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FM 3-21.9
THE SBCT INFANTRY RIFLE PLATOON AND SQUAD

COVER

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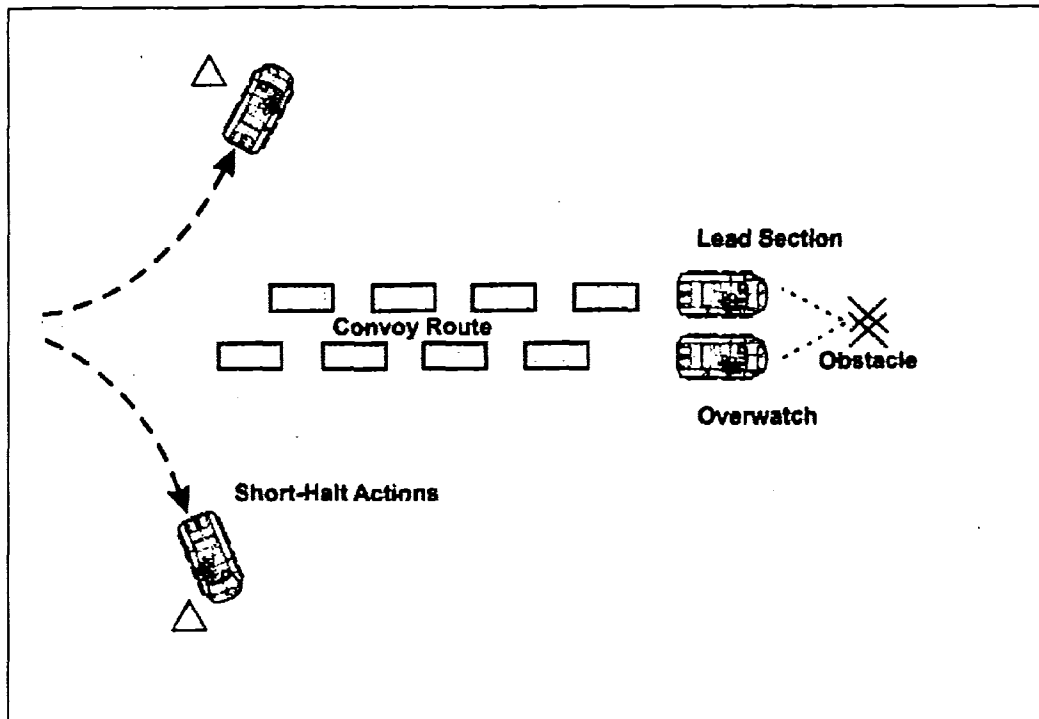


Figure 7-11. Convoy escort overwatches an obstacle.

h. Actions During Halts. During a short halt, the convoy escort remains alert for possible enemy activity. If the halt is for any reason other than an obstacle, the following actions should be taken:

- The convoy commander signals the short halt and transmits the order via tactical radio. All vehicles in the convoy assume a herringbone formation.
- If possible, escort vehicles are positioned up to 100 meters beyond the convoy vehicles that are just clear of the route (Figure 7-12). Escort vehicles remain at the ready, dismount the rifles squads as required, and establish local security.
- When the order is given to move out, convoy vehicles reestablish movement formation, leaving space for escort vehicles (Figure 7-13). Once the convoy is in column, local security elements (if used) return to their vehicles, and the escort vehicles rejoin the column (Figure 7-14).
- The convoy resumes movement.

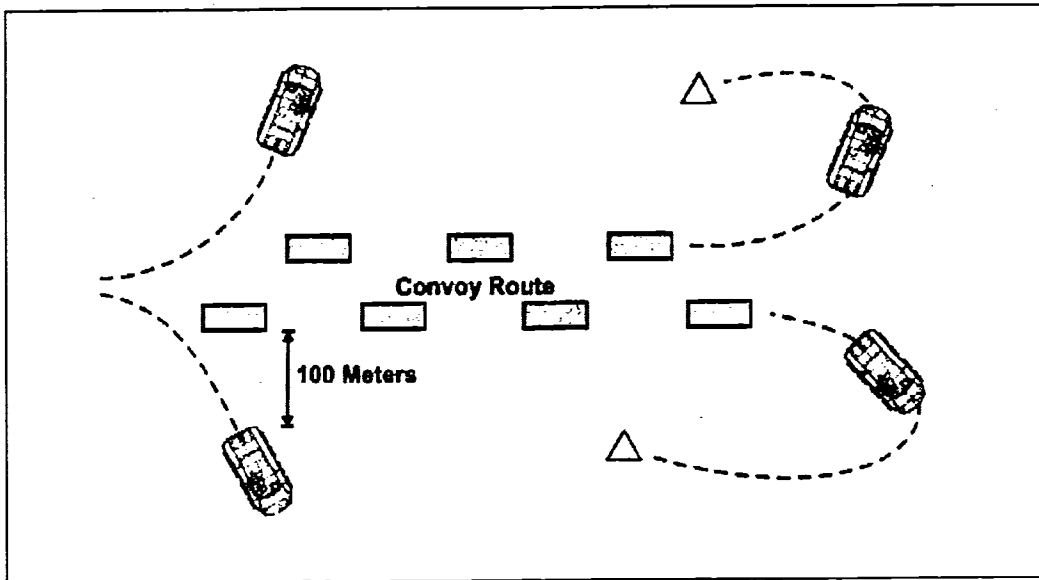


Figure 7-12. Convoy assumes herringbone formation.

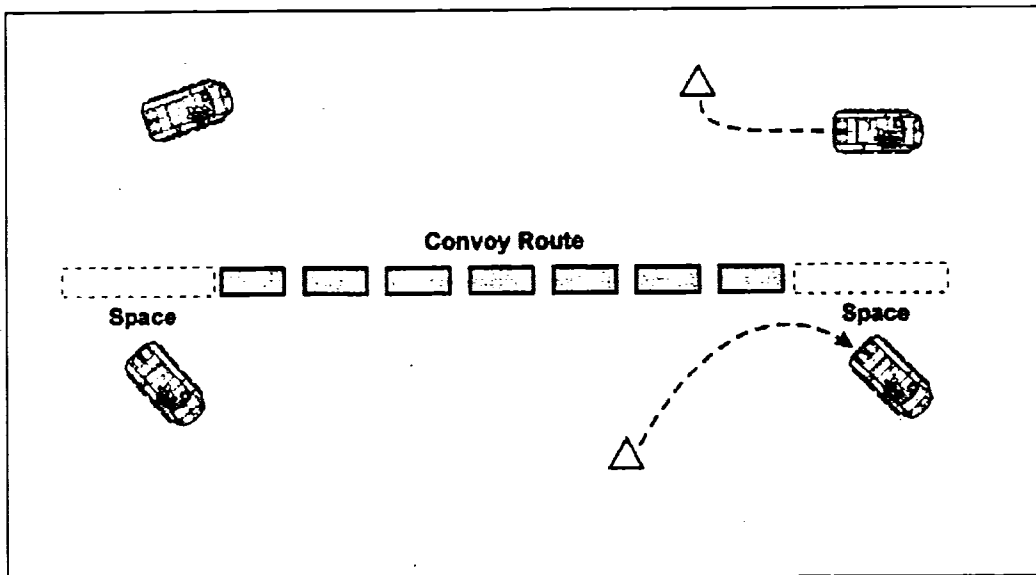


Figure 7-13. Convoy moves back into column formation.

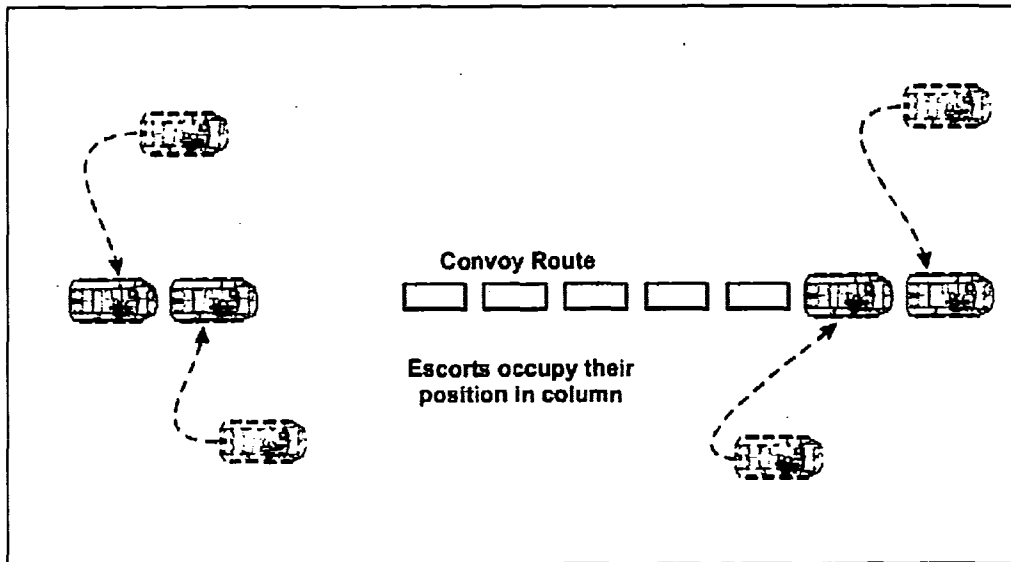


Figure 7-14. Convoy escort vehicles rejoin column.

7-11. CheckPoints, RoadBlockS, and Observation Posts

Construction and manning of checkpoints, roadblocks, and observation points are high-frequency tasks for an infantry company and subordinate elements when they must establish area security during stability operations.

- **Checkpoints.** A CP is a predetermined point used as a means of controlling movement, such as a place where military police check vehicular or pedestrian traffic, to enforce circulation control measures and other laws, orders, and regulations. (Figure 7-15, shows an example of a deliberate CP.)
 - **Roadblocks.** A roadblock is used to limit the movement of vehicles along a route or to close access to certain areas or roads. Checkpoints and roadblocks can be either deliberate or hasty with the primary difference being the extent of planning and preparation conducted by the establishing force.
 - **Observation Posts.** An OP is a position from which military observations are made or fire directed and adjusted and which has appropriate communications. They are both overt (conspicuously visible, unlike their tactical counterparts) and deliberately constructed. Observation posts are similar in construction to bunkers and are supported by fighting positions, barriers, and patrols.
- a. **Purposes.** The platoon may be directed to establish a CP, roadblock, or OP for the following reasons.
- To show a military presence to all parties and to the population in the area.
 - To survey all activity in the terrain, along roads, and in inhabited areas.
 - To check and or inspect and register all personnel and vehicles in and out of the controlled area.

- To survey airspace, coastal areas, airfields, cease-fire lines, and borders.
- To deter illegal movement.
- To create an instant roadblock.
- To control movement into the area of operations or on a specific route.
- To prevent smuggling of contraband.
- To enforce the terms of peace agreements.
- To ensure proper use of routes by both civilian and military vehicles.

b. Planning and Establishing. The layout, construction, and manning of CPs, roadblocks, and OPs should reflect the factors of METT-TC, especially the time available for emplacing them. The layout of a deliberate CP can be found in FM 3-90.1 (71-1). The following procedures and considerations may apply:

- Position the CP or roadblock where it is visible and where traffic cannot turn back, get off the road, or bypass without being observed.
- Position a combat vehicle off the road, but within sight, to deter resistance to soldiers manning the CP. The vehicle should be in a hull-down position and protected by local security. It must be able to engage vehicles attempting to break through or bypass the CP.
- Place obstacles in the road to slow or canalize traffic into the search area.
- Establish a reserve.
- Establish wire communications in the CP area to connect the CP bunker, the combat vehicle, the search area, security forces, the rest area, and any other elements involved in the operation.
- Designate the search area. If possible, it should be below ground to provide protection against such incidents as the explosion of a booby-trapped vehicle. Establish a parking area adjacent to the search area.
- If applicable, CP personnel should include linguists.
- Establish an early warning system around the perimeter of the OP (trip flares, empty cans, dry branches, and so on).
- Prepare shelters and defensive positions.

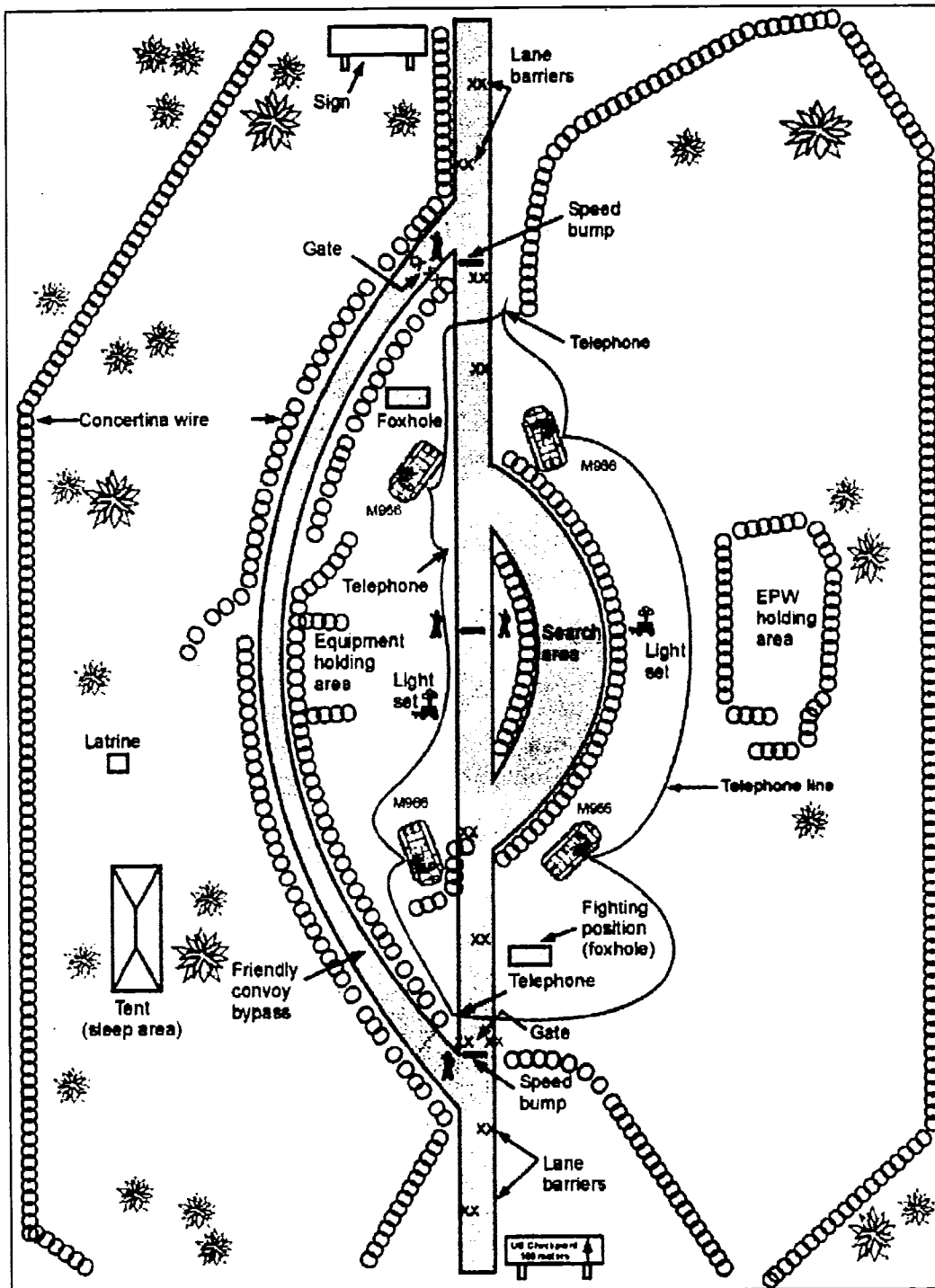


Figure 7-15. Example of a deliberate CP.

c. **Manning Observation Posts and Checkpoints.** When manning OPs and CPs proper order and a systematic approach must be emphasized. Personnel must behave so that no misunderstanding occurs. The personnel manning the CP must be in complete control of the surrounding terrain.

(1) Although the OP is usually manned on a 24-hour basis, it may be manned only by day or night. During darkness, at least two persons must be in the OP position--one observes while the other is resting. In remote areas, or if the situation in the area is tense, more personnel

man the OP for security and observation.

(2) A minimum of two soldiers should man the CP, depending on traffic and the general situation. One soldier examines people and vehicles; the other soldier covers the area where people and vehicles are checked. The soldier covering the other area is armed and has easy access to radio and telephone. If more soldiers are manning the CP, one of them should be ready to set up obstacles to stop vehicles trying to force their way through the CP.

d. **Communications.** All OPs and CPs are connected to their unit or directly to the battalion operations center by radio and telephone. A spare radio and batteries should be supplied to the OP and CP, especially to remote OPs located in dangerous areas. Radio and telephone checks are carried out at least twice every 24 hours (three times is recommended). Special code words must be prepared for use in certain situations. Conversation must be coded. Reserve frequencies must be available. OPs and CPs of great operational value may be connected by direct landline to ensure rapid coordination in urgent situations.

e. **Equipment.** Many items are used to reinforce a roadblock, CP, or OP.

(1) Some of the recommended equipment includes:

- Barrels filled with sand, water, or heavy concrete blocks (emplaced to slow and canalize vehicles).
- Concertina wire (emplaced to control movement around the CP).
- Secure facilities for radio and wire communications with the controlling headquarters.
- First aid kit or a medic if available.
- Sandbags for defensive positions.
- Bunker construction material.
- Binoculars, night vision devices, and or flashlights.
- Long-handled mirrors (used to inspect vehicle undercarriages).
- Signs stating the speed limit into and out of the CP. (The text of these signs must be written in English and the local language.)

(2) Elements manning a deliberate CP may require access to specialized equipment such as:

- Floodlights.
- Duty log.
- Flag and unit sign.
- Barrier pole that can be raised and lowered.

- Generators with electric wire.

f. **Control.** During periods in which the civilian administration is not functioning, refugees will be traveling routinely throughout the area. All soldiers participating in these operations must fully understand the procedures for appropriately identifying personnel and for controlling personnel and vehicles moving through their AO.

(1) **Personnel Identification.** People who have permission to enter a sector are regulated by special instructions to the patrol conducting the operation. Often local and civilian employees, mayors, and chiefs of tribes in villages in the AO are given special identification (ID) cards and may pass without being checked. These special ID cards must be registered. The primary reasons for checking people will be for identification and to prevent illegal items being brought into the AO through the CP. Personnel must identify themselves with an ID card, passport, and so on. Such ID cards are written in the local language. Examples of different ID cards must be kept in the CP.

(2) **Personnel Control.** Personnel control is conducted in different ways. Soldiers manning the CP should watch for people acting strangely or with bulging clothing. If there is a danger of car bombs, special attention should be paid to cars containing only one person. When conducting body searches, soldiers should feel along clothes and not just pat them. Special attention must be paid to the lower parts of the back and from the shoes up to the knees. Armpits also must be checked. The wide trousers used by some cultures should be carefully examined. Soldiers also should check boots and hats.

(3) **Checking Women and Clerical Personnel.** Making a body search of women and clerical personnel is often difficult in Moslem countries and may lead to strong reactions. The commander must thoroughly discuss this with mayors and other leaders, and the procedure used must be consistent with agreements and treaties. Women usually are only checked with a metal detector. Elderly women often may remain in the vehicle during inspection of a car. If there is a suspicion that the "rules" are being misused, then other and better checks must be made. The battalion commander makes these decisions

CHAPTER 8

COMBAT SUPPORT

The battalion commander is responsible for effective combat support. Mortars, artillery, air defense artillery, combat engineers, and aviation assets provide CS for the platoon. The battalion commander decides how to employ assets based on his estimate of the situation. He attaches supporting elements to the company, or he places CS elements under operational control, in direct support (DS), or in general support (GS) of the company. The company commander may attach supporting elements to the platoon. The platoon leader must know the employment considerations and abilities of all CS assets.

Section I. FIRE SUPPORT

Fire support is the collective and coordinated use of indirect fire weapons and armed aircraft in support of the battle plan. Fire support assets include mortars, field artillery cannons and rockets, Army aviation, close air support, and naval surface fire support. Support can either be lethal or non-lethal (smoke or illumination). Indirect fire support procedures do not change significantly with the ICV-equipped infantry platoon except that they should be more responsive. Additionally, the mortars organic to the company provide the earliest and most responsive fires to the platoon.

8-1. FIRE PLANNING

Digitization improves company and platoon ability to conduct fire support planning. The platoon leader and FO receive the company indirect fire plan on their CTD or LWS as soon as the company FSO enters it into the database on his hand-held terminal unit (HTU). No longer must the platoon leader or FO wait until the final OPORD is issued to receive the fire support overlay.

- a. The platoon leader and or platoon FO call up the operational graphics and the latest enemy situational graphics to aid with their planning, enter the platoon's proposed targets into the HTU, and forward them to the *company* FSO's HTU. The company FSO reviews the proposed targets with the company commander. The company commander accepts, rejects, or adjusts the platoon leader's proposed targets.
 - (1) If the company commander accepts or adjusts the targets, he incorporates them into the company fire plan. The *company* FSO uses his HTU to forward them to the *battalion* FSO's AFATDS as part of the company fire plan.
 - (2) It is the FSO's responsibility to clean up the digital fire support graphics. The company FSO ensures only valid targets remain on the digital fire support graphics.
- b. Once the battalion and company finalize the targets, the company FSO puts out a net call over his CTD or LWS to inform the platoon leaders and platoon FOs that the fire support graphics are finalized. All leaders must review the digital fire support graphics on their CTD or LWS so they are familiar with any changes and to ensure graphics are updated for subsequent fire missions
- c. Fire support planning is conducted concurrently with maneuver planning at all levels. Companies and battalions typically use top-down fire support planning with bottom-up refinement of the plans. The company commander develops guidance for fire support in terms of task and

purpose. In turn, the fire support planner determines the method to be used in accomplishing each task. He also specifies an end state that quantifies task accomplishment.

d. Individual fire support assets incorporate assigned tasks into their fire plans. Units tasked to initiate fires must refine and rehearse their assigned task. This means the platoon leader refines the platoon's assigned portion of the company's fire support plan to ensure the designated targets will achieve the intended purpose. He also conducts rehearsals to prepare for the mission and, as specified in the plan, directs the platoon to execute its assigned targets.

8-2. LINKING FIRE SUPPORT TASKS AND MANEUVER PURPOSE

A clearly defined maneuver purpose enables the maneuver commander to articulate precisely how he wants indirect fire to affect the enemy during different portions of the battle. This in turn allows fire support planners to develop an effective plan to support the intended purpose. They can determine each required task (in terms of effects on target), the best method for accomplishing each task (in terms of a fire support asset and its fire capabilities), and a means of quantifying accomplishment.

