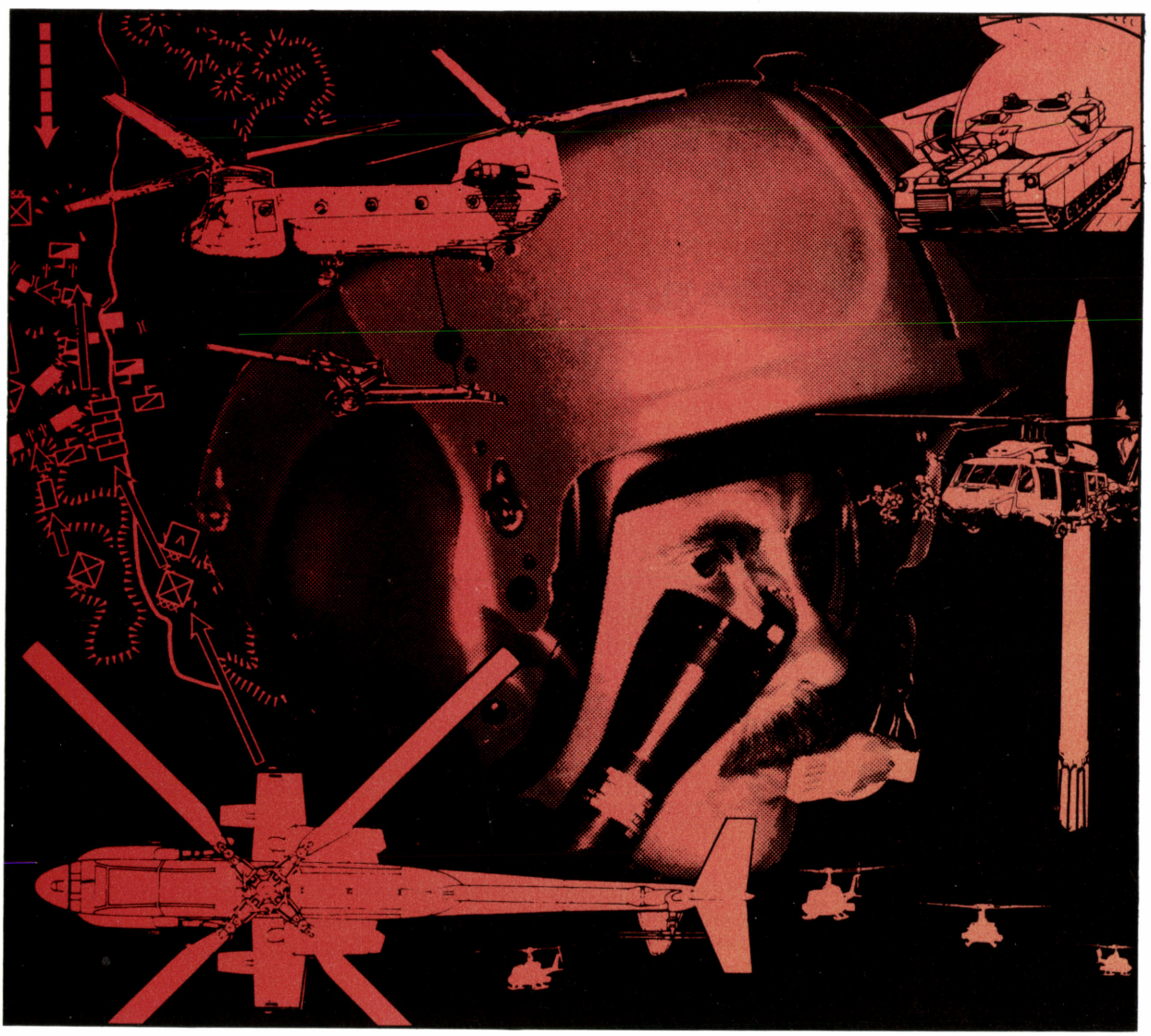
UNITED STATES ARMY

AVIATION DIGEST

MARCH/APRIL 1991



Professional Bulletin 1-91-2

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AVIATION DIGEST

PROFESSIONAL BULLETIN

1-91-2 • MARCH/APRIL 1991

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About the Cover: In the lead article, "Design For Tempo," the authors discuss how force design and the speed of the combat force affect combat effectiveness. They warn against any future Army force structure efforts that tie the mobility of the helicopter to the slower speed of the ground combat vehicle.

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Major General Rudolph Ostovich III
Chief, Army Aviation Branch

Aviation's Contribution to the War in the Gulf

PREVIOUSLY ADDRESSED WERE the three Army warfighting qualities–*deployability, versatility, and lethality.* I have explained how these qualities epitomize current Army Aviation. The Gulf War provided Army Aviation the opportunity to showcase these dynamic qualities. Our contributions to the fight in the Gulf War unfolded before the world's eyes.

These qualities are not entirely new for Army Aviation. Past commanders envisioned rapid deployment of helicopters and battlefield mobility at its greatest with troop-carrying helicopters. Maneuver, combat support, combat service support, and intelligence operations demonstrated versatility. Lethality was clearly evident in early experiments with armed helicopters that provided suppressive fires during air assault operations. Later, air operations in Vietnam exploited these qualities through the effective use of air cavalry, air assault, aerial rocket artillery, and special electronics mission aircraft.

Army Aviation clearly demonstrated these three qualities in Southwest Asia. Deployability was evident in the early deployment of AH-64 Apache helicopter units with the Army's Rapid Deployment Forces–the 82d Airborne Division and 101st Air Assault Division. The combination of ground forces and an organic AH-64 attack battalion formed the division ready brigade "heavy." The 82d, 101st, 24th Mechanized Infantry Division, 1st Cavalry Division, and XVIII Airborne Corps all deployed with extended aviation organizations. More important, aviation was resident at the division level where it was effectively used to achieve operational objectives. The arrival of the 1-82d early in-theater bears testimony to Army Aviation's ability to deploy rapidly around the world.

Versatility was demonstrated frequently. UH-60 Black Hawk helicopters daily assisted ground units in moving troops, supplies, and equipment forward to new tactical locations. CH-47 Chinooks moved bulk quantities of all classes of supplies around the battlefield and performed aircraft and vehicle recovery. Army rotary- and fixed-wing aircraft performed special electronic missions and gathered timely and critical intelligence information for commanders. Army Aviation's wide range of contributions are coming to light in other areas as well. These include command and control, medical evacuation, and combat search and rescue. During Operation Desert Storm, we even witnessed Apaches and OH-58 Kiowa Warriors taking prisoners!

Apache attack helicopters armed with rockets and laser-guided missiles moved effortlessly under the cover of darkness demonstrating their devastating lethal power. According to a Pentagon news media release, Army Apache helicopters were among the first weapon systems to see battle and to play a vital role in the air campaign against Iraq. Aviation Forces along with Special Operations Forces combined efforts to blast a hole through the perimeter of Iraq's air defense (AD) system. Apache helicopters fired HELLFIRE missiles into two Iraqi AD command centers, knocking out their early AD capability, which denied Iraqi gunners time to fire antiaircraft missiles and guns accurately. The AD command centers stood between Baghdad and the first wave of attacking fighter-bombers. That hole allowed aircraft to effectively unleash multiple attacks against Iraqi military targets in and around Baghdad.

Talk about lethal–the Apache's night vision system enabled it to destroy targets from 5 miles away. Not a single Apache employed in Desert Storm was lost to hostile enemy fire. The air bombardment drove the Iraqi's Soviet-made T-72 tanks from their defensive posture; Apache helicopters engaged and destroyed them with speed, surprise, and standoff while under the cover of darkness or masked behind sand dunes. That's not even a fair fight and that's what I call *lethality.*

Our contribution to the fight in the Gulf War was considerable. Army Aviation demonstrated the qualities of *deployability, versatility, and lethality.* These qualities were magnified as our capabilities were factored into the ground war. Often our glory is hidden behind the scenes and unexposed–but that's how we fight. Whatever the situation, Army Aviation remains a relevant force now and for the future.

Colonel Patrick J. Bodelson
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design for tempo

This article is the first in a series describing the relationship between force design and the warfighting capability generated by that design. It emphasizes how the design of armies generates tempo, a prerequisite for victory on the battlefield. In view of the imminent force reduction due to budget constraints, it prompts the disturbing question: "Will our habit of designing the force through consensus-building jeopardize the Army's future overall combat efficiency?"

Much of what constitutes victory is human–fighting spirit, endurance, morale, command style, training, and discipline–and within the influence of the commander. Other elements–quality equipment, usable doctrine, and adequate force design– also contribute to victory. While good commanders can do something about morale, training, and discipline, they are far less empowered to do one whit about faulty force design.

During the last decade, the U.S. Army managed to field a variety of new equipment–equipment that was sorely needed. The U.S. Army also developed new doctrine–the Air-Land Battle (ALB)–and, toward the end of the decade, began the process of revising and updating doctrine to ensure its continued relevance into the next century. Force design is only now being seriously examined to see if it has kept pace with the changes in doctrine and equipment.

To take part in the current debate concerning the future structure of the U.S. Army is certainly beyond the scope of a single article. Instead, our aim is to try and establish a relationship between an Army's force structure and the warfighting capability generated by that structure. Whether this relationship and its associated doctrinal impact has any bearing on the current force structure debate is left for the reader to judge.

If history provides any lessons, one of them is that armies rarely (if ever) enjoy an optimum force design. The few exceptions to this rule probably occur only when the general and the emperor are the same–as in the case of Napoleon. Even Bonaparte only briefly possessed the capability to design, field, and then command the 'right' army.

Neither of the reputed masters of mobile warfare in this century–the Wehrmacht and the Israeli Defense Force–had the necessary funds or industrial base to field exactly the force that they desired. The Wehrmacht conquered Western Europe with an army that was only 20-percent mechanized in its heyday.

Democratic nations still find it almost impossible to arrive at an optimum force design because of funding constraints, the uncertain impact of tremendous technical progress, or, recently, the fortunes of organizational, domestic, and world politics.

Force Design

"The purpose of military organization is to so deploy available human and material resources in order to produce the greatest possible effectiveness in combat."[1] This truism is simple enough to put between quotation marks, but it is much harder to live by in peacetime, simply because of a lack of feedback. Without feedback, any force design decision is essentially a shot in the dark. Of course, to avoid these mistakes, we rely on professional military judgement, computer modeling, and the different forms of available history. All this has a tendency to remove some of the uncertainty but certainly not all of it.

The world of force design must, therefore, be carefully navigated, since one false turn can spell immediate and irreversible disaster in the field. Interests external to the pursuit of the 'greatest possible effectiveness' can serve no purpose other than to create error in the process.

Warfighting Capability

While many aspects of war are certainly important, it is the generation of tempo upon which all else turns. Tempo has been called the 'soul of war.' It is impossible to find an accepted doctrine or theory that does not call for the generation of higher tempo in relation to your

enemy. A superior tempo is the prerequisite for movement, the ability to concentrate, the ability to generate surprise–the essential ability either to conduct maneuver warfare or rapidly add numbers of lethal systems to the decisive point. This being the case, it makes sense to try and establish the relationship between force design and the generation of superior relative tempo. Understanding tempo, and its effect of combat effectiveness, is easier when thought of in the following way:

- ☐ **Tactical tempo** is the rate of work within a battle (between engagements).
- ☐ **Operational tempo** is the rate of work between battles.[2]
- ☐ **Strategic tempo** is the rate of work between campaigns.

All three 'flavors' of tempo are important, but their importance is relative to the 'levels' of war. Superior tactical tempo can win a battle but may be rendered useless by operational defeats. Superior operational tempo can, to a large degree, offset tactical errors but may have little impact on a war dominated by rapid movement at the strategic level. Any force design that ignores this basic relationship is flawed.

The prime historical example of the effect of force design on the generation of superior tempo is the battle for France in 1940.The critical force design decisions that affected that battle were made years before the first shot was fired. Yet these organizational design decisions affected the battle as surely as any tactical de- cision made during the battle itself.

Prewar Germany

Between 1935 and 1937 "...a tense struggle was fought out within the German General Staff regarding the future role of armor in battle. General Beck, the Chief of Staff, wished to follow the French doctrine and tie down the tanks to close support of infantry."[3]

Surprisingly, German doctrine was still under debate, and the "...Army did not wholeheartedly accept the concept of mechanized blitzkrieg until the defeat of France in 1940. Prior to that time, the majority of senior German commanders apparently regarded mechanization as a useful but very specialized tool that would not replace ordinary infantry divisions. In thinking this, they shared much of the traditional viewpoint that characterized their counterparts in Britain, France, and elsewhere."[4]

Prewar France

The glory of France seemed destined to remain with the infantry. As late as 1937, the French equivalent to FM 100-5, *Operations*, stated that "...it was the infantry which was to be entrusted with the principle duty in battle. Protected and accompanied by its own guns and by the guns of the artillery, and occasionally preceded by combat tanks and aviation...it conquers the ground, occupies it, organizes and holds it...the task of infantry was particularly dangerous and of outstanding glory."[5] The French concept was flawed in two areas as follows:

- ☐ "...such a meticulously planned, centrally controlled operation was unable to react to sudden changes. The German offensives of 1918 had already demonstrated that any enemy action that disrupted the defender's linear deployments and lockstep planning would catch the French headquarters off guard, unable to reorganize a defense against a highly mobile attacker."[6]
- ☐ "...the French doctrine viewed combined arms as a process by

which all other weapons systems assisted the infantry in its forward progress. The alternative of finding ways to increase the mobility and protection of the infantry in order to keep pace..."[7] with other arms was rarely considered.

The men in control of the French Army (infantry- and artillery-men with proponent interests) mistrusted mechanization. Their mistrust was fueled by a lack of fundamental technical understanding. General Gamelin, the French chief of staff, once remarked that "You cannot hope to achieve real breakthroughs with tanks. The tank is not independent enough. It has to go ahead, but then must return for fuel and supplies."[8] Edouard Daladier, the French Minister of National Defence, declared to a Senate Commission that tanks were too vulnerable. The Spanish Civil War "...has seen the crumbling of immense hopes based on certain machines. Outside Madrid the tanks lay ...pierced like sieves.''[9] Gamelin echoed Daladier in condemning the mechanized fighting vehicle as too fragile-- "...inadequately protected, fit only for the scrap heap."[10]

Whatever the reasons–improper analysis of the Spanish Civil War, political dominance of a single proponent, or the erroneous association of France's armored theorists with Communist elements[11] –the fact remained that France's force design was about to play a major part in losing the war, although her force was virtually equivalent to Germany's force.

Situation at H-1 (Hour-1)

Throughout the 1930's, both nations fielded essentially the same numbers of divisions, and procured remarkably similar quantities of equipment:

"For employment...Hitler could count upon 136 out of the Army's 157 divisions, of which no more than a third qualified as first-rate offensive materiel.... France's northeast front was...held by...a total of 136 (divisions).[12]

"By the most accurate of estimates, Germany's ten panzer divisions had a total of 2,200 tanks. The Franco-British alliance had almost 3,400 tanks of modern design.[13]

"In artillery, France was numerically superior, with 11,200 guns to 7,710.[14]

"France was at a disadvantage in terms of aircraft, with 1,729 of all types, against 3,242 aircraft available to the Germans."[15]

As far as numbers go, the game certainly looked even enough. Numbers alone, however, did not not tell the whole story. Within the French Army, the "...tanks were scattered:

700 to 800 in the cavalry divisions or D.L.M.s, 1,500 to 1,700 dispersed in independent battalions under the infantry. The remainder belonged to the three new armored divisions, only formed in 1940, and each contained just half as many tanks as (each of) the ten powerful Panzer divisions into which was concentrated all the German armour."[16] In fact, the largest German operational concentration of armor (Army Group A) enjoyed nearly an order of magnitude difference in size over the largest single French operational concentration of armor (the Strategic Reserve).

Figure 1 represents the initial dispositions of each army before the battle, and gives a rough indication of the extent of the mechanization 'piecemealing' within the French Force design.

Consciously or not, France designed her force to maximize tactical firepower and tempo to fight a forward-deployed defense of her own borders (and those of her allies).[17] The Germans, perhaps with equal organizational uncertainty, started with the same 'pieces,' and ended up with a different force design–one that weakened tactical tempo slightly but maximized tempo at the operational level.

In all fairness, the German command philosophy[18] was certainly a major factor in the Battle of France and, in retrospect, seemed ideally

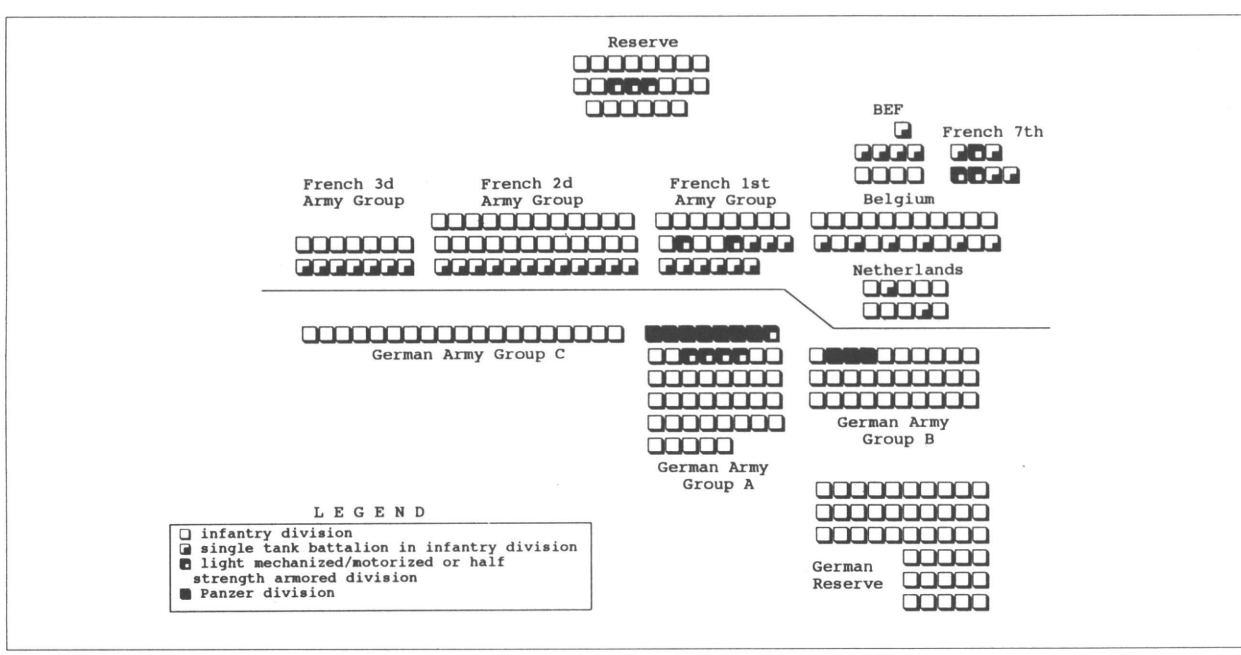


FIGURE 1: Design of French and German Army Forces at the beginning of World War II

matched to her force design. Whether the same command philosophy would have worked as well with a French-style force design is debatable. In fact, evidence of such a potential mismatch between German doctrine, command philosophy, and a piecemealing force design approach was evident in the Polish campaign:

"...the German higher commanders had not accepted Guderian's theories and did not employ their mobile divisions in mass for deep exploitation. The panzer and light divisions were parceled out among the various armies.... In general, the mechanized and motorized forces were employed as the cutting edges of a more conventional advance on a broad front, with relatively shallow penetrations of the Polish defenses. Not until after organized Polish resistance collapsed did armored forces exploit into the rear for any distance."[19]

Germany probably used the same command philosophy in Poland as in France; however, the German Army's force design was apparently different, and the results were different as well. Piecemealing their most mobile assets (although not to as great a degree as the French) certainly slowed the available operational tempo down.

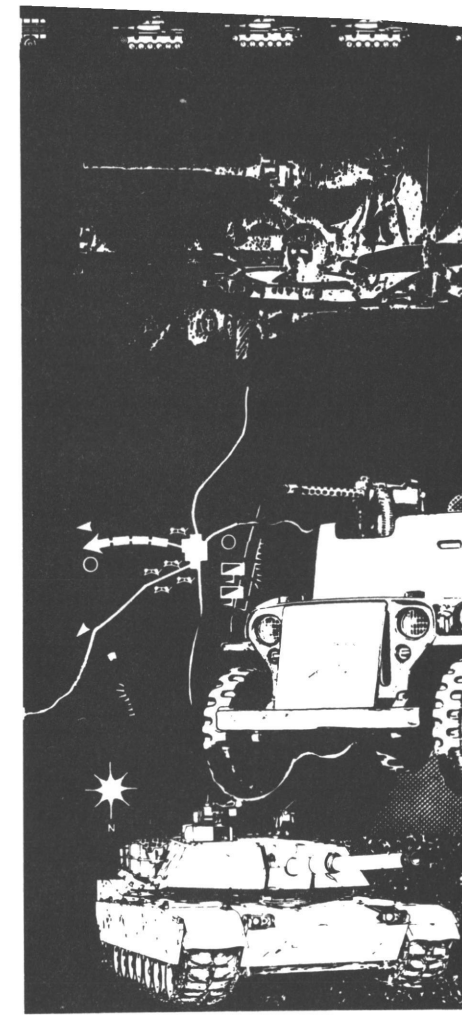
It is very likely, however, that both France and Germany desired mechanization at both the tactical and operational levels; however, neither country had enough tanks, trucks, and personnel carriers at that point in time to fill all of their organizational needs.[20] With not enough assets to go around, the French decided to distribute (and thereby shackle) their mechanized elements to the infantry. Thus, the French Force design limited their entire army to a tempo of 4 kilometers per hour (km/hr). The Germans kept the higher tier of mobility concentrated at the operational level where they could exploit the '20 km/hr' speed of mechanization. While the greater portion of the German Army was slightly inferior in tactical tempo, they retained an operational force that provided both mass and much higher relative tempo.

