

Fires for Attack Helicopter Operations

by Captain Michael J. Forsyth

The challenge for fire supporters is to understand the subtle differences between fire support tactics, techniques and procedures (TTP) for an attack helicopter battalion and those for an infantry or armor battalion. Fire support field manuals are written from the perspective of ground maneuver operations. No manual addresses fire support TTP for the newest maneuver element, the attack helicopter battalion.

Although the principles of fire support are the same, the tactics are often different. This article discusses the differences discovered by aviation fire supporters in the 101st Airborne Division (Air Assault), Fort Campbell, Kentucky, and offers TTP to meet some of the unique challenges of providing fire support for the attack helicopter battalion.

Organization and Mission

An AH 64 Apache attack helicopter battalion is arguably the most powerful battalion in the United States Army today. A battalion that can synchronize and employ fire support assets as well as employ its organic firepower is an

effective combination on the modern battlefield. The job of the fire support officer (FSO) in the attack helicopter battalion is to plan, prepare and execute a fire support plan to capitalize on the capabilities of all available systems.

The attack helicopter battalion is organized as shown in Figure 1. Each line company has two platoons: one scout platoon equipped with four OH-58 Kiowas and one gun platoon with six AH-64 Apaches. Each Apache carries an ordnance load tailored for the mission, including Hellfire missiles, 2.75-inch rockets and 30-mm rounds.

Under the Aviation Restructuring Initiative (ARI), the line companies are in the process of converting into the structure shown in Figure 2. Each company has two platoons: a scout platoon with three Apaches and an attack platoon with five Apaches. This structure is an interim organization until the RAH-66 Comanche helicopter is fielded after the turn of the century. The objective attack helicopter company in the heavy and air assault divisions and the corps will include a scout platoon with three Comanches and an attack platoon with five Apache Longbow helicopters.

The fire support element (FSE) is attached to the attack helicopter battalion from the division artillery. The current modified table of organization and equip-



Soldiers conduct pre-flight checks of Apaches fully uploaded with Hellfire missiles for a deep attack mission.

Courtesy of McDonnell Douglas Helicopter Company

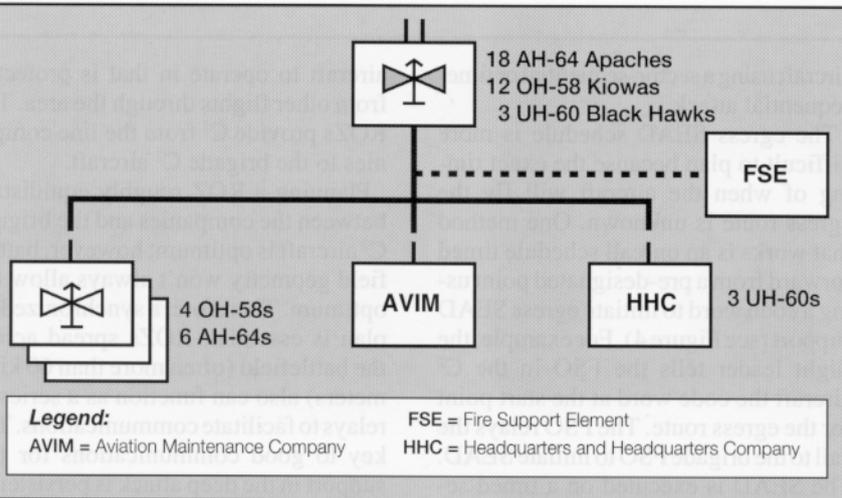


Figure 1: Attack Helicopter Battalion Organization. This organization is found in the heavy and air assault divisions and in the corps. Each line company has a scout platoon of four OH-58 Kiowas and an attack platoon of six AH-64s Apaches.

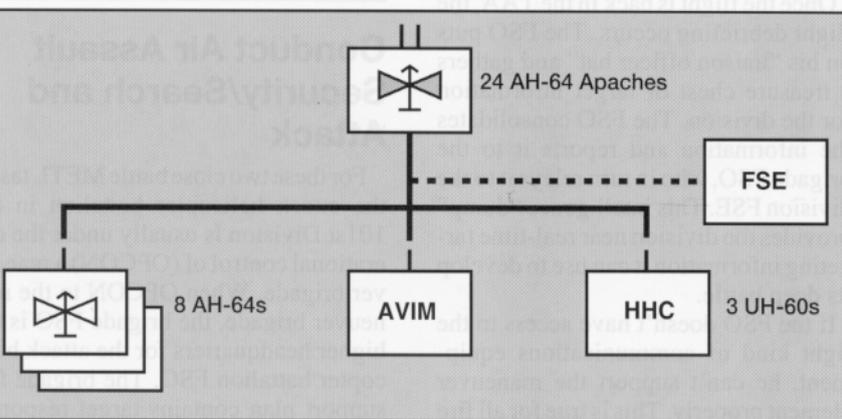


Figure 2: Attack Helicopter Battalion ARI Organization. The Aviation Restructure Initiative (ARI) is moving attack helicopter battalion organization in the heavy and air assault divisions and the corps toward this structure. The battalion includes three line companies as shown, each with a scout platoon of three AH-64 Apaches and an attack platoon of five Apaches.