A carefully developed method of fire is equally valuable during execution of the fire support mission; it assists not only the firing elements but also the observers responsible for monitoring the effects of the indirect fires. With a clear understanding of the intended effects, fire support assets and observers can work together effectively, planning and adjusting fires as necessary to achieve the desired effects on the enemy. The following paragraphs describe several types of targeting effects associated with fire support tasks.

a. **Final Protective Fire Planning.** Final protective fires are designed to create a final barrier, or "steel curtain," to prevent a dismounted enemy from moving across defensive lines. They are fires of last resort and take priority over all other fires. The employment of FPFs presents several potential problems. They are linear fires, with coverage dependent on the firing sheaf of the fire support asset(s). In addition, while FPFs may create a barrier against penetration by enemy infantry, armored vehicles may simply button up and move through the fires into the friendly defensive position. FPFs are planned targets with a clearly defined purpose. FPF planning is normally delegated to the company that is allocated the support.

b. **Target Refinement.** The platoon leader is responsible for employing indirect fires in his zone or sector. The most critical aspect of this responsibility is target refinement, in which he makes changes to the fire support plan to ensure targets accomplish the company and or battalion commander's intended battlefield purpose. Rather than merely executing targets without regard to the actual enemy situation, the platoon leader must be ready to support the commander's intent by adjusting existing targets or nominating new targets that will allow engagement of specific enemy forces.

c. **Fire Support Preparation.** As noted, although the company and battalion commanders establish target tasks and purposes and allocate appropriate fire support assets, the platoon leader must ensure execution of assigned targets. Successful execution demands detailed preparation that focuses on areas covered in the following paragraphs.

(1) **Observation Plan.** In developing the observation plan, the platoon leader must ensure both a primary observer and an alternate observer for redundancy to cover all targets. The plan must provide clear, precise guidance for the observers. Positioning is perhaps the most important aspect of the plan.

(a) Observers' positions must allow them to see the trigger for initiating fires as well as the target area and the enemy forces on which the target is oriented. The platoon leader also must consider other aspects of observer capabilities, including available equipment, communication, and security of the teams.

(b) In addition to providing the specific guidance outlined in the observation plan, the platoon leader must ensure each observer understands the target task and the purpose. For example, observers must understand that once the first round impacts, the original target location is of no consequence. They must orient on the targeted enemy force to ensure that fires achieve the intended battlefield purpose.

(2) **Rehearsals.** The platoon leader is responsible for involving his observers in platoon-and company-level rehearsals. He also should use rehearsals to ensure the platoon's primary and backup communications systems adequately support the plan.

(3) **Target Adjustment.** In the defense, the commander should confirm target location by adjusting fires as part of engagement area development.

Section II. INDIRECT FIRE SUPPORT

The main indirect fire support available to the platoon includes mortars and field artillery (Table 8-1). This section discusses the responsibilities, considerations, and procedures for employing all the indirect-fire assets supporting the platoon. (FM 6-30 discusses in detail how to call for and adjust indirect fires.)

CALIBER:	60-mm	81-mm	81-mm (improved)	120- mm	105-mm	155-mm	155-mm
MODEL:	M224	M29A1	M252	M285	M119	M198	M109A6
MAX RANGE (HE)(m):	3,490	4,595	5,608	7,200	14,000	18,100	18,100
PLANNING RANGE (m):					11,500	14,600	14,600
PROJECTILE:	HE, WP, ILLUM,	HE, WP, ILLUM,	HE, WP, ILLUM, RP	HE, SMK, ILLUM,	HE M760 ILLUM, HEP-T, APICM, CHEM, RAP	HE, WP, ILLUM, SMK, CHEM, NUC, RAP, FASCAM, CPHD, AP/ DPICM	HE, WP, ILLUM, SMK, CHEM, NUC, RAP, FASCAM, CPHD, AP/ DPICM
MAX RATE OF FIRE:	30 RPM FOR 1 MIN	30 RPM FOR 1 MIN	30 RPM FOR 2 MIN	15 RPM FOR 3 MIN	6 RPM FOR 1 MIN	4 RPM FOR 1 MIN	4 RPM FOR 1 MIN

SUSTAINED RATE OF FIRE (rd/min):	20	8	15	5	3	2	2
MINIMUM RANGE (m):	70	70	83	180	DIRECT FIRE	DIRECT FIRE	DIRECT FIRE
FUZES:	MO	PD, VT, TIME, DLY	PD, VT, TIME, DLY	MO	PD, VT, MTSQ, CP, MT, DLY	PD, VT, CP, MT, MTSQ, DLY	PD, VT, CP, MT, MTSQ, DLY
LEGEND: AP - Armor Piercing APICM - Antipersonnel Improved Conventional Munitions CHEM - Chemical CP - Concrete Piercing CPHD - Copperhead DLY - Delay DPICM - Dual Purpose Improved Conventional Munitions FASCAM - Family of Scatterable Mines HE - High Explosive HEP-T - High Explosive Plastic Tracer ILLUM - Illumination MIN - Minute				MO - Multioption - VT, PD, DLY MT - Mechanical Time MTSQ - Mechanical Time Super Quick NUC - Nuclear PD - Point Detonating RAP - Rocket Assisted Projectile RD - Round RP - Red Phosphorus RPM - Rounds per Minute SMK - Smoke TIME - Adjustable Time Delay VT - Variable Time WP - White Phosphorus			

Table 8-1. Indirect fire weapons capabilities.

8-3. FIRE PLANNING PROCESS

The fire-planning process begins at higher echelons and continues down through the company FSOs and other key personnel, to include the platoon leader and FO. The fire support plan must support the maneuver plan; it should not be planned separately. The effectiveness of this process depends on continuous interaction and feedback from the lower echelons upward. Key functions include refinement and confirmation of target locations and execution of events. Specific responsibilities include those listed on the fire support execution matrix. The matrix shows the leader who bears responsibility for each target, when the responsible party should execute the target, and what means (artillery, mortars, CAS) he or they should use. Figure 8-1 shows an example of a company fire support matrix. It shows maneuver elements along the left side and the different phases of the mission along the top. It shows the platoon's role throughout the operation. The preparer should always include the platoon as a subunit in the matrix.

	AA	LD	CP7	OBJ GREEN
F80	INITIAL PREP 1ST PLT	FIRE CA 3012 CFL CHUCK 2D PLT	FIRE C1A GROUP 3D PLT	ACS (CAS) 1400Z
1st PLT	FA FPF	CFL CHUCK		MORTAR FPF
2D PLT	FA FPF	MORT PRI TGT CA 3014 CFL CHUCK		FA FPF
3D PLT	MORTAR FPF	CFL CHUCK	MORT PRI TGT CA 3017 2D PLT	FA FPF

Figure 8-1. Example of a company fire support matrix.

8-4. CALL FOR FIRE

The battalion fire support execution matrix may require the platoon to call for and adjust its own indirect fire support. The matrix also might designate platoon targets. The platoon uses these preplanned artillery targets to call for and adjust indirect fire. Either a soldier or an FO can prepare and request a call for fire. However, to receive immediate indirect fire support, the observer must plan targets and follow proper call-for-fire procedures. If available, he should use a GPS and laser range finder. The call for fire must include certain elements and might include others.

a. Required Elements. Calls for fire must include--

(1) **Observer Identification and Warning Order.** Observer identification tells the fire direction center (FDC) who is calling. It also clears the net for the duration of the call. The warning order tells the FDC the type of mission and the method of locating the target. The types of indirect fire missions are as follows:

- Adjust fire--Use this command when uncertain of target location.
- Fire for effect--Use this command for rounds on target; no adjustment.
- Suppress--Use this command to obtain fire quickly.
- Immediate suppression--Use this command to indicate the platoon is already being engaged by the enemy; must give target identification.

(2) **Target Location Methods.** The observer sends the target location as six digits (letters and numbers). Before the first adjusting rounds are fired, the observer gives the direction in mils. The FDC must know the observer's exact location. The observer sends observer-target

(OT) direction (to the nearest 10 mils) from his position to the target. He specifies which target location method to use:

- Grid (Figure 8-2).
- Polar (Figure 8-3).
- Shift from a known point (Figure 8-4 and Figure 8-5).

INITIAL FIRE REQUEST	
Observer	FDC
Z57, THIS IS 271, ADJUST FIRE, OVER.	THIS IS Z57, ADJUST FIRE, OUT.
GRID NK180513, OVER.	GRID NK180513, OUT.
INFANTRY PLATOON IN THE OPEN, ICM IN EFFECT, OVER.	INFANTRY PLATOON IN THE OPEN, ICM IN EFFECT, OVER.
MESSAGE TO OBSERVER	
FDC	Observer
Z, 2 ROUNDS, TARGET, AF1027, OUT.	Z, 2 ROUNDS, TARGET IS AF1027, OVER.
DIRECTION 1680, OUT.	DIRECTION 1680, OVER.
NOTE: Send direction before or with the first subsequent correction.	

Figure 8-2. Example fire mission (grid).

INITIAL FIRE REQUEST	
Observer	FDC
Z56, THIS IS Z31, FIRE FOR EFFECT, POLAR. OVER.	THIS IS Z56, FIRE FOR EFFECT, POLAR, OUT.
DIRECTION 4520, DISTANCE 2300, DOWN 35. OVER.	DIRECTION 4520, DISTANCE 2300, DOWN 35, OUT.
INFANTRY COMPANY IN OPEN, ICM, OVER.	INFANTRY COMPANY IN OPEN, ICM, OVER.
MESSAGE TO OBSERVER	

FDC	Observer
Y, VT, 3 ROUNDS, TARGET, AF2036, OUT.	Y, VT, 3 ROUNDS, TARGET AF2036, OVER.

Figure 8-3. Example fire mission (polar plot).

INITIAL FIRE REQUEST	
Observer	FDC
H66 THIS IS H44, ADJUST FIRE, SHIFT AA7733, OVER.	THIS IS H66, ADJUST FIRE, SHIFT AA7733, OUT.
DIRECTION 5210, LEFT 380, ADD 400, DOWN 35, OVER.	DIRECTION 5210, LEFT 380, ADD 400, DOWN 35, OUT
COMBAT OP IN OPEN, ICM IN EFFECT, OVER.	COMBAT OP IN OPEN, ICM IN EFFECT, OUT.
MESSAGE TO OBSERVER	
Observer	FDC
H, 1 ROUND, TARGET AA7742, OVER.	H, 1 ROUND, TARGET, AA7742, OUT.
<p>NOTE: Shift from a known point is performed when the observer and FDC have a common known point. The observer sends OT line, then determines the lateral and range shifts.</p>	

Figure 8-4. Example fire mission (shift from a known point).

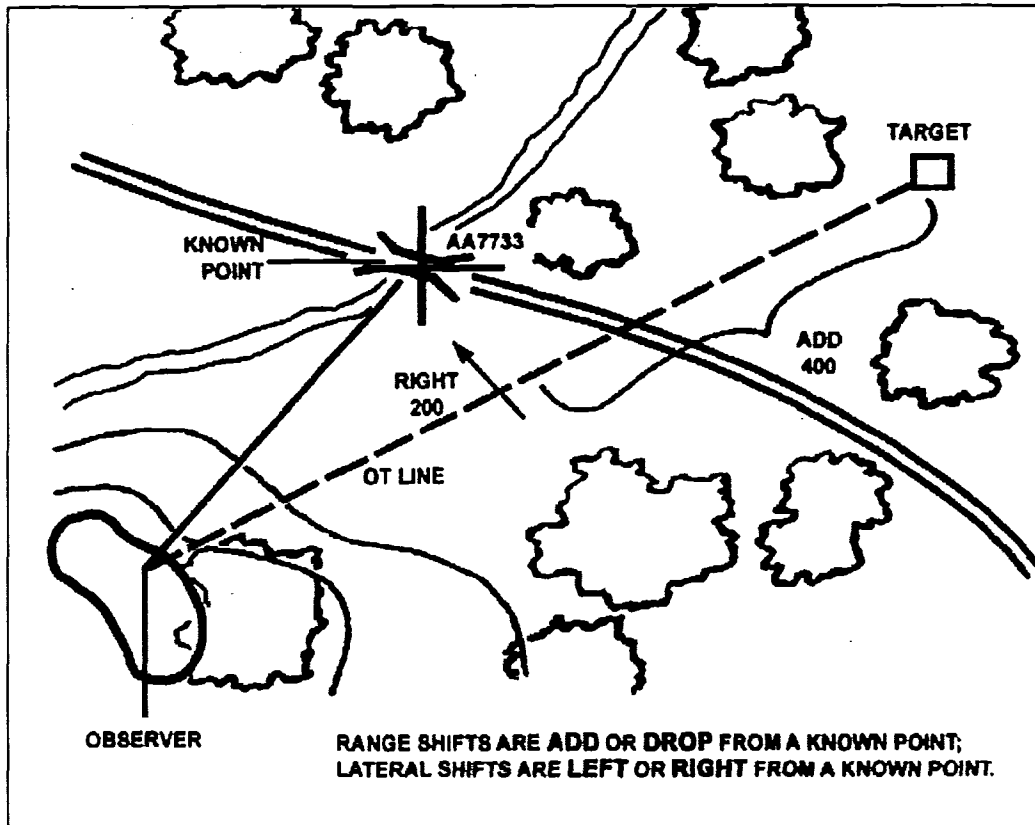


Figure 8-5. Lateral and range shifts from a known point.

(3) **Target Description.** Give a brief description of the target using the acronym "SNAP":

- Size and or Shape.
- Nature and or Nomenclature.
- Activity.
- Protection and or Posture.

b. Optional Elements. A call for fire also might include the following information:

(1) **Method of Engagement.** The method of engagement consists of danger-close (if applicable) and distribution, ammunition, and trajectory (DAT).

(2) **Method of Fire and Control.** The method of fire and control indicates the desired manner of attacking the target, whether the observer wants to control the time or delivery of fire, and whether he can observe the target. The observer announces methods of fire and control:

- At My Command--fire at observer's command.
- When Ready--standard method of fire control.

- Cannot Observe--fire will not be observed.
- Time on Target--rounds land at specified time.
- Continuous Illumination--FDC determines when to fire.
- Coordinated Illumination--observer determines when to fire.
- Cease Loading--used when two or more rounds are in effect (causes loader to stop loading).
- Check Firing--temporary halt in firing.
- Continuous Fire--will continue to fire unless told to stop.
- Repeat--will repeat last data fired by the firing unit.

(3) **Refinement and End of Mission.** The observer should observe the results of the fire for effect (FFE) and then take whatever action is necessary to complete the mission:

- Correct any adjustments.
- Record as target.
- Report battle damage assessment.

(4) **Danger-Close.** Danger-close information is included when applicable.

- FA and mortars--Danger-close target is within 600 meters of friendly troops.
- Naval gunfire--Danger-close target is within 750 meters when using 5-inch or smaller guns (1,000 meters for larger naval guns).
- Method of adjustment--During danger-close missions, the FO uses only the creeping method of adjustment (corrections of no more than 100 meters).

8-5. ADJUST FIRE

Once he calls for fire, the observer adjusts the fire onto the target. If he has accurately located the target, he requests fire for effect. If the observer cannot locate the target (because of deceptive terrain, lack of identifiable terrain features, poor visibility, or an inaccurate map), he adjusts the impact point of the rounds. One artillery piece or mortar adjusts fire. The observer chooses an adjusting point: for a destruction mission (precision fire), the target is the adjusting point; for an area target (area fire), the observer picks a well-defined adjusting point close to the center. The observer spots the first and each successive adjusting round, and he sends range and deviation corrections back to the FDC until rounds hit the target. The observer spots by relating the round's point of impact to the adjusting point. (See FM 6-30 for a more detailed discussion of adjusting mortar and artillery fire.)

a. **Deviation Spotting.** Deviation (left or right) spotting involves measuring the horizontal angle (in mils) between the burst and the adjusting point (Figure 8-6). A burst to the right (left) of the

target is spotted as "(so many) mils right (left)." The observer uses an angle-measuring device to determine deviation. He might use the mil scale on his binoculars (Figure 8-7) or his fingers and hand (Figure 8-8).

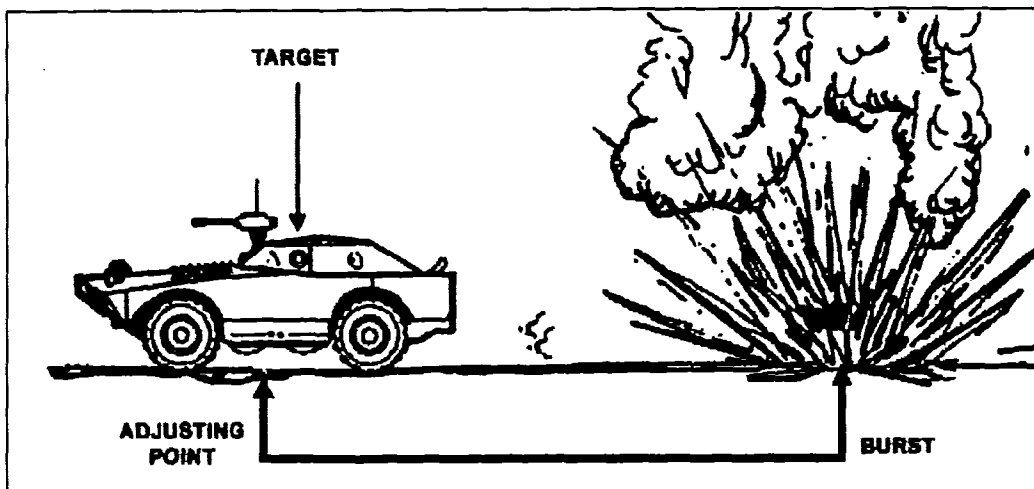


Figure 8-6. Deviation spotting.

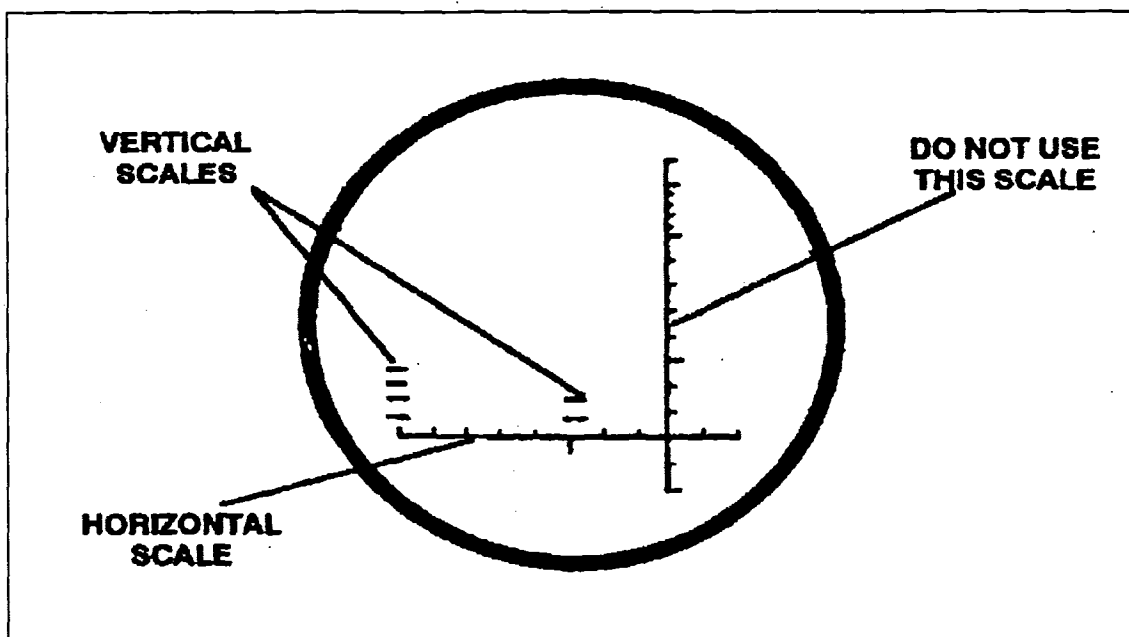


Figure 8-7. Mil scale on M17 binoculars.

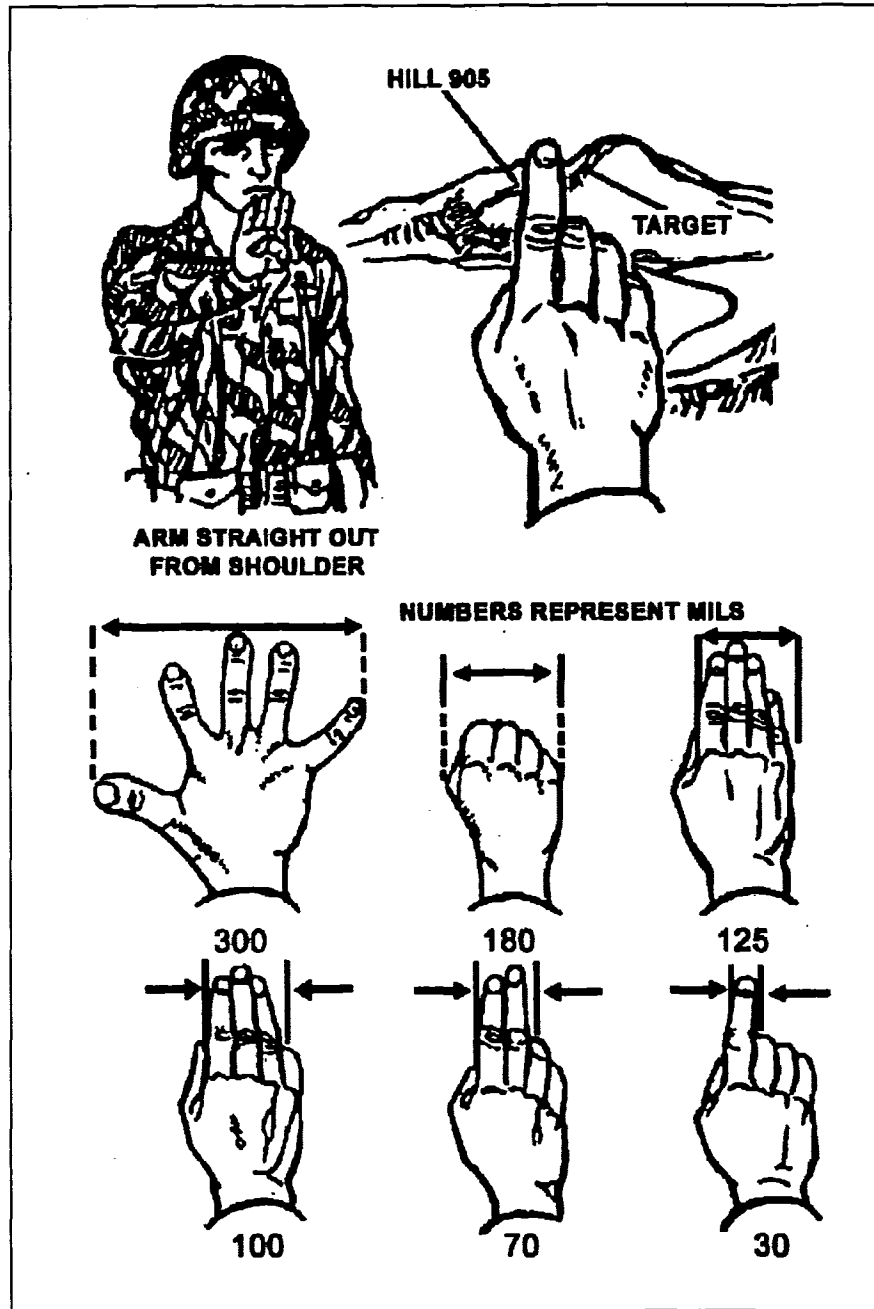


Figure 8-8. Hand and fingers used to determine deviation.

