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AVIATION DIGEST

Professional Bulletin 1-87-1

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PROFESSIONAL BULLETIN

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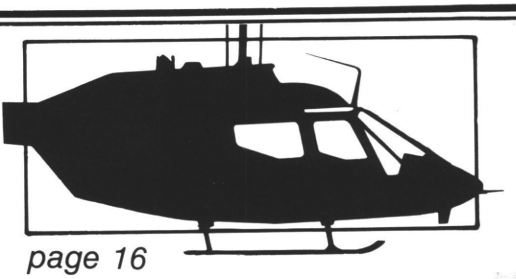

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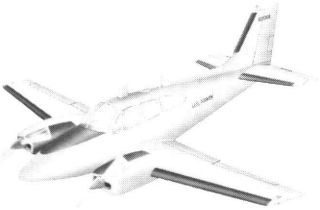

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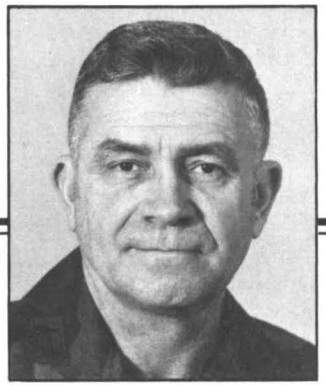
Major General Ellis D. Parker
Chief, Army Aviation Branch



The Goal Must Be Met

As chief of the Army's Aviation Branch, one of my primary responsibilities is to ensure that combat ready aviators are in our cockpits for the next battle. A major contributor to that assurance is the Department of the Army Aviation Standardization Program that is administered by the Directorate of Evaluation and Standardization (DES) at the Aviation Center. This program is designed to ensure that our aviator training standards are safe, yet demanding and realistic. Successful execution, however, is dependent on each member of the aviation community. Your positive contributions in this effort will keep our aircrews fully prepared for any future conflict.

Evaluations conducted by DES in the field reveal that we are steadily progressing toward making combat readiness a reality. Command involvement in developing and supervising the aircrew training program (ATP) has significantly improved. Emphasis has solidly shifted toward implementing a "train-as-we-fight" philosophy. Commanders are assessing their units' missions and selecting tasks for training and evaluation in accordance with the Commander's Guide, TC 1-210. Units are validating that the ATP, through the use of the Commander's Guide and the appropriate aircrew training manual (ATM), is the foundation on which to construct an effective training program and evaluation system. The final step in developing a unit training plan is the use of tactical mission scenarios that will integrate the accomplishment of unit mission and individual ATM tasks.

I am continuing to make available the aviation standardization and training seminars, (ASTS), the branch training teams and the instructor pilot/standardization instructor pilot seminars to assist units in the field. These teams provide the maintenance, operations, training standardization and safety assistance tailored to the needs of commanders and their units. During the past year, assistance teams have visited every major aviation installation in the continental United States and U.S. Army, Europe. Aviation units in Korea were visited by ASTS teams in June 1987. Overall, the assistance teams and seminars are being positively received and are contributing to the improved professionalism throughout our aviation force.

As we continue to refine our tactics and doctrine at the Aviation Center, we need your feedback pertaining to employment techniques and procedures. During unit seminars and evaluations, team members are receptive to recommendations for better execution of aviation missions. At the same time, these teams are prepared to address techniques employed by other units. This interchange helps put our "how-to-fight" manuals in proper perspective, thus confirming their validity or establishing a requirement for revision. I encourage you to continue as proactive participants in aviation training and standardization.

Army Aviation is in an innovative era. Tactical initiatives cause the ATP to be dynamic. The Army Aviation Standardization Program ensures that our readiness goals are accomplished. Lasting success in this pursuit depends on a strong commitment to the application of doctrinally correct procedures by all members of the Army Aviation team.

Finally, a few observations on the article, "Air-to-Air Combat Helicopters." My views toward conventional rotor systems and their concomitant provision of maneuverability and agility are clear. Our doctrinal manuals reflect the importance of both combat agility and flexibility in task organization and weapons mix dependent on the tactical situation. However, since we in Army Aviation don't profess to have a monopoly on good ideas, I offer the "Air-to-Air. . . " article as "another view."

The Aviation Officer Basic Course

and the Platoon Commander

Major Richard A. Scales

The Aviation Officer Basic Course (AVNOBC) provides the basic branch education for new lieutenants assigned to Army Aviation. Unlike officer basic courses of past years, this one has assigned aviation captains serving as platoon commanders who remain with the lieutenants throughout Phase I. Information contained in this article is based on the personal experience of the author after having been directly involved with the AVNOBC for more than 2 years.

The Aviation Officer Basic Course provides unlimited professional leadership opportunities for newly assigned Army Aviation lieutenants. With the exception of the squad live-fire, all ranges are run by the lieutenants under cadre supervision.

ARMY AVIATION became a basic branch of the Army on 12 April 1983. This generated the requirement for Aviation Branch to provide professional military education to its Aviation Branch lieutenants.

Ft. Rucker, AL, happily assumed this mission rather than continuing to rely on other branch service schools. Training developers and many others intently went about the business of creating the Aviation Officer Basic Course (AVNOBC) instructional materials and obtaining necessary support equipment, supplies, facilities and personnel. Flight school was to be the branch specific portion of the AVNOBC and was already a proven entity; therefore, the concentrated effort was expended on the creation of AVNOBC, Phase I.

The hard work paid off. The first class began on 1 July 1984, a year earlier than originally planned, and the course has enjoyed much success since then. What makes this course different from other officer basic courses of past years is the course purpose and, moreover, the method for achieving that purpose.

AVNOBC, Phase I is 9.5 weeks of intensive training aimed at developing basic officer soldiering skills and tactical knowledge in the combined arms arena prior to flight school. In addition to the tactical and professional common military subjects, the course designers were interested in evaluating subjective leadership and officership qualities. Course designers recognized immediately that this type of evaluation could not be accomplished in a sterile classroom environment; so, a company organization (Company D, 6th Aviation Training Battalion) was formed with the capability of pro-

viding situational leadership training and evaluation in conjunction with the conduct of more than 50 percent of the course content. Key to the company's accomplishment of that mission was the creation of platoon commander positions. This article discusses the role of the AVNOBC, Phase I, platoon commander and the impact of that role on course effectiveness and the future of Army Aviation.

AVNOBC, Phase I, Content

It is important to know how Phase I fits into the *total* AVNOBC training picture. The entire program contains 45 weeks of training divided into 3 phases. Phase I, the subject of this article, is discussed in more detail later. Phase II, which is commonly referred to as flight school, contains the lion's share of the branch specific technical portion of the AVNOBC. This phase lasts 34 weeks and encompasses all flight training including ground school. Finally, the last 2 weeks of training, Phase III, can be thought of as a regreening period and also contains training in the tactical employment of aviation units in the combined arms arena. The entire AVNOBC is a well-balanced program for bringing new lieutenants into the fold of Army Aviation.

It is vital that the lieutenants become proficient aviators with the ability to tactically employ their aircraft and units. However, it is all the more critical that each gains a firm foundation in combined arms doctrine, common officership skills, and, most importantly, the fundamentals of leadership. AVNOBC, Phase I, is designed to meet this challenge with a variety of training events.

Phase I is a dynamic, action-packed, 9.5 weeks with more than 496 hours of instruction and related activities. The list above shows the hours programed for each major section of the course. After inprocessing and completion of flight physicals, the course shifts quickly into high gear. While in garrison, each day begins at 0515 hours with physical training (PT). During the first week, PT is cadre led. After that, the students train themselves under cadre guidance in accordance with FM 21-20, "Physical Readiness Training."

Subject	Responsible Agency	
	Department of Combined Arms Tactics	Delta Company
Military History	6	
Leadership	57	1
Military Law	6	
Communicative Arts (+ 4 Ed Ct)	26	
Medical Subjects	7	
Land Navigation	7	9
Weapons		18.5
Communications/Electronics	10	
Maintenance and Supply	35	
Training Management	7	8
Combined Arms Subjects	53	12
Safety (Taught by DGFS)	5	
Field Training		85
Examinations	15	
In/Out Processing*		48
Platoon Commander's Time*		21
Physical Fitness*		62
Totals	234	264.5

*Administrative Time

AVNOBC Program Hours

Emphasis on both air and ground operations is stressed in the AVNOBC. Through designated exercises students learn the difficulties encountered while engaged in an air assault mission. The land navigation course is conducted over difficult south Alabama terrain and presents a confidence building challenge to each lieutenant. In all unit movements conducted during the field training exercise, students learn to use the terrain for cover and concealment, and teamwork for effectiveness and efficiency.

Attendees gain experience in PT activities such as running, guerrilla drills, grass drills, road marches, aerobics, team sports, rifle drills and runs, and protective mask runs. The end result of the PT program is a physically fit lieutenant with a broad knowledge of a variety of physical fitness activities and some of the physiological principles involved. While physical fitness is stressed, the lieutenants also are challenged academically.

Much of the course consists of diversified classroom academic instruction of which only 5 hours are directly related to aviation. Little is taught or discussed concerning aviation related topics for two primary reasons. First, to be an effective member of the combined arms team, one must possess a well-rounded knowledge of the other team members, including their doctrine and tactics. An understanding of ground operations will be essential to these future aviators in supporting the ground tactical commander. Second, a sound knowledge of infantry tactics can be translated into aviation tactics with a few adjustments in scale and speed. Therefore, the *training emphasizes the other* combat, combat service and combat service support branches to ensure an understanding of how the other combined arms team players operate. Many other important aca-

demic subjects are presented in varied detail to provide a well-rounded education for the young officers.

Activities outside the classroom include day and night land navigation courses, patrolling, a tactical exercise without troops, student-taught classes, drill and ceremonies, and much more. The course culminates with a 5-day field training exercise.

The field training exercise simulates combat unit (infantry) deployment and employment in a tactical training environment. In preparation for combat operations, the first 2 days are spent on the Ft. Rucker ranges in intensified training. During this period, the lieutenants zero and qualify with the M-16 rifle; familiarize on the M-2 caliber 50 and M-60 machineguns and the M72A2 light antitank weapon; and receive training in air assault operations (from the infantry viewpoint). Time is also spent rehearsing squad and platoon movement techniques and preparing for tactical employment. Early on the third day, an air assault mission takes the students to the area of operations, where they overcome minimum resistance, followed by a move to a company assembly area. There, the final phase of intensified training occurs with classes in prisoner of war control and platoon offensive and defensive operations. That afternoon, the student company moves into and occupies a prepared position and plans for a night defense. Aggressors from Company C, 509th Infantry, aid tremendously in enhancing the realism with several probes of the position during the night. The following morning (fourth day), each squad is assigned a reconnaissance patrol mission; leaders are selected; plans are developed, briefed and rehearsed; and each squad conducts its patrol. Upon return, the intelligence information gathered by one of the patrols is disseminated to the class. This information is used to plan for a platoon attack to occur against that reconnoitered position on day five. In addition to this platoon attack, the final day of field training includes a squad 12 km forced march and the highlight of the course—a squad live-fire exercise in a combined arms environment. During the exercise, each squad employs and experiences the awesome destructive power of the combined arms team. Integral to this live-fire exercise is the employment of infantry squad organic weapons, artillery, attack helicopters and main battle tank armor. A final protective fire ends the exercise.

Organization for Training

AVNOBC, Phase I, is a varied and fast-paced course. To accomplish this, the Aviation Center has adopted a unique organizational relationship among trainers. Two organizations at Ft. Rucker share responsibility for training and developing each lieutenant attending the AVNOBC, Phase I.

The Department of Combined Arms Tactics (DCAT) is responsible for knowledge-based classroom training and Company D, 6th Aviation Training Battalion, is responsible for practical application of that knowledge in other garrison and field environments. Constant coordination is required between DCAT and Delta Company to ensure consistency and mission accomplishment.

To cite an example of the critical working relationship between the two, DCAT instructors teach the Army Training Management System, which includes how to conduct training, and Delta Company cadre assign and evaluate student-taught classes. Close coordination is essential to ensure consistent standards. This analogy also holds true with the combined arms tactics training. DCAT teaches the classroom portion and Delta Company takes the lieutenants to the field for practical application. While all training is important, probably the most important is the development of leadership skills.

Leadership Training

Leadership training is incorporated into almost every aspect of the course. DCAT teaches the leadership core curriculum including the doctrine and "how to" classes, ethics, counseling and general interpersonal skills. These classes provide a fundamental knowledge of people, techniques for dealing with and motivating

In MOPP-4, a platoon commander leads by example on a portion of the hand grenade assault course.

The platoon commanders not only observe and evaluate but also instruct. This platoon commander is presenting a class on "how to run a range."

people, how to deal with people problems and more. It is in Delta Company where the lieutenants apply this knowledge allowing them to learn through experience. Again, consistency between trainers is vital. To learn through experience, each lieutenant serves in various leadership positions.

To allow several opportunities for leadership experience, each AVNOBC, Phase I, class is divided into platoons of 35 to 50 students. While in garrison, this split, along with weekly leadership position rotation, allows every lieutenant at least one chance to serve as a leader within the platoon (i.e., platoon leader, platoon sergeant or squad leader). Additionally, every lieutenant leads a squad in physical training and teaches at least one class to the others. Drill and ceremony training also provides leadership skill practice. Many serve in additional duty positions such as supply officer, academic officer and security officer, all of which allow those selected a chance to exercise their leadership skills to a degree. While there are many opportunities for leadership experiences in garrison, many leadership challenges occur while in the field, too.

The AVNOBC, Phase I, students spend a total of 8 days away from garrison during the course. As described earlier, there are 3 range days, a /2-hour FTX, a patrolling day and a land navigation exercise day. Each day brings with it many excellent opportunities to exercise leadership skills. Duties are rotated either on a timed basis or by simulating casualties—"killing" student leaders during tactical exercises. On two of the range days, the lieutenants run the ranges under Delta Company cadre supervision. The land navigation exercises provide each individual a chance to hone a skill that enhances the technical side of leadership. The real meat of the leadership practical application and learning comes during the FTX and patrolling. During these periods about 75 percent of the lieutenants serve in normal infantry company leadership positions down to squad and patrol level in a simulated tactical environment.

Practical situational leadership opportunities are plentiful during Phase I of the AVNOBC. The key, however, is to learn from the experience. Situations must be developed; performance must be ob-

Counseling can occur at any time and any place. This lieutenant is learning not only the object of this encounter but also a teaching tool that he can use with his future subordinates.

AVIATION OFFICER BASIC COURSE

served and evaluated; strong and weak points must be surfaced; and suggestions for future performance must be presented. To accomplish this, a capable individual must be available to observe. This individual is the platoon commander.

Platoon Commander Role

The platoon commander provides the bridge by which newly commissioned lieutenants cross from the commissioning source to the Active Army. Each platoon commander is an aviation captain with unit experience who must be a proven performer and exhibit high moral and ethical character. A primary function of the platoon commander is the subjective evaluation of each lieutenant in the areas of leadership and officership.

In order to do this, the platoon commander must be knowledgeable and experienced. More important, the platoon commander must be a model soldier—an example for the lieutenants to observe and emulate. Each must personally adopt and model the values that form the basis for a distinct lifestyle and code of behavior, and each must be exceptionally self-disciplined and exhibit selfless service to the mission. The platoon commander must command confidence and respect as derived directly from expertise, proven excellence in the combined arms arena, and loyalty and dedication to the Nation and profession.

Without these qualities, there can be no credibility in the evalua-

A protective mask run is but one example of the tough and demanding AVNOBC physical fitness program. Most do not believe they can until they actually do the run.

tion process. Should the lieutenants be presented a negative example, the mission will, in all probability, not be accomplished. There is much each platoon commander must learn to meet the challenges of the job.

Each officer selected to become a platoon commander must successfully complete an internal training program prior to assuming duties with a platoon of lieutenants. This program is designed to both train and evaluate the selectee in all areas. The goal is a platoon commander who is prepared mentally and physically to lead soldiers; who is skilled in combined arms tactics, doctrine and weaponry; who inspires confidence and an eagerness to be part of the team; and who has the ability to analyze, the vision to see, the integrity to choose and the courage to execute. With training complete, the qualified platoon commander is prepared to lead a platoon of lieutenants through the course.

There is a multitude of tasks each platoon commander performs with each AVNOBC, Phase I, class. A very basic need is for the platoon commander and the lieutenants to become acquainted. This begins during inprocessing with a simple introduction and continues as the platoon commander accompanies the lieutenants through many of the inprocessing tasks. Building the lieutenants' confidence in the platoon commander's expertise begins immediately with a detailed briefing and several classes presented by the platoon commander. From the onset, the lieutenants know the platoon commander is the one person from whom they should seek advice and counsel. The platoon commander will be with the lieutenants throughout the course, will sit with them during much of their classroom instruction, and will be their senior instructor when outside the classroom. This involvement is vital to accurate evaluation and counseling.