A combination of British and German ideas helped create the first separate mechanized units. The reasons for Germany's battlefield success are perhaps best expressed by the same combination. In a 1985 speech to the War College, General von Senger und Etterlin described the nature of operations with the German Force design:

"...a few remarks on the structure of forces.... I like to call this whole thing a two-tiers affair, a two-tiers structure, a two-level structure of our armies. Let's be absolutely aware of this.... A two-tier structure by which I mean there were two different types of armies–completely different types of armies. One was a mass army of foot-going and horse drawn infantry, with 4 km/hr mobility, and the other tier–the other level, a complete army within the army–were the mechanized formations...with a 20 km/hr roughly average mobility. This differential mobility between the two elements of our armies on both sides is the most significant feature, I think, of...all Second World War campaigns."[21]

This two-tiered structure owes much to British theorist J.F.C. Fuller. Twenty-five years after the end of the Second World War, he summarized the modus operandi of the two tiers of mobility as follows:

"...The weapon of superior reach or range should be looked upon as the fulcrum of combined tactics...a body of men...should be arranged into two groups, the one offensive, and the other defensive. The latter



may be formed into a protected base for the former to operate from–that is, a harbor to set out from and return to. Thus is established the primary tactical division between the fighters...the one hits, the other holds; the one moves, the other stands firm."[22]

Other Historical Indications

The surface of history does not need to be scratched deeply at all to reveal other examples of the same force design phenomena discussed above. On September 15, 1916, the British introduced the first tanks into the lethargic Somme offensive. Instead of massing the few vehicles they possessed, "...the tanks were distributed without regard to organization among nine divisions attacking on a three mile front."23 The result was easy to predict: every division had seven or eight tanks and these sparsely placed tanks made no impact at all.

The case of the World War II tank destroyer was a force design disaster. The tank destroyer was initially designed as a lightly armored, rapidly moving antitank system intended to counter the German blitzkrieg. The basic tank destroyer doctrine was for battalions and brigades of these systems to wait at a tactical depth, and then move rapidly en masse to engage and destroy the spearhead elements of the blitzkrieg. The tank destroyer units never got to apply their doctrine because they were quickly piecemealed, in twos and threes, down to infantry units that needed tank support. And the tank destroyer did not make a very good tank. Just like the French Force design process, operational tempo provided by the higher tier was sacrificed to marginally 'beef up' the tactical tempo.

Most recently, the field trials of the 11th Air Assault Division, and its subsequent employment in the Vietnam War as the 1st Cavalry Division, produced startling results:

"These tests showed that helicopters and fixed-wing aircraft in conventional and counterguerrilla actions would materially enhance combat effectiveness; or, alternatively, that current tasks could be done with smaller forces in shorter campaigns. The volume of effective firepower which can be accurately delivered from aerial platforms with speed and surprise gives a shock effect previously associated only with violent armor attacks.... Speedy and accurate application of reserves gives a higher assurance of success to the battle.... Tests further indicated that the improved surveillance, surprise attacks, and far-ranging action characteristic of airmobile operations vastly increase combat effectiveness."[24]

At the request of the Secretary of Defense, the Tactical Mobility Requirements (Howze) Board, finally overcame the immense bureaucratic resistance to the concept of air mobility. If this effort had failed, it is not hard to envision the subsequent piecemealing of these rotary-wing assets out to army units of all types. In fact, it is important to observe that the opponents of air mobility eventually won out anyway–successfully dismantling the 1st Cav while the war lingered on (1971-72).

Immediately following the Vietnam conflict, the Army piecemealed its historically significant higher tier divisions out in small pieces (platoons, sections, etc.) with the H-series tables of organization and equipment. Looking back, the frantic post-Vietnam piecemealing of the higher tier seems counterintuitive based upon the results achieved in both tests and actual combat.

Through most of recent history, various armies have suffered at the hands of force designers who did not understand how to exploit the natural separation between the tiers of mobility. More often than not, the higher tier was piecemealed out to a predominant arm as a result of organizational compromise, simple ignorance, or worse. Conversely, history is quick to reveal battlefield successes of armies who could harness and control the complementary differentials of mobility. Although it is somewhat hazardous to distill historical 'constants,' there is a pattern of both organizational behavior and battlefield efficiency (or lack thereof) that repeats itself and provides us with useful force design rules:

☐ Even if an army's doctrine and command style enhance the generation of superior relative tempo, an improper force design will hamper the generation of that tempo.

☐ If resources are scarce, step one of force design should be a concentration of the higher tier of mobility at the operational level. If you possess enough of the higher tier to go around, then place it at the tactical level as well. If this rule is violated, and the higher tier is piecemealed only to support the lower tier, then the entire force will possess the tempo of the lower tier.

☐ Ensure that the higher tier at the operational level is a combined-arms force.

☐ Design doctrine to facilitate the use of the higher tier to exploit, project, disrupt, or quickly react to rapidly changing battlefield conditions. Design doctrine to facilitate the use of the slower tier to support, consolidate, protect, and withstand.

Do not allow opponents of the formation of high-tier units to cite cost, vulnerability, and logistics burdens as the primary reasons why such concepts won't work. Force designers must be willing to fully analyze a wide variety of structures in terms of relative effectiveness at each level of war.

☐ Do not allow peacetime politics and proponent struggles to obstruct a rational force design change.

Impact on Current and Future Doctrine

To apply these lessons to the present and project them into the future, two qualities of the art must still exist– (1) A higher relative tempo must remain the key element at the operational level, and (2) At least two readily distinguishable tiers of mobility must still exist between fighting vehicles in the inventory.

The value of higher relative tempo, at least on today's battlefield, is adequately expressed in the U.S. Army's doctrine for fighting at the tactical and operational levels–AirLand Battle. ALB is force-oriented with combat operations focused on defeating the enemy, not attacking to seize terrain features. ALB doctrine leans toward neither fires nor maneuver as a style but requires a situational-dependent mix of these two styles to impose our will on that of the enemy. It advocates the use of the indirect approach–the tactic which the enemy expects the least–combined with a higher relative force agility, to strike decisive blows quicker than the enemy can react.

The doctrine recognizes the futility of attempting to stop a force of vastly superior numbers with a single engagement, preferring instead to extend this engagement in time and space, and provide multiple 'culmination points' for an advancing enemy through the use of deep fires and maneuver applied at critical points along the enemy's route of march. ALB recognizes that war is a human phenomenon, and that weapons are only as deadly as the soldiers that wield them. Finally, the doctrine is explicit about maintaining a vigorous offensive spirit throughout all phases of war.[25]

Those same traits so often found in literature on the Germans or Israelis– "force oriented...indirect approach...higher relative force agility...quicker than the enemy can react..."– all appear in the AirLand Battle doctrine. The primary tenets of ALB–agility, initiative, depth, and synchronization–all of these words suggest a battlefield swirling with rapid relational movement at the tactical and operational levels of war. Will this battlefield slow down in the future?

Probably not. During the next 15 years, two major factors will influence the nature of war. First, armies around the world will introduce new materiel, doctrine, and force structure changes into their armed forces designed to either parallel or neutralize the implementation of the U.S. Army's current ALB doctrine. Secondly, technological opportunities will develop that, if exploited, could dramatically increase the level of violence of conventional battles and change the nature of future combat by expanding the depth at which a large number of targets can be acquired and killed in a short period of time.[26]

In this highly lethal battlefield environment, with its collection of all-seeing sensors and long-range precision munitions, it should be intuitive that the less-agile (slower-thinking, slower-moving) combatant would suffer a relatively higher portion of casualties. An army may generate a superior force agility in a number of ways–by the application of superior command and control, superior mobility and countermobility efforts, or–all other factors being equal–by possessing a superior ability to move across the terrain.

In essence, the concept of superior tempo–at all levels–appears to be one of the 'timeless' keys to success of the battlefield. Thus, the first pre-condition to our ability to use the force design lessons of the Battle of France is met. The second pre-condition–the existence of two distinguishable tiers of mobility between

fighting vehicles in our inventory–must be satisfied, for the lessons of the past to remain valid.

Tiers of Mobility–Today

A 'tier of mobility' relates primarily to the physical speed of a combat force. Our Army does indeed possess not only two distinct tiers of mobility–just as the French and German Armies did 50 years ago–but very probably contains three separate tiers (foot, track, and rotor). Today's Army inventory contains wheeled, tracked, and rotary-wing combat vehicles. At the risk of oversimplification, I will consider units of wheeled and tracked combat vehicles to have essentially the same speeds–the speed of the ground combat vehicle in the mechanized unit. While the physical speed of the individual vehicle is important, the speed at which units of these vehicles move is absolutely critical. Any difference in the tiers of mobility, therefore, must be understood in terms of how units of ground vehicles, or hour units of helicopters, move.

The three basic phases to unit movements are march, pass, and deploy. For ground units, none of these phases remotely resembles a trip in the family car. In most cases these movements resemble the movement of a freight train several kilometers long. The engine may arrive at the same time as the family car, but the unit cannot fight until the caboose arrives as well. The number of suitable routes governs the speed of the ground unit, much as the number of parallel railroad tracks govern the arrival of freight trains at a depot. Helicopters, on the other hand, are free to use terrain for protection, without being bound to it for mobility. Entire battalions of helicopters can, in essence, have a 'pass' time of zero. This phenomenon, which Richard Simpkin calls the 'linear imperative,'[27] is illustrated in figure 2.

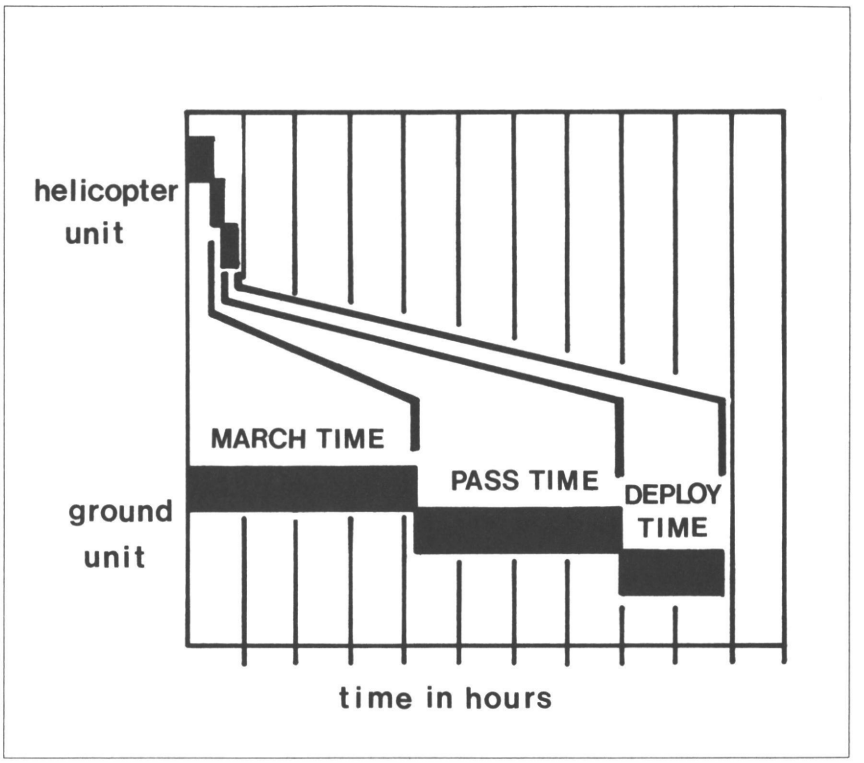


FIGURE 2: Comparison between the mobility of helicopter and ground units in march, pass, and deploy times

Simpkin also noted that increasing the march speed "...usually leads to disruption of the column by the slower vehicles and a net loss of time. Maintaining normal density, let alone increasing it, is tactically risky within artillery range or in an adverse air situation. All in all, no variation in technique can do more than nibble at the edges of the linear imperative of surface movement."[28]

The heart of the tiers of mobility is this tremendous difference in march times, pass times, and deploy times between ground units and helicopter units. The time required for an aviation brigade–moving 200 kilometers to attack– "...to complete, deploy, and engage would be just under one hour. A tank division with the same run-in on one route would take rather over 10 hours to complete, with running time and pass time just about equal."[29] Richard Simpkin noted that this

order-of-magnitude difference in agility causes the Soviets to regard the aviation brigade "...as an operational formation and rate its combat worth...as equivalent to that of a tank division (with over 10,000 men and about 500 tactical vehicles)."[30] A higher relative operational tempo is still a doctrinal prerequisite for victory.

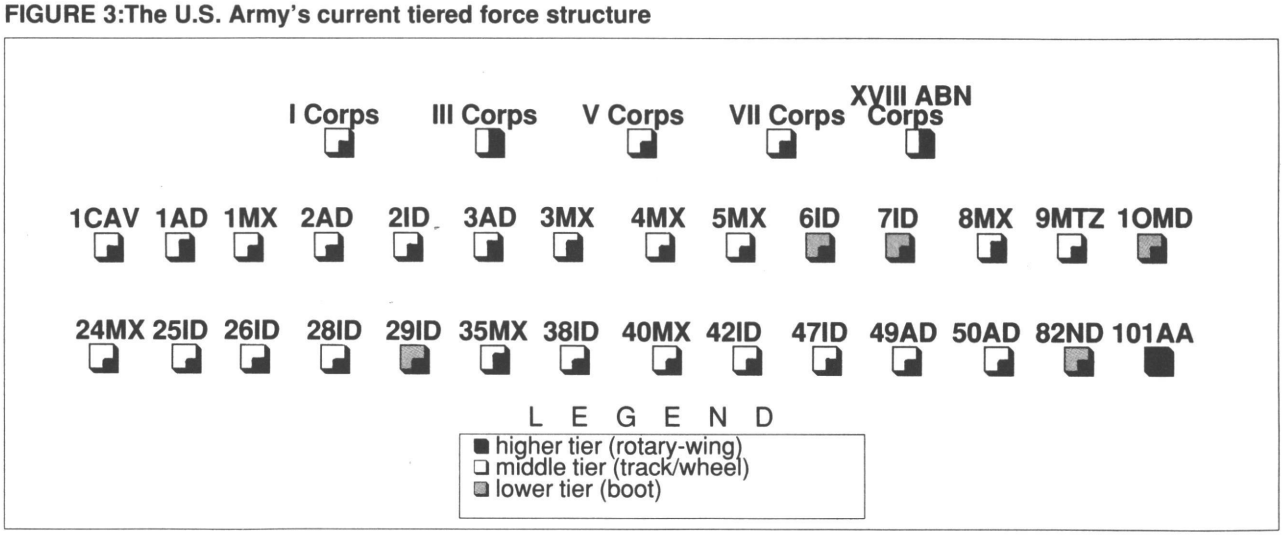
The next step is to apply the force design rules established earlier in this article against our own structure–taking into account the imminent force reduction. Our current force structure is shown in the diagram in figure 3.

This illustration points out several salient features of our current force design. First, a majority of the Army's divisions moves at the tempo of the tracked or wheeled vehicle. Second, and perhaps most striking, is that our higher tier of mobility, the helicopter, is piecemealed throughout the force. Our structure has inadvertently tied the mobility of the helicopter to the slower speed of the ground combat vehicle.

Given the above structure, it is certain that "...our armies are incapable [of] produce [ing] something which can be called a second tier...they are incapable of producing something which gives higher commanders at the operational level ...something to operate with...our art of war is deteriorating. Something is wrong. We are still in an interim stage which must be overcome as soon as possible."[31]

Perhaps our force design efforts used the same thought process as the French General Staff of the 1930's–beef up the tactical firepower and tempo–to fight a similar type of forward-deployed defense. At the risk of belaboring a point–not only did the French force design fail disastrously, but the need for a forward-deployed defense in Europe has lar-

FIGURE 3:The U.S. Army's current tiered force structure



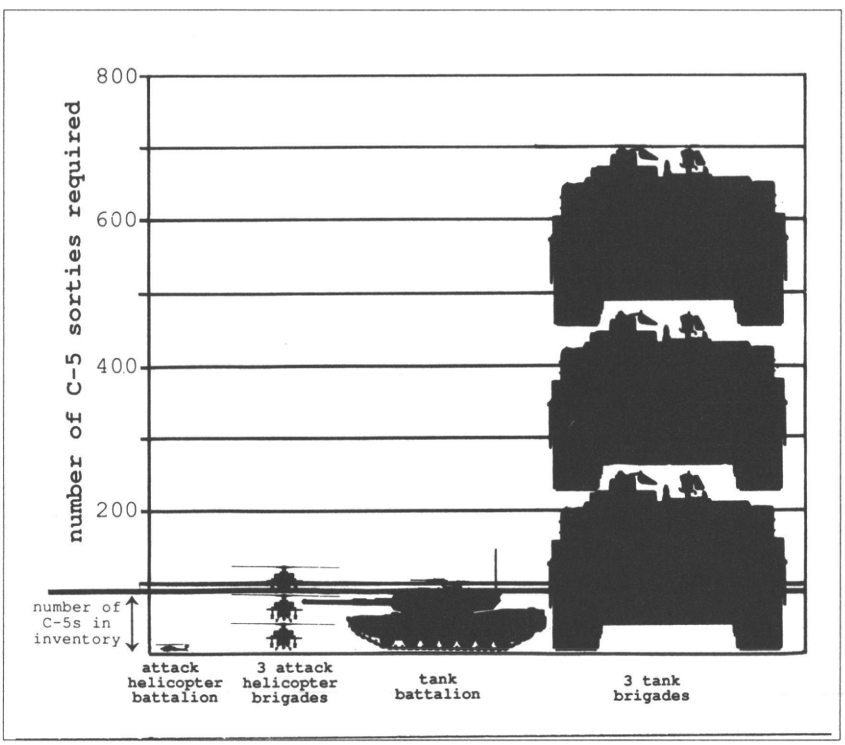


FIGURE 4. A comparison between two combat units (attack helicopter and tank) in the number of sorties required in a campaign

gely passed as well–which raises the disturbing question:

Why does our doctrine call for the development of superior relative tempo, and yet our structure looks very much like the fatal, low-tempo force design of the French Army of 1940?

Of course, this question has no satisfactory answer. Should we lose the next war because of inadequate operational tempo; however, this question will be analyzed and answered by scores of historians. The postmortem will read quite a lot like France's–and history will treat our force designers much as it did the myopic Daladier and Gamelin.

Strategic Tempo

As mentioned earlier, strategic tempo is the rate of work between campaigns. The Army increases its strategic tempo either by making divisions that are more easily transported by limited Air Force or Navy assets, or by making units that can self-deploy. While sealift is essential to a protracted campaign, airlift is absolutely critical to success in a short-notice, contingency operation. Like operational tempo, strategic tempo is best understood by analyzing how combat units move between campaigns. This is sometimes known as "fighting a war by C-5 loads"[32] since the decision maker is usually faced with deciding how to rapidly get the maximum combat power to the trouble spot with the available airlift.

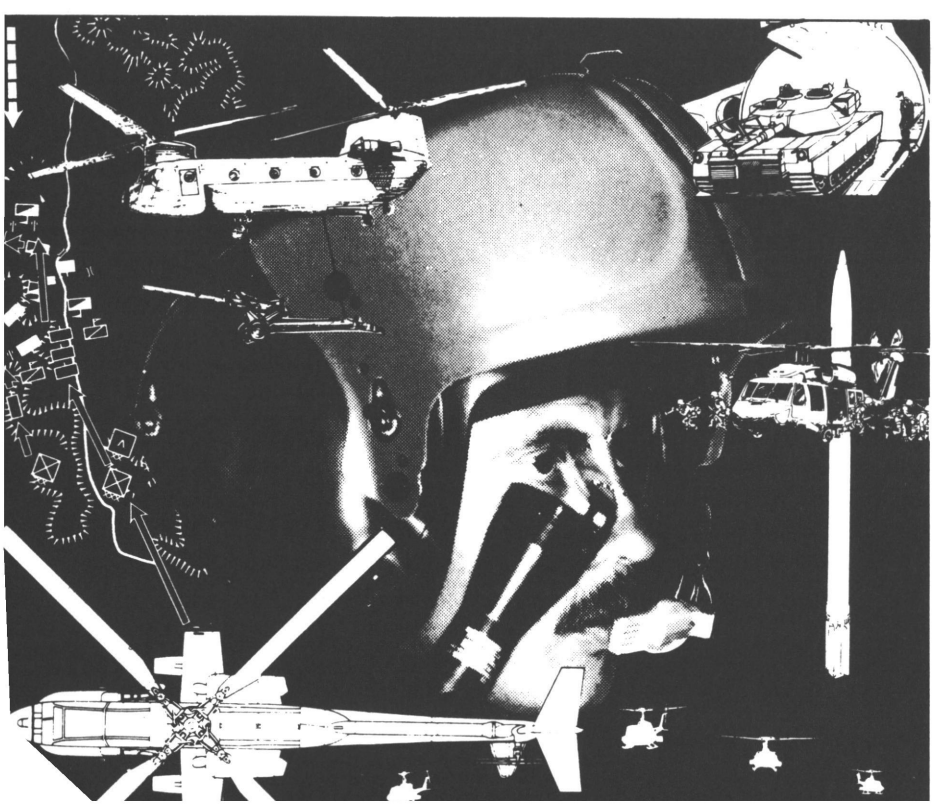
Figure 4 shows a rough comparison of the strategic tempo differential between two different types of combat units–attack helicopters and tanks.

This figure shows that the current Air Force C-5 fleet can airlift nearly three brigades of attack helicopters for the same sortie 'cost' as a battalion of tanks. Does this imply that helicopters need to replace tanks? Absolutely not. It means that helicopters can be deployed in large units quickly, and used to generate operational and tactical tempo early in any conflict–until the fast sealift arrives with the heavier units some 20 days later. It also means that a helicopter-based combat unit has a higher strategic tempo, according to

the simple math of sortie requirements. Of course, neither tanks nor helicopters can operate without a logistics tail, but the point is that a very large helicopter unit can begin fighting long before a tank unit can arrive.

No scenario could have illuminated the need for strategic tempo better than Desert Shield–"Arriving with the First Tactical Air Wing, the paratroopers of the 82nd Airborne hit Saudi Arabia in combat gear outmanned and outgunned.... It had no tanks of its own, and none arrived for a week. For the first 100 hours of the operation, Army Chief of Staff Gen. Carl E. Vuono agonized over the vulnerability of the 82nd. If Saddam had broken across the Saudi border.... They would have been heroes, but they would have been dead heroes.... Schwartzkopf had to improvise a credible defense from whatever he could scratch up.... While he was waiting, he...ordered all the tank killers he could lay his hands on: ...more Apache(s)...with their hellfire missiles."[33]

War can identify the flaws in your force design, if you survive. The deployment to the Middle East retaught us a valuable lesson about the need for strategic tempo in an uncertain world 'Git thar fustest with the mostest–and sealift don't git thar fustest.'[34]



Tactical Tempo

As I mentioned earlier, all three 'flavors' of tempo are important, but their importance varies with their location in the spectrum of conflict. Much has already been said about strategic and operational tempo, and through the discussion above, it seems as if tactical tempo is reduced to insignificance, but that's not the case. In the first place, the separation among the tactical, operational, and strategic levels of war is fluid. No one can never say that a division is always at the tactical level of war. The true separation among the levels of war is based less upon unit size, and more upon unit mission. "More and more, small...detachments like the one that...undoubtedly did take out the Super Etanards on the Argentine mainland in the Falklands war, or the Shi'ite fanatic who blew up the United States Marines' base in

Beirut, are achieving successes of 'operational' and even strategic importance."[35]

Secondly, every division we own needs the capability that a higher tier of mobility can provide. In the light division, helicopters serve as a primary means of troop transport and direct fires. The recent conflict in Panama served to reinforce what we already knew about aviation and light infantry working together– "Aviation was such a relevant force in Just Cause that it is painful to imagine the operation without it."[36] In the heavy division, helicopters provide an extremely mobile force that can quickly and decisively change the odds during close combat, provide a quick reaction force for the rear fight, and fight in depth on a nonlinear battlefield.

