the ALQ-136 RF jammer shrouds helicopters with a protective cloak. This could not be further from the truth.

threat. Armies employ C3 systems that can acquire incoming aircraft at great ranges, then forward the targeting data to forward (non-radiating) air defense units which can engage the incoming aircraft with no warning at all.

In the past, arms developers produced air-defense systems that used only one portion of the electromagnetic spectrum — RF/radar, infrared (IR) or electro-optical/laser (EO) — to search, acquire, track and launch on incoming aircraft. Newer air defense systems use multiple portions of the spectrum to find and destroy aircraft. If an aircraft has only an ability to protect against and jam IR threat systems, for example, the threat air-defense system will use its alternate RF capability to find and destroy the aircraft. This is known as multi-spectral technology. Having a federated approach to survivability is extremely high risk. Protecting aircraft in a single spectrum is no longer sufficient.

In general terms, the legacy ASE systems in the field today do not protect Army aircraft from the sophisticated evolving threat. Many operational aviators believe that the ALQ-136 RF jammer shrouds helicopters with a protective cloak. This could not be further from the truth. I challenge each aviator today to check with their intelligence officers on the threat capabilities in their region of the world. Ask questions like "what does the ALQ-136 effectively jam?" and "what are the helicopter's vulnerabilities to specific threats?"

Figure 3. 2S6 Air Defense System

Figure 2. Giraffe C3 Radar

In the past the primary focus was on the ubiquitous IR man-portable air defense (MANPAD systems because they could be shoulder-fired from anywhere. Old RF air-defense systems were large, heavy and generally targeted against fixed-wing aircraft. Cheap computer chip technology has changed all of these beliefs. Programs today are mounting the AMRAAM fully active RF guided missile (used on F-14/F-18 aircraft) on small vehicles. With such developments, the RF MANPAD is no longer just a dream. As helicopters have become increasingly effective, non-friendly nations are rapidly developing technologies to defeat them. Army aviation must look to the future and not to the past.

Clearly, the requirements for a state-of-the-art RF jammer are increasing because of the extreme enhancements to RF threat air-defense systems all helicopters will face. Yet funding for such a jammer is decreasing because the Army must prioritize its constrained resources. Warfighters have placed a lower priority on ASE to protect against RF air defense threats. As an aviation community, we must place an appropriate priority on our ASE for future survivability. Only if field aviators and field commanders speak out will the priority on ASE increase. We cannot continue to focus on ASE only when we get alerted for deployment. The survivability and success of our community will depend on state-of-the-art ASE.

Given the changed priority and funding, PM AEC has restructured the ALQ-211 project; it is continuing in engineering, manufacturing and development (EMD). Though there is no funding in the POM for procurement of the ALQ-211 for the AH-64, Longbow Apache aircraft number 5 will serve as the Army test vehicle until the completion of the Independent Operational Test & Evaluation (IOT&E) in April 2000. The project achieved a major milestone on Aug. 14, when the first Army EMD system shipped to the Boeing Longbow Apache facility in Mesa, Ariz. The initial acceptance test procedure was highly successful as a result of a detailed testing and building process. A partial delivery for the ALQ-211 has been at the Apache facility since April undergoing tests in the Aircraft Integration Laboratory (AIL).

During the next year the ALQ-211 will undergo a series of qualification tests and evaluations. While the testing is underway PM AEC will kick off a new effort to design and integrate the system into a MH-47E aircraft for the 160th Special Operations Aviation Regiment. The integration into a MH-47E aircraft will result in an initial procurement of systems in FY 2001.

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SYSTEM	Current Army RWR	Radar Interferometer	AN/ALQ-211 (SIRFC)
	YELLOW	GREEN	GREEN
	GREEN	GREEN	GREEN
	YELLOW	GREEN	GREEN
	YELLOW	RED	GREEN
	YELLOW	GREEN	GREEN
	YELLOW	GREEN	GREEN
	RED	GREEN	GREEN
	YELLOW	GREEN	GREEN
	YELLOW	RED	GREEN
	YELLOW	RED	GREEN
	RED	RED	GREEN

Figure 4. Radar Warning Comparison

SYSTEM	Current Pulse Radar Jammer	Current Pulse Radar Jammer	Current CW Radar Jammer	ALQ-211 (SIRFC)	ALQ-211 (SIRFC) (GROWTH)
	RED	RED	RED	RED	GREEN
	GREEN	GREEN	RED	GREEN	GREEN
	YELLOW	YELLOW	RED	GREEN	GREEN
	RED	RED	RED	YELLOW	GREEN
	YELLOW	RED	GREEN	GREEN	GREEN
	YELLOW	RED	RED	GREEN	GREEN
	RED	RED	YELLOW	GREEN	GREEN
	RED	RED	RED	GREEN	GREEN
	YELLOW	YELLOW	RED	GREEN	GREEN
	RED	RED	RED	RED	GREEN
	RED	RED	YELLOW	GREEN	GREEN

Figure 5. Radar Jamming Comparison

bility, more organizations continue to pursue it as the preferred choice. The U.S. Air Force Special Operations Command will install the ALQ-211 as the electronic warfare (EW) suite controller for all of its CV-22 Ospreys. If funding becomes available, the V-22 PM has indicated his desire to add the ALQ-211 to the Marine Corps version of the Osprey as well. The Marine Corps is planning to install the ALQ-211 in its upgraded UH-1Ns and AH-1Zs scheduled to begin in FY 2002. Although there is currently not a requirement for electronic countermeasures on the RAH-66 Comanche, the Boeing Sikorsky team has expressed strong interest in the radar-warning portion of the ALQ-211. The ALQ-211 continues to be the Preferred System Concept (PSC) for the U-2 aircraft. Information exchange for the ALQ-211 on the C-17 is also occurring. The potential for the ALQ-211 is significant.

Why all the interest in the ALQ-211, and why is the system so important? It is the only state-of-the-art RF jammer in development today. The ALQ-211 is re-programmable and is designed from scratch for the world's new RF threats. The status quo leaves aviation unprotected and vulnerable in the next conflict. Waiting until the threat is looking an aviator in the eyes is too late to procure and field a capability.

[If you have questions or would like to hear more about the ALQ-211 project and its capabilities, please contact the ALQ-211 team at alq211@peoavn.redstone. army.mil.]

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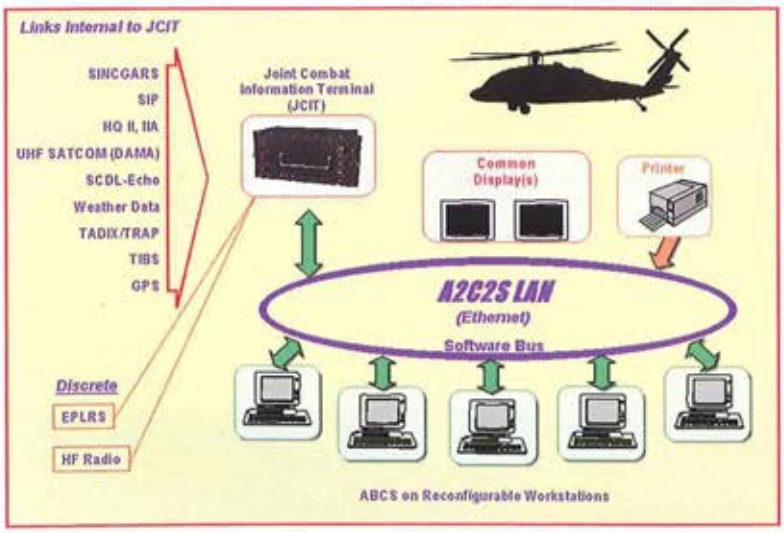
A2C2S - A Key Ingredient in Force Protection

By Maj. Patrick Burden

Force protection necessitates that commanders continuously analyze changing situations and communicate new orders to their forces, thereby successfully completing the mission while avoiding or countering threats. The Army Airborne Command and Control System (A2C2S) integrates the Army Battle Command System (ABCS) applications, tactical radios and information networks to become a powerful force-protection tool when installed in an airborne platform.

Background and Capabilities

The A2C2S is a helicopter (UH-60) based command and control (C2) mission-equipment package which will serve as a corps, division, maneuver brigade or attack helicopter battalion commander's airborne tactical command post (TACCP). The system provides situational awareness, which fosters a commander's common view of the battlefield. It also includes voice and data equipment that provides battlefield information processing and connectivity equivalent to the ground TACCP and the battle command vehicle (BCV). This ability enables the warfighter to exercise "on the move" control of assigned and attached elements and to coordinate with adjacent, supported and supporting forces. During stability augmentation and support operations (SASO), the system will provide connectivity to embassy, law enforcement, maritime, civil and/or other humanitarian information and communication networks.



Mandate for A2C2S

If Army communication systems provided every commander with the ultimate connectivity to his forces, he would be able to remain in his TACCP and run the battle from his suite of computers, networks and radios. In practice, though, even with highly advanced communication systems and networking Army systems are still short of this goal.

As the distance between the commander and his forces increases, the throughput, quality and versatility of his communications systems diminish. This is exacerbated by the fact that an Army division must now control a much larger area than before, and therefore requires communications over increased distances. The solution is simple: Permit the commander to operate within the limits of today's communications systems by moving with and among his forces.

Past combat encounters have revealed the necessity of having seamless sensor-to-shooter connectivity within a maneuverable, airborne C2 system. The A2C2S performs this function by providing the commander unprecedented range and mobility without sacrificing his access to situa-

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tional awareness or his ability to direct, coordinate and control operations. The A2C2S provides the commander with a viable, highly maneuverable TACCP that allows the corps commander to fight the deep battle and the division commander to fight the close battle.

Role in Force Protection

Mission requirements of A2C2S are to provide connectivity to a variety of broadcast intelligence links, sensor feeds and tactical reports which will provide the commander and his staff with the data necessary to support mission planning and situation assessment. Force protection requires accessibility to critical information, the use of analytical tools to process and display that information, and communication of new orders and situations to the forces. A2C2S supports these through the following communications and analysis capabilities:

- Full participation in the tactical internet via Force XXI Battle Command Brigade and Below (FBCB2) workstation, Enhanced Position Location Reporting System (EPLRS) and Single Channel Ground and Airborne Radio System (SINCGARS).
- Suite of the Army Tactical Command and Control System (ATTCS) applications, including Maneuver Control System (MCS), Advanced Field Artillery Tactical Data System (AFATDS) and All Source Analysis System (ASAS).
- A2C2S ATCCS workstations synchronized with the TACCP and TOC using the Near Term Data Radio (NTDR).
- Reception and display of Joint Surveillance Target Attack Radar System (JSTARS) Moving Target Indicator (MTI) data.
- Reception and display of direct-broadcast intel from a Multipurpose Advanced Tactical Terminal (MATT)-equivalent communication device.
- Processing and displaying all information using five reconfigurable workstations and two large-screen common displays.
- Up and down echelon voice connectivity using combat net radios, Have Quick II (HQII) and SINCGARS.
- Non-Line-of Sight (NLOS) communications, Satellite Communications-Demand Assigned Multiple Access (SATCOM-DAMA) and high frequency (HF) radio.

Before an A2C2S mission, all information that is critical to the execution of the mission is transferred from the TACCP to the A2C2S. This permits the commander and his staff to enter the A2C2S and see the same information on the workstation displays as was available in the TACCP. During the mission, the commander and his staff use the A2C2S to execute plans, monitor changes to the situation and disseminate information to his forces.

During the close battle the commander and staff provide force protection by keeping abreast of the friendly and enemy situation in the

battle area using FBCB2/tactical internet. The situation awareness provided by this system enables the A2C2S staff to redirect forces out of harm's way or counter threats as the situation changes. Since the A2C2S is moving with the forces, the battle staff can communicate threat status and mission changes using SINCGARS.

The AFATDS allows the commander and his staff to execute fire plans, obtain status of artillery assets and/or initiate calls for artillery fire. Also during the close battle, the NTDR may be used to exchange and update additional planning information with the ground TACCP and TOCs. This ensures that all C2 entities share the same "common picture."

During the deep battle forces could possibly lose digital connectivity via the NTDR, EPLRS and SINCGARS radios. The A2C2S can still provide force protection in this environment by maintaining situational awareness through NLOS links. The commander will use SATCOM-DAMA and HF links to maintain connectivity to the ground TACCP and TOCs, and combat net radios to maintain connectivity with his forces. Intel information from direct-broadcast links may be used to maintain situational awareness of the enemy.

Conclusion

Commanders rely on a variety of functions in executing operations as well as in building and sustaining combat power. These functions, known as battlefield operating systems (BOSs), are needed in synchronizing forces and effects on the battlefield. A2C2S successfully provides commanders the BOSs that are necessary to maintain situational awareness in a variety of environments, whether close battle, deep strike or SASO. All of this in a fast-moving platform that maintains connectivity to the forces by moving with them. This capability makes A2C2S a key ingredient in force protection.

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Defending the Aviation Force in the 21st Century

By Dr. Steven L. Messervy

The Project Manager for the Advanced Threat Infrared Countermeasures System/ Common Missile Warning System (ATIRCM/CMWS), under the direction of the U.S. Army Program Executive Officer-Aviation, is among a small number of Department of Defense (DOD) organizations now at various stages of developing countermeasures to the single most extensively deployed threat to aviation today, the short range surface-to-air guided missile. The goal is to acquire for joint commanders the effective means to defeat current and future threats to the aviation force and ensure mission success.