The platoon commander is required to counsel each lieutenant several times during the course, both formally and informally. Formal initial counseling occurs within the first 2 weeks when the platoon commander ensures each lieutenant understands the course standards; clears up any misconceptions; checks for personal or family problems; and gains an appreciation for the lieutenant's attitude, personal fiber and goals as an officer. The remainder of the formal counseling sessions involve performance. They occur at mid-course; end-of-course; after serving

in a leadership position; and upon noting significant outstanding, marginal or substandard performance. Each platoon commander makes use of informal counseling as often as required for both positive and negative reinforcement.

The counseling program is heavily stressed for several reasons. First, the lieutenants need the feedback to gauge how they measure up against the standards and how to improve. Second, counseling is the major tool through which the platoon commander critiques each lieutenant's performance, leadership ability and officership. Finally, the counseling provides examples of techniques for each lieutenant to use in the development of personal counseling techniques. So, the counseling is multipurposed in that it is not only used to inform but also is used as a vehicle by which the lieutenants receive much of their counselor training.

Through the platoon commander, each lieutenant receives practical leadership experience in a variety of environments with positive and timely feedback. Mistakes are expected; however, *learning from those mistakes* is stressed. Complementary to this is the platoon commander's evaluation of each lieutenant's leadership and officership potential. The personal observation of individual performance, personal contact and counseling (using a "whole person" concept), makes it possible for the platoon commander to evaluate each lieutenant accurately.

The success of the platoon commander role is measured by effectiveness; so, how effective is the role of the platoon commander and the course?

A Measure of Effectiveness

A recent study conducted by the Directorate of Evaluation and Standardization determined that, notwithstanding some problem areas in the AVNOBC curriculum, the quality of instruction was high. Subsequent analysis shows a high degree of similarity between what is taught and what field commanders believe should be taught, especially in the area of leadership. Although not a specific study finding, the platoon commander does make a difference and vastly enhances the effectiveness of the course.

It is difficult, if not impossible, to quantifiably measure the effectiveness and impact of the platoon commander role in training Aviation Branch's newly commissioned lieutenants. Therefore, the value of the platoon commander role must be measured in relation to the impact of that role on the effectiveness of the course. The fact that the platoon commander is there modeling the positive traits of a leader and providing consistent guidance, counsel, coaching, teaching and concern, should make a difference in the quality of the course. There are three major areas in which the platoon commander positively impacts the effectiveness of Phase I of the AVNOBC.

First, the platoon commander adds continuity to the training. The academic instructors rotate as the instructional phases change. The Delta Company commander, and ultimately the system, is far removed from the everyday world of the lieutenants. Without the platoon commander, they would be on their own to synthesize, to interrelate, the phases of instruction. The platoon commander fulfills this function through daily contact with the students and the academic instructors and by an indepth knowledge of the curriculum. This individual can provide additional instruction where needed and can field the inevitable "Why?" questions. The true synthesis of the AVNOBC, Phase I, material comes as the platoon commander evaluates and counsels the lieutenants on their performance in the course and their leadership abilities. Significantly, the platoon commander provides each lieutenant with a person, rather than a system, whose judgment and sincerity they trust, to whom they answer and from whom they get counsel.

The second area in which the platoon commander adds to the effectiveness of training, and in which continuity is directly linked, is in leadership training. The academic instructors provide classroom instruction in leadership techniques, professional ethics, and

other leadership block topics, and conduct practical exercises. But, the platoon commander is the one who assigns each lieutenant a leadership position; creates leadership challenges through situational development; observes, evaluates and critiques performance; and suggests alternatives for future performance. The platoon commander observes and evaluates the professional character of each lieutenant on a continuous basis and provides feedback using FM 22-100, "Military Leadership," definitions as a standard. Without a platoon commander, there would be no student leadership positions and the best that could be hoped for in professional characteristic evaluation would be snap-shot glimpses.

Third, and the most important factor of effectiveness, is in the area of mentorship. It is not expected that true mentorship relations exist between the platoon commander and the lieutenants. This implies something much larger than may be possible in 9.5 weeks. However, such a relationship may see a beginning because of the mentor-like actions of the platoon commander.

The platoon commander helps the lieutenants to grow in their profession. To accomplish this, the platoon commander not only observes, evaluates and counsels, but also befriends and, primarily, sets the example for the lieutenants in professional character and ethics by actions, words and deeds. The goal is for the lieutenants to learn from observing the actions of the platoon commander. Aside from the training and evaluation duties, a very important task of the platoon commander is to provide advice and assistance in solving personal and professional problems. With young lieutenants experiencing their first Active Duty assignment, problems abound and the platoon commander works painstakingly with the lieutenants to resolve their difficulties. This, too, is part of the example that is set not only for the one with the problem but also with the rest of the platoon. Even though it is up to the lieutenant to accept the platoon commander as a mentor, each platoon commander exhibits the qualities of mentorship thereby providing the lieutenants with a model to take with them throughout their careers.

So, it is in the areas of continuity, leadership training and mentorship where the platoon commander positively impacts the effectiveness of the AVNOBC. By having such an impact on the course, the platoon commander role also impacts the future of the Aviation Branch in that the basic foundation, *the cornerstone*, of an aviation officer's career is set during the AVNOBC. A highly effective and quality course will naturally set a higher point from which to start a career that should translate into a higher quality officer corps in the future. Phase I of the AVNOBC is such a course.

Capstone

The AVNOBC, Phase I, is a tough and demanding course from which Aviation Branch's future leaders learn a great deal. To be a platoon commander requires an abundance of energy along with constant vigilance of actions, words and deeds to ensure the right example is consistently portrayed. The hard work does, however, pay off in many ways. The lieutenants grow professionally in a short time due in large part to the positive impact of the platoon commander. Likewise, the platoon commander learns and grows professionally and receives an abundance of personal and professional rewards. Ultimately however, it is Army Aviation that benefits.

ABOUT THE AUTHOR

Major Richard A. Scales, U.S. Army, is a former commander of Company D, 6th Aviation Training Battalion, the AVNOBC training company. His other assignments have included executive officer of the 6th Aviation Training Battalion, AH-64 training development team coordinator, M-1 main battle tank test officer, and various positions in an assault helicopter company and an air cavalry troop. His military education includes the Army Command and General Staff College, the Air Force Air Command and Staff College, the Armor Officer Basic and Advanced Courses, the Officer Rotary Wing Aviator Course, and the Operations Research/Systems Analysis Military Applications Course I. He holds a BS degree from Louisiana Tech University and an MS degree from the University of Southern California. Major Scales is currently serving at Ft. Rucker, AL, as the Assistant TRADOC System Manager for the V-22 Osprey.

PEARL'S

Personal Equipment And Rescue/survival Lowdown

AR 95-17 Aviation Life Support Equipment (ALSE) Program

Modular type survival kits are being developed for utility, observation and attack type helicopters. DT-I testing is scheduled for late 1987. OT-II testing is under consideration for waiver by the Combined Arms Center; initial operating capability is scheduled for July 1988. These survival kits are two to five man configuration with environmental modules attached.

Cyalume Light Sticks

Cyalume light sticks are available from General Services Administration and a new one has been added. It is white, about 6 inches long and lasts about 12 hours continuously. Other colors include green, yellow, red, blue and orange.

Survival Radio

Message, DA, DALO-AV, 131824Z November 1986, subject as above, delayed implementation of paragraph 2-9b of AR 95-17 until 15 May 1987. DA message authorizes a further delay of implementation of the requirement until 15 November 1987. The Army is still experiencing shortages in survival radios caused by contractor problems, including varying configuration, unmatched data and inadequate data, which have resulted in delays in expected deliveries.

Cold Climate Survival Kit

The new cold climate survival kit, national stock number (NSN) 1680-00-973-1862, which retains the same NSN of the previously issued cold weather survival kit, is 2 inches greater in depth and has been redesigned to accommodate the larger size of the new arctic sleeping bag, NSN 8465-01-131-7921. This sleeping bag can be packed only in the survival kits manufactured in July 1985 or later. The manufacture date is stamped on the survival kit itself. Users should repack this kit using the same arrangement as when the kits were received from supply. The arctic sleeping bag, NSN 8465-01-131-7921, is vacuum packed in a thin vinyl bag that is easily damaged. Care must be taken when handling and packing to prevent tearing and losing the vacuum. Should the vacuum be lost, the sleeping bag will swell and become too bulky to repack in the survival kit. Sleeping bags in this condition must be removed from service and replaced.

We will keep you informed through our ALS-SGRAMs and PEARL'S articles. Point of contact (POC) at the Army Support Center, Philadelphia, PA, is Mr. Ted Fletcher, AUTOVON 444-2525; POCs at AMCPM-ALSE are Mr. Boone Hopkins and Mr. Rainy Bell, AUTOVON 693-3215/3817. POC for Support Activity Digest is Ms. Vickie Di Domenico, AUTOVON 444-2569.

Aircrewmembers Authorized Flight Clothing

We receive many questions regarding this area so felt we would provide you with the latest available information. The following are the only items of flight clothing that are authorized for issue to aircrewmembers:

ITEM	CLIMATIC ZONE
Coverall, Flyer's, Lightweight, Sage Green	All
Jacket, Flyer's, Lightweight, OD	All
Jacket, Cold Weather, CVC/Aircrewman, OD	All
Jacket, Extreme Cold, Sage Green, CWU-45/P	V-VII
Hood, Extreme Cold, Sage Green, CWU-17/P	V-VII
Trousers, Extreme Cold, Sage Green, F-1B	V-VII

NOTE: The two-piece Nomex camouflaged uniform is a developmental item currently in the design stage. Shirt, hot weather, LIN No. T03002; Trousers, hot weather, LIN No. X35980—the old two piece aviator/tanker Nomex uniform, is authorized for issue to combat vehicle crew personnel. Aircrew personnel may retain/wear the two piece Nomex uniform until it is unserviceable in accordance with local policy. POC is AMCPM-ALSE-L, Jim Dittmer, AUTOVON 693-3215/3817.

Protection From Smoke and Fog Oil Munitions

Any concentration of smoke is potentially hazardous when inhaled. When it becomes necessary for personnel to be in any concentration of smoke, vapor, the protective mask must be worn—visible evidence of the presence of smoke will require personnel to wear a mask. Personnel experiencing breathing difficulty or discomfort also will serve as a signal for all similarly exposed personnel to put on masks. POC AMMCOM Surgeon, AMSMC-56, AUTOVON 793-5818, Gary Smith, AUTOVON 793-7147, Ext, 373.

Seat Belts/Shoulder Harnesses

I keep hearing people tell me to "wear my seat belt and shoulder harness." I find them to be uncomfortable, so I have been ignoring their advice. My "buddy" has really been harping about this and I ignored him too. Now I can see the wisdom of their advice and concern. We do have a lot of pretty nurses here in the hospital. Yes, I would give my right arm to be back in my unit flying some important missions, and home with my wife and kids. S-o-o-o-o, a message to the "wise"—don't fly or drive unless your seat belts and shoulder harnesses are properly fastened.

Aircrewmember Body Armor

The aircrewmember body armor, small arms protective, front torso and front/back torso, assets are available from RIC S9T for all sizes of the assembled items and for all replacement components. NSNs are:

ASSEMBLED ITEMS		
Body Armor, Front Torso	Size	Body Armor, Front/Back Torso
8470-00-935-3183	Short	8470-00-935-3192
-3184	Regular	-3193
-3185	Long	-3194

REPLACEMENT COMPONENTS			
Size	Vest	Front Plate	Back Plate
Short	8470-00-999-1473	8470-00-935-3177	8470-00-935-3174
Regular	-1474	-3178	-3175
Long	-1475	-3179	-3176

Survival Kit

The survival kit, individual vest type, size small, is now available from Defense Personnel Support Center (DPSC). The new size small kit is intended primarily for personnel on flying status exposed to emergency escape and evasion situations. A replacement component of the kit, the survival vest, SRU-21/P, size small, is also available for replacement purposes. The added small vest size fits small bodied male and female aviators (up to 37 inch chest measurement). The survival kit is authorized in CTA 50-900 under LIN U72733, survival kit, individual vest type. Requisition information follows:

NOMENCLATURE	NSN	U/P	U/I	SOS
Kit, Survival, Sml Indiv Vest Type	8465-01-174-2355	$226.90	Ea	S9T
Vest, Survival, SRU-21/P	8415-01-173-9098	80.05	Ea	S9T

Jacket, Flyer's, Heavyweight CWU-45/P

DPSC (RIC S9T) is now accepting funding requisitions for the jacket, flyer's, CWU-45/P, heavyweight, NSN 8415-00-310-111 series. This jacket replaces the jacket, flyer's, N2B, heavyweight, NSN 8415-00-118-7569, 7573, 7574 and 7587 (S, M, L and XL). The CWU-45/P, made of Nomex fabric, provides flame resistance, which the N2B jacket did not. The unit price of the jacket is $110.00, and the unit of issue is EA. NSNs, sizing and recommended tariff are as follows:

Jacket, Flyer's	Size	Tariff per 1,000
8415-00-310-1111	S- (34-36)	151
-1123	M- (38-40)	363
-1133	L- (42-44)	325
-1140	XL- (46-48)	161

The basis of issue for the new jacket CWU-45/P is identical to that of the replaced jacket, N2B, found in CTA 50-900 under LIN 14978. The CWU-45/P jacket, flyer's, is to be worn with hood, flyer's, NSN 8415-01-167-7242 series, which has an effective date of supply of 1 July 1987. If required, the Navy hood, winter, flyer's, NSN 8415-01-027-6034, is available as an interim substitute. The unit price of the Navy hood, winter, flyer's, is $30.65, and the unit of issue is EA. Source of supply is S9T. Information will be supplied in the Army Support Center Digest when the new flyer's hood is available. The unit of issue is EA, source of supply is S9T. NSN 8415-01-167-7242(s) is the new NSN for this hood.

If you have a question about personal equipment or rescue/survival gear, write PEARL'S, AMC Product Management Office, ATTN: AMCPM-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798 or call AUTOVON 693-3817 or Commercial 314-263-3817.

The Aviation Family Grows

Sergeant First Class Richard A. Buck
Directorate of Evaluation and Standardization
U.S. Army Aviation Center
Fort Rucker, AL

INTRODUCTION OF new and more sophisticated aircraft and the development of new duty specialties required many changes be made in aviation-related publications. By using the example of the creation of a new military occupational specialty (MOS), this article illustrates the many changes required to ensure those soldiers are properly trained and proficient in the skills necessary to perform in their specialty.

The new MOS is 93B, Enlisted Aeroscout Observer. After the duty description and course development were completed, the work began on incorporating the aeroscout observer into the unit individual training program. The first step in this process was the development of an aircrew training manual (ATM), FC 1-215-1. This manual was specifically designed in the same format as an aviator ATM, to outline the training necessary for an aeroscout observer to maintain technical proficiency after completion of school. As this is an ATM, the aeroscout observer also falls under the provisions of the Commander's Guide. It, therefore, became necessary to revise TC 1-210, "Commander's Guide," to give the commander the proper guidance to develop the unit training program.

Much time and research were devoted to the next required change. Because observers are required, by duty description and the ATM, to maintain proficiency in emergency aircraft handling, it was necessary to include them in AR 95-1, paragraph 1-8 (personnel authorized to fly Army aircraft). Along these same lines, the decision was made to require observers to fly with an instructor pilot at one set of controls. Since the observer is now participating in the aircrew training program (ATP), he must meet all the training objectives of his ATM. AR 95-1, paragraph 3-9, had to be modified to include these individuals if they failed to meet ATP requirements. Changes to the wording were necessary to ensure that all areas pertaining to observers and *their* flight minimums were discussed.

Because of the unique status of the observers, a change to AR 600-106 has been requested. In the current regulation, there are no concrete provisions for placing observers on flying status as crewmembers, nor how to deal with them if they fail to meet ATP requirements. Based on this, we have requested that paragraph 9j be changed to state that only persons that have completed the formal course of instruction at the U.S. Army Aviation Center, Ft. Rucker, AL, be placed on status as aeroscout observers. In accordance with paragraph 12a, enlisted personnel are required to meet Class III flight physical standards. Enlisted observers, however, are required to pass Class II flight physicals—so we added this requirement to the regulation.

Failure to meet ATP requirements poses another problem concerning the flying status of observers. AR 95-1 is very clear about what the commander will do in the event one of his observers is in this situation. He can either grant a 30-day extension or terminate the individual's flying status orders. This,

however, is not addressed in AR 600-106. To cover this possibility, an addition has been requested to paragraphs 13c and 15c that gives the commander the guidelines he needs to terminate flying status as necessary. This will provide the regulatory authority to place an observer on status as a crewmember and, if needed, to take him off status if he does not meet all of the requirements for his MOS.