These requirements have existed since the helicopter entered the inventory, and there is no indication now they have changed. The divisional aviation brigade, as we know it now,"...evolved from testing the Howze-Board-created Air Cavalry Combat Brigade in the 1st Cavalry Division (TRICAP) in 1971-73. The TRADOC commander, Gen. William E. Dupuy, stated that the Army should have an aviation brigade in every division, which resulted in Division 86. This plan, the division restructuring study and other studies of the time, worked on by bright young colonels like John W. Foss, all called for an aviation brigade in divisions."[37]

Tactical tempo is indeed important, and we have every indication that the current form of the higher tier of mobility– the divisional aviation brigade–is well designed and placed for this task. For aviation brigades to stay in divisions, however, we must abide by the lessons learned from the debacle of France and field the higher tier in the operational level first. If any of the higher tier remains, we may then field it at the tactical level as well.

Conclusion

Too often in the past, we have fielded units that are not robust enough, or units that can't maintain themselves, or don't have enough trucks or cooks or enough depth in critical specialties. We also have a good indication that we have hampered the Army with a low-tempo force design. This suggests that there is something on our minds besides winning the nation's wars when we sit down to design the force. In many cases, the decisions that led to our current force design can be traced directly back to the process of using organizational consensus as opposed to overall combat efficiency in designing our force. No one but Fort Sill may seriously delve into the requirements for fire support; Fort Knox alone may determine the design and operation of tanks and tank units– "...many military forces have been allowed to evolve in relatively fixed compartments and along highly stratified bureaucratic lines..."[38] and ours, unfortunately, is no exception. We have fielded extremely effective weapons, recruited the best, most-capable soldiers in history, and created a dynamic new doctrine. Sadly, we have stuck the whole shootin' match into a low-tempo force design, which satisfies our consensus-building force design process, but which may prove inadequate in a war against a similarly determined and equipped opponent.

The generation of a superior relative tempo at any level is not always a simple task, especially if opposing armies are similarly equipped and structured. A majority of our potential foes are motorized or mechanized and possess the same tempo as we do. Only through near-perfect C^3I (command, control, communications, and intelligence),

dazzling execution, or full adoption of the 'auftragstaktik' can we hope to generate the required tempo differential with our current structure. A superior operational and strategic tempo, on the other hand, requires something that we don't yet possess--the willingness to separate and then exploit the 'tiers of mobility' in the purest classical sense.

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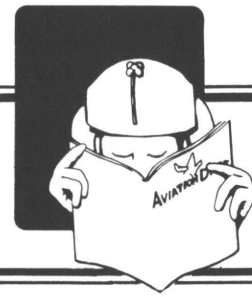
VIEWS FROM READERS



Editor:

The modern Army aviator has come a long way since Vietnam. Much was learned in that conflict. Not only has technology changed by our experiences there, but so has the individual aviator.

In the 11 years that I have been a part of Army Aviation, I have had the distinct pleasure of observing a change of perception take place, of which I am most proud. Army aviators were often looked upon by aviators of other services as somehow not quite as professional and capable as themselves. This of course was not the case. Nevertheless, the perception existed. In the years since Vietnam, this perception has dwindled and indeed has changed to professional respect.

This negative attitude was fostered by the following facts:

- Army aviators are not required to have a college degree as are the aviators of the other military branches. This of course is directed at the warrant officer corps, which constitutes the majority of the Army's aviators.

- The majority of Army aviators are of a lesser rank than their peers in the other services. Again, this addressees the warrant officer. The highest rank he or she can attain is master warrant officer, which is of a lower rank than second lieutenant. The other branches, not having in any great number such a rank, nor any interaction with aviation warrant officers, naturally perceived themselves on a higher station. Indeed, many aviators of the other branches had no inkling as to what a warrant officer was or how he or she fitted into the scheme of things.

- At one time Army aviators were not all instrument rated. This caused aviators of other branches to look upon the Army aviator as a fair weather pilot only, unlike themselves who flew instrument meteorological conditions missions routinely.

- Until recently the Army had no jet aircraft. This was looked upon as proof that the Army did not operate on as high a technical level as the other branches.

- The Army predominately flies rotory-wing aircraft. No other branch uses this machine to the extent that we do. As a result, the other branches are not as well versed in its capabilities and complexities.

- Until the establishment of the Aviation Branch, the Army did not have a cohesive air arm. Its commissioned aviators were more or less borrowed from their carrier branch.

The good news is, this negative attitude has been virtually abolished. In the past 4 years, I have had the opportunity to interact both professionally and on a personal level with aviators of every branch of service, as well as those with a civilian background. I have learned that their impression of the modern Army aviator is most positive. Former Army aviators, as well as those who serve in the U.S. Army National Guard and Reserve are interwoven into the entire national fabric of aviation. They are flying at all levels of the aviation structure, from commuter airlines to major commercial airlines.

Today's Army aviator is often present or involved with the space shuttle program. Yearly, our aviators go to the prestigious Naval Test Pilot Course and complete it successfully. There is no question now as to how well the Aviation Branch deals with complexity. One must only point out the AH-64 Apache, UH-60 Black Hawk, and other new technology. We have moved into air-to-air research and fly jets at places like Davison Army Airfield, Fort Belvoir, VA.

We have come a long way. Every day Army aviators throughout the world prove their competence and reliability both in the military and civilian realms of aviation. Others are finding out that we are indeed capable professionals on a level with any other branch of service. They are learning that Army aviators share the

same attributes as other aviators–motivation, competence, love of flying, and spirit of excellence.

Herbert J. McKinley
North Carolina ARNG
(First Officer
American Airlines)

Editor:

Attention UH-60 Black Hawk pilots! The U.S. Army Aeromedical Research Laboratory (USAARL), Fort Rucker, AL, is in need of aviators to participate in ongoing research. Presently, we need male aviators between the ages of 18 and 40 with 20/20 vision, and a current flight physical.

This is a new study open to aviators who have already participated in USAARL research. If up to 40 UH-60 simulator hours and a chance to participate in trials of new equipment would interest you, contact Dr. Caldwell, the USAARL aviator representative at DSN 558-6858 or Commercial 205-255-6858.

CPT Michael H. Hulsey, MS
Adjutant
U.S. Army Aeromedical
Research Laboratory

Editor:

The Army Reserve Officers' Training Corps (ROTC) Department at Worcester Polytechnic Institute (WPI) is establishing an alumni association. The association seeks to support the cadets of WPI and affiliated schools, as well as help alumni maintain contact with the battalion and classmates.

Alumni of the ROTC program at WPI are invited to call Major Sayre or Sergeant Major (SGM) Plant at Commercial 508-752-7209 or Telefax 508-831-5483 or send their name, address and phone number to: Army ROTC, Worcester Polytechnic Institute, 100 Institute Road, Worcester, MA 01609.

SGM Clarence Plant
Battalion Sergeant Major
Army ROTC
Worcester Polytechnic Institute

Editor:

From 22 through 24 July 1991, the International Bird Dog Association (IBDA) will host the L-19/0-1 annual fly in at Keokuk, IO. Besides static displays, there also will be flying contests, seminars, and social events. The largest gathering of Bird Dogs since the Vietnam conflict is expected to be on display during this event. All liaison, primary test pilots, and enthusiasts are invited to stage for Oshkosh.

For more information write to the IBDA, 3939 San Pedro NE, Suite C-8, Albuquerque, NM 87110.

Mr. Clarence Strance
Promotion Director
International Bird Dog
Association

Editor:

A new course for noncommissioned officers (NCOs) began at the U.S. Army Sergeants Major Acaddemy, Fort Bliss, TX, in January.

Designed at the academy, the Battle Staff NCO Course combines the current operations and intelligence course, and the personnel and logistics course. But according to its developers, the course will be more than a simple meshing of the two existing courses–it is a completely new course designed "to train battalion and brigade staff NCOs to serve as integral members of the battle staff and to manage the day-to-day operations of battalion command posts."

NCOs were already learning their specific duties in existing courses. What wasn't happening, according to Sergeant Major (SGM) Phillip Cantrell, was an effort to train battle staff NCOs to fight as an effective team. SGM Cantrell helped develop the Battle Staff NCO Course.

"Activities of the battle staff must be coordinated and directed toward a common goal," SGM Cantrell said. "You can't make a decision in the personnel area without affecting logistics, operations or intelligence, and vice versa. Without a knowledge of how the staff is interconnected, each section operates independently and perhaps at cross-purposes with each other."

Training will begin before the NCO arrives at the school, according to SGM Bill Smolak, chief of battle staff course development.

"We're planning a 6-week course, which is far shorter than the 10-week operations and intelligence course and 2 weeks longer than the personnel and logistics course. With an overall reduction in course length, some of the material NCOs need to know will have to be completed by correspondence before their arrival for the resident phase."

SGM Smolak said the proposed solution is to select students 6 to 8 months before course attendance and enroll them immediately in the Army correspondence course program. After completing the required number of lessons, prospective students will receive a certificate, which they will present to an academy faculty advisor when they report to Fort Bliss for the resident phase of the course.

All resident training will be performance-oriented, based on the Army Training and Evaluation Programs for a heavy battalion, a heavy brigade, and a light infantry battalion. The underlying principles of the course are synchronization and "train as you fight."

"One of the main reasons why we've combined the two courses into the Battle Staff NCO Course is that

tactical operations centers and admin-log centers fight as a team," SGM Smolak said. "If we're going to fight that way, then we need to train that way now."

SFC Jack D'Amato
Public Affairs Officer
Sergeants Major Academy
Fort Bliss, TX

Editor:

The Senior Officer Logistics Management Course (below) is specifically designed to update commanders and their primary staff at the battalion and brigade level in the logistics arena. The curriculm includes maintenance, supply, and transportation procedures. The curriculum also includes hands-on experience with vehicles; weapons; ammunition; medical; communications; nuclear, biological, and chemical; and quartermaster equipment.

The course is open to officers in the grade of major or above in the Active and Reserve Army, U.S. Marine Corps, allied nations, and Department of Defense civilians in the grade of GS-11 or above. The 1-week course is conducted 10 times each fiscal year (FY) at Fort Knox, KY. Class quotas may be obtained through normal U.S. Army Training and Doctrine Command channels.

For more information contact CPT Hammerle, AUTOVON 464-7133/3411 or Commercial 502-624-7133/3411.

Editor:

Once again, the momentum is building toward having an International Bird Dog Association (IBDA) fly-in near the Fort Rucker, AL, area in June or July 1993.

For over three decades, the venerable Bird Dog served diligently in the United States and international military forces, the Civil Air Patrol, law enforcement, the U.S. Forest Service, missionary work, and in glider and banner tow operations all over the world. Even with this impressive record of service, the Bird Dog was about to become an endangered species. Fortunately, the Bird Dog is back!

What is a Bird Dog? This tough and reliable critter is a very special aircraft. In response to requests from the U.S. Army for an improved liaison aircraft, the Cessna Aircraft Company developed plans, tooled up, and began manufacturing. The first Model 305 was delivered to the Army in December 1950. The Army liked it, designated it the L-19 Liaison, and nicknamed it the Bird Dog. Many L-19s were deployed immediately to the war in Korea. Others were sent to Army and National Guard units in other areas. Years later, Bird Dogs were sent to Vietnam and the Army, Air Force, and Marine Corps used them in various combat roles. However, by then the designation had been changed to 0-1 Observation. The enemy simply called it dirty names!

Over a 10-year period, Cessna built about 3,400 of these little warbirds. Fuji Heavy Industries, Japan, built about 22 to military specifications. Through the Military Assistance Program, other nations obtained Bird Dogs, and actually "copied" and "cannibalized" the aircraft to increase their numbers. More recently, the Ector Aircraft Company, Inc., built civilian versions of the Bird Dog in more up-to-date configurations.

Many active and former Army aviators have expressed the desire to "piggy back" various Bird Dog unit reunions with the IBDA event. We have heard from "Shotguns," "Swamp Foxes," "Catkillers," "Headhunters," "Black Aces," "Sea Horses," "Pterodactyls," and "Non-Stops" just to name a few.

In fact, the Army Otter-Caribou Association has expressed interest in joining forces with the IDBA for a major Army aviator reunion near Fort Rucker. Even some of the

Class	FY 1991	FY 1992
1	(completed)	20 through 25 October 1991
2	(completed)	5 through 10 January 1992
3	(completed)	26 through 31 January 1992
4	(completed)	8 through 13 March 1992
5	(completed)	29 March through 3 April 1992
6	(completed)	5 through 10 April 1992
7	19 through 24 May 1991	26 April through 1 May 1992
8	9 through 14 June 1991	10 through 15 May 1992
9	18 through 23 August 1991	31 May through 5 June 1992
10	15 through 20 September 1991	20 through 25 September 1992

Senior Officer Logistics Management Course schedule

former Air Force FACs have shined their boots and dusted off their flight suits for this one.

The IBDA has grown to over 500 members, and we have just begun to accomplish our missions. We would like to hear from all personnel who share an interest in this great little "warbird." Call or mail inquiries to the IBDA, 3939 Suite C-8 San Pedro NE, Albuquerque, NM 87110, Commercial 505-884-4822.

Our special thanks to the *U.S. Army Aviation Digest* for all the great support since IBDA began back in 1985.

Phil Phillips
President
International Bird Dog Association

Editor:

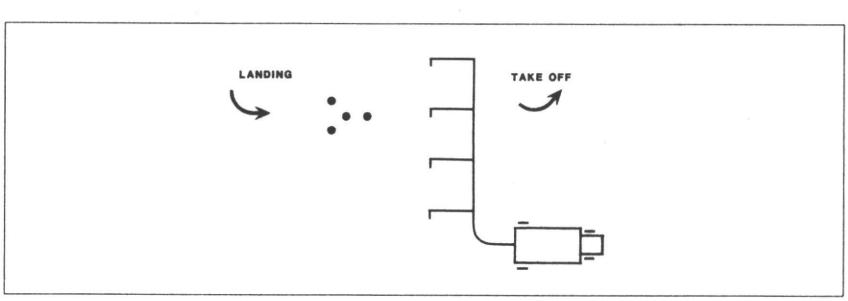
Just a short note in response to Captain (CPT) Mark Swanson's interesting and informative article, "Apaches in the Desert," in the September/October 1990 issue of the *U.S. Army Aviation Digest.*

We are learning from our experiences in Saudi Arabia that we failed to ask a critical question about flying in the desert–"what kind of desert?" A lot of what we have done at the National Training Center (NTC), Fort Irwin, CA, is appropriate but we were not ready to jump directly into the sand dunes of Desert Shield /Desert Storm.

Some of the lessons we've learned from Desert Shield are discussed in our pamphlet, "U.S. Army Aviation Desert Operations, Tactics, Techniques, and Procedures," November 1990. If you are in the Department of Defense, you can get copies of these ideas by writing to: Commander, U.S. Army Aviation Center, ATTN: ATZQ-DOT-DD (Mr. Harry Baldwin), Fort Rucker, AL 36362-5263. Obviously, we are gathering information to assist deploying units. The units in the "sand box" paid for our admission to this area of operations and we are trying to pass the information along.

CPT Swanson spoke of the interaction of OH-58D Kiowas, and AH-64 Apaches. These operations are touchy since there are no 58Ds assigned to Apache battalions, yet these aircraft work well together. All 58D and AH-64 operations require special planning and coordination. Task force standing operating procedures are a must. Examples of "How To" are found in the new Field Manual 1-112, "Tactics, Techniques, and Procedures for the Attack Helicopter Battalion."

Heads up. The forward arming and refueling point (FARP), in figure 2 (below), is exactly what was used at the NTC and that design is proving to be inadequate in Desert Shield. The "inverted Y" and the FARP alignment require some modification. For aircraft with wheels–a "drive-through FARP" is being used. Note that a run-on area is provided. Side lights allow pilots to see even in blowing dust. The run-on or roll-on area is prepared. Sometimes it's a short stretch of road or an oiled surface. After landing, the aircraft ground taxis into the FARP and ground taxis out after rearming and refueling. A running takeoff substantially reduces dirt and dust ingested by the aircraft systems and reduces wear on moving parts.



Forward Arming and Refueling Point

Colonel Thomas A. Green
Former Director
Department of Tactics and Simulation
Fort Rucker, AL
Currently, Deputy Corps Aviation Officer
XVIII Airborne Corps

Editor:

I am writing about an article that appeared in the July/August 1990 issue of the *U.S. Army Aviation Digest.* The article, "The Army Oil Analysis Program," written by Mr. Jack Glaeser, prompted me to set the record straight. "To set the record straight" may lead you to think that I thought the article was deficient in some way. That's only partly right. Owing to the less-than-adequate effort on the part of the author, I would like to pass along the correct information about the origins of the Army Oil Analysis Program (AOAP).

The AOAP had its beginnings in 1961 when Major General (MG) Ernest F. Easterbrook was commanding general, U.S. Army Aviation Center, and commandant, U.S. Army Aviation School, Fort Rucker, AL. The Army was having trouble with H-23 Ravens at the time, and 350 of them at Fort Wolters, TX, were grounded after a couple of serious accidents. As it turned out, the crashes were caused by bearing failures in the transmissions.

MG Easterbrook took a hand in the matter and directed that the folks at Fort Wolters send transmission oil

samples down to the fledgling U.S. Navy oil analysis laboratory, Pensacola Naval Air Station, FL, for analysis. The Navy analyzed the transmission oil samples and identified six transmissions as potential failures (the laboratory folks found high concentrations of copper and iron in the samples–indicators of bearing wear). Subsequent disassembly and inspection of the six transmissions revealed that all six had excessive bearing wear caused by a poorly designed thrust washer.

That was good enough for MG Easterbrook. He immediately set out, in cooperation with what was then the U.S. Army Aviation Systems Command, St. Louis, MO, to build a laboratory at Cairns Army Airfield, Fort Rucker, AL, that would give the Army its own oil analysis capability. Page Aircraft Maintenance, Inc. (PAMI), which had the aviation maintenance contract at Fort Rucker at the time, was given responsibility for operation of the laboratory, which fell under the operational responsibility of the U.S. Army Aviation Test Board.

PAMI began hiring personnel to run the laboratory. That's when I came in. A colleague of mine, Charles Adams, and I were employed at that time by a firm making reactor-grade zirconium. Charlie was approached by Page and offered the job as laboratory chief of the first Army Spectrometric Oil Analysis Program (ASOAP) at Cairns Army Airfield. In June 1961, I followed Charlie as the spectroscopist.

The next few months were a whirlwind of activity, what with all the UH-1 Huey testing going on at the time, but the laboratory finally went into operation in September or October of that year. The month is not so important; the fact that we found a defective aircraft engine on our first day of operation is. That set the stage for the expansion of the program.

I left Fort Rucker in June 1963 to open the second ASOAP laboratory at the U.S. Army Aeronautical Depot Maintenance Center, Corpus Christi, TX. That was the beginning of a condition-monitoring program that really proved itself during the Vietnam era when we fielded a van oil analysis laboratory to take care of aircraft support in a theater of operations. That van laboratory served out its time at Cam Ranh Bay.

Now some of the names associated with that first laboratory at Fort Rucker. There was–in addition to MG Easterbrook, Charlie Adams, and me–Eugene Taylor (civil service transferee from the U.S. Air Force, who returned to that service to open their first oil analysis laboratory at MacDill Air Force Base, FL, in 1962), Captain Robert Erbe (military chief of the laboratory), Lieutenant Colonel Howell (the man at the Test Board who held sway over the laboratory, and a great job he did with it too; he once flew President Eisenhower around as part or his aviator's duties and later worked with the Fort Rucker museum), and William Oldham (he replaced Gene Taylor as the civil service laboratory manager and later wrote the first ASOAP Army Regulation (AR)). There was, of course, Dick Tierney, from the *U.S. Army Aviation Digest,* who used to come by regularly to gather information about the program and its progress, and Milan Buchan, the PAMI aviation safety man, who worked at the Safety Board the last time I talked to him. These are just some of the names of those who got the program off the ground; there were others and credit is also due them.

The above information was available from the program director, AOAP, U.S. Army Materiel Readiness Support Center, Lexington, KY. The director's staff in the AOAP Branch at the Support Center is eager to work with any and everyone on all matters pertaining to the AOAP. (See AR 750-1, *Army Materiel Maintenance, Policy and Retail Management Operations.*)

In closing, let me make one other comment. Although the author left his article in an unprotected state, he mentioned one gentleman who has been a friend and supporter of the AOAP for so many years, going back to the Vietnam era: Mr. Joseph P. Cribbins. Joe, if I may call him that, in recognizing the value of the AOAP to Army Aviation–and to nonaeronautical equipment, for that matter–has been responsible for the AOAP gaining international recognition as one of the most effective–arguably the most effective–programs of its kind ever conceived. Without Joe's support, the program might have made it. It would, however, have been one heck of a struggle. As a member of the AOAP team who retired after 29 years, I want to take this opportunity to personally thank Mr. Joe Cribbins for his help over the years.

Mr. Cyril M. Brown (retired)
Chief, U.S. Army Oil Analysis Program Branch
U.S. Army Materiel Readiness Support Activity
Lexington, KY

Readers can obtain copies of the material that is printed in any issue by writing to:
Editor, U.S. Army Aviation Digest, ATZQ-AP-AD, Fort Rucker, AL 36362-5042

AVIATION PERSONNEL NOTES

United States Precision Helicopter Teams

Attention all members of the 1981, 1986, and 1989 United States Precision Helicopter Teams! The Aviation Branch chief has authorized wear of your team insignia. This patch will be worn over the Nomex flight suit's right breast pocket.