ment (MTOE) in the 101st Division authorizes one captain FSO and one sergeant first class fire support NCO (FSNCO). A recent request to change the MTOE would add two fire support specialists, enhancing the FSE's ability to conduct 24-hour operations.

The FSE has a high-mobility multi-purpose wheeled vehicle (HMMWV), one VRC 92 single-channel ground and airborne radio system (SINCGARS), a VRC 90 SINCGARS and a forward entry device (FED). Changes proposed to the MTOE would add one UHF radio set, increasing the communications range. The 101st Div Arty has the initial fire support automation system (IFSAS), which allows the FSE to plan fires, battle track and execute fire support digitally.

The attack helicopter battalion fights deep and close. Its FSO must under-

stand how the battalion fights and what the scheme of maneuver is for each mission. In any operation, there are unique considerations and opportunities for the FSE to influence the battle.

Conduct a Deep Attack

This mission-essential task list (METL) task is always against division high-payoff targets (HPTs). Normally, the battalion receives the mission from 48 to 72 hours before time-on-target. The battalion begins the orders process by planning, preparing and executing according to a time line.

A generic mission entails an attack using multiple flight routes for ingress and egress into the target area. The range from the tactical assembly area (TAA) to the engagement area (EA) varies; however, typical deep missions

range from 100 to 300 kilometers. In a recent exercise conducted by the 101st Aviation Brigade, the range was 148 nautical miles one way. This demonstrates the tremendous range of the AH-64 with auxiliary fuel tanks.

Looking at this mission, a fire supporter asks what are the considerations and assets available to support the mission. The priority-of-fires in this mission is force protection through suppression of enemy air defenses (SEAD).

SEAD comes in many forms for a deep attack. If lethal SEAD is used, FA fires are the first choice, but the limited range of cannon artillery won't support missions of such long distances. This means the division will have to allocate other assets to provide SEAD along the entire route from crossing the forward line of own troops (FLOT) to the EA. These assets include Air Force aircraft for air interdiction, electronic warfare (EW) and close air support (CAS) in the EA, creating a joint air attack team (JAAT). Additionally, naval gunfire can provide force protection for the flight. If there aren't enough SEAD assets already available to the attack helicopter battalion, the FSO requests additional assets to support the mission.

The key to successfully synchronizing fire support with maneuver and fires of the attack helicopter battalion is the FSO's integration into the battle staff. As in any maneuver battalion, the FSO must be intimately familiar with the enemy situation and the friendly scheme of maneuver.

Knowledge of enemy air defense artillery (ADA) assets along the flight route with the range fans for each system is essential in planning suppressive fires. Ideally, the FSO nominates ADA targets for destruction by air interdiction before the mission so the ADA threat is minimal. If this isn't possible, then the FSO plans suppressive fires.

As important as it is for the FSO to know the enemy situation, he also must know the speed of the flight through the threat range fans. The FSO gets that information from the attack planners (aviators trained in Apache flight planning) in the S3 shop in the form of the time-distance heading (TDH) card.

The TDH card has the air speed between checkpoints and the precise times the flight will hit each checkpoint—to the second. With this card and the enemy ADA range fans plotted on his map, the FSO schedules SEAD fires to cover the flight route. To convert air



speed in knots to kilometers per hour and precisely schedule ADA target suppression along the route, the FSO uses the chart in Figure 3.

The ingress schedule is a time-driven event schedule and is planned backward from H-Hour (the time the first Hellfire missile impacts). It's the ideal way to provide SEAD fires for ingress. Air Force CAS is preplanned to be on station at a specific time when the Apaches are working the EA. When the aviators are in their battle positions, they call the air liaison officer (ALO) in the command and control (C²) aircraft or the FSO who contacts the pilots and pushes them down to pre-designated communications net. The Apaches then have terminal control of the Air Force

aircraft using a sector-sequential or time-sequential attack.