Now comes the most significant change of all—FM 1-300. Revisions in this publication were definitely influenced by the new MOS, particularly chapter 8, enlisted flight records. Tracking of flight time for enlisted aircrew personnel has long been a major problem for the operations personnel, mainly because there was no defined procedure.

Developing a system to maintain flight records for nonrated flight personnel in itself was a simple task. The problems surfaced when the observers were included. Flight time under different flight conditions is a part of their ATP, which includes such areas as night vision goggles. In order to properly track the flying time for the observer, we have a system very similar to that for the aviator. This system is different than that for all other enlisted personnel. The information maintained on all enlisted personnel is not the same, thus, the need for different records.

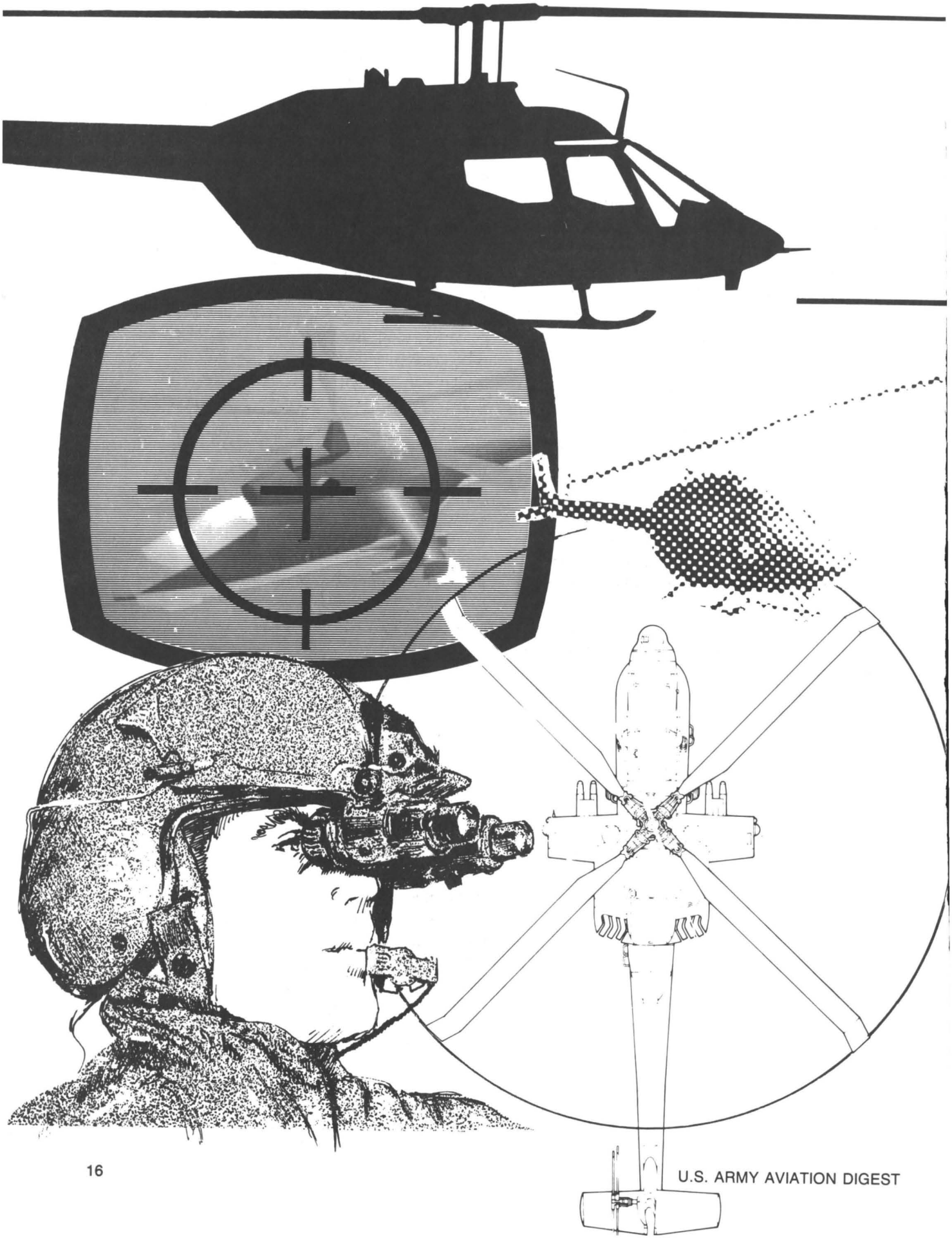
While the flight records were the main objective in the change to FM 1-300, other areas concerning flying status and pay were included in the new manual. Extracted information from AR 600-106, AR 37-304-3 and the DOD Pay and Incentive Manual was included to give the operations personnel a quick single source reference for all aspects of enlisted flight time. This was not designed to replace any of the other documents but to be used as a guide to answer the most often asked questions. The regulations mentioned are still the final authority.

You can now see how incorporation of a new system or MOS affects today's aviation community. Changes in equipment, doctrine or training dictate continuous updating of related publications. Maintenance of publications is a team effort in the aviation field. Input from the users in the field is needed; your ideas and recommendations are a vital link in maintaining the most current and usable documents. Use of the DA Form 2028 is the best method for making your intentions known. We all need to work together to keep Army Aviation "Above the Best"!

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362-5000; or call us at AUTOVON 558-3504 or Commercial 205-255-3504. After duty hours call Ft. Rucker Hotline, AUTOVON 558-6487 or Commercial 205-255-6487 and leave a message.

U.S. Army Class A Aviation Flight Mishaps

	Number	Flying Hours (estimated)	Rate	Fatalities	Total Cost (in millions)
FY 86 (to August 31)	32	1,512,770	2.12	25	$69.8
FY 87 (to August 31)	35	1,544,388	2.27	42	$81.1

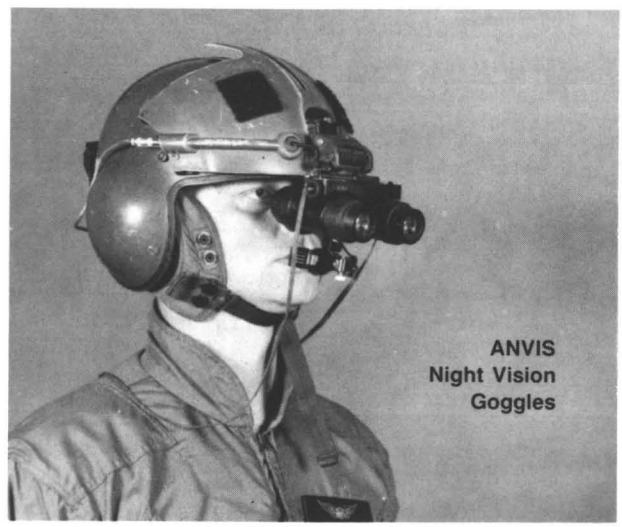


Scouts Out
with the AH-64 Apache

IT IS NO SCOOP that the AH-64 Apache provides the Army with the most advanced and lethal tank-killing capability ever introduced into the front line aerial arsenal. Its capability of operating during day, night and adverse weather conditions is well known, but what is normally overlooked, is that for it to achieve its full potential, a scout helicopter possessing an improved target acquisition/designation capability and an air-to-air protection system is needed.

In our operations as the first tactical unit equipped with the Apache, the OH-58C Kiowa proved that a scout is as much now, as ever, an important ingredient of the attack team. The OH-58C can operate during day and most night scenarios with the AH-64, while complementing its capabilities. During our Apache attack helicopter operations, the scout was required to accomplish all those missions inherently associated with attack missions, such as security, reconnaissance, coordination of indirect fire, joint air attack team (JAAT) operations and liaison with the ground commander. The only drawback, and it was a definite drawback, was the lack of a target acquisition and target handoff capability for the scout. Nevertheless, as we hope to show, the OH-58C accomplished its assigned missions as they apply to the OH-58C/AH-64 attack team.

While performing security missions, the scout conducts day/night reconnaissance of the holding areas, battle positions and the routes to and from these areas. A great advance toward success of the scout mission was the introduction of the aviator night vision imaging system, ANVIS-6, night vision goggles (NVG) that allowed the OH-58C to accomplish its operations during nights with very low illumination, thus increasing scout crew survivability. With ANVIS-6, we are no longer restricted to following lunar schedules, as they work well using the prevailing starlight as long as no overcast conditions exist. It must be kept in mind, however, that an overcast sky coupled with low illumination degrades NVG operations and ultimately scout operations. A scout equipped with ANVIS-6 provides the Apache with an extra degree of security to and from its attack positions that was not possible with the earlier models of night vision goggles. This alone


ANVIS
Night Vision
Goggles

Lieutenant Colonel Kenneth R. McGinty
Captain Joseph P. Duffey

The OH-58 Kiowa has been tested with a variety of armament including Stinger air-to-air missiles (right), 2.75 inch rockets (above and inset above left) and the M-27E1 7.62 mm minigun (above).

Scouts Out

gives the commander greater flexibility to exploit the immense capabilities of the AH-64.

To emphasize the importance of this night capability it is relevant to note that roughly 50 percent of our unit's Apache operations are executed at night while organized under the corps aviation brigade. The end result of the ANVIS-6/OH-58C marriage is that it allows for a greater level of reconnaissance, which translates into security for all phases of the mission. Along with these traditional day/night roles, the OH-58C also remains an excellent troop command and control platform for AH-64 operations.

During the conduct of an actual battle, certain situations would require the troop commander to be in a scout aircraft. This would allow him the freedom to maneuver and coordinate his attack team operations without occupying a critical AH-64 seat, thus detracting from the total combat power of his team. Since the scouts inherently watch the battle develop from a larger perspective, the commander would be able to see and receive intelligence from his location in one scout as well as from his other two scouts, which allows him to concentrate on maneuvering his troop in support of the ground com-

mander and other units in the attack. The greatest advantage of flying the troop commander in a scout aircraft is that an OH-58C has a longer station time and has the ability to receive first hand information while not being committed to the actual "fight." It is a well designed fact that the force with the most timely and accurate intelligence, coupled with maneuver assets, has the upper hand in any engagement and the scout is a key element in this highly perishable intelligence chain.

In addition to the foregoing, the team scouts also are responsible for providing security to the flanks and rear of the attack team from both ground and air threats; although currently passive, the requirement is valid. This is where the technology of the AH-64 can aid the scout. The target store capability of the Apache adds a new dimension to a reverse handoff. It can locate targets and give exact coordinates to the scouts so they may then better call and adjust precise indirect fire with greater speed and efficiency. This, in turn, leaves the Apaches free to engage other high priority targets, bringing to life the principle of massing accurate fire on the enemy. Again, the troop commander, or his designee, working from the scout, can coordinate and direct JAAT operations between the Apaches and A-10s during this attack helicopter engagement.

The JAAT has come of age with the Apache. It is now possible for the Air Force to be precisely directed onto a target array through the use of its "Pave Penny" coupled with the Apache's laser. (The enhanced scout would improve upon this concept with its integral laser capability, thereby providing another armor destroyer to the team. Until then, the scout continues to be the orchestrater and director of the entire JAAT having radio communications with both his close air support and his Apaches while continuing to see the entire battlefield.) Although not a doctrinal or aircrew training manual role of the scout, the task of decoy in and around the battle position before a JAAT should not be overlooked. We have found that a scout ruse to decoy and or detect enemy air defense systems is extremely effective, and will certainly be useful for cross-forward line of own troops (FLOT) and night attack operations.

With the capability of the Apache to conduct cross-FLOT missions, there are several operations that the scouts need to accomplish to improve attack helicopter efficiency. Prior to the mission beginning, precise and accurate planning must be accomplished,

Only the birds above it could clearly see this OH-58 in nap-of-the-earth flight.

and it is the scout that would dictate the speed with which first hand information is passed to the "planners."

The scouts need to recon routes to the passage points in order to determine nap-of-the-earth suitability, security and hazards to flight such as wires, poles and towers. If the anticipated passage points are unsuitable, they must quickly recon and recommend alternates early in the planning sequence.

Scouts also must coordinate and conduct liaison with key ground commanders to establish artillery corridors beyond the FLOT as well as time and coordinates of each passage point. It is here that time specific air defense artillery (ADA) corridors should be established and executed to ensure the safety of all friendly aircraft.

It is also important for the scouts who are assigned the ruse to establish and coordinate a ruse pattern with the ground commander in whose vicinity the plan is intended. Again, this ruse is a valuable tool that the scout can use to confuse the threat and ensure the success of the Apache passing undetected at passage points. Essentially, this type ruse encompasses a flight of OH-58s acting as decoys, at substantial range from the threat, at a predetermined

Scouts Out

point and time in order to allow enemy radar to alert and attempt lock-on. This allows the AH-64s to pass through the FLOT undetected, while also providing precise ADA location for destruction via accurate suppression of enemy air defense missions. This type of mission, as close as it is to the FLOT, must use operational APR-39s to avoid lock-on, in conjunction with terrain where the scout can quickly deploy to cover. Properly executed, the Apache should cross undetected while enemy air defense systems are preoccupied with the ruse and incoming artillery.

The cross-FLOT techniques used to date usually include an artillery corridor forward of the passage point. In this instance, the squadron fire support officer sets up predetermined fire series to be executed in concert with passage point times. These series can be activated or canceled by the scouts as the situation dictates, thereby allowing the scout to control the flow of battle. So while never crossing the FLOT, the evidence presented heretofore adds credence that the scout contribution is valid; however, the advent of an enhanced scout would greatly expand his role in this mission area.

Even after the Apaches are cross-FLOT, the scout's role is still critical. The scouting process is accomplished in reverse as the AH-64s egress from behind enemy lines. Timing, coordination and communications are just some of the functions required to egress passage of lines. Most importantly though, the scouts also must have completed coordination at the forward arming and refueling points (FARP), to ensure the quickest and safest refueling and rearming sequence among the returning troops. This is especially critical at night when there may be 18 or more Apaches short on fuel, converging on one, maybe two axes, into multiple FARPs. Safety is the critical factor. Because in many instances the ANVIS-6, with its improved light amplification qualities, provides better station keeping visibility than does the pilot's night vision sensor of the Apache, the ANVIS-6 should be used. In most situations, the scouts can better coordinate sequencing into the refueling points from nearby holding areas, without running the risk of midair or ground collisions. This is a semiadministrative task but one that is imperative to ensure the safety of all personnel and aircraft during a squadron surge mission.

In summary, we have seen thus far in our training that there is an absolute need for a scout platform to fight alongside the AH-64, and in many cases the OH-58C performs this mission well. We have discussed some of the areas that would substantially improve the efficiency and effectiveness of the attack team. The most obvious of these is the need for an improved optics and laser designation capability combined with an automatic target system. As an end thought, we have found that the OH-58C has its shortcomings. Nevertheless, during some 120 days of intensive training, it has reaffirmed the need for a scout, an enhanced scout, as the need for reconnaissance, security and battlefield management continues to build with the increased capabilities and lethality of all advanced attack helicopter operations.

ABOUT THE AUTHORS

LTC Kenneth R. McGinty commands the 3d Squadron, 6th Cavalry Regiment, 6th Cavalry Brigade (AC), Ft. Hood, TX, which is the first tactical unit to field the AH-64 Apache (formerly the 7th Squadron, 17th Cavalry). An OCS graduate, he has commanded both mechanized infantry companies and attack helicopter companies. Before assuming command of the 3-6th Calvary, LTC McGinty served as the force integration officer for attack helicopters in the office of the Vice Chief of Staff.

CPT Joseph P. Duffey is the aeroscout platoon leader for B Troop, 3d Squadron, 6th Calvary Regiment, 6th Calvary Bridgade (AC). He is a 1982 graduate of West Point and has served as an OH-58 section leader before assuming his present position.

U.S. ARMY SAFETY CENTER

WIRES...

IF THERE'S ONE word that can strike terror into the staunchest aviator's heart, that's it—WIRES. Safety people have been writing about wire strikes just about as long as there's been anything called a helicopter; but these accidents are still happening.

From 1 October 1983 through 27 August 1986, wire strikes damaged 45 Army aircraft, killing 7 people and seriously injuring 14 others. Of these 45 mishaps, 10 were Class A; 1 Class B; 9 Class C; and 25 Class D. Total cost of injuries and damage amounted to more than $17 1/2 million.

Human error is almost always the cause of wire strikes. It's rare that a wire strike occurs after an in-flight, materiel-related emergency. A study of 141 wire strike incidents, occurring since 1980, reveals that most wire strikes happen during cruise flight at altitudes below 75 feet above ground level (agl), although some have occurred above 150 feet. The average wire strike happens at 82 feet agl, and most fatal wire strikes occur at airspeeds above 60 knots.