The Mission

The end of the Cold War and the downsizing of superpower forces have blurred the rules that once governed arms control and the proliferation of such sensitive weapons as man-portable anti-aircraft missiles. Today, more than 20 nations are known to produce shoulder-fired infrared (IR) homing weapons capable of effective engagements up to 10 kilometers from launch sites. Virtually every nation in the world today possesses or can easily acquire on international arms markets a variety of electro-optic (EO)/IR surface-to-air missiles (SAMs).

Between 1975 and 1985, 90 percent of air combat losses suffered by nations all over the globe were attributable to IR-seeking air-to-air and surface-to-air missiles, according to a 1988 article in Aviation Week & Space Technology magazine. During the Soviet experience in Afghanistan, 269 (or 79 percent) of the 340 Stinger missiles fired by the Mujahideen resulted in aircraft kills. The sophistication and proliferation of these missiles have increased significantly since these observations were made. Today the weapons are believed to be in the hands of even smaller, Third-World countries and terrorist organizations. The threat to aviation assets of every type, from major powers to terrorists and low-intensity conflict freedom fighters worldwide, has never been greater.

The System

The Army is leading a tri-service development program to enhance aircraft and ground vehicle survivability against the growing worldwide threat of IR and radio frequency (RF) guided missiles. The program, now in advanced Engineering and Manufacturing Development (EMD), is known as the AN/ALQ-212 Advanced Threat Infrared Countermeasures (ATIRCM) system, which includes as a component the AN/AAR-57 Common Missile Warning System (CMWS). The systems together provide automatic, passive missile detection, threat-type declaration, crew warning, false-alarm suppression and cues to other on-board systems such as dispensers for countermeasure decoys. For the Army only, the ATIRCM/CMWS adds active, directional countermeasures via a laser, an arc lamp and an Improved Countermeasures Dispenser (ICMD), and will add the Advanced Threat Radar Jammer (ATRJ), a new-development RF system, to provide an integrated suite of IR and RF self-protection devices.

The ATIRCM/CMWS program will improve existing countermeasures by combining the functions of the missile detector, IR jammer and decoy dispenser to permit more effective countermeasures against a greater number of IR and RF threats. The ATIRCM/CMWS is being built using a modular concept to allow tailoring of the system configuration to each aircraft.

The CMWS component system will detect incoming missiles and, upon declaration of a valid threat, will provide an appropriate command for initiation of on-board expendables. If the component system is installed on Army rotary-wing aircraft, the command would be sent to either the active jammer or countermeasure dispenser. If the system is installed on USAF and USN/USMC tactical aircraft, the command would be sent to the Countermeasures Dispenser System (CMDS). The CMWS, when internally installed on tactical aircraft, will also provide audio and/or visual warning to the aircrew to permit initiation of appropriate defensive maneuvers in conjunction with manual or automatic countermeasures dispensing. Component modularity will also permit product improvement to each subsystem independently of the other, thus allowing for system growth to defeat new types of threats.

The ATIRCM/CMWS consists of six major components:

- Electro-Optic Missile Sensor (EOMS);
- Electronic Control Unit (ECU) (i.e., CMWS Sensor Processor);
- Infrared Jam Head (IRJH);
- Jam Head Control Unit (JHCU) (i.e., Jammer Processor);
- Infrared Jam Laser (IRJL) with articulated arm/optical coupler for

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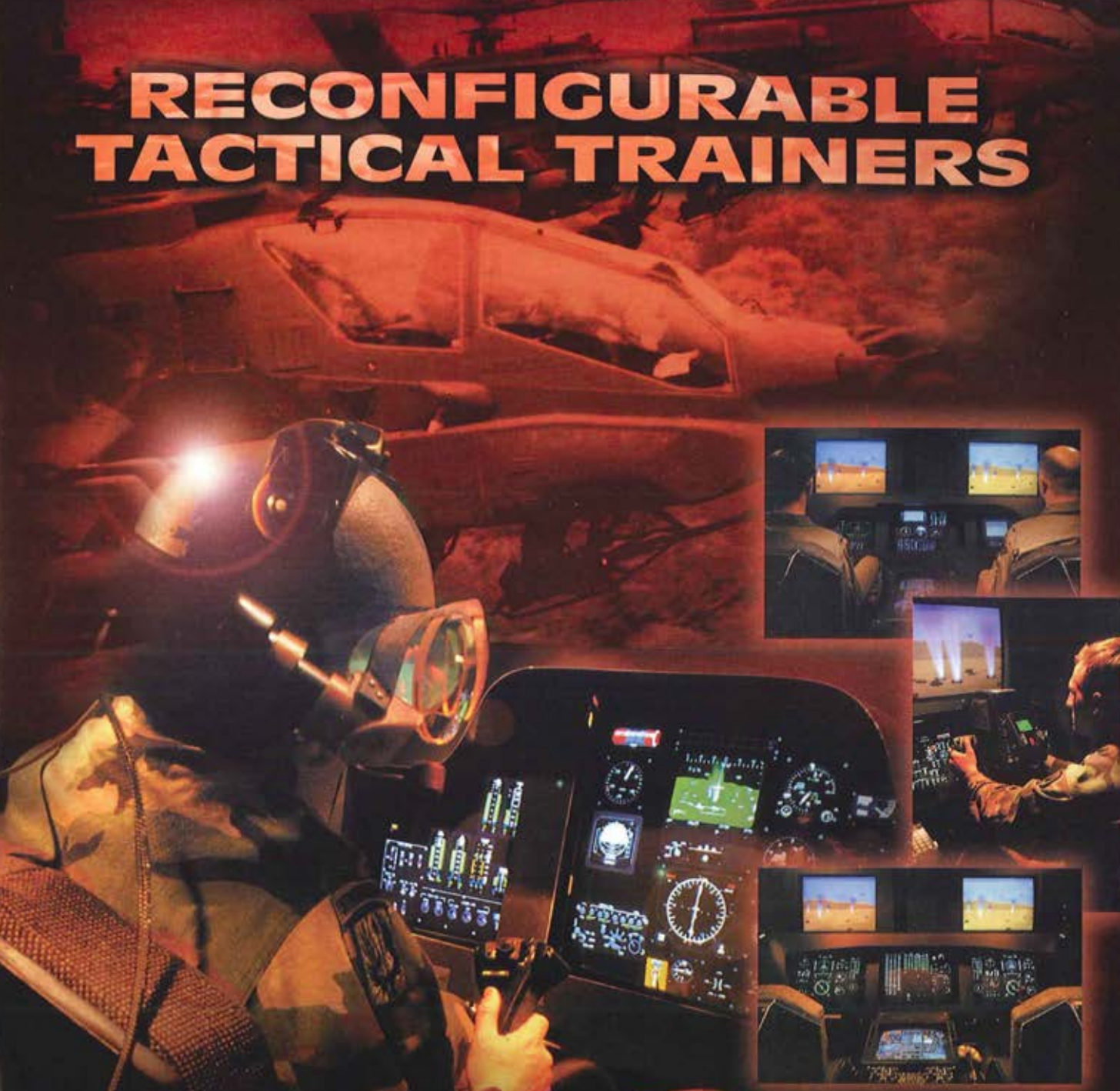

Warrior Training XXI

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AH-64, UH-60 and OH-58 configurations shown

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beam path; and

- Improved Countermeasure Dispenser (ICMD). The ICMD consists of one ALE-47 Sequencer plus two "smart" dispensers capable of automatically sensing the payloads present.

The baseline ATIRCM/CMWS system includes one ECU, four EOMSs, one JHCU, one IRJL, two IRJHs and one ICMD.

The CMWS performs the missile detection, false alarm rejections and missile-declaration functions, and subsequently sends a missile alert signal to on-board avionics and other Aircraft Survivability Equipment (ASE). In turn, visual and aural warnings to the aircrew may be provided by on-board avionics systems. Commands to dispenser systems to eject decoys also provide for expendable countermeasures against the missile.

The CMWS sensors for missile detection, as well as the ECU used to declare the missile as a threat, are common to all Army, Air Force and Navy platforms. On specified Army platforms, the combination of CMWS and ATIRCM/CMWS jamming assets provides: missile detection and threat declaration during rocket motor burn; dispensing of IR/RF expendables and/or hand-off to a gimbaled point-and-track system that continues to track the missile after motor burn out; and the jamming of the missile by modulated IR energy in the missile seeker band, degrading the tracking capability of the missile and causing it to miss the aircraft.

Program Status

In 1995 the Army was developing ATIRCM for its rotary-wing aircraft while the Air Force and the Navy were developing a multi-service capability known as the Advanced Missile Warning (AMW) system to provide missile warning for fixed-wing aircraft.

Realizing that common threat baselines and overlapping performance requirements offered potential areas for cooperation, the office of the undersecretary of defense for acquisition and technology (OUSD/A&T) approved a recommendation from the Service Acquisition Executives (SAE) for a streamlined, joint-program acquisition strategy to develop CMWS as a component system of ATIRCM. ATIRCM/CMWS became an Acquisition Category (ACAT) IC program with the Army Acquisition Executive (AAE) as the Milestone Decision Authority (MDA) in consultation with the other SAEs.

The Project Manager (PM)-ATIRCM/CMWS has overall responsibility for managing the program under the Army Program Executive Officer (PEO) for Aviation, and has established a Joint Project Office (JPO) at Redstone Arsenal, Ala. The effort is supported by the Air Force Program Executive Officer for Fighters and Bombers (AFPEO/FB) and the Navy PEO for Tactical Aircraft (PEO/T). The ATIRCM/CMWS Milestone I/II was conducted in the third quarter of fiscal year 1995 (3QFY95); the contract for ATIRCM/CMWS was awarded in 4QFY95; and Milestone III is planned for 4QFY01.

Ancillary programs of ATIRCM/CMWS [Advanced IR Countermeasures Munitions (AIRCMM)], Obstacle Avoidance System (OASYS) and passive features are ACAT III programs with the Army PEO-Aviation as the Milestone Decision Authority (MDA). The AIRCMM is a new-development set of flare decoys developed to counter existing and advanced IR threats. With its payload identification capability, it will allow for automatic dispensing, time-sequenced routines to counter the advanced threat. PM, ATIRCM/CMWS, has overall responsibility for managing the ancillary programs.

The objective of the ATIRCM/CMWS Engineering and Manufacturing Development (EMD) program phase is to design, fabricate, integrate, test and correct deficiencies in a tactical missile-warning and jammer-and-expendables system tailored for the scheduled platforms. Fifty CMWS and seven ATIRCM/CMWS systems are being built for qualification, integration and testing in service-selected lead aircraft platforms. Full systems will be used for testing. A Low-Rate Initial Production (LRIP) of six ATIRCM units and 15 CMWS units is planned as a ramp-up for full production.

ATIRCM initial installation is planned for the Army's MH-60K. Other planned Army platforms for ATIRCM installation are the MH-47E, AH-64D and E/UH-60 aircraft, and the OH-58D (CMWS and Improved Counter-measures Dispenser only). CMWS initial installation is planned for the Navy AV-8B and Air Force F-16 (Block 40) aircraft. Other candidates for CMWS installation are the Air Force A-10 and the Navy F/A-18E/F.

The Test Program

The first fully-integrated ATIRCM/CMWS development model was demonstrated by the prime contractor, Sanders (a Lockheed Martin Company based in Nashua, N.H.) in April 1998 and Contractor Qualification Testing (CQT) began in July 1998. During CQT, the system is being subjected to a series of tests designed to prove its operation under extreme conditions. Air-vehicle integrations on the EH/MH-60 and AV-8B began earlier in the year. Early next year, still in the EMD phase, developmental tests (DT) will begin, during which laboratory testing and simulation will continue and service lead-aircraft flight testing will be conducted. DT results will be used to generate a System Evaluation Report (SER) as input for the Milestone III production decision.

ATIRCM/CMWS developmental test consists of Production Qualification Test (PQT) (contractor/government) prior to Milestone III and a Production Verification Test (PVT) (contractor/government) prior to materiel release. PQT includes contractor testing and government aircraft integration, as well as sled, captive seeker, aerial cable target and drone testing. Modeling and simulation, using both hardware-in-the-loop and fully digital models, will be used throughout development to minimize risk and reduce testing. PQT is scheduled from 3QFY98 through 1QFY01. The U.S. Army Operational Test and Evaluation Command (USAOPTEC) will provide a system assessment as input to both Milestone III and materiel release. The Air Force's 46th Test Squadron (TS) at Eglin Air Force Base, Fla., and the Naval Air Warfare Center's Aircraft Division will also provide developmental test reports for Milestone III.

DT and multiservice operational test (OT) and evaluation, consisting of combined DT/OT and dedicated OT, will be used to provide a combined SER as input to Milestone III. Combined DT/OT will consist of two parts, the first of which includes all data requirements necessary for the evalua-

tion to support the LRIP decision and second, the production decision.

Tri-service operational test agencies provided Early Operational Assessments (EOA). USAOPTEC provided an EOA reporting on the potential operational effectiveness and suitability of SIIRCM. The Air Force Operational Test and Evaluation Center (AFOTEC) and the Navy's Operational Test and Evaluation Force (OPTEVFOR) also provided EOAs concerning the potential of CMWS to satisfy their operational requirements. As the lead service operational test agency, USAOPTEC integrated the EOAs to provide input to the Milestone I/II decision in June 1995. These EOAs were based on the draft multi-Service Operational Requirements Document.