(1) On binoculars, the horizontal scale is divided into 10-mil increments and is used for measuring horizontal angles. The vertical scales in the center and on the left of the reticle are divided into 5-mil increments and are used for measuring vertical angles. The scale on the right, if present, is no longer used.

(2) A burst on the OT line is spotted as "line." Deviation (left or right) should be measured to the nearest 5 mils for area targets, with measurements taken from the center of the burst. Deviation for a destruction mission (precision fire) is estimated to the nearest mil.

Figure 8-9 shows the adjusting point at the center of the binocular horizontal scale.

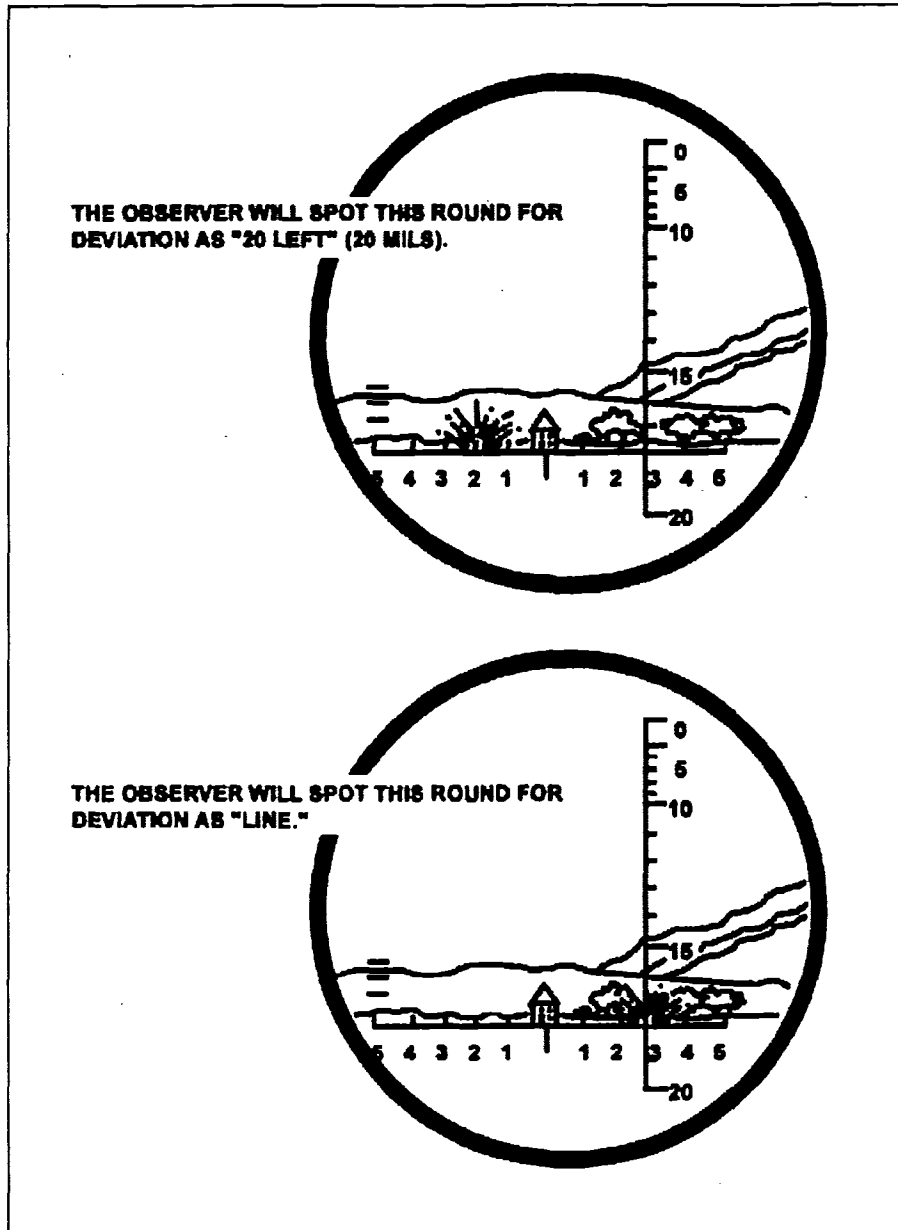


Figure 8-9. Deviation spotting with binoculars [2nd spotting is the same as the 1st]

b. Deviation Correction. Deviation correction is the distance (in meters) the burst must be moved left or right to be on line between the observer and the target. Once the mil deviation has been determined, the observer converts it into a deviation correction (in meters). He sends it to the FDC either when sending the range correction for the next adjusting round or when calling for fire for effect.

(1) The deviation correction is determined by multiplying the observed deviation in mils by the distance from the observer to the target in thousands of meters (the OT factor). The result is expressed to the nearest 10 meters (see Example 1 below). A minor deviation correction (10 to 20 meters) should be made in adjustment of precision fire.

(2) In adjustment of area fire, small deviation corrections (20 meters or less) can be ignored

except when a small change determines a definite range spotting. Throughout the adjustment, the observer moves the adjusting rounds close enough to the OT line so that range spotting is accurate.

(3) If the OT distance is greater than 1,000 meters, round to the nearest thousand and express it in thousands of meters (Example 2). If the OT distance is less than 1,000 meters, round to nearest 100 meters and express it as a decimal in thousands of meters (Example 3).

EXAMPLE 1:

Observer deviation 20 mils

OT distance 2,000 meters

OT factor 2

Observer deviation x OT factor = deviation correction.

$20 \times 2 = 40$ meters

EXAMPLE 2:

OT distance 4,200 meters—OT factor 4.0

OT distance 2,700 meters—OT factor 3.0

EXAMPLE 3:

OT distance 800 meters—OT factor 0.8

c. Angle T. Angle T (Figure 8-10) is the angle formed by the intersection of the gun-target line and the OT line with its vertex at the target. If angle T is 500 mils or greater, the FDC should tell the observer. If this occurs, the observer continues to use the OT factor to make his deviation corrections. If he sees that he is getting more of a correction than he has asked for, the observer should consider cutting the corrections to better adjust rounds onto the target.

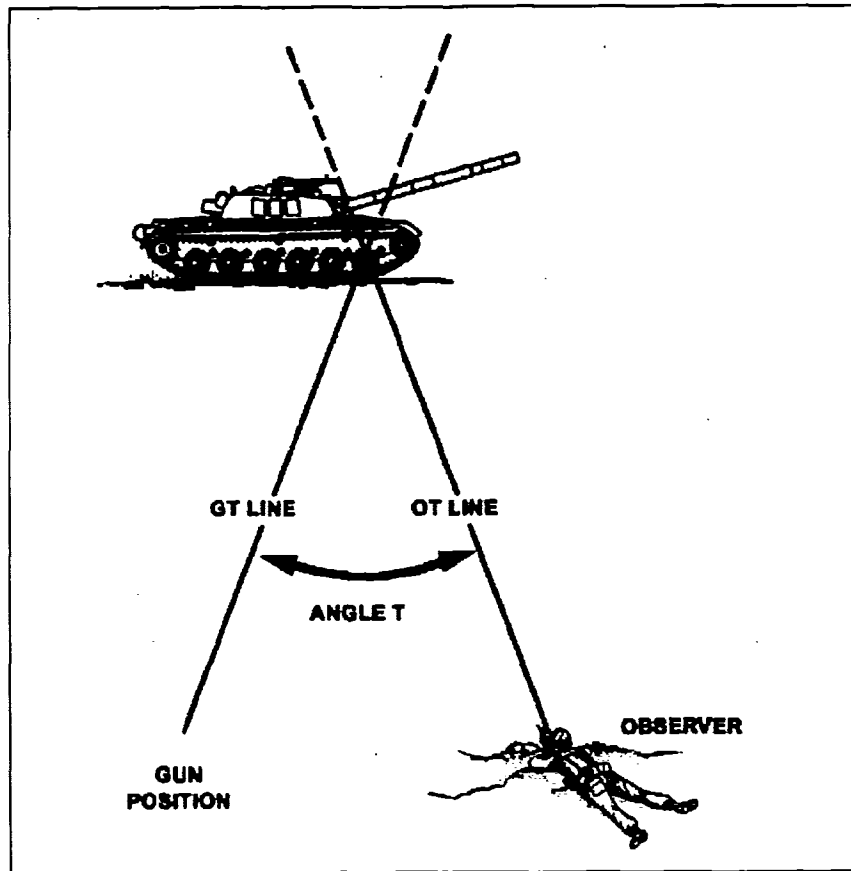


Figure 8-10. Angle T.

d. **Range Spotting.** Range spotting (short or over) requires adjusting the range to obtain fire on the target. An adjusting round's burst on or near the OT line gives a definite range spotting. If he cannot make a definite spotting, the observer announces a "lost" or "doubtful" spotting. In these situations only, he gives the deviation correction to the FDC.

- (1) **"Over."** The observer sees the burst beyond the adjusting point.
- (2) **"Short."** The observer sees the burst between himself and the adjusting point.
- (3) **"Target."** The observer sees the burst hit the target. He uses this spotting only in precision fire (destruction missions).
- (4) **"Range Correct."** The observer believes that the burst occurred at the correct range.
- (5) **"Doubtful."** The observer sees the burst but cannot tell whether it occurred over, short, target, or range correct.
- (6) **"Lost, Over" or "Lost, Short."** The observer cannot see the burst, but he knows that it occurred beyond or short of the adjusting point.

e. **Range Correction.** With each successive correction, the *adjusting round* lands over or short of the *adjusting point*, but closes on the target.

(1) **Bracketing.** Bracketing brings fire on a target. Time is important, especially while targets move or seek cover from fire. Accuracy of data and speed of adjustments determine the effectiveness of the fire. To reduce adjustment time, the observer tries to bracket the target with the first two or three adjusting rounds.

(2) **Successive Bracketing.** The observer calls FFE when a range correction brings the round within 50 meters of the adjusting point. He also calls FFE when the firer splits a 100-meter bracket; for example, "Drop 50, fire for effect." This technique is called successive bracketing (Figure 8-11). When bracketing, the observer uses the following guide to determine his first range correction:

- OT between 1,000 to 2,000 meters--add or drop at least 200 meters.
- OT greater than 2,000 meters--add or drop at least 400 meters.

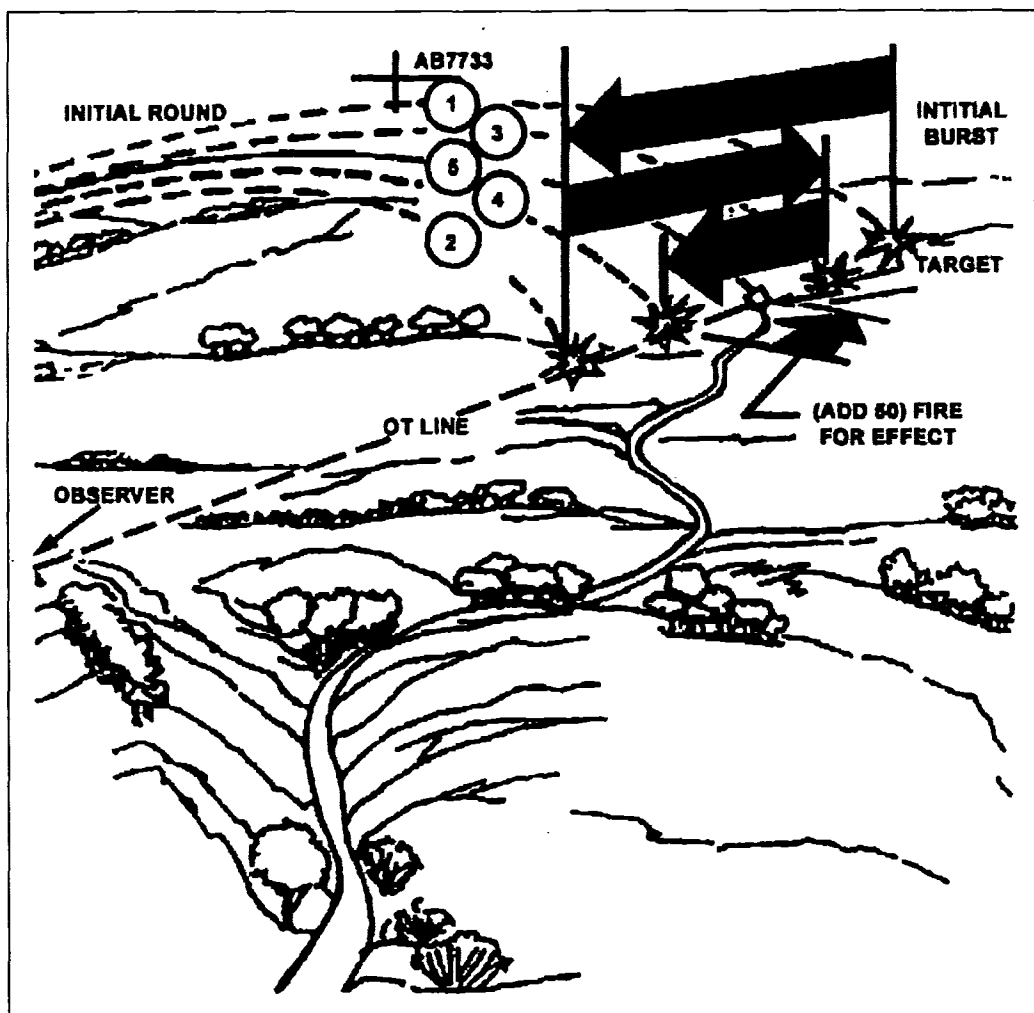


Figure 8-11. Successive bracketing technique.

(3) **Hasty Bracketing.** The effect on the target decreases as the number of rounds used in adjustment increases. Successive bracketing ensures that FFE rounds hit within 50 meters of the adjusting point. Hasty bracketing offers a quicker alternative to successive bracketing. A successful hasty bracket depends on a thorough terrain analysis, which gives the observer an

accurate initial target location. For his first correction, the observer receives a bracket similar to that used for successive bracketing. Once the observer receives the initial bracket, he uses it like a yardstick to determine the subsequent correction. He then sends the FDC the correction to move the rounds to the target and to fire for effect (Figure 8-12). Hasty bracketing improves with observer experience and judgment.

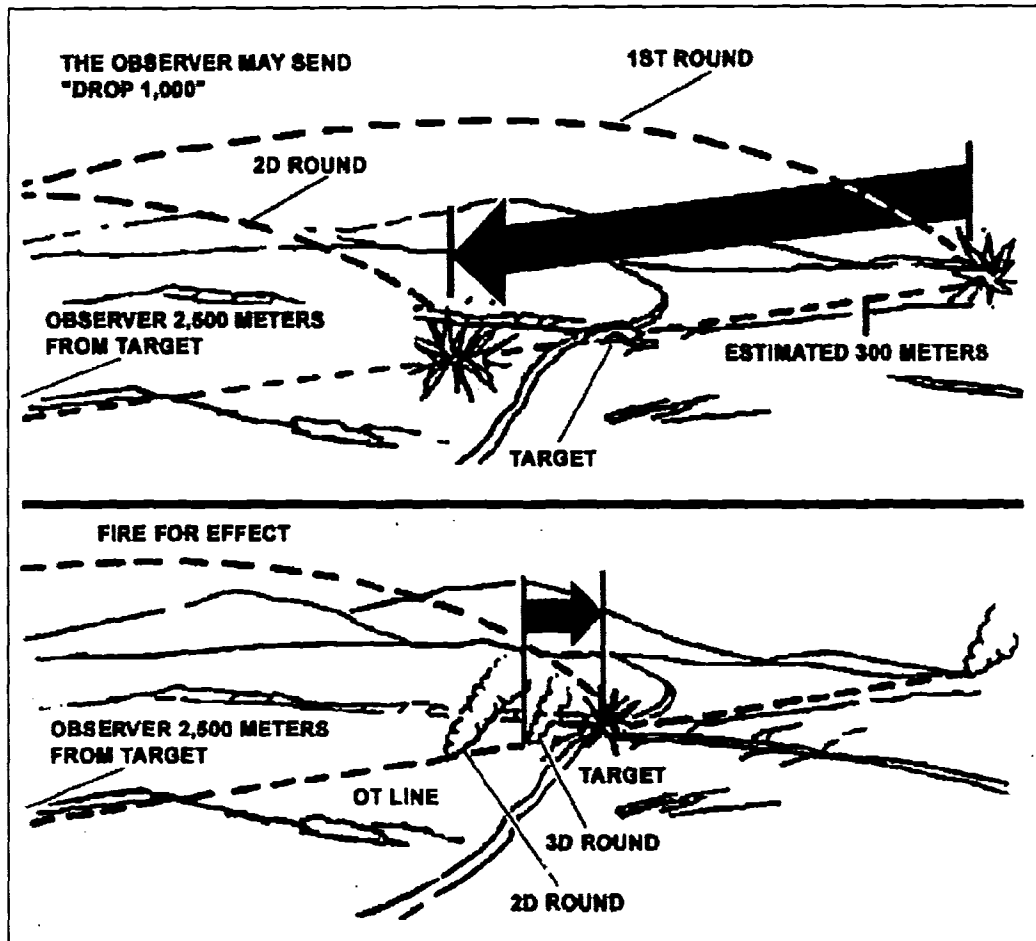


Figure 8-12. Hasty bracketing technique.

(4) *Creeping Method.* In danger-close situations the observer uses the creeping method of adjustment. The observer calls for the first round, deliberately overshooting the target. He adjusts rounds in 100-meter increments or less until the fire hits the target (Figure 8-13). This method requires more time and ammunition than other methods; therefore, the observer uses it only when he must consider safety first.

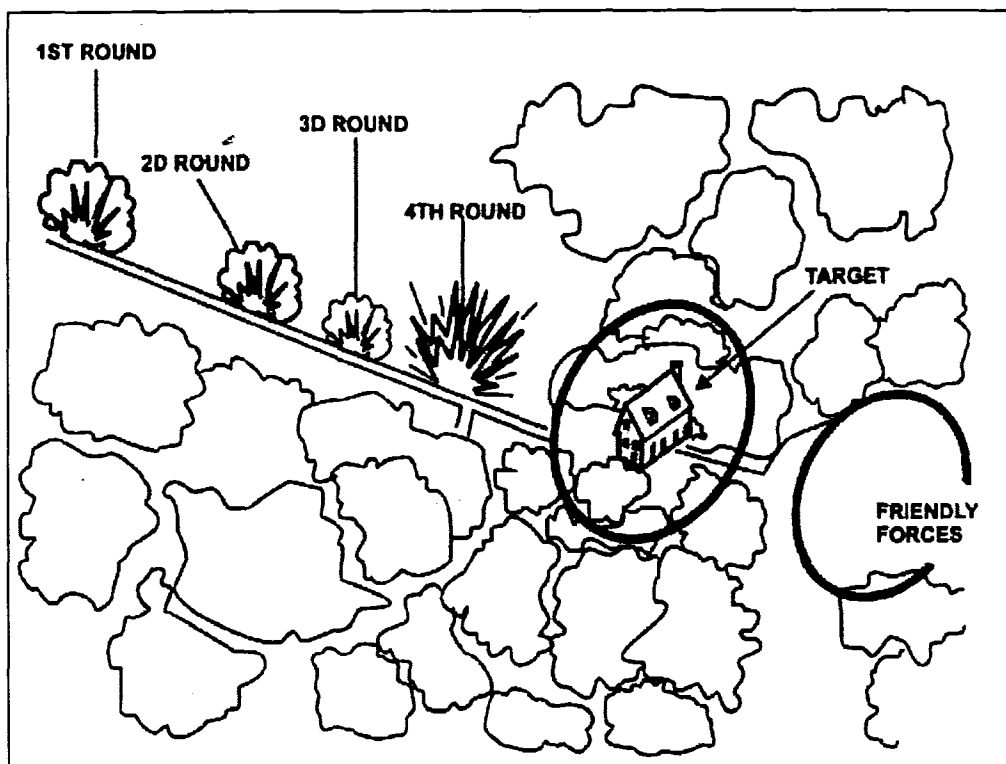


Figure 8-13. Creeping method of adjustment.

8-6. MORTAR SUPPORT

The battalion mortar platoon has both 120-mm and 81-mm mortars. The company has 120-mm and 60-mm mortars. The battalion and company mortars provide immediate indirect fire support. Using mortars, the platoon can quickly place a heavy volume of accurate, sustained fire on the enemy. Mortar rounds can strike targets that low-angle fires cannot reach. These include targets on reverse slopes, in narrow ravines or trenches, and in forests or towns, among others. The platoon will receive the preponderance of indirect fire support from mortars.

a. **Types of Mortar Support.** Mortars provide the following types of effective support.

(1) **Suppression.** The platoon can fire HE rounds to force the enemy to button up or move to less advantageous positions. Only a direct hit, however, will destroy an armored vehicle.

(2) **Smoke.** The platoon uses white phosphorus (WP) rounds for obscuration and screening. Mortar smoke builds up more rapidly than artillery smoke. To obscure the enemy's vision, the platoon places smoke on or just in front of his positions. Placing smoke between the enemy and the platoon's position conceals platoon movement. Mortar smoke marks enemy positions to aid in friendly maneuver and to orient direct fires. Scouts must be careful, however, not to allow smoke to work against them by marking their own positions for enemy gunners. When using WP for obscuration and screening, soldiers should remain aware of its incendiary nature.