Some causes of wire strikes listed in mishap reports include: unauthorized low-level flight; deviation from nap-of-the-earth (NOE) route; overconfidence; approach to unauthorized confined area; no wire recon and no hazard map; unauthorized high-speed maneuver in confined area; wires not marked on map; wires were marked on map but pilot didn't look at map; misjudged clearance during hover; failure to realize effects of darkness on depth perception; and incorrectly set altimeter.

One set of wires over a river accounted for the loss of two Army aircraft; an OH-58 Kiowa and an OH-6 Cayuse. The mishaps occurred in exactly the same place—but happened 12 years apart. In the first, the aircraft was flying at an unauthorized altitude along a route that hadn't been safety checked. The crew didn't see the wires, and one person was killed when the OH-58 hit the wires and crashed. The OH-6 was on an authorized low-level training flight when it, too, hit the wires. A safety recon of the flight route had been made, but the reconnaissance flight crew failed to detect the wires that weren't plotted on the hazard maps.

Sometimes the problem is simply a wire that has been strung up overnight, isn't marked and doesn't appear on any of the hazard maps. Too often, though, the wire is on the unit's hazard map, but the mishap aircrewmembers fail to compare their map to the unit map, so they don't know the wire is there. That's what happened in the following mishap.

An OH-58 crew was engaged in NOE flight during a tactical exercise. The aircraft was flying down the middle of a valley when the copilot, who was on the controls, saw a wire directly in front of the helicopter. He was able to fly over that wire, but the aircraft struck three wires above it that he hadn't seen.

The wires the helicopter hit were draped over the draw from supporting poles located on ridges above each side of the valley. The poles were partially concealed by trees.

The pilot in command (PIC) was acting as navigator of the OH-58 and was using the copilot's map. He used that map because the copilot was the last one to receive a mission update from the platoon leader, and the copilot's map was used in the briefing. The PIC should have used his own map

because it had a wire hazard posted in the same grid square where the wires they hit were located. Or, he should have checked the hazards map in the operations office for known hazards along the route of flight. The copilot had posted his map with the wire hazards that were made available by the incountry aviation safety office, but only wires 50 feet agl and above were included on that map overlay. The wires the aircraft struck were only 40 feet agl so they weren't included.

Sometimes wires are incorrectly plotted on a map. In the following mishap, pilots identified low wires that corresponded to the location of plotted wires on the map; but, the plot was wrong. When a crewmember in the rear of the aircraft saw wires and alerted the pilot, the instructor pilot (IP) made an evasive maneuver, but one rotor blade hit a one-half inch cable.

The pilots were wearing night vision goggles (NVG) during the navigation training flight. In preparing for the mission, they failed to ensure that a route recon had been made as the major Army command wire strike prevention pamphlet required. The route had been partially reconned a few days before, but the recon was flown at a higher altitude than would be used on this mission. In spite of the fact that he lacked adequate route information, the IP decided to fly at an altitude of 200 to 400 feet agl. He also decided to combine a route reconnaissance update with the NVG mission. The result was a wire strike.

In an area where wires are already a problem, add other factors, such as NVG and overextending a crew's endurance, and the stage is set for a mishap. That happened to an aircraft's aircrewmembers whose intentions were good, but the outcome left one crewmember dead and two others seriously injured.

After working all day, the UH-60 Black Hawk crew took off on a 3-hour NVG training mission. After about 2 hours, the PIC received a request for assistance to locate a downed aircraft that had struck a wire.

The UH-60 pilot quickly located the aircraft and, after leading a medevac aircraft to the site, returned to the airfield to resume training. Another request came in to transport guards and a truck to the downed aircraft. The PIC turned down this request because his aircraft wasn't equipped for that kind of mission. He did agree to lead another aicraft, which could handle the mission, back to the site. Arriving there, he landed and, after being assured that his help was no longer needed, departed once again for the airfield.

While still en route, the control tower again asked him for assistance in contacting the transport aircraft. He attempted to make radio contact with the aircraft but was unsuccessful. The pilot then decided to return to the site of the downed aircraft and attempt to contact the transport aircraft by radio from the air. He descended to about 300 feet agl and began flying up the valley to the accident site at 10 to 20 knots. Suddenly, he saw a wire out his right windshield. He pulled collective pitch to try to avoid the wire, but it was too late. The aircraft climbed into several more strands of wire and crashed. The wires were marked on the pilot's hazard map.

Some time ago, the Army Safety Center published a seven-point program to prevent wire srikes. It's time to stress these seven points again.

1 Standing operating procedures (SOPs) and directives. Directives and SOPs for terrain flight should reflect all the safest procedures possible for the types of missions being flown. Detailed responsibilities for the pilot at the controls, the pilot not at the controls and other crewmembers should be specified. The procedures should be reinforced regularly at aviation safety meetings.

2 Supervision. Commanders and supervisors must ensure that pilots adhere to established procedures. All missions should be planned, and all aircrews should know the plan. Immediate and positive action should be taken regarding any violation of flight discipline.

3 Hazard maps. Wires and other obstacles that pose a threat to terrain flight should be accurately depicted on hazard maps. In areas such as Europe where the prominence of wires would unduly clutter the map, major wire hazards and wires that are located in unlikely areas should be plotted and

aircrews made aware of other unplotted wire locations such as along roads, railroads, etc. When it is possible for all wires to be plotted without compromising the usefulness of the map, then they should be. Crews should be thoroughly briefed on wire strike hazards before every terrain flight mission.

4 Wire marking. Whenever possible, all wires around potential takeoff and landing sites on and off military reservations should be marked. Certainly, all wires around frequently used sites should be marked. While pilots should know when to expect wires, markers make them easier to see.

5 Minimize contour flight. Most wire strikes occur during terrain flight in the contour mode or on takeoff or landing. Unless required by the mission, contour flight should be avoided. Crews also should be extremely careful when landing in or taking off from an unfamiliar area. And, they cannot be complacent when going into or out of places they know. Wire hazards can be constructed in a matter of minutes.

6 Maximum crew coordination. The more crewmembers actively engaged in spotting wire hazards on any given flight, the less the risk of wire strikes. When flying in a wire environment, maximum coordination among all crewmembers is needed to search for wires. During terrain flight, the pilot's full attention should be on flying. Navigation, setting radio frequencies and monitoring instruments should be a copilot function. If the pilot must direct his attention away from flying, he should land or climb to a higher altitude.

7 Go slow when you go low. The slower the airspeed, the more time a pilot will have to identify and react to an unforeseen obstacle in his flight path. Assuming good visibility, if two aircraft are approaching wires and one is at 80 knots while the other is at 40 knots, the pilot of the faster aircraft will need to spot the wires at a distance of more than 1,650 feet to react and avoid them. The pilot of the slower aircraft will have ample time to react if he sees them at 600 feet.

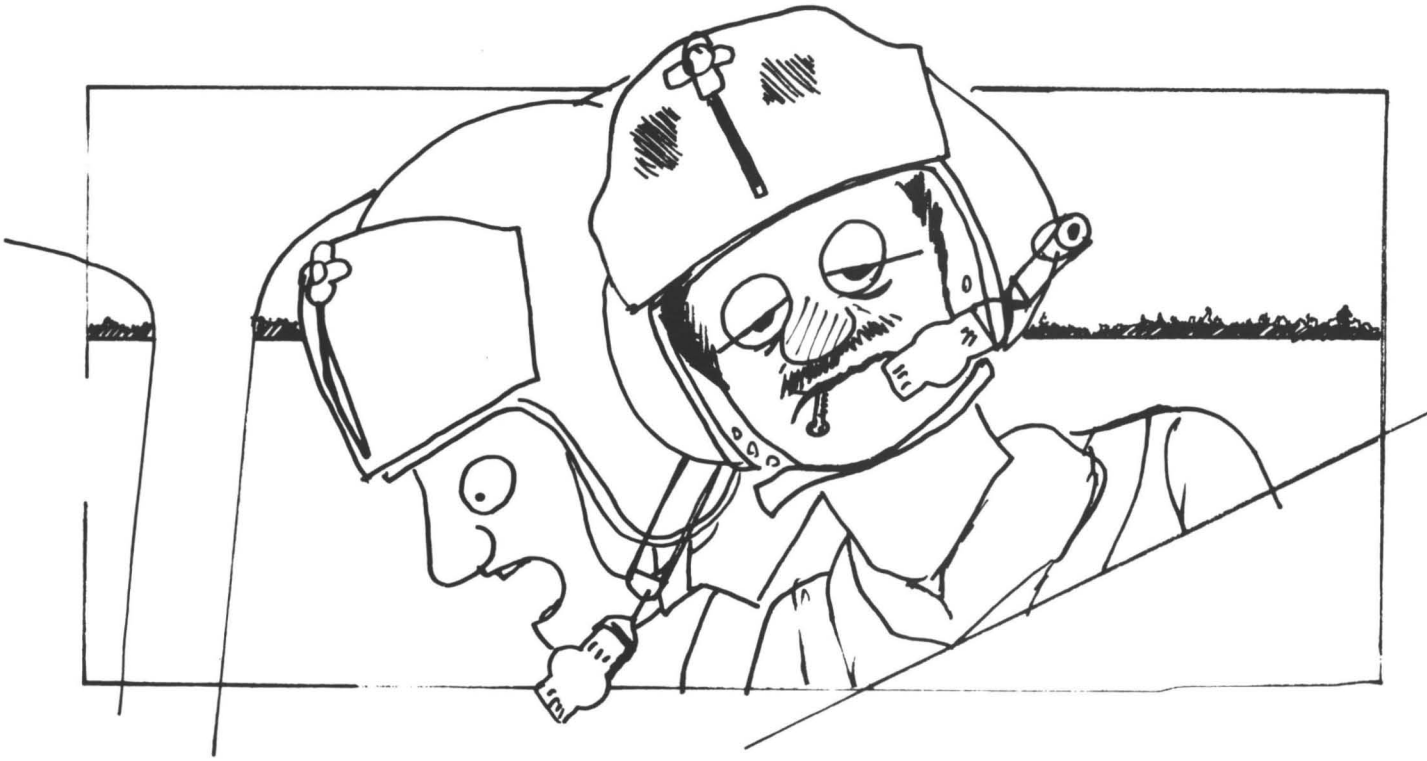
Some aviator errors that lead to wire strikes are almost unbelievable. For example: An AH-1 Cobra crew with more than 2,100 rotary wing flight hours between them chose to risk taking off from an airfield where it was raining. The weather at the airport was below VFR (visual flight rules) minimums, with a measured ceiling of 900 feet broken and 5 miles in light rain and fog. The crewmembers not only failed to file a flight plan or get a weather briefing when they were told of the weather conditions, which mandated a special VFR clearance, but they also asked for and got a special clearance.

They remained below 600 feet agl to avoid a cloud cover and followed an interstate highway. Twenty-seven minutes after taking off, the AH-1, then flying about 100 feet agl at an estimated airspeed of 100 to 120 knots, hit the top two strands of a transmission line crossing the highway. The helicopter crashed, and both pilots were killed.

These crewmembers had been well briefed, not only about the mission, but also on safety. The potential for bad weather had been covered, and they had been told that an overnight stay was acceptable should the need arise. The unit had a well-organized and active safety program. Safety meetings were held monthly, and subject matter and attendance were well-documented. Both of the crewmembers attended the safety meeting held the month before the accident. One of the topics discussed at that meeting was the hazard of wire strikes while trying to maintain visual flight in IMC (instrument meteorological conditions).

One mistake is all it takes for you to be a wire strike statistic—flying down a river or valley at 80 to 90 knots, getting lost or failing to update your hazard map—any one of these will do it.

Unit commanders, operations officers and platoon leaders share some of the responsibility for wire-strike mishaps, but the final responsibility belongs to the crewmembers in the cockpit. Who, after all, has a bigger stake in preventing wire strikes?



Flying and Self-Medicating

Staff Sergeant Paul J. Cook

As aircrewmembers we are all taught that if we feel we are unable to fly for medical reasons, we should consult a flight surgeon. Regrettably, we often fail to do so. On one particular occasion, while I was suffering from a head cold, I neglected to see the flight surgeon. As a result of this, I paid a rather high price. Fortunately this price was not as high as it could have been. This article recounts my failure to comply with regulations and good, common sense.

IN THE EARLY part of February 1986, I was scheduled to fly a cross-country mission from Stuttgart Army Airfield, Germany, to Rota Naval Station, Spain. The date for this mission was the 24th of February. About 1 week prior to this mission I developed a head cold. I didn't think it was serious so I didn't consult a flight surgeon, and I didn't self-medicate.

By the 21st of February I found that my cold was much worse. I recall thinking that I was in a real bind. The mission to Spain was 72 hours off, and I was not medically fit to fly. This situation created a problem in my mind. Should I ground myself, or should I treat myself so I could fly? The flight to Spain required a great deal of planning and coordination with higher headquarters and other agencies. To compound this, we were faced with a personnel shortage and had no one else available to fly.

Cognizant of these facts, I scurried over to the post exchange and, when no one from my unit was watching, purchased several cold medications. Electing to treat myself was my first mistake. Carrying out that decision was my second. I quickly read the instructions attached to the medication, and decided that if the medication were discontinued by 1800 on the 23d, I would be all right to fly.

The 22d of February was a particularly nasty day. The weather was very cold and windy, with snow showers. I thought it would be wise to spend the day in bed. This thought was reinforced by the realization that my cold medication was just not working. Because I had a class that day I was unable to stay in bed. I left my apartment early that morning and headed for class. When the class broke for lunch I headed to the commissary and purchased some more cold medication. I discontinued the original medication and started taking the new medication like it was penny candy.

The 23d of February was much like the 22d, and I had both the same thoughts and obligation. I again trudged through the snow and headed for class. At about 1500 hours my sinuses "broke" and I really began to feel better. I really thought that I would be OK to fly the next day.

Show time for the mission was 0400 on the 24th. I got up around 0130 and was amazed at how well I felt. I still had some congestion, but it felt very slight. I did not feel any real pressure in my sinuses and I was able to Valsalva. At that time, I was, in my own mind, medically fit to fly. Just to be safe, however, I brought along a bottle of Afrin to use in case of an emergency.

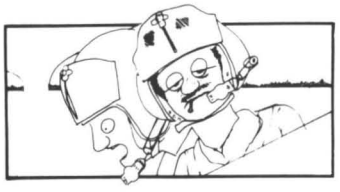
I arrived at operations about 0315 on the 24th. The mission had been planned before close of business on Friday, so all I had to do was read the brief sheet, get my call signs and tail number. While I was waiting for my pilot to arrive, I called weather, rechecked my logs and chatted with the duty coordinator. I did this to stay inside and minimize my exposure to the cold weather. While I felt fit to fly, I didn't want to take any chances. When my pilot arrived, we re-briefed the mission and headed out to preflight. I made my preflight as brief as possible, and retreated to the warmth of operations.

We strapped in at about 0600 and cranked. Everything was going as planned, and we took off just about on time. The mission called for two legs. The first leg was from Stuttgart to Bordeaux, France. The en route forecast was pretty good, with a small chance of encountering some light turbulence. With this forecast no problems were anticipated. Unfortunately things did not develop as expected.

Our cruise altitude was flight level (FL) 110. We made the climb to altitude with no problem and enjoyed a routine, comfortable flight to Bordeaux. After receiving our clearance for the descent into Bordeaux, we experienced our first problem—I was unable to clear my sinuses. We continued our descent in what turned out to be very poor weather while I tried to clear. Upon reaching 1,500 feet mean sea level I was still unable to clear my sinuses. I pulled the bottle of Afrin from my pubs bag and put it to use. During this time we were flying the approach. When we reached decision height we were still unable to see the field and began to execute a missed approach. We flew the published missed approach procedure, and returned to the initial approach fix. On the second try we were able to see the field, and my pilot made a very nice landing under some uncomfortable circumstances.

During the initial approach, my pilot notified the tower that a crewmember was experiencing physiological problems. This transmission had been monitored by one of the other aircraft involved in the mission. When we landed, some questions were asked and then the incident was dropped. The aircraft were refueled, landing fees paid and the second leg of the flight was filed. When the administrative work was completed, we returned to our aircraft. We were now ready for the second leg of the mission.

This leg started poorly. We were trying to comply with the instructions of a novice ground controller who was not fluent in English. We finally received our takeoff clearance after a long and expensive delay. We had originally planned to fly this leg at FL 130. However, more favorable winds were found at FL 170, therefore we requested and received



Flying and Self-Medicating

clearance to FL 170. The climb to FL 170 had me thinking more and more about the problem I encountered during the descent into Bordeaux. We leveled off at FL 170 and remained there for the next few hours.