Two phases of OT are being conducted during the EMD phase to address each service's test and evaluation requirements: a rotary-wing (RW) phase and an fixed-wing (FW) phase. The acquisition strategy requires that a minimum of one RW and one FW platform undergo integration and testing prior to Milestone III.

At the conclusion of the RW phase USAOPTEC will provide an SER. At the conclusion of the FW phase, AFOTEC and OPTEVFOR will prepare separate evaluation reports for their respective aircraft. If testing on either of the lead FW platforms is not complete, the test team will evaluate all ATIRCM/CMWS test data collected to date to determine if enough data exists to support the Milestone III decision. USAOPTEC will combine the three evaluation reports for submission to the office of the secretary of defense (OSD) and for input to the Milestone III decision.

Simulations and Models

The simulation strategy supports the life cycle management and evolution of ATIRCM/CMWS through the simulation of end-to-end engagements of SAM threats against ATIRCM/CMWS-equipped RW and FW aircraft. The near-term focus is the support of developmental and operational testing and Military Worth Studies/Analysis of Alternatives processes that lead to the Milestone III acquisition decision. The mid- to far-term focus is post-production training, combat development and performance

prediction on follow-on platforms.

The scope includes a family of simulations that range from those currently under development to those already developed; from one (missile) versus one (aircraft) to many versus many; from very high fidelity to low fidelity; and from strictly digital, constructive simulations to hardware-in-the-loop (HITL) simulations, as appropriate.

The Joint Project Office is also developing a multiple-projector-capable HITL test facility for CMWS, which requires false-alarm signature, probability of encounter, background signature data, environmental and atmospheric models, and 6 degrees-of-freedom missile and aircraft models. Digital models will be developed for ATIRCM/CMWS and for AIRCMM, and will be used in concert with models of missile flyouts, missile signatures, atmospherics and aircraft signatures to simulate system performance against threat missiles. Verification, Validation and Accreditation (VV&A) is planned for completion prior to Milestone III. The capability to simulate multiple, simultaneous missile engagements is also required.

Production Schedule

EMD quantities currently being procured and delivered, as noted above, consist of a Army, Air Force and Navy/Marine Corps requirement of 57 EMD systems (seven ATIRCM and 50 CMWS), initial spares and repair parts, peculiar test equipment, common support equipment and system integration on designated lead platforms. LRIP is a planned initial buy of six ATIRCM and 15 CMWS systems in FY 2001, with follow-on full rate production starting in FY 2002 after a successful Milestone III decision.

International Participation

Several allied nations have expressed interest in the program and agreements have been signed with the United Kingdom and Australia for research and development cooperation. The objectives of international cooperative efforts are to provide state-of-the-art ASE to our allies and to enhance interoperability on the battlefield of the future. Current contracts with the UK were signed in 1997 and include ASE for the Apache and Replacement Maritime Patrol Aircraft. Other nations interested in acquiring ATIRCM/CMWS systems include Belgium, Denmark, The Netherlands, Norway, Portugal and Turkey.

Summary

ATIRCM/CMWS successfully combines a range of state-of-the-art technologies and leading-edge capabilities into an effective integrated aviation defensive system. Its capabilities are essential to the success of American aviation forces and missions in the 21st century. The potential for loss of aviator lives and equipment to existing missile threats is too great to be discounted or ignored. Preservation of the force commander's freedom of movement — horizontally and vertically — to, from and on the future battlefield is imperative. Aviation-asset survival is essential to the nation's 21st-century warfighting strategy, to fight and win against superior numbers, and to support humanitarian and counter-terrorist operations worldwide.

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Dr. Steven L. Messervy is the Project Manager, ATIRCM/CMWS Joint Project Office, at Redstone Arsenal, Ala.

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Air Warrior: Keeping Pace With Aircraft Development

Maj. Michael Wills

Today's Army aviator flies with outdated, antiquated personal equipment that is not effectively integrated. Today's aviator is burdened with having to make tough choices in what personal equipment to leave behind, permitting exposure to life-threatening hazards. Today's aviator doesn't "train as we fight" because of personal-equipment limitations. Today's aviator dreads the thought of flying in Mission Oriented Protective Posture (MOPP) IV gear.

How do we address these issues? We must provide aviators and crewmembers a suite of personal equipment that ensures total-force protection without mission degradation. We must place the same emphasis on aviator and crewmember personal equipment development as we do with aircraft modernization programs.

And how do we accomplish these goals? Through the Air Warrior program, because it will fill the existing personal equipment gaps. New generation aviator ensembles will be modular, mission configurable, and equipped with advanced life support and ballistic-protection components. Air Warrior will ensure effective integration of new and existing products, allowing aviators to fly unencumbered in a full MOPP environment without degrading aircraft performance.

The Air Warrior Program is currently in the Program Definition and Risk Reduction phase, preparing for a Milestone II decision to enter the Engineering and Manufacturing Development Phase (EMD). Fielding of Air Warrior to Force Packages I, II and III will begin in fiscal year 2002. To date, extraordinary efforts have been made to define the Air Warrior concept and its physical make-up. During concept development the strategy has been to leverage from existing programs, use commercial off-the-shelf (COTS) and government off-the-shelf (GOTS) items where feasible, and to demonstrate through modeling and simulation incremental performance improvements for each component of the Air Warrior system.

Air Warrior will consist of components effectively integrated to maximize human performance. The goal is to ensure aviators and crewmembers are able to safely operate the aircraft unencumbered by the equipment they wear. Components of Air Warrior will include the Modular Integrated Helmet Display System (MIHDS); electronic data manger (EDM); microclimatic cooling; combat identification (ID); nuclear, biological and chemical (NBC) protection; body armor; survival items for escape and evasion; over-water survival items; and an interface to the aircraft platform.

The MIHDS consists of the flight helmet, night vision devices and the protective mask interface. Current plans call for the modification of the existing HGU 56P helmet, to make it more compatible with the M-45 protective mask. The concept is to develop a suspension system that is adjustable from the outside of the helmet. When a protective mask is worn the additional bulk is compensated for by the adjustable suspension, decreasing the potential for hot spots.

The helmet will also include communication earplugs (CEP) to ensure better noise attenuation with greater speech intelligibility. A 100-degree field of view night-vision goggle will also be introduced as part of the MIHDS through a cooperative program with the Night Vision and Electronic Sensors Directorate. The new lighter-weight

goggle will provide better visual acuity than existing systems.

Functionality of the EDM, the aviator's digital kneeboard, includes moving map displays, performance planning and an interface with the Aviation Mission Planning System (AMPS). Air Warrior will adopt Falcon View as the primary mapping package for the EDM. The EDM, linked to the aircraft Global Positioning System (GPS), will continuously display present position to the aircrew on the Falcon View map display. The EDM will also be capable of interfacing with AMPS. AMPS control measures, friendly and enemy locations, and flight routes will be downloaded to the EDM and graphically displayed. The arduous tasks of transcribing mission-planning data to a paper map will become obsolete. Capability for performance planning will also be embedded as an EDM feature. AMPS pre-mission planning can be downloaded to the EDM and updated "on the move" as changes in environmental or weight conditions occur.

Microclimatic cooling offers unparalleled improvements in aviator performance. Heat stress in MOPP IV is the most significant problem to be solved by the Air Warrior team. Aviators are required to fly an annual iteration in MOPP IV. Due to significant safety risks one pilot flies without full chemical gear. A future conflict involving the potential use of chemical and biological agents forces us to do better.

The mission was to fly two sorties in full MOPP IV in 100-degree temperatures and 50 percent relative humidity. Due in part to unsafe body core temperature levels, not a single aircrew was able to complete the first mission.

To develop a better understanding of equipment shortcomings a test was conducted in the U.S. Army Aeromedical Research Laboratory (USAARL) climate-controlled simulator. The mission was to fly two sorties in full MOPP IV in 100-degree temperatures and 50 percent relative humidity. Due in part to unsafe body core temperature levels, not a single aircrew was able to complete the first mission. Providing microclimatic cooling alleviates the problem. The subsystem consists of a vapor-compression cooler mounted on the aircraft and a liquid-cooling shirt. In June the previous simulation conducted at USAARL was replicated to see what improvements could be achieved with microclimatic cooling. Crews were able to fly a full six hours given the same environmental conditions as in the previous test. Improvements in heart rate, body-core temperature and water-loss rates were shown. The four-fold mission duration time achieved shows the utility of providing microclimatic cooling.

Current Army and joint programs are part of the Air Warrior concept:

- A modified Combat Identification for the Dismounted Soldier (CIDDS) will better ensure the safety of a dismounted crewmember in potential fratricide situations.
- Aircrew Integrated Recovery Survival Armor Vest and Equipment (AIRSAVE) will provide state-of-the-art ballistic protection.
- Air Warrior will monitor efforts under the Program Manager-Small Arms for feasible replacements to the current 9mm defensive weapon.
- All new chemical and biological efforts are mandated as joint. The Joint Protective Aircrew Ensemble (JPACE) and Joint Service Aircrew Mask (JSAM) provide the next-generation chemical suit and protective mask and will be integrated as part of Air Warrior in the 2004 time-frame. Suit technologies developed under Joint Service Lightweight Integrated Suit Technology (JSLIST) will facilitate JPACE development.
- The Combat Survivor/Evader Locator (CSEL), the Army's next survival radio, is also a joint effort and will be integrated as part of Air Warrior.

The overall reduction of weight and bulk is a significant challenge to the Air Warrior team. The current equipment weighs 57 pounds, significantly impacting an aviator's mobility in the aircraft. A chemical protective under-garment (CPU) measured against the current battle dress over-garment (BDO) offers significant bulk savings. The repackaging of survival items integrated into the aircraft seat-back cushion eliminates the need for wearing a survival vest. Survival items, including the one-man life raft, are strapped on when the aviator climbs in the aircraft and are retained for emergency egress. Depending on the nature of the mission, a cold- or hot-weather survival pack would be stored in place of the raft. The concept has received overwhelming support from the user community.

"Tailorability" for over-water missions is critical to Air Warrior development. The one-man life raft (LRU-18/U), low-profile flotation collar (LPU-34/P), helicopter emergency egress device (SRU-40/P) and the anti-exposure suit (CWU-62B/P) will all play integral roles. Effective integration of these components is paramount to successful Air Warrior design.

Air Warrior's interface with the aircraft platform completes integration efforts. Power must be provided to the EDM, the helmet, the microclimatic cooler, night-vision devices and a protective mask blower. A single harness would be integrated as part of Air Warrior so crewmembers need make only one connection to the aircraft to provide power to the total system.

Air Warrior will continue to grow and provide improvements by taking advantage of new technology in a continued effort to optimize aircrew performance and must be involved with new programs to ensure effective aircrew integration occurs in parallel with aircraft development. The Air Warrior team remains committed to filling the aircraft-aircrew performance gap so we can effectively operate the Army aircraft of both today and tomorrow.

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Maj. Michael Wills is APM Air Warrior at Redstone Arsenal, Ala.

Aviation Branch Career News

The condensed lists presented below were extracted from PERSCOM's Web site. For up-to-the-minute news and the full text of the items extracted here, please refer to the PERSCOM Aviation Branch online newsletter at www-perscom.army.mil/opmd/avnews.htm and PERSCOM's "What's New" section at www-perscom.army.mil.

