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# CHAPTER 1

## MORTAR SECTIONS AND PLATOONS ON THE AIRLAND BATTLEFIELD

**All maneuver units require indirect fire to win. Mortar sections and platoons provide unique indirect fires that are organizationally responsive to the ground maneuver commander. Military history has repeatedly demonstrated the effectiveness of mortars. Their rapid, high-angle, plunging fires are invaluable against dug-in enemy troops and targets in defilade, which are not vulnerable to attack by direct fires. Although they are part of the total fire support system, mortar sections and platoons are not simply small artillery batteries. They play a unique and vital role on the AirLand Battlefield. By virtue of their organization at both company and battalion levels, they provide valuable and responsive fires that ease the combat tasks of company, battalion, and brigade commanders.**

### 1-1. ROLE OF MORTARS

The primary role of mortars is to provide immediately available, responsive indirect fires that support the maneuver of the company or battalion, and that reinforce direct fires during close combat.

In the attack, effective maneuver requires a base of fire, both direct and indirect, to do the following:

- To establish the conditions for maneuver.
- To suppress the enemy.
- To fix him in place.
- To provide close supporting fires for the assault.

In the defense, this base of fire is used as follows:

- To force armored vehicles to button up.
- To breakup enemy troop concentrations.
- To reduce the enemy's mobility and canalize his assault forces into engagement areas.
- To deny him the advantage of defilade terrain and force him into areas covered by direct fire weapons.
- To break up the enemy combined arms team and destroy his synchronization.
- To protect the infantry against a close dismounted assault.

a. Mortar sections and platoons provide the commander with--

- (1) An organic indirect fire capability that is always present and always responsive to the maneuver commander regardless of the changing demands placed on any supporting field artillery.
- (2) Supporting fire that is immediately at hand and close to the company and battalion fight. The mortar section or platoon is aware of the local situation and ready to respond quickly without lengthy coordination.
- (3) Unique plunging fires that complement, but do not replace, the heavier fires of supporting field artillery, close air support, and naval gunfire.
- (4) Weapons whose high rate of fire and lethality fill the gap between the time field artillery fires shift to deeper targets, and the assault elements close onto the objective.
- (5) A solid base of fire upon which to anchor his maneuver to the critical point of enemy weakness.

b. Mortars allow the maneuver commander to quickly place killing indirect fires on the enemy, independent of whether he has been allocated supporting artillery. Heavy forces use carrier-mounted mortars to allow the mortar platoon to move cross-country at speeds compatible with the battalion task force. Light forces use wheeled vehicles or hand carry mortars into firing positions. Some companies have light mortars that can be manpacked across all terrain. All mortar sections and platoons exist to provide immediate, organizationally responsive fires that can be used to meet the rapid changes in the tactical situation on the AirLand Battlefield.

c. The three primary types of mortar fires are as follows:

- (1) **High explosive.** High-explosive rounds are used to suppress or kill enemy dismounted infantry, mortars, and other supporting weapons, and to interdict the movement of men, vehicles and supplies in the enemy's forward area. Bursting WP rounds are often mixed with high-explosive rounds to enhance their suppressive and destructive effects.
- (2) **Obscuration.** Obscuration rounds are used to conceal friendly forces as forces maneuver or assault, and to blind enemy supporting weapons. Obscuration can be used to isolate a portion of the enemy force while it is destroyed piecemeal. Some mortar rounds use bursting WP to achieve this obscuration; others employ more efficient technology. Bursting WP is also used to mark targets for engagement by other weapons, usually aircraft, and for signaling.
- (3) **Illumination.** Illumination rounds are used to reveal the location of enemy forces hidden by darkness. They allow the commander to confirm or deny the

presence of the enemy without revealing the location of friendly direct-fire weapons. Illumination fires are often coordinated with HE fires to both expose the enemy and to kill or suppress him.