Commissioned Officer Development and Career Management

Department of the Army (DA) Pamphlet 600-3, *Commissioned Officer Development and Career Management*, has been revised and forwarded for publication. The most significant changes concern company and field grade branch qualification.

Company grade branch qualification now is defined as the successful completion of Officer Basic Course, Officer Advanced Course, Combined Arms and Services Staff School, and company command. Personnel holding a 15C, 15D, or 15E military occupational specialty (MOS) must command either a platoon or a company.

Field grade branch qualification is attained by successfully completing the U.S. Army Command and General Staff College (resident or nonresident), Fort Leavenworth, KS, and either major (04), battalion or brigade executive officer, or S3 command. Personnel with a 15C MOS may serve as a battalion or brigade S2. An individual with a 15D MOS may serve as a battalion or brigade S4.

Security Clearance

One problem that has continued to plague our Aviation Tactical Operations Centers at all levels is a lack of security clearances for our Aviation Operations Specialists (Military Occupational Specialty [MOS] 93P). Sixty-one percent of the 93P MOS positions requires a security clearance. Twenty-four percent of their critical tasks requires a security clearance for handling classified materials.

The problem lies with the governing regulation, Army Regulation 611-201, which does not require MOS 93P soldiers to have a security clearance. This allowed the U.S. Army Recruiting Command, Fort Sheridan, IL, to recruit people into the MOS that were not United States citizens and others that may not be able to obtain a clearance.

During the Aviation Branch Noncommissioned Officer Symposium in June 1990, this problem was referred to Aviation Proponency at Fort Rucker, AL. As a result, we researched the problem, and a proposal was completed in September 1990. It was staffed through the major commands and the U.S. Army Personnel Integration Command, Alexandria, VA, and approved by the Headquarters, Department of the Army, Office, Deputy Chief of Staff for Personnel, in March 1991. The Recruiting Command had the biggest problem adapting to this change.

So, what's the impact? All soldiers classified MOS 93P will be processed for a secret security clearance before 1 October 1991. All MOS 93P accessions after

30 September 1991 will be processed for a secret security clearance. Those soldiers who cannot be granted a clearance will be reported for appropriate reclassification action. Reclassification actions will be completed during 31 May 1991 through 30 June 1992.

Not to worry, this is a personnel action and will be handled through the personnel system. We simply wanted to give you firsthand information. Keep the soldiers informed. There will be reclassification actions–maybe in your unit. You may identify some of your soldiers who require a clearance–start working on it.

We don't like the idea of reclassifying good, hard-working soldiers. However, to battle-focus our personnel they must be able to transfer to any aviation unit in our great Army and be fully functional in the Tactical Operations Center.

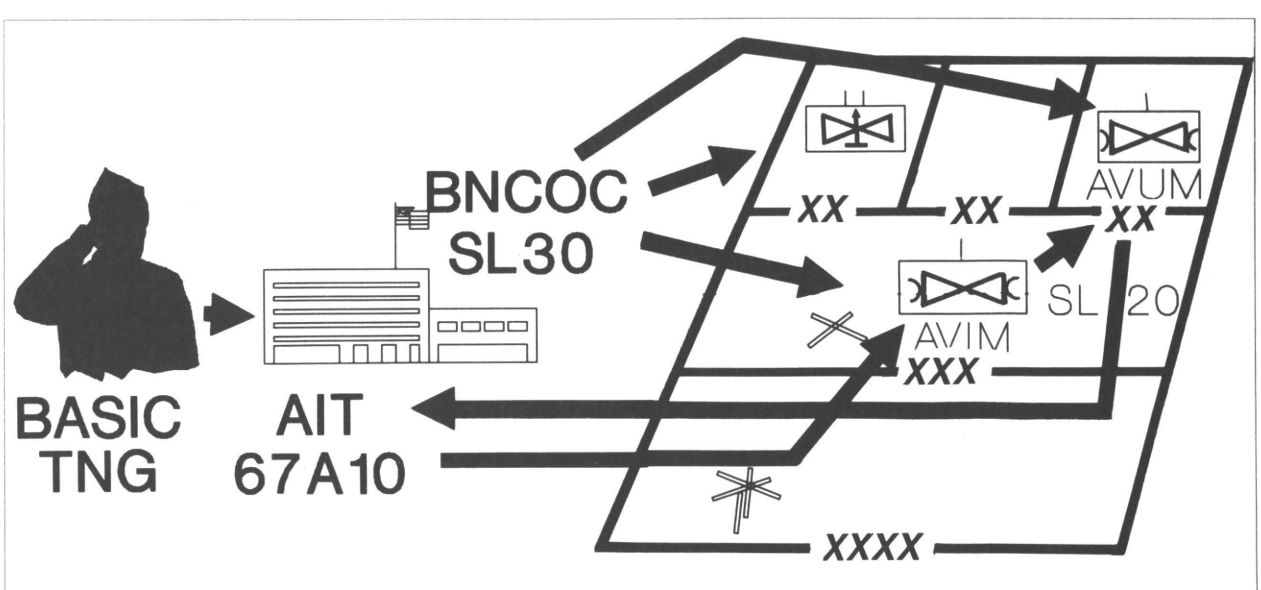
The Army Aviation Apprentice Mechanic Program

The U.S. Army Aviation Branch constantly reviews aviation maintenance training to ensure it produces highly qualified, well-trained soldiers capable of safely maintaining today's increasingly complex aircraft systems (figure 1). New technology and tactics, reduced manpower, and a firm belief that yesterday's training may not support tomorrow's aircraft are some of the factors that play a role in our training reviews.

The Aviation Apprentice Mechanic Program is the latest initiative for training aircraft mechanics. In developing this program, our objectives were to design a training program that will standardize Active, Reserve, and National Guard training while producing aircraft mechanics capable of repairing both components and systems.

Essentially, the Aviation Apprentice Mechanic Program will be comprised of 8 to 10 weeks of advanced individual training (AIT) followed by assignment to an aviation intermediate maintenance (AVIM) unit only. All AIT graduates will be awarded MOS 67A. This program does not include avionics MOSs. On arrival in the AVIM unit, the AIT graduate will be enrolled in a formal exportable training program that will document his or her training. Instructors from the U.S. Army Aviation Logistics School, Fort Eustis, VA, will be attached to every active duty AVIM to assist the unit commander in conducting this new training program. Each 67A soldier will be required to progress through all the shops and demonstrate technical expertise in each shop area before moving on

FIGURE 1: Career Management Field (CMF) 67 projected career pattern



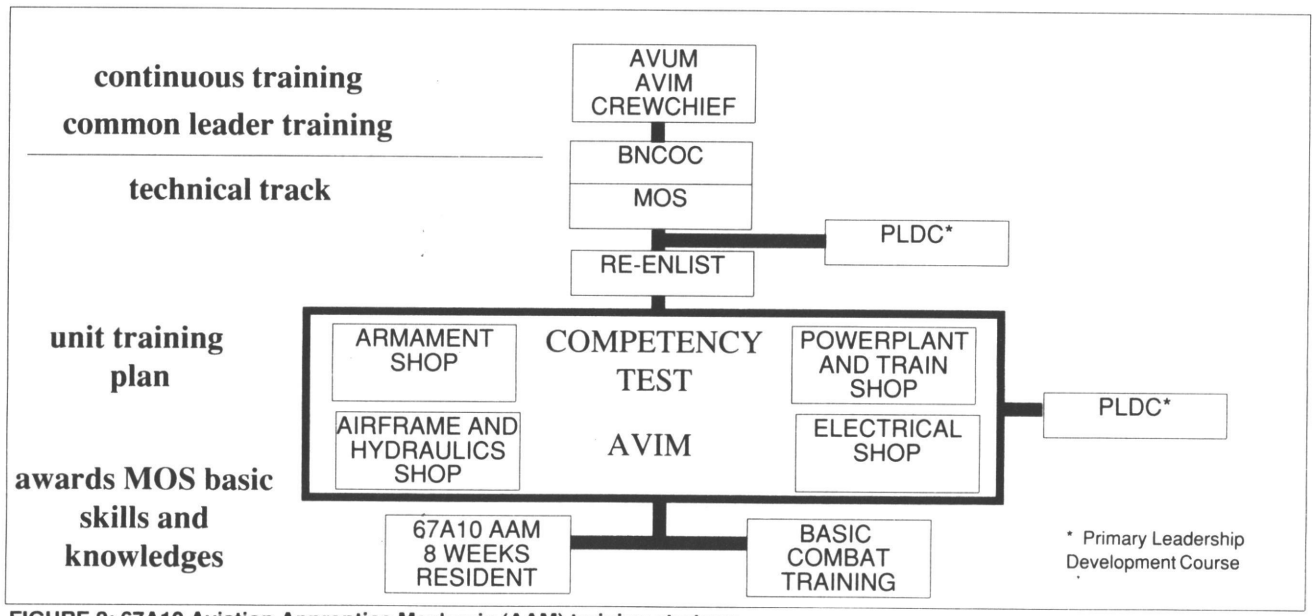


FIGURE 2: 67A10 Aviation Apprentice Mechanic (AAM) training strategy

to the next shop. Current estimates for unit training completion range from 12 to 18 months. After demonstrating expertise in each shop area, the unit commander will award the soldiers MOS 67B. This MOS signifies a higher level of technical competence. The soldiers will then be eligible for assignment to an aviation maintenance shop unit where they will continue to perform maintenance on the airframes supported by their assigned units. MOS 67B20 will be awarded to soldiers promoted to sergeant. Upon reenlistment, the soldiers' wishes and the Army's needs will lead to an aviation MOS for further training at skill level 30. As currently envisioned, skill level 30 training will be conducted as an added course immediately after successful completion of the basic NCO course.

One of the complimentary objectives of this program is to "put stripes on the flight line" as aircraft crewchiefs. The new generation of advanced technology aircraft requires experienced maintainers as crewchiefs in the flying units. Costly repair parts, difficulty of fault isolation detection, and enhanced battle damage repair capability demand we also have master diagnosticians and experience forward. Enhancing aircraft readiness is essential to successfully execute aviation's increasing role in the AirLand Battle of the future.

Figure 2 shows a composite overview of the proposed Career Management Field 67 projected pattern. Program evaluation began March 1991 at the 5th Infantry Division (Mechanized), Fort Polk, Louisiana.

Order of Daedalians Admits Commissioned Warrant Officers

As a result of official recognition for Army commissioned warrant officers and at the request of the Aviation Branch, the Board of Directors of the Order of Daedalians recently voted to admit Army commissioned WOs into the order. The Order of Daedalians is a U.S. Air Force society that provides recognition and represents the National Fraternity of Commissioned Military Pilots. A formal announcement will be made at the national convention in Dayton, OH, in June 1991.

Army Aviation Personnel Plan A^2P^2

The 1 December 1990 edition of the A^2P^2 has been distributed. Any unit that has not received a copy may obtain one from the Aviation Personnel Proponency. The address is Commander, U.S. Army Aviation Center, ATTN: ATZQ-AP-P, Fort Rucker, AL 36362-5036

PEARL'S

Personal Equipment And Rescue/survival Lowdown

Overwater Survival Equipment and Training

We hear it all too frequently. There is a mind-set that Army Aviation does little or no overwater flying. Nothing could be further from the truth! We all know the 25th Infantry Division does a lot of overwater and open-sea flying, but they're based in Hawaii and are an exception to the norm.

Attack helicopters often fly right up the middle of a river when performing nap-of-the-earth (NOE) flights. There is no power off gliding distance to land there! Better have life preserver units and water survival training because getting out of the aircraft and to shore are not as easy as you may think.

A discussion of a couple of Army Aviation units follows. Aviation units of the Missouri National Guard wear flotation equipment when conducting NOE flights at the Harry S. Truman Reservoir just south of Whiteman Air Force Base. This area is ideal because it is the very hilly northern edge of the Ozark Mountains. The NOE routes crisscross the reservoir, and some water crossings are one-third to one-half mile across. Some routes also follow the shoreline for short distances. You can see why flotation equipment is required there. Otherwise you're in violation of Army Regulation 95-1, *Aviation Flight Regulations*. We have all been around long enough to know that Murphy's law is alive and well in aviation. Mechanical problems rarely occur at the airfield; they always occur in the boonies or over water.

How about the Rhode Island National Guard stationed at Quonset Point? Flotation equipment is required there even if they are staying in the traffic pattern. Also, more and more attack battalions are becoming qualified in assault ship operations. And yes, the latest move is self-deployment. It's the only move for rapid response.

If you're in an AH-64 Apache, UH-60 Black Hawk, or CH-47 Chinook outfit, better get ready. Now is the time to get your overwater equipment and conduct your training. The fixed-wingers have been doing it for a long time. Now we "rotor heads" will get to do it too.

Escape and Evasion (E and E)

In my travels around the Army Aviation community, I see an attitude developing that troubles me a little. It seems with the fielding of the new AN/PRC-112 survival radio and the personnel locator system (PLS), some aircrewmembers are beginning to think that survival, escape, and evasion is, or soon will be, a thing of the past! This perception is not entirely true. What is true, and will be a thing of the past, is extensive search time required to find downed aircrews–thus reducing your time in the survival situation. E and E skills will still be required in hostile territory. Rescue forces may not be able to effect an immediate rescue for many reasons. There may be heavy enemy antiaircraft and ground fire, too much distance from friendly forces, or rescue forces may be engaged in another rescue. *So acquire and maintain your E and E skills.*

For furthur information the point of contact for this article is Mr. Jim Dittmer.

If you have questions about ALSE or rescue/survival gear, write to AMC Product Management Office, ATTN: AMCPM-ALSE, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798; or call DSN 693-3573 or Commercial 314-263-3573.

AVIATION MEDICINE REPORT
Office of the Aviation Medicine Consultant

To Fight, Perchance to Sleep

"They were dull eyed, bodily worn and too tired to think connectedly. Even a 30-minute flop on the turf with the stars for a blanket would have doubled the power of this body and quickened the minds of its leaders to ideas which they had blanked out. But no one thought to take that precaution. The United States Army is indifferent toward common sense rules by which the energy of men may be conserved in combat."

S. L. A . Marshall
American military historian

Major Alan L. Moloff
Chief, Special Operations Forces Division
Academy of Health Sciences
Fort Sam Houston, TX

CURRENT DOCTRINE mandates that a unit must achieve and maintain the initiative to win the next battle. The battle, regardless of the spectrum of conflict, must be fought in-depth with continuous and timely combat support. We must train and prepare to fight and fly safely during both continuous operations (CONOPS) and sustained operations (SUSOPS).

This first paragraph initially may appear to be out of place in a medical article, but it is not. This doctrine creates implied missions and operational requirements, producing significant human factors stressors that aviators, operations officers, and commanders must understand. For example, the flight surgeon must support the unit's mission and be an advocate for aviation safety.

AR 95-3 clearly delineates crew rest guidelines. Correction factors, known as environment-relative factors, attempt to quantify increased fatigue and stressors that are due to various mission profiles other than standard day flight. This regulation is a guideline for aviators. Fatigue factors for operations, maintenance, and other aviation personnel also must be considered.

Fatigue can be defined as that state, following a period of mental or physical activity, which is characterized by a lessened capacity for work and reduced efficiency. Usually, fatigue is accompanied by a feeling of anxiety, sleepiness, irritability, and a need for rest. Fatigue is different

from sleep deprivation. Sleep deprivation can be defined as no sleep activity for more than 18 hours.

Stress is the reaction of the mind and body to internal or external events (stressors). Stress is neither good nor bad. Low-intensity or short-duration stressors may produce a positive stress reaction that will improve performance. However, the extended-duration or high-intensity stressors may produce adverse stress responses and result in performance decrements.

The U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL, conducted a retrospective analysis of aviation accidents (22 fixed-wing and 112 rotary-wing) from 1971 to 1977. Fatigue was a condition present in 5 percent of the accidents; "fatigue-other" contributed to 7 percent of the accidents and was a suspected contributor in 71 percent of the accidents. Sleep deprivation was listed as a causal factor in 4 percent of the accidents, as a condition present in 8 percent of the accidents, and as a suspected contributor in 19 percent of the accidents.

Battle stressors intensify fatigue. Increased fatigue manifests itself as subtle to severe performance decrements. This causes increases in accidents and overall decreases in combat efficiency.

Sleep and rest are difficult to define. Many descriptions are based on individual perceptions; however, few, if any, are precise and usable definitions. One dictionary defines sleep as a naturally, regularly recurring condition of rest for the body and the mind, during which the eyes usually are closed and there is little or no conscious thought or voluntary movement. Rest can be defined as freedom from activity or labor. A Soviet scientific paper defines sleep as a process of regulation of the metabolism and the temporal interrelationship in activities of structures and functional systems.

Many studies have been conducted to quantify deficits that are due to increased fatigue and sleep deficits. One early study demonstrated–

- There is deterioration in the accuracy of timing the components of skilled tasks with a decrease in the level of the skill.
- Pilots who are fatigued accept a lower standard of accuracy and performance without an appreciation that they are doing it.
- The pilot's range of attention is narrowed so some instruments or tasks are forgotten or ignored.
- There is a disintegration of the perceptual field so readings from individual instruments are not integrated into an overall pattern.

A study by the Walter Reed Army Institute of Research, Washington, DC, postulated–

- Sleep-deprived subjects demonstrated brief, intermittent lapses (microsleeps). These lapses increased in frequency and duration as sleep deficits increased.
- Intense, increased sensory stimulation; physical exercise; shock; change in task; and feedback on performance prevented or shortened these lapses.
- Overlearned or automatic task responses are relatively resistant to sleep loss.
- Many, but not all, tasks are affected by diurnal (daytime) (circadian) influences; that is, those occurring in about 24-hour periods. Performance levels decline during the early morning hours.

It is easy to understand how these eight separate facts relate to aviation mission performance and safety. These performance decrements, which are extremely insidious, apply to troop leaders, operations personnel, and maintenance personnel as well as pilots. The affected individual rarely notices his or her individual performance degradation.

Performance decrements have been noted in subjects with and without sleep deprivation. Performance decrements generally occur between 0300 to 0600 and 1600 to 1800 because of complex physiologic interactions. These two periods are known as circadian troughs. Another study at the Walter Reed insitute stated that performance on all cognitive tasks deteriorated at the same rate and closely paralleled the decline in mood, motivation, and initiative. Performance on cognitive tasks declined 25 percent for every 24 hours without sleep.

A Canadian study demonstrated the effect of circadian rhythm and sleep deficit. Participants demonstrated stable performance for the first 18 hours (the study began in the morning). Performance declined to 70 percent of the baseline performance over the next 6 hours. Performance again remained stable for 18 hours, but declined to 40 percent of the baseline during the next 6 hours. Cognitive performance is more sensitive to sleep loss compared to physical performance.

Several simple techniques can be used to minimize the effects of sleep loss, fatigue, and stress:

- The higher the overall state of readiness, before the application of the stressors or sleep loss, the smaller the performance decrement.
- Overlearned or automatic responses are less degraded than are newly acquired skills and knowledge.
- Personnel should be cross-trained to allow maximum rotation of duties.
- When receiving a message, personnel should write and repeat as much of the message as tactically possible.
- Personnel should maintain adequate hydration, nutrition, and personal hygiene.
- Tasks that require a short-term memory chain are more sensitive to sleep loss.
- Personnel sacrifice speed for accuracy when fatigued. Self-paced tasks are less sensitive to sleep loss than are forced-paced tasks.
- The more complex the mental or physical task, the more sensitive it is to sleep deficits.

All personnel should be "overtrained" in their primary tasks. Overtraining is especially important in aviation units as there are so many routine "checklist" tasks that are critically important. Overtraining must be stressed during all facets of individual and unit training.

Pilots must actively train to rotate duties in the cockpit. They must maximize their crew resource management. A fatigued pilot may not notice subtle instrument variations. He or she may not note frequency changes or in-flight mission changes. The pilot and the copilot must rotate duties frequently as this maintains a higher relative attention level. Whenever possible, the crewchief or other personnel on board should be used in other appropriate capacities to accomplish the mission and flight safety.

Performance degradation has a greater effect on personnel in "passive" positions such as radar operators and radio monitors. Performance degradation also affects ground personnel in the operations and maintenance sections. The greater the number of tasks in which an individual soldier is cross-trained, the greater are the number of duties in which he can be rotated. Here too, a more rapid rotation of duties partially negates fatigue- and sleep-induced performance decrements.

Adequate nutrition, hydration, and hygiene improve performance; however, they are not a substitute for sleep. A deficiency in any of these areas magnifies performance decrements. High levels of

aerobic conditioning do not reduce cognitive deficits, but aerobic conditioning improves recovery from those deficits.

During periods of CONOPS and SUSOPS, extra time must be allowed for mission planning. During these periods it is imperative that mission planning be adequately reviewed and supervised. Mistakes often are made during the calculations of weight and balance, fuel consumption, and the multitude of navigation details.

Commanders, troop leaders, and operations officers pose the greatest risks to mission accomplishment because of cognitive performance decrements. These personnel must respond to the rapidly changing battle. They must execute complex planning tasks based on short-term memory data. Also, these personnel get the least amount of sleep. Most training exercises are relatively short. The exercises use similar scenarios and are performed over known terrain. These factors create the misconception that good leaders can, and should, perform well with little or no sleep.

Four hours of sleep during each 24-hour period is essential for long-term functioning. Naps are essential! Naps taken during circadian troughs (0300-0600 and 1600-1800) are more beneficial than at other times of the day. The recuperative value of sleep declines as sleep becomes more fragmented. Naps as short as 30 to 60 minutes significantly improve performance. However, the greater the sleep deficit, the more beneficial the nap.

Scheduling is important. We must take advantage of the naturally occurring circadian rhythms to minimize performance decrements. An 8-hour-on, 8-hour-off schedule is exceptionally poor as this does not allow for circadian synchronization. A 12-hour-on and 12-hour-off schedule assists in circadian synchronization. Different tasks require different schedule planning based upon particular environment and task requirements.

Depriving soldiers of sleep during exercises will not "inoculate" them against the effects of sleep loss any more than depriving troops of water during exercises will better prepare them to function without it.

Performance decrements are inevitable during deployments, CONOPS, and SUSOPS. We can minimize the effects of sleep loss, fatigue, and stress if we have a basic knowledge of the factors involved, use common sense, and employ the techniques discussed in this article.

The Aviation Medicine Report is a bimonthly report from the Aviation Medicine Consultant of TSG. Please forward subject matter of current aeromedical importance for editorial consideration to U.S. Army Aeromedical Center, ATTN:HSXY-ADJ, Fort Rucker, AL 36362-5333.

