

Your battalion just received the mission to conduct a deliberate attack on an enemy company supply point. The intelligence estimate places two DSHK air defense heavy machine guns and two 82-mm mortars on the objective. The battalion commander tells you fires must suppress those weapons for his unit to succeed. He wants you, the fire support officer (FSO), to maintain suppression—smoke and lethal fires—as long as possible, so he can move his companies in close with minimal casualties.

How are you going to satisfy the commander's concern? You echelon the fires of several weapon systems on the objective up to the minimum safe distances (MSDs) of each asset.

The purpose of echeloning fires is to maintain constant suppression on an objective while using the optimum delivery system up to the point of its MSD in training or risk estimate distance (RED) in combat operations. This provides protection for the friendly troops as they move to and assault an objective, allowing them to get in close with minimal casualties. It prevents the enemy from observing and engaging the assault by forcing them to take cover, allowing the friendly unit to continue the advance unimpeded.

Suppressing the Objective Echeloning Fires in the Attack

by Major Michael J. Forsyth

Photograph by Raymond A. Barnard, Command Photographer, JRTC

This article focuses primarily on echeloning fires, providing step-by-step techniques for planning, preparing and executing fires in a deliberate (or hasty) attack on an objective up to the MSDs for selected weapon systems.

Planning. There are specific items of information the FSO must glean from the military decision-making process (MDMP) to formulate a workable fire plan. To start, the FSO must determine the locations—both suspected and confirmed—of the enemy weapon systems the commander wants to engage. The FSO works closely with the maneuver battalion intelligence officer gathering information. If higher headquarters has not already targeted these positions, the FSO targets them with fires according to the commander's attack guidance.

The FSO then determines what weapon systems are available to his maneuver unit for the assault. He gets this information from the higher headquarters' fire support plan in the Fires Paragraph 3(a)2 of the operations order (OPORD)

or Fire Support Annex D. Allocations run the gamut from naval surface fire support to close air support (CAS) in addition to Field Artillery.

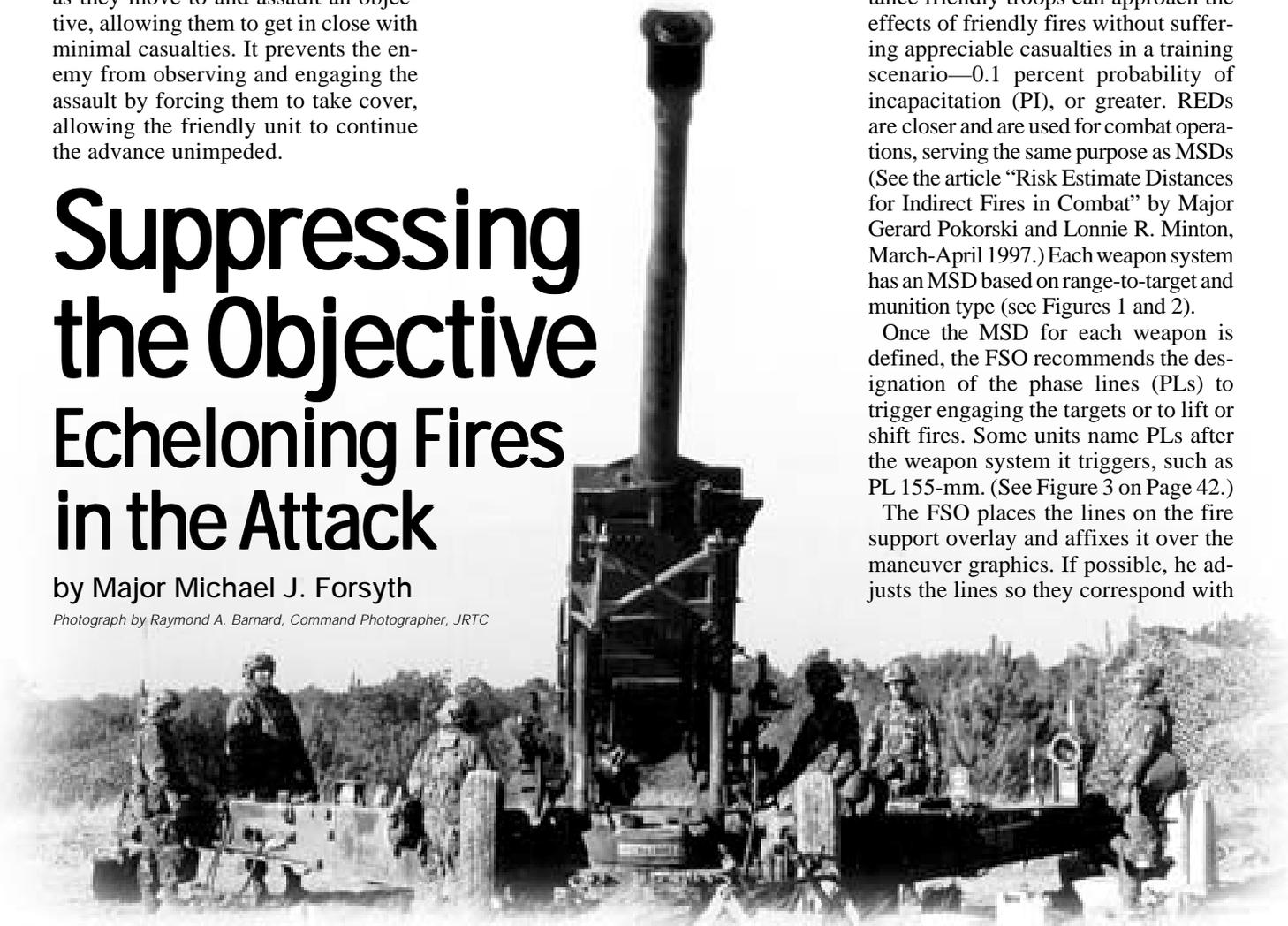
Knowledge of all systems and munitions is critical for the fire supporter when sequencing the fire plan. The FSO uses the information to determine the length of the prep by weapon system based on the number of volleys, salvos and minutes of munitions or sorties of aircraft allocated to the attack.