* = AAAA Members

Aviator Warrant (except 151A)

73	Adams, Douglas A.*
237	Adams, Gerald E.
42	Adams, Philip E.
207	Adams, Steven L.
84	Alberghini, Marcus
245	Allman, Perry W.
122	Alumbaugh, Mark W.
+294	Andrews, Parrish D.
109	Andrews, Stephen L.*
+306	Ayala, Wade
195	Ayers, Brian E.
239	Ballard, Kevin D.*
154	Basabilbaso, Bill A.
260	Baum, Daniel G.
234	Beck, Chester K.*
124	Beebe, Douglas R.
82	Bentley, John H.
281	Berry, Jeffrey S.
198	Beslin, David S.
284	Best, Timothy E.
221	Betterley, T.
165	Borden, David A.
120	Born, Anthony P.
+293	Bosserman, Robert T.
156	Boyd, James C.
180	Boynton, Wade D.
169	Bradshaw, David N.
16	Brouillard, James F.
162	Brown, Lee W.
208	Buchanan, James R.*
60	Buchanan, William L.
34	Bule, Daniel G.*
246	Burton, Weldon Jr.
251	Busch, Dennis S.*
107	Buss, Edward L.
202	Busse, Morgan C.
23	Butler, Robert C.
161	Butler, William E.
105	Caffee, Jerry E.
126	Campbell, David P.
125	Carr, Rick
240	Castagna, Thomas A.
97	Caudill, Nicklas R.
152	Caudle, Kelley D.
89	Chambers, Todd R.*
24	Chickilly, Michael
219	Clapp, Mark A.*
151	Claytor, William L.*
266	Coleman, Edward*
101	Collins, Edward M.
75	Combs, Stephen D.*
50	Commerford, Timothy*
86	Connolly, Daniel E.
+316	Cook, Deren L.
129	Craig, David S.
253	Craig, Johnny L.
56	Cranford, Andrew C.*
242	Crowe, Gregory K.*
134	Curd, Jeffrey S.*
254	Cuscito, Thomas J.*
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116	Dadswell, Martin P.*
217	Dallavalle, Michael
282	Daniel, John W.*
147	Davidson, Daniel S.
40	Degroff, Lawrence S.*
287	Denardi, Sam W.*
74	Diaz, Miguel A.
231	Diaz, Scott C.*
160	Dickens, Douglas B.*
+303	Dodd, Charles E.*
250	Dodson, Anthony R.*
262	Dougherty, James J.*
228	Druse, Paul F.
12	Duplessie, Mark L.
+309	Duquette, Terry L.
280	Durbin, Eric B.
148	Dwyer, James L.
139	Eastburn, Gregory A.*
248	Eastmoore, John R.
163	Eckman, Jeffrey A.
2	Eldem, Jon C.
+311	Evans, Todd E.*
7	Fajardo, Glenn A.
230	Faragallah, John*
19	Farina, Roger P.
171	Fellows, Gregory D.
54	Fields, Jeffery W.*
265	Floyd, Steven N.
229	Fox, James O.*
256	Fraka, LeAnn*
112	Freeman, Tyron J.
59	Frierson, Thomas E.*
214	Fryer, Jeremy S.
269	Galuppo, Ronald R.*
136	Gardenhire, Paul D.
+302	Garland, Peter F.
33	Gentry, Mark E.
9	Giroux, Alain H.
58	Gonsales, Martin B.
252	Gonzalez, Carlos M.*
81	Graf, Roger A.*
+288	Grigson, James A.*
49	Guarino, David K.
20	Gwin, Aaron S.*
62	Haack, Wolfgang P.
249	Hacia, Joseph E.*
200	Hackworth, Joseph M.
175	Hager, John L.*
131	Hahn, Edmund L.
+292	Harris, Guy S.
268	Hartwell, Stuart G.*
29	Haskell, Thomas E.
53	Hauser, Steven C.
168	Haven, Mark R.
179	Hayes, Adam M.*
80	Hays, Rusel E.
278	Helms, Garry D.
22	Henderson, Roston W.
44	Hensley, Todd W.
170	Hermoso, Neil R.*
51	Hewitt, Randal A.*
37	Hickman, Daniel J.
235	Hill, Dana Lee*
199	Hock, Gregory R.*
47	Hodges, Fred L.
+314	Hogan, Charlotte Y.
238	Holland, Chris W.*
46	Holmes, Michael T.
36	Hook, Bryan K.
61	Hoover, Todd S.
193	Hurst, Christopher
167	Ilg, Mark W.*
264	James, Jeffrey A.
225	Jarrell, Cathy A.
39	Jeffords, Steven G.
3	Jewett, Alan G.
108	Johnson, Darwin G.*
57	Johnson, David N.
118	Jones, Kirk B.
+291	Jurek, Vincent C.
187	Kadar, Michael E.
102	Kaltwang, Martin H.*
142	Kammeyer, Ronald B.
38	Keenan, Charles M.*
+315	Keenan, Michael L.
263	Keith, William H.
205	Kelley, Michael S.*
+299	Kelly, George C.
27	Kennedy, James P.*
181	Kennedy, Kyran E.
226	Kime, Edward C.
186	King, Michael*
+312	Kirchgessner, T.*
258	Knowles, David A.
83	Kreck, Byron J. P.
157	Lance, James L.*
68	Lane, Mark A.
243	Larue, Jon D.*
35	Latin, Christopher*
45	Lavka, Stephen M.*
222	Lee, Jeffrey M.*
211	Leipertz, Shane C.
194	Lepper, John D.
137	Letson, Peter P.
106	Lewis, Gregory A.*
210	Lewis, James W.*
78	Lindsay, James A.
98	Long, Thomas D.*
155	Lorenson, Neil W.
261	Lourey, Matthew S.
+298	Lulkart, Jeffrey S.*
+305	Lyons, David M.
91	Madura, Michael S.*
100	Mahoney, Jeffrey A.*
257	Mancuso, Frank S.*
127	Martin, Roger G.*
96	Martinez, Wilfredo*
209	Martini, Gerald M.*
176	Marvinny, James W.
121	Mason, Bradley L.*
28	Mason, Simeon I.*
158	May, Stuart D.
189	McAnear, Kelly E.
+286	McDaniel, Cameron
+308	McGorrian, Christoper
267	McIntyre, Wade H.
43	McLendon, William S.
182	McManus, William J.*
30	McNeal, Andrew S.*
153	McNeill, Gene W.
277	Melby, James E.
18	Meloen, Marc E.*
99	Meuli, Kirk K.
227	Meyer, Jeffrey R.
+297	Mickelson, Lynda M.*
32	Miller, Frank L.
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285	Molloy, Charles J.
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41	Nelson, James W.
130	Nelson, Jerred L.*
271	Nelson, Theodore H.
72	Nielsen, David R.
88	Noble, Zachary Q.*
218	Pais, Rodney L.*
70	Papesca, Louis A.
11	Patton, Brian S.*
93	Pauley, David J.
188	Pauley, Randy J.
177	Perez, Bienvelnido*
+310	Perlo, Bruce S.
223	Peterson, Marzell R.
1	Pierson, Charles E.
94	Pinneo, Mark O.
150	Piselli, Robert
173	Poindexter, Kenneth*
144	Polwort, Terry B.
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13	Presnell, Charles R.
77	Proctor, David S.*
244	Psyck, Jeffrey S.
273	Pulver, Charles K.*
+304	Purdy, Robert W.*
141	Ramiccio, John G.*
206	Ramser, David R.*
270	Rash, Lonnie D.*
259	Raye, Allen
255	Reagan, Curtis S.
190	Rexing, Henry A.
69	Rhyne, David H.*
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133	Rogie,, Matthew K.*
178	Rundell, Michael W.*
114	Russell, Brian J.*
87	Russell, Jason K.
213	Salvatore, Peter C.*
115	Santos, Eugene A.
+313	Saporito, Carl M.*
+301	Savage, Robert C.*
117	Scala, James K.
145	Scherkenbach, C.
+307	Schloesser, Shawn P.*
236	Schoenwald, Carl H.*
272	Scott, Walker W.
48	Seanard, Kenneth J.
183	Sentiff, Andrew C.
21	Serna, Nicholas A.
92	Sherfey, Scott A.
67	Shields, Matthew L.*
203	Shober, Robert A.
10	Shuel, Scott A.
149	Simmons, Mark D.*
247	Simmons, Michael J.*
+290	Sleeth, Ray D.
138	Smith, Andrew V.
140	Smith, Bernard H.
63	Smith, Kevin E.
241	Smith, Steven R.*
220	Snow, David W.*
232	Snow, John T.*
196	Sopp, Jeffrey P.
132	St Francis, Chad E.
26	Stock, Brian A.
4	Sumrow, Anthony C.
135	Swann, Tony L.*
276	Szumigala, Z.*
113	Tanner, Richard H.*
201	Tartaglia, Achille
103	Templeton, Troy D.
6	Terhaar, William K.
143	Tezanos, Manuel R.
52	Tingey, Leland D.
185	Titanski, Michael C.
31	Todt, Ronald M.
166	Tomblin, Gary L.*
212	Trocinski, Eric T.
283	Tschida, Kirk R.*
119	Turner, James G.
104	Van Dusen, Brian K.
159	Vanguilder, David D.*
191	Vasek, Steve A.
216	Wade, Jimmy D.
192	Wagner, Jonathan L.*
5	Watson, Edwin L.
17	Welder, Gregory F.
+296	Weigel, Fred K.*
204	Welch, Joseph M.*
123	Whipple, Steven G.*
15	White, David L.*
174	White, Michael D.
14	Whitmore, Steven M.
25	Williams, Dwight S.
66	Williams, James A.
65	Withrow, David A.
79	Woodard, Glen R.*
95	Woodmansee, Bruce*
224	Woolley, Charles K.*
128	Wright, Michael L.*
+295	Wriston, Nathan C.
55	Wynne, Hollis K Jr.
+289	Yager, John R.
233	Yarborough, James S.
+300	Yoakum, Keith*
197	Zimmerman, Terry A.

FY97 Captain USAR/APL Promotion Board Results

Bang, Sung H.
Bevilacque, A.
Bodily, Kyle L.
Bouslog, Todd C.
Bovat, Bruce D.
Bruce, Lori L.
Burns, Christopher*
Casto, Thomas D.*
Clark, William J.
Conrad, Joseph S.
Dasher, Kevin K.
Dresdner, Thomas D.*
Dugre, Christopher*
Duke, Richard A.
Evanovich, Troy J.
Farmer, Michael S.
Fitzgerald, Brian P.*
Galy, Christopher M.*
Gambichler, Steven
Good, Christopher E.
Goode, Kenneth H.
Gordon, Richard D.
Griffin, Bruce S.
Haddock, Michael D.
Hanselman, David S.
Heyland, William P.
Hill, Bruce E.*
Hudson, Kurt L.
Janecek, Frank P.
Layne, Beason T.*
Lake, John M.
Lutts, Glen W.
McElroy, Glen A.
McGinley, Mark J.
McKinney, Harry G.*
Meskill, Jeffrey J.*
Meuth, Troy D.*
Reo, Paul M.*
Rose, Richard M.*
Santatorres, Jose M.
Shealy, Bradley C.*
Taylor, William X.
Tomko, Michael L.
Ward, Jarrod R.*
Weachock, Michael J.*
Weaver, John T.
Williams, Kyle D.

Technical Services (Including Aviator Warrant 151A)

10	Barrentine, William
189	Breault, John R.
117	Broxterman, Mark
131	Eslinger, Johnnie E.
132	Garcia, Adan*
283	Korentur, Jeffrey M.*
278	Martin, Jeffery L.*
56	Pabon, James J.
9	Raber, Brian L.*
+306	Reddick, Wendell C.

+ Below the Zone

FY98 USAR/APL Major Selections List

Adams, Thomas B. AV
Addams, Kimberly S. AV
Albertson, James S. AV
Armstrong, Kirk A. AV
Barry, Edward F. AV
Baumgardner, James* AV
Beaudoin, Christopher* AV
Bethoney, Stephen J. AV
Bishop, Anthony M. AV
Bishop, Eric Timothy* AV
Borgerding, Christopher AV
Bradley, Walter R. AV
Bradsher, Robert T. AV
Bradstock, David A. AV
Brichacek, Michael AV
Buechler, Robert R.* AV
Burgard, Stephen M. AV
Cabanrosario, Daniel AV
Carmona, Louis E.* AV
Cicchetto, Gregg J. AV
Coan, James P. AV
Crookston, Douglas AV
Davis, Gary L. AV
Deetman, Glenn E. AV
Dirks, Charles B. AV
Dubois, Hilary C. AV
Dubois, Cynthia A. AV
Dunkleberger, Jonathan AV
Eder, Daniel J. AV
Embury, Sandra L. AV
Errington, Bradley AV
Esposito, Stephen J. AV
Exley, Clifford D. AV
Farese, Philip J. AV
Fernan, John J. AV
Fiest, Robert T.* AV
Fleming, Christopher* AV
Fortuno, Luis A. AV
Freitas, Jerry K. AV
Gardner, Jerry N.* AV
Glarusso, Richard J. AV
Gillis, John W.* AV
Glover, Michael D.* AV
Gordon, William J. AV
Grothe, Eric A. AV
Hadley, Michael R.* AV
Hagan, Wayne P.* AV
Harvey, Charles K. AV
Haynes, Raymond W. AV
Hickenbottom, Stephen AV
Howell, Richard A. AV
Hudson, Daniel B. AV
Huff, William D. AV
Jackson, Robin L.* AV
Johnson, Christopher AV
Johnson, Michael A. AV
Johnson, Richard A. AV
Jolly, Stuart A. AV
King, Daniel P. AV
Knuth, Robert A.* AV
Kohorst, Thomas C. AV
Kok, Troy D. AV
Kovac, John D. AV
Kraus, Timothy V. AV
Kutschera, Lisa M. AV
Lijoi, Mario* AV
Little, Franklin C. AV
Looby, Timothy J. AV
Macey, Jeffrey T. AV
Maguire, William M.* AV
Maier, Rochell A. AV
Masiello, Gregory J. AV
Mathews, Joane K. AV
McCauley, Michael P. AV
McGrath, Philip S.* AV
McKean, David AV
McKee, Edward B.* AV
McLain, James Ivan AV
McMillin, Robert E.* AV
Melia, Garry R.* AV
Minichiello, Angela AV
Moloney, Michael C. AV
Moody, Morris B. AV
Moore, Chris E.* AV
Nati, Dominick L. AV
Nord, Andrew L. AV
Olynik, David C. AV
Otero, Suzanne M. AV
Oxer, James E.* AV
Parker, Percy G. AV
Pavelik, Gregory T.* AV
Peterson, Richard P. AV
Peterson, Robert H.* AV
Picca, Bernardo A. AV
Plum, Arthur F. AV
Poole, Erik K. AV
Pruitt, Michael L. AV
Reckrodt, Ronald C. AV
Reinwald, Bernard C.* AV
Robinson, Rodney S.* AV
Rymal, Ruth M. AV
Schultz, Guy C. AV
Selosse, Gilberto* AV
Sheard, John F.* AV
Sheredy, Steven G. AV
Simmons, Philip A. AV
Singler, Robert F. AV
Smith, Kevin R. AV
Soracco, Jeff D.* AV
Stebbins, Troy D. AV
Stephenson, James B. AV
Stringer, Kevin D. AV
Stryker, Mark A. AV
Taylor, Christopher* AV
Temple, William A. AV
Valentine, Herman P.* AV
Waldorf, Eric G. AV
Waldron, James P. AV
Watkins, Stephen E. AV
Wels, Scott T. AV
White, Robert D. AV
Williams, Myles T. AV
Winfield, Lloyd E. AV
Wiskus, Kevin R. AV
Wood, David E.* AV
Woodward, Charles E.* AV
Yates, Troy R. AV
Yeager, Laura L. AV
Zizza, Michael M.* AV

The point of contact is Office of Promotions, Reserve Components, St. Louis, MO at DSN: 892-3900 or COML: 314-538-3900.