U.S. Army Class A Aviation Flight Mishaps

	Number	Flying Hours	Rate	Army Fatalities	Total Cost (in millions)
FY 90 (through 28 February)	14	639,449	2.19	22	$ 56.3
FY 91 (through 28 February)	29	601,328*	4.82	22	$ 93.3

* estimated

Twenty Commandments for Platoon Leaders

First Lieutenant Robert T. Hastings
Fifth U.S. Army
Fort Sam Houston, TX

1. Know your job and those of your soldiers. Make an effort each day to learn something new about your duties, your platoon, or your soldiers.

2. Establish and enforce a clear, strong chain of command. Organize, train, and emphasize teams. Use teams for all missions, details, and projects.

3. Use the five-paragraph operations order format for all orders and operations.

4. Enforce maintenance management procedures. Hold team leaders responsible for their equipment. Team leaders should be intimately familiar with the status of every item assigned to them.

5. Develop and enforce effective and usable standing operating procedures (SOPs). Review and update them regularly and after every exercise. Create an environment where every soldier thinks about and feels free to contribute to the SOP process. Create pocket-checklist SOPs for everyday activities and common tactical procedures. Give a copy to every soldier.

6. Enforce property accountability, personally.

7. Stimulate competition between soldiers, teams, and leaders. Issue frequent challenges and reward those who respond. Time off and "bragging rights" are great motivators.

8. Schedule training holidays when needed and whenever possible.

9. Develop and enforce standards for everything–uniforms, appearance, conduct, duty performance, flight discipline, etc.

10. Create a leader's notebook (smart book) and require subordinate leaders to do the same. Maintain current training and administrative data on your platoon and soldiers such as training

schedules; modified tables of organization and equipment; alert rosters; maintenance reports; special skills; common task test, skill qualification test, and Army physical fitness test results; weapons qualifications; family data; profiles; uniform sizes; etc. Have the answers to the questions your supervisor will ask you!

11. Know, closely monitor, and remain actively involved in the promotion, award, and leave status of your soldiers.

12. Establish and maintain an effective rapport with the first sergeant and other key noncommissioned officers in your unit. Recognize that they have a great deal of knowledge and experience to share with you–listen to them!

13. Make quality of life a priority. Help foster a home environment in your soldiers' barracks, dining facilities, and day rooms. Monitor their off-duty activities and closely watch for signs of alcohol and drug abuse, sexual harassment, financial difficulties, and other personal problems. Be approachable and available to help 24 hours-a-day. Schedule family activities–make sure families are involved with what their soldiers do at work.

14. Establish an ongoing, effective counseling program.

15. Make your sponsor program work. Ensure every inbound soldier receives a welcome letter or packet. Try to identify and satisfy special requirements that soldiers and families may have in advance. Personally meet with each soldier on the day he or she reports to the platoon.

16. Encourage team leaders to train their teams. Protect training time and resources for the team leaders' use. Require tough, realistic, and thoroughly planned training. Routinely attend and participate in team training.

17. Place heavy emphasis on common task and soldier skills like land navigation; marksmanship; tactical communications; calls for fire; nuclear, biological, and chemical warfare; and first aid. Master these skills yourself.

18. Create a safety conscious environment that doesn't tolerate unnecessary risk or unsafe acts. Use risk assessment and practice risk management. Brief safety as an integral part of all operations.

19. Participate in community support activities. Charity runs, blood drives, and related projects do a lot for esprit de corps and morale.

20. Above all be loyal, consistent, honest, and compassionate. Your platoon will reward you with loyalty and performance.

Lessons Learned in Deploying

CPT Ginn was deployed to Saudi Arabia with the 24th Infantry Division (ID) when he wrote this artic

CAPTAIN GINN IS sitting at his desk in Saudi Arabia reflecting on his deployment. His desk is made from cases of water and flattened cardboard boxes. He writes--

How would you react if you were informed you have to move your entire company overseas in 3 or 4 weeks? Furthermore, you were informed you have a blank check to buy whatever you needed. That is the situation I faced at 0200 hours on 7 August 1990 when I was alerted for and subsequently deployed to Saudi Arabia with my UH-60A company.

The following is my account of the deployment and some insights for commanders who think, "My company will never deploy."

B Company, 3/24 Aviation Battalion, 24 Aviation Brigade, is a J-series UH-60A company in a provisional battalion. The company is organized into three flight platoons to support a year-round drug interdiction mission in Georgetown, Great Exuma. When we were alerted, one third of the company was in Georgetown, one third had just returned from the National Training Center (NTC), Ft. Irwin, CA, and one third was at Hunter Army Airfield, Savannah, GA.

We were alerted at 0200 hours on 7 August 1990. The actual deployment was classified, so we started a 72-hour Emergency Deployment Readiness Exercise (EDRE). The exercise was based on one unit's, not the entire division's, deploying within 72 hours.

We started to rank necessary items immediately. The initial orders were for Modified Table of Organization and Equipment (MTOE) shortages and aircraft survivability equipment (ASE). I suggest all commanders keep a personal file of their most important requisitions so that they can resubmit the requisition when the priority is upgraded to 01.

You need to stop and think about what you would really need if you deploy. Think about basic items, such as tents and repair parts, not nice to have items. Remember staff personnel have to handle a massive influx of paperwork. Fill out as much of the paperwork for them as possible to lighten their load.

One of the major problems I faced was ASE. Even though the U.S. Army Aviation Systems Command, St. Louis, MO, did a super job flying in parts from all over the world to fix the aircraft, we still deployed with some inoperable parts. A deployment is not the time to try and fix ASE; it should always be kept in a state of good repair.

Another problem we faced was expending our basic load of petroleum, oil and lubricants (POL) at the NTC. I don't think we could have gotten an adequate amount of POL to deploy. Commanders, I suggest that you think long and hard before expending your

to Saudi Arabia

oping to inform other commanders about his deployment.

basic load to field exercises. Order POL in advance and deploy on exercises with older stock.

Turning in excess MTOE equipment during a deployment is difficult. The supply system is in the "issue" mode--not the "receive" mode. I had equipment on my hand receipt I never used. Turn in your excess equipment and keep your hand receipt clean of extraneous equipment.

Remember that the level of anxiety for all of your soldiers is extremely high during a deployment. Even after a week, the official word was that we were only on an exercise, but everyone had figured we were really leaving.

We luckily had more than 3 weeks from notification to deployment, so I could let soldiers take care of personal business. You may not be so lucky, so push your preparation for overseas reassignment pockets and make sure that all of your soldiers have completed their wills.

When we actually loaded up all of our equipment (the 24th ID moved in entirely) and got ready to move to port, it was obvious our organizational equipment would not fit on our organic vehicles. I had the luxury of loading our aircraft, but my sister companies weren't so lucky.

I suggest you stand down for about 2 days one time and try to load all of your equipment on your vehicles. You can do your load plans, file them, and be prepared for any contingency. This all seems pretty basic, but have you done it?

When we started loading the ships, two points became obvious. The first and foremost is that you have to watch, protect and ensure your equipment is properly loaded onto the ship. This includes having someone at both ends of the ship while the cranes are loading.

You need to know the location of each piece of equipment so when you arrive at your destination, you can easily find any one item. The second point is that loading ships is extremely dangerous. Brief your personnel to stay alert at all times while at port.

It is obvious to me the deployment of the 24th Division would not have gone as smoothly, or at all, if it were not for the extremely hard work, long days, and persistence of the Victory Division's soldiers. I have written this article in hopes of saving time for anyone in the event of deployment. It will not be easy moving a company.

Hopefully, some of these steps will make one's day a little shorter when it comes time to deploy. Your time can be better spent at training or at home.

Captain L. Holmes Ginn
B Co, 3/24 Aviation Battalion
24th Infantry Division

SDTs REPLACE SQTs

SFC James L. Roberts Jr.
Department of Enlisted Training
Fort Rucker, AL

The self-development tests (SDTs) will soon replace the skill qualification tests (SQTs).

The SQT program for the active Army will end 30 September 1991. The SQT program for the reserve components will end 30 September 1992.

The SDT will target all Army sergeants (SGTs), staff sergeants (SSGs), and sergeants first class (SFCs). These soldiers must take the SDT in their military occupational specialities (MOSs) to be promoted. To ensure fairness, no one will be exempt from taking the tests.

These formal written tests will evaluate leadership, training, and MOS-specific skills. The noncommissioned officer (NCO) in charge is the only one responsible for SDT preparation. Units will not expend training resources to prepare NCOs for the SDT. Besides affecting promotions, the SDT will influence assignments, school selection, and retention.

Notification procedures for the SDT will remain basically the same as those for the SQT. Each NCO will receive written notice about 90 days before the test window. The SDT notice will identify only the tested subject areas.

Three Sections

The test is divided into three main sections: leadership, training, and MOS-specific questions. With some exceptions, the SDT will contain 100 multiple-choice questions and will take no more than 2 hours to complete. The difficulty of the questions depends on the skill level.

Twenty questions about *leadership* for each test equal 20 percent of the score. The Center for Army Leadership, Fort Leavenworth, KS, will prepare these questions by using FM 22-100, FM 22-101, and FM 22-102.

Likewise, 20 questions about *training* for each test equal 20 percent of the score. The Sergeants Major Academy, Fort Bliss, TX, will use FM 25-101 to prepare questions.

The 60 *MOS-specific* questions, taken as much as possible from the soldiers's manual, equal 60 percent of the score. The SDT is designed to evaluate NCO development, not to test MOS proficiency. The MOS-specific questions will be broad, considering MOS systems, equipment, and duty positions. A broad spectrum of questions will motivate the NCO to keep current on all MOS systems, prepare for future assignments, and remain versatile.

Feedback

One goal of the SDT program is to provide the results of the SDT to the NCO within 30 days of the test date. The results will be broken down by section, and then by subjects within that section. Unit commanders will also receive their soldiers' test results.

Once testing is completed, the U.S. Army Total Army Personnel Command (PERSCOM), Alexandria, VA, will receive the NCOs' total scores. PERSCOM will also receive a percentile ranking to show

"...the SQT for our soldiers and NCOs will be eliminated. The purposes for which the SQT were created — the training and development of our soldiers and NCOs — are being more effectively accomplished by an NCO Corps that is the best in our nation's history."

General Carl E. Vuono
Chief of Staff, U.S. Army

how well the NCOs fared among their peers. The chain of command, through the major Army command, will get composite results of how the NCOs in the unit fared on the three sections of the test.

The scores and percentile ranking will link the SDT to the enlisted personnel management system (EPMS). The link to EPMS includes promotion, assignments, school selection, and retention. PERSCOM will rank the scores once testing is complete and results are validated. The following paragraphs outline the proposed linkage of the SDT to the enlisted personnel management system.

First-time SDT failures will be ineligible to attend any NCO education system schools. Also, the commander will consider either reclassification or separation for any NCO who fails. After the second test failure, the commander will initiate reclassification or separation action, and the NCO is ineligible to reenlist.

Promotion Systems

Semicentralized promotion system. The skill level one soldier will no longer take an annual test. Therefore, an 800-point, semicentralized promotion system has been adopted for promotion to sergeant. Sergeants will continue to use the 1,000-point system and will get 2 promotion points for each point earned on the SDT for a maximum of 200 points. Sergeants must have a passing score on the SDT to get promoted. This is no longer a waivable requirement.

Centralized promotion system. Sergeants first class and staff sergeants must have a passing score to be promoted. This requirement is nonwaivable. Each soldier's SDT score will be used as a favorable discriminator under the "whole soldier" concept.

Manual Distribution

SDT Pubs is the title for a packet of manuals consisting of FM 22-100, FM 22-101, FM 22-102, and FM 25-101. For units to get entire packets, simply order SDT Pubs using DA Form 4596. Units will request the packets based on their projected authorized or assigned strength (whichever is higher) in the SGT, SSG, and SFC ranks as of March 1991.

The chain of command is responsible for obtaining and issuing the initial set of manuals and subsequent changes to each NCO and newly promoted sergeant. Each NCO is responsible for keeping a personal copy of the four manuals in addition to the correct soldier's manual. NCOs must maintain these publications until the soldier is promoted to master sergeant. Soldiers who do not receive SDT Pubs must use manuals in the MOS library.

Staff Sergeants Billy Wilson and Joe Harvard of the 256th Signal Support Company repair radar equipment at a remote airfield in Saudi Arabia.

256th Signal Support Sets Up Shop in Desert to Support Air Traffic Control Units

Captain David Anderson
256th Signal Support Company
Saudi Arabia

GREETINGS from Saudi Arabia! Soldiers from the 256th Signal Support Company left for the desert kingdom on 18 September 1990. The unit's mission is to provide general support maintenance for the tactical air traffic control (ATC) units deployed to Operation Desert Shield/Storm. In these next few lines, I will share some of our experiences with you.

Our flight over was on a Northwest 747. The total time en route was about 24 hours. The flight crew was extremely courteous and made us as comfortable as possible.

The unit arrived at an airfield on the eastern side of Saudi Arabia near the Persian Gulf–or as the Saudis prefer to say–the Arabian Gulf. The climate averaged around 110 to 115 degrees Fahrenheit during the day and cooled off to the low 70s and 80s during the night.

We spent the first week getting acquainted with U.S. Army Central's (ARCENT's) policies and procedures. For example, all Saudi Arabian establishments are off-limits to American soldiers. We must maintain a low profile to avoid offending the conservative Moslems. ARCENT makes every effort to house Americans away from populated areas. Contacts with the civilian population are limited.

We live in tents and use a dining facility for breakfast and dinner. Lunch is a Meal Ready to Eat, a piece of fruit, a soft drink, and a pastry provided

by the Saudi government. We are acclimatizing to the environment and making the best of our location.

Our first mission in country involved unloading the SS *Cape May*, which carried most of the unit's equipment. We spent 3 days at the port putting in some long hours. The 256th excelled as stevedores. It was an experience that none of us hope to repeat. The unit unloaded more during our shift than the other shifts combined. All of our vehicles, except for a 2 1/2-ton truck and a generator, made the voyage without damage. The truck and generator are supposed to arrive on a later ship.

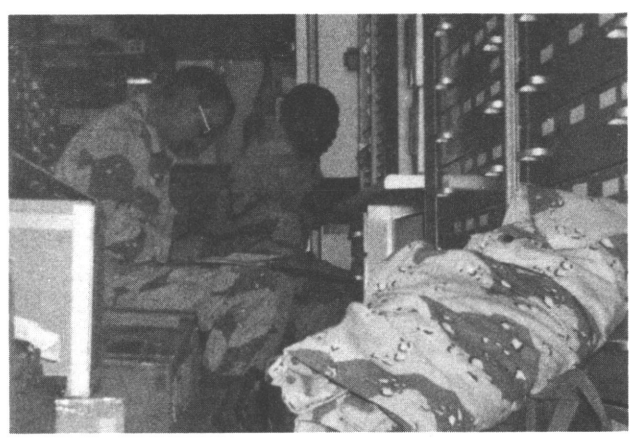
With most of our equipment on hand, we began to set up shop. With our equipment came a few comforts of home. We now have a television, a video cassette recorder, and a refrigerator that we use to cool down soft drinks and water. We drink bottled water that comes in 1.5 liter plastic bottles. All soldiers here are seen with these plastic bottles.

Our unit has two mobile maintenance contact teams that provide on site maintenance. The unit also runs a limited repair facility out of trailers. A big portion of the mission is supply operations. We brought a large portion of authorized stockage list from Fort Rucker, AL. We provide the customer units with ATC parts and a reparable exchange service. This requires a great deal of coordination with logistics systems set up in this theater of operations. Needless to say, with an exercise of this magnitude, the resupply effort is a big challenge.

The 256th provides support to a large geographical area. Visiting all the present ATC equipment locations would require about a 1,000-mile trip. As we travel from site to site, we see many sand dunes and desolate areas. Camels and goats are the only animals in abundance. There are many tales of large spiders, scorpions, and snakes. Everyone takes the necessary precautions so these pests are not a problem. The flies are bad in the morning for the first hour or so after dawn, and then they come back at dusk for another hour. They provide a natural alarm clock if you don't use the insect netting.

It certainly seems like many months have passed since we rolled out the Fort Rucker gate. Looking back on those hectic preparation days, we cannot forget the valuable assistance the Fort Rucker community provided us.

No one knows how long we will be here. We pray each day for a peaceful solution and a safe, speedy return to our families and loved ones. Until that time, we have faith in our leadership and are confident that we will accomplish our mission.



Staff Sergeant Oscar Jones of the 256th Signal Support Company fills repair part requisitions from the unit's parts van.

Edited from the *Army Flier* dated 17 January 1991.

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

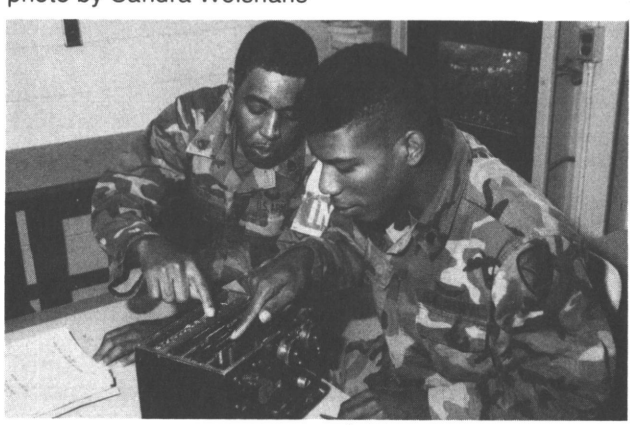
AVIATION LOGISTICS
U.S. Army Aviation Logistics School

Introducing a New Military Occupational Specialty

Ms. Melvina Harrison
Department of Aviation Trades Training
U.S. Army Aviation Logistics School
Fort Eustis, VA

THE U.S. ARMY Aviation Logistics School (USAALS), Fort Eustis, VA, has proposed a new concept for Career Management Field 67. The proposal is to merge portions of training for the 68J Armament Systems Repairer and the 68F Electrical Systems Repairer. The new training program will form the course of instruction for a distinct military occupational specialty (MOS)–the 68X AH-64 Armament Electronics Systems Repairer.

photo by Sandra Welshans



SSG Curtis Trapp (left) instructs SPC Willie Gregory on repairing a fire control computer for the AH-64 Apache.

Devising training for the AH-64 Apache is not new for USAALS. In June 1985 when the AH-64 helicopter was introduced, there was an immediate need to train soldiers to maintain its unique weapons system. USAALS then developed an instruction package to fill this training void. Selected MOS 68J soldiers were given the opportunity to receive this training. Upon successful completion of the 32-week training program, the soldiers were awarded the additional skill identifier (ASI) X1. This ASI qualified them to perform maintenance on the AH-64 in addition to the AH-1S Cobra.

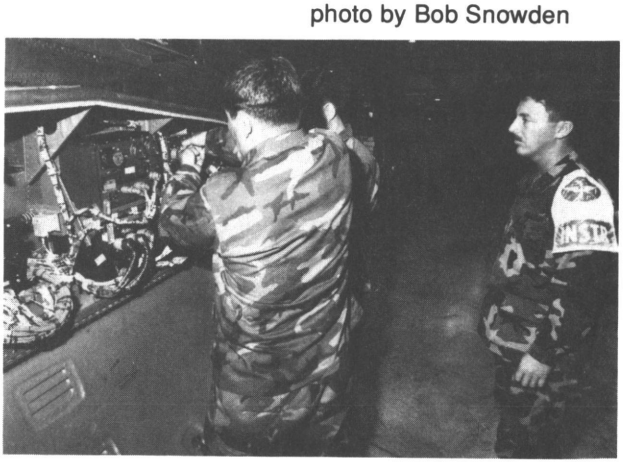
USAALS' trainers believe that training cost will be cut and efficiency increased once the new MOS is established. Previously, repairers in two separate MOSs performed electrical and armament maintenance on the AH-64. *Soldiers who hold* MOS 68X will be fully qualified to perform repairs on either electrical or armament components of the helicopter. This will result in a cut in maintenance

photo by Bob Snowden

personnel needs. The sequence of training for this advanced individual training (AIT) course covers 24 weeks and 3 days. This represents a training savings of more than 7 weeks over the ASI method. Skill level 10 students who participate in the new AIT course can advance to skill level 40 through normal progression.

The U.S. Army Personnel Integration Command, Alexandria, VA, is staffing this proposal worldwide. Department of the Army approval is expected soon. Preparations for training have already begun in USAALS. The program of instruction and other training materials are being prepared for approval. Instructors have been briefed and training areas selected. If the proposal is approved, the first AIT class for MOS 68X is expected to begin in fiscal year 1992.

photo by Bob Snowden



TOP: SSG Ruben Salinas (left), SPC Lenford Moore, and SPC Hoon Lee (rear) install an M-230 30mm cannon.

BOTTOM: Instructor SSG John Hinzo looks on as students SSG Ruben Salinas and SPC Hoon Lee remove the turret control box of an AH-64 Apache.

Aviators Read This

Major Walton C. Carroll Jr.
Chief, Flight Standardization Division
Directorate of Evaluation and Standardization
U.S. Army Aviation Center
Fort Rucker, AL

A REVIEW of Army Aviation accidents since 1980 revealed that attempts to maintain visual flight rules (VFR) in deteriorating weather caused 25 aircraft accidents. This total excludes brownouts, blowing snow, lightning damage, rain or other windscreen obscurations, emergencies in poor weather, blade strikes, etc. The total depicts accidents in which pilots were not prepared for poor weather and then did not do the right thing. Army Aviation can expect two or three of these accidents annually. More often than not, the results will be catastrophic.

Training is the common denominator and cure for these accidents. The Directorate of Evaluation and Standardization (DES), Fort Rucker, AL, is acutely aware of this problem. DES takes great pains to evaluate individual aviator awareness of VFR and regulations. Recently, DES shifted their focus to collective unit procedures and training designed to reduce these accidents. Unit crew qualifications and selection programs, mission briefing requirements, published inadvertent instrument meteorological conditions (IMC) procedures, comprehensive standing operating procedures (SOPs), and training safety define the focus as DES explores unit programs. All are listed in the directorate's Areas of Interest for Fiscal Year (FY) 1991 mandate from the chief of Army Aviation.