As we closed on Rota I became increasingly concerned about my "cured" cold. My pilot asked me how I felt and I told him that I felt OK. We started our descent into Rota about 30 miles out, established a descent rate of 500 feet a minute and began getting ready for landing. We were at about 7,500 feet when we completed the descent/arrival check. As we passed through 7,000 feet, I suddenly felt as if someone had jammed a knife through the roof of my mouth while rotating the blade.

We were low on fuel by this time (the expensive delay in Bordeaux), and I did not wish to distract my pilot so I did not say anything about my problem. When he noticed a bloody tissue at my nose, I told him I had broken a small blood vessel while sneezing. My pilot, who knew when he was being fed woof cookies did not believe that; but he was too busy to argue. My nose continued to bleed excessively during the approach, landing and taxi to tie down. When we went through the engine shutdown checklist, my nose was still bleeding. Those were my third and fourth mistakes. Flying after having difficulty clearing and creating a distraction during a critical phase of flight. Once the aircraft were taken care of, we headed for base operations. There, at the urging of my pilot, I asked where I could find a flight surgeon.

On the morning of the 25th, I walked into the Navy hospital at Rota and asked to see a flight surgeon. After a brief wait I was examined. The flight surgeon examined my ears, nose and throat and then ordered an X-ray series of my skull and sinuses. When the flight surgeon received the X-rays he made his final diagnosis—sinus barotrauma. For the uninformed, sinus barotrauma is a condition in which the explosive release of trapped gas literally skins the sinus cavity. The X-rays that were shown to me showed a dense cloud of tissue in what used to be a normal sinus. The prolonged bleeding that occurred during our descent was not a broken blood vessel. It was the discharge of blood, skin, mucus—materials that normally remain inside a healthy sinus. After making his diagnosis and showing me the X-rays, the flight surgeon presented me with one last item—a grounding slip.

Because I was grounded I had to fly MEDEVAC from Spain to Germany in an Air Force C-9 that was required to hold cabin pressure at sea level. Since I had self-medicated and decided to do the flight surgeon's job for him, I was DNIF (duty not involving flying) for more than a month. I was fortunate this time. If I had tried to fly back in an OV-1, I could have found myself permanently grounded when I landed.

Crewmembers, there is a lesson here. Self-medication will not make you flyable. It will only create problems when you find that your choice of medication does not work. In this case, I needlessly jeopardized my pilot, our airplane and myself by distracting him during a critical phase of flight. If my pilot was not as competent and experienced as he was, things could have turned out very differently.

If you feel the need to self-medicate, you are not fit to fly. Instead of taking 10 minutes to drive over to the post exchange for some over-the-counter medication, take 20 minutes and see the flight surgeon. He may recommend grounding you for awhile, but that is far better than some of the alternatives. If you don't believe this is the case, then self-medicate all you want. Just remember, one day it isn't going to work. Can you tell when that particular day will be?

ABOUT THE AUTHOR

SSG Paul J. Cook is an aerial intelligence specialist assigned to Company A, 2d MI BN (Aerial Exploitation). A 1979 graduate of the USAICS Aerial Sensor Specialist Course, he has served as an OV-1 technical observer in Alaska, Georgia, Korea, Arizona and Germany. At the time of this incident, he had logged just more than 600 hours in OV-1s.

AVIATION PERSONNEL NOTES

Expanded Warrant Officer Roles

Aviation warrant officers (AWO) will now have more opportunity to exercise leadership while serving in aviation positions. Several developments have combined to make this expanded leadership role a reality; they are:

—Commissioning of the warrant officer.

—Army of Excellence restructuring.

—Warrant officer position coding.

The largest number of leadership positions opening up to the warrant officer population is the position of section leader. An important point of emphasis is that the AWO must maintain technical competence while occupying a leadership position.

Specific developments relating to warrant officer position coding were completed in March 1987. During that month, the U.S. Army Aviation Center provided the U.S. Army Soldier Support Center-National Capital Region with new AWO data for Army Regulation 611-112, "Manual of Warrant Officer Military Occupational Specialties." The new data consisted of specifications, qualifications and duties for each warrant officer area of concentration and military occupational specialty (MOS) for which Aviation Branch is the proponent. As mentioned, this is one of the actions helping to open up warrant officer leadership opportunities.

Additionally, a rank coding table (RCT) was provided for each MOS. The RCT is a list of warrant officer positions classified by three rank groups: Warrant officer (W1/W2), senior warrant officer (W3/W4) and master warrant officer (W4 or W5, if approved). The RCT will replace the section in AR 611-112 referred to as "positions, units, code and title in which authorized."

93J/93H Air Traffic Control Consolidation

In February 1982, the U.S. Army Information Systems Command submitted a proposal to the Soldier Support Center requesting that MOS 93J, Air Traffic Control (ATC) Radar Controller, and MOS 93H, ATC Tower Operator, be consolidated into one MOS. The action was deferred by U.S. Army Training and Doctrine Command (TRADOC) during the then pending formation of the Aviation Branch. Once the Aviation Branch Implementation Plan was enacted it encompassed a requirement to study the 93J/93H consolidation proposal.

During February 1983, further impetus was given to the proposal by the Army Audit Agency Report (report on the Army's ATC program) recommending consolidation approval. By February 1984, the U.S. Army Aviation Center hosted a working group to determine how best to study the management of MOS 93J/93H. Subsequently, a study plan was drafted to determine feasibility. TRADOC approved the draft study plan and a Study Advisory Group was organized at the Aviation Center in May 1984.

The fruition of the foregoing actions will be realized on 1 October 1987 when MOS 93J and 93H will be combined and designated MOS 93C, ATC Operator. Those soldiers who currently hold MOS 93J/93H took their skill qualification test (SQT) in July but will be exempt from SQT during FY 88. This is to allow cross training via an exportable training packet to be provided by the Army Training Support Center, Ft. Eustis, VA. Cross training will be completed during FY 89, and all 93C MOS soldiers will again be tested by SQT that same year.

Major Selection Boards Trends

During the past five Major Selection Boards, aviation captains experienced a 78.02 percent selection rate as compared to an Armywide rate of 76.3 percent for first time considerations. Although aviation officers were slightly below the Armywide selection rate during 1987, it is anticipated that future selections for the rank of major will be higher than the Army average. This is based on the positive impact of the Army Aviation Personnel Plan and the continued conversion to the Army of Excellence. The chart below shows how Aviation Branch captains fared compared to the rest of the Army from FY 83 to FY 87.

Astronaut Selection

The annual Army Astronaut Selection Board is expected to convene in November 1987 to select soldiers for nomination to the National Aeronautics

		Previously Considered/ Selected	First Time Considered/ Selected	Total Considered/Selected (Below the Zone)
1987	Army	689/65 (9.4%)	2,944/2,133 (72.5%)	3,609/115 (3.2%)
	Aviation	66/4 (6.1%)	224/156 (69.6%)	356/2 (0.6%)
1986	Army	576/59 (10.2%)	2,629/1,982 (75.4%)	3,060/46 (1.5%)
	Aviation	81/7 (8.6%)	224/196 (80.3%)	232/2 (0.9%)
1985	Army	591/119 (20.1%)	2,204/1,695 (76.9%)	2,749/52 (1.9%)
	Aviation	87/14 (16.1%)	237/185 (78.1%)	254/2 (0.8%)
1984	Army	708/144 (20.3%)	2,161/1,686 (78%)	2,282/30 (1.3%)
	Aviation	107/26 (24.3%)	189/152 (80.4%)	202/4 (2%)
1983	Army	857/191 (22.3%)	2,382/1,878 (78.8%)	2,192/12 (0.5%)
	Aviation	113/21 (18.6%)	214/174 81.3%)	191/1 (0.5%)

and Space Administration (NASA). Applications began to be accepted 1 July 1987 and will be taken through 1 October of this year; the applications are open to soldiers of all ranks in both Active Army and Reserve Components. Those selected by the Army in 1987 will be considered by NASA for duty as astronaut candidates beginning 1988.

NASA is looking for the best qualified applicants, particularly those with technical backgrounds and operational experience. Applicants must have a bachelor's degree from an accredited institution in engineering, biological science, physical science, or mathematics and also have the equivalent of 3 years related experience. Another prerequisite (not waiverable) is to have distant visual acuity (20/100 or better, uncorrected, correctable to 20/20, for each eye). There is no age limit.

Historically, NASA has selected 8 to 10 candidates annually and has an affirmative action goal of having qualified women and minorities among the astronaut candidates selected. Therefore, women and minority soldiers are especially encouraged to apply. Selected Army astronauts generally have aviation experience but find it difficult to be competitive for astronaut-pilot positions because of the 1,000 hours of pilot in command time required in high performance jet aircraft. Soldiers, however, have been very competitive for astronaut-mission specialist positions.

Selection is ultimately based on NASA's needs and anticipated astronaut attrition; however, the Aviation Branch is continually trying to increase the number of astronauts selected from its ranks and, therefore, encourages all qualified personnel to apply. Those meeting the prerequisites may request application packets by writing to:

Commander
MILPERCEN
ATTN: DAPC-OPZ-AV
200 Stovall St
Alexandria, VA 22332-0400
(AUTOVON 221-9338/9282 or
Commercial (202) 325-9338/9282).

Instructor Pilot Training for Captains

Are you a captain heading for an assignment at Ft. Rucker? If so, you'll now have more opportunity for professional development while at the Aviation Center than at any time in the history of Army Aviation. Here's why:

It is essential that the Aviation Branch have officers who are not only outstanding troop leaders but who can provide requisite technical and tactical expertise in all facets of aviation. To meet these technical requisites and significantly increase the professional development opportunities for aviation captains, Major General Ellis D. Parker, Aviation Branch chief, recently authorized increased instructor pilot training for captains (initial training under the program began in mid-May 1987) at the Aviation Center. This program helps "grow" battalion commanders and meets the Department of the Army requirement that all battalion and brigade commanders be qualified as instructor pilots before taking command.

Under this new program, captains (or first lieutenants promotable to captain) serving a normal 4-year tour at Ft. Rucker have significantly increased opportunity to spend 18 to 24 months of that time as instructor pilots. Rotation will be required after this length of time to enable officers to complete other branch and promotion enhancing requirements while at Ft. Rucker, such as company command or instructing training/doctrine.

Branch qualification of more aviation officers is the key benefit of this program, but there are a number of other very attractive benefits as well—compliance with Department of the Army guidance, increased technical expertise to the field, increased flight time in the commissioned ranks and no new cost. There also will be an added safety benefit from the program; as commanders become more technically experienced, they will be better able to evaluate safety within units they lead.

Are you a captain heading for Ft. Rucker? Excellent opportunities await you.

MULTI-AXIS FLIGHT CONTROLLER

Magic or Madness?

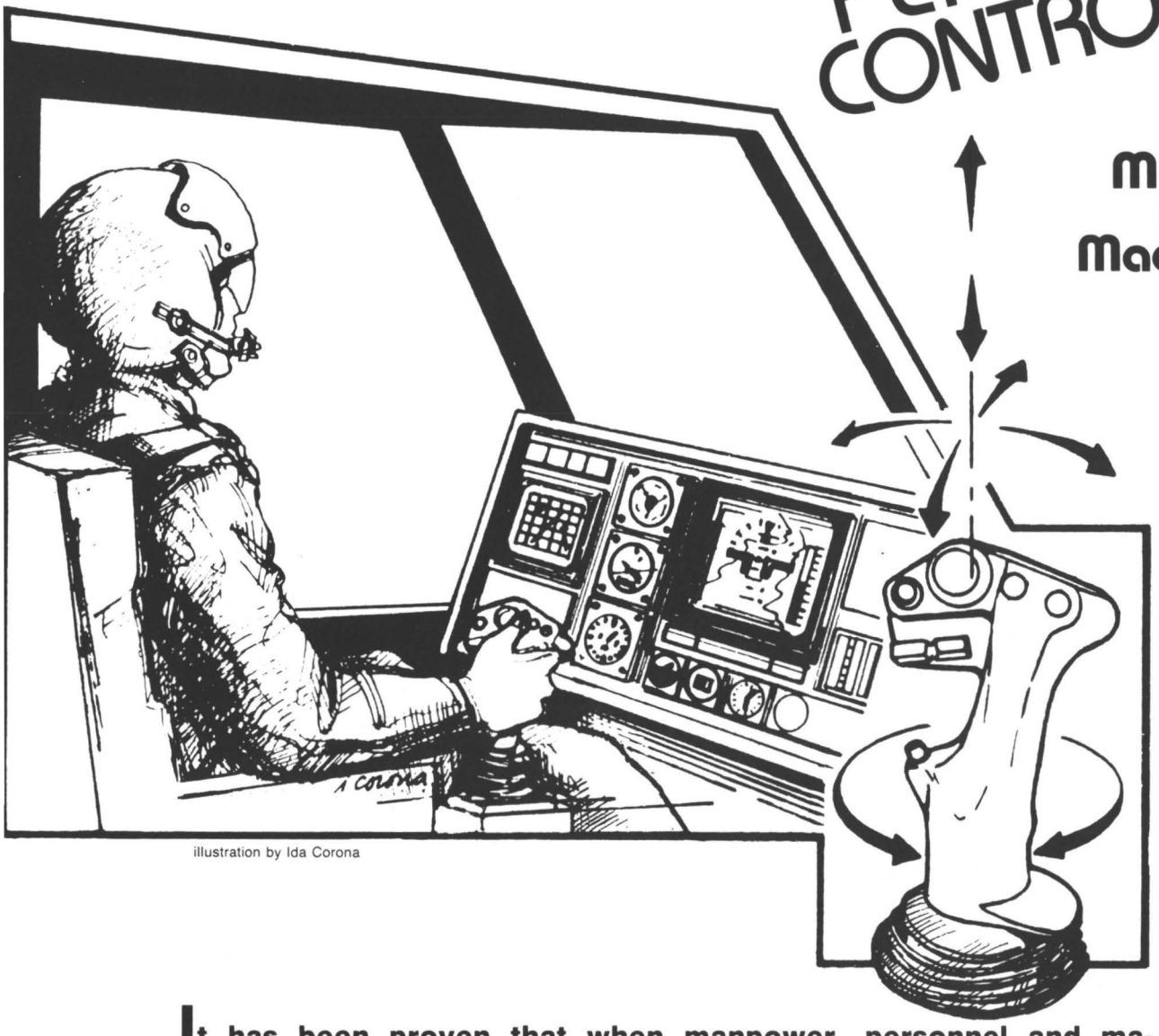


illustration by Ida Corona

It has been proven that when manpower, personnel and machines are effectively combined the results are improved, more efficient performance. That's the function of the Human Engineering Laboratory. However, efforts to enhance mission effectiveness through integration of a single side-arm, multiaxis controller into helicopter cockpits, though feasible, are not without problems. Therefore, your suggestions as users are needed and are strongly encouraged.

Captain John K. Schmidt
Human Engineering Laboratory
Aberdeen Proving Ground, MD

The Human Engineering Laboratory (HEL), Aberdeen Proving Ground, MD, is the Army's lead activity for human factors engineering. The purpose of human factors engineering is to optimize the interface between men, machines and their environment in order to maximize performance, efficiency and safety. It is also a cornerstone of the new initiative to improve the effectiveness of Army materiel, MANPRINT (manpower and personnel integration).

One traditional application of human factors engineering has been in cockpit layout. The ultimate objective is to enhance mission effectiveness through reduced pilot workload. The advent of modern computer and fly-by-light technologies has made possible new flexibility in cockpit display and control design such as the integration of the cyclic, collective and antitorque controls into a single, multiaxis controller. Several studies have been conducted by the HEL, National Aeronautics and Space Administration, industry, and the research community as a whole that examined this type of primary flight control system as well as a classic two-axis (pitch and roll), side-arm device. Generally, across the majority of these studies, it has been found that a two-axis, side-arm controller with a small displacement range is more desirable than both a center-stick and an isometric (stiff stick) controller. However, when the functions of collective and antitorque control are added to a two-axis, side-arm controller, making it four-axis, the results are not as clear cut.

There are several advantages and disadvantages to a single side-arm, multiaxis controller. Initially, such a device would free a hand to perform other mission tasks that cannot be performed when the left hand is providing collective input; and the improved sitting posture would help reduce pilot fatigue. With the elimination of foot pedals, it may allow a wider anthropometric range of pilots to be selected. In addition, removing the center stick increases both panel visibility and crash survivability.

Conversely, the modification of traditional crew stations is not without cost. With only one control head, switch functions normally assigned to the collective when combined with those on cyclic will not fit on a single controller and must be relocated. Even more complex is that the number of switches now on the cyclic may have to be reduced because when operated, switch pressure cross couples with flight control. These inadvertent, small control inputs taken in conjunction with just bumping the control can result in large flight perturbations. Finally, control repositioning may cause disorientation, especially in emergency conditions.