## 1-2. TENETS OF AIRLAND BATTLE

Although mortars within infantry formations predate AirLand Battle, they embody the tenets of *initiative, depth, agility, and synchronization*.

a. **Initiative.** Mortars contribute to gaining the initiative from the enemy by providing immediate fires to destroy enemy forces and to disrupt his plans during both offensive and defensive combat. The speed at which mortar fires are brought to bear and the effectiveness of that fire prevent the enemy from gaining the initiative.

(1) Mortars are often used to deliver on-call immediate suppressive fires against camouflaged enemy weapons. Mortar sections and platoons can respond quickly with area fire that either destroys the weapon, obscures its field of fire, or suppresses its gunner. The friendly force thus retains the initiative to either close with the enemy and destroy him or to bypass and strike at another point. In the offense, mortar sections and platoons allow the battalion commander to weight the main effort and to shift, when needed. The commander can also use mortars to screen his movement or to designate targets on which to concentrate fires.

(2) Because each maneuver battalion has organic mortars, the brigade commander is free to mass his supporting artillery at the critical time and place to maintain the initiative. Mortars help regain the initiative during the defense by destroying or disrupting attacking forces, by screening and isolating enemy supporting elements, or by disclosing enemy movements. Mortar sections and platoons permit the battalion and brigade commanders to continue to bring indirect fires to bear on an assaulting enemy even while artillery shifts to attack enemy follow-on forces at a greater range.

b. **Depth.** Mortars add depth to the battlefield, or they can isolate a small portion from enemy observation and movement. They not only out-range most direct fire weapons but also reach enemy forces sheltered in defilade and within field fortifications. The high angle of mortar fires make them effective against enemy forces hidden in wadis, ravines, reverse slopes, thick jungle, or narrow streets and alleyways.

(1) At night, mortars extend the battlefield beyond the depth of normal vision. They can deliver unobserved preregistered fires to destroy the enemy themselves or they may illuminate the enemy for other weapons to engage. Mortar obscuration rounds limit the enemy's view of the battlefield and disrupt his coordinated actions. Mortars add depth to the battlefield by isolating a portion of the enemy's force, allowing its defeat in detail before other units can provide aid.

(2) Carrying their mortars, light raiding forces can move deep behind enemy formations to attack vulnerable points beyond the long-range fires of field artillery. The mortar's ability to deliver fires in any direction at short ranges provides responsive fire support throughout the depth of the friendly rear area. Suppressive fires from light and medium mortars allow the assaulting infantrymen to advance closer to their objective before these fires must be lifted or shifted. This not only conserves friendly combat power but also allows the field artillery to shift and attack enemy supporting weapons or formations deeper to the rear.

c. **Agility.** Mortar sections and platoons exemplify the tenet of agility. The mortar's light weight and simplicity allow infantrymen to move them rapidly and to engage targets quickly with a high volume of fire. Dismounted forces can carry medium and light mortars over all terrain, and light vehicles and helicopters can move heavy mortars easily. Mortars can fire from almost any ground upon which a man can stand. Mortar platoons can shift quickly from engaging multiple targets to massing their fires on a single enemy location. Also, infantry battalions fighting on restrictive terrain use the inherent agility of mortars to add combat power to small, dispersed units. The mortar's high angle of fire, 360-degree traverse, and multi-option fuze allows the commander to move forces quickly about the battlefield without losing responsive and effective fires, regardless of the terrain.

d. **Synchronization.** Because mortar sections and platoons are organic parts of the maneuver battalion, their fires are more easily synchronized with the actions of the other members of the combined arms team to destroy the enemy. The synchronization of mortar fires with the fire of machine guns, TOWs, Dragons, and the small-arms weapons of the rifle platoons produces a greater combined effect on the enemy than the simple total of these fires.

(1) Mortar fires are a critical and irreplaceable element of the rifle company's maneuver. They either kill the enemy or suppress his fire, and thus allow the assaulting riflemen to close and kill him.

(2) Mortar fires alone cannot destroy enemy armor but contribute to the enemy's destruction through synchronized action. Long-range HE fires force enemy armor to button up and to reduce its speed of advance. HE and WP fires separate tanks from their dismounted infantry support, leaving them isolated and vulnerable to precision antitank weapons.