FY 1990 was a year of transition in Aviation Army regulations (ARs). The new AR 95-1, *Aviation Flight Regulations*, was effective 30 June 1990. AR 95-2, *Air Traffic Control, Airspace, Airfields, Flight Activities and Navigational Aids*, is dated 10 August 1990 and was effective 10 September 1990. AR 95-3, *Aviation: General Provisions, Training Standardization, and Resource Management*, is dated 27 September 1990 and was effective 26 October 1990. If you haven't studied the new regulations and if your reading files don't contain them–ask. Collectively, they represent a significant change in the way we are expected to operate.

What are your VFR weather requirements for today's mission? A question like this is not simple under the new regulations. Aviators must understand the rules. The days when you could just memorize by rote a table in AR 95-1 and annually look at the federal aviation regulations (FARs) for your instrument renewal are gone. Army Aviation realizes that a crew's capabilities may differ from published weather minimums. Weather require-

ments depend on many factors–crew experience, proficiency, local weather patterns, geography, mission, crew endurance, and aircraft equipment, to name just a few.

The changes in AR 95-1 had their inception in 1988. An Army Aviation Brigade Commanders Conference and U.S. Air Force weather personnel recommended that we align our weather criteria with the FARs. These two separate initiatives culminated in our current regulation. A concurrent shift in Army Aviation training emphasis and program focus from individual aviators to crew employment continue to gather momentum. Emerging unit initiatives include battle rosters of crews, expanded crew qualification and selection programs (to include better documentation), and defined mission briefing procedures addressing risk analysis and command involvement. These programs are designed to better define imposed limitations for unit aviators and to ensure expectations are understood. They go hand-in-hand with what appear to be relaxed weather restrictions. In short, a unit is directed to match crews with missions, conduct a thorough mission briefing for each flight, assess associated risks, and document it all. AR 95-1, paragraph 4-5; Training Circular 1-210, the *Commander's Guide*; and AR 95-3 define specifics. Eradicating accidents caused by poor communication, misunderstandings, or crew selection is a program target.

AR 95-1, paragraph 4-6, identifies the pilot in command (PC) as the final authority for operating, servicing, and securing the aircraft he or she commands. The AR further directs PC participation in the unit mission briefing process. Once briefed, the flight is deemed authorized by the command and becomes the responsibility of the PC. In the end, the go, no-go decision still rests with the PC.

On the surface it appears that the new weather minimums have eased requirements. Our minimums have gone from a ceiling of 300 feet and 1/2 mile visibility outside controlled airspace, during daylight, over flat terrain, to clear of clouds with 1/2 mile visibility if we are operating at 1,200 feet or less above the ground outside controlled airspace.

AR 95-1, paragraph 5-2, directs we acquaint the crew with procedures and rules. We must evaluate aircraft performance, approach and departure data, notices to airmen, and the Army Aviation Flight Information Bulletin. For VFR flight, the weather forecast must be equal to or greater than VFR minimums at estimated time of arrival (ETA) through 1 hour after ETA. Reading further, we find we can file VFR to a destination in controlled airspace if weather is forecast to be equal to or greater than known special VFR minimums for that control zone at ETA through 1 hour after ETA. Outside of controlled airspace, forecast weather en route must permit separation from clouds and flight visibility equal to or greater than minimums in table 5-1. As we get to paragraph 5-5e, Enroute Procedures, we hit a complication when we read: "When Federal Aviation Administration (FAA), international civil aviation organizations, or foreign government rules are more restrictive than table 5-1, they apply." AR 95-1, table 5-1, is now relegated to the minimums we use when nothing else more restrictive applies.

Next we go to FARs. Specifically, FAR 91.155 where we find that unless we can identify special VFR minimums in a control zone, we will need a ceiling of 1,000 feet and 3 statute miles visibility to enter, take off, or land in a control zone. Outside of controlled airspace, during day operations we require 1/2 mile visibility, staying clear of clouds, and flying at an airspeed that will avoid collisions (if we stay at or below 1,200 feet above ground level (AGL)). Above 1,200 feet AGL, we have to comply with FAR 91.155. So the pacing item for our hypothetical flight is a terminal forecast greater than a known special VFR minimum at our destination (at ETA through 1 hour after) and en route weather of 1/2 mile visibility or better.

Does that answer our question as to our weather requirements for today's flight? No! Don't forget

to check local SOPs, especially if you are deployed away from home station. If you don't like what you find and you've been briefed as the PC, remember you are the final authority. No one can overrule a PC's decision to abort. The PC is directly responsible for planning a VFR flight, task 1001 in the Aircrew Training Manual. The standards direct PCs must–

- Determine if the aircrew and aircraft are capable of completing the mission.
- Determine if the flight can be performed under VFR conditions.
- Check applicable publications and determine, without error, if there are any restrictions on departure, en route, and at destination.

In all the accidents noted in the introduction, the PCs did not meet one, two, or all three of these standards. Inadvertent IMC accidents occur because pilots encounter unanticipated IMC flight because of poor planning, lack of vigilance during the flight, or were overconfident of their abilities. Then the PCs made a wrong decision. They didn't want the hassle or disgrace of declaring an emergency and admitting they "goofed." Many paid the ultimate price.

The recent adjustments to Army Aviation weather requirements do not represent a finished product. The Army's attempt to align weather minimums with FARs has been compounded by recent changes to these FARs. The DES has recently requested an FAA position on some of the nuances in the new FARs. Initial indications are that there is further change impending. In the interim commanders should review their SOPs and ensure that specific and concrete weather requirements are clearly defined.

DES Update

Third copy of Department of the Army (DA) Form 759-series documents for instructor pilots (IPs), standardization IPs (SIPs), and instrument flight examiners (IFEs).

Table 2-1 of AR 95-3 specifies that the third copy of DA Form 759-series documents for IPs, SIPs, and IFEs be forwarded to Commander, U.S. Army Aviation Center, ATTN: ATZQ-ESO, Fort Rucker, AL 36362 within 60 days of closeout.

Effective immediately, the above requirement is rescinded. Distribution of the original, first copy, and second copy should continue as prescribed in the regulation. The point of contact is Mr. William Rowe, ATZQ-ESO, DSN 558-2501/4691 or Commercial 205-255-2501/4691.

Return of 1991 answer sheets for Army Aviation annual written evaluation (AAAWE).

As a result of recommendations from the Annual Brigade Commanders Conference, the DES will eliminate the requirement to return 1991 answer sheets for the AAAWE to the U.S. Army Aviation Center. Test control officers must document the completion of the annual writ and place the document in individual aircrew training folders. DES recommends that these answer sheets be kept on file for 1 year. The point of contact is Ms. Rarick, ATZQ-ESE-AW, DSN 558-6571 or Commercial 205-255-6571/2415.

DES welcomes your inquiries on areas of major importance. Write to us at : Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Fort Rucker, AL 36362-5208; or call us at DSN 558-3504 or Commercial 205-255-3504. After duty hours call Fort Rucker HOTLINE, DSN 558-6487 or Commercial 205-255-6487 and leave a message .

DEFENSE LOGISTICS STUDIES INFORMATION EXCHANGE

A Treasure Chest of Information

HAVE YOU ever needed to research a logistics problem, only to ask yourself, "Where do I start? Where can I get facts? Has anyone else ever looked into this problem"?

When you need logistics information, you do not have to "reinvent the wheel." The information you need could be as near as your telephone. The Defense Logistics Studies Information Exchange (DLSIE) provides customers with logistics research information.

The DLSIE, located at the U.S. Army Logistics Management College, Ft. Lee, VA, has more than 85,000 logistics studies, models, management references, and documents in its data base. Researchers and action officers throughout the Department of Defense and other government agencies can use these files.

The customer can call AUTOVON 687-4546 or Commercial 804-734-4546 and talk with one of the exchange's analysts to explain the problem and area of interest. The analyst then helps narrow the subject to electronically search the data base for the needed information.

DLSIE usually mails the bibliography to the customer the next day. The customer receives the customized, hard-copy bibliography listing all available documents on the subject.

The customer selects from the bibliography the needed documents, calls the DLSIE microfiche section at AUTOVON 687-2240 or Commercial 804-734-2240, and gives the operator the list of document numbers. The microfiche operator generates and sends the customer a microfiche containing the documents requested.

However, what if you're overseas or in an inconvenient time zone (or just working late into the night)? Call AUTOVON 687-4546 or Commercial 804-734-4546 and place your request by phone recording. Give your name, official mailing address, phone number, and a description of the information or service you need. After you receive the recorded instructions, you have 3 minutes to describe your request; the message service automatically disconnects after 15 seconds of silence.

You can now conduct your own search and retrieval from the DLSIE data base by using the on-line data system. The on-line system stores abstracts, conclusions, and recommendations of all data base references. To gain access, simply call DLSIE and request an agency code number and password. Then use a modem and commercial phone number to directly access the DLSIE data base from your personal computer.

Among the 85,000 references are the following: research papers; policy letters and speeches; technical journals and books; planned, in-process, and completed studies and models; and more than 1,800 lessons-learned references.

The exchange routinely explores new technologies to make its information services to the logistics community more efficient and economical. For example, currently under consideration is the use of floppy disks for bibliographies and optical character readers to convert hard-copy documents into electronic form.

Under the operational direction and control of the U.S. Army Materiel Command, Alexandria, VA, the exchange provides its services at no cost to the customer. Use the exchange as a time-saving, money-saving way to get the logistics information you may need for your research or studies.

A Flood of Paper

Mr. William H. Arnett
Chief, Maintenance Data Management Branch
Directorate for Maintenance
U.S. Army Aviation Systems Command
St. Louis, MO

WE ARE EXPERIENCING a deluge of paper at the U.S. Army Aviation National Maintenance Point (NMP), St. Louis, MO– and we like it. This paper is the Department of the Army (DA) Form 2410, Component Removal, Repair and Overhaul Record. Some information follows on what has taken place with this form over the past few years and how it is being used now for Army Aviation. Questions and answers about the 2410 process are included in this article.

Since April 1990, the NMP has received about 364,747 DA Forms 2410. This averages about 45,593 forms a month. Compare this number to 5 years ago when the number received averaged from 20,000 to 25,000 forms a month. That was a lot of paper to process before the data could be put to good use–and we do that better now than ever before.

In the past, the NMP did little editing on the 2410s before processing the data on the computer. We relied on the computer to give us reject listings when the numbers didn't match. Then we researched, corrected, and reentered these rejects into the computer. This research extended the time before the information became usable. Today, the editing process is so streamlined we have reduced rejects from about 20 percent to a manageable 1.5 percent.

Also, the NMP standardized the data input format on the computer. This measure reduced processing time and potential for errors. The important thing is to be able to use the 2410 data as soon as possible to respond to queries on a specific part or component. We have made progress in this area also–we call this "turnaround time." That means how soon we can use the data after NMP actually receives the 2410. Turnaround time has been reduced as shown by the chart at figure 1.

When NMP receives the 2410 and after we do the initial editing and data processing, we feed the

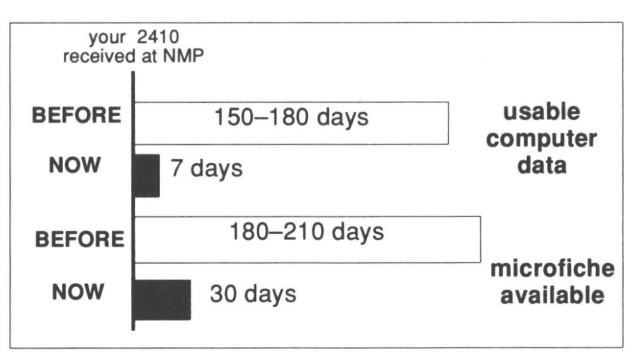


FIGURE 1: Time elapsed until the 2410 data are usable

information into a central computer. We then have immediate access to this computer record for all available 2410 data (15 years) on an item by serial number. Periodically, we also get an updated microfiche working file of the complete record. The 2410 HOTLINE personnel use this record.

When we have appropriate 2410 historical information on file, we are limited in what we want only by the imagination of the programmer. For example, the computer can tell us when a component was manufactured; who made it; when it was last repaired, overhauled or modified; if the item should be returned for repair or if it should be condemned. The computer can help locate components affected by a safety-of-flight message or condition.

We can prevent an item's unnecessary and premature overhaul or scrapping. This is done by reconstituting its history and hours since it was new or its last overhaul. However, we cannot tell if the component is a serviceable item. Only the individual who has the item can determine its serviceability as specified in appropriate technical manuals.

We can run informative and beneficial analyses by various failure codes across many identical components. This process provides a wealth of information to assist engineers in isolating problems with component shortcomings. These same type of computer runs also can inform us on a component's performance and its reliability. All of this is just a "tip of the iceberg," but it gives you some idea of the versatility and value of the 2410 database.

Requests for these analyses by interested engineering and logistical elements outside the NMP are on the increase because of the abundance and variety of information on the 2410 database. Within a recent, and relatively short time, we had 63 requests for comprehensive computer analysis runs.

It is difficult at times to measure all the benefits of the 2410 system; however, in one area it is relatively easy. That one area is cost avoidance (CA). We realize a CA when we prevent premature overhaul or a component scrappage, and the Army does not have to buy a replacement item or prematurely fund the cost of repair. Therefore, our CA is that portion of the repair or replacement cost that is avoided. The growth in our annual CA has been dramatic and is a direct reflection on the increased receipt of timely and accurate 2410s. The chart at figure 2 shows the dynamic growth in our CA over the past 3 years.

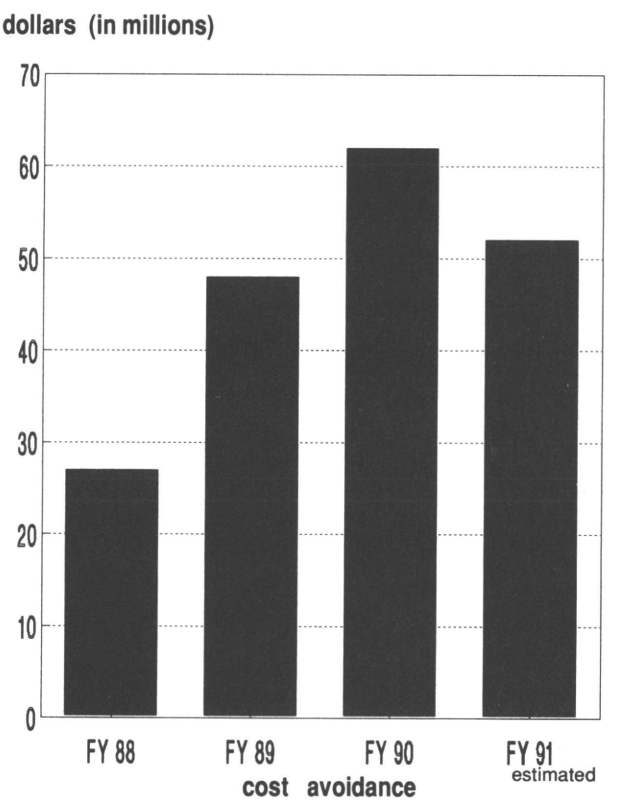


FIGURE 2: Cost avoidance over the past 3 years has been estimated at $ 188.9 million.

Our goal is to reduce our CA to zero– in theory, this is possible. Our early estimate of CA for fiscal year 1991, which is down from the previous year, was based on first quarter actual figures.

Traditionally, 2410 receipts are slow over the winter holidays. Despite this, we believe the figures

are down because of improvement in 2410 usage by everyone concerned. The result is there may be less use and need for the 2410 HOTLINE. We hope this is correct! Our goal is to eliminate the need for the 2410 HOTLINE through 100-percent compliance with 2410 requirements by all concerned.

It is obvious that most of the people who take the time to prepare and submit 2410s to the NMP are taking this responsibility seriously. Although we now receive about 45,593 DA Forms 2410 a month, there is no way to know how many, with 100-percent reporting, we would actually receive. The following hints, if followed, will increase the quality and value of the 2410 system even more–

- Know the requirements for using the 2410 that, by the way, apply to both maintenance and supply elements. The 2410 process does not end at the maintenance level.

- Make sure the serial number of installed components match the aircraft records.

- When a component is turned in to supply, make sure the proper 2410 forms and Department of Defense materiel condition identification tags are with the item. The person who receives it needs this information so he or she will know its status and what to do with it.

- Don't let 2410s stagnate. Prepare and mail them with a component that requires 2410 reporting as soon as possible after the action is taken. We continue to receive 2410s prepared weeks, and sometimes months, after the action was accomplished. Without timely and accurate 2410 reporting, the system cannot function to its full potential. Gaps in data may result in wrong or unfavorable actions with an expensive and critical component. When you obtain a component without proper records, and you cannot determine its serviceability or status, call the U.S. Army Aviation Systems Command (AVSCOM) 2410 HOTLINE for assistance. Numbers and addresses are listed in figure 3.

2410 HOTLINE

PHONE: DSN 693-1878
Commercial 314-263-1879
FAX: DSN 693-2075
Commercial 314-263-2075
E MAIL: data2410@avscom.arpa
MAIL: Commander
U.S. Army Aviation Systems Command
ATTN: AMSAV-MMD (2410)
St. Louis, MO 63120-1798

FIGURE 3

What is a DA Form 2410; what is its function?

The DA Form 2410 provides a running historical record of a selected, serial-numbered aircraft part or component from the day it was manufactured until its final disposal as an obsolete or unusable item. Most reportable items are closely managed according to the number of hours the item has operated, primarily for safety reasons.It was designed to transmit or move essential data with an uninstalled component and to transmit corresponding component historical data to the wholesale NMP level.

When is the 2410 used?

The 2410 is used each time the item is installed or removed from an aircraft, or is repaired, overhauled, or modified, etc.

Who starts it ?

The manufacturer prepares the first 2410 using a code that identifies the item as new and "0" hours as item usage.

Who fills it out?

The person or unit actually handling the item prepares a 2410. Usage time, in hours, is entered on the form with codes that explain the reason for actions taken on the item at that time.

When is the need for the 2410 over?

The need for the 2410 is over only when the NMP receives the final 2410 reporting the item has been disposed of in such a manner it no longer is in the Army inventory.

What happens to the completed 2410s?

The NMP at AVSCOM receives the 2410s; enters the information into a database; and maintains the computerized data for research.

How much time do I have to submit a completed 2410 to the NMP?

Ideally, we would like to have them mailed to the NMP at least weekly or, better yet, immediately after the action. Even though the quantity mailed is small, the data are important. In any event, don't save 2410s until there is a large package to mail.

What publications govern use of the 2410?

Policies and procedures for use of 2410s are contained in three principal publications: These publications are DA Pamphlet 738-751, *Functional Users Manual for The Army Maintenance Management System–Aviation* (TAMMS-A); Technical Manual 1-1500-328-25, *Aeronautical Equipment Maintenance Management Policies and Procedures;* and Technical Bulletin 1-1500-341-01, *Aircraft Components Requiring Maintenance Management and Historical Data.*

What is the 2410 HOTLINE?

The HOTLINE is an office at the NMP that was established about 5 years ago primarily to obtain information and data on 2410 reportable components. Essentially, when you receive a replacement component without appropriate records, or if you have a component and the records have been lost, the 2410 HOTLINE may be your best friend.

By calling or writing the HOTLINE, one to three things are likely to happen. By researching computer data, or in some cases going back to the manufacturer or the last repair/overhaul facility, current data for the component can be established.

When this fails, usually because someone did not submit a timely and appropriate 2410, the HOTLINE personnel calculate time on the component using a formula with a liberal built-in safety factor. You are then advised on whether to continue use of the item, return the item for repair or overhaul, or if the item should be condemned.

We Have Come Full Circle and Are Home Again

Colonel William F. Dismukes
Director, U.S. Army Aeronautical Services Agency
Cameron Station, VA

THE U.S. ARMY Aeronautical Services Office (USAASO), Cameron Station, VA, recently underwent a realignment and was designated the U.S. Army Aeronautical Services Agency (USAASA). USAASO was established in 1967 as a Class II activity of the Assistant Chief of Staff for Force Development (ACSFOR). When the ACSFOR dissolved in 1973, the functions were transferred to the U.S. Army Information Systems Command, Fort Huachuca, AZ. Eventually the office moved to Fort Rucker, AL, as a subelement of the U.S. Army Training and Doctrine Command, Fort Monroe, VA. History sometimes repeats itself. In the case of our organization, we have been designated a field operating agency under the Department of the Army (DA) staff once again and assigned to the Deputy Chief of Staff for Operations and Plans (DCSOPS)(see figure).

Throughout the years, our agency has been located at Cameron Station. Our primary mission is to represent DA as the executive agent and representative regarding airspace, air traffic control procedures, and aeronautical information. We also represent the Army on interdepartmental groups dealing with national and international aviation matters. We act as the Army interface with the Federal Aviation Administration (FAA), and provide DA regional representatives (DARRs) to each FAA regional headquarters. The U.S. Army Aeronautical Services Detachment (USAASDE), Heidelberg, Germany, serves the European, Middle East, and African regions.

The agency is office of primary responsibility for–

- Executive agent for airspace matters.
- Executive agent for aeronautical information and notices to airmen.
- DA staff and action officer for FAA matters.
- Army working group member to the Policy Board for Federal Aviation.
- Army secretariat for Interagency Group on International Aviation.
- Representation of DCSOPS on groups and committees.
- DA action for joint use of Army airfields.
- DA point of contact on noise abatement and the Fly Neighborly Programs.
- Executive agent on violations of flying regulations.
- Executive agent on terminal instrument procedures.
- DA point of contact on aviation weather support.
- Army representative to the National Airspace Program Office located in the FAA headquarters, Washington, DC.

Also, the agency is responsible for ensuring flight instrument publications (FLIPs) distribution.

USAASDE performs this mission for Europe, North Africa, and the Middle East. The Aeronautical Information Division at Cameron Station serves the rest of the world locations that use FLIP products.

We are actively involved with groups and committees serving the aviation community at large. The daily operation of restricted airspace in support of the Army training mission remains under scrutiny of the general accounting office. The DARR office in your area can assist in obtaining suitable areas to fire weapons, lasers, and other devices as well as aviation-related matters. Our goal is to continue to provide the best possible representation. The Agency has enjoyed the continued outstanding reputation of support to Army Aviation; we will strive to ensure continuity in the years that lie ahead.