Technical Services
(Including Aviator Warrant 151A)

115 Alexander, Jimmy
84 Bechtel, Mark S.*
10 Binkley, Clifford H.
73 Carroll, Ronald L.
17 Charchar, John K.* 165
Childers, Charles E.
63 Corrion, Douglas R.
129 Lewis, Preston M.
29 McKaye, Timothy A.
43 Sanders, John R.
+214 Williams, Willis W.*
+ Below the Zone

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I certify that the statements made by me in this statement and dated September 21, 1998 are correct and complete.

Lynn Coakley, Publisher

mailbox

Share your opinion on matters of interest to the Army aviation community. The publisher reserves the right to edit letters for style, accuracy or space limitations. All letters must be signed and authors identified. The publisher will withhold the author's name upon request. The opinions expressed are those of the authors, and do not reflect the opinion of ARMY AVIATION Magazine. Send letters to AAAA MAILBOX, 49 Richmondville Ave., Westport, CT 06880-2000, Tel: (203) 226-8184, FAX: (203) 222-9863, E-Mail: aaaa@quad-a.org.

Dear Editor:

I just found out that the Senate receded to the house language on the WO flight pay issue and the Apache bonus. Now all we're waiting for is the President's signature. I want to thank you for jumping in the breech and putting in a great lobbying effort on our behalf. I'm not sure we would have accomplished the task (given the cog we were up against) without the help of AAAA and the Military Coalition.

CW0 5 Joel J. Voisine, (Ret.)
Dothan, Ala.

Lt. Col. Dwight Lorenz, Ret., forwarded this story he found on rec. aviation.military newsgroup:

"I've been entertained by all the stories of AF IP's, so I thought I'd regale you with my uncle's favorite Army IP trick story.

When he was a helo IP at Fort Rucker, back in the late '60s and early '70s, one of his fellow IPs liked to give his beginning students a "sweat test".

There is a small lake on the base and he would have them fly out over the lake, get them at a low altitude, cut the fuel and tell them to practice their auto-rotation landing technique. The problem was that they were over water and didn't have enough altitude to make it to a dry landing spot.

The IP would let the student's eyes get big enough, then he would take over and land the chopper on a small bar that was submerged about six inches under the surface of the water. The IP had the bar marked with a stake, that stuck up about a foot above the surface, but you had to know what to look for to see it.

The funniest part of this story is that, late one night, some of his students got drunk, took out a rowboat, pulled up his stake, and taped it to the end of a ten foot pole, which they drove into the bottom of the lake a few yards away from its original position.

My uncle said that he didn't know if the other IP ever finished paying off that H-13 before he retired, but they were pretty cheap as helicopters go.

(Narrator and IP Not Named)

BRIEFINGS

The **U.S. Army Chemical and Biological Defense Command** has tapped the Department of Energy's Oak Ridge National Laboratory in Oak Ridge, Tenn., to develop a chemical-biological mass spectrometer (CBMS) that will more accurately detect deadly chemical and biological warfare agents and warn soldiers to don protective gear or avoid contaminated areas. The CBMS is expected to be produced for military use by 2001.

Cubic Defense Systems Inc. has won a $12.6 million U.S. Army Communications-Electronics Command contract to build additional air and ground data terminals for the Joint Surveillance Target Attack Radar System (J-STARS) program. The contract covers four Ground Data Terminals, one Air Data Terminal, associated spare parts and two training courses. Deliveries are scheduled to begin in July of 1999. Cubic was also awarded a $31.6 million Army contract to transition into full-rate production of the MILES 2000 direct-fire tactical engagement training system. With priced options in excess of $60 million, the total value of the MILES contract could exceed $130 million.

General Atomics Aeronautical Systems Inc. (GA-ASI) has successfully demonstrated the relief-on-station (ROS) capabilities of the Predator remotely operated aircraft. Under a U.S. government contract GA-ASI, a manufacturer of unmanned aircraft surveillance systems, developed the hardware, software and procedures for that allow two Predators to be controlled from a single ground control station. With ROS procedures in place, Predators can now be flown to distant operating areas where they could assume on-station responsibilities before the relieved Predator left the area. Operational improvements to the Predator's ROS capabilities will be conducted under the $8.9 million system upgrade contract awarded to GA-ASI in May.

The Army has awarded **FlightSafety International** a four-year contract to train pilots for Army-operated variants of the DeHavilland of Canada Dash-7. The training will center on the Dash 7 full-flight simulator at FlightSafety's Toronto, Ontario, facility. The contract calls for pilot initial and recurrent training each year. The majority of courses will be pilot initials.

EXTEX Ltd., a leading supplier of new, FAA-approved replacement parts for the Allison A250 turboshaft engine, has upgraded its Inconel 738 stainless steel #1 turbine nozzle for the A250. The new nozzle features a platinum aluminide coating which enhances the component's durability in high-temperature operating environments. The platinum portion of the coating produces a ductile transition layer between the aluminide coating and the parent Inconel 738. This process augments the aluminide layer with an additional protective coating while inhibiting crack propagation under severe operating requirements. The coating reduces oxidation, sulfidation and erosion by improving the aluminide layer's damage resistance.

Interstate Electronics Corp. has introduced its new WarriorVision-10 Video Flat Panel Display. The 10.4-inch active-matrix liquid crystal display has 640 X 480 resolution, on-screen test overlay capabilities, an MTBF rating of 20,000 hours, one programmable serial port, an RS-170A video-input port and a buffered video-output port. The unit meets commercial off-the-shelf (COTS) system requirements, and is intended for military and other demanding applications. Direct inquiries to Zeev Kalansky at (714) 758-4032.

The Boeing Co. has announced new leadership assignments for its rotorcraft program management center in Philadelphia, Pa., and its assembly, integration and flight test center in Mesa, Ariz. Martin H. Stieglitz has been named vice president, program manager for the AH-64 program in Mesa, and Charles A. Vehlow will be the vice president, program manager for the RAH-66 Comanche in Philadelphia.

The Veterans of Foreign Wars has announced that the IDT Corp., a New Jersey-based telecommunications company, has donated 2,000 prepaid phone cards for use by American military personnel stationed in Korea. Each card contains 10 minutes of overseas long-distance calling time, and VFW members and volunteers in Korea will distribute the cards to military personnel, their dependents and veterans in need of assistance.

AVIATION EDUTAINMENT

What's New on the Web, the TV, and for the PC

Come on baby and Rescue me!: SAR: Search & Rescue Helicopter Flight Sim. Here's the lastest in flight-simulation software for the air-sea rescue crowd (CD-ROM). SAR (by Intense Entertainment) let's you try your skills at flying 12 different rescue helicopters in 45 challenging mission scenarios. High-resolution detail supports NOE flying, and the weather engine produces rain, snow, changing clouds and skies, and differing light conditions. Great for seasoned pilots to kids! Specs: IBM or 100% compatible PC; 486/66 min. — Pentium recommend; Windows 3.1/95; Memory: 8 MB min. — 16 MB recommend; Sound: Sound Blaster or compatible w/speakers; Media: 4x CD-ROM. MSR price is $39.95. Visit Intense Entertainment's website at: www.intense-games.com.

Spanish Helo Training: Spanish Helicopter School Battalion Here's a new website from the people who conduct aviation training in Spanish for our Latin American allies. Now you can learn more about the mission and the role of the SHSB. Their website offers links to their history, command brief, phone directory, course catalog, safety awards, photo gallery, links to other related websites and more. Find the SHSB at: www-rucker.army.mil/shsb/shsb.htm.

Aviation History Online: The Army Aviation Museum at Fort Rucker is online. Now you can take a virtual tour, visit and purchase aviation items in the gift shop, view the museum's collection, or check out the information desk. Be sure to sign the guest book! Visit the museum at: www.aviationmuseum.org.

Editor's Note: Army Aviation is seeking good-news announcements of aviation-related professionals who are on the move. If you or your organization have an upcoming change of leadership (at the battalion or squadron level, or higher for MTOE and TDA units), please forward the information to Barbara Ross, care of the AAAA National Office.

Lt. Col. Danny N. Cash recently assumed the duties of Branch Chief, Aviation Assignments Branch, U.S. Army Personnel Command in Alexandria, Va., from **Col. Gregory D. Walker.** Cash, a recent 1998 Senior Service College selectee, served as commander of the 5th Bn., 101st Avn. Regt., at Fort Campbell, Ky., prior to becoming the branch chief. Walker, currently in the pre-command course, will soon take command of the 21st Cavalry Brigade with III Corps at Fort Hood, Texas.

Brig. Gen. Joseph M. Consumano has been named as the new assistant deputy chief of staff for operations and plans for Force Development in Washington, D.C. Consumano has been serving as the program manager of the National Missile Defense Joint Program Office, Ballistic Missile Defense Organization, in Arlington, Va., since March 1997.

Brig. Gen. Burt S. Tackaberry, commander of the U.S. Army Safety Center and director of Army safety, retired Oct. 1 at Fort Rucker after 30 years of service to the nation. Tackaberry, who has served as the USASC commander since June 27, 1997, also served as the deputy commanding general and assistant commandant of the U.S. Army Aviation Center and Fort Rucker for two years. Tackaberry and his family plan to relocate to Oak Ridge, Tenn.

Brig. Gen. Charles M. Burke assumed command of the U.S. Army Safety Center and director of Army safety at Fort Rucker on Oct. 19. Burke previously served as the deputy commanding general and assistant commandant of the U.S. Army Aviation Center since June 27, 1997. No replacement had been named to assume the deputy commanding general's duties at press time.

The following nominations were confirmed by the Senate on Sept. 25, 1998:

Gen. Eric K. Shinseki, United States Army, for reappointment to the grade of general and assignment as vice chief of staff, United States Army, Washington, D.C.

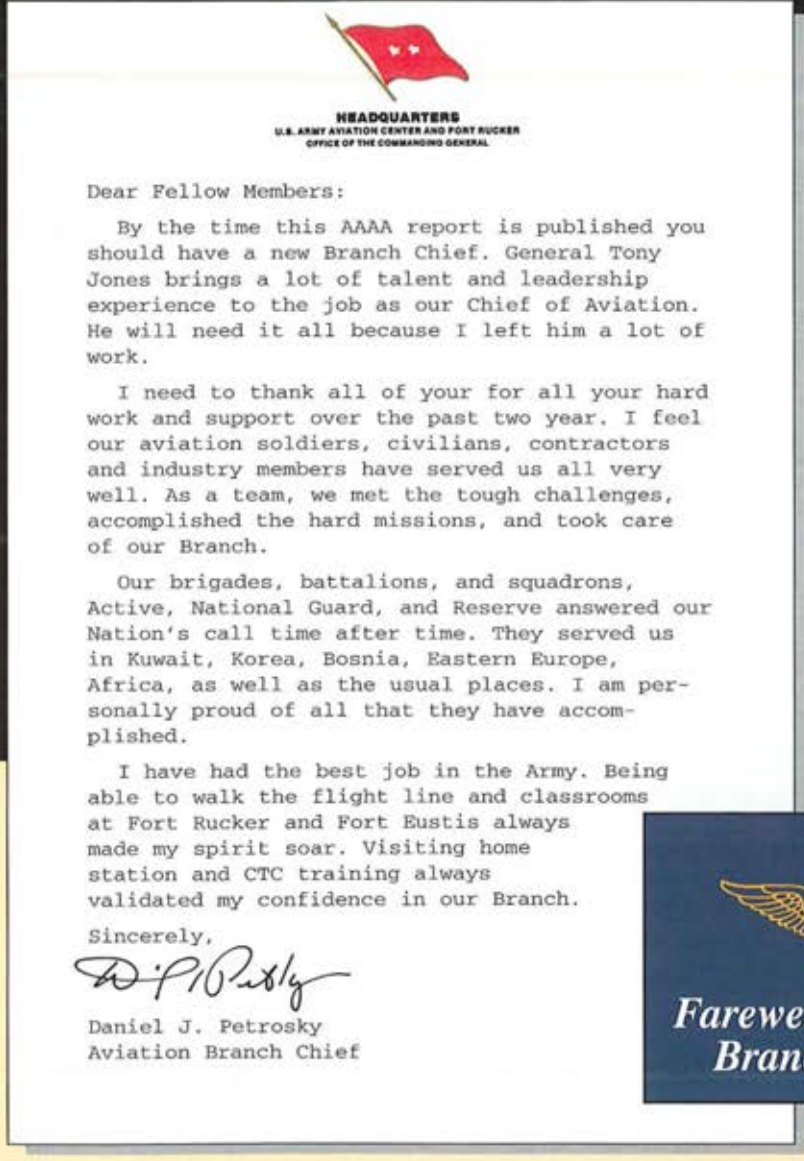
Lt. Gen. Montgomery C. Meigs, United States Army, for appointment to the grade of general and assignment as commanding general, United States Army, Europe, and Seventh Army, in Germany.