(3) Mortar illumination, synchronized with ground-mounted antitank weapons and AH-1 attack helicopters, reveals and destroys hidden enemy armored forces during darkness. Mortars also contribute to synchronization by providing marking rounds for CAS and attack helicopters. They also illuminate and suppress enemy defenders who can then be destroyed by direct fires and close assault forces.

(4) After the combined arms team wins the antiarmor battle, or is still fighting it around key engagement areas, friendly battalions face dismounted attacks by

Threat motorized infantry, day and night. The battalion commander uses mortar fires to dominate and destroy this enemy, while protecting and conserving the friendly force.

### **1-3. COMPANY- AND BATTALION-LEVEL BATTLE**

Suppressing the enemy inhibits his fire and movement, while allowing friendly forces to gain a tactical mobility advantage. At the company- and battalion-level battle, mortar fire acts both as a killer of enemy forces and as an enhancer of friendly mobility.

- a. Field artillery assets at all levels are limited. For brigade and division commanders to concentrate offensive combat power at the critical point, they must decentralize elsewhere. Some maneuver units will always have less artillery support than others. Mortars compensate for this and reduce the degree of combat risk.
- b. Mortars unstress commanders at the next higher level from which they are organic. Since maneuver battalions have mortars, brigade commanders can divert field artillery fire support away from them for limited periods to win the critical fight elsewhere.
- c. Mortars contribute to the battalion's antiarmor battle by forcing the enemy to button up, obscuring his ability to employ supporting fires, and separating his dismounted infantry from their BMPs and accompanying tanks. The battalion's antiarmor fires become more effective when used against buttoned up enemy armor.
- d. Heavy mortars can penetrate buildings and destroy enemy field fortifications, preparing the way for the dismounted assault force.
- e. Mortars guarantee the battalion and company commanders the ability to cover friendly obstacles with indirect fire, regardless of the increasing calls for artillery fire against deep targets or the visibility on the battlefield.
- f. Mortar fire combines with the FPF of a company's machine guns to repulse the enemy's dismounted assault. This frees artillery to attack and destroy follow-on echelons, which are forced to slow down and deploy as the ground assault is committed. Mortars can use the protection of deep defilade to continue indirect fire support, even when subjected to intense counterfire.
- g. Mortars can fire directly overhead of friendly troops from close behind the forward elements. This allows combat power to be concentrated and synchronized on close terrain.

### **1-4. MORTAR CHARACTERISTICS AND ORGANIZATIONS**

Simplicity, ruggedness, maneuverability, and effectiveness are the principle characteristics of mortars. This paragraph discusses the specific characteristics and

capabilities of US mortars, and current organization of these weapons into squads, sections, and platoons.

a. **Characteristics.** The US currently has five models of mortars. (See Table 1-1.) For detailed technical information on each mortar type, see FM 23-90 and the applicable TMs for each mortar.

WPN	AMMUNITION		METERS			RATES OF FIRE/NOTES		
	MODEL	TYPE	MIN RANGE	MAX RANGE	DIA OF ILL			
60-mm M224	M720/M889	HE*	70	3,500 <sup>(1)</sup>	500	30 rounds per minute for 4 minutes <sup>(2)</sup> then 20 rounds per minute, sustained		
	M722	WP**	70	3,500				
	M721	ILLUM***	200	3,500	300			
	M302A1	WP	35	1,830				
	M83A3	ILLUM	725	950				
	M49A4	HE	45	1,830				
81-mm M29A1	M374A2	HE	70	4,600	360	25 rounds per minute for 2 minutes, then 8 rounds per minute, sustained		
	M374A3	HE	73	4,790				
	M375A2	WP	73	4,595				
	M301A3	ILLUM	100	3,950				
81-mm M252	M821/M889	HE	80	5,800	650	30 rounds per minute for 2 minutes, then 15 rounds per minute, sustained		
	M374A3	HE	73	4,790				
	M819	RP****	300	4,800				
	M375A2	WP	73	4,595				
	M853A1	ILLUM	300	5,060				
	M301A3	ILLUM	100	3,950				
107-mm M30	M329A2	HE	770	6,840	800	18 rounds per minute for 1 minute, then 9 rounds per minute for 5 minutes, then 3 rounds per minute, sustained		
	M329A1	HE	920	5,650				
	M328A1	WP	770	5,650				
	M335A2	ILLUM	440	5,490				
120-mm M120	M57	HE	200	7,200	1,500	15 rounds per minute for 1 minute, then 4 rounds per minute, sustained		
	M68	WP	200	7,200				
	M91	ILLUM	200	7,100				
	M933	HE (PD)	200	7,200				
	M934	HE(MDF)	200	7,200				
	M929	WP	200	7,200				
	M930	ILLUM	200	7,200				
	* HIGH EXPLOSIVE			(1) BIPOD-MOUNTED, CHARGE 4 (MAXIMUM RANGE HANDHELD IS 1,300 METERS)				
	** WHITE PHOSPHORUS			(2) CHARGE 2 AND OVER, 30 ROUNDS PER MINUTE CAN BE SUSTAINED WITH CHARGE 0 OR 1				
*** ILLUMINATION								
**** RED PHOSPHORUS								