Next, the FSO ensures he understands the battalion scheme of maneuver, rate-of-march and axis/route-of-advance. The FSO gets the information from the battalion operations officer during the MDMP. (As you already can see, the key to planning echeloned fires is for fire support to be fully integrated into battle staff planning.) The FSO uses the information to determine the timing of fires, positioning of the MSD lines from the targets and the objective for all weapon systems.

MSD is defined as the minimum distance friendly troops can approach the effects of friendly fires without suffering appreciable casualties in a training scenario—0.1 percent probability of incapacitation (PI), or greater. REDs are closer and are used for combat operations, serving the same purpose as MSDs (See the article "Risk Estimate Distances for Indirect Fires in Combat" by Major Gerard Pokorski and Lonnie R. Minton, March-April 1997.) Each weapon system has an MSD based on range-to-target and munition type (see Figures 1 and 2).

Once the MSD for each weapon is defined, the FSO recommends the designation of the phase lines (PLs) to trigger engaging the targets or to lift or shift fires. Some units name PLs after the weapon system it triggers, such as PL 155-mm. (See Figure 3 on Page 42.)

The FSO places the lines on the fire support overlay and affixes it over the maneuver graphics. If possible, he adjusts the lines so they correspond with



Weapon	Description	Minimum Safe Distance	
		10% PI	0.1% PI
MK 82 LD	500-Pound Bomb	250 m	425 m
MK 82 HD	500-Pound Bomb	100 m	375 m
MK 82 LGB	500-Pound Bomb (GBU-12)	*	*
MK 83 HD	1,000-Pound Bomb	275 m	500 m
MK 83 LD	1,000-Pound Bomb	275 m	500 m
MK 83 LGB	1,000-Pound Bomb (GBU-16)	275 m	500 m
MK 84 LD	2,000-Pound Bomb	225 m	500 m
MK 84 LGB	2,000-Pound Bomb (GBU-10-22)	*	*
MK 20**	Rockeye CBU (Antiarmor)	*	*
2.75 FFAR	Rockets (Various Warheads)	100 m	175 m
SUU-11	7.62-mm Mini-Gun	*	*
M-4/M-12/SUU-23/M-61	20-mm Gatling Gun	*	*
GAU-12	25-mm Gatling Gun	*	*
GPU-5A/GAU-8A	30-mm Gatling Gun	*	*
AGM-65 (AF)	Maverick Missile (TV/IR/Laser)	*	*
MK 21/29	Walleye I 1,000-Pound Bomb (TV Guided)	275 m	500 m
MK 23/30	Walleye II 2,400-Pound Bomb (TV Guided)	*	*
AGM-123A	Skipper 100-Pound Bomb (Laser Guided, Rocket Boosted)	275 m	500 m