The egress SEAD schedule is more difficult to plan because the exact timing of when the aircraft will fly the egress route is unknown. One method that works is an on-call schedule timed forward from a pre-designated point using a code word to initiate egress SEAD support (see Figure 4). For example, the flight leader tells the FSO in the C² aircraft the code word at the start point for the egress route. The FSO relays the call to the brigade FSO to initiate SEAD. The SEAD is executed on a timed sequence according to the TDH card for the route and the ADA threat along that route.

Once the flight is back in the TAA, the flight debriefing occurs. The FSO puts on his "liaison officer hat" and gathers a treasure chest of target information for the division. The FSO consolidates the information and reports it to the brigade FSO, who in turn relays it to the division FSE. This intelligence "dump" provides the division near real-time targeting information it can use to develop its deep battle.

If the FSO doesn't have access to the right kind of communications equipment, he can't support the maneuver element properly. This is true for all fire supporters, but it has some different connotations in an attack helicopter battalion. The FM radio, the fire support community's radio of choice, doesn't have adequate range for the battalion's deep attack mission.

The FSO flies in the C² aircraft with the battalion S3, S2, ALO and a recorder. From that location, he facilitates fires from the line companies to the brigade FSE. Although the primary communications link is FM, the FSO should use the additional radios in the C² aircraft. These include HF, VHF and UHF nets from the line companies to the FSO and then to the brigade FSO. These assets not only provide net redundancy, but they also increase the communications range for a deep attack. The radio frequencies and nets are stated in the operations order and rehearsed at the maneuver and fire support rehearsals to ensure constant communications.

When the S3 plans the battalion's C², the FSO must be involved in this process. The aviation battalion C² plan uses a system of restricted operating zones, called ROZs. Each ROZ is a zone for

aircraft to operate in that is protected from other flights through the area. The ROZs provide C² from the line companies to the brigade C² aircraft.

Planning a ROZ roughly equidistant between the companies and the brigade C² aircraft is optimum; however, battlefield geometry won't always allow the optimum. Therefore, a synchronized C² plan is essential. ROZs spread across the battlefield (often more than 60 kilometers) also can function as a series of relays to facilitate communications. The key to good communications for fire support in the deep attack is persistence and redundancy that the ROZs can provide. The FSO must be part of the planning process for the ROZs.

Conduct Air Assault Security/Search and Attack

For these two close battle METL tasks, the attack helicopter battalion in the 101st Division is usually under the operational control of (OPCON) a maneuver brigade. When OPCON to the maneuver brigade, the brigade FSO is the higher headquarters for the attack helicopter battalion FSO. The brigade fire support plan contains target responsibilities, any allocations, assets available, priorities of fire and restrictions.

A generic air assault is divided into three phases. The first is the condition-setting phase. This is the phase in which the attack helicopter battalion FSO can have the most influence on the operation. By definition, "setting the conditions" is bringing about the specific conditions required by the brigade commander to commit his brigade to active operations in the vicinity of the landing zone (LZ). For example, the conditions might be "all enemy ADA assets in the vicinity of the LZs are destroyed, no maneuver units above squad level are able to operate in the vicinity of the LZs and no indirect fire weapon systems can fire on the LZs."

The second phase is the air assault. The possibility of fratricide by indirect fires increases significantly once boots hit the LZ. Correspondingly, the availability of indirect fires to support the attack helicopter operations greatly diminishes as indirect fire assets shift priority-of-fire to committed ground elements. The Apaches' role during this

Ground Speed	KMPM
1 Knot/01.85 KMPH	0.03
2 Knot/03.70 KMPH	0.06
3 Knot/05.56 KMPH	0.09
4 Knot/07.41 KMPH	0.12
5 Knot/09.26 KMPH	0.15
6 Knot/11.10 KMPH	0.19
7 Knot/12.96 KMPH	0.22
8 Knot/14.82 KMPH	0.25
9 Knot/16.57 KMPH	0.28
10 Knot/18.52 KMPH	0.31
20 Knot/37.04 KMPH	0.62
30 Knot/55.56 KMPH	0.93
40 Knot/74.08 KMPH	1.24
50 Knot/92.60 KMPH	1.54
60 Knot/111.12 KMPH	1.85
70 Knot/129.64 KMPH	2.16
80 Knot/148.16 KMPH	2.47
90 Knot/166.68 KMPH	2.78
100 Knot/185.20 KMPH	3.09
110 Knot/203.72 KMPH	3.40
120 Knot/222.24 KMPH	3.70
130 Knot/240.76 KMPH	4.02
140 Knot/259.28 KMPH	4.32
150 Knot/277.80 KMPH	4.63

Figure 3: Chart for Converting Air Speed in Knots to Kilometers per Hour (KMPH) and Kilometers per Minute (KMPM). An aircraft flying, for example, 100 knots ground speed will travel 185.20 KMPH and 3.09 KMPM.