Table 1-1. Mortar characteristics.

(1) *Light mortar.* The 60-mm mortar, M224, provides air assault, airborne, ranger, and light infantry rifle companies with an effective, efficient, and flexible

weapon. The inherent limitations of a light mortar (short-range and small-explosive charge) can be minimized by careful planning and a thorough knowledge of its capabilities. The M224 can be employed in several different configurations. The lightest weighs about 18 pounds; the heaviest weighs about 45 pounds. Each round weighs about 4 pounds.

(2) **Medium mortars.** The 81-mm mortars, M29A1 and M252, are the current US medium mortars. The M252 is replacing the M29A1, but both will remain in the Army inventory for several years. Medium mortars offer a compromise between the light and heavy mortars. Their range and explosive power is greater than the M224, yet they are still light enough to be man-packed over long distances. The M29A1 weighs about 98 pounds. The M252 is slightly lighter, about 93 pounds. Both can be broken down into several smaller loads for easier carrying. Rounds for these mortars weigh about 15 pounds each.

(3) **Heavy mortars.** The 107-mm mortar, M30, and the 120-mm mortar, M120, are the current US heavy mortars. The M120 is replacing the M30, but both will remain in the US inventory for several years. The M30 is a rifled mortar, stabilizing its projectile by spinning it rapidly. The M120, like all other US mortars, fires fin-stabilized ammunition from a smooth bore. Although heavy mortars require trucks or tracked mortar carriers to move them, they are still much lighter than field artillery pieces. They outrange light and medium mortars, and their explosive power is much greater. The M30 weighs about 675 pounds. The M120 is much lighter at about 320 pounds. Rounds for the 107-mm mortar weigh about 28 pounds. Those for the 120-mm mortar weigh almost 33 pounds each.

**b. Organization.** The organization and equipment of mortar sections and platoons is based on approved TOE or MTOE. Because TOEs can change, current authorizations should be reviewed for more detailed information. Mortar sections or platoons are located in either the battalion's headquarters and headquarters company or combat support company, and in cavalry troops and rifle companies, depending on the TOE or MTOE. In most organizations, mortars are grouped under the leadership of a junior commissioned officer--these groupings are designated as platoons. Platoons consist of two to six squads, which are comprised of one mortar and its crew. All mortar platoons have personnel designated to man the FDC. Squads can be grouped into sections for command and control. Sections consist of two or more squads, which are normally under the supervision of a senior noncommissioned officer. The mortar sections in the airborne, air assault, and light infantry companies and the cavalry troop are not organized within a platoon and do not have designated FDC personnel. (See Appendix K for diagrams for mortar organizations.)

(1) Mechanized infantry and armor battalions are equipped with heavy mortars, either 107-mm or 120-mm (Figure 1-1). Both the mortar squads and the FDC personnel operate from tracked carriers, which offer protection from small-arms fire and shell fragments. TOEs differ in the number of mortar squads and FDCs within the mortar platoon. Mechanized infantry companies in some Reserve

Component battalions also have mortar platoons, which have 81-mm mortars in tracked mortar carriers.