(3) **Illumination.** The platoon uses illumination rounds to light an area or enemy position during periods of limited visibility. Illumination increases the effectiveness of image-intensification devices, which helps with gathering information, adjusting artillery, and

engaging enemy targets. The platoon also uses ground-burst illumination to mark enemy positions and to provide a thermal TRP for control of fires. The platoon must use illumination carefully so as not to illuminate friendly positions. Because US night vision devices work better than those of most potential adversaries, the platoon may not need to illuminate the battlefield at all. Doing so could cause more harm than good by revealing friendly positions.

b. Capabilities and Limitations. The advantages of using the mortar platoon include its close working relationship with the platoons, fast response time, and availability for low-density targets. The limitations of mortars are--

- Short-range capability only.
- Few types of ammunition available.
- Mortar elements can carry only limited amounts of ammunition.
- FDC and mortar tubes cannot be linked to AFATDS.
- Vulnerable to radar detection due to high-angle fire.

8-7. FIELD ARTILLERY SUPPORT

The platoon must know how to use artillery support to its best advantage. Artillery often offers the best way to impede and disrupt enemy formations and suppress enemy positions. It can provide immediate, responsive, and accurate fires with a wide variety of munitions. The platoon may receive FA priority of fire.

a. Capabilities. In support of the platoon, FA elements can--

- Provide fires in all weather conditions and on all types of terrain.
- Shift and mass fires rapidly.
- Support the battle in depth with long-range fires.
- Provide a variety of conventional shell and fuze combinations.
- Provide continuous fires by careful positioning and timely displacement.

b. Limitations. FA support has the following limitations:

- Limited capability against moving targets.
- May require large amounts of ammunition to destroy point targets.
- Firing signature makes it vulnerable to detection.

c. Munitions. FA employs a wide variety of munitions that the platoon can tailor to engage different types of targets.

- (1) **High-Explosive.** The best targets for HE rounds include personnel, field fortifications, and lightly armored vehicles.
- (2) **Smoke.** The best uses for smoke include obscuring and screening friendly soldiers.
- (3) **Illumination.** Ideally, these illuminate only the enemy, not friendly forces.
- (4) **White Phosphorus.** This volatile material effectively obscures friendly soldiers or actions, marks locations, and burns obstacles and equipment.
- (5) **Cannon-Launched Guided Projectiles.** These projectiles (Copperheads) work best against point targets but require a laser designation system.
- (6) **Improved Conventional Munitions.** Improved conventional munitions (ICM) work best against personnel targets.
- (7) **Dual-Purpose Improved Conventional Munitions.** These munitions (DPICM) work best against personnel and light armored vehicles in the open.
- (8) **Scatterable Mines.** These include *area denial munitions* for use against personnel and *remote antiarmor mines* for use against armored vehicles. An FA battery cannot mix other fire missions with scatterable mine missions. Scatterable mines require slightly more lead time than other FA-delivered munitions.

NOTE: The commander or leader must consider the danger to friendly troops in areas where friendly forces fire antipersonnel (AP) munitions. The potential dud rate of ICM makes maneuver in the area of an ICM field hazardous.

8-8. FIRE DIRECTION ASSETS

The FIST is organic to the SBCT infantry company. The company FSO is the unit fire support coordinator. He works with the company commander during combat operations to successfully accomplish all company-level fire support tasks. While the maneuver commander is responsible for integrating fire support and maneuver, the FSO must understand the scheme of maneuver as well as the company commander does. Based on the commander's guidance, the FSO devises his fire support plan, which must be presented to the commander for approval. FSO responsibilities include the following:

- Plan, coordinate, and execute fire support.
- Advise the company commander on fire support matters to include capabilities, limitations, and employment of all fire support assets available to support his operation.
- Ensure the company fire support plan is developed as an integral part of the company OPORD and or OPLAN and that essential fire support tasks (EFSTs) are adequately addressed in maneuver company rehearsals.
- Make recommendations to integrate fire support assets (FA and mortars) into the maneuver commander's battle plan.
- Keep key personnel informed of pertinent information (by spot reports and situation reports).

- Train the FIST and FOs in applicable fire support matters.
- Request, adjust, and direct all types of fire support.
- Ensure the fire support plan and or execution matrix is prepared and disseminated to key personnel.
- Advise the company commander on positioning and use of company mortars.
- Allocate FOs and other observers to maintain surveillance of target and named areas of interest.
- Integrate and employ combat observation and laser teams (COLTs) and or Strikers (when allocated) into planned operations.
- Plan, direct, and manage the employment of observer platforms and laser equipment where they will best support the commander's concept of operation.
- Provide emergency control of CAS and naval gunfire (NGF) in the absence of qualified personnel.

8-9. PLATOON FORWARD OBSERVER DUTIES AND RESPONSIBILITIES

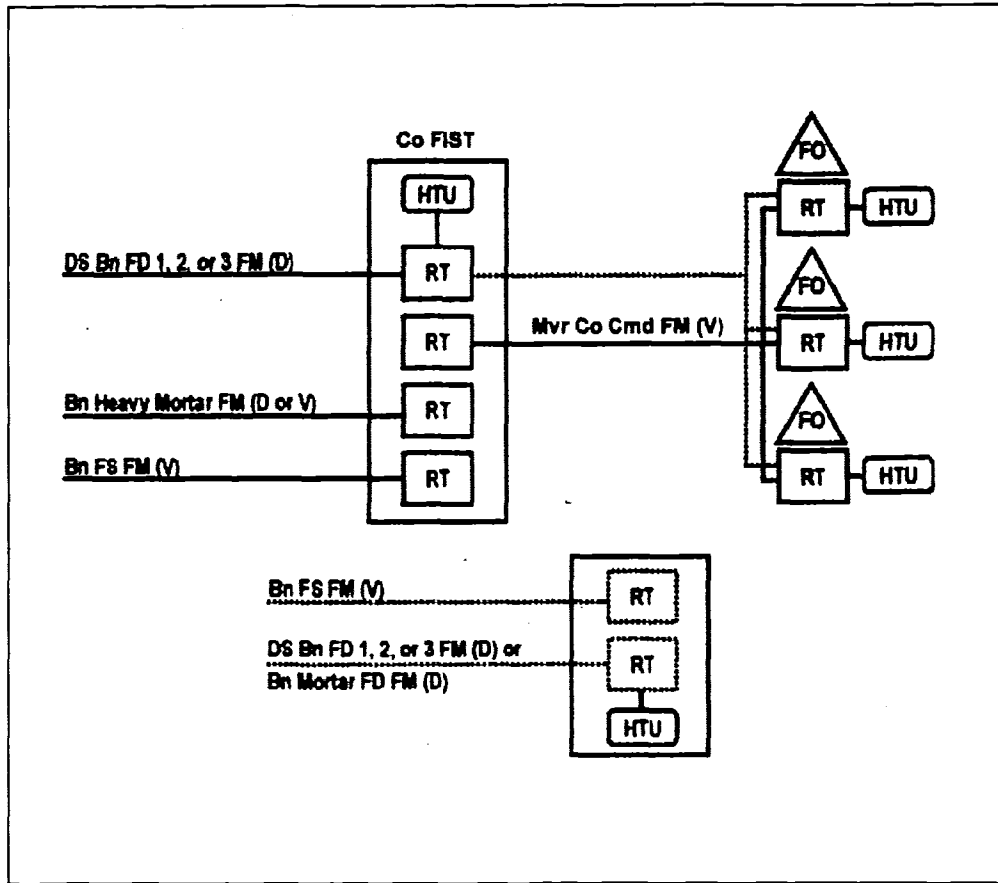
As the platoon's fire support representative, the primary duty of the FO is to locate targets and call for and adjust indirect fire support. Additional responsibilities include the following:

- Refine or submit key targets for inclusion in the company fire plan.
- Prepare, maintain, and use situation maps.
- Establish and maintain communications with company FIST.
- Advise the platoon leader as to the capabilities and limitations of available indirect fire support.
- Report battlefield intelligence.
- Laser designate targets when required.

8-10. MANEUVER COMPANY FIST FIRE REQUEST CHANNELS

The FIST serves as the net control system (NCS) on the company fire support net. The FIST relays the call for fire to supporting artillery on a digital net or sends the fire mission to the mortar platoon or section. The command net allows the FIST to monitor unit operations. It links the FIST to the commander and platoon leaders for planning and coordination.

a. **Company Communications Nets.** Example communications nets for the company FIST are shown in Figure 8-14. Net assignments for platoon FOs may vary. In some cases, the FSO may decide to have all FOs on the mortar net (voice or digital).



8-14. Company FIST communications.

NOTE: The diagrams in figure 8-14 present a model solution. Standard net structures should be outlined in unit TSOPs and should be kept current as changes in procedures and or systems occur.

b. **Quick Fire Channel.** A quick fire channel is established to directly link an observer (or other target executor) with a weapon system (Figure 8-15). Quick fire channels may be either voice or digital nets. Quick fire channels within a maneuver brigade are normally established on FA or mortar nets. These channels are designed to expedite calls for fire against high profile targets (HPTs) or to trigger preplanned fires. Quick fire channels also may be used to execute fires for critical operations or phases of the battle. Examples include linking a COLT or Striker with a battery or platoon FDC for counter reconnaissance fires or an AN-TPQ-37 radar with the multiple launch rocket system (MLRS) battery FDC for counterfires. Copperhead missions can best be executed by using quick fire channels.

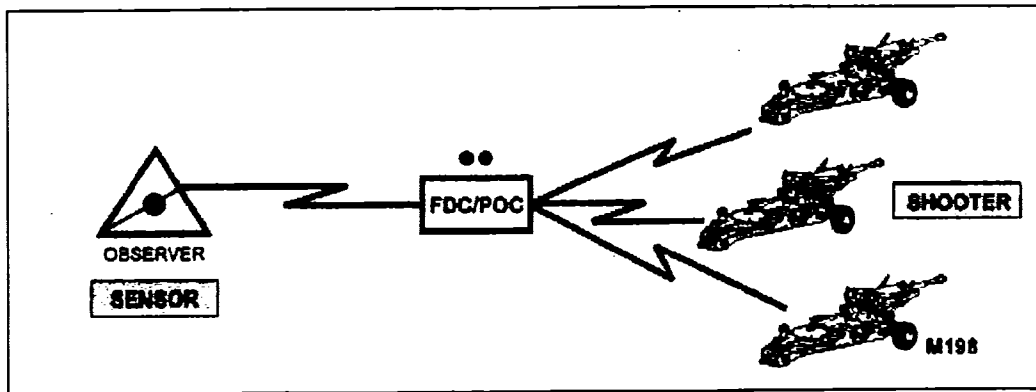


Figure 8-15. Quick fire channel illustrating sensor-to-shooter link.

8-11. CLOSE AIR SUPPORT

All services can provide CAS to the battalion. CAS missions are flown against hostile targets near friendly forces. The forward air controller (FAC) is the battalion commander’s expert in planning, requesting, and executing CAS missions. The FAC serves as a link between the maneuver element and the attacking aircraft. The platoon may provide information that the FAC or tactical air control party (TACP) uses to target enemy forces. Soldiers may provide emergency control if an FAC, FSO, or FO is not available (the battalion commander accepts responsibility for friendly casualties). This is possible only with aircraft equipped with FM radios. Most U.S. Air Force, Navy, and Marine Corps fixed-wing aircraft only have UHF radios (A/OA-10, F16, AV-8B, F-14, F/A-18, and AC-130). (For additional information, see FM 6-30.) The platoon also may provide information on battle damage as observed. Figure 8-16, shows the format for assessing and reporting battle damage.

<p>BATTLE DAMAGE ASSESSMENT</p> <p>SUCCESSFUL OR UNSUCCESSFUL</p> <p>TARGET COORDINATES</p> <p>TIME ON TARGET</p> <p>NUMBER AND TYPE DESTROYED</p> <p>NUMBER AND TYPE DAMAGED</p> <p>KILLED BY AIR</p> <p>WOUNDED BY AIR</p> <p>DUD BOMBS</p>
--

Figure 8-16. Format for battle damage assessment.

a. **AC-130 Gunship.** If the enemy air defense is low, the battalion requests CAS from an AC-130 gunship. The AC-130 provides effective fires during day and night operations and flies CAS and special operations. The aircraft contains one 40-mm gun, two 20-mm guns, two 7.62-mm miniguns, and one 105-mm howitzer. It is equipped with sensors and target acquisition systems that include forward-looking infrared radar and low-light television.

b. **Marking Friendly Positions.** Whenever possible, friendly positions are marked to enhance safety and to provide target area references. Methods of marking friendly positions are shown in Table 8-2.

METHOD	DAY/ NIGHT	ASSETS	FRIENDLY MARKS	TARGET MARKS	REMARKS
SMOKE	D/N	ALL	GOOD	GOOD	Easily identifiable, may compromise friendly position, obscure target, or warn of fire support employment. Placement may be difficult due to structures.
SMOKE (IR)	D/N	ALL/ NVD AT NIGHT	GOOD	GOOD	Easily identifiable, may compromise friendly position, obscure target, or warn of fire support employment. Placement may be difficult due to structures. Night marking is greatly enhanced by the use of IR reflective smoke
ILLUM, GROUND BURST	D/N	ALL	N/A	GOOD	Easily identified, may wash out NVDs.
SIGNAL MIRROR	D	ALL	GOOD	N/A	Avoids compromise of friendly location. Dependent on weather and available light and may be lost in reflections from other reflective surfaces (windshields, windows, water)
SPOT LIGHT	N	ALL	GOOD	MARGINAL	Highly visible to all. Compromises friendly position and warns of fire support employment. Effectiveness is dependent upon degree of urban lighting.
IR SPOT LIGHT	N	ALL NVD	GOOD	MARGINAL	Visible to all with NVGs. Less likely to compromise than overt light. Effectiveness dependent upon degree of urban lighting.
IR LASER POINTER (below .4 watts)	N	ALL NVG	GOOD	MARGINAL	Effectiveness dependent upon degree of urban lighting.
IR LASER POINTER (above .4 watts)	N	ALL NVD	GOOD	GOOD	Less affected by ambient light and weather conditions. Highly effective under all but the most highly lit or worst weather conditions. IZLID-2 is the current example.

VISUAL LASER	N	ALL	GOOD	MARGINAL	Highly visible to all. Risk of compromise is high Effectiveness dependant upon degree of urban lighting.
LASER DESIGNATOR	D/N	PGM OR LST EQUIPED	N/A	GOOD	Highly effective with PGM. Very restrictive laser acquisition cone and requires line of sight to target. May require pre-coordination of laser codes

Table 8-2. Methods of marking friendly positions.

METHOD	DAY/NIGHT	ASSETS	FRIENDLY MARKS	TARGET MARKS	REMARKS
TRACERS	D/N	ALL	N/A	MARGINAL	May compromise position. May be difficult to distinguish mark from other gunfire. During daytime use, may be more effective to kick up dust surrounding target.
ELECTRONIC BEACON	D/N	SEE REMARKS	EXCELLENT	GOOD	Ideal friendly marking device for AC-130 and some USAF fixed wing (not compatible with Navy or Marine aircraft). Least impeded by urban terrain. Can be used as a TRP for target identification. Coordination with aircrews essential to ensure equipment and training compatibility.
STROBE (OVERT)	N	ALL	MARGINAL	N/A	Visible by all. Effectiveness dependent upon degree of urban lighting.
STROBE (IR)	N	ALL NVD	GOOD	N/A	Visible to all NVDs. Effectiveness dependent upon degree of urban lighting. Coded strobes aid in acquisition.
FLARE	D/N	ALL	GOOD	N/A	Visible by all. Easily

(OVERT)					identified by aircrew.
FLARE (IR)	N	ALL NVD	GOOD	N/A	Visible to all NVDs. Easily identified by aircrew.
GLINT/IR PANEL	N	ALL NVD	GOOD	N/A	Not readily detectable by enemy. Very effective except in highly lit areas.
COMBAT IDENTIFICATION PANEL	D/N	ALL FLIR	GOOD	N/A	Provides temperature contrast on vehicles or building. May be obscured by urban terrain.
VS-17 PANEL	D	ALL	MARGINAL	N/A	Only visible during daylight. Easily obscured by structures.
CHEMICAL HEAT SOURCES	D/N	ALL FLIR	POOR	N/A	Easily masked by urban structures and lost in thermal clutter. Difficult to acquire, can be effective when used to contrast cold background or when aircraft knows general location.
SPINNING CHEM-LIGHT (OVERT)	N	ALL	MARGINAL	N/A	Provides unique signature. May be obscured by structures. Provides a distinct signature easily recognized. Effectiveness dependent upon degree of urban lighting.
SPINNING CHEM-LIGHT (IR)	N	ALL NVD	MARGINAL	N/A	Provides unique signature. May be obscured by structures. Effectiveness dependent upon degree of urban lighting.

Table 8-2. Methods of marking friendly positions (continued).

8-12. ATTACK HELICOPTERS

The primary mission of attack helicopter units is to destroy armor and mechanized forces. Employing attack helicopters in combined arms operations increases the lethality of ground maneuver forces.

a. **Aircraft Characteristics.** The AH-64A Apache, the AH-64D Longbow Apache, the OH-58D Kiowa Warrior, and the AH-1W or AH-1Z (USMC) are employed in attack operations. Table 8-3

provides a comparison of the weapon systems and armaments on these attack helicopters. (The table also lists weaponry for the AH-1 Cobra which is no longer in the active Army inventory but might be used to provide attack support in joint operations with U.S. Marine units.)

AIRCRAFT TYPE	WEAPONS SYSTEMS						
	Hellfire/TOW ¹		Air-to-Air Stinger	2.75-inch (70-mm) rockets	Cal .50 MG (rds)	20-mm cannon (rds)	30-mm chain gun (rds)
AH-1 ²		8		76		750	
AH-64A ³	16			76			1,200
AH-64D ³	⁴ 16		4	76			1,200
OH-58D ^{2,3}	4		4	14	500		
AH-1W/Z ⁵							
Weapons Range (Max)	8 km	3,750 m	5+ km	8 km	2 km	2 km	4 km

Numbers in each column indicate the maximum load for each system.

¹ The AH-1 uses the TOW missile as its armor engagement weapon instead of the Hellfire missile.

² This aircraft carries one weapon system on each side (Hellfire, TOW, or both; air-to-air Stinger; and 2.75-inch rocket).

³ Aircraft has a laser for target designation and an ATHS.

⁴ Hellfire/Hellfire II.

⁵ USMC helicopters will have varied weapons loads. During coordination, request on-board weapon status.

Table 8-3. Helicopter weapon systems.

b. Close Combat Attack. The close combat attack is a technique for directing lethal fires within the context of a preplanned mission. It does not replace the integrated military decision-making process (MDMP) between ground maneuver and aviation elements.

(1) To request immediate close combat attack, the ground unit in contact executes a face-to-face coordination or uses a radio transmission to provide a situation update to the attack aircraft (METT-TC permitting). This situation update contains essential elements from the

aviation close combat attack coordination checklist (Figure 8-17).

(2) After receipt of a request for immediate close combat attack, the attack team leader informs the ground unit leader of the battle position, attack-by-fire position, or the series of positions his team will occupy that will provide the best observation and fields of fire into the engagement or target area. The attack team leader then provides the ground maneuver unit leader with his concept for the team's attack on the objective.

(3) Upon mission completion, the attack team leader provides the ground maneuver commander a battle damage assessment (BDA) of the intended target.

CLOSE COMBAT ATTACK CHECKLIST

1. Enemy situation--specific target identification.
2. Friendly situation--location and method of marking friendly positions.
3. Ground maneuver mission and scheme of maneuver.
4. Attack aircraft scheme of maneuver.
5. Planned engagement area and BP/SBF position.
6. Method of target marking.
7. Fire coordination and fire restrictions.
8. Map graphics update.
9. Request for immediate aviation close fight support--used for targets of opportunity or for ground-to-air target handoff.

Figure 8-17. Close combat attack coordination checklist.

Section III. COMBAT ENGINEER SUPPORT

The two core qualities of the SBCT infantry platoon are high mobility and the ability to achieve decisive action through dismounted infantry assault. At the tactical level, overmatching mobility is critical to the success of the force. Given the significance of tactical mobility to the SBCT's successful operations, the SBCT engineers are essential.

8-13. MEDIUM ENGINEER COMPANY

The SBCT's organic medium engineer company (MEC) provides embedded, responsive mounted and dismounted maneuver support. The MEC supports the maneuver force--the SBCT infantry battalions and companies. It readily integrates into maneuver operations and organizations at all levels based on the analysis of tasks required. It is an agile organization that assures freedom to maneuver on the battlefield within the combined-arms team framework. The MEC has three combat mobility platoons, one mobility support platoon, and a company headquarters section. The MEC normally task-organizes its platoons to infantry battalions and companies in a specific command-support relationship to provide a mission-specific, tailored package. It performs mounted and dismounted engineer tasks equally well.

- a. **Combat Mobility Platoon.** The combat mobility platoon is normally the lowest-level engineer unit that can effectively accomplish independent mounted engineer missions and tasks. It is the basic building block of engineer force allocation and task organization. A combat mobility platoon

is normally task-organized to support an infantry battalion, but it may support an infantry company based on METT-TC analysis. The combat mobility platoon may receive augmentation in the form of special equipment from the mobility support platoon. Engineer platoon-specific common-platform equipment includes engineer squad vehicles (ESVs) with mountable rollers or blades, MICLICs, and multiple-delivery mine systems (Volcanoes) (Figure 8-18). The combat mobility platoon's engineer squads carry a variety of explosives and demolitions. The squad is normally the minimum force required to provide effective dismounted support to infantry companies. The squad is the engineer organization most likely to support an infantry company, particularly during offensive operations.

