Attack Aviation Fires for the Close Fight:
A New Approach

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Divisional employment of attack aviation is changing. For almost 15 years, the employment of divisional attack helicopters has focused on striking deep at second-echelon forces. While retaining the ability to attack deep, this focus has begun to emphasize the AH-64 Apache helicopter in the close fight alongside brigade combat teams (BCTs).

The new structure of the opposing force (OPFOR) for the contemporary operational environment (COE) is in Battle Command Training Program (BCTP) exercises and National Training Center (NTC) rotations at Fort Irwin, California. This COE OPFOR increases the value of employing aviation in the close attack while simultaneously reducing the high-value targets in the division's deep attack battlespace of 15 to 30 kilometers beyond the forward-line-of-own-troops (FLOT). Army aviation now faces OPFORs with more air defense systems of higher quality, increasing the risks of employing aviation beyond the FLOT.

Fire support doctrine for supporting aviation operations has not kept pace with changes in aviation operations, equipment or threat. Changes in the means and objectives of divisional deep attacks, the advent of aviation close attack operations and the fielding of the AH-64D (Longbow) alter both the missions assigned to attack helicopter battalions and aviation brigades and the tactics, techniques and procedures (TTPs) they employ. Fire support TTP also must evolve to account for these changes and leverage the increased capabilities of the advanced FA tactical data system (AFATDS).

The 3d Infantry Division (Mechanized), Fort Stewart, Georgia, recently experienced all these changes. The 1st Battalion, 3d Aviation Regiment (Attack) fielded the AH-64D Longbow in March 2001. The division artillery fielded AFATDS in the fall of 2001. The division participated in a BCTP Warfighter exercise facing the COE OPFOR in January 2002. These changes enabled a substantial shift in aviation operations and demanded a similar shift in our fire support planning and execution in support of those operations.

AH-64D Longbow. The AH-64D is a remarkable weapon that brings a new suite of capabilities to the attack helicopter battalion. Its multi-functional displays, active fire control radar (FCR) and passive radar emission detection systems provide a quantum leap forward in situational awareness (SA) and target attack options. Its digital communications equipment enables the AH-64D to exchange information with other Longbow helicopters and link with its battalion fire support element (FSE) via AFATDS. This enhanced SA fundamentally alters the way the attack battalion fights. (See Figure 1.)

Lacking these on-board SA capabilities, AH-64A battalions conduct detailed planning before execution to compensate for its inability to detect changes in the threat and adapt the plan significantly while en route. The battalion's standard tactics for near-FLOT and cross-FLOT operations center on high-speed flight down an established air corridor under radio listening silence to minimize its emissions signature.

Fire support for these tactics reflected this approach. Suppression of enemy air defenses (SEAD) was conducted at the time of attack along the ingress and egress routes using a time-driven fire plan. Deception SEAD was recommended doctrinally but rarely conducted, usually because of limitations in the number of firing units available.

In contrast, the AH-64D Longbow leverages its increased SA in ways that significantly alter such tactics. Extensive planning is still conducted before launch, but flexibility is built into the

AH-64A Helicopter

- Speed is life.
- It moves at high speeds at low altitude between air checkpoints (ACPs).
- Its routes are aligned by terrain and air defense threats to maximize protection.
- It has a relatively fixed schedule for movement supported by suppression of enemy air defenses (SEAD) and based on an H-Hour or F-Hour time line.

AH-64D (Longbow) Helicopter

- Knowledge is power.
- It moves at moderate speeds at low-altitude maneuver between ACPs and can support infiltration by a team, platoon or company.
- Its routes are aligned by terrain and air defense threats to maximize protection while taking advantage of its fire control radar (FCR) and increased situational awareness (SA) to conduct traveling overwatch and bounding overwatch maneuvers.
- It has less of a fixed time schedule for movement as the unit will respond to new information acquired en route to its target area. This requires an alternative form of SEAD fire planning: event-driven SEAD (single targets or groups of targets) vice a fixed, time-driven SEAD plan.