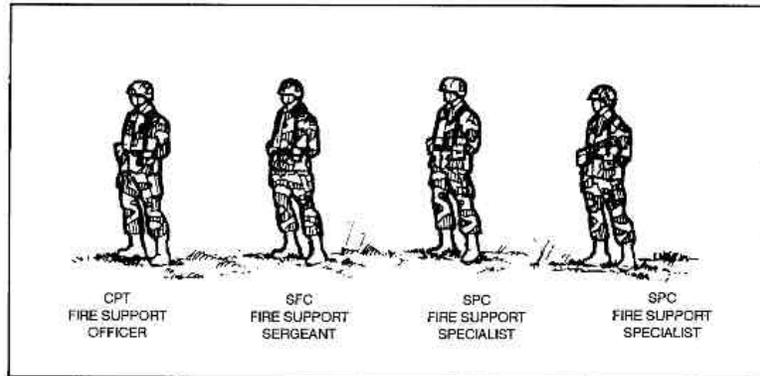


Figure 1-1. Typical battalion fire support section.

(2) Airborne, air assault, and light infantry battalions have mortar platoons at battalion and mortar sections at company levels. The mortar platoon at battalion level is equipped with 81-mm mortars. The mortar section at company level has the 60-mm mortar. The battalion mortar platoon is equipped with trucks and trailers, but the company's 60-mm mortars are hand carried.

(3) Some infantry battalions in the Reserve Component also have mortar platoons at both battalion and company levels. The mortar platoon at battalion level is equipped with either the 107-mm or 120-mm mortar. The company mortar platoon has 81-mm mortars. Both platoons are authorized trucks and trailers for movement.

(4) Ranger battalions are not authorized battalion-level mortars but do have a weapons platoon within each ranger rifle company. These weapons platoons are equipped with 60-mm mortars that they hand carry.

(5) Ground cavalry troops have heavy mortar sections equipped with either the 107-mm or 120-mm mortar, track-mounted. The difference between J- and H-series TOEs is the number of mortar squads for each troop. Cavalry mortar sections do not have dedicated FDC personnel.

(6) Motorized battalions have heavy mortar platoons within their combat support companies that are equipped with towed versions of the 120-mm mortar. Each mortar squad has a HMMWV as a prime mover.

## 1-5. ASSOCIATED ORGANIZATIONS

No element of the combined arms force operates independently. Each assists or coordinates with others. Several associated organizations work with mortar sections and platoons to maximize and coordinate the effects of mortar fire. There is a field artillery fire support coordinator at each echelon of command from company through brigade. At brigade level, he is the direct support artillery battalion commander. At battalion level and below, field artillery fire support coordinators are designated as FSOs.

a. A direct support field artillery battalion normally provides a fire support section (FSS) to each of its supported infantry, mechanized infantry, and tank battalions (Figure 1-1). The battalion FSO, a captain, is in charge of this section. He is the principal advisor to the maneuver commander on fire support matters and is the fire support coordinator for the battalion. In mechanized infantry and armor battalions, the FSS is equipped with a special tracked vehicle with radios that allow communications by both voice and digital transmissions. A key piece of communications equipment used by the FSS is the FIST-DMD. This is an enhanced version of the standard digital message device supplied to each FO team. Using the FIST-DMD, the FSO can operate in four separate digital radio nets, and accept input from laser designators. In infantry battalions, the FSS uses wheeled vehicles, and its digital communications nets may be limited.

b. Each infantry and armor maneuver company normally has a fire support team (FIST) (Figure 1-2). The FIST is led by a field artillery lieutenant, the company FSO, and has three two-man FO teams for each infantry company. The FO teams are normally attached, one to each rifle platoon, but they can be employed in other ways. In tank companies and armored cavalry troops, the FIST consists only of the FIST headquarters with no FO teams. The FO's functions are performed by leaders within the platoons. The FIST, and each FO team, is equipped with radios that can be man-packed. They also have a digital message device. In mechanized and armored battalions, the FIST has a FIST-V. In infantry and ranger battalions, the FIST may have a wheeled vehicle or he may operate dismounted.