A series of interviews were conducted at the 7th Aviation Training Battalion, Ft. Rucker, AL, with regard to the integration of a side-arm, multiaxis controller into helicopter cockpits. Instructor pilots at Hanchey Army Heliport generally expressed opinions that reflect the findings found in the previously discussed empirical studies in that they perceived gaining the same advantages as well as incurring the same problems. Their comments provided the basis for developing a questionnaire that will be mailed out to each operational unit.

To broaden its data base, the HEL is interested in drawing upon the experience of the user community and encourages you to help by providing your comments on the questionnaire about the proposed changes in flight controls. Your responses could help shape our research program. Any questions concerning flight control research at the Human Engineering Laboratory may be addressed to Mr. William DeBellis, the Human Engineering Laboratory project engineer, AUTOVON 298-5836.

CW3 Danny Winn
CW3 Winn was assigned to 7th Aviation Training Battalion, Ft. Rucker, Al, when he wrote this article.

illustration by Doug Harrison

Fixed Wing Transition

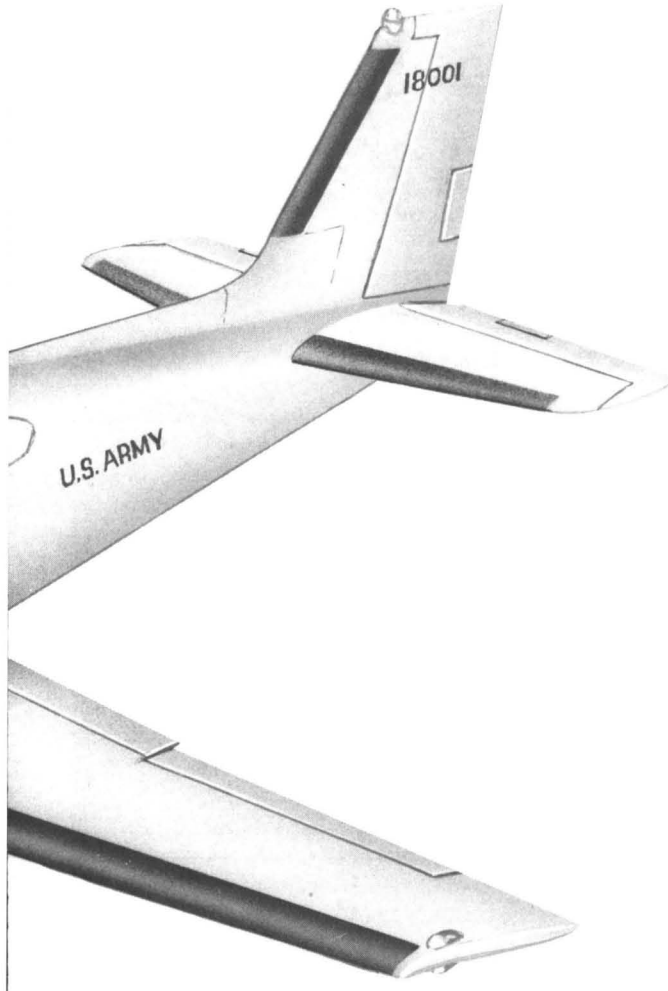
A Gentleman's Course?

THERE I WAS, a Ft. Rucker OH-58 Kiowa standardization instructor pilot sitting inside of a T-42 Cochise for the very first time. My instructor pilot (IP) said, go ahead and taxi out. That was my first problem, I had no idea of how to do that. He gave me 2 seconds of instruction and I was on my way. I then "S" turned all the way out to the runup area before I realized that the rudders and not the ailerons were what you steer with.

The runup portion came and went without too many problems. That was only because we had spent the 4 previous days in a T-42 simulator practicing this procedure. I was sure that I had impressed my IP with my performance. Coming up next was the flying portion. How hard could that be, this is a gentleman's course, right?

I taxied out to runway 06 at Cairns. Sure enough, the next words I heard were "takeoff." The second problem had arisen. My instructor being a warm, wonderful, human being said, "Push the throttles forward, pull back on the yoke at 86 knots and keep it on the runway." I somehow managed to do this and to my surprise we did takeoff.

Next my IP allowed me to fly the airplane for a while to get the feel of it. He then demonstrated stalls, slow flight and single engine operations that I



would be required to do for the contact portion checkride. I chuckled to myself thinking about what a great fixed wing pilot I'd be in a few days.

My smugness was soon shattered by the following chain of events: "Let's head on over to Marianna and shoot some approaches," my IP suggested. The stage was now set for an ego shattering experience.

The traffic pattern and lineup were no problem. On final my IP said, "Maintain your angle, roundout and pull the throttles all the way back." Once again, I was on the edge of virgin territory. On short final those starch wings that stay so stable were now flapping left and right. As I approached the ground, I did what all helicopter pilots do, I pulled the nose up. This activated the stall warning. My mind was racing while it searched for some common thread of aviation experience that could help. It was too late! The runway was looming larger. My OH-58 instincts took over and I leveled the airplane. It fell through the stall and crunched the runway hitting the left wheel first. I then "S" turned back and forth across the runway until coming to a stop.

My IP sat there with a glazed look and said, "not bad." How could he say that? I almost killed us all. I hate to admit this, but this approach set the stage for many approaches to follow. My IP liked to fly to a lot of different airfields. So I feel qualified to say that I banged into most of the small strips in the local flying area. The question that loomed in my mind was, how could I be so lousy at landing this airplane? I felt as if my name and picture should be placed into the IP Handbook next to "negative habit transfer."

The stalls my IP had demonstrated seemed so simple. Apparently, this bothered me, so I decided to be creative and make them difficult. On a climbing straight ahead stall I added power prior to breaking the stall. The airplane started a torque roll to the left. I slammed in right rudder and it started to roll right. There was all sorts of shaking and shuddering; finally I pulled the throttles back and was able to stabilize the airplane. My IP glanced over and asked if I was having a good time. The aircrew training manual states steep turns must be executed within ± 100 feet and ± 10 knots. Well I need ± 1,000 feet and ± 40 knots. My stick buddy, who sat in the back, suffered through all sorts of excessive G loading due to my unique manner of performing this maneuver. I preferred to lose a few hundred feet on entry and try and get it back by pulling the nose up and tightening the turn. I looked back a couple of times at my stick buddy and noticed how small he seemed to be getting.

As my checkride day approached my apprehension grew. My daily performance, though improving, still was providing moments of calamity. I was never more nervous before a checkride.

The checkride day arrived and I flew all the maneuvers not only satisfactorily, but well above my usual standards. I was ecstatic to think I had surmounted such a difficult task. How could such a difficult course ever get nicknamed the Gentleman's Course?

My friends and colleagues were all quick to ask about my checkride. I replied, hey you know, "It's a Gentleman's course"!

VIEWS FROM READERS

Editor:

I wish to point out that in the August 1986 issue of *Aviation Digest,* concerning the article on page 37, "Strike Deep and Win!" a photograph (shown below) on page 41, to right, was noted to say that the soldiers were in "winter camouflage." The fact is that they are wearing their MOPP (mission oriented protection posture) uniform. It looks like a modified MOPP 2. It is well known in winter REFORGER exercises that the MOPP suit is a good way to keep warm as well as to be prepared for a CBR (chemical, biological and radiological) attack.

How well I know.

CW2 Robert Dudek
11th MI Company
Aberdeen Proving Ground, MD

Soldiers participating in REFORGER '86 are wearing MOPP uniform, not winter camouflage.

Editor:

While I have addressed this letter to you as the editor of *Aviation Digest*, it is meant for the Army Aviation community in general.

Having just returned from the very successful 1987 Armor Conference, I could not help but wonder why no comparable function exists at Ft. Rucker. Indeed, it seems as though Ft. Rucker unnecessarily duplicates a lot of effort by having separate events such as Battalion/Brigade Commander's Conference, Aviation Maintenance Commander's Conference, Aviation Council Emeritus, AAAA, etc. Why not save time, effort and money by rolling all this into a 3 or 4 day branch oriented event held here at Ft. Rucker?

The Armor and Infantry Conferences are held at their respective proponent installations, sponsored by branch associations, and oriented toward the serving military audience. The AAAA Convention, while a truly laudable effort, cannot be considered as a counterpart to these conferences. The AAAA Convention is association oriented, as evidenced by its very name.

I have found that the other branch conferences are targeted at professional military audiences. Social events emphasize regimental ties. Old comrades meet and relive both the good times and bad. Officers and enlisted personnel from units all over the world return to the "schoolhouse" and are updated on new doctrinal, materiel, training and organizational information. Forums and discussion panels facilitate the exchange of ideas and provide valuable field input to the various directorates on post.

How can we have an Aviation Conference? Start planning 2 to 3 years out and design an agenda that maximizes social and professional integration. It might look like this (and granted, it's not perfect, but I didn't intend to slight anyone):

DAY 1	
Registration	0900-2200
Equipment and Simulator Displays	0900-1700
Parade Ground Ceremony	1630-1700
Chief of Aviation Garden Party	1700-1830
Regimental Buffet Dinner	1830-2200
DAY 2	
Equipment and Simulator Displays	0800-1630
DCAT Doctrinal Update	0800-1130
Chief of Aviation Luncheon	1130-1300
DCD New Developments	1300-1700

DAY 3	
Equipment and Simulator Displays	0800-1630
ACE Issues and Discussion	0730-1630
DES/DGFS Briefings	0730-1130
Safety Center/DAP	1300-1700
AAAA Dinner	1830-2100
DAY 4	
Equipment and Simulator Displays	0800-1630
Commanders' Panels	0730-1630
Closing Ceremonies	1700-1730

What do we accomplish with an Aviation Conference? It supports the branch, proponency and aviation regimental system. The Army cuts down on TDY expenditures by rolling together several events. The local merchants make a lot of money. The positive aspects of Army Aviation, and there are many, are visible to the senior Army leadership. All the players in the Concepts Based Requirements System are brought together. Aviation doctrine writers talk with field units. Everybody learns a lot, scrounges all the manuals they can't get in their units, meets friends and has a great time. In professional military leadership terminology this is known as "bonding."

CPT Mark J. Reardon
Ft. Rucker, AL

Editor:

The article, "Aviation Logistics Issues," under "Aviation Personnel Notes" in the November issue seems to border on hypocrisy on the part of the proponency office managing the aviation maintenance fields. In the case of military occupational specialty (MOS) 66 series inspectors, it alludes to the fact that mismanagement of using soldiers out of their assigned MOS results in degradation of their highly perishable skills. Yet, in the same article, it advocates using qualified personnel out of the 67 series MOS to perform full-time ALSE (aviation life support equipment) requirements. The article goes on to say the need for a dedicated MOS for ALSE specialists is clear, but that end strength restraints and inability to define a viable career progression pattern make its establishment untenable.

In reality, what is untenable is forcing personnel to work full-time out of the designated career field that they are tested under, rated and in which they must compete for advancement. What kind of a progression pattern is that?

The ALSE responsibility and an ever-increasing million dollar inventory of ultramodern and sophisticated equipment and aircraft systems dictate the need for highly trained and qualified ALSE technicians. The failure to establish an MOS for ALSE personnel is very effectively decreasing aviation combat readiness, and decreasing the survival odds of the aircrews who fly the machines. *That's* mismanagement.

John L. Wenrich
Department of the Army Civilian

Editor:

I have followed *Aviation Digest* closely over the years regarding articles on the air-to-air threat to Army Aviation and on attempts to develop systems, doctrine and training to counter the threat. I am continually amazed to see numerous articles stating that the air-to-air threat is something new.

As you are well aware, I was personally involved in this issue as early as 1979, with my colleague and friend CPT Carl Daschke. Collectively, we established the first Aviation Center position on the Soviet air threat to Army Aviation and briefed this to the highest levels of the Army. The Directorate of Combat Developments made every effort to support the air-to-air issue; this included using helicopter-to-helicopter engagements during wargame simulations supporting the AH-64 and advanced scout helicopter cost operational effectiveness analysis. Concepts for helicopter air-to-air engagements were abound in the early 1980s. For example, "The Fighter/ Interceptor Helicopter, a Concept For Today and Tomorrow," which I authored in *Aviation Digest* in January 1982, was only one of several early concepts on using Army Aviation in a dedicated air-to-air role. In your February/ March 1987 issue CPT (P) Hampton states: "A helicopter air combat mission role organized under the command of the air defense commander may indeed be a viable option for the LHX." That's what my article said more than 5 years ago! Additionally, CPT Daschke and I often referred to the potential of the Soviets developing a dedicated air-to-air helicopter in the 1978 to 1982 timeframe, a thought that was repeatedly refuted by the intelligence community. (*Soviet Military Power* now assesses "the Soviets new helicopter, Hokum, has no Western counterpart with a significant air-to-air capability." We told you so.)

The bottom line is that U.S. Army Aviation had the right threat and concepts in the late 1970s and early 1980s. Instead of making rapid strides we have slowly progressed to a point where we are again behind the Soviets. I am simply tired of reading articles espousing "new threat" and "new concepts." As far as I'm concerned, it's history.

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THREAT

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MONTHLY WRITING AWARD

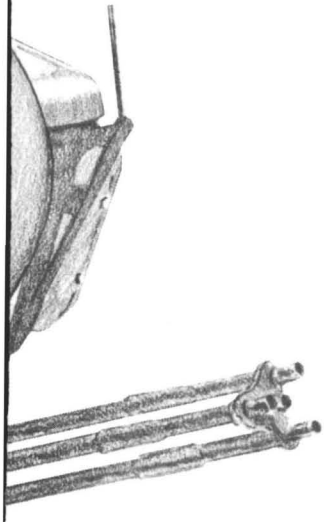
The opinions expressed in this article are those of the author and do not necessarily reflect the views of the Army Aviation Center nor any other Department of Defense agency.

illustration by Paul Fretts

Air-to-Air Combat Helicopters

Configured to Mission and Mission Dedicated

CW2 Michael J. Doyle



IN THE IMMORTAL words of Sub-Lieutenant Bartholomew W. Bandy, temporary acting major general, CBE, DSO, and bar, DFC, MC, etc.: "All I wanted were the simple things in life, like. . . life."

Or in our own age, borrowing from the vernacular of the modern knight of the plains, the rodeo cowboy; all he asks for as he nods for the chute gate prior to doing battle in his chosen 8-second hell—his personal field of honor as it were—is "an honest try." Just an opportunity to do his best work. Nothing more.

But the arena *we* are most interested in is of course a different corner of hell—the battlefield of the next war. And, like the bull rider astride a spinning ton, we ask only to be allowed to do our best. When a surprise "encounter engagement" was imminent, the old mountain man said, "Lord, I cain't rightly ask you to help me I know—but please don't help that bear!" The "bear" here is/are the threat forces of the Warsaw Pact, and they don't *need* any help. In the arena of warrioring addressed by this article, they are already the style setters. They, unfortunately for us, are the trend leaders.

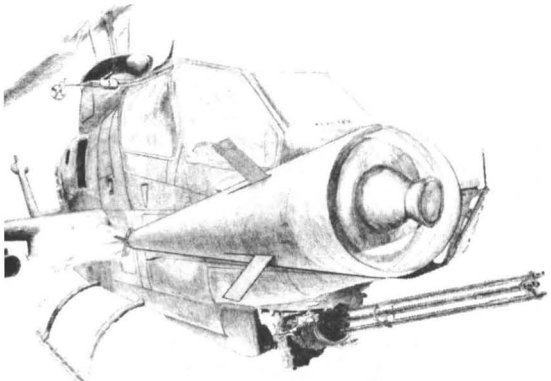
The arena we speak of here is the arena of helicopter air-to-air combat.

Consider this:

Subject to the law of variables, the infantry division commander of the hypothetical U.S. Army unit we will now spotlight should have at his disposal about 30 antiarmor Cobra helicopters with which to support his ground maneuver formations. If the corps owns an attack helicopter troop or battalion, then perhaps some or all of these would be in support also. . . but say 30 Cobras on this day of battle.

If each Cobra carried 8 TOW missiles and was online 3 times this day, and hit tanks with all missiles, 720 tanks would be hit. If 80 percent of the tanks hit were "kills," 576 tanks would be killed.

Naturally, combat losses, maintenance and other availability factors, not to mention battlefield confusion, would reduce TOWs



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fired in a given battle day and also the total of kills likely—probably to a figure of 400 or so. Maybe much less.