Lt. Gen. William M. Steele, United States Army, for reappointment to the grade of lieutenant general and assignment as commanding general, United States Army Combined Arms Center, Fort Leavenworth, Kan.

Lt. Gen. Randolph W. House, United States Army, for reappointment to the grade of lieutenant general and assignment as deputy commander in chief/chief of staff, United States Pacific Command, Camp H. M. Smith, Hawaii.

Maj. Gen. Ronald E. Adams, United States Army, for appointment to the grade of lieutenant general and assignment as chief of staff/deputy commander, Land Forces Central Europe, Germany.

Brig. Gen. Darrel W. McDaniel, United States Army Reserve, for promotion to the grade of major general. McDaniel is currently assigned as the commander, 75th Division (Exercise), Houston, Texas.



HEADQUARTERS
U.S. ARMY AVIATION CENTER AND FORT RUCKER
OFFICE OF THE COMMANDING GENERAL

Dear Fellow Members:

By the time this AAAA report is published you should have a new Branch Chief. General Tony Jones brings a lot of talent and leadership experience to the job as our Chief of Aviation. He will need it all because I left him a lot of work.

I need to thank all of your for all your hard work and support over the past two year. I feel our aviation soldiers, civilians, contractors and industry members have served us all very well. As a team, we met the tough challenges, accomplished the hard missions, and took care of our Branch.

Our brigades, battalions, and squadrons, Active, National Guard, and Reserve answered our Nation's call time after time. They served us in Kuwait, Korea, Bosnia, Eastern Europe, Africa, as well as the usual places. I am personally proud of all that they have accomplished.

I have had the best job in the Army. Being able to walk the flight line and classrooms at Fort Rucker and Fort Eustis always made my spirit soar. Visiting home station and CTC training always validated my confidence in our Branch.

Sincerely,

Daniel J. Petrosky
Aviation Branch Chief

Solicitation now under way for CY98 AAAA National Awards: Nominations due at the AAAA National Office on or before January 15, 1999

"Award Presentations"

Up to eight AAAA National Awards for accomplishments made during calendar year 1998 will be presented at the 1999 AAAA Annual Convention in Nashville, Tenn. Senior members of the U.S. Army will be invited to present the AAAA's top awards to the 1998 winners.

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

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

"Joseph P. Cribbins DAC of the Year Award"
Sponsored by The Boeing Company, this award is named for Mr. Joseph P. Cribbins, the award's first recipient in 1976. It is presented annually by AAAA "to the DAC who has made an outstanding individual contribution to Army aviation in the awards period encompassing the previous CY." A candidate for this award must be a current Department of the Army civilian.

"The Robert M. Leich Award"
Sponsored by the Northrop Grumman Corporation, this award is named in memory of Brig. Gen. Robert M. Leich, USAR, the AAAA's first president (1957-59) and its Awards Committee Chairman for 23 years. It is presented periodically to a unit for sustained contributions to Army aviation, to a unit or an individual for a unique, one-time outstanding performance.

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

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

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

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

ACCOMPANYING DATA FOR INDIVIDUAL AWARDS: A standarized "Nomination Form for Submission of All AAAA National Awards" is the sole form utilized by the Awards Committee in its selection of annual AAAA National Awards winners. Copies may be obtained from any chapter secretary or by writing to AAAA, 49 Richmondville Avenue, Westport, CT 06880-2000 or by calling the AAAA National Office, (203) 226-8184.

The forms should be accompanied by a recent photo and biographical sketch of the nominee. Photos of the commander and the senior NCO must accompany each unit nomination. The "Nomination Form for Submission of all AAAA National Awards" and the accompanying photo(s) must be received at the AAAA National Office on or before January 15. Please use stiffeners to protect the photo(s) being submitted. Awards nominations materials — including photographs — cannot be returned.

Legislative Report

Col. Sylvestor C. Berdux, Jr., Retired
AAAA Representative to The Military Coalition (TMC)

Aviation Career Incentive Pay (ACIP) ("Flight Pay") and Aviation Officer Retention Bonus (ACP).

Mission Accomplished! See page 3 for President's Message.

CONGRESS PASSES KEY DEFENSE BILLS

With most of the contentious issues already negotiated successfully, it was almost anticlimactic when Congress passed both the FY1999 Defense Authorization Act and FY1999 Defense Appropriations Act.

The three issues we've highlighted in previous reports were resolved beneficially, although we still have some work to do on the paid up SBP.

The results of the FEHBP compromise are, in a word, fantastic.

According to report language, the conferees approved a three-year demonstration to allow Medicare-eligible retirees and their families to enroll in FEHBP beginning January 1, 2000. This demonstration will allow up to 66,000 eligible beneficiaries in six to ten areas around the country to participate in FEHBP." The number of sites will depend on the population around the sites selected for the test and the participation rate. The HNSC held tight on all requirements and one site will be in a subvention area and another within a military treatment facility catchment area. The other FEHBP sites will be at the discretion of the Defense Department and the Office of Personnel Management. The demonstrations using Tricare as a supplemental to Medicare and the mail order pharmacy initiative use the Senate's site criteria - outside a catchment area. The conferees also added in Medigap protections in the event the tests are not successful and its participants have to revert to Medicare with standard supplemental coverage.

Other provisions of the Bill include:

- 3.6% pay raise for active, Reserve and Guard personnel
- Authorizes a test of Tricare as a supplemental to Medicare at two locations outside military catchment areas, starting no later than January 1, 2000 (enrollees would pay a fee not to exceed 75% of FEHBP premiums and could not use military medical facilities while enrolled)
- Authorizes payroll deduction for retiree Tricare Prime enrollment fee.
- paid-up SBP (effective in 2008)
- Reserve commissary (24 visits per year) provisions
- Requires DoD to provide Congress a plan by March 1, 1999 to redesign the military and contractor retail and mail order pharmacy system to provide a uniform formulary and system-wide drug benefit for Medicare-eligibles (the program is to be tested at two sites outside military catchment areas, starting Oct 1, 1999; the law authorizes the Secretary to charge enrollees premiums, deductibles, copays, etc., consistent with those applicable to Tricare Prime enrollees)
- Authorizes "family only" option for retiree dental plan
- Prohibits consolidation of service exchanges without a law change
- Requires services to provide minimum three-person honor guard for qualifying Veterans' funerals that occur after Dec 31, 1999 (DoD must convene an interim panel to determine how this requirement can be met)
- Reserve commissary (24 visits per year) provisions
- Authorizes retirees not now participating in SBP a one- year opportunity to enroll, starting March 1, 1999 (however, applicants will have to pay all back premiums, plus Interest, so we expect few takers)

SERVICE CHIEFS PUSH PAY, RETIREMENT FIXES

The overwhelming vote for the Authorization Act belied rising concerns in both House and Senate that it doesn't provide enough resources for the Services to maintain Readiness. In a special hearing before the Senate Armed Services Committee on Tuesday, the Joint Chiefs of Staff reinforced that perception, asserting the Services will need another $20 billion a year in FY2000 and beyond to maintain needed readiness levels.

All Service Chiefs and the Chairman testified that their greatest concern is declining retention of quality personnel. "Our forces are showing increasing signs of serious wear," said Shelton, and several Chiefs told senators that without substantial defense budget increases in the coming years, the services will face a return to the "hollow force" of the 1970s. The Joint Chiefs attributed the personnel problems to oppressively high mission deployment rates, an "over-reformed" retirement system that offers current service members an inadequate career incentive, and a long succession of pay raise caps that that have left military pay nearly 14 percent behind private sector pay growth.

The Chiefs' first priority to redress the growing readiness problem is repealing the 1986 Military Retirement Reform Act (MRRA), which cut the retired pay formula and capped future retired pay COLAs for members first entering service after July 31, 1986. Under MRRA, a 20-year retiree will receive 40 percent (vice 50 percent) of high-three-year-average basic pay and will have COLAs capped one percentage point below inflation.

The Joint Chiefs' second priority is a series of higher pay raises aimed at redressing the current pay gap. Finally, the Chiefs unanimously agreed that billions more per year would be required for modernization and other needs that have been neglected for the past decade or more.

The Joint Chiefs have warned since the 1980s that the services must eventually face a retention and readiness "train wreck". This is a result of compounded retirement and health care cutbacks and institutionalized pay caps. AAAA and The Military Coalition are gratified that Congress and the Pentagon are finally talking about fixing these long-standing inequities. It remains to be seen whether the Administration and Congress will be willing to pony up the billions that the Joint Chiefs, TMC and many others believe are needed. An equally important question is whether the fixes will be accomplished in time to prevent yet another retention crash, or will just help rebuild the pieces.

PRESIDENT SIGNALS READINESS "PLUS-UP"

On September 22, President Clinton sent a letter to Secretary of Defense William Cohen in response to a meeting between Clinton, Cohen and the Joint Chiefs of Staff at which the chiefs raised their concerns about recruiting, retention, and military readiness. The President's letter acknowledges the concerns, stating, "I have already directed increased pay raises for FY1999 [3.6%] and 2000 [4.4%]. But we need to consider additional steps that may be needed to preserve the quality of the American military."

VA HEALTH CARE ENROLLMENT

On Sept. 17, 1998 in a meeting with VA Undersecretary for Health, Dr. Kenneth Kizer, the following concerning VA Enrollment was announced.

The Secretary of Veterans Affairs (VA), in order to make VA healthcare services available to as many veterans as possible, is opening enrollment in Fiscal Year 1999 (October 1, 1998 through September 30, 1999) to ALL veterans. This includes mandatory and discretionary Veterans in all enrollment categories 1 through 7.

Enrollment Categories:

1. Veterans with service-connected conditions rated 50 percent or more.
2. Veterans with service-connected conditions rated at 30 or 40 percent.
3. Veterans who are former POWs; Veterans with service-connected conditions rated 10 or 20 percent; Veterans discharged from active duty for compensable conditions; Veterans enrolled in Vocational Rehabilitation; Veterans that were injured/hospitalized at VA medical facility.
4. Veterans who are receiving aid and attendance or housebond benefits; Veterans who have been determined by VA to be catastrophically disabled.
5. Non-service connected veterans and service-connected veterans rated zero percent whose income and net worth are below the established dollar thresholds.
6. All other eligible veterans who are not required to make copayments for their care including:
   a. World War I and Mexican Border War veterans.
   b. Veterans receiving care for exposure to toxic substances or environmental hazards while in service.
   c. Compensable zero percent service-connected veterans.
7. Non-service connected veterans and noncompensable zero percent service-connected veterans with income and net worth above the statutory threshold and who agree to pay specified copayments.

VA enrollment DOES NOT include non-veteran family members. Copayments apply for non-service connected treatment for categories 2 through 7.

CALL YOUR NEAREST VA HEALTHCARE FACILITY FOR SPECIFIC ENROLLMENT

DOD PHARMACY BENEFIT:

The Executive Director of the TRICARE Management Activity (Dr. H. James T. Sears) has asked for TMC's help in reminding our members that the Military Treatment Facility (MTF) pharmacies and the National Mail Order Pharmacy (NMOP) Program offer the most cost-effective means for uniformed services beneficiaries to obtain their medications within the military health system.

TRICARE REGIONS 2 AND 5 CONTRACT PROTEST UPDATE

In February, the General Accounting Office (GAO) upheld a protest filed by competing contract applicants against the Defense Department's (DoD) award of the managed care contract for TRICARE Regions 2 and 5 to Anthem Alliance for Health, Inc. On September 2, DoD announced it will reissue the solicitation for the contract after making appropriate technical amendments in the request for proposal.

It will take at least 6 months to a year for DoD to reissue a new solicitation and for a new contract to be awarded. In the meantime, Anthem Alliance will continue to provide managed care services under the existing contract. AAAA and TMC will watch this process closely to ensure that health care for beneficiaries in Regions 2 and 5 is disrupted as little as possible.

JANUARY 1999 RETIRED PAY COST-OF-LIVING ADJUSTMENT (COLA).

We won't know the final 1999 COLA figure until about the third week of October, when the Bureau of Labor Statistics will issue its report on the growth of the Consumer Price Index for September. It looks like the COLA is leaning in the direction of 1.3 percent, with 1.4 percent an outside possibility.

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Third Annual AAAA/AUSA Army Aviation Simulation Symposium

New TRADOC commander GEN Abrams and CW4 Durant, 160th SOAR(A) engage in discussion about the 160th's exhibit on STOW-A.

What do TRADOC commanders, special operators, STRICOM PMs, PEO Aviation PMs, AMCOM PMs, 21st Cavalry trainers and 150 members other members of the Army Aviation Community including active, reserve, National Guard, retired and industry have in common??

They all attended the third Annual AAAA/AUSA Army Aviation Simulation Symposium.