Use the following information to contact USAASA and its major offices:

Headquarters (MOAS-ZA)
Commercial: 703-274-7750/4020;
DSN: 284-7750/4020

Resource/Administration Office (MOAS-RA)
Commercial: 703-274-7794/7930;
DSN: 284-7794/7930

Airspace Support Division (MOAS-AS)
Commercial: 703-274-7796/7797;
DSN: 274-7794/7797

Aeronautical Information Division (MOAS-AI)
Commercial: 703-274-7773/7984/7961;
DSN: 284-7773/7984/7961

New England Eastern Region (MA) (MOAS-AS-EA)
Commercial: 617-270-2462; DSN: 478-4447

Southern Region (GA) (MOAS-AS-SO)
Commercial: 404-763-7245; DSN: 797-5481

Central/Great Lakes Region (MO) (MOAS-AS-CE)
Commercial: 816-426-5576; FTS: 867-5576

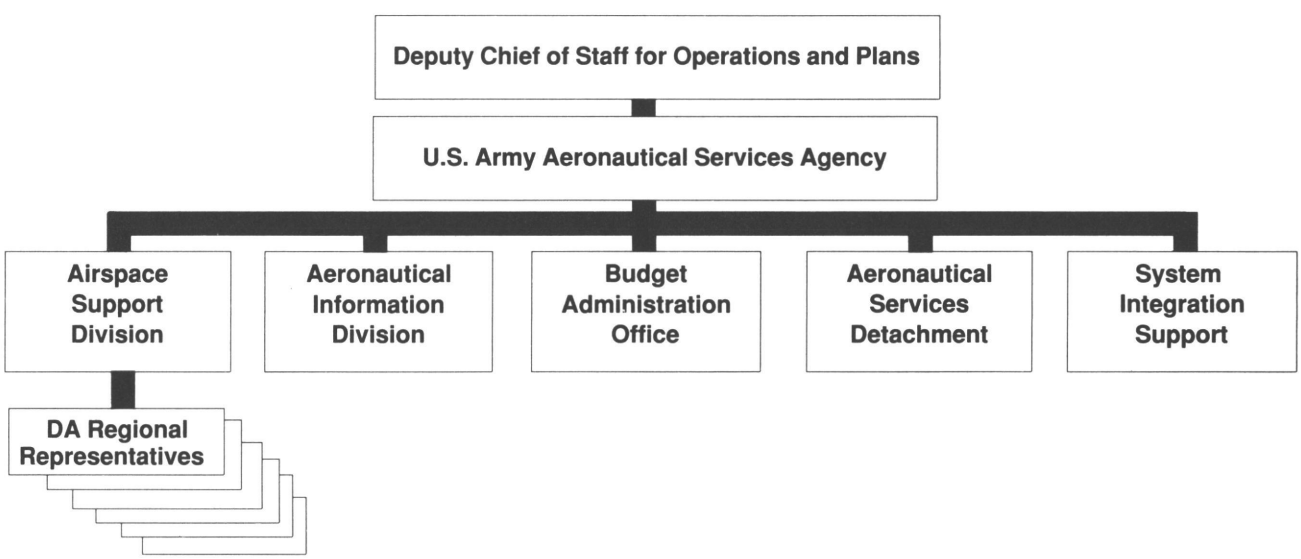
Southwest Region (TX) (MOAS-AS-SW)
Commercial: 624-5902; DSN: 739-5902/5907/5908

Western-Pacific Region (CA) (MOAS-AS-WE)
Commercial: 213-297-1163; DSN: 833-1250

Northwest Mountain Region/Alaska
(WA) (MOAS-AS-NW)
Commercial: 206-227-2952/2955; DSN: 357-6129

Alaska Region
(AK) (MOAS-AS-NW-A)
Commercial: 907-271-5366; DSN: 317-864-0121

USAASDE (MOAS-AD)
DSN: 370-8079/6426/6489



USAASA invites your questions and comments and may be contacted at DSN 284-7773.

"Rapid reload" operations are an important part of sustaining our cavalry operations. In the Quickstrike Troop, 4-2d Armored Cavalry Regiment, Germany, we have used the techniques described in this article on numerous field training exercises to include a demonstration for the Committee on the Disarmament of Europe, during Return of Forces to Germany 1990. We also have integrated the "Fat Hawk" refueling techniques into our "Flexible Corps" concept mandated by Lieutenant General Frederick M. Franks, Commander, VII Corps. The techniques and training described in this article could be used in other aviation units with similar missions.

Rapid Reload Operations

Captain John Magness
Quickstrike Troop
4-2d Armored Cavalry Regiment
APO New York

The Situation: A U.S. cavalry regiment has punched through a stubborn but tired enemy defense. To exploit this success, the regimental aviation squadron commander launches his two attack troops deep along the axis of advance. The sharp supply officer, noting the distance involved, recognizes the potential for overextended supply lines. "By the time the 14 AH-1F gunships occupy the distant battle positions and engage the targets, they will need fuel," he warns the S3 (squadron operations officer). "After the engagement, they may not have enough to even return to the forward arming and refueling point (FARP). Worse yet, to reengage and exploit the success of the attack will require more fuel, more ammunition, and more time!"

The Problem: When opportunities arise such as the above deep attack, an aviation unit may find itself overextended, and unable to support the attack. Fuel and ammunition must be available and within supporting distance of the engagement. Recently, units have be-

come dependent on ground delivered Class II and V fuel. This support takes hours to employ and cannot react as quickly as aerial-delivered supplies. No matter how good these vehicles are, the "need for speed" still exists. Fuel and bullets must be available within minutes to sustain the battle.

The Solution: To solve the problem of overextended supply lines, the 4th Squadron, 2d Armored Cavalry Regiment, developed a unique rapid reload operation. When the squadron commander commits an attack troop, he attaches a UH-60 Black Hawk to it, which accompanies the troop on the attack. The UH-60 brings additional ammunition and armament technicians closer to the engagement. This unique addition allows the AH-1 gunships to remain on station up to three times longer.

A rapid reload UH-60 brings one pallet (up to 16 missiles) of TOW missiles on the mission. Most utility pilots prefer hauling the load externally. This is due to the volatility of the ammunition. This also frees the UH-60 to carry the reload personnel. This team of armament technicians speeds up the reload operations and turns the aircraft around quickly.

The execution of the rapid reload is surprisingly simple. Although the UH-60 accompanies the attack troop on the mission, he remains 3 to 5 kilometers behind the battle positions. By following the battle on the radios and maps, the UH-60 pilots know when to begin the reload sequence. The pilots set the load down, and the reload team springs into action. A well-rehearsed team can set up "drive-thru" rapid reload pads in under 7 minutes. While the team prepares the pads, the UH-60 provides overwatch and continues to monitor the battle. During the arming sequence, front-seat pilots assist the loaders and visually clear the aircraft before take off. Once all aircraft are rearmed, the team collects the cargo nets and boards the aircraft.

The team consists of three armament technicians (68J) and one ammunition specialist (55B). With four soldiers loading and refueling "hot" aircraft, safety is paramount and the teamchief must be a responsible noncommissioned officer. He coordinates rigging loads, hookups, and traffic in and around the operation. Preparation and training start months before the actual mission with classes on rigging, slingloading, and setting up. Face-to-face coordination with the UH-60 pilots and crewchiefs also is crucial in training. Finally, rehearsals with all players ensure a smooth operation. This type of training is fast paced and a real motivator for team members as they try and beat the previous record for total set-up time.

Pilots will find this type of training demanding as well. It requires thorough pre-mission planning, and detailed execution. It also requires a standard operating procedure during the hookup, insertion, and extraction phases. Regular practices can take minutes off the timing, which is invaluable in the heat of battle.

The fielding of the external stores support system and the extended range fuel system for the UH-60 adds another dimension to the operation. The external fuel pods provide 400 gallons of JP-8 to critical aircraft. With some refueling equipment and two refuelers, the rapid reload UH-60 becomes a mobile FARP. This self-contained forward arming and refueling point capability provides endless possibilities for logistical support.

By attaching a rapid reload UH-60 to the attack troop, the aerially emplaced FARP greatly increases AH-1 station time. It allows attack troops to remain engaged two to three times longer without having to return to rear FARPs. It can be put in within minutes, pulled out just as fast, and can reach FARP sites impassable to wheeled vehicles. Most importantly, a rapid reload team can sustain battles that ordinarily would be lost because of overextended supply lines.

Let's Get Serious About Attack Helicopter Gunnery

Lieutenant Colonel Gerald D. Saltness
Commander
4–229th Advanced Attack Helicopter Regiment
"Flying Tigers"
11th Aviation Brigade
VII Corps
APO New York

LTC Saltness is currently Deputy Brigade Commander of the 11th Aviation Brigade stationed in Saudi Arabia.

The opinions expressed in this article are those of the author and do not necessarily reflect the views of any Department of Defense agency.

*Editor's Note: FM 1-140 is being revised and will be published as TC 1-140, available this summer.

THERE SHOULD BE no disagreement that the armor community has the best gunnery program of any of the branches in the Army. Why is it that the Aviation Branch fails to follow the successful lead of the Armor Branch and really get serious about the "meat and potatoes," meaning the attack assets of our branch? Each year the Aviation Branch continues to increase significantly the overall combat power of the Army by fielding more AH-64 Apache battalions in both the Active and National Guard components. The combat capability of the Apache far exceeds that of the M-1 Abrams tank, the M-2 and M-3 Bradley vehicles, or any of the other new systems currently being fielded. However, we fail to develop the gunnery training that maximizes the capabilities of the Apache.

Field Manual (FM) 1-140, *Helicopter Gunnery*, is a poor manual at best, to be honest, it stinks! Let's throw it away and start over with a new approach to attack gunnery. I know, FM 1-140 is being revised and the next latest and greatest edition will be out soon.* We've seen too many editions of this outdated manual turn out to be a lift of the old AH-1 gunnery tables with a name change and a few paragraphs added on laser engagements.

All too often we are quick to complain and slow with solutions. Here are a few ideas that warrant some thought.

- Form a real gunnery directorate at Fort Rucker, AL, with the "best–most qualified" attack officers, from colonel to chief warrant officer (CW2), in our branch. Give them the mission and the resources that will allow numerous trips to the field to see the real world resources units that are working with other units to include ranges and actual ammunition allocations; the missions for various units; i.e., corps units versus divisional units versus cavalry units and how a gunnery program can best meet their needs; other branch gunnery programs; and industry's solutions in both hardware and training programs to help us attain our training goals.
- The gunnery directorate should determine what the live-fire requirements are to maintain proficiency in the weapon's system and then fight for these assets at the U.S. Army Training and Doctrine Command, Fort Monroe, VA, and Headquarters, Department of the Army, Washington, DC. It's difficult to get expensive munitions if we really don't know what our training requirements are. If the answer is for one crew a year to

fire a HELLFIRE missile, then let's justify it to the right people and get them! If the answer is we don't need more, let's tell the field why not. The argument that says missiles are too expensive to fire is not a logical argument when you compare the cost of annual gunnery programs for the Army. The cost of training ammunition for both armor and artillery are considerably higher than aviation. Let's not forget the type rockets we are allocated. What you request is rarely what shows up on the range. Many times your aircraft is not equipped with the fire control solution for some of the older rockets. Needless to say, the training benefit is minimal.

• Let's stop focusing on Table VIII, Individual Crew Qualification, as the cornerstone of our gunnery program. Our focus should be on collective gunnery. With today's technology in the AH-64 Apache, the marksmanship skills required in earlier aerial platforms have been reduced significantly. Maintenance of the fire control and boresighting procedures of the aircraft have become more important than ever before. We can be totally confident that our crews can put a missile in the first vehicle of an enemy regiment cresting a hill, but I doubt if we can be sure that the first vehicle won't have five missiles in it when it crests the hill. So the real question becomes, ''How confident are we that platoon leaders and company commanders can control distribution of fires, fire discipline, maneuver sections, platoons, and companies to get the most kills with his ammunition?'' Crew gunnery is important but it appears to be the finale of too many gunnery programs. Only if and when we have any resources left do we proceed on to Tables IX through XII, Collective Gunnery.

• Our AH-64 Combat Mission Simulator (CMS) is the finest training device attack aviation has ever had. For individual pilot and individual crew training, AH-64 CMS training can't be beat! To have ranges, scoring devices, and enough ammunition to live-fire all the gunnery tables to verify our CMS training is ideal, but everyone knows this is not possible. So what is the next best solution to maximize training with limited resources? Use the CMSs through Tables VIII, the remainder of our limited ammunition for Tables IX through XII, and combined arms live-fire exercises (advanced gunnery).

• Establish a gunnery course at Fort Rucker to provide every attack unit in the Army with a trained gunnery officer; warrant or commissioned. Another possibility is to start a gunnery tracking for our warrants much the same as the instructor pilot, maintenance, or safety tracks. Each attack unit would be authorized a ''master'' gunnery officer, the same as a master gunner is to armor or Bradley units.

• Establish a gunnery training team that will be available to field units in order to assess individual post or major Army command resources and provide recommendations for maximum gunnery training.

• Make gunnery programs and aviator knowledge of the weapons system a major portion of the Directorate of Evaluation and Standardization, Fort Rucker, inspections of attack units.

• Change our focus from looking for ranges that accommodate one aircraft to looking for ranges that allow a company, at a minimum, to fire and maneuver. We don't need ranges that accommodate only single aircraft.

I apologize to those officers who are working hard at putting the new FM 1-140 together and building a gunnery program, but we will never get there from here unless the entire attack community and our branch get behind changing our gunnery focus and start supporting it with the required resources. Let's make our aviation gunnery directorate the most sought after positions at Fort Rucker by every officer who has flown an attack helicopter.

The attack community has a super individual training device in the CMS. The next step is a training device that will satisfy our collective training requirements. Aviation application to simulator networking will give us this much needed capability, I hope, in the near future. The dollars we're ''saving'' by not being allowed to shoot missiles should certainly offset the cost of this critical training device.

Let's get serious about putting together a gunnery program for the most lethal weapons system in the Army today!

The U.S. Army Test and Evaluation Command (TECOM) is proud to announce the birth of a new test center.

Name: U.S. Army Aviation Technical Test Center
Date of Birth: 1 October 1990
Weight: 312 military and civilian personnel
Length: From Alabama to California
Parents: U.S. Army Aviation Development Test Activity and U.S. Army Aviation Engineering Flight Activity

A STAR IS BORN

Mr. Charlie Block
Operations Research Analyst
U.S. Army Aviation Technical Test Center
Fort Rucker, AL

ON 1 OCTOBER 1990 the U.S. Army Aviation Technical Test Center (ATTC) was established within TECOM. This new organization is the result of Defense Management Review Decision 936, which addressed ways to streamline testing.

ATTC consists of personnel from the old U.S. Army Aviation Development Test Activity (USAAVNDTA), Fort Rucker, AL, and the U.S. Army Aviation Engineering Flight Activity (AEFA), Edwards Air Force Base (AFB), CA. The USAAVNDTA was a subordinate activity of TECOM, and AEFA was a subordinate test center that belonged to the U.S. Army Aviation Systems Command, St. Louis, MO.

Headquarters for the new test centers is located at the home of Army Aviation, Fort Rucker. ATTC maintains a test directorate at Edwards AFB, which was the home of AEFA.

The mission of ATTC is to–

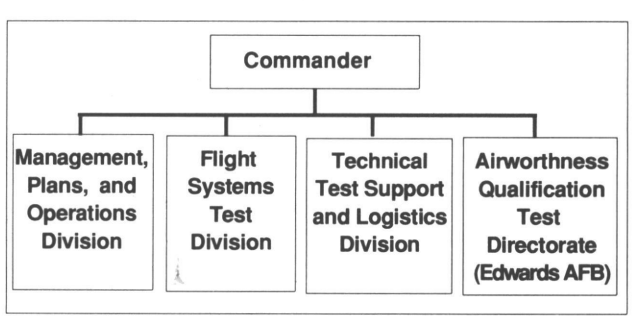
- Plan, conduct, analyze, and report results of tests on aviation systems to include all installed subsystems and related aviation support equipment.
- Conduct airworthiness qualification flight tests on air vehicles developed and/or procured as integrated systems, and airworthiness evaluation on those vehicles proposed or considered for Army application of incorporating advanced concepts that have potential military application.
- Plan, conduct, and report test results on aviation systems and aviation-related support equipment for non-Army government agencies and private industry.
- Plan, manage, and execute assigned test operations in support of research, exploratory, and advanced development programs of aviation research and technology activity and foreign materiel exploitation.
- Conduct an Army test pilot orientation course preparatory for attendance at the Naval Test Pilot School, Patuxent River, MD.

Colonel Troy Burrow is the commander of the new unit, which has a combined military and civilian strength of 312 personnel. The organization, as depicted below right, is supported by contractors who provide aircraft maintenance; automatic data processing; reliability, availability, and maintainability (RAM) data; human factors engineering; and other related support.

This reorganization has resulted in a single test center that is staffed and equipped to test Army aircraft from first flight to retirement. Under the previous organization, testing of a new aircraft or major aircraft modification was sequential or as it is commonly called "heel-to-toe'' testing. Testing normally began with the preliminary airworthiness evaluation (PAE), which was conducted by one of the experimental test pilots from AEFA. This testing focused on flight handling characteristics and safety-of-flight issues. The PAE was followed by a production qualification test (PQT), which was conducted by USAAVNDTA. The PQT addressed systems integration, human factors, safety, logistics, and RAM data.

With the new organization all issues will be addressed from first flight on. The initial emphasis will certainly be on flight handling qualities and safety. However, ATTC also will have subject matter experts present to provide preliminary assessments of systems integration, Manpower and Personnel Integration, and other areas that were not normally looked at until after the completion of the PAE. The only major aircraft subsystem that ATTC will not test directly is armament and avionics. Those two areas remain within the purview of other TECOM test centers.

The new organization, which the Department of Defense conceived, Department of the Army sanctioned, and the U.S. Army Materiel Command, Alexandria, VA, gave birth to, is already making a positive impact on Army Aviation readiness. The plans for future testing of the light helicopter will take full advantage of the integrated organization as will other ongoing tests such as the Armed OH-58D Kiowa Warrior. The Army ATTC is ready to take its place with the other TECOM test centers in upholding the motto of ''Test for the Best'' and the U.S. Army Aviation Center motto of ''Above the Best.'' The new objective of ATTC is to combine these two mottos and ''Test Above the Best.''



Structure of the Aviation Technical Test Center

COMBAT TRAINING CENTER CORNER

from the National Training Center, Fort Irwin, California

This article begins regular coverage from the Combat Training Centers (National Training Center, Joint Readiness Training Center, and the Combat Maneuver Training Center).

Delta Models at the National Training Center

Lieutenant Colonel(P) Thomas M. Hayes, Senior Aviation Combat Trainer
Captain Grant A. Webb, Attack Helicopter Company Trainer

A Company Operations Group (Eagles)
Fort Irwin, CA

DO YOU WANT to improve your chances of defeating the opposing forces at the National Training Center (NTC), Fort Irwin, CA? The target acquisition and reconnaissance platoon (TARP), with its OH-58D Kiowas properly employed, can greatly influence your chances. Our ground task force commanders recognize the aircraft has tremendous potential. Yet, at the NTC we continue to see limitations that prevent this valuable asset from achieving its full potential and impact on the battlefield.

In this article, we will present trends that occur at the NTC in several of the battlefield operating systems. Also, we will offer recommendations that can assist commanders in employing the OH-58D to its maximum potential.

Command and Control (C^2)

Observation. While at the NTC, units have explored numerous C^2 relationships with the TARP. The TARP was controlled by the aviation task force, division artillery (DIVARTY), the brigade S2 shop; it was then under operational control of other units on either a continuous or mission-to-mission basis. Normally, the relationship is not well-defined; typically, it changes during the rotation.

Recommendation. Assign the TARP to the aviation task force. The aviation liaison officer should keep the brigade commander informed of the limitations and capabilities of available aviation assets to include the TARP. The brigade should issue its aviation reconnaissance (recon) and surveillance missions directly to the aviation task force. The aviation task force commander should decide when and how to use the TARP for each mission. This relationship would help to prevent confusion. Commanders should practice this relationship at home station before they try it at the NTC.

Maneuver

Observation. Commanders employ OH-58Ds; however, they don't provide security for them. This often subjects them to unnecessary loss. Time after

time solo aircraft are killed at the NTC, while commanders think they have lost only communications and not aircraft.

Recommendation. Do not send OH-58Ds on single aircraft missions when enemy activity is likely or expected. Send OH-58Ds in pairs so they can provide mutual security. When possible, augment OH-58Ds with OH-58Cs to provide security.

Observation. TARPs have large areas to reconnoiter early in the morning with an inadequate amount of time to accomplish the mission. Usually, the result is a hasty and incomplete zone recon.

Recommendation. Do not overtask the TARP. In the offense, before the ground task force attack, send the OH-58Ds forward in the brigade sector to conduct a thorough route recon of the ground task force assault route/axis. Then conduct an area recon of templated enemy positions. The maneuver corridors (brigade sectors) at the NTC average about 200 square kilometers in size. The TARP cannot conduct a thorough zone recon in an area that size in the time usually available. Also, tell the TARP crews when they will switch their focus from the recon and surveillance plan to implement the fire support plan. During daylight operations, hand over the recon and surveillance mission to OH-58Cs so OH-58Ds can concentrate on fire support. Concentrate on issuing specific tasks instead of a multitude of implied tasks.

In the defense, the TARP should be considered for the counterrecon role in the close in area. The guidance for the TARP should be clear. Should the OH-58Ds report and bypass the division/regimental recon but engage the lead elements of the advance guard or forward detachment with Copperhead missiles? Or, is the division/regimental recon important enough on which to use Copperhead? Decide during the planning phase.

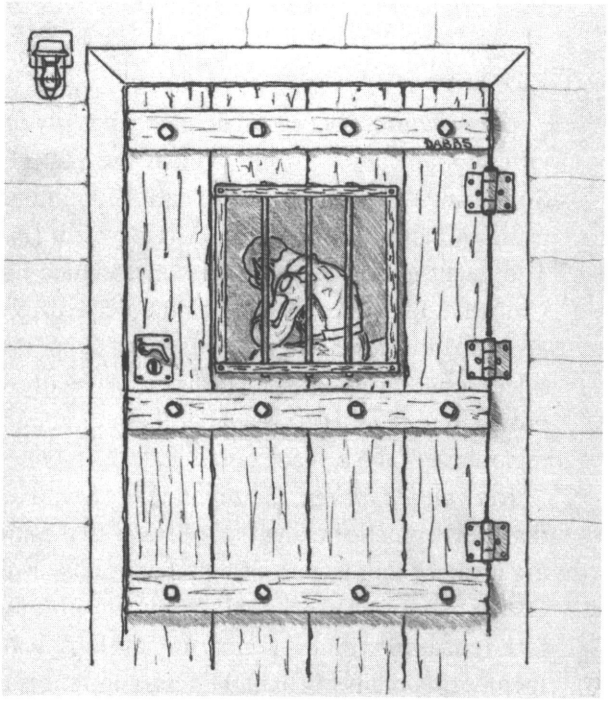
Fire Support

Observation. Successful units rely heavily on digital communications to the tactical fire (TACFIRE). Some units do not establish early communication using the airborne target handover system (ATHS). The result is the unit has to resort to voice backup. Units that use voice do not communicate effectively because of poor coordination with the supporting artillery unit. In addition, fire priority usually is not provided to the OH-58Ds under these circumstances regardless of the brigade commander's intent.