* Minimum safe distances have not been determined.	HD = High Drag
** Not recommended for use near friendly troops.	IR = Infrared
Legend:	LD = Low Drag
AGM = Air-to-Ground Missile	LGB = Laser-Guided Bomb
CBU = Cluster-Bomb Unit	MK = Mark
FFAR = Folding-Fin Aircraft Rocket	PI = Probability of Incapacitation
GAU = Gun/Aircraft Unit	SUU = Suspension Unit Universal
GBU = Guided-Bomb Unit	
GPU = Gun/Pod Unit	

Figure 1: Close Air Support (CAS) Minimum Safe Distances (MSDs). Data taken from "CAS Ordnance Reference Data," *FM 71-123 Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force and Company/Team* (Table 7-2 on Page 7-12).

prominent terrain for easy identification and triggering. The FSO must be careful to ensure that in adjusting the lines, he doesn't push them closer to the targets in violation of weapon MSDs.

The final piece to planning fires is the scheme of echelonment. The concept behind echelonning fires is to begin suppressing the targets on and around the objective using the system with the largest MSD. As the maneuver unit closes the

distance (i.e., crosses the respective MSD line) en route to the objective, the fires lift (or shift). This triggers the engagement of the targets by the delivery system with the next largest MSD. The length of time to engage the targets is based on the rate of the friendly force's movement between the MSD and PLs.

The process continues until the system with the least MSD lifts and the maneuver unit is close enough to make its final

assault and clear the objective. To ensure no gaps in fires, the FSO triggers the next system *before* lifting the last delivery asset.

Using echelonment of fires within the specified MSD for a delivery system requires the unit to assume some risks. FSOs must remember that the decision to bring fires within MSD of friendly troops is a maneuver commander's decision. Therefore, the FSO must get the

Range-to-Target (Meters)	1,000	2,000	4,000	6,000	8,000	10,000	12,000	14,000	16,000	18,000
60-mm Mortar	330	330								
81-mm Mortar	330	330	332							
105-mm Howitzer			340	340	350	360				
155-mm Howitzer			430	440	450	460	470	530	600	680

Figure 2: Minimum Safe Distances (MSDs) for Common FA Systems in Meters. These MSDs are for indirect fires where the gun-target line is perpendicular to the maneuver axis of advance. Probable error increases with range, so the MSDs increase. MSD Sources: *FM 6-141-1 Field Artillery Target Analysis and Weapons Employment: Non-Nuclear (w Ch1)* and data from the Joint Readiness Training Center (JRTC) Analysis Feedback Facility, Fort Polk, Louisiana.