Asset	Timing					X-FLOT	Remarks
	0-Hour	+5 Min	+10 Min	+15 Min	+20 Min		
A Btry			* ... AB0001 ... *			* ... AB0004 ... *	Sustained Rate
B Btry			* ... AB0002 ... *				
C Btry					* ... AB0003 ... *		
F-4G (EW)		* AB0005 *					Jam Firecan Radar

*The flight leader calls a pre-designated code word at the egress start point to initiate the on-call H-Hour fires for the egress route.

Legend: FLOT = Forward Line of Own Troops
Btry = Battery EW = Electronic Warfare

Figure 4: Egress SEAD Schedule

phase is to provide close support to the ground elements and maintain a protective ring around the ground areas of operation.

Phase three is search, attack and expansion of the lodgement area. The attack helicopters still cover the ground elements. The opportunity to use fire support in this phase is to employ planned fires with the Apaches to destroy enemy counterattack elements.

Planning. The attack helicopter battalion generally has priority-of-fires of indirect systems during the first phase of the operation—the condition-setting phase. The attack helicopter battalion's mission is reconnaissance and hasty attacks in the zone to achieve the brigade commander's conditions.

The key to the companies using fire support is keeping the plan simple. The brigade usually does a thorough job of targeting, so there's no need for a lot of additional targeting. The fewer the targets, the easier it will be for a pilot to execute them. The pilots have many tasks to perform in the cockpit and very little room for overlays or fire support plans.

One planning technique is to synchronize the named areas of interest (NAIs) the pilots must observe with the planned targets. The brigade FSO's targets and the S2's reconnaissance and surveillance (R&S) plan both are based on the S2's enemy situation template. The pilots always are responsible for part of the R&S plan. By associating NAIs and planned targets, the FSO makes the fire plan easy for the pilots to use. The FSO simply writes in the target list work sheet "Remarks" column the NAI associated with that target. The FSO reduces the work sheet on a copy machine so it fits on the pilot's knee board for

cockpit use. The pilot then easily can refer to the targets as he checks his NAIs and can execute the planned target, as necessary.

After the operations order is issued, thorough products are a must to ensure the companies know all fire support coordinating measures (FSCM), friendly unit locations, targets, priorities-of-fire and the assets available. Each company needs a detailed overlay with the FSCM, targets and unit locations. Each company command post uses this overlay for its pilot briefings before a mission.

A technique to make sure companies update their situation maps with current fire support information is to disseminate the plan to the company pilots and ask each company commander to appoint a warrant or commissioned officer to be the fire support point-of-contact, who also updates the map. The commander usually doesn't have time to update fire support information himself, but having an officer in charge of fires allows him to give it the emphasis it requires.

Preparation. Because the attack helicopter battalion has limited assets, a deliberate targeting meeting, as such, is unnecessary, especially in an already tight orders process. But an informal targeting meeting to walk through the targeting process helps the battalion prepare for the air assault security/search and attack mission. It helps the battalion focus on what to attack, when to attack it and with what asset.

Some targets are best attacked immediately with the Apache's organic direct fire assets—an 82-mm mortar is one example because it shoots and scoots. The Apache may want to attack other targets using direct fire in combination with indirect fire; for example, the pounding capabilities of indirect fire

enhances the helicopter's direct fire on a dug-in air defense weapon site. Going through the targeting process during war-gaming focuses the battalion on the HPTs. The HPT list should mirror the brigade list with specific attack criteria for the attack helicopter battalion.

A good fire support rehearsal is a must, but it is extremely difficult to execute. The companies don't have FSOs, so there are no fire supporters for the rehearsal. Company commanders are very busy—asking them to do a separate fire support rehearsal is something that is not on their agenda.

The first solution is for the FSO to integrate fire support into the battalion maneuver rehearsal. Second, a separate, concise fire support rehearsal is needed to reinforce understanding of the fire plan. The FSO should ask the company commanders to stick around for 10 minutes after the maneuver rehearsal for a quick fire support rehearsal.

Preparation is the key to making the rehearsal go smoothly and fast and also for demonstrating its utility to the commanders who have to execute the plan. A tool that will make it concise and reinforce understanding is target cards summarizing what the pilots need to know to execute the targets. Each card has the target number, associated NAI, grid, purpose, trigger and the asset planned to attack the target.