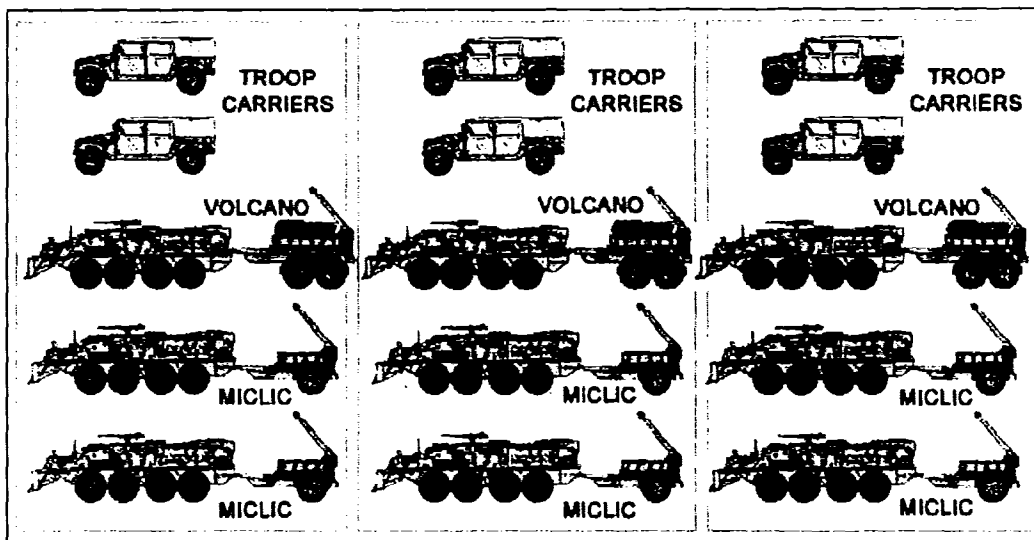


Figure 8-18. Combat mobility platoon.

b. **Mobility Support Platoon.** The mobility support platoon consists of a platoon headquarters section and three equipment-based mobility sections (Figure 8-19), equipped with light assault bridges, light earthmovers (deployable universal combat earthmovers [DEUCES]), and high mobility engineer excavators (HMEEs). Unlike the combat mobility platoon, it is not organized to operate independently during offensive operations. The mobility support platoon provides the commander with specialized equipment capabilities to weight the main effort and to perform specialized mobility tasks. Each section is structured to provide equipment augmentation, focused on reducing enemy obstacles and fortifications, to each of the three combat mobility platoons. Each section has gap-crossing, obstacle-reduction, special-tool, and heavy-blade capabilities. The mobility support platoon provides a limited capability for countermobility, survivability, and sustainment operations.

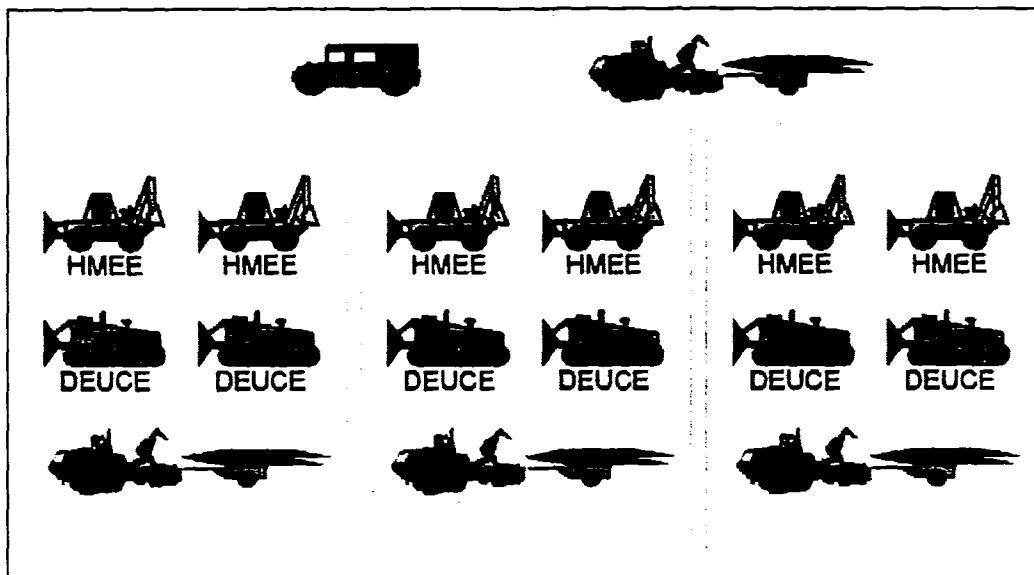


Figure 8-19. Mobility support platoon.

8-14. ENGINEER MISSIONS

Engineer missions fit into one of three categories: mobility, countermobility, and survivability. (Table 8-4 shows the tasks included in each of these categories.) An engineer platoon might be attached to a company. Engineers conduct reconnaissance, evaluate obstacles, and use demolitions and field expedients.

MOBILITY	COUNTERMOBILITY	SURVIVABILITY
Breaching obstacles. Clearing minefields. Clearing routes. Expedient gap crossing. Constructing combat roads or trails.	Constructing obstacles to turn, fix, block, or disrupt enemy forces.	Constructing crew-served weapons and vehicle fighting positions.

Table 8-4. Engineer missions.

8-15. MOBILITY

At the tactical level, overmatching mobility is critical to the success of the force. Engineers support infantry by performing obstacle reduction and route construction and or improvement.

a. **Obstacle Reduction.** Reduction is the creation of lanes through or over an obstacle to allow an attacking force to pass. The number and width of lanes created varies with the factors of METT-TC. The lanes must allow the assault force to rapidly pass through the obstacle. The breach force will reduce, proof (if required), mark, and report lane locations and the lane marking method by unit SOP. Engineers cannot reduce an obstacle until the obstacle has been identified, effective suppression and obscuration are in place, and the point of breach is secure. (For detailed discussions of breaching see FM 3-34.2 and FM 3-90.1.)

b. Route Construction and Improvement. Engineers have a limited capability to construct, improve, and maintain roads, bridges, and fords. In addition to providing mobility support during offensive operations, engineers can enhance mobility during defensive operations by focusing on the ability to shift forces. Enhancements to mobility during defensive operations include:

- Mobility between primary, alternate, and supplementary battle positions.
- Mobility of reserves to reinforcing positions.
- Mobility of reserves in the counterattack

8-16. COUNTERMOBILITY

Engineers construct obstacles that prevent the enemy from successfully executing his scheme of maneuver. (See FM 3-90.1 for a detailed discussion of countermobility operations.) Commonly used obstacles include minefields, wire obstacles, antitank ditches, road craters, abatises, and log cribs. Engineers also can reinforce restrictive terrain and existing obstacles to disrupt, fix, turn, or block the enemy. Platoons will execute the company commander's countermobility plan. Within this plan, the infantry rifle squads typically will assist engineers in the emplacement of obstacles. Regardless of the type of defense employed, the platoon leader must remember the five basic principles of obstacle employment:

- Obstacles must support the scheme of maneuver.
- Obstacles must be integrated with and covered by observed direct and indirect fires.
- Obstacles must tie into terrain and existing obstacles.
- Obstacles are most effective when complex and employed in depth.
- Obstacles should be employed to surprise the enemy.

8-17. SURVIVABILITY

The survivability plan will be synchronized with the company countermobility plan. Platoons should prepare by marking vehicle positions, identifying leaders to supervise position construction, and designating guides for the blade movement between positions. Platoons will execute the company commander's plan for priority of the survivability effort. This plan should specify the following:

- Level of survivability of each subordinate unit.
- Priority of survivability support by specific unit, type of weapon system, or combination.
- Type of position to be dug for a unit or type of weapon system.
- Sequence and time allocated for platoons to receive blade support.

Section IV. AIR DEFENSE

The air defense and aviation coordination cell's (ADACC's) air and missile defense (AMD) analysis

determines if the SBCT will be task organized with air defense assets from a divisional short-range air defense (SHORAD) battalion. Even if the SBCT and, subsequently, the SBCT infantry battalion receive air defense assets, it is unlikely that the SBCT infantry platoon will be task organized with any of the air defense assets. However, Avengers and Linebackers may operate in and around the company AO in support of battalion and brigade assets. Therefore, the platoon must conduct its own air defense operations, relying on disciplined passive air defense measures and the ability to actively engage aerial platforms with organic weapons systems.

8-18. SYSTEMS, ORGANIZATION, AND CAPABILITIES

The systems that may operate in and adjacent to the company AO are the Avenger, man-portable air defense systems (MANPADS), and Linebacker (Table 8-5). All systems can operate as MANPADS Stinger teams. The battalion may be supported by an air defense platoon equipped with Avengers or MANPADS. The air defense platoon is responsible for providing DS, GS, or GS-reinforcing (GS-R) coverage to the battalion.




<p>Man-Portable System</p> 	<p>Personnel: 2-man crew Basic load: 6 missiles basic load w/ M998 HMMWV Acquisition/range: Visual Engagement range: 5 km Engagement altitude: 3 km + Mutual support: 2 km +</p>
<p>Bradley Linebacker</p> 	<p>Personnel: 4-man crew Basic load: 10 missiles (4 ready to fire, 6 stowed) Acquisition/range: Visual/thermal Engagement range: 5 km (Stinger), 2500 m 25-mm, 900 m coax Engagement altitude: 3 km + Mutual support: 3 km Emplacement time: Fire on the move Reload time: 4 minutes</p>
<p>Avenger</p> 	<p>Personnel: 2 man crew Basic load: 8 ready-to-fire missiles, 250 rds .50 cal Acquisition/range: Visual/FLIR 9-10 km, laser range finder Engagement range: 5 km +, .50 cal range: 6,470 m Rate of fire: 1025 rpm Engagement altitude: 3 km + Mutual support: 3 km Emplacement time: 6 min, can remote operations out to 50 meters</p>

Table 8-5. Air defense systems.

a. Stinger. Although other SHORAD systems support divisional units, the SBCT infantry platoon is most likely to be supported by the Avenger (Figure 8-20) or a MANPADS (Figure 8-21). Stinger is designed to counter high-performance, low-level, ground attack aircraft; helicopters; and observation and transport aircraft.

(1) The Avenger's combined arms mission is to provide protection to combat forces, combat support elements, and other critical assets from attack. The Avenger is designed to counter hostile cruise missiles, unmanned aerial vehicles, and low-flying, high-speed, fixed-wing aircraft and helicopters attacking or transiting friendly airspace. The Avenger provides the battalions with highly mobile dedicated air defense firepower. The Avenger is equipped with two standard vehicle-mounted launchers (SVML) which carry four Stinger missiles each and have the following capabilities:

- The modified fire control subsystem fires and the SVML allow the Avenger to shoot on the move.
- The Avenger weapons system has an unobstructed, 360-degree field of fire and can engage at elevations between -10 and +70 degrees.
- The .50 cal machine gun affords a measure of self-protection by providing additional coverage of the Stinger missile's inner launch boundary.
- Avenger's sensor package (forward-looking infrared radar [FLIR], carbon dioxide, eye-safe laser range finder, and a video autotracker) provides target acquisition capability in battlefield obscurations at night and in adverse weather.
- The two-man crew remains in the vehicle under armor protection.
- Targeting data is provided by the forward area air defense (FAAD) command, control, communications, and intelligence (C3I).
- The Avenger system allows shoot-on-the-move and slew-to-cue capability.
- In the event of launcher system damage or failure or static mode, the system maintains dismounted Stinger missile capability.
- The firing sequence is entirely automated, including superelevation and lead, so that the gunner only needs to push the fire button to initiate the fire sequence and immediately select and prepare the next missile for firing.



Figure 8-20. AVENGER.

(2) The MANPADS Stinger missile system employs a two-man crew (crew chief and gunner). The MANPADS team normally has assigned transportation. Unit leaders must

carefully consider the consequences before separating a Stinger team from its vehicle. Stinger teams operating away from their vehicles have no more than two missiles available for resupply.

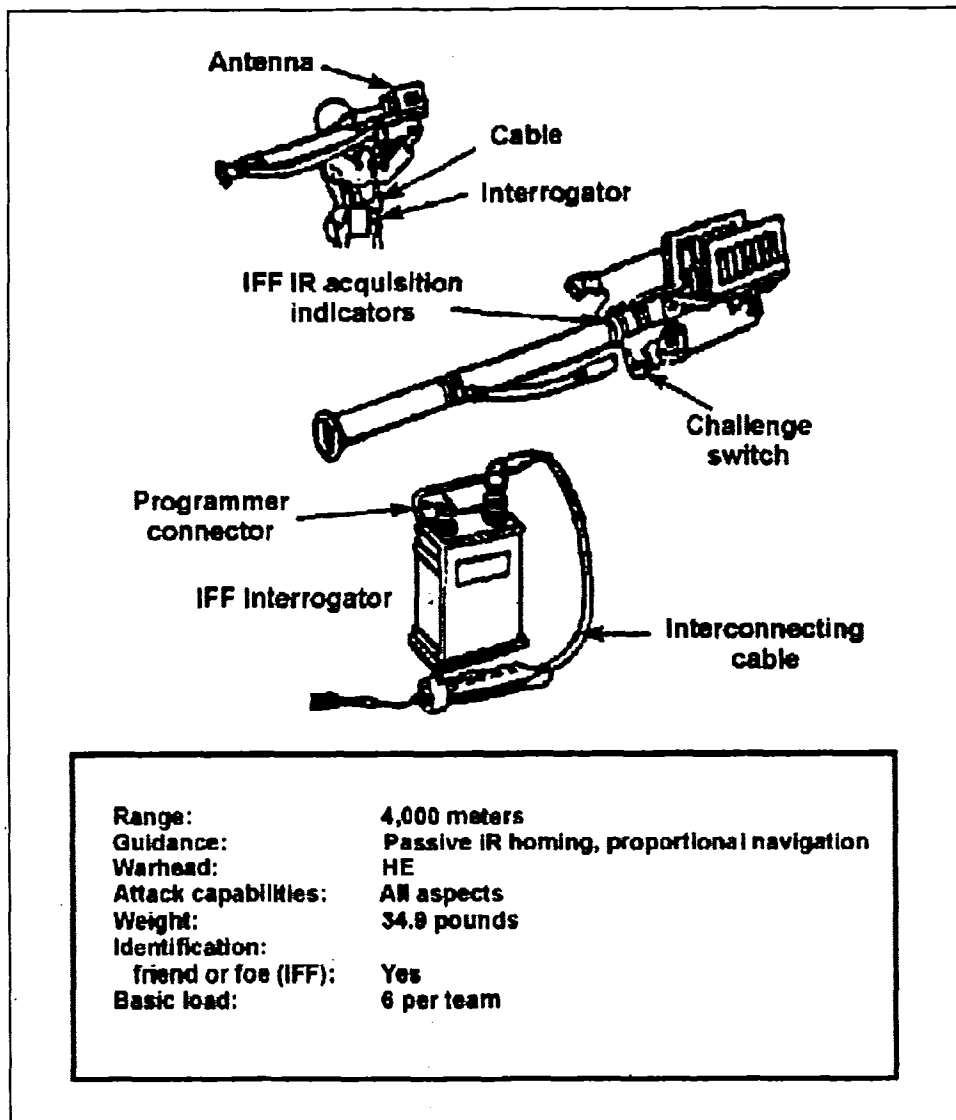


Figure 8-21. Stinger MANPADS air defense system.

b. Early Warning Alerts. If the brigade has an attached SHORAD battery, the platoon will receive early warning alerts from the SHORAD battery and its elements. The SHORAD C3I Sentinel radar team can broadcast early warning of enemy air activity to SHORAD elements (battery, platoon, or section), to FA fire units, and to air defense liaison officers (LNOs). The SHORAD battery will then provide voice early warning on the brigade command net. If METT-TC factors permit, the SHORAD platoon provides voice early warning to the battalions. The Sentinel radar (Figure 8-22) provides a 360-degree detection capability for various air tracks (rotary- and fixed-wing aircraft, UAVs, and cruise missiles) to a range of 40 kilometers. The Sentinel radar is normally OPCON to the respective SHORAD battery commander.

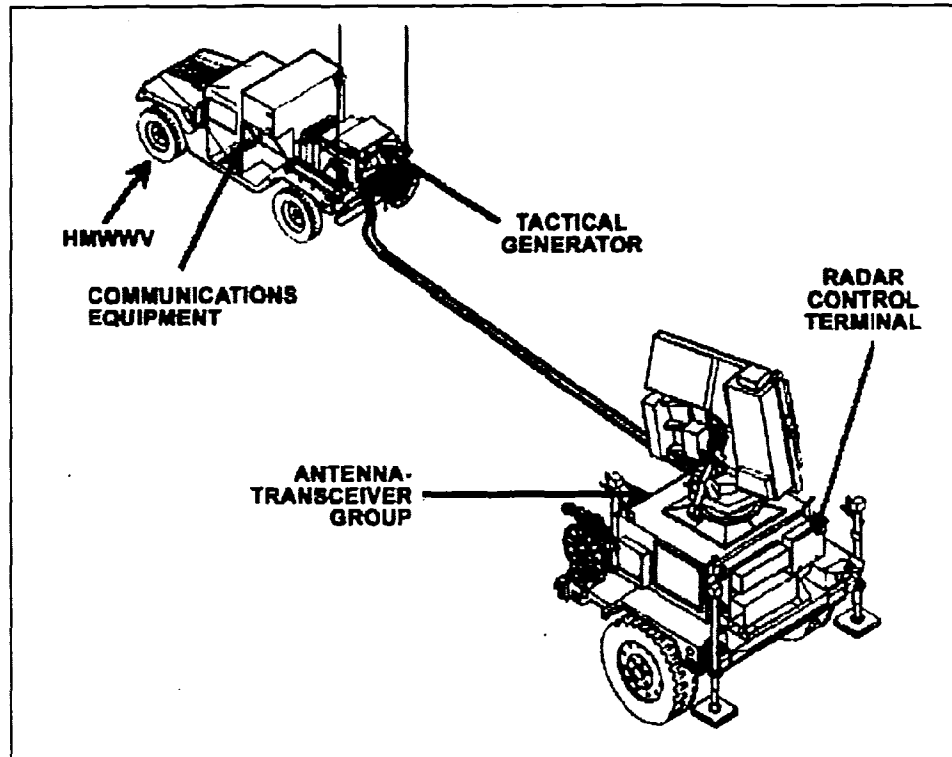


Figure 8-22. Sentinel radar system.

8-19. EMPLOYMENT OF AIR DEFENSE SYSTEMS

In offensive situations, air defense elements accompany the main attack. They may maneuver with the battalion's lead companies, orienting on low-altitude air avenues of approach. When the unit is moving or in a situation that entails short halts, air defense elements should remain within the platoon's organic weapon system maximum ranges to assure mutual support. The Stinger gunners (MANPADS) can dismount to provide air defense when the unit reaches the objective or pauses during the attack. In the defense, air defense elements may establish BPs based on available IPB information and the company commander's scheme of maneuver.

8-20. WEAPONS CONTROL STATUS

The weapons control status (WCS) describes the relative degree of control in effect for air defense fires. It applies to all weapons systems. The weapons control status is dictated in the battalion OPOD and may be updated based on the situation. The three levels of control are:

- a. **Weapons Free.** Crews can fire at any air target not positively identified as friendly. This is the least restrictive WCS level.
- b. **Weapons Tight.** Crews can fire only at air targets positively identified as hostile according to the prevailing hostile criteria.
- c. **Weapons Hold.** Crews are prohibited from firing except in self-defense or in response to a formal order. This is the most restrictive control status level.

8-21. EARLY WARNING PROCEDURES

- Do not fire on a hostile fixed-wing aircraft unless it is clear that the aircraft has identified friendly elements. Premature engagement compromises friendly positions.
- Designate air guards for every vehicle and position; establish and maintain 360-degree security.
- Establish an air warning system in the unit SOP, including both visual and aural signals.

(2) **Procedures.** When the platoon observes fixed-wing aircraft, helicopters, or UAVs that could influence its mission, it initially takes passive air defense measures unless the situation requires immediate active measures. Passive air defense measures normally means that each platoon initiates its react-to-air-attack battle drill; however, the commander can initiate specific passive measures if necessary. Refer to the passive air defense guidelines for the company discussed earlier in this section.

NOTE: Passive air defense also includes the company's preparations for conducting active air defense measures.

Passive air defense involves these three steps:

- Step 1 - Alert the company with a contact report.
- Step 2 - Deploy or take the appropriate actions. If the company is not in the direct path of an attacking aircraft, the commander or platoon leaders order vehicles to seek cover and concealment and halt with at least a 100-meter interval between vehicles. The team also may be ordered to continue moving as part of the battalion.
- Step 3 - Prepare to engage. Fighting vehicle crews prepare to engage the aircraft with machine-gun or main-gun fire on order of the commander or their platoon leader.

b. Active Air Defense. The platoon avoids engaging enemy aircraft if possible. If engagement is unavoidable, the platoon uses a technique known as volume of fire (Figure 8-23). This technique is based on the premise that the more bullets a unit can put in the sky, the greater the chance the enemy will fly into them. Even if these fires do not hit the enemy, a "wall of lead" in the sky can intimidate enemy pilots, causing them to break off their attack, or it can distract them from taking proper aim. One of the most important points about volume of fire is that once the lead distance is estimated, the soldier must aim at the estimated aiming point and fire at that single point until the aircraft has flown past it. The soldier maintains the aiming point, not the lead distance. Once the soldier starts firing, he does not adjust his weapon. The platoon leader establishes the aiming point based on the type of aircraft that is attacking (Figure 8-24).

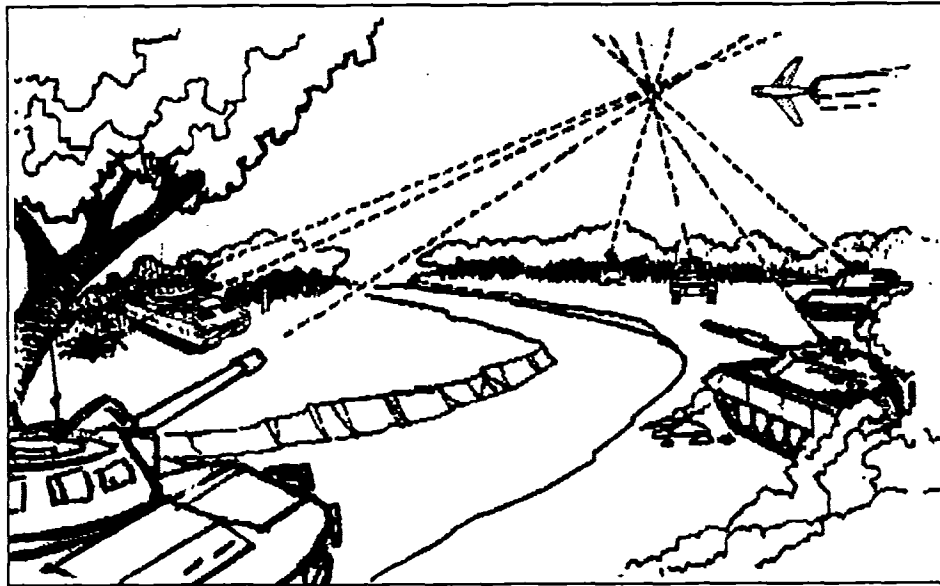


Figure 8-23. Volume of fire.