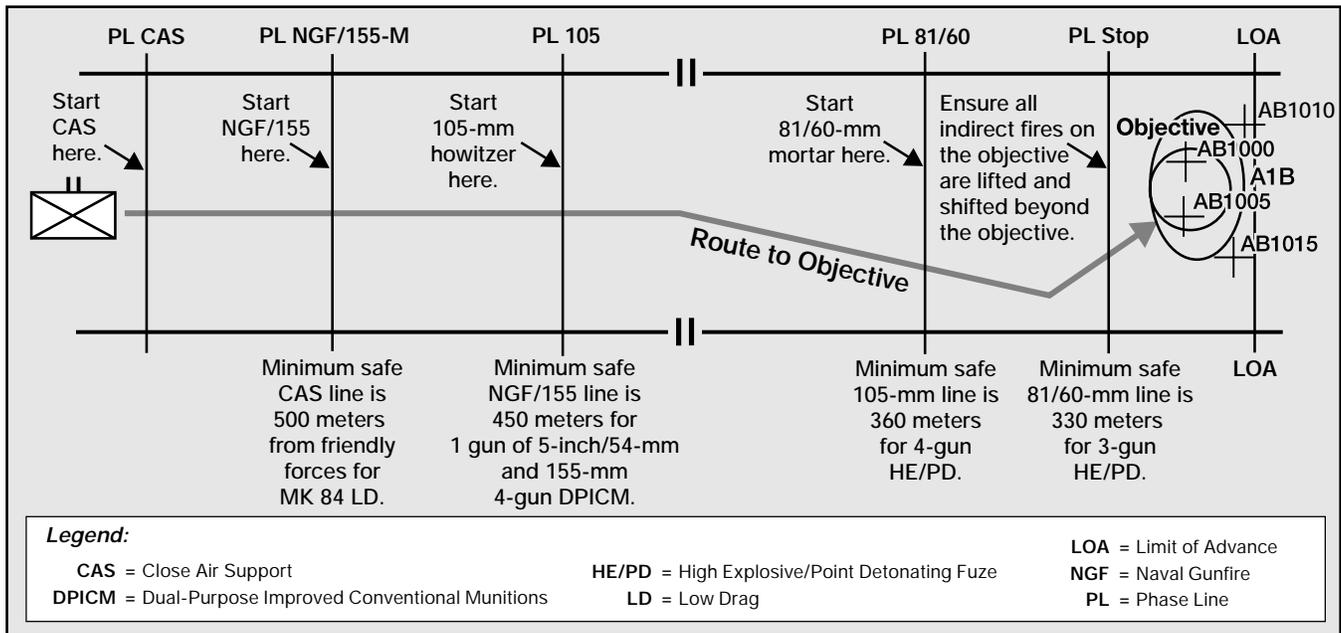


Figure 3: Graphic of an Echelonned Fire Plan for a Deliberate Attack

commander's approval before proceeding with the preparation phase of this process.

Preparation. To ensure crisp execution of the plan, the FSO must do several things. When possible, he should participate in a leader's reconnaissance to physically identify the PLs and targets in the vicinity of the objective. This enables the FSO to confirm the validity of the triggers based on the lay of the ground. If adjustments make the plan easier to execute, the FSO can then make them. Also, reconnaissance gives the opportunity to make refinements to the targets based on the actual location of the enemy. Once the unit observes the targets, it must maintain surveillance in the event the enemy moves.

Following the reconnaissance, the FSO conducts pre-combat inspections. He ensures that all observers—especially those for the lead element—input the PLs in their precision lightweight global positioning system receivers (PLGRs). Using the capability of the PLGR, such as the way-point or bull's-eye functions, fire support personnel can lift and trigger the appropriate asset at the right time. These functions prevent the friendly force from crossing an MSD line before the asset's fires have been lifted and help alert the FSO when to call in the next delivery system.

The linchpin in preparing the fire plan is a solid fire support rehearsal with emphasis on the communications plan. When conducting the rehearsal, the FSO must cover target purpose, refined tar-

get locations, route to the objective, MSD PLs, commo nets and radio calls (or codewords), primary and alternate observers and the appropriate asset. A representative from every delivery asset *must* attend this rehearsal, giving observers and firers the opportunity to iron out problems with the plan. All players then conduct a radio technical rehearsal to verify communications nets are operable.

Execution. When the unit approaches the designated PL en route to the objective, the FSO begins the preparation (Figure 3). As the unit continues its movement toward the objective, the first delivery system engages its targets. It maintains fires on the targets until the unit crosses the next PL that corresponds to the MSD of the weapon.

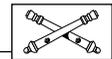
To maintain constant pressure on the targets the unit must start the next asset *before* the previous asset lifts. This ensures no break in fires, enabling the friendly forces' approach to continue unimpeded. However, if the unit rate-of-march slows, the fire support system must remain flexible to the changes while continuing the pressure.

The FSO lifts and engages with each asset at the prescribed triggers, working the fires from the system with the largest MSD to the smallest. Once the maneuver element reaches the final PL to lift all fires on the objective, the FSO shifts to targets beyond the objective to seal the area. This enables the unit to fix and finish the destruction of the enemy on the objective.

Conclusion. Echelonment of fires is a technique for synchronizing and inte-

grating close fires in a deliberate attack while safeguarding the soldiers making the assault. Use of the procedure allows fire supporters to mass fires of various delivery systems at the proper time and location to satisfy the maneuver commander's intent. Several rotations through the Joint Readiness Training Center (JRTC), Fort Polk, Louisiana, during both live-fire and force-on-force scenarios, have validated the technique.

Using echelonment in home-station training builds confidence among fire support leaders and credibility in maneuver circles that we can adequately support a hasty or deliberate attack.



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