Imagine that the balloon went up in Europe. The Warsaw Pact forces charged across the wire, hell bent on capturing the wine vineyards of southeastern France—a worthy cause for war if there ever was one. Say there was a Russian general, and he wanted to punch a division, corps, or more likely, a combined arms army, through a perceived weak spot in the North Atlantic Treaty Organization (NATO) line. He would fear greatly the missile power of 30 Cobras supporting the NATO division's front. He would attempt to break through a point already impacted by a previous assault with, say, about 1,700 tanks. In order *not to lose* 400 tanks to TOW Cobras, he would send fighter intercepter helicopters supported by Hind attack helicopters to interdict the Cobra formations in their battle positions and holding areas behind the NATO line. This commander might give special attention to the deep positions such as the forward arming and refueling points (FARP) and also use his self-propelled artillery to interdict the battle positions with harassment and interdiction fires as he rolled. A possible tactic would be to sweep an area of likely Cobra shooting positions with fighter helicopers immediately after lifting artillery concentrations on those positions.

If we were that Russian general, in the near future, we'd have a nifty little piece of machinery to use for that mission. According to 'informed' but open sources such as *Jane's Defence Weekly* and *Aviation Week and Space Technology*, it likely will feature coaxial "ABC" type main rotors (no vulnerable tail rotor necessary). Published artists' conceptions show various "fixed wing" features such as wings and conventional tail surfaces. Performance characteristics implied by an aircraft configuration such as this are speed, maneuverability and agility (transient performance). Such a machine, being considerably faster and more maneuverable than United States' or other NATO types, would be able to get deep fast and strike with suddenness, or could sneak in nap-of-the-earth and attack in a quick dash—in either case, exploiting sprint speed to achieve tactical surprise. The armament suite on this fighter helicopter probably will consist of a 23 or 30 mm cannon with a high rate of fire, all aspect air-to-air missiles and ballistic rockets.

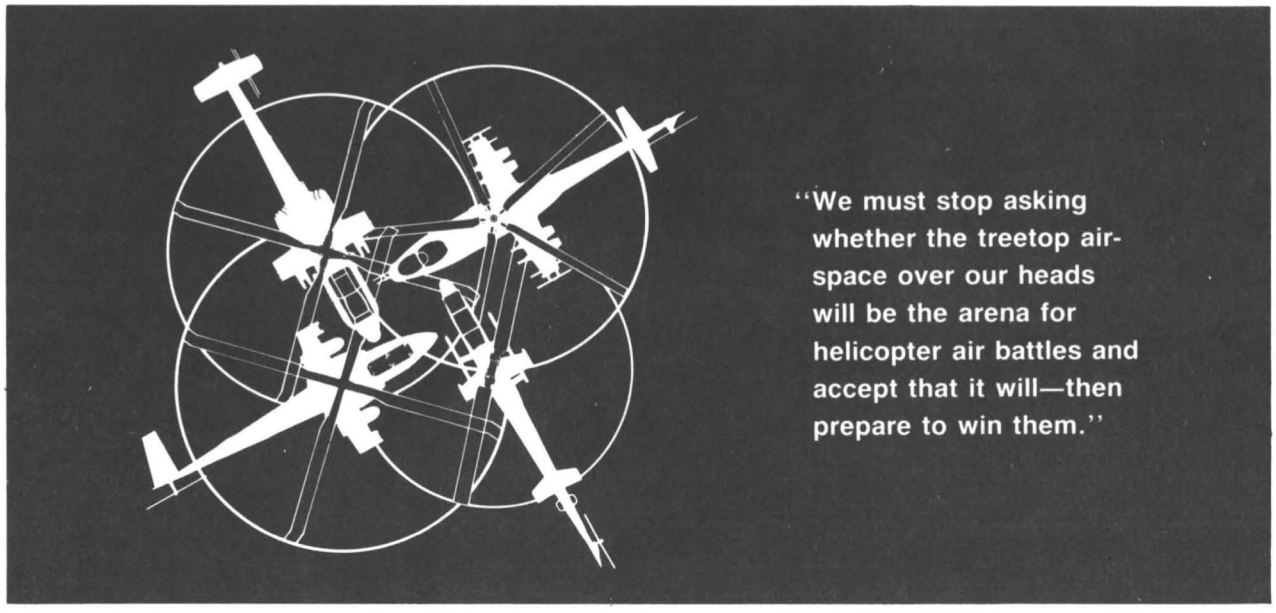
The heads-up display (HUD) in this fighter helicopter could give continuously computed impact point symbology for air-to-air gunnery lead solutions. The HUD symbology would undoubtedly include cues for delivery of direct and indirect ballistic rocket fire for troop support, a secondary mission. Forward looking infrared (FLIR), radar and infrared suppressors, jammers, warning devices, avionics and low level navigation systems will be state-of-the-art. Consistent with Soviet design philosophy, the windscreen would be bullet resistant; thus inspiring "elan," or dashing cavalry spirit of confidence in the former MiG pilots who fly them.

We could expect these down and dirty fighters to be employed in sections of twos, supported by sections of two, by two . . . .

On occasion, threat forces might well choose to employ flights of three, as has been recently reported in *Jane's Defence Weekly*, or even a "finger four," but more likely, twos. The odd man out in any uneven number formation is always a sitting duck sooner or later. Also, more than two is unwieldy when low and fast in bro-

Illustration courtesy of McDonnell Douglas

The threat fighter helicopter of the future will be capable of striking quickly with an assortment of air-to-ground and air-to-air armament.



"We must stop asking whether the treetop airspace over our heads will be the arena for helicopter air battles and accept that it will—then prepare to win them."

ken terrain. Air fights are fast. Air fights in helicopters may be *low* and fast.

Due to the anticipated speed capability of this Russian helicopter fighter, it can disengage more freely when it reaches fuel/ammo bingo than U.S. types—especially when section is supported by section, two by two. The additional benefits of speed are, of course, the option to accept or reject combat or to choose the fighting ground and the moment for decisive engagement.

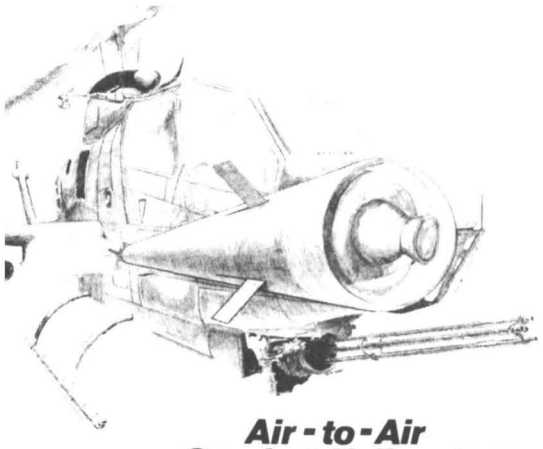
We had better get our air-to-air act together pretty quick or we are in danger of being overcome by events. The overworked point is this: When a possible adversary has fielded a major weapons system—that was so, so predictable—we can't just ignore it and hope it won't change the complexion of the next battlefield all that much. It will.

If we are to deal effectively with this new threat, there are many problem areas in Army Aviation that we must eliminate because they will affect the whole army battlefield—this *new* army battlefield.

First, last and forever, we must acknowledge that a new tactical day has dawned. We must stop asking *whether* the treetop airspace over our heads will be the arena for helicopter air battles and accept that it will—then prepare to win them. Incredible as it is, we still read authors who are in doubt.

We U.S. Army aviators and the nonflying branches must accept the fact that we have an urgent new mission; an urgent need to master a new skill. And. . . and this is important, a desperate need for dedicated equipment with which to cope. We Americans are so typically. . . *American* in this latter regard. Remember who went to war in 1917 with no airplanes, with British rifles, British tanks, an assortment of British and French machineguns? The same people who went to war against the Japanese Zero with Brewster Buffaloes and inadequate Curtis Hawks, no landing craft and almost no tanks!

A cursory look at the military history of modern U.S. forces provides us with frightening examples of the same incredible shortsightedness. The priorities and fiscal constraints that dictate equipment development and procurement are surely vexing to those in command, but why should we have to relearn *all* the lessons of history? We are setting ourselves up for a repeat of the debacle that marked the U.S. Army's first campaigns of World War II against the German/Italian powers; the calamity at Kasserine Pass. The Allies (U.S.) sent their troops into combat with inferior equipment. American tanks with their 37 mm and 75 mm guns and thin armor were no match for the German panzers with their long 75 mm and 88 mm guns and heavier armor plate. We were the most industrialized nation in the world and we had observed the war for more than 4 years! How could we have been so unprepared? Granted, other factors contributed to the poor showing for U.S. arms, but the one factor totally within our



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power to dictate should have been the proper selection of tools with which to work. Will our first campaign of the next war be like that one? Will there be time for subsequent opportunities to get it right—or will it *have to be right the first time*?

In this new arena of warrioring, we of the U.S. Army are already a bit late to the post. It might only be a one lap race. If the starting gun goes off early, we stand to lose. What a shame. It would have been. . . so avoidable.

As we train into the "new" skill of air combat maneuvering, we must orient our thinking to accomplishing the new mission thrust upon us; that of countering the new threat weapons system, and beating it. We can't ignore it. It won't go away. We must be ready to defeat it.

Countering a new threat usually requires new, or innovative tactics, new ways of applying outdated equipment to a new requirement, and eventually, hopefully, in the nick of time, dedicated weapons systems to compete on equal terms or better with the adversary.

All Army tactical aviators must be trained in air-to-air combat maneuvering or evasive maneuvering, depending on whether we're flying a "gun" or a "slick." New aviators should get it as an addition to flight school. We are told the Army is preparing a "road show" to present this training to all existing aviation units, but progress here is so agonizingly slow the syllabus is in existence *now* and has been for years. There is not much new on the subject of air fighting—only the application of helicopters to the sport. It isn't mysterious or magic or anything occult. As much as anything, it is a state of mind. . . and flying an aggressive aircraft. We *must* embrace it. The entire regiments of MiG drivers who were force transitioned to Mi-24 Hinds are probably laughing at us plenty. It's grade school stuff to them. They'll soon be flying the Hokum. This writer is sure not laughing.

Since we don't have anything even close to equal to the new Warsaw Pact helicopter, we will have to design tactics for employment of what we do have that are realistic and offer the best chance for survival and, consequently, mission accomplishment.

The primary air combat targets for the Soviet interceptor helicopters will be the missile Cobras and Apaches that *we* hope can be the big equalizer for the more than 20,000 Red main battle tanks in Europe alone. How then does a missile laden Cobra defend itself against a dedicated rotary wing fighter that is agile, probably capable of more than 200 knots, and flown by a fighter pilot?

It doesn't.

But with some rather simple modifications, the Cobra formations, if organized for the task, could perform marginally well in the air combat maneuvering role *after* they lighten up by firing their missiles.

A Cobra, bombed up, must be protected by *our* escort *helicopter fighters* until it can roll out of the battle position, two by two, TOW missiles gone, and attain the energy and tactical disposition to defend against air threat by air combat maneuvering.

Some will say we don't have any such helicopter fighter! Some say we can use the scouts. There are three of them lurking around each gun team somewhere. . . .

Wrong. Wrong machine. Wrong mission. Wrong numbers. It goes without saying that every tactical Army helicopter should go from the FARP to the battle with some means of defending itself against air attack. This means a pack of two Stingers, or Mistral, or whatever, on each Cobra for defense against fixed wing fighters and the occasional long look-up shot at a Hind or Hokum, in addition to the cannon—the primary antihelicopter air-to-air weapon. Each scout should have a pack of Stingers and, if possible, some sort of gun. But to think that observation machines, designed to perform as observation machines, could take on and defeat 4 or 6 or 10 flights of helicopter fighters arriving at regular intervals, would be rather a fantasy. The scouts CAN be a viable flank security and air raid warning force with antifixed wing potential (Stinger) in addition to their scouting and battle management responsibilities.

The job of defending against helicopter air-to-air raiders should fall to the nearest thing we *now* have to a rotary wing fighter weapons system—the Cobra (assuming the unavailability of Apaches in sufficient numbers).

But not the Cobra as ordinarily configured to kill tanks. About a year ago, there was an interesting article in the *Army Aviation Digest* concerning one Army aviator's ideas of how to make the Cobra an air-to-air machine. The ideas expressed were thought provoking and right on. Unfortunately, the modernized Cobra was not purchased with the heavier duty transmission, four bladed, negative G tolerant rotor system, bullet resistant front glass—especially bullet resistant front glass—think about it. On an *attack* aircraft!

In lieu of a major redesign and rebuild, which is needed but is not likely to happen, here are some

things we could do to adapt all existing Cobras to better cope with a full-time secondary mission of defending themselves against air attack *or* an occasional assignment as helicopter combat air patrol, primary (HELCAP). (Reference FM 1-107.)

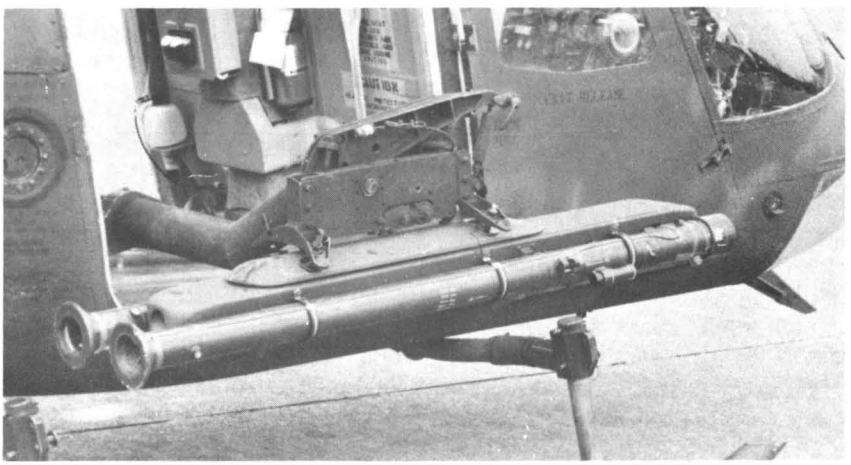
- **Bullet resistant glass front and front upper pane**. Doesn't matter what it costs or weighs—cost and weight acceptable. Carry less fuel, or 100 rounds less ammo if necessary.
- **Attach convex rear view mirrors to the canopy framing of the rear cockpit**—so the pilot in command (PIC) can see to the rear around the pylon and mast. These should be mounted on the outside. If reflective glare is a concern, they can be hooded or recessed in a fairing. A few comments on visibility are in order here.

The survivability of a helicopter in a fight against any opponent is dependent largely on seeing him in time to react. In the case of a fight with a fixed wing fighter, the helicopter *must* see the fighter by about a mile and a half to react in time. The jet will "build to" the helicopter so quickly that he will be in gun range in about *6½ or 7 more seconds* at his normal big knots battle zone speed. He would have been in nominal Sidewinder range when he was sighted. If he intends to drop a bomb on the helicopter, he will either go straight across the top with a high-drag, or pop for a slight dive delivery. If the airspace is permissive, he could pop higher for a steeper dive and higher pull-out altitude required for a low-drag. In any case, everything possible should be done to enhance lookout doctrine. The six o'clock is very blind from a Cobra, particularly from the rear seat. Also, for this reason, it is imperative that two-aircraft sections be employed, flying combat spread or combat cruise formation for maximum mutual visual coverage to the rear, when possibility of air threat exists. If helicopters are attacked by unseen fighters, or fighters not seen in time, they are dead meat. The probability of a kill is nearly 100 percent.

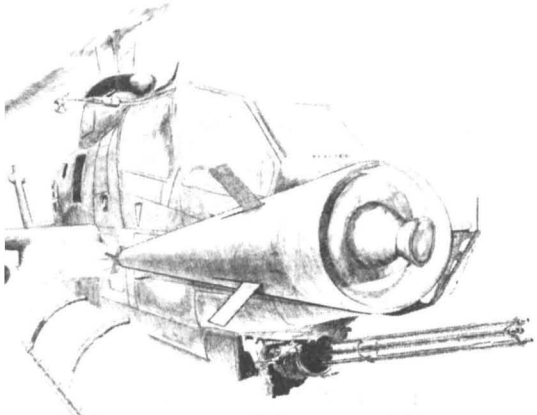
- **Increase the rate of fire of the M197 gun for use as an air-to-air weapon**. The effectiveness of any gun system, but especially an aerial gun system, is dependent upon destructive power due to lethality of individual rounds, or, bullet density. The compromises are, of course, between well aimed, accurate bursts of large calibre rounds, accepting fewer but more destructive hits, and a high rate of fire by smaller, equally well aimed rounds, but achieving a high *bullet density*. Bullet density is obtained by increasing the number of guns, or increasing the rate of fire from fewer guns. The best air machine-gun of World War II was the Browning fifty, firing at 800 to 900 rounds per minute. P-47s had EIGHT of them. The problem with larger, slower cyclic rate guns is that the fewer "shot in the pattern," moving, agile aircraft targets tend to be very difficult to hit at all. At 1,000 meters (*very long* range, admittedly, by the way) a Hind could just about fly between the shots of our present M197 gun.