Figure 1: Air Movement vs Air Maneuver: The AH-64A vs the AH-64D (Longbow)

plan, reflecting the anticipated increase in SA. Scout aircraft teams move ahead of the main body of aircraft. Aircraft with the FCR are in the formation to ensure all-around scanning and early warning. Designated teams identify and attack air defense threats acquired en route. Lead elements "paint" the engagement area (EA) before the main body arrives and pass the EA digital picture back to the rest of the attacking unit, complete with assigned sectors of fire and target priorities. In effect, the unit transforms what was once an air movement into an air maneuver.

These tactics alter the standing operating patterns of the battalion. Elements move from air checkpoint (ACP) to ACP using formations similar to traveling overwatch and bounding overwatch. Aircraft speed up and slow down in response to the changing tactical situation. Air corridors now must be wider to enable teams to conduct air maneuver.

Operating under radio listening silence reduces combined arms coordination capabilities and flexibility. This is no longer as important because the AH-64D aircraft's signature already has been increased by its millimeter-wave radar emissions and digital radio transmissions.

Because attack aviation units no longer move using a rigid time line, time-driven SEAD techniques become too inflexible. Digital fire plans using only a time line cannot be altered once they are activated. An event-driven fire plan using separate targets and target groups provides the required flexibility. The SEAD plan retains a time line but is structured as discreet targets and target groups to maintain flexibility. En route communications are not required to keep the fire support plan synchronized with the movement of the attacking element.

Airspace Management. Fire support TTPs for airspace management require changes. Units conducting offensive and defensive air maneuver need broader and more flexible airspace management and fire support coordinating measures (FSCMs). These FSCMs enable air maneuver while protecting and deconflicting operations with the rest of the combined arms and joint team.

The aviation brigade's airspace is of interest to the fire support community. Preventing the simultaneous use of the same airspace by rotary- and fixed-wing aircraft and artillery rockets, missiles and projectiles is as critical a deconfliction function for the aviation FSE as FSCM management and clearance of fires is for the ground maneuver FSE. While there is a formal process and channel for divisional airspace command and control (AC^2) planning and execution, the aviation FSEs play a critical role in execution. The ground maneuver and aviation FSEs enable both forces to establish and revise airspace management measures and deconflict airspace rapidly during execution.

AFATDS provides a means of rapidly building and disseminating supporting FSCMs that help airspace management. For each air route, restricted operating zone (ROZ), forward arming and refueling point (FARP), hold area (HA), battle position (BP) or attack-by-fire position (ABF), the FSEs must enter an appropriate FSCM.

Doctrinally, several airspace management measures have no clear impact on fire support operations. A ROZ, for example, deconflicts airspace between aircraft but is not doctrinally recognized as a FSCM. A BP or ABF can be entered into AFATDS as a graphic control measure and will appear on the display screen. However, they do not generate a requirement message to deconflict fire missions into that area.

This oversight must be countered by translating airspace management measures and graphic control measures into appropriate FSCMs. Aviation ROZs become airspace coordination areas (ACAs) established at the same locations and altitudes as the ROZs. Air routes become air corridors segmented at each set of ACPs to align the affected airspace with the exact length, width and altitudes of the route. FARPs, BPs and ABFs all have ACAs established from one foot above ground level (AGL) to the maximum altitude at which the aviation unit expects to operate for the mission; this creates a three-dimensional "buffer" within the airspace and applicable ground battlespace used by the aviation unit that signals the need for a coordination requirement before executing fire missions in that battlespace.

These measures are built and disseminated in a planned status. The FSEs activate them as required by aviation operations, and the FSEs deactivate them as soon as possible to minimize the impact on FA fires. AFATDS makes dissemination and activation/deactivation faster and simpler than older, analog methods, particularly when operating in a tactical local area network (LAN).

A review of firing table data for multiple-launch rocket systems (MLRS) and 155-mm cannons reveals that as long as aviation units remain 2,200 meters from the firing point and impact point of a fire mission, the ordnance will pass above the aviation unit operating at 200 feet AGL and below. This careful application of FSCMs supporting aviation operations, when paired with proactive deconfliction of position areas for artillery (PAAs) with airspace control measures during operations planning and execution, results in minimal impact on either community. (See Figure 2.)