Opened by the AAAA president, MG Dave Robinson, Ret., and AUSA president, GEN Gordon Sullivan, Ret., (below left), the event featured a day and a half of very instructive briefings and panels under the theme of "Battle-focused Training for the Integrated Warfight." Below right, accepting a token of appreciation from MG Robinson, was the keynote speaker, MG George Close, Director for Operational Plans and Interoperability. BG Charles M. (Mike) Burke addressed the luncheon crowd and GEN John N. Abrams who had just taken command of Training and Doctrine Command three days earlier delivered a heartfelt speech touching on some of the sacrifices made by Army aviators in Somalia.

Demonstrating their outstanding support were exhibits from industry partners including Carmel Applied Technologies, Sierra Technologies, Hitachi Software, Computer Systems International, Inc., and InterSense/n-Vision.

Two of the highlights of the event were briefings by LTC Richard E. MacNealy, Deputy Commander 21st Cav, and by CW4 Mike Durant, special operations simulation guru. LTC MacNealy's demonstration of CHOICE a relatively low-cost, home-grown, tactical force on force, real-time simulation and after action system was truly remarkable. CW4 Durant reported on the impending STOW-A exercise that the 160th Special Operation Aviation Regiment (Airborne) was to engage in in early October.

Special thanks to MG James Snider, PEO Aviation; Mr. James Skurka, Deputy to the Commander STRICOM; BG Robert E. Armbruster, Jr., Deputy for Systems Acquisition, AMCOM for their participation and support. Thanks are also due to event co-sponsors - the local AAAA Washington-Potomac Chapter and its members for their support, especially president COL Joseph L. Ferreira, VP Programs, SFC Pam Shugart, and MAJ Jim Mulvehill.

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CPT Billingsley G. Pogue

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MAJ John G. Alvarez
CW3 Frank G. Bushman

OREGON TRAIL CHAPTER SALEM, OREGON
Mr. Robert B. Anderson
CW4 John A. Arana
1LT Robert R. Hagerman
2LT Larry W. Thompson

PHANTOM CORPS CHAPTER FORT HOOD, TX
LTC Fred J. Gargiulo
LTC Anthony R. Ierardi

RISING SUN CHAPTER CAMP ZAMA, JAPAN
Mr. Masaji Kawakami
Mr. Satoshi Takahashi
Mr. Terumi Tanaka

SHOWME CHAPTER JEFFERSON CITY, MO
CPT Barry P. Adams

SOUTHERN CALIFORNIA CHAPTER LOS ANGELES, CA
Mr. Lee Milligan

TENNESSEE VALLEY CHAPTER HUNTSVILLE, AL
Mr. J. Tillman Griggs
Mr. David Hock
Mr. James A. Roy
Mr. Max W. Watson
Ms. W. Diane Weston

VIRGINIA MILITARY INSTITUTE CHAPTER LEXINGTON, VA
CDT Ryan Doltz
2LT Mia K. Utz

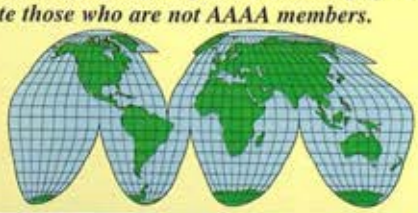
WASHINGTON-POTOMAC CHAPTER WASHINGTON, DC
Mr. George W. Kralovec
LTC Rodger W. Nash, Ret.
MAJ Susan L. Niemetz

MEMBERS WITHOUT CHAPTER AFFILIATION
COL Clark J. Eaton
COL William J. Gottlieb
2LT Kimberly N. Hampton
LTC Frank G. Heyl, Ret.
MAJ Kevin M. Kepler
SGT Craig M. Lankford
CW4 Raymond G. Potter
PFC Rocky Sudduth

AAAA LOCATOR

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

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



Memorial Data Requested

We are in the process of constructing a memorial for all lieutenants killed prior to completing OBC/flight school and receiving their aviator wings. In particular we need to know the lieutenant's name, date of death, and how they were killed (POV, type aircraft accident, etc.) POCs are Maj. Shawn Allen or Capt. Rick Farrall DSN 558-3606/ 3429, commercial (334) 255-3606/ 3429 or e-mail: farrall@snowhill.com

Cpt. Rick Farrall
Aviation Officer Basic Course, Fort Rucker, Ala.

New Chapter Officers

Army Aviation Center:
Col. Robert L. Gore, President; Col. Rich Johnson, Sr. V.P.; Maj. Cynthia Gleisberg, Secretary; Lt. Col. Charles Reed, Treasurer; Capt. Dave Salter, VP Awards; Mr. Bill Cannon, VP DAC Affairs; CSM Sanford Tanna, VP Enlisted Affairs; Col. Lee Smith, Ret., VP Industry Affairs; Lt. Col. Thomas Young, VP Membership; 1st Lt. Derrick Jee, VP Programs; Maj. Mike Negard, VP Publicity; Col. Bill Lockwood, Ret., VP Reserve/Retired Affairs; Capt. Ed Rhinier, VP Scholarships; CWO 3 Tony Quinones, VP WO Affairs, Col. Neal Sealock, Rep, 1st Avn Bde; Col. Gary Matteson, Rep, Aeromedical Center; Lt. Col. Jeff White, Rep, Army Safety Center, Col. Austine Omlie, Rep, Avn Tech Test Center; CSM Diane Williams, Rep, Avn Training Bde; Col. Robert Carter, Rep, USAAVNC Command Group; Maj. James Bullinger, Lt. Col. Jan Ithier, Maj. Art Kirkland, Capt. Thomas Stauss, Mr. Bill Thomas, Members-at-Large.

Checkpoint Charlie:
CWO 3 Ellery W. Sayers, Ret., Sr. V.P.

Flying Tigers:
Maj. John E. Valentine, President; Lt. Col Benjamin H. Williams, Sr. VP; 1st Lt. William Alan Hardin, VP Membership Enrollment; CWO 4 Larry C. Bugg.

Iron Mike:
1st Lt. Brian E. Warfel; VP Awards.

Monmouth:
Lt. Col. William Pohlmann, Ret., VP Scholarships.

Morning Calm:
Maj. Paul J. Ambrose, VP Awards.

Morning Calm (Central Subchapter):
Lt. Col. John S. Emmerson, President.

Morning Calm (South Subchapter):
Lt. Col. Michael G. Mudd, President.

Morning Calm (Warrior Subchapter):
Lt. Col. Romey P. Pelletier, President.

Phantom Corps:
Lt. Col. Anthony R. Ierardi, Treasurer.

Ragin' Cajun:
Maj. Christopher F. White, Treasurer.

Stonewall Jackson:
Col. William A. Simpson, President.

Tanus:
Col. Jeffrey J. Schloesser, President

AAAA Soldiers of the Month

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

Spec Michael A. Martin
June 1998
(Narragansett Bay Chapter)

SSG Ronald E. Roscoe
July 1998
(Narragansett Bay Chapter)

New AAAA Industry Members

Uwohali Incorporated Huntsville, Ala.

Aces

The following members have been recognized as Aces for their signing up five new members each.

1st Lt. Kevin R. Card
CWO 3 Bobby R. Deiss
CWO 2 Jeffrey D. Flanagan
CWO 5 Thomas P. Gadomski
Lt. Col. Bernard F. Gerding
CWO 2 Roger A. Graf
CWO 5 Lemuell E. Grant
Maj. Scott W. Hollingsworth
SFC Joseph R. Kenney, Jr.
Liz A. Murtaugh
Col. Herbert J. Sims
SFC Pamela L. Shugart

New AAAA Life Members

Maj. Jeffery D. Brown
CWO 2 Michael T. Carson
Maj. Michael A. Fleetwood
1st Sgt. John H. Gulserian
Capt. Michael A. Hales
Mr. Roger P. Hoffman
Maj. Dale Hungerford, Ret.
CWO 3 Carlos A. Pardo
Maj. John W. Scannell
Capt. Michael S. Tarquinto
Maj. Karen K. White, Ret.
CWO 4 William Williams IV

New AAAA Order of St. Michael Recipients

— Silver —

Col. Eric W. Braman
CSM Robert F. Eckrich
Maj. Gen. Robert E. Schulte

— Bronze —

Maj. Shawn D. Allen
CWO 4 Kenneth E. Bowen
CWO 5 Stephen L. Gatewood
Lt. Col. George K. Gamble
CWO 3 Scott L. Henry
Warren B. Jones
Lt. Col. David L. Lawrence
CSM John E. Lawrence
Alfred A. Martin
Maj. Gen. Thomas H. Needham
Maj. Gen. John J. Ryneska
Flt Lt. Julian D. Warren
CWO 5 Robert L. Williams
CWO 5 Geary W. Younkin
Maj. William J. Zaharis

In Memoriam

CW03 James R. Holzer, Ret.

Army Aviation Association of America

49 Richmondville Ave., Westport, CT 06880-2000
Phone: (203) 226-8184 E-Mail: aaaa@quad-a.org

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The Military Coalition (TMC) Representatives:
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MG Charles F. Drenz, Ret., Alternate

**Contact the National Office for P.O.C. information 203-226-8184*

The 2d Squadron, 6th U.S. Cavalry, commanded by Lt. Col. George Rhynedance, hosted a Romanian Joint Contact Team on Aug. 27, 1998. The 2-6 Cavalry is part of the 11th Aviation Regiment in Illesheim, Germany. The visit occured while 2-6 was deployed to the Grafenwoehr Training Area in Germany conducting its annual helicopter gunnery.

The six-man delegation came to observe the "Fighting Sixth" in a live-fire gunnery setting. FARP (fueling and arming) operations, gunnery qualification procedures, safety, and the role of the NCO were some of the high points covered during the visit.

The visit culminated with a live fire team qualification exercise. Cooperation, friendship, and a common warrior spirit were the themes of the day."

Lt. Col. George Gamble (below right) has been awarded the Army Aviation Association of America's Bronze Order of Saint Michael medallion in recognition of his "significant contributions to the promotion of Army aviation."

Gamble — chief of the Air Branch in the Operations, Plans and Policy Division of U.S. Special Operations Command (USSOCOM) at MacDill Air Force Base, Fla. — is a longtime special-operations aviator. During his years with the 160th Special Operations Aviation Regiment Gamble played a leading role in several key operations, and he has been an leading innovator in special operations aviation tactics and policy. He led the way in developing doctrine for special operations aviation combat search and rescue, and during his service at USSOCOM played a key role in the development of future special operations aircraft programs. In 1997, Gamble was named the Central Florida AAAA Aviator of the Year.

Maj. Gen. Maxwell C. Bailey (left), USSOCOM's director for operations, plans and policy, praised Gamble as "a multi-talented officer who has earned, by participating in numerous sensitive missions, an outstanding reputation within Army SOF aviation. In short, he is a superb soldier and he will continue to be a significant contributor to both USSOCOM and the aviation community."

TOP CHAPTERS

The 1 October 1998 Membership Enrollment Competition standings have the following chapters ahead with two months left in the CY98 contest ending 31 December. The rankings are based on **CY98 net membership gain.**

Master Chapter (170+ Members)
1. Colonial Virginia Chapter 130

Senior Chapters (80-169 Members)
1. Iron Eagle Chapter 143

AAAA Chapter (25-79 Members)
1. Big Red One Chapter 36

TOP GUNS as of 1 OCTOBER 1998

The member who sponsors the greatest number of new members during the contest year ending 31 December 1998 wins an all expense-paid trip to the AAAA Annual Convention, as well as a $300 cash award, and receives a plaque. Please note that the Top Gun program has been expanded to include prizes for 2nd place, $400; 3rd place, $300; 4th place, $200; 5th place, $100.

Mr. William J. Cannon 404
CPT. Bradley D. Osterman 79
SGM Kenneth G. Rich 74
Mr. John H. Bae 61
1LT Kevin R. Card 40

AAAA SCHOLARSHIP FOUNDATION

Scholarships "dedicated" to Enlisted, Warrant Officer, Company Grade Officer, and Department of the Army Civilian Members.

Funds also available for spouses, siblings & children of AAAA Members.

Contact the AAAA Scholarship Foundation, Inc.
49 Richmondville Avenue, Westport, CT 06880-2000
Tel: (203) 226-8184 • FAX: (203) 222-9863
E-Mail: aaaa@quad-a.org for details

Application Deadline: May 1, 1999

Lt. Gen. Richard D. Meyer (Ret.), former deputy chief of staff for transportation and aviation and a former elected member of the Army Aviation Association of America's National Board, died August 12 in Virginia.

An untiring advocate for Army aviation, Lt. Gen. Meyer graduated from the United States Military Academy in 1933, and served in the Corps of Engineers until transferring to the Transportation Corps early in World War II. During that conflict, his work as deputy director of operations in the Office of the Chief of Transportation was instrumental in formulating and executing procedures for the movement of troops and equipment overseas. At war's end he commanded the 2nd Major Transportation Port in Manila, Philippines, a position which allowed him to play a key role in the rapid repatriation of U.S. troops from the Pacific.

After the war Lt. Gen. Meyer served in a variety of key staff positions. He attended flight school in June 1958, and received his wings the following month. Lt. Gen. Meyer served as deputy chief of staff for transportation and aviation from August 1958 to June 1961, when he became deputy chief of staff for logistics in the U.S. Continental Army Command. He left that position to become the director for logistics in the Office of the Joint Chiefs of Staff, where he served until his retirement in October 1967.