The rate of fire of the M197 gun could be increased easily by adding/changing resistors associated with the gun and ammo feed drive motors. Increased rate of fire would present no harmonic vibration problems as long as it is fired on-axis, as in fixed gun, according to factory test personnel speaking off the record. Firing off-axis would likely present no problems as long as the increased rate is in multiples of the present rate.

If harmonic vibration were suspected or expected to be a problem, the gun could be wired to fire at the higher rate only in *fixed gun* for most air-to-air purposes, and use the slower, present rate of fire for flex-gun duties and against ground targets. A toggle switch could be installed that would select both lead computing air-to-air HUD imagery and high firing rate on the gun. Another way would be to use the cyclic trigger. The first detent for slow rate, and full down



". . . every tactical Army helicopter should go from the FARP to the battle with some means of defending itself against air attack."



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for high rate of fire. Do away with the 16 round burst feature. Attack pilots should be able to judge their own burst length for barrel life and ammo economy.

With well aimed cannon, a 1- or 2-second burst is a long burst and should be adequate to destroy most aircraft targets with 20 mm provided there is sufficient bullet density. If the M197 cannon were rigged to fire, say, 2,100 or so rounds per minute, and the load was a full bag of 750 rounds, there would be no less than 21.4 bursts available, of 1 second each.

To put it in perspective, each 1-second burst would put 35 rounds of 20 mm downrange. If only 20 percent of the rounds from this well-aimed burst actually hit the target, a full 7 rounds would hit. Seven rounds of 20 mm ought to take out even a stainless steel, carbon tipped Hind. With good gunnery and a high rate cannon, we can be successful in the close-in fight.

• **The HUD must be upgraded to deliver continuously computed lead solution symbology for air-to-air gunnery**. This would require (admittedly oversimplified) adding a program card or two to the fire control computer (FCC). According to an informed source at Marine Aviation Weapons and Tactics Squadron One, MCAS Yuma, AZ, who has talked with people at Kaiser (who build the FCC), the "card file" in the FCC is only about two-thirds used. This would ensure a high probability for a first burst hit when combined with the modification to the gun firing rate. The procedure whereby a shooter begins shooting experimentally and simply holds down on the trigger to walk the bullet stream in, should be considered less than proficient gunnery and a bit tacky from a professional perspective. It just is not necessary and would be a dangerous waste of ammunition when there are an unknown number of adversaries to combat. Also it advertises your presence on the enemy's six o'clock to spray tracers past his window while you experiment to find the solution.

• **Stinger**. Absolutely essential to arm *all* attack aircraft with the lightweight, all aspect, stand-off missile. All Army helicopters will be armed with Stinger except CH-47 and CH-54. The AH-1S, AH-64, OH-58C/D and UH-60 will be armed. Hinds can fire fast anti-tank guided missiles at Cobras from 5,000 meters or even farther—well beyond our gun range. All we can do about it is dodge around. . . but only for a few seconds.

• **A simple cross in a ring and post, or dot on a reflector glass and post fixed gunsight in front of the copilot/gunner**. A "fixed gun" *selector switch in the front cockpit*, to combine with the pilot override function, enabling the copilot to fire the cannon with the cyclic grip trigger in *fixed gun*. With these simple modifications, the copilot could at least aim the aircraft and therefore "fight it" from the front seat in the event the PIC in the rear is wounded or incapacitated. This rudimentary fixed sight also would provide the copilot a reference with which to aim ballistic rocket fire from the front seat. The fact that these two options are absent from the present Cobra, as purchased, is more than a little incredulous. The sight itself would cost about $3, installed.

• **None of these modifications would pose particularly difficult engineering challenges**. They would transform the S model Cobra into a usable tool in an air-to-air battle. As presently equipped—no missile, slow gun, primative sights—it really is not. The bad guys have a real, no fooling, helicopter fighter, flying, *now*.

Since the precis of this piece is that of an established threat to NATO antiarmor capability, how then to deal with it? First, an expedited program to turn all Army aviators into *potential* air-to-air combat pilots—pilots possessing at the minimum, the institutional awareness of the procedural discipline of air fighting and the historical development of it as a distinct warrior skill. . . a military occupational specialty. Second, and simultaneously, an equally expedited program to either develop one of the several proposed advanced helicopter designs as a U.S. rotary wing fighter, or adapt an existing aircraft to this mission—hopefully both: the latter for the near term, the former for the long term.

Possibly the hardest pill to swallow is that potentially we must dedicate assets to the role of low altitude air superiority. Heretofore, the idea of down-loading TOW Cobras by even one TOW missile in order to, say, carry a Stinger or two for air-to-air defense, has been unacceptable to many of those in command of maneuver formations in the face of the anticipated massed threat armor. The suggestion to dedicate *formations* of Cobras modified to the task of air-to-air defense would probably be unthinkable.

There are several possibilities. Some of them are to:

• Dedicate some of the existing Cobras in service and modify them to the mission.

• Build (buy) more Cobras specifically configured to the mission.

• Buy another more capable he-

In lieu of a major redesign and rebuild, Cobras can be adapted to better defend themselves against air attack.

licopter, off the shelf, for the interim helicopter fighter.

- Upgrade all Army Cobras only in the ways mentioned here, above, and make them "multirole" aircraft and all Cobra drivers similarly multirole qualified.

Some different ideas.

- A combination of all the above.
- Do nothing.

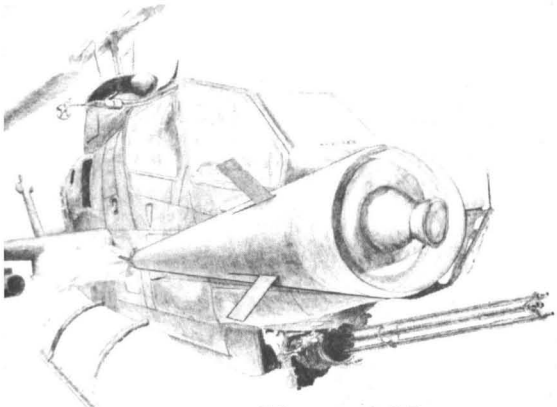
Let's explore a couple of these suppositions further. For the purposes of conjecture, let's establish a protective cover or HELCAP to protect our antiarmor TOW Cobras in their battle positions, holding areas and FARPs—the places where they would be most vulnerable to raiding Hokums and Hinds. That is to say, either "bombed up" in the battle position or holding area, engaged, or refueling and rearming. We'll decide later where these hypothetical assets might come from. For this mission assignment, however, presume the HELCAP aircraft to be at least minimally modified to the air-to-air configuration. Ditto the pilots.

The approaches to the area comprising each troop/company's battle positions would have to be patrolled by our HELCAP. Likewise, the approaches to FARPs and the most heavily used holding areas. These approaches would be determined by the nature of the terrain; that is the one asset common to both opposing forces. Both adversaries are stuck with the existing terrain.

There would be essentially two types of patrol possible; a standing (or sitting) one and a high energy state patrol. The nature of the terrain and the anticipated likelihood of engagement would suggest which type would be most appropriate. If the tactical situation suggested, the HELCAP could sit concealed in ambush. . . from which to dash out and strike the enemy a mighty blow when he passed by en route to do his dirty deeds. Or the two HELCAP (always two) aircraft could be flying in a sort of race track pattern at zero altitude and high speed in order to have energy well up if engagement is imminent, or for response to a call for help.

For protection of a company or troop sized attack unit, probably the minimum size HELCAP force at any one time would be six aircraft operating in three, two-plane sections; one section on each side of the troop "front" generally speaking, and one patrolling in reserve protecting rear areas such as FARPs and holding areas, etc. If the perceived threat from Red forces' helicopter interdictors is less sophisticated, then perhaps this level of protection would be adequate for a larger unit.

By cleverly alternating the refueling of these sections, the coverage could be maintained by the six aircraft indefinitely. By adding three more aircraft to the total HELCAP force, we come up with a percentage of the force assumed to be down for maintenance and repair. Thus the total HELCAP "unit" consists of about nine aircraft. Each troop/company therefore could have the equivalent of four platoons of attack aircraft, three TOW Cobra platoons and one HELCAP platoon. If there were three attack companies per attack battalion, there would of course be three HELCAP platoons per attack helicopter battalion. Perhaps these three HELCAP platoons could themselves be a separate company. Probably they should. This would allow for the



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centralization of maintenance and support for these specially configured aircraft and administrative support for personnel, especially pilots. If the HELCAP company were a battalion asset, it possibly could be managed to more telling effect than if owned in platoons piecemeal by the attack companies. Perhaps enough economy of force could be realized by this system that the HELCAP company could even be a "short" company or a company minus, since seldom would all the TOW companies be engaging at once.

As the TOW birds fire out and roll out of their battle positions, they become less vulnerable and can assume an air-to-air alert posture as they pick up energy and depart in flights of two en route to the FARP. This will be a dangerous time for the TOW birds. Their fire mission complete, they cannot afford to relax as they head to the rear to rearm. Disengaging from the antiarmor mission could precede engagement by hostile helicopters.

If the TOW birds should be attacked while engaging enemy armor, they basically have two choices: to hold the crosshairs steady and ignore the incoming raid; or, to roll out and defend. Understandably, some hard pressed ground maneuver formation commanders might prefer that they hold steady and keep sending TOWs downrange. This might, in fact, be possible to some degree if the incoming raid could be turned at a distance from the battle position. If there are no HELCAP birds guarding the approaches to intercept the incoming raid, then the potential for disaster exists. This is a double bind. If the TOW birds disengage the armor targets and dogfight the hostile raiders, the enemy armor rolls on. If they don't, they are taken off the game board!

To neutralize fighters, you must employ fighters. Scouts or observation types won't do. They can and should provide warning and flank observation security. They could help vector the nearest HELCAP section to the intercept. This would all happen very fast and be in plain language. There is no time in an air fight for alphanumeric call signs or decoding from a CEOI (Communications-Electronics Operation Instructions). Alphanumerics are OK if you're in a tank moving at 25 miles per hour. You can let go the binoculars or the target designator hand grip and the tank doesn't roll upside down in the middle of the road. A Cobra just might. If, when hearing the scout's vector call, the HELCAP is patrolling in the most likely places, they should already be fairly well disposed to intercept. The HELCAP engages the raiders and destroys them or causes them to veer. The TOW birds hold steady as long as no raids penetrate the battle position.

The supposition has been popular up to this point that helicopters might remain unseen by raiders if they go to ground, use shadow and available terrain for concealment, thereby avoiding combat. This tactic may have been effective up until now. However, with the advent of more sophisticated sensing systems onboard both new designs and retrofits to old ones, our aircraft may need to be more spring loaded to come out and fight, or maneuver in defense. FLIR, for example, should be as handy for seeking out Cobra and Apache targets as it is for other things, making battle positions and assembly areas hard to hide in, no matter how well you blend into the shadows.

To capsulize all this, we no longer have to ponder the rhetorical question: Helicopter-to-helicopter air combat—accidental encounter or on purpose?

The threat forces have answered the question with a very predictable—*on purpose.*

We can continue to debate it, avoid it, say it isn't true, do a staff study or two—and get our doors blown off. Or we can adjust, modify, adapt, **NOW**, and get back in the driver's seat. Our deterrent mission will be seriously degraded—right away—if we don't.

Check six.

ABOUT THE AUTHOR

Prior to civilian employment as an airline pilot and affiliation with the Army National Guard, CW2 Doyle was a commissioned officer in the regular U.S. Marine Corps. He flew fighter and attack aircraft in this capacity from 1962 until 1972, including a tour in Vietnam as an attack pilot flying A-4 aircraft. His last assignment as a regular Marine officer was instructor pilot, VMT-103, MCAS Yuma, AZ, teaching air-to-air and air-to-ground fighter tactics and gunnery. He currently flies TA-4 Skyhawk aircraft with the U.S. Navy Pacific Fleet Aggressor Squadron, VF-126, at NAS Mirimar, San Diego, CA, in the capacity of interservice training liaison officer, air-to-air combat. His present Army Guard assignment is attack pilot, AH-1S(MC) Cobra.

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the Ten Commandments of Helicopter Flight

author unknown

1 Thy rotor rpm is the staff of life; without it thou shalt surely perish.

2 Thou shalt not forsake thy peformance planning, nor weight and balance, nor any other aspect of pre-mission planning.

3 Honor thy weather forecast, that thy days may be long upon the Earth.

4 Thou shalt remember thy height velocity diagram in all that thou doest, lest the Earth rise up and smite thee.

5 Thou shalt observe the teachings of thy operators manual, and keep its wisdom close to thy heart.

6 Thou shalt not sacrifice safety to the gods of mission accomplishment, nor the gods of command pressure, nor any other graven image.

7 Thou shalt keep thyself physically fit, and take neither crew rest, nor bottle-to-throttle in vain.

8 Thou shalt know and practice the commandments of thy regulations, SOPs and directives, that thou shalt be found blameless in the judgment seat of the accident investigation board.

9 Thou shalt perform all manner of hourly inspections and maintenance checks when they are due, and shalt not bear false witness on thy DA Form 2408-12s and -13s.

10 Thou shalt strive on in the pursuit of professionalism, sound judgment, teamwork and dedication, that one day thou shalt pass on to thy reward as a retired Army aviator.

ATC ACTION LINE

Solving the Near Myths of Control Zones

The following article is an excerpt from the Federal Aviation Administration (FAA) Air Traffic Bulletin No. 86-2, dated July 1986. Reprinted with permission.

Most of us feel fairly comfortable when someone asks us about control zones and their application. Or do we? Frequent questions are asked about this seemingly mysterious, confusing and misconceived form of controlled airspace. The key to this unique creature is simply two words—"controlled airspace." Control zones are areas of controlled airspace designed to provide protection for aircraft operating to and from an airport under instrument flight conditions. They are established by the rulemaking process and described in Part 71 of the Federal Aviation Regulations. By definition, a control zone is: "Controlled airspace which extends upward from the surface and terminates at the base of the continental control area. Control zones that do not underlie the continental area have no upper limit. A control zone may include one or more airports and is normally a circular area within a radius of 5 statute miles and any extensions necessary to include instrument approach and departure paths." It should be noted that this is different in many ways from an airport traffic area, and should not be confused with it.

Now, let's discuss application of control zones. FAAH 7400.2C, "Procedures for Handling Airspace Matters," prescribes requirements and criteria for control zone designations. In general, it states that control zones: shall/may be designated where a control tower is in operation; it further states that a control zone shall be designated to accommodate instrument procedures (prescribed, special, arrival, departure) if such action is justified and/or in the public interest.

However, it also says that we must have communications capability to the runway surface of the primary airport and weather observation and reporting at the primary airport before we can designate this type of controlled airspace.

Here is where the issue starts to appear fuzzy. What happens if the *weather* observer gets sick and goes home, or *communications* are temporarily lost? Should a notice to airmen (NOTAM) be issued canceling or suspending the control zone? The answer is clearly *NO*; the control zone still exists. If this answer surprises you, you are not alone. There are two key factors to remember. First, as stated earlier, control zones are part of the regulatory process and are established by law. This means that to change, modify or eliminate a control zone requires rulemaking action. Second, that the purpose of the control zone is to establish controlled airspace, not to establish weather reporting or communications. This usually brings us to focus more clearly on the other part of the problem, what action should be taken.

Since it is a requirement to have weather reporting and communications capability in the initial establishment of a control zone, what should be done if either is lost? The answer is a *NOTAM* should be issued to notify the flying public that *weather reporting* and/or *communication* services are temporarily unavailable. The control zone is not canceled; however, if these two establishment factors (weather reporting and communications) become consistently unavailable, rulemaking action should be initiated to revoke or modify the control zone.

Another misconception is the use of NOTAMs to change the hours of part-time control zones. A provision is made in FAAH 7400.2C that allows for changes in control zone hours by NOTAM, when minor variations in time are anticipated. This NOTAM provision enables the control zone hours to conform to "seasonal trends in air traffic." However, NOTAMs may only be used when: (1) the description of the control zone in FAR Part 71 specifically includes that NOTAMs can be used, and (2) only after coordination with, and approval from, the appropriate FAA regional office. (Army personnel should go through the appropriate Department of the Army Regional Representative.) Examples of this application would be for expanded summer air carrier operations or for military summer training. In these cases, if the above provisions are met, a single NOTAM could be used to extend control zone hours for this timeframe. However, this should not be misconstrued to "routinely" extend or retract control zone hours on a "frequent" basis.

Readers are encouraged to address matters concerning air traffic control to: Director, U.S. Army Aeronautical Services Office, Cameron Station, Alexandria, VA 22304-5050.