Battle Position (BP) or Attack-by-Fire Position (ABF) Airspace Coordination Area (ACA)

- It is at least 1 foot above mean sea level (MSL) to 200 feet above ground level (AGL).
- The ACA dimensions match the BP or ABF.
- Rule of Thumb: The ACA is 2 x 2 kilometers with an attitude along the orientation of the BP or ABF to the engagement area (EA).

Air Corridor and ACA Activation

- The air corridor is segmented by air checkpoints (ACPs).
- The advanced FA tactical data system (AFATDS) only allows segmented air corridors, so they are used in lieu of ACAs.
- The width of the air corridor matches the route's actual maneuver space.

Route and Air Corridor

- The altitude must be at least 1 foot AGL and up to 200 AGL.
- The width must be a minimum of 3 kilometers (1.5 kilometers from the center line); the preferred width is 4 kilometers wide (2 kilometers from the center line).

Figure 2: Airspace Management for the AH-64D (Longbow). The use of these measures and required altitudes reduces the amount and duration of airspace restricted during aviation operations. Artillery is only restricted when/if aircraft fly across the gun-target line within 2,200 meters of the multiple-launch rocket system (MLRS) or 155-mm howitzer firing point or the target area and only when the airspace/fire support coordinating measure (FSCM) is activated.

Fire Support for Attack Aviation in the Close Fight. Army aviation is returning to its roots with its doctrinal move toward employing attack helicopter in attacks close to or in support of a BCT. This type of mission harks back to the advent of the armed helicopter and maximizes several of its characteristics that make it uniquely qualified for this role.

One approach to these close attacks is to employ the attack battalion or company in an operational control (OPCON) relationship to a BCT. While reducing the aviation brigade's role in planning and execution, this relationship is critical to greatly simplify mission planning and on-the-ground coordination. Working through the aviation brigade liaison officer (LNO) assigned to each BCT, the attack battalion or company commander coordinates the unit's role in the BCT's scheme of maneuver. Attack battalion tactical command posts (TACs) can collocate with ground maneuver brigade tactical operations centers (TOCs) or TACs, further improving coordination.

Attack helicopter units generally continue to operate from the aviation brigade assembly area for protection and maintenance support. They frequently establish FARPs and occasionally HAs in the brigade support area or an area nearby to ensure more responsive support to the BCT commander if a second or third turn of aircraft is required.

Each BCT FSE and its direct support (DS) FA battalion integrate the attack battalion's fire support requirements and essential fire support tasks (EFSTs) into the fire support plan. The BCT's DS and reinforcing (R) artillery are the primary units to provide SEAD while division artillery general support (GS) assets remain prepared to fire SEAD if the DS assets are insufficient or over-tasked at the time aviation is committed to the close fight. (See Figure 3.)

The attack battalion FSE becomes a subordinate maneuver FSE to a BCT FSE when fighting close. The aviation brigade FSE provides continuous air defense artillery (ADA) targeting support, airspace coordination and FSCM support, and planning assistance to the BCT and attack battalion FSEs.

There are several considerations associated with planning fire support for attack aviation in the close fight within minimal time. If a current ADA picture is available and pre-established air routes meet mission requirements, the attack battalion and FSE still require 30 to 45 minutes notification before launching aircraft. This allows the FSEs to refine the final SEAD target list, allocate firing units to the fire plan, finalize the situational and mission briefings for the aircrews, and coordinate for and clear the airspace and battlespace.