Lt. Gen. Meyer is survived by his wife, Gertrude, and his four children. Contributions in his memory may be sent to the St. Jude Children's Research Hospital in Memphis, Tenn., or to the American Heart Association, 4217 Park Place Court, Glen Allen, VA 23060.

CFC● CFC● CFC● CFC

The AAAA Scholarship Foundation, Inc. (AAAASFI) is now part of the Combined Federal Campaign (CFC), a workplace charitable fund drive conducted by the U.S. Government for all federal employees. It is the single largest workplace fund drive in the country, raising approximately $195M in pledges annually.

Please consider making a CFC-sponsored contribution to the AAAA Scholarship Foundation this year.

CFC● CFC● CFC● CFC

Aviation Center Chapter

Col. R. Lee Gore (right) presented the Order of Saint Michael (bronze award) to retiring Command Sgt. Maj. John E. Lawrence at Fort Rucker on Sep. 15. Lawrence, who has served as the CSM of the Aviation Training Brigade since May 1, 1997, was honored with the OSM for his leadership, professionalism, and service to Army aviation throughout his 30-year career. The Lawrence family plans to remain near Fort Rucker after retirement and enjoy life. (photo by James Bullinger)

Col. R. Lee Gore (left), Army Aviation Center Chapter president, presented the Order of Saint Michael (bronze award) to Mr. Leslie H. Locke, Contract Manager for Lear Siegler Services, Inc. at Fort Rucker, on July 31. Locke was honored with the OSM for his life long commitment to providing quality flight training to Army and Air Force pilots. Locke, who began flying in 1943 as a fighter, bomber, and transpsort pilot during WWII, recently retired from an aviation career spanning over 55 years. He plans to make West Point, Va., his retirement home. (Courtesy photo LSSI)

Lt. Col. Gasper Gulotta (left), commander 1st Battalion, 223rd Aviation Training Brigade, Ft. Rucker, presents CWO 3 Michael S. Harris (right), the Bronze Order of St. Michael. CWO 3 Harris is a member of the Maintenance Test Pilot Course, Fort Rucker. He was a member of the North Country Chapter of AAAA, however, received this award at Fort Rucker after his recent move there.

Capt. Rich Carroll, Head Bean of the Army Aviation Center Chapter's 7th Annual Chili 5K Festival, congratulates Ms. Allison Boyce of Enterprise, Ala. for being selected as the winning artist of the Chili 5K logo design contest. Boyce's design (shown as a photocopy) graced the front of this year's race T-shirts, awards, and medallions. For her efforts, Boyce received a cash prize, five race T-shirts, a plaque of appreciation, bragging rights and fame during the Chili 5K awards ceremony held Oct. 24 at Fort Rucker. (Courtesy photo LSSI)

Col. R. Lee Gore (center), holds a check representing $20,000 in scholarship grants recently awarded to eleven Wiregrass area students. Eight of the 1998 AAAA scholarship recipients pictured were honored during the Army Aviation Chapter's quarterly membership meeting in August. "We are very proud of this year's recipients," said Gore. "These scholarships attest to the personal commitment to academic excellence." (U.S. Army Public Affairs photo)

Nov 13-14. The Daleville & AAAA Annual Turkey Shoot and Shotgun Spectacular, Fort Rucker Skeet and Trap Range. Contact: MAJ Rob Szempruch, (334) 255-8444.

Nov 17. Army Aviation Center Chapter General Membership Meeting and Member Appreciation Night, Fort Rucker, O'Club. Contact 1LT Derrick Jee (334) 255-2579.

Nov 17-19. AEC Symposium, Gibbs Hall Officers Club, Fort Monmouth, N.J.

Jan. 11-13, 1999. AUSA/AAAA Aviation Symposium, Fairview Park Marriott, Falls Church, Va.

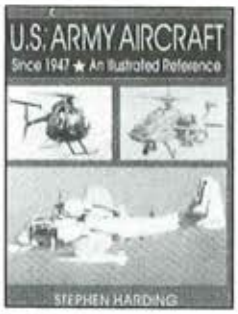
Jan 27-29. 25th Annual Joseph P. Cribbins Product Support Symposium, Huntsville, AL.

May 9-12. AAAA Annual Convention, Nashville, TN.

ARMY AVIATION BOOK STORE

U.S. ARMY AIRCRAFT SINCE 1947

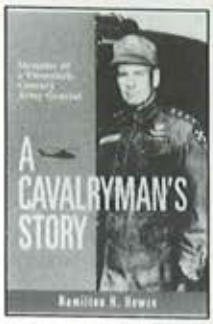
Since 1947 - An Illustrated Reference
Stephen Harding



U.S. Army Aircraft Since 1947 is the only comprehensive, up-to-date guide to the 124 types of helicopters, fixed-wing aircraft and experimental flying machines used by the U.S. Army since 1947. After a concise yet thorough introductory history of U.S. Army Aviation, the author discusses each aircraft type used by the Army's air arm, which is the largest, most technologically advanced and most combat experienced force of its kind in the world today. Within each chapter the author includes information on aircraft serials, markings, weapon systems, operational history and other technical data. Illustrated with more than 220 color and black and white photographs, *U.S. Army Aircraft Since 1947* is the definitive reference source on its subject and a must-have volume for all military aviation historians and enthusiasts. [Schiffer Publishing Ltd. Size: 8 1/2" x11", 264 pages, hard cover; ISBN: 9-7643-0190-X]

A CAVALRYMAN'S STORY

Memoirs of a Twentieth Century Army General Hamilton H. Howze



A Cavalryman's Story is the memoir of a professional soldier, born into the lineage of West Point and recognized today as the father of U.S. Army Airmobile tactics and doctrine. With understated charm and humor, GEN Howze writes of his polo-playing years in a 1930s Army that still relied on horses, and then of the sudden, almost remarkable transition to armored divisions, when the U.S. entered WWII. It was in the mid-1950s that GEN Howze emerged as one of a handful of perceptive Army officers who recognized the potential of a sky cavalry. As the first director of Army Aviation GEN Howze promoted the concept to industry, the government, and the public. His vision came to fruition in the 1960s when he presided over the U.S. Army Tactical Mobility Requirements Board, known as the Howze Board, which proved the viability of sky cavalry in combat. *A Cavalryman's Story* provides an authoritative look at the forging of the modern Army and a wry perspective on the perennial absurdities of military life, whether in peace or war. [Smithsonian Institution Press. Size: 6"x9", 316 pages, hard cover; ISBN: 1-56098-664-6].

BREAKING THE PHALANX

Douglas A. Macgregor

This work proposes the reorganization of America's ground forces on the strategic, operational and tactical levels. Central to the proposal is the simple thesis that the U.S. Army must take control of its future by exploiting the emerging revolution in military affairs. The analysis argues that a new Army warfighting organization will not only be more deployable and effective in Joint operations; reorganized information age ground forces will be significantly less expensive to operate, maintain, and modernize than the Army's current Cold War division-based organizations. And while ground forces must be equipped with the newest Institute weapons, new technology will not fulfill its promise of shaping the battlefield to American advantage if new devices are merely grafted on to old organizations that are not specifically designed to exploit them. [Praeger Publishers. Size: 6"x9 1/8", paperback, 283 pages, ISBN: 0-275-957942]

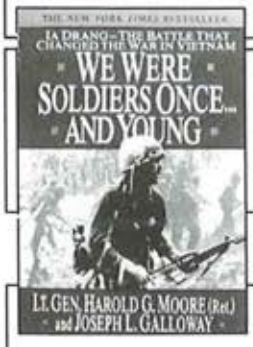
YEAR OF THE HORSE: VIETNAM

1st Cavalry in the Highland1965-1967
COL Kenneth D. Mertel (USA, Ret.)

Year of the Horse: Vietnam is the day-to-day story of the Jumping Mustangs - 1st Battalion, Airborne, 8th Cavalry, of the 1st Air Cavalry Division. After describing the activation of this then revolutionary airmobile division at Fort Benning, GA on 1 July 1965, COL Mertel gives a vivid picture of the building of his own Jumping Mustang Battalion, the rigorous training of officers and men, and, finally, the long voyage across the Pacific to Vietnam. Now the test. The answer came quickly and dramatically in a rapid succession of search and destroy operations. COL Mertel pays tribute to the many acts of heroism of his men, who lived, worked and fought together in some of the world's most inhospitable conditions. He also writes movingly of those who never came back. [Schiffer Publishing Ltd. Size: 6"x9", 384 pages, hard cover; 59 color photographs, 9 maps; ISBN: 0-7643-0190-X]

WE WERE SOLDIERS ONCE...AND YOUNG

Harold G. Moore and Joseph L. Galloway



We Were Soldiers Once ... And Young brings the war back home with unforgettable stories of those who lost family members to combat. This devastating account rises above the specific ordeal it chronicles to present a picture of men facing the ultimate challenge, dealing with it in ways they would have found unimaginable only a few hours earlier. It reveals to us, as rarely before, man's most heroic and horrendous endeavor. [Harper Collins Publishers, Size 5 1/2"x8". 483 pages, paperback. ISBN: 0-06-097576-8]

DANCING ROTORS

Harry E. (Ned) Gilliand, Jr.

Dancing Rotors, is a book about special helicopter usage, documenting the evolution of U.S. military helicopter precision flight demonstration teams from 1948 through 1976. It covers Army and Navy efforts to provide unique shows to stimulate recruiting into both branches of service, and especially into their rotary-wing aviation programs. A wealth of very unique helicopter history, heretofore untold, is now within the reach of every helo enthusiast. [Aerofax, Inc. Size 8 1/2"11". 483 pages, paperback. ISBN: 0-942548-57-4]

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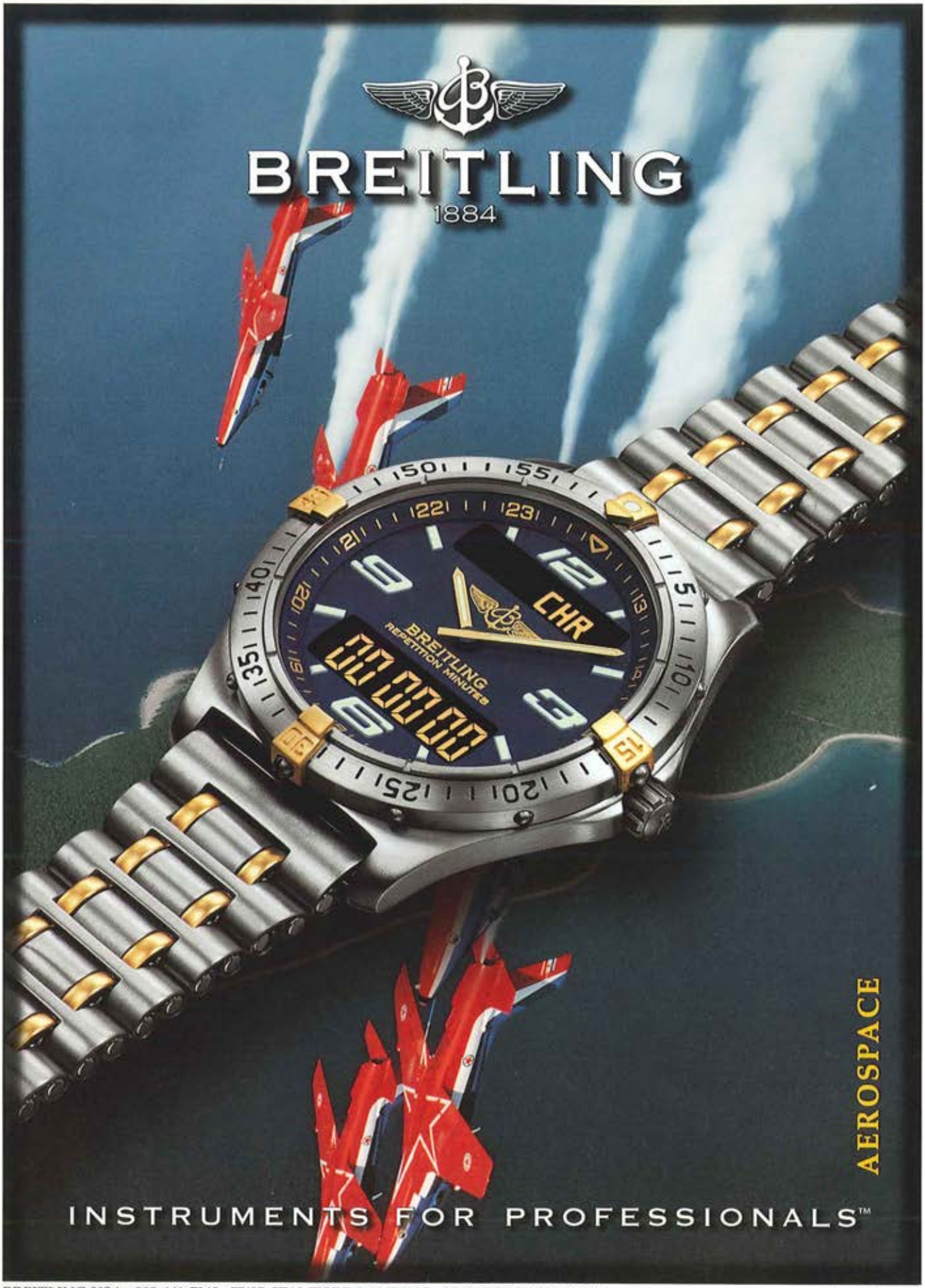

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