RULES FOR SELECTING THE AIM POINT

➔

Two football fields in front of nose

TYPE AERIAL PLATFORMS	COURSE	AIM POINT
JET/CRUISE MISSILE	CROSSING	TWO FOOTBALL FIELDS IN FRONT OF NOSE
JET/CRUISE MISSILE	OVERHEAD	TWO FOOTBALL FIELDS IN FRONT OF NOSE
JET/CRUISE MISSILE	DIRECTLY AT YOU	SLIGHTLY ABOVE AIRCRAFT NOSE
HELICOPTER/UAV	CROSSING	ONE-HALF FOOTBALL FIELD IN FRONT OF NOSE
HELICOPTER	HOVERING	SLIGHTLY ABOVE HELICOPTER BODY
HELICOPTER/UAV	DIRECTLY AT YOU	SLIGHTLY ABOVE HELICOPTER BODY

Figure 8-24. Aim points.

Section V. NUCLEAR, BIOLOGICAL, AND CHEMICAL SUPPORT

NBC assets within the SBCT are limited; therefore, it is imperative that the platoon practices the fundamentals of NBC defense, avoidance, protection, and decontamination in order to survive on a contaminated battlefield.

8-23. RECONNAISSANCE SUPPORT

The NBC reconnaissance platoon organic to the RSTA squadron is the only internal NBC

reconnaissance available to the SBCT. The NBC reconnaissance platoon can locate, identify, and mark areas of contamination. Since NBC reconnaissance assets are limited, the SBCT infantry company commander must plan for alternate means of conducting NBC reconnaissance (such as scouts and military patrols [MPs]).

8-24. DECONTAMINATION SUPPORT

External decontamination support is not available at the company level. For operational decontamination, the platoon must request support from the company, who must request support from the battalion's decontamination team, which is equipped with the modular decontamination system (MDS). Thorough decontamination operations require the support of an external decontamination platoon. The company must request this support through the SBCT infantry battalion and SBCT S3 sections. The contaminated element will be tasked to augment the decontamination platoon during the conduct of thorough decontamination operations. (For a more detailed discussion of decontamination requirements, refer to FM 3-5.)

CHAPTER 9

COMBAT SERVICE SUPPORT

In any military unit, combat service support sustains the force during continuous combat operations. In the ICV-equipped infantry platoon, the platoon leader is responsible for planning CSS; the platoon sergeant is the platoon's main CSS operator. The platoon sergeant works closely with the company executive officer and first sergeant to ensure the platoon receives the required support for its assigned mission. CSS responsibilities and procedures in the platoon remain basically the same. The company normally forecasts supplies and "pushes" rather than "pulls" them to the platoon. The platoon and company rely heavily upon their higher headquarters for their CSS needs.

9-1. INDIVIDUAL RESPONSIBILITIES

This paragraph focuses on specific individual responsibilities within the platoon's CSS chain.

a. **Platoon Sergeant.** As the platoon's main CSS operator, the platoon sergeant executes the platoon's logistical plan based on platoon and company SOPs. The platoon sergeant's CSS duties include:

- Participating in CSS rehearsals at the company level and integrating CSS into the platoon's maneuver rehearsals.
- Receiving, consolidating, and forwarding all administrative, personnel, and casualty reports to the first sergeant as directed or IAW unit SOP.
- Obtaining supplies, equipment (except Class VIII), and mail from the supply sergeant and ensuring proper distribution.
- Supervising evacuation of casualties, EPWs, and damaged equipment.
- Maintaining the platoon's manning roster.

b. **Squad and Section Leader.** Each squad and section leader's CSS duties include:

- Ensuring that crews perform proper maintenance on all assigned equipment.
- Compiling personnel and logistics reports for the platoon and submitting them to the platoon sergeant as directed or IAW unit SOP.
- Obtaining supplies, equipment (all classes), and mail from the platoon sergeant and ensuring proper distribution.

c. **Trauma Specialist/Platoon Medic.** As stated in Chapter 1, the trauma specialist/platoon medic is attached from the battalion medical platoon. He is attached to the rifle platoon to provide emergency medical treatment (EMT) for sick, injured, or wounded platoon personnel. Emergency medical treatment procedures performed by the trauma specialist may include opening an airway, starting intravenous fluids, controlling hemorrhage, preventing or treating for shock, splinting

fractures or suspected fractures, and providing relief for pain. The EMT performed by the trauma specialist is under the supervision of the battalion surgeon or physician's assistant (PA).

The trauma specialist is responsible for--

- Triaging injured, wounded, or ill friendly and enemy personnel for priority of treatment.
- Conducting sick call screening for the platoon.
- Evacuating sick, injured, or wounded personnel under the direction of the platoon sergeant.
- Assisting in the training of the platoon's combat lifesavers in enhanced first-aid procedures.
- Requisitioning Class VIII supplies from the BAS for the platoon according to the TSOP.
- Recommending locations for platoon CCPs.
- Providing guidance to the platoon's combat lifesavers, as required

9-2. PLANNING CONSIDERATIONS

Planning CSS operations is primarily a company- and battalion-level operation. While the company commander and executive officer plan the operation, the platoon leader is responsible for his platoon's execution of the plan at platoon level, and the platoon sergeant executes the plan at squad and vehicle level.

a. **Development of the CSS Plan.** The platoon leader develops his CSS plan by determining exactly what he has on hand to accurately predict his support requirements. This process is important not only in confirming the validity of the CSS plan but also in ensuring the platoon submits support requests as early as possible. The platoon leader formulates his CSS execution plan and submits support requests to the company based on his maneuver plan.

b. **Operational Questions.** The CSS plan should provide answers to operational questions such as the following:

(1) **Types of Support.** Based on the nature of the operation and specific tactical factors, what types of support will the platoon need?

(2) **Quantities.** In what quantities will this support be required?

(a) Will emergency resupply be required during the battle?

(b) Does this operation require prestock supplies?

(3) **Threat.** What are the composition, disposition, and capabilities of the expected enemy threat? How will these affect CSS operations during the battle?

(a) Where and when will the expected contact occur?

(b) What are the platoon's expected casualties and vehicle losses based on the nature

and location of expected contact?

(c) What impact will the enemy's special weapons capabilities (such as NBC) have on the battle and on expected CSS requirements?

(d) How many EPWs are expected, and where?

(4) **Terrain and Weather.** How will terrain and weather affect CSS operations during the battle?

(a) What ground will provide the best security for maintenance and CCPs?

(b) What are the platoon's vehicle and casualty evacuation routes?

(c) What are the company's dirty routes for evacuating contaminated personnel, vehicles, and equipment?

(5) **Time and Location.** When and where will the platoon need CSS?

(a) Based on the nature and location of expected contact, what are the best sites for the CCP?

(b) Where will the EPW collection points be located?

(6) **Requirements.** What are the support requirements, by element and type of support?

(a) Which section has priority for emergency Class III resupply?

(b) Which section or squad has priority for emergency Class V resupply?

(7) **Risk Factor.** Will lulls in the battle permit support elements to conduct resupply operations in relative safety? If no lulls are expected, how can the platoon best minimize the danger to the CSS vehicles providing the required support?

(8) **Resupply Technique.** Based on information developed during the CSS planning process, which resupply technique should the platoon use?

c. **Classes of Supply Considerations.** The platoon sergeant obtains supplies and delivers them to the platoon. The platoon leader establishes priorities for delivery, but combat demands that Class I, III, V, and IX supplies and equipment take priority because they are the most critical to successful operations.

(1) **Class I.** This class includes rations, water, and ice. It also includes gratuitous issue of items related to health, morale, and welfare. The Daily Strength Report triggers an automatic request for Class I supplies. Personnel in the field trains prepare rations and deliver them with the logistics package (LOGPAC). During the initial deployment, soldiers eat meals-ready-to-eat (MREs) stored on combat vehicles. Due to the probability of long lines of communication (LOC) and resupply, the platoon must keep a three-day supply of rations on hand for each soldier at all times.

(2) **Class II.** This class includes clothing, individual equipment, mission-oriented protective posture (MOPP) suits, tentage, tool sets, and administrative and housekeeping supplies and equipment. The platoon sergeant distributes expendable items such as soap, toilet tissue, and insecticide during LOGPAC operations.

(3) **Class III.** This class includes POL products. Unusual Class III requests go to the first sergeant and then to the battalion combat trains.

(a) POL includes both bulk and packaged products. Examples of bulk products include JP8 (Army common fuel), diesel fuel, and motor gasoline (MOGAS).

(b) Platoon requests and receives Class III products such as 5-gallon and 55-gallon containers, lubricants, grease, hydraulic fluid, cylinders of liquid and compressed gasses, and solvents in amounts of 55 gallons or less.

(4) **Class IV.** This class includes construction materials, pickets, sandbags, and concertina wire.

(5) **Class V.** This class covers all types of ammunition and mines including C4 and other explosives.

(6) **Class VI.** This class includes personal-demand items normally sold through the exchange system, which can include candy, soaps, cameras, and film.

(7) **Class VII.** This class includes major end items such as ICVs, MGSs, and other vehicles. Battle loss reports trigger the issuance of Class VII items. Ready-to-fight weapons systems go forward with the LOGPAC.

(8) **Class VIII.** This class covers medical supplies. The battalion aid station (BAS) replaces combat lifesaver bags and first-aid kits on a one-for-one basis.

(9) **Class IX.** This class includes repair parts and documents required for equipment maintenance operations. Repair parts are issued in response to a specific request or are obtained by direct exchange of repairable parts. The latter can include batteries for NVDs and man-portable radios. In combat situations, exchange and cannibalization are normal ways to obtain Class IX items.

(10) **Class X.** This class includes materials to support nonmilitary programs such as agricultural and economic development. Division level or higher will provide the platoon with instructions for requesting and issuing Class X supplies.

(11) **Miscellaneous.** This category covers anything that does not fall in one of the existing classes of supply.

9-3. RESUPPLY OPERATIONS

Resupply operations fall into one of three classifications: routine, emergency, or prestock. The platoon SOP specifies cues and procedures for each method. The platoon rehearses resupply operations during platoon training exercises. The actual method selected for resupply in the field depends on METT-TC factors.

a. **Routine Resupply.** Routine resupply operations cover items in Classes I, III, V, and IX; mail; and other items requested by the platoon. When possible, the platoon should conduct routine resupply daily. Ideally, it does so during periods of limited visibility. Although the ICV is designed to operate over extended periods of time (72 hours) without Class III resupply, the platoon leader should refuel at every opportunity available, based upon the factors of METT-TC.

(1) The LOGPAC technique offers a simple, efficient way to accomplish routine resupply operations. The key feature of LOGPAC, a centrally organized resupply convoy, originates at the battalion trains. The convoy carries all items needed to sustain the platoon for a specific period (usually 24 hours) or until the next scheduled LOGPAC. The battalion SOP will specify the LOGPAC's exact composition and march order.

(2) As directed by the commander or XO, the first sergeant establishes the company resupply point. He uses either the service station or tailgate method, and he briefs each LOGPAC driver on which method to use. When he has the resupply point ready, the first sergeant informs the commander. The company commander then directs each platoon or element to conduct resupply based on the tactical situation.

(a) The service station method that may be used during mounted operations (Figure 9-1) allows the vehicles and their squads to move individually, or by section, to a centrally located resupply point. Depending on the tactical situation, a vehicle, section, or platoon moves out of its position, conducts resupply operations, and moves back into position. This process continues until the entire platoon has received its supplies. In using this method, vehicles enter the resupply point following a one-way traffic flow. Only vehicles that require immediate maintenance stop at the maintenance holding area. Vehicles move through each supply location. The crews rotate individually to eat, pick up mail and sundries, and refill or exchange water cans. When all platoon vehicles and crews have completed resupply, they move to a holding area. There, time permitting, the platoon leader and the platoon sergeant conduct a PCI.

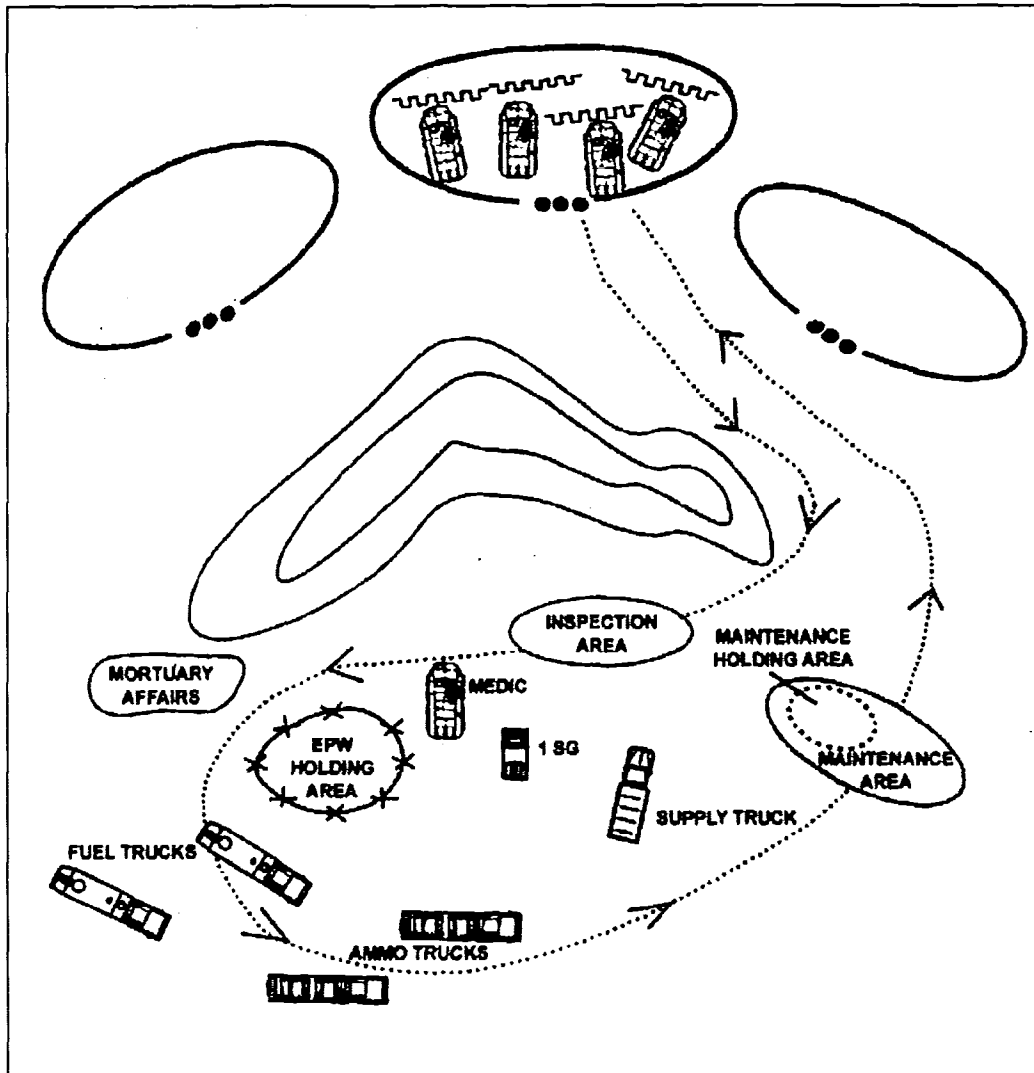


Figure 9-1. Mounted service station resupply method.

(b) The service station resupply method (Figure 9-2) for use during dismounted operations requires the soldiers to leave their fighting positions. Selected soldiers move to a company resupply point to the rear of the platoon position, conduct resupply, and return to their fighting position. This technique is used when contact is not likely and for the resupply of one or several classes of supplies.

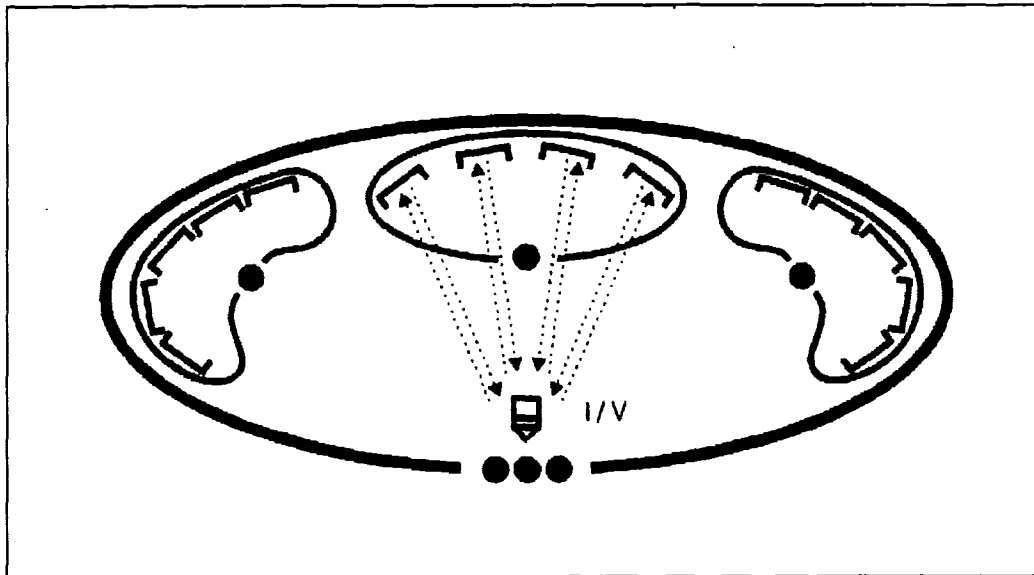


Figure 9-2. Dismounted service station resupply method.

NOTE: The platoon order should state the sequence for moving squads or portions of squads out of position. Companies may vary the technique by establishing a resupply point for each platoon and moving the supplies to that point.

(c) In assembly areas, the first sergeant normally uses the tailgate method (Figure 9-3). Combat vehicles remain in their vehicle positions, or they back out a short distance to allow trucks carrying Class III and V supplies to reach them. Individual soldiers rotate through the feeding area. While there, they pick up mail and sundries and refill or exchange water cans. They centralize and guard any EPW. They take soldiers killed in action (KIA) and their personal effects to the holding area, where the first sergeant assumes responsibility for them.

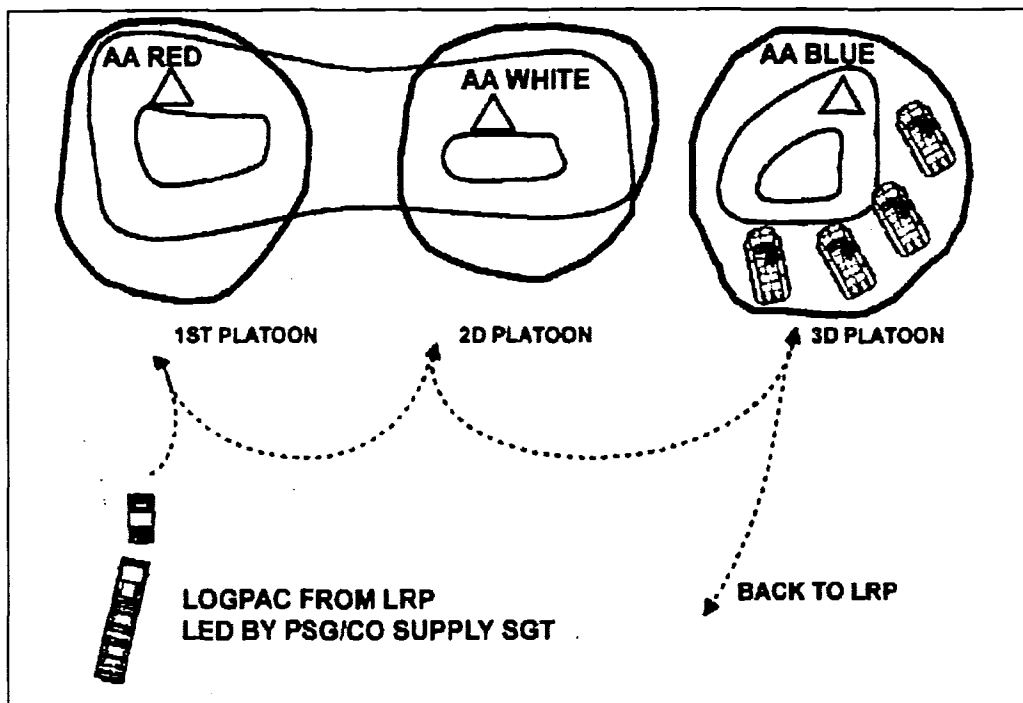


Figure 9-3. Tailgate resupply method.

(d) During operations when the platoon is separated from its vehicles and in contact, or when contact is imminent, the in-position resupply method may be required to ensure adequate supplies are available to the squads. This method requires the company to bring forward supplies or equipment (or both) to individual fighting positions (Figure 9-4). The platoon normally will provide a guide to ensure the supplies (Class V) are distributed to the most critical position first. This method--

- Is used when an immediate need exists.
- Is used to resupply single classes of supply.
- Enables leaders to keep squad members in their fighting positions.

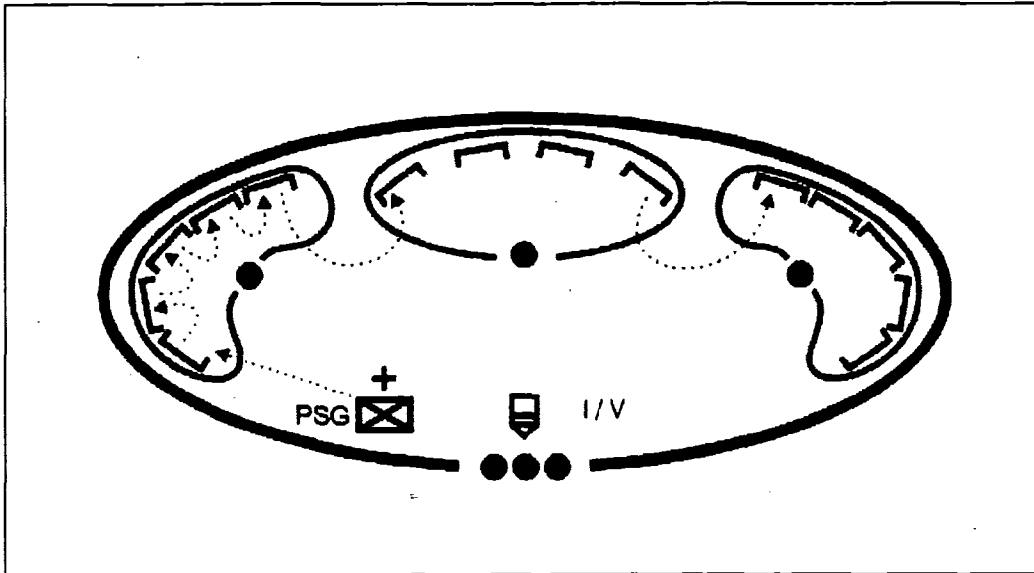


Figure 9-4. Dismounted in-position method.