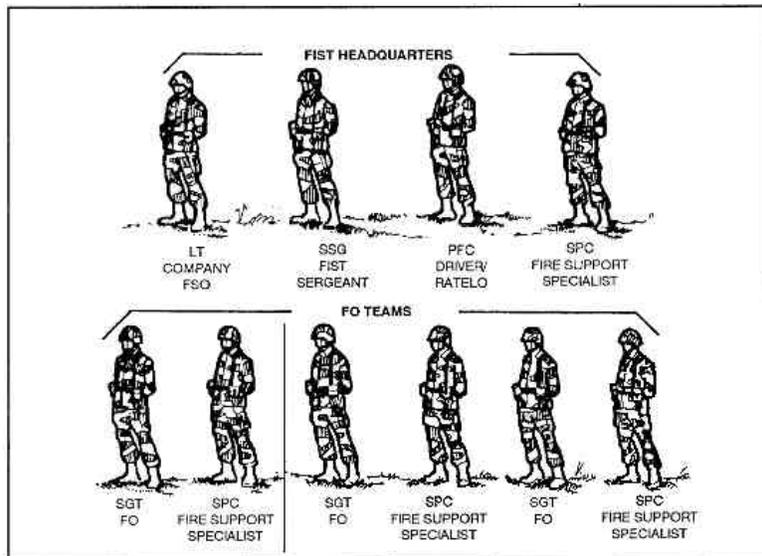


Figure 1-2. Typical infantry company fire support team.

c. Maneuver battalions may have one or more special lasing teams attached or supporting them (Figure 1-3). These teams are equipped with either the FIST-V or man-portable lasers that can be used to designate targets for aircraft or to provide terminal guidance for precision munitions such as Copperhead, Hellfire, or laser-guided bombs. The colt also calls for and adjusts conventional indirect fires, including mortar fires.

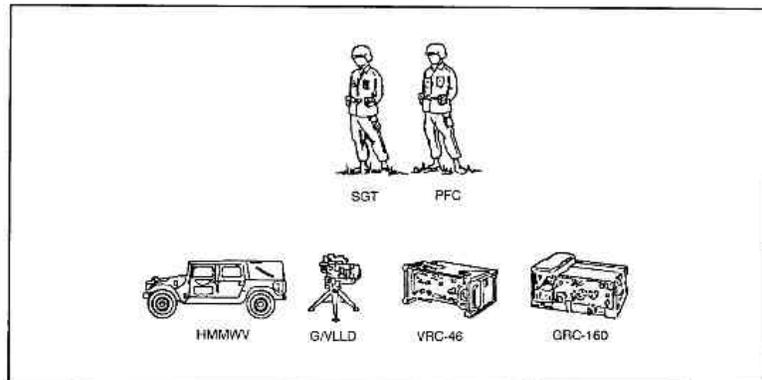


Figure 1-3. Typical combat observation lasing team.

d. If a maneuver battalion is operating near the coast, it may be supported by elements of the air and naval gunfire liaison company (ANGLICO) (Figure 1-4). The ANGLICO normally provides each battalion a supporting arms liaison team (SALT) consisting of one officer and six enlisted men. The SALT is capable of planning, requesting, coordinating, and controlling naval gunfire, and naval/marine air strikes. In the absence of a US Air Force TACP, the SALT can also control USAF close-air support. Each SALT is equipped with a wheeled vehicle, a radar bombing beacon, and sufficient radios to allow it to operate in the following nets:

- Naval gunfire support net.
- Brigade or battalion command net.
- Naval gunfire spot net.
- Tactical air request net.