Recommendation. Commanders should ensure that crews practice using the ATHS with the supporting artillery unit as part of a prebattle rehearsal. The OH-58D crews also should participate in a face-to-face rehearsal with the supporting artillery battalion. Include all details of flight, targets, control measures, named areas of interest, decision points, and alternative courses of action. Participation in rehearsals is a C^2 issue. The issue should be coordinated and scheduled so there is no conflict with crew endurance for typical early morning missions. The TARP should be included in DIVARTY TACFIRE training exercises at home station to work the interface between the units and equipment. When OH-58Cs augment or relieve OH-58Ds, the aviation portion of the fire support plan switches back to voice. Units must plan and practice switching gears ac cordingly.

The events that led to these observations occur repeatedly to units training at the NTC. Observations and recommendations are offered so all units may learn from others' experiences. Units that emphasize and habitually practice these principles during home station training will help to free the TARP from unnecessary administrative burden. This freedom will allow for concentration on OH-58D employment to its full potential.

For more information contact the Eagle Team at DSN 470-4420 or write: Commander, Operations Group, ATTN: Eagle Team, National Training Center, Fort Irwin, CA 92310



illustrations by 2LT Willis N. Dabbs

Prisoner Of War in Iraq

Second Lieutenant Robert J. Hodgman
CH-47 Chinook Aviator Qualification Course
Fort Rucker, AL

BECAUSE Operation Desert Shield has been a common topic of discussion throughout the military in recent months, many concerns have surfaced.

Nearly every soldier who has considered the possibility of being captured in wartime has had some anxiety about his welfare during his imprisonment. Aviators may feel they have a higher than average chance of being taken prisoner. Army aviators regularly fly over hostile, enemy territory and often have only a 9-mm pistol to protect themselves.

If shot down, sometimes little stands between their rescue and capture, and the likelihood of being taken prisoner drastically increases. If captured, what can the downed pilot expect? What are his chances of survival? What are his rights? What does his government expect of him?

A common human tendency is to question and fear the unknown. However, if the soldier knows what to expect, he can mentally prepare himself for what eventually may come. For this reason, it is important soldiers know the answers to these questions, at least as best they can.

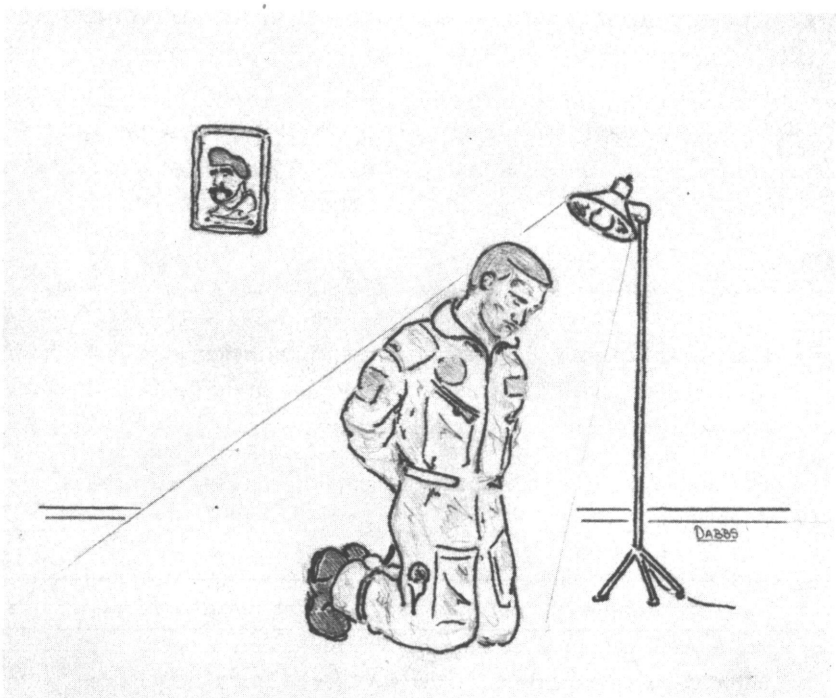
What does the average soldier know about Iraq? Before 2 August 1990, most soldiers didn't know much and probably didn't really care. Now all of a sudden, it's a different situation. As military professionals, we want to be informed on every-

thing that might be pertinent to our country's situation, our jobs, and our lives. Unfortunately, there is not much to know.

The Baath party, now in power and led by Saddam Hussein, overthrew the established government of Abdel Kerim Kassem on February 8, 1963.[1] Since then, we have been aware of Iraq's war with Iran. We have heard the news about the Iraqi government's use of chemical weapons on its own people. There has been little else to bring this small country to our attention. We don't really know what to expect.

The best way to gain an understanding of how Iraq treats prisoners is to examine this country's actions with regards to human rights and treatment of prisoners in the past. The most recent data available are on the actual invasion of Kuwait by Iraqi soldiers.

Some of the allegations of human rights violations are unverifiable and the sources of others are withheld for the individuals' protection. Amnesty International has released general information on arbitrary arrests,[2] torture, rape, unjust imprisonment, murder, and execution without a trial.[3] In a release of 3 October 1990, their fact-finding team stated, "Some (detainees) have been given electric shocks or suffered prolonged beatings to sensitive parts of their bodies. Others have had their limbs broken, their hair plucked out



with pincers, their finger and toenails pulled out, and were threatened with sexual assault or execution."[4] Another alleged report cited two children, ages 13 and 16, arrested in the Sulaimaniya province of Iraq, who in 1987 "...suffered falaga (beatings on the soles of the feet), beatings with metal cables while naked and suspended by the wrists from the ceiling, burnings with cigarettes, extraction of their fingernails, and electric shocks."[5] This is an alleged incident, but it now draws a grim picture of the recurring violence against unarmed citizens in both Kuwait and Iraq.

The Iran-Iraq war provides a more relevant example of how the Iraqis treat military prisoners. The United Nations Security Council dispatched a team in 1985 to investigate the alleged violations of human rights by both Iran and Iraq. The team generally concluded the severity of the situation had been unduly magnified. However, their report stated "excessive force" by guards, beatings, electric shocks, assault on sexual organs, and kicks on wounds were common.

Still other problems were the quality of food, restrictions on water, medical attention, rarity of mail, and inferior hygiene conditions. By far, the most often voiced concerns of the prisoners were boredom, inactivity, and feelings of isolation from the outside world.[6]

As American soldiers, we take risks; that is what we are payed for doing and that includes the possibility of being captured. But with those risks come rights.

Geneva Convention

The Geneva Convention Relative to the Treatment of Prisoners of War, 12 August 1949, clearly defines those rights. The Convention has 126 articles, too much information to dissect here. However, several articles are especially pertinent and deserve examination. As a prisoner of war, every soldier is entitled to the rights listed below.

- Humane treatment with respect to physical mutilation, exemption from medical or scientific experiments, and protection from acts of violence and intimidation. (article 13)
- Questioning by captors without physical or mental torture or coercion of any kind. (article 17)
- Retention of personal property to include personal articles, clothing, protective equipment, and money or receipt. Articles which compromise security may be taken and safeguarded by the detaining authorities, but must be accounted for as well. (article 18)
- Quarters as favorable as those of the detaining authority with protection from dampness and adequate provision of heat and lighting. (article 25)
- Food in quantity and quality sufficient to maintain good health and prevent malnutrition and weight loss. Prisoners who work must be supplied with additional rations to compensate for the nutritional demands of the labor. (article 26)
- Clothing, underwear, and footwear with allowances for climate and working conditions. (article 27)
- Personal hygiene facilities to include toilet facilities accessible day and night, baths or showers, and adequate supplies of water and soap. (article 29)
- Adequate medical attention as the prisoners' needs require. (article 30)
- Religious freedom to practice religious duties and attend services of their faith. (article 34)
- Opportunities for intellectual and recreational activities and physical exercise including sports and games. (article 38)
- Protection from dangerous, unhealthy, or humiliating labor. (article 52)
- Opportunities to receive mail and send a minimum of two letters and four cards monthly. (article 71)[7]

In past military conflicts, the detaining authorities have seldom met all of these requirements. Hopefully, by knowing his rights, a soldier can prevent exploitation of those rights.

Regardless whether the detaining authority complies with the provisions of the Geneva Convention, as soldiers in the U.S. military, we are compelled to follow guidelines set forth in the Code of Conduct. Although the Code of Conduct is essentially a moral code, virtually every aspect contained within the code is enforceable under the Uniform Code of Military Justice.

The Code of Conduct consists of six articles with which all service members should know. Each article is of great importance and prescribes precisely the behavior expected of every soldier. Again, the Code of Conduct is too broad a subject to cover completely here, but one area must be addressed. Article V, which governs questioning of prisoners, states —

"When questioned, should I become a prisoner of war, I am required to give name, rank, service number, and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause."

This is a critical article, because it addresses the seriousness of divulging sensitive informa-

tion that could compromise the success of an operation and cost many lives. This point cannot be overemphasized.

However, article V sends another very important message as well. After the Korean conflict, when the Code of Conduct was initially adopted, the first sentence of article V read, "When questioned, should I become a prisoner of war, I am bound to give only name, rank, service number, and date of birth."

The code was considered by a committee which met after the Vietnam war to determine what changes, if any, needed to be made. The word "**bound**" was changed to "**required,**" and the word "**only**" was deleted. These were the only changes to the entire document.[8]

What is the significance of these two changes? The code sounds the same, but is it?

No. Each soldier has a different ability to resist the enemy. Only when in his darkest hour will he know that limit. The intent behind the change was to allow prisoners to give more information than name, rank, service number, and date of birth without losing their honor.

Is it okay to tell all when the torture is too much to bear?

No. The last sentence of article V says, "I will make no oral or written statements disloyal to my country and its allies or harmful to their cause." This clearly confirms American PWs are not at liberty to reveal any classified or sensitive information or make confessions under any circumstances. Even though this may sound like double talk, there is a gray area.

What information can a PW reveal?

During Vietnam, American soldiers were faced with this moral dilemma. Some found they could give false and worthless information to their interrogators without compromising their integrity and conscience. That is precisely what this change to the Code of Conduct was designed to permit.

Regardless of how the individual soldier comes to grips with this burden, one point must be clear: to aid the enemy is a crime punishable by death.[9]

To the captor, a living PW is a source of crucial information, a menial laborer. A dead PW is someone for whom the enemy will be accountable after the war has ended.

War is a violent and ugly business, but it is our business. Captivity is a frightening thought and no amount of knowledge will dispel that fear. Perhaps by knowing what to expect, we can prepare ourselves.

A soldier's duty is to resist the enemy "...to the utmost of his ability." A soldier who gives in to his captors has lost his dignity and possibly his value to the enemy. The soldier who fulfills his duty and continues to resist the enemy will retain his honor, self-respect, and the only reason the enemy has to keep him alive. He will experience the price of freedom and know this perseverance was worth it.

ENDNOTES

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6. "Prisoners of War in Iran and Iraq--When Will the War Finally End?" *The UN Chronicle*, No. 2, 1985, pp. 3-5, 41-43.
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Survival, Evasion, Resistance, and Escape—Are We Ready?

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On 2 November 1969, the day started like most others.

After mission briefing and preflight, Chief Warrant Officer (CW3) James Nowicki lit the fire and pulled pitch. Within minutes, another aircraft from CW3 Nowicki's flight began taking small arms fire and proceeded to a precautionary landing site.

CW3 Nowicki followed to pick up the pilot and his observer. Unknown at the time, the landing zone was the site of a North Vietnamese regimental headquarters and both aircraft were downed by 50-caliber fire from a nearby treeline.

The four on the ground were soon joined by two AH-1 Cobra crewmen when their aircraft was lost during a rescue attempt. CW3 Nowicki successfully evaded the enemy for 2 days by hiding in tall grass. However, he was captured by a band of guerrillas when crossing a hill in open terrain.

He spent the next 6 months in Cambodia, caged in a bamboo hooch with his legs confined in stocks each night. Despite debilitation from malaria and starvation, he was marched for 2 months along the Ho Chi Minh Trail to a prison camp outside Hanoi. Here he would spend the next 3 years in a 10-foot by 14-foot room with three other prisoners of war (PWs).

After release, CW3 Nowicki emphasized the importance of prisoner organization and communication to help resistance. He recommended persons faced with the possibility of becoming a prisoner should have realistic training of what to expect.This is a true story taken from the technical video tapes.[1]

Survival Skills

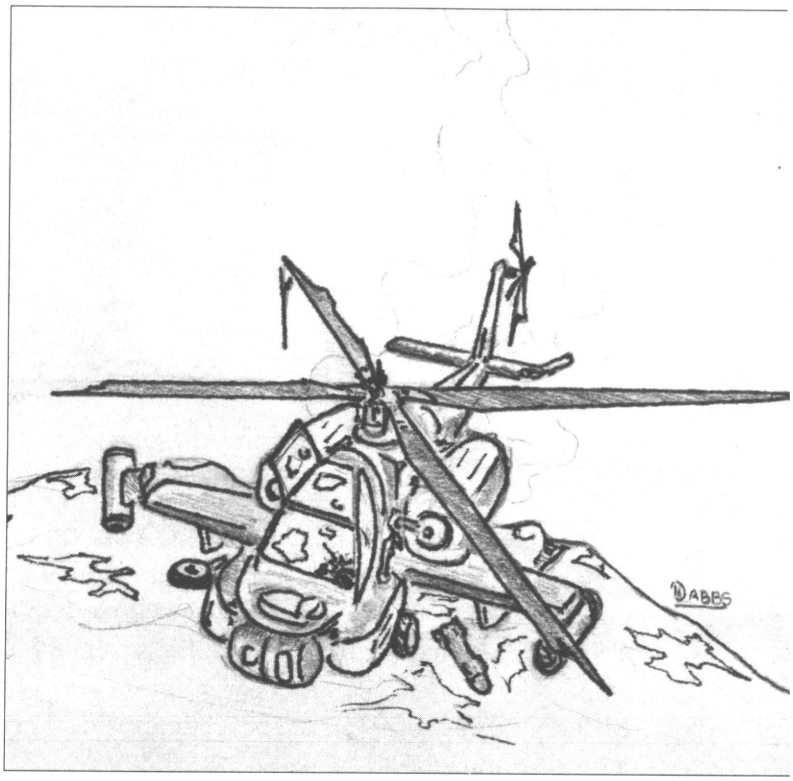
Whether in peacetime or war, Army aircraft overfly desolate and often hostile terrain. In the event of a mishap, each aviator must have practical knowledge of survival skills to remain alive and facilitate rescue. He must understand the environment, personal protection, and how to gather food and water. He should know how to build a fire, improvise a shelter, and signal rescue personnel.

In wartime, he may be required to use camouflage and travel techniques to evade an

enemy while proceeding to a safe rescue site. Upon arrival at the rescue site, he must understand the contact and recovery procedures.

During Vietnam, downed airmen who didn't know how to use a hoist caused the loss of rescue aircraft and personnel.

There is no way to predict who might be alive or who might perish in a forced landing. Every crewmember should receive survival skills training to facilitate personal survival and assist other injured crewmembers.



Comparison of Training

The U.S. Army, Air Force, and Navy have programs to train aircrews on essential elements of survival, evasion, resistance, and escape (SERE). These are coordinated at the executive level to ensure compatibility among the services. However, each service determines the amount of training given to each selected aircrew.

The U.S. Air Force provides 170 hours of SERE training at the Combat Survival School, Fairchild Air Force Base, WA. Every crewmember from C-5 loadmasters to F-16 pilots must complete 17 days of instruction, usually early in their career. The course includes 5 1/2 days of survival academics, 6 1/2 days of field training, and resistance training. Most airmen will also receive separate instruction in water survival.[2]

The U.S. Navy operates the Land Survival School, Pensacola, FL, for all Navy and Marine pilots, enlisted aircrews, and flight surgeons. The course includes 4 days of survival academics, followed by a 3-day field training exercise. PW orientation and resistance training is provided at SERE schools in Brunswick, ME, and Coronado, CA.[3]

U.S. Army pilot candidates receive 24 hours of classroom instruction in survival skills mixed with the aviation academics during their Initial Entry Rotary Wing (IERW) training. Enlisted crewmembers receive only 3 hours' instruction in use of the survival vest during their initial training. Selected Army aircrews attend the U.S. Army SERE school at the U.S. Army John F. Kennedy Special Warfare Center and School (USAJFKSWCS), Fort Bragg, NC, for a 19-day course that includes basic survival skills, evasion, and resistance training.[4]

Overview of Army Training

At first glance, the Army appears sorely deficient in the survival training provided to most airmen. However, many skills that need to be taught to Air Force and Navy personnel are common soldier tasks. For example, U.S. Army personnel should know mapreading, personal camouflage, and movement techniques.

Army Regulation 350-30 describes the SERE training program for the U.S. Army. The three levels of SERE training are the following:

Survival, Evasion, Resistance, and Escape

Survival Training Issues

- Combating Psychological Stress
- Survival Medicine
- Improvisation and Equipment
- Environmental Conditions
- Shelters
- Firecraft
- Food and Water Procurement
- Radio Communications
- Signal Mirror and Flares
- Land Navigation
- Recovery Procedures

Level-A training, which is the most basic, is taught at all initial entry basic and officer training programs. This includes training in the Code of Conduct, national history and traditions, relationship between the Code and the Uniform Code of Military Justice (UCMJ), and peacetime conduct in a hostage situation.

Level-B training is intended for officer and enlisted personnel, in any military occupational specialty (MOS), who anticipate operating in the forward-of-the-division rear to the forward line of own troops (FLOT). The training only needs to be given once.

The instruction includes the Code of Conduct, survival behavior, avoiding capture, evasion, survival, and recovery. Training is to be conducted at the unit level by instructors qualified by the SERE Instructor Qualification Course or a mobile training team (MTT).

Level-C training is designated for those in an MOS with a high risk of capture and whose rank or position makes them vulnerable to greater than average exploitation by a captor. Units required to complete this training are designated by a major Army command (MACOM). Level-C training traditionally has included special forces units, pathfinders, selected aviators, and ranger battalions.

This training includes legal aspects of the Code of Conduct and UCMJ; resistance techniques; organization and operation of PW camps; communication; responsibilities of the senior ranking officer; group dynamics; rescue techniques; and escape. Level-C training can only be held at the USAJFKSWCS.

In perspective, the Air Force and Navy have determined all their crewmembers should receive the highest ("C") level of training. The Army tasks the MACOM commander to designate specific units to receive Level-C training.

Discussion

The philosophy of ranking survival training concentrates scarce training resources for those most likely to require the knowledge. However, the more fluid nature of the modern battlefield, combined with increased mobility of today's aircraft, makes the designation of a FLOT somewhat arbitrary. Unit commanders up to the major command level should review their priority missions. During such a review, commanders can then evaluate whether aircrews may stand a high risk of capture and require Level-C training.

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Resistance Training Issues

- Captivity Environment
- Geneva Conventions
- Code of Conduct
- PW Behavior
- Organization and Communication
- Exploitation
- Escape

Some units do not need Level-C training, but operate in hostile environments that pose special risks. For example, unit aircraft fly over unpopulated or mountainous terrain, overwater, frequent night flying, or long distance fixed-wing flying.

Despite the training provided in the IERW course and common tasks, most Army aviators have little practical experience using certain techniques. These techniques include using signal mirrors, foliage penetrating flares, hoists, vectoring aircraft, and building fires.

Do you know how to set snares, screen plants for edibility, and obtain water? Remember all aircrews, including crewchiefs and medics, need this knowledge to survive.

The Air Force and Navy provide specialized instruction to their aviation life support equipment (ALSE) specialists to furnish unit currency training on survival topics. Army Aviation has not designated a proponent within the unit for survival training. This shortfall should be addressed in future policy review.

Meanwhile, the unit commander should meet with the safety officer, ALSE specialist, and flight surgeon to coordinate refresher training of basic survival skills. Survival training is best retained if the students have the opportunity to practice the skills in a field environment.

Units that require Level-B SERE training for enlisted aircrews should consider designating an individual to become instructor qualified or request an MTT visit. The point of contact is the USAJFKSWCS as designated in AR 350-30.

Every individual within Army Aviation is a valuable asset who must be protected and recovered. Unlike the Air Force and Navy, most aviators are not trained at Level-C for survival and resistance topics. In addition, the initial aviator survival training lacks practical application of academic materials and does not provide centralized training for enlisted aircrews.

The unit commander does not have a proponent for survival training and must qualify an instructor for Level-B training or use local resources for refresher training. Unit safety officers, ALSE specialists, and flight surgeons must help the commander within their area of expertise to evaluate and monitor aircrew survival readiness.

ENDNOTES

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2. U.S. Air Force, Air Training Command Syllabus S-V80-A.
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CANNON'S CADENCE

C-5A rollin' down the strip;
Eight more Hueys on a combat trip.
Mission top secret, destination unknown,
Don't even know when I'm going home.
Load them up and tie them down,
Lifting off the frozen ground.
Saudi Arabia, Prudoe Bay,
All you do is point the way.
In the snow and in the rain,
Anywhere we can train.
Pilots fly and crewchiefs crew;
Maintenance folks know what to do.
Landing in a foreign land,
Maintenance folks there on hand.
Wrenches crank and turning screws,
Maintenance has a job to do.
Rotors turn and engines burn;
Hear the trannies start to churn.
Aviation's number one,
Fly right into the burning sun.
Screaming into a hot LZ,
Enemy rounds flying right at me.
Drop them grunts and do it fast;
Pilot says we're low on gas.
Lifting off into the air,
Taking hits here and there.
Pilot hesitates to say,
"Boys, I think we'd better pray."
Fluids leaking here and there,
I see bullet holes everywhere.
Maintenance folks will fix it soon;
Two more missions before noon.
Test pilot says it's OK,
Live to fly another day.

Sergeant Karl P. Cannon
B Co, 4th Battalion, 123d Aviation
Fort Richardson, AK