The maneuver forces must refine the target list before the aircraft are launched

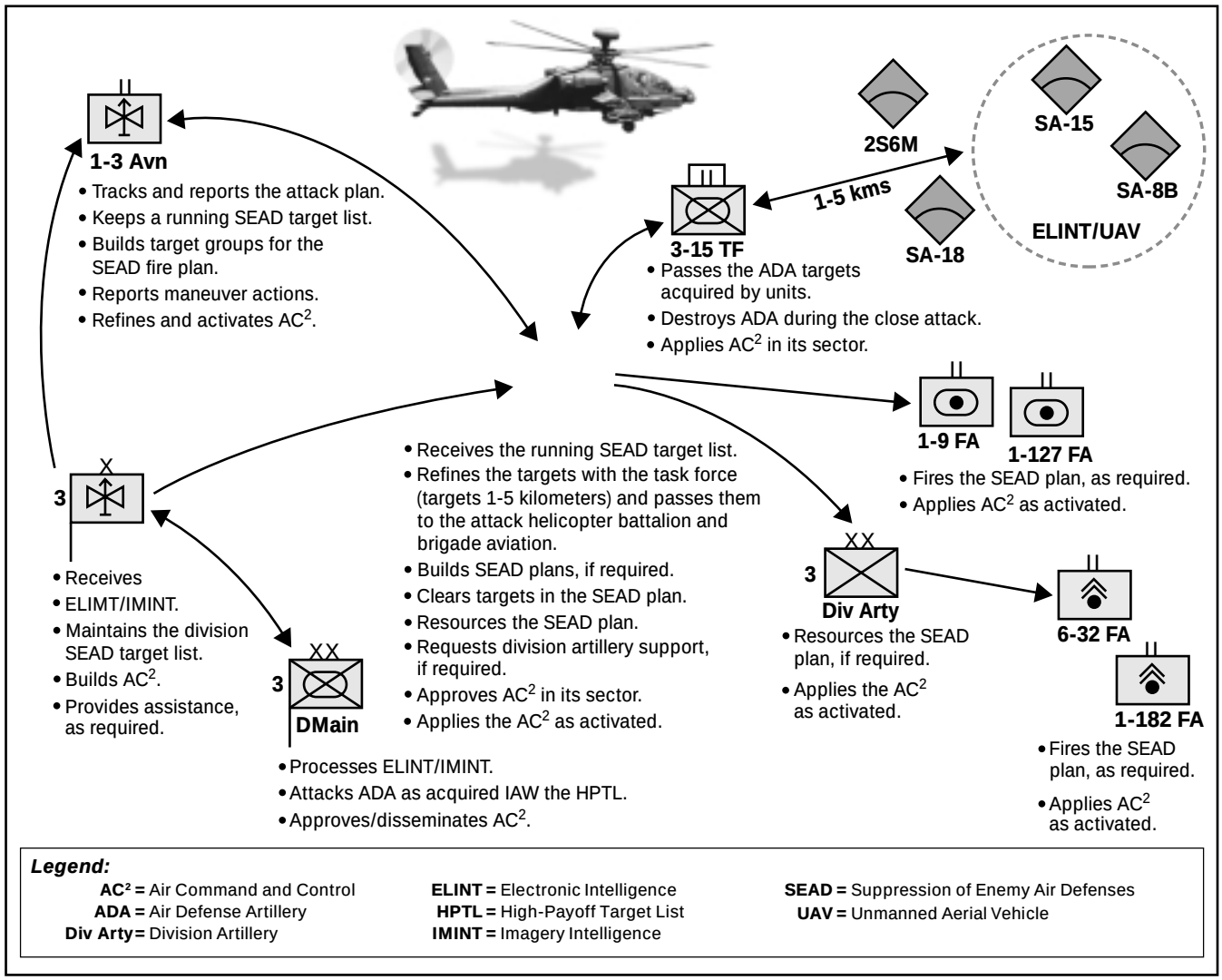


Figure 3: Fire Support for SEAD in the Close Attack

in the close fight. Electronic intelligence (ELINT) and imagery intelligence (IMINT) provide a relatively accurate picture of the ADA threat five kilometers behind the FLOT and beyond. ADA located beyond the five-kilometer zone move less often and, therefore, can be located and engaged with high confidence using intelligence that is one to two hours old. ADA elements at or near the FLOT (up to about five kilometers) move constantly and are time-sensitive targets that cannot be accurately engaged by intelligence that is one to two hours old. This area also contains the vast majority of man-portable air defense systems (MANPADS) with infrared (IR) homing that are the most difficult to locate using ELINT/IMINT. When the BCT FSE and attack battalion FSE use the aviation brigade FSE ADA target list and target updates as a start point and refine it with bottom-up additions and corrections, units have their best effects.