The FSO walks the commanders through the plan from start to finish, using the cards to cue the commanders on the pertinent information concerning each target. The FSO should copy the cards for them so the commanders can use them while he talks to them.

Before a mission is executed, a thorough pilot briefing is the FSO's final opportunity to reinforce the fire support plan. After verbally briefing the pilots,



exclusively. Its mission is to destroy enemy vehicles, built-up positions and personnel. If an Apache hovers in one place to observe indirect fire, the aircraft becomes a target for the enemy. Therefore, the aircraft must move around continuously. To maintain eyes on the target, the pilot can hand-off the target to his wingman or store the target in the aircraft computer. This enables the aircraft to move continuously for survivability.

Fire mission processing is conducted either in a centralized or decentralized manner. In the decentralized mode, the pilots may contact the firing unit directly with fire missions. This is a speedy process; however, there are pitfalls.

First, clearing fires is more difficult. In the close battle, clearance is usually obtained through the FSO on the ground; the aircraft normally operate in a ground maneuver unit's zone. After a mission is sent directly to the firing unit, the attack helicopter battalion FSO must step in to obtain clearance from his ground counterpart.

The second pitfall could be the training level of the pilot observing the fire. Although it might be faster for the pilot to call the firing element directly, a poorly transmitted fire mission will slow the process down as the fire direction officer (FDO) deciphers the information. The battalion FSO must ensure proper missions are sent to the fire direction center (FDC) and that his pilot/observers are trained to perform this task.

Centralized fire mission processing, although slower, positively clears the fires for every mission because each mission is routed through the FSO. The pilot sends the fire mission to the attack helicopter battalion FSO who immediately checks for clearance. He then sends the mission to the FDC via voice or digital means.

With pilots whose observed fire skills are rusty, the battalion FSO can ensure the information from the pilots is in the proper format before it's sent to the FDC. If pilot observed fire skills need work, centralized clearance of fires is the best option and will save time in the long run.

ing communications at ranges of 150 kilometers with the AH-64 is difficult for the FSE with its FM radios. The UHF or VHF radio, with its utility and redundancy, would make an excellent addition to the TOE. In the interim, the FSE can leverage the attached ALO's ability to communicate with the aircraft using his high-frequency radios.

Another big challenge for attack helicopter battalion FSOs is educating their aviation counterparts. The FSO in an attack helicopter battalion is still a relatively new concept. Not all aviators have "grown up" with a fire supporter in their units. Our maneuver counterparts in the infantry and armor know how to work with fire supporters and what fires can do for them. But many aviators are still unsure of what fires can do to enhance their operations.

It's imperative for the attack helicopter battalion FSO to build a team and win the confidence of his aviation unit. The result will be increased lethality for the attack helicopter battalion and the aviators' strong trust in their FSO.

The last challenge is the lack of written doctrine. Although the principles of fire support are the same, application can be quite different. Solid standing operating procedures (SOPs) and continuity files from FSO to FSO are interim fixes.

The FSO in the attack helicopter battalion can play a huge role in shaping and influencing the battlefield. We, in the fire support community, must use all assets available to bring the lethality of indirect fires to bear along with the destructive direct fires of the attack helicopter.



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Future Challenges

By far the biggest challenge for the attack helicopter battalion FSE is communications. As mentioned, maintain-

the FSO provides them a knee board-sized copy of the briefing (see Figure 5).

Execution. One of the unique capabilities of the Apache is its laser that achieves first-round fire-for-effect in indirect fire missions. When an Apache engages a target, the laser gives the pilot an eight-digit grid to the target. The pilot then can send this grid to the FSE and put indirect fires on the target along with direct fires, significantly increasing the effects on the target.

Though the Apache has this lasing capability, the FSO must realize the aircraft is not an observed-fire platform

Call-for-Fire

FM Net Primary: _____

Alternate: _____

FSE C/S: _____

FSCM _____

Friendly Artillery Positions

DS Arty _____ Bn Mortars _____

DS Arty _____ Bn Mortars _____

DS Arty _____ Bn Mortars _____

GS Arty _____ NGF _____

CAS Available

Type _____

Time _____

Call Sign _____

Frequency _____

IP _____ Abort Code _____

Laser Code _____

Legend:

CAS = Close Air Support

C/S = Call Sign

DS = Direct Support

FSCM = Fire Support Coordinating Measures

FSE = Fire Support Element

GS = General Support

IP = Initial Point

NGF = Naval Gunfire

Figure 5: Fire Support Pilot Briefing. Before a pilot executes a mission, the FSO briefs him on the information in this figure and then reduces the information to a "knee-sized" board for the pilot.