NOTE: If resupply vehicles cannot move near platoon positions, platoon members may need to help the resupply personnel move supplies and equipment forward.

b. Emergency Resupply. Occasionally (normally during combat operations), the platoon might have such an urgent need for resupply that it cannot wait for a routine LOGPAC. Emergency resupply could involve NBC equipment as well as Classes III, V, VIII, and water.

c. Prestock Resupply. In defensive operations and at some other times, as appropriate, the platoon most likely will need prestocked supplies, also known as pre-positioned or "cached" resupply. Normally, the platoon only pre-positions Class IV and V items, but they also can pre-position Class III supplies. However, they must refuel platoon vehicles before they move into fighting positions, while first occupying the BP, or while moving out of their fighting position.

(1) All levels must carefully plan and execute prestock operations. All leaders, down to vehicle commanders and squad leaders, must know the exact locations of prestock sites. They verify these locations during reconnaissance or rehearsals. The platoon takes steps to ensure the survivability of the prestocked supplies. These measures include selecting covered and concealed positions and digging-in the prestock positions. The platoon leader must have a removal and destruction plan to prevent the enemy from capturing pre-positioned supplies.

(2) During offensive operations, the platoon can pre-position supplies on trucks or ICVs well forward on the battlefield. This works well if the platoon expects to use a large volume of fire, with corresponding ammunition requirements, during a fast-moving operation.

9-4. SOLDIER'S LOAD

The soldier's load is a main concern of the leader. How much is carried, how far, and in what configuration are important mission considerations. Leaders must learn to prepare for the most likely contingencies based on available information--they cannot be prepared for all possible operations. See FM 7-12 for detailed discussions on load planning, calculating, and management techniques used to

assist leaders and soldiers in organizing tactical loads to ensure safety and combat effectiveness.

9-5. COMBAT LOAD AND BASIC LOAD

The platoon's combat load varies by mission and includes the supplies physically carried into the fight. The company commander directs some minimum requirements for the combat load. The unit SOP or the platoon leader specifies most items. The basic load includes supplies kept by the platoon for use in combat. The quantity of most basic load supply items depends on how many days in combat the platoon might have to sustain itself without resupply. For Class V ammunition, the higher commander or SOP specifies the platoon's basic load

9-6. MAINTENANCE

Proper maintenance is the key to keeping vehicles, equipment, and other materials in serviceable condition. It is a continuous process starting with preventive measures taken by each vehicle crew and continuing through repair and recovery efforts by higher-level maintenance personnel. Maintenance services include inspecting, testing, servicing, repairing, requisitioning, recovering, and evacuating vehicles and equipment.

9-7. EVACUATION PROCEDURES

When combat begins and casualties occur, the platoon first must provide initial care to those wounded in action (WIA). This is accomplished through the administration of first aid (self-aid/buddy aid), enhanced first aid (by the combat lifesaver), and EMT (by the trauma specialist/platoon medic). Vehicle commanders and squad leaders arrange for evacuation of WIAs to the CCP. The platoon normally sets up the CCP in a covered and concealed location to the rear of the platoon position. At the CCP, the platoon medic conducts triage on all casualties, takes steps to stabilize their condition, and starts the process of moving them to the rear for more treatment.

NOTE: Before the platoon evacuates casualties to the CCP or beyond, leaders should remove all key operational items and equipment from their persons. This includes SOI, maps, position-locating devices, and laser pointers. Every unit should establish an SOP for handling the weapons and ammunition of its WIA.

9-8. KILLED IN ACTION

The platoon leader designates a location for the collection of KIAs. All personal effects remain with the body, but the vehicle commander removes and safeguards any equipment and issue items. He keeps these until he can turn the equipment and issue items over to the platoon sergeant. The platoon sergeant turns over the KIA to the first sergeant. As a rule, the platoon should not transport KIA remains on the same vehicle as wounded soldiers.

9-9. ENEMY PRISONERS OF WAR

EPWs and captured enemy equipment and materiel often provide excellent combat information and intelligence. This information is of tactical value only if the platoon processes and evacuates prisoners and materiel to the rear quickly.

- a. In any tactical situation, the platoon will have specific procedures and guidelines for handling prisoners and captured material.

(1) The five-"S" procedure reminds soldiers about the basic principles for handling EPWs, which include tagging prisoners and all captured equipment and materiel:

- Search.
- Segregate.
- Silence.
- Speed.
- Safeguard.

(2) In addition to initial processing, the capturing element provides guards and transportation to move prisoners to the designated EPW collection points. The capturing element normally carries prisoners on vehicles already heading toward the rear, such as tactical vehicles returning from LOGPAC operations. The capturing element must also feed, provide medical treatment, and safeguard EPWs until they reach the collection point.

(3) Once the EPWs arrive at the collection point, the platoon sergeant assumes responsibility for them. He provides for security and transports them to the company EPW collection point. He uses available personnel as guards, to include the walking wounded or soldiers moving to the rear for reassignment.

9-10. AERIAL SUSTAINMENT

Aerial sustainment is an aviation mission that consists of moving personnel, equipment, materiel, and supplies by utility, cargo, and fixed-wing assets for use in operations other than air assault or combat support. Overland resupply might not work, due to terrain or the existing enemy threat. The platoon must initiate a request for resupply and must push it through company to battalion. The platoon must prepare to receive the supplies at the specified time and location.

9-11. CASUALTY EVACUATION

Casualty evacuation (CASEVAC) is the term used to refer to the movement of casualties by air or ground on nonmedical vehicles or aircraft. CASEVAC operations normally involve the initial movement of wounded or injured soldiers to the nearest medical treatment facility. Casualty evacuation operations may also be employed in support of mass casualty operations. Medical evacuation includes the provision of en route medical care, whereas CASEVAC does not provide any medical care during movement. For definitive information on CASEVAC, see FM 8-10-6 and FM 8-10-26.

CHAPTER 10

PATROLLING

Patrols are missions to gather information, to conduct combat operations, or to establish a presence in an area of operation as part of a stability operation. The SBCT infantry platoon usually conducts these operations as part of a larger effort. Infantry platoons and squads conduct three types of patrols: reconnaissance, combat, and presence. This chapter describes the planning considerations used in preparation for patrols, conduct of patrols, and establishment of and actions taken in a patrol base. The information aligns directly with FM 7-8 because once the infantry squads dismount the ICVs, they operate as a light infantry platoon. (Refer to FM 7-8 for illustrations.) The key difference is that the platoon has the increased capabilities of vehicles, a weapons squad, and weapon types. The platoon leader has the flexibility to use these assets to enhance the effectiveness of the patrolling mission.

Section I. GENERAL

The SBCT infantry platoon has the ability to transport its squads to positions of advantage to conduct patrolling and to assist in sustainability operations. The weapons squad and the ICV provide additional capabilities for combat patrolling. The platoon leader should, if possible, integrate fires from the ICV as a support or security position. The ICV sections can also perform communications relay. Most patrols are conducted dismounted, but the vehicles can support the operation or be left in a hide position or in the company AA. The information discussed in this section applies to all types of patrols.

10-1. ORGANIZATION

To accomplish the patrolling mission, a platoon or squad must perform specific tasks. As with other missions, the leader assigns tasks in accordance with his estimate of the situation. He identifies those tasks the platoon must perform and decides which elements will perform them. Where possible, the leader should maintain squad and fire team integrity. The terms "element" and "team" refer to the squads, fire teams, or buddy teams that perform the described tasks. The leader must plan carefully to ensure that he has identified and assigned all required tasks in the most efficient way. Platoons conducting patrols include the common and specific elements and teams for each type of patrol. The following elements are common to all patrols.

- a. **Headquarters Element.** The headquarters consists of the platoon leader, RATELO, and platoon sergeant. It may consist of other attachments that are assigned or that the platoon leader decides that he or the platoon sergeant must control directly.
- b. **Aid and Litter Team.** Aid and litter teams are responsible for treating and evacuating casualties.
- c. **Enemy Prisoner of War Search Team.** EPW teams are responsible for controlling enemy prisoners and battlefield detainees IAW the five S's and the leader's guidance.
- d. **Surveillance Team.** The surveillance team keeps watch on the objective from the time that the leader's reconnaissance ends until the unit deploys for actions on the objective. They then join their element.

e. **Compass Man.** The compass man assists in navigation by ensuring the lead fire team leader remains on course at all times. The compass man should be thoroughly briefed. His instructions must include an initial azimuth with subsequent azimuths provided as necessary. The platoon or squad leader also should designate an alternate compass man.

f. **Pace Man.** The pace man maintains an accurate pace at all times. The platoon or squad leader should designate how often the pace man is to report the pace. The pace man should also report the pace at the end of each leg. The platoon or squad leader also should designate an alternate pace man.

10-2. INITIAL PLANNING

Leaders plan and prepare for patrols using the troop-leading procedures. Leaders identify required actions on the objective and then reverse plan to the departure from friendly lines and forward to the reentry of friendly lines while making a tentative plan. They normally receive the OPOD in the company CP where communications are good and key personnel are available. Because patrols act independently, move beyond the direct-fire support of the parent unit, and operate forward of friendly units, coordination must be thorough and detailed.

a. Items to be considered by the company commander and platoon leader are--

- Changes or updates in the enemy situation.
- Best use of terrain for routes, rally points, and patrol bases.
- Light and weather data.
- Changes in the friendly situation.
- The attachment of soldiers with special skills or equipment; for example, engineers or interpreters.
- Use and location of landing zones.
- Departure and reentry of friendly lines.
- Fire support on the objective and along the planned routes, including alternate routes.
- Rehearsal areas and times. The terrain for the rehearsal should be similar to that at the objective, to include buildings and fortifications if necessary.
- Signal plan. This should include call signs, frequencies, code words, pyrotechnics, digital communication instructions, as well as the challenge and password.

b. The company or platoon leader coordinates with the unit through which his platoon or squad will conduct its forward and rearward passage of lines.

c. The company commander and battalion S3 coordinate patrol activities with the leaders of other units that will be patrolling in adjacent areas at the same time.

10-3. COMPLETE THE PLAN

As the platoon leader completes his plan, he considers the following.

- a. **Essential and Supporting Tasks.** The leader ensures that he has assigned all essential tasks to be performed on the objective at rally points, at danger areas, at security or surveillance locations, along the route(s), and at passage lanes.
- b. **Movement and Execution Times.** The leader estimates time requirements for movement to the objective, leader's reconnaissance of the objective, establishment of security and surveillance, completion of all assigned tasks on the objective, movement to an objective rally point to debrief the platoon, and return to and through friendly lines.
- c. **Primary and Alternate Routes.** The leader selects primary and alternate routes to and from the objective (Figure 10-1). The return routes should differ from the routes to the objective.

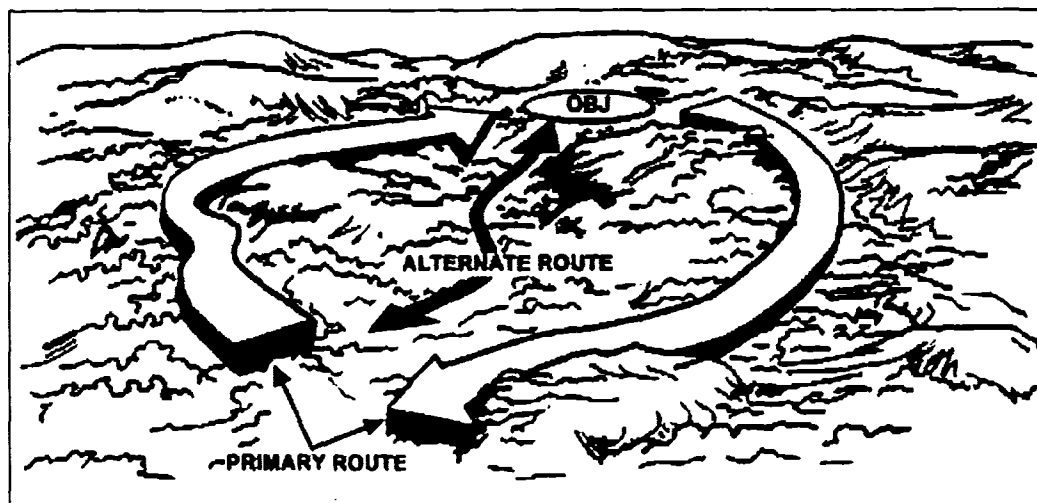


Figure 10-1. Primary and alternate routes.

- d. **Signals.** The leader should consider the use of special signals. These include arm-and-hand signals, flares, voice, whistles, radios, and infrared equipment. All signals must be rehearsed so that all soldiers know what they mean.
- e. **Challenge and Password Forward of Friendly Lines.**
 - (1) The platoon can use digital technology to inform units that it can track their progress, and as a redundancy it can use challenge and password.
 - (2) The platoon leader also can designate a running password. This code word alerts a unit that friendly soldiers are approaching in a less than organized manner and possibly under pressure. This may be used to get soldiers quickly through a compromised passage of friendly lines. The running password is followed by the number of soldiers approaching ("Warrior six"). This prevents the enemy from joining a group in an attempt to penetrate a friendly unit.
- f. **Location of Leaders.** The leader considers where he and the platoon sergeant and other key

leaders should be located for each phase of the patrol mission. The platoon sergeant normally is with the following elements for each type of patrol:

- On a raid or ambush, he normally controls the support element.
- On an area reconnaissance, he normally stays in the ORP.
- On a zone reconnaissance, he normally moves with the reconnaissance element that sets up the link-up point.

g. Actions on Enemy Contact. Unless required by the mission, the platoon avoids enemy contact. The leader's plan must address actions on chance contact at each phase of the patrol mission. The platoon's ability to continue the mission will depend on how early contact is made, whether the platoon is able to break contact successfully (so that its subsequent direction of movement is undetected), and whether the platoon receives any casualties as a result of the contact.

- (1) The plan must address the handling of seriously wounded soldiers and KIAs.
- (2) The plan must address the handling of prisoners who are captured as a result of chance contact and who are not part of the planned mission.

h. Contingency Plans. The leader leaves for many reasons throughout the planning, coordination, preparation, and execution of his patrol mission. Each time the leader departs without radio or wire communications, he must issue a five-point contingency plan. The contingency plan includes--

- Where the leader is going.
- Who he is taking with him.
- The amount of time he plans to be gone.
- The actions to be taken if the leader does not return.
- The unit's and the leader's actions on chance contact while the leader is gone.

10-4. DEPART FRIENDLY LINES

When departing friendly lines, the platoon leader or company commander must coordinate with the commander of the forward unit and the leaders of other units that will be patrolling in the same or adjacent areas. This coordination includes signal plan, fire plan, running password, procedures for departure and reentry lines, dismount points, initial rally points, departure and reentry points, and information about the enemy.

- a. The platoon leader provides the forward unit leader with the unit identification, the size of the patrol, the departure and return times, and the area of operation.
- b. The forward unit leader provides the platoon leader with the following:
 - Additional information on terrain.

- Known or suspected enemy positions.
- Likely enemy ambush sites.
- Latest enemy activity.
- Detailed information on friendly positions and obstacle locations to include the location of OPs.
- Friendly unit fire plan.
- Support that the unit can provide; for example, fire support, guides, communications, and reaction force.

c. In his plan for the departure of friendly lines, the leader should consider the following sequence of actions:

- Making contact with friendly guides at the contact point.
- Moving to the coordinated initial rally point.
- Completing final coordination.
- Moving to and through the passage point.
- Establishing a security-listening halt beyond the friendly unit's final protective fires.

d. If the platoon is dismounted, it should remain in single file. The platoon sergeant follows directly behind the guide so that he can count each soldier who passes through the passage point. He gives the count to the guide, tells him how long to wait at the passage point (or when to return), and confirms the running password. If the platoon makes contact after it is past the departure point, it fights through. Soldiers return to the departure point only if they become disorganized. They then reoccupy the initial rally point, and the leader reports to higher headquarters.

10-5. PATROL BASES

A patrol base is a position set up when a squad or platoon conducting a patrol halts for an extended period. Patrol bases should be occupied no longer than 24 hours, except in an emergency. The platoon or squad never uses the same patrol base twice. Platoons or squads use patrol bases--

- To stop all movement to avoid detection.
- To hide during a long, detailed reconnaissance of an objective area.
- To eat, clean weapons and equipment, or rest.
- To plan and issue orders.
- To reorganize after infiltrating an enemy area.

- To have a base from which to conduct several consecutive or concurrent operations such as ambush, raid, reconnaissance, or security.
 - a. The leader selects the tentative site from a map. Plans to establish a patrol base must include selecting an alternate patrol base site. The alternate site is used if the first site is unsuitable or if the patrol must unexpectedly evacuate the first patrol base.
 - b. Leaders planning for a patrol base must consider the mission and passive and active security measures. The leader plans for--
 - Observation posts.
 - Communication with observation posts.
 - Defense of the patrol base.
 - Withdrawal from the patrol base to include withdrawal routes and a rally point or rendezvous point or alternate patrol base.
 - A security system to make sure that specific soldiers are awake at all times.
 - Enforcement of camouflage, noise, and light discipline.
 - The conduct of required activities with minimum movement and noise.
 - c. The leader avoids--
 - Known or suspected enemy positions.
 - Built-up areas.
 - Ridges and hilltops, except as needed for maintaining communication.
 - Roads and trails.
 - Small valleys.

10-6. RALLY POINTS

A rally point is a place designated by the leader where the platoon moves to reassemble and reorganize if it becomes dispersed. (See FM 7-8 for more information.) The leader physically reconnoiters routes to select rally points whenever possible. He selects tentative points if he can only conduct a map reconnaissance, and he confirms them by actual inspection as the platoon moves through them. The most common types of rally points are initial, en route, objective, reentry, and near- and far-side rally points. Soldiers must know which rally point to move to at each phase of the patrol mission. They should know what actions are required there and how long they are to wait at each rally point before moving to another.

- a. **Initial Rally Point.** An initial rally point is a place inside of friendly lines where a unit may assemble and reorganize if it makes enemy contact during the departure of friendly lines or before

reaching the first en-route rally point. The commander normally selects the initial rally point.

b. En Route Rally Point. The leader designates en route rally points every 100 to 400 meters (based on the terrain, vegetation, and visibility). When the leader designates a new en route rally point, the previously designated one goes into effect. This precludes uncertainty over which rally point soldiers should move to if contact is made immediately after the leader designates a new rally point. There are three ways to designate a rally point:

- (1) Physically occupy it for a short period. This is the preferred method.
- (2) Pass by at a distance and designate using arm-and-hand signals.
- (3) Walk through and designate using arm-and-hand signals.

c. Objective Rally Point. The ORP is a point out of sight, sound, and small-arms range of the objective area. It is normally located in the direction that the platoon plans to move after completing its actions on the objective. The ORP is tentative until the objective is pinpointed. Actions at or from the ORP include--

- Reconnoitering the objective.
- Issuing a FRAGO.
- Disseminating information from reconnaissance, if contact was not made.
- Making final preparations before continuing operations; for example, re-camouflaging; preparing demolitions; lining up rucksacks for quick recovery; preparing EPW bindings, first aid kits, and litters; and inspecting weapons.
- Accounting for soldiers and equipment after actions at the objective are complete.
- Reestablishing the chain of command after actions at the objective are complete.

(1) *Occupation of an ORP by a Squad.* In planning the occupation of an ORP, the squad leader considers the following sequence:

- Halt beyond sight, sound, and small-arms weapons range of the tentative ORP (200 to 400 meters in good visibility, 100 to 200 meters in limited visibility).
- Position security.
- Move forward with a compass man and one member of each fire team to confirm the location of the ORP and determine its suitability. Issue a five-point contingency plan before departure.
- Position the Team A soldier in the ORP at 12 o'clock and the Team B soldier at 6 o'clock. Issue them a contingency plan and return with the compass man.
- Lead the squad into the ORP; position Team A from 9 to 3 o'clock and Team B from 3 to 9 o'clock.

NOTE: The squad may also occupy the ORP by force. This requires more precise navigation but eliminates separating the squad.

(2) **Occupation of an ORP by a Platoon.** The platoon leader should consider the same sequence in planning the occupation of an ORP. He brings a soldier from each squad on his reconnaissance of the ORP and positions them at the 10, 2, and 6 o'clock positions. The first squad in the order of march establishes the base leg (10 to 2 o'clock). The trailing squads occupy from 2 to 6 o'clock and 6 to 10 o'clock, respectively.

d. **Reentry Rally Point.** The reentry rally point (RRP) is located out of sight, sound, and small arms weapons range of the friendly unit through which the platoon will return. This also means that the RRP should be outside the final protective fires of the friendly unit. The platoon occupies the RRP as a security perimeter.

e. **Near- and Far-Side Rally Points.** These rally points are on the near and far side of danger areas. If the platoon makes contact while crossing the danger area and control is lost, soldiers on either side move to the rally point nearest them. They establish security, reestablish the chain of command, determine their personnel and equipment status, and continue the patrol mission, link up at the ORP, or complete their last instructions.

10-7. LEADER'S RECONNAISSANCE

The plan must include a leader's reconnaissance of the objective once the platoon or squad establishes the ORP. During his reconnaissance, the leader pinpoints the objective; selects security, support, and assault positions for his squads and fire teams; and adjusts his plan based on his observation of the objective. Each type of patrol requires different tasks during the leader's reconnaissance. The platoon leader will take different elements with him. The leader must plan time to return to the ORP, complete his plan, disseminate information, issue orders and instructions, and allow his squads to make any additional preparations.

10-8. REENTRY OF FRIENDLY LINES

The platoon could be mounted or dismounted at the reentry rally point. The same considerations apply for coordination. The platoon leader should consider the following sequence.

- a. The platoon halts in the RRP and establishes security.
- b. The platoon leader radios the code word advising the friendly unit of its location and that it is ready to return. The friendly unit must acknowledge the message and confirm that guides are waiting before the platoon moves from the RRP.
- c. If radio communications are not possible, the platoon leader, RATELO, and a two-man security element (buddy team) move forward and attempt to contact an OP using the challenge and password. The OP notifies the friendly unit that the platoon is ready to return and requests a guide.
- d. If the platoon leader cannot find an OP, he moves with the RATELO and security element to locate the coordinated reentry point. He must move straight toward friendly lines, never parallel to them. All lateral movement should be outside of small-arms weapons range.