The usual targeting process is to have the attack battalion FSE build the SEAD target list from aviation brigade and BCT FSE target lists and then transmit a finalized target list to the BCT FSE for target clearance, firing unit allocation and execution. The BCT FSE clears all targets and sends it to the DS FA battalion to resource as much of the fire plan as it can. Targets that cannot be fired by DS and R units are transmitted to the division artillery for engagement by GS units.

Execution is a combined effort by all parties. The attack battalion FSE establishes triggers for executing the SEAD plan and announces when the attack battalion meets the triggers. The FSE also activates and deactivates airspace control measures and FSCMs. The BCT FSE and DS battalion fire direction center (FDC) control the execution of SEAD fires and synchronize any close air support (CAS) employed in concert with the attack helicopters, passing CAS terminal guidance responsibility to the air mission commander, if appropriate. The aviation brigade FSE monitors the operation and relays any immediate ADA threat indicators that develop in the area of the operation.

SEAD in this type of environment is not a one-time event. The suppressive effects of a SEAD plan are temporary unless a sufficient volume of fire is generated to neutralize or destroy ADA systems. This is the appropriate approach if target location is accurate and sufficient firing units are available. ADA systems are thin-skinned vehicles with delicate exterior armament and equipment and do not require large quantities of munitions to neutralize or destroy them.

Air defense systems are highly specialized and a limited commodity. There is little likelihood the OPFOR can replace these assets rapidly, if at all.

If an FSE elects to fire suppressive effects only, that FSE will have to repeat the SEAD in the general area of the operations every five minutes. As the engagement continues, additional firing requirements begin to build as functional ADA systems have moved quickly after taking indirect fire and are firing again.

A partially effective or an ineffective SEAD plan usually results in either aircraft losses or mission failure. Even if aircraft are not shot down or damaged, ADA threats that remain operational force aircrews to divert ordnance to killing ADA rather than the tanks, infantry fighting vehicles (IFVs) or artillery they were sent to kill.

The AH-64D is quite capable of conducting self-SEAD or, as the aircrews call it, destruction of enemy air defenses (DEAD). The drawback of self-SEAD is that aircrews expend their time and ordnance on targets that do not directly help the ground maneuver commander achieve his mission.

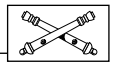
Daytime missions are particularly dangerous as ADA gunners can acquire their Apache targets visually and orient MANPADS IR missiles and air defense guns to those targets. Daytime missions require more detailed SEAD plans and more firing units to achieve even suppressive effects.

Issues Ahead. The Army's use of aircraft and airspace is currently undergoing transformation. The Army Aviation Transformation Plan will alter attack, assault and general support aviation operations and tactics. The reduction in the number of helicopters in an attack and lift company, for example, will have a direct impact on the number of aviation units or sub-units required to complete mission profiles. Further proliferation of unmanned air vehicles (UAVs) will increase the type and quantity of management measures needed to deconflict a more crowded airspace.

Air defense measures continue to develop. These already formidable weapons and networks will continue to rise to the challenge presented by US air dominance and our expanding use of Army aviation for attack, intelligence surveillance and reconnaissance (ISR) and movement. Ultra-modern ADA surface-to-air systems, such as the SA-11 and SA-12, are already being upgraded and replaced by new systems, such as the SA-17 and SA-20. The deadly game of action, reaction and counteraction continues.

With every change in air maneuver operations and the threats to them, fire support TTPs must evolve similarly. Tactics that support today's operations against today's threats will inevitably fail to optimally support those of tomorrow. Just as Field Artillerymen constantly reevaluate TTPs to support ground maneuver operations, we must constantly reevaluate our TTPs to support air maneuver operations.

The combination of lethal and nonlethal indirect fires paired with fixed- and rotary-wing observation and attack aircraft remains one of the Army's most potent joint/combined arms teams. The proper employment and synchronization of this team has become one of the lynchpins of division operations and is becoming more crucial to brigade operations. The fire support community must maintain its effectiveness in support of that lethal team.



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