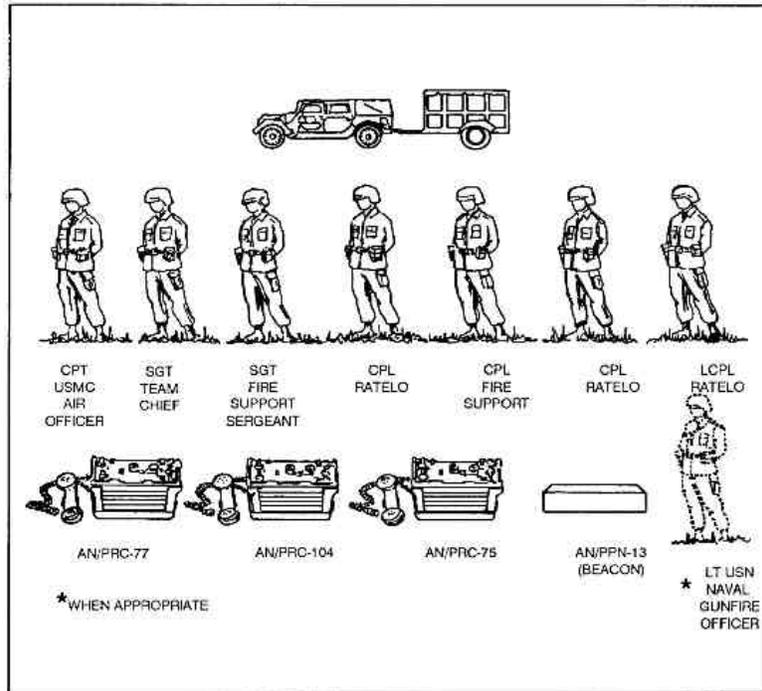


Figure 1-4. Typical supporting arms liaison team.

e. Each SALT has two firepower control teams (FCT). These teams perform much the same functions as the company-level FIST. They call for and adjust naval gunfire, and control naval close-air support. Each FCT is composed of one officer and five enlisted

men. The team has a wheeled vehicle and sufficient radios to operate in the following nets:

- Battalion or company command net.
- Naval gunfire spot net.
- Tactical air request net.

Each FCT also has a radar transponder (beacon) used to control beacon offset bombing missions. One FCT normally supports a company and may be attached to it (Figure 1-5).

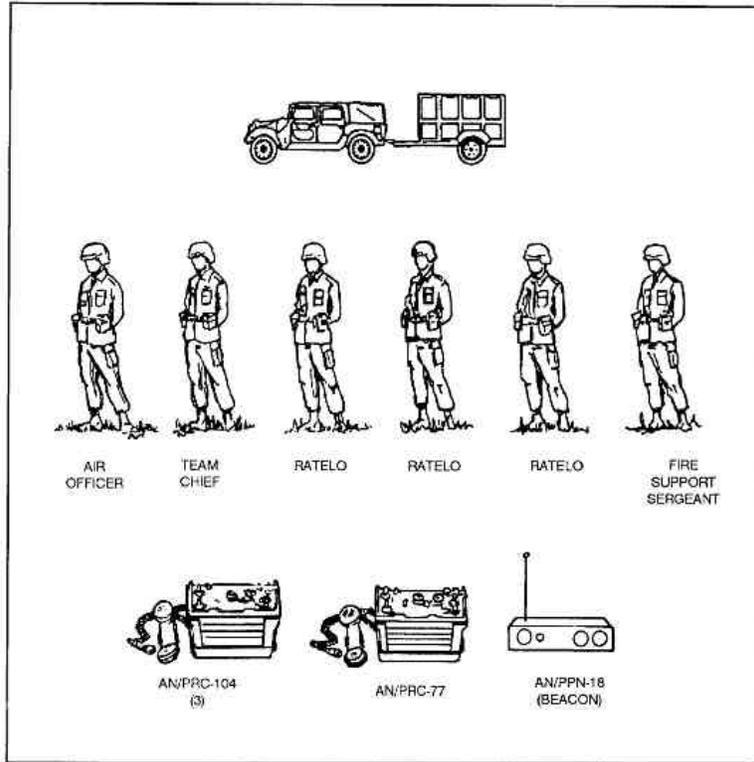


Figure 1-5. Typical firepower control team.