NOTE: The platoon leader should attempt this procedure only during daylight. At night he should use other backup signals to make contact with friendly units. The preferred method is to wait until daylight if contact with the friendly unit cannot be made as planned, but this is METT-TC dependent.

- e. The platoon leader uses far and near recognition signals to establish contact with the guide.
- f. The platoon leader signals (radio) the platoon forward or returns and leads it to the reentry point. He may post the security element with the guide at the enemy side of the reentry point.
- g. The platoon sergeant counts and identifies each soldier as he passes through the reentry point.
- h. The guide leads the platoon to the assembly area.
- i. The platoon leader reports to the command post of the friendly unit. He tells the commander everything of tactical value concerning the friendly unit's area of responsibility.
- j. The platoon leader rejoins the platoon in the assembly area and leads it to a secure area for debriefing.

10-9. DEBRIEF

Immediately after the platoon or squad returns, personnel from higher headquarters conduct a thorough debrief. This may include all members of the platoon or the leaders, RATELO, and any attached personnel. Normally the debriefing is oral. Sometimes a written report is required. Information on the written report should include--

- Size and composition of platoon conducting the patrol.
- Mission of the platoon (type of patrol, location, and purpose).
- Departure and return times.
- Routes. Use checkpoints, grid coordinates for each leg, or include an overlay.
- Detailed description of terrain and enemy positions identified.
- Results of any contact with the enemy.
- Personnel status at the conclusion of the patrol.

Section II. TYPES OF PATROLS

This section discusses the types of patrols the SBCT infantry platoon may be expected to conduct.

10-10. RECONNAISSANCE PATROL

Reconnaissance patrols provide timely and accurate information on the enemy and terrain. They confirm the leader's plan before it is executed. The commander must brief the platoon leader the specific

information requirements for each mission. The three types of reconnaissance patrols are area, zone, and route.

a. Area Reconnaissance Patrol. An area reconnaissance is conducted to obtain information about a specific location and the area around it. The location may be given as a grid coordinate, an objective, on an overlay. In an area reconnaissance, the platoon or squad uses surveillance or vantage points around the objective from which to observe it and the surrounding area. In planning for an area reconnaissance mission, the platoon leader considers the following sequence of actions.

- (1) The leader may include a surveillance team in his reconnaissance of the objective from the ORP. He positions the surveillance team while on the reconnaissance. The subordinate leader responsible for security establishes security at the ORP and positions other security teams as required on likely enemy avenues of approach into the objective area.
- (2) If required, the leader positions other surveillance elements about the objective. He may move them on one route posting them as they move, or he may direct them to move on separate routes to their assigned locations.
- (3) After observing the objective for a specified time, all elements return to the ORP and report their observations to the leader or the recorder. Once all information is collected, it is disseminated to every soldier.

b. Zone Reconnaissance Patrol. A zone reconnaissance is conducted to obtain information on enemy, terrain, and routes within a specified zone. Zone reconnaissance techniques include the use of moving elements, stationary teams, or multiple area reconnaissance actions.

- (1) **Moving Elements.** The leader plans the use of squads or fire teams moving along multiple routes to cover the entire zone. Methods for planning the movement of multiple elements through a zone include the fan, the box, converging routes, and successive sectors.

(a) *Fan Method (Figure 10-2).* The leader first selects a series of ORPs throughout the zone. The platoon establishes security at the first ORP. Each reconnaissance and surveillance (R&S) team moves from the ORP along a different fan-shaped route that overlaps with others to ensure reconnaissance of the entire area. The leader maintains a reserve at the ORP. When all R&S teams have returned to the ORP, the platoon collects and disseminates all information to every soldier before moving on to the next ORP.

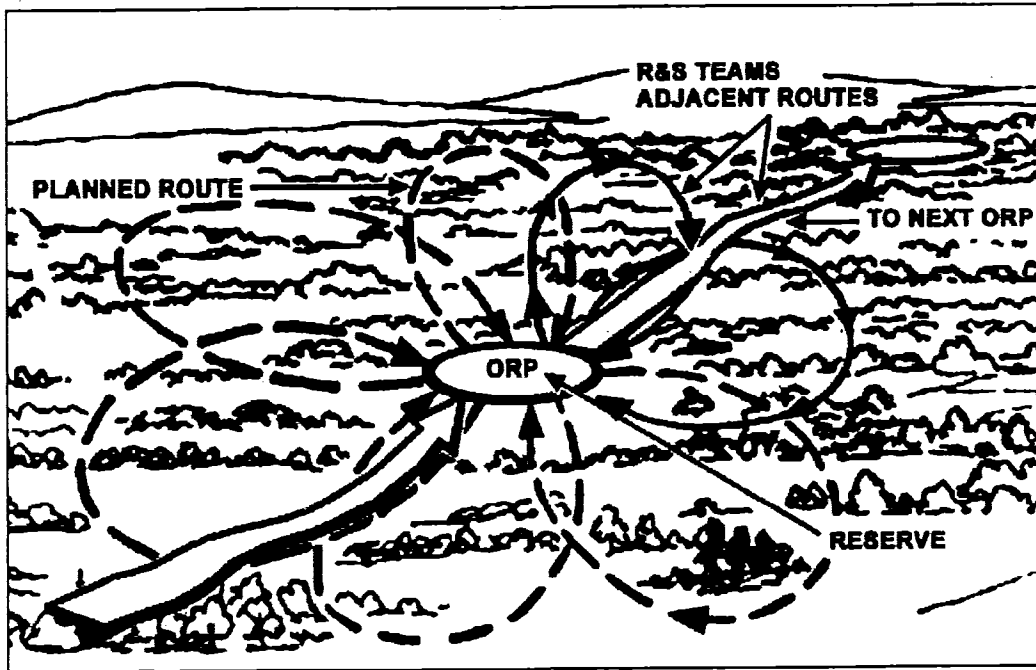


Figure 10-2. Fan method.

(b) *Box Method (Figure 10-3)*. The leader sends his R&S teams from the ORP along routes that form a boxed-in area. He sends other teams along routes through the area within the box. All teams meet at a link-up point at the far side of the box from the ORP.

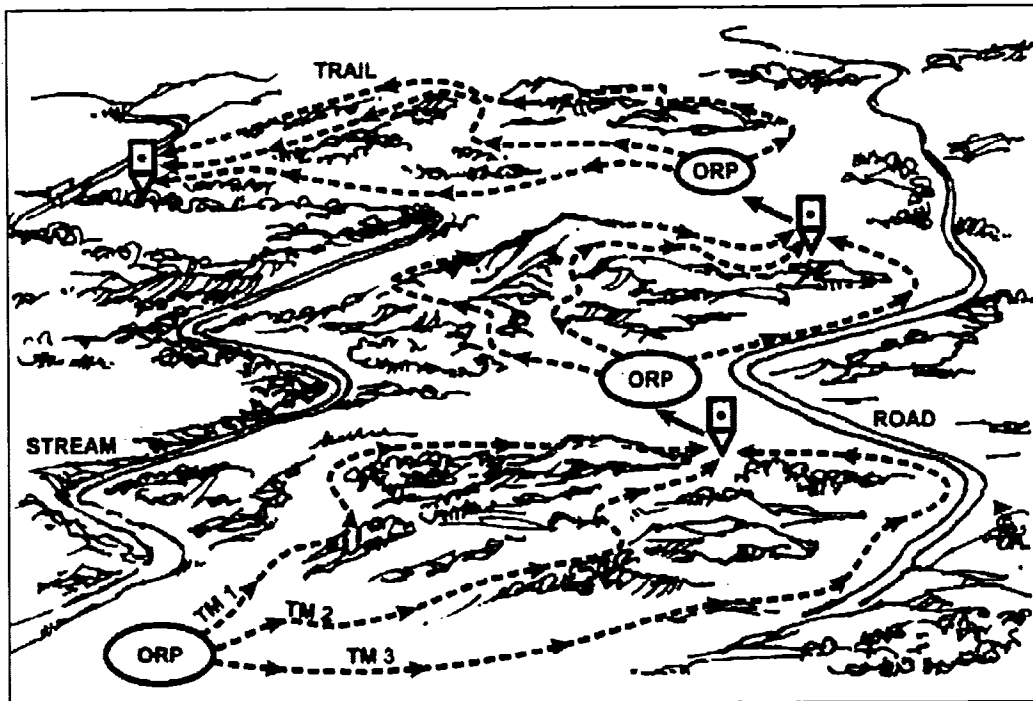


Figure 10-3. Box method.

(c) *Converging Routes Method (Figure 10-4)*. The leader selects routes from the ORP

through the zone to a link-up point at the far side of the zone from the ORP. Each R&S team moves along a specified route and uses the fan method to reconnoiter the area between routes. The leader designates a time for all teams to link-up.

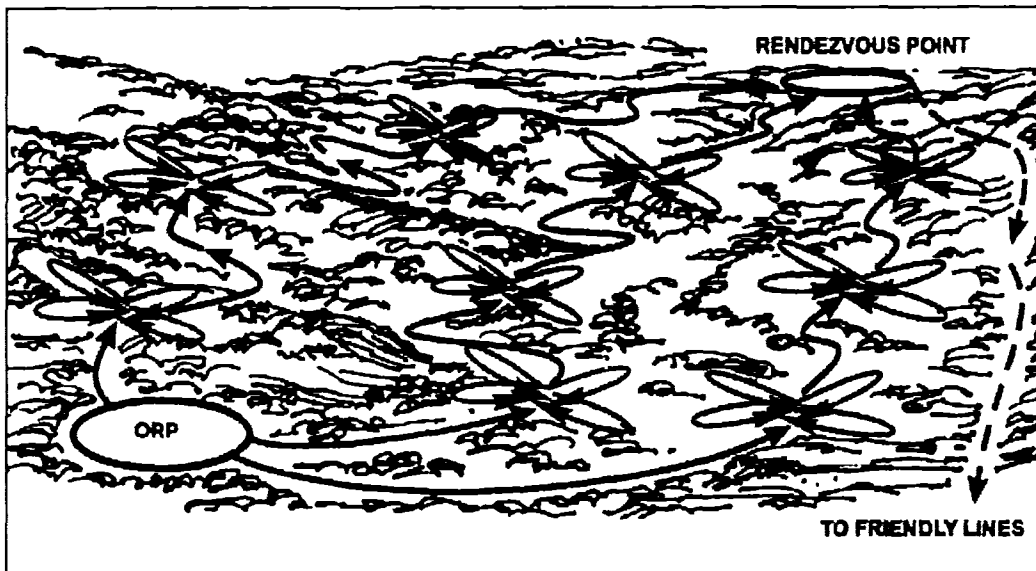


Figure 10-4. Converging routes method.

(d) *Successive Sector Method (Figure 10-5).* The leader may divide the zone into a series of sectors. Within each sector, the platoon uses the converging routes method to reconnoiter to an intermediate link-up point where it collects and disseminates the information gathered to that point before reconnoitering the next sector.

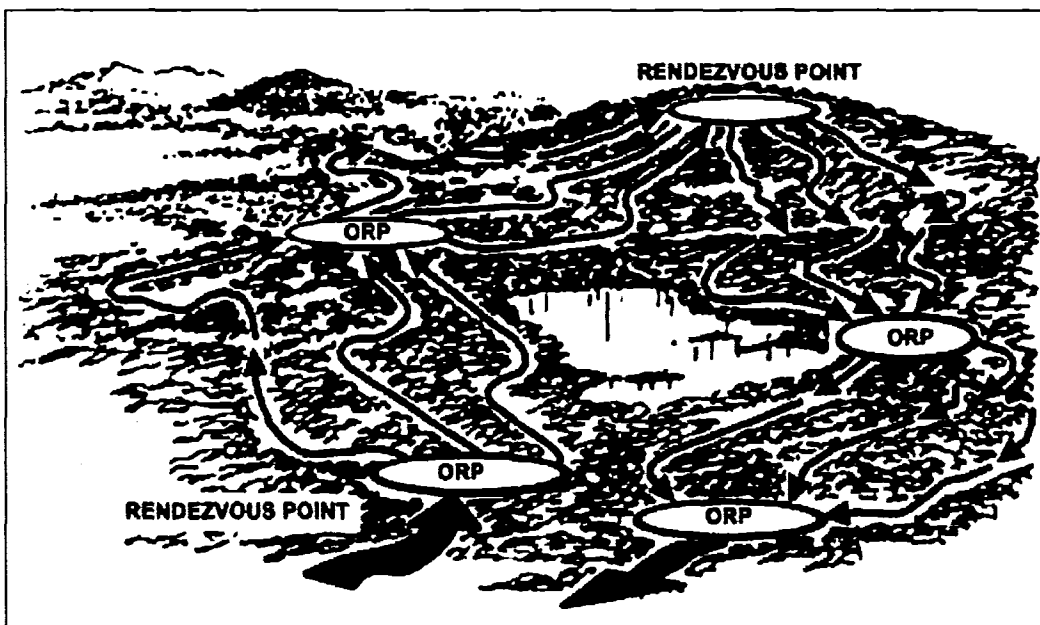


Figure 10-5. Successive sector method.

(2) *Stationary Teams.* Using this technique, the leader positions surveillance teams in

locations where they can collectively observe the entire zone for long-term, continuous information gathering. He must consider sustainment requirements when developing his soldiers' load plan.

(3) **Multiple Area Reconnaissance.** The leader tasks each of his squads to conduct a series of area reconnaissance actions along a specified route.

c. **Route Reconnaissance Patrol.** A route reconnaissance is conducted to obtain detailed information about one route and all the adjacent terrain or to locate sites for emplacing obstacles. A route reconnaissance is oriented on a road, a narrow axis such as an infiltration lane, or a general direction of attack. Engineers normally are attached to the infantry unit for a complete route reconnaissance, although infantry can conduct a hasty route reconnaissance without engineer support. A route reconnaissance results in detailed information about trafficability, enemy activity, NBC contamination, and aspects of adjacent terrain from both the enemy and friendly viewpoint. In planning a route reconnaissance the leader considers the following.

(1) The preferred method for conducting a route reconnaissance is the fan method described above. The leader must ensure that the fans are extensive enough to reconnoiter intersecting routes beyond direct-fire range of the main route (Figure 10-6).

(2) The platoon should use a different return route.

(3) If all or part of the proposed route is a road, the leader must treat the road as a danger area. The platoon moves parallel to the road using a covered and concealed route. When required, reconnaissance and security teams move close to the road to reconnoiter key areas.

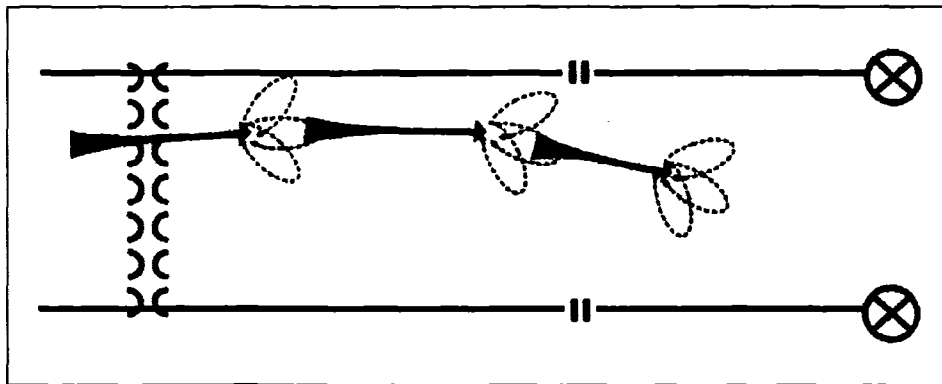


Figure 10-6. Route reconnaissance using fans.

10-11. COMBAT PATROL

Combat patrols are conducted to destroy or capture enemy soldiers or equipment; to destroy installations, facilities, or key points; or to harass enemy forces. They also provide security for larger units. The two types of combat patrol missions are ambush and raid.

a. **Organization.** The platoon leader organizes the platoon with all assets available to include weapons squad, rifle squads, ICVs, and attachments to complete the mission. Besides the common elements, combat patrols also have the following elements and teams.

(1) **Assault Element.** The assault element seizes and secures the objective and protects special teams as they complete their assigned actions on the objective.

(2) **Security Element.** The security element provides security at danger areas, secures the ORP, isolates the objective, and supports the withdrawal of the rest of the platoon once it completes its assigned actions on the objective. The security element may have separate security teams, each with an assigned task or sequence of tasks.

(3) **Support Element.** The support element provides direct fire support and may control indirect fires for the platoon.

(4) **Breach Element.** The breach element breaches the enemy's obstacles when required.

(5) **Demolition Team.** Demolition teams are responsible for preparing and exploding the charges to destroy equipment, vehicles, or facilities on the objective.

(6) **Search Team.** The assault element may comprise two-man (buddy team) or four-man (fire team) search teams to search bunkers, buildings, or tunnels on the objective. These teams may search the objective or kill zone for casualties, documents, or equipment.

b. Leader's Reconnaissance. In a combat patrol, the leader has additional considerations for the conduct of his reconnaissance of the objective from the ORP. He is normally the assault element leader. He should also take the support element leader, the security element leader, and a surveillance team (a two-man team from the assault element).

(1) The leader should designate a release point half way between the ORP and the objective. Squads and fire teams separate at the release point and move to their assigned positions. The release point should have wire communications with the ORP and be set up so that other elements can tie into a hot loop there.

(2) The platoon leader should confirm the location of the objective and determine that it is suitable for the assault or ambush. He notes the terrain and identifies where he can place mines or Claymores to cover dead space. He notes any other features of the objective that may cause him to alter his plan.

(3) If the objective is the kill zone for an ambush, the leader's reconnaissance party should not cross the objective because to do so will leave tracks that may compromise the mission.

(4) The platoon leader should confirm the suitability of the assault and support positions and routes from them back to the ORP.

(5) The platoon leader should post the surveillance team and issue a five-point contingency plan before returning to the ORP.

c. Ambush. An ambush is a surprise attack from a concealed position on a moving or temporarily halted target. Ambushes are classified by category--hasty or deliberate; by type--point, area, or antiarmor; and by formation--linear or L-shaped. The leader uses a combination of category, type, and formation in developing his ambush plan.

(1) **Planning.** The key planning considerations include--

- Covering the entire kill zone by fire.
- Using existing or reinforcing obstacles (Claymores and other mines) to keep the enemy in the kill zone.
- Protecting the assault and support elements with mines, Claymores, or explosives.
- Using security elements or teams to isolate the kill zone.
- Assaulting into the kill zone to search dead and wounded, assemble prisoners, and collect equipment. (The assault element must be able to move quickly through its own protective obstacles.)
- Timing the actions of all elements of the platoon to preclude loss of surprise.
- Using only one squad to conduct the entire ambush and rotating squads over time from the ORP. This technique is useful when the ambush must be manned for a long time.

(2) **Formations.** The leader considers either the linear or L-shaped formations in planning an ambush.

(a) *Linear.* In an ambush using a linear formation, the assault and support elements deploy parallel to the enemy's route. This positions both elements on the long axis of the kill zone and subjects the enemy to flanking fire. This formation can be used in close terrain that restricts the enemy's ability to maneuver against the platoon or in open terrain, provided a means of keeping the enemy in the kill zone can be effected.

(b) *L-shaped.* In an L-shaped ambush, the assault element forms the long leg parallel to the enemy's direction of movement along the kill zone. The support element forms the short leg at one end of and at right angles to the assault element. This provides both flanking fires (long leg) and enfilading fires (short leg) against the enemy. The L-shaped ambush can be used at a sharp bend in a trail, road, or stream. It should not be used where the short leg would have to cross a straight road or trail.

d. **Hasty Ambush.** A platoon or squad conducts a hasty ambush when it makes visual contact with an enemy force and has time to establish an ambush without being detected. The actions for a hasty ambush must be well rehearsed so that soldiers know what to do on the leader's signal. They must also know what action to take if detected before they are ready to initiate the ambush. In planning and rehearsing a hasty ambush the platoon leader should consider the following sequence of actions.

- (1) Using visual signals, any soldier alerts the platoon that an enemy force is in sight. The soldier continues to monitor the location and activities of the enemy force until his team or squad leader relieves him.
- (2) The platoon or squad halts and remains motionless.
- (3) The leader determines the best nearby location for a hasty ambush. He uses arm-and-hand signals to direct soldiers to covered and concealed positions. The leader designates the

location and extent of the kill zone.

(4) Security elements move out to cover each flank and the rear. The leader directs the security elements to move a given distance, set up, and rejoin the platoon on order or after the ambush (the sound of firing ceases). At squad level, the two outside buddy teams normally provide flank security as well as fires into the kill zone.

(5) Soldiers move quickly to covered and concealed positions, normally 5 to 10 meters apart. Soldiers ensure that they have good observation and fields of fire into the kill zone.

(6) The leader initiates the ambush when the majority of the enemy force enters the kill zone. (If time and terrain permit, the squad or platoon may place out Claymores and use them to initiate the ambush.)

NOTE: If the enemy detects a soldier, the soldier initiates the ambush by firing his weapon and alerting the rest of the platoon by saying ENEMY RIGHT (LEFT or FRONT).

(7) Leaders control the rate and distribution of fires. The leader orders cease-fire when the enemy force is destroyed or ceases to resist, and he directs the assault element to move into the kill zone to conduct a hasty search of the enemy soldiers. All other soldiers remain in place to provide security.

(8) The security elements rejoin the platoon after the assault element has cleared through the kill zone. The platoon withdraws from the ambush site using a covered and concealed route. The platoon returns to the ORP in effect, collects and disseminates all information, reorganizes as necessary, and continues the mission.

e. Deliberate Ambush. A deliberate ambush is conducted against a specific target at a predetermined location. The types of deliberate ambushes are point, area, and antiarmor. The leader requires detailed information in planning a deliberate ambush:

- Size and composition of the targeted enemy unit.
- Weapons and equipment available to the enemy.
- The enemy's route and direction of movement.
- Times that the targeted unit will reach or pass specified points along the route.

(1) **Point Ambush.** In a point ambush, soldiers deploy to attack an enemy in a single kill zone. The platoon leader must ensure that all elements and weapons systems are sited. In conjunction with the PSG, the platoon leader must have positive C2 of security, support, and assault elements. If using ICVs, the platoon leader may or may not integrate their fires but should plan and coordinate dismount, remount, or hide positions for the vehicles, if used.

(2) **Area Ambush.** The area ambush is a dynamic ambush. Soldiers deploy in two or more related point ambushes based on real-time intelligence. There are three techniques used in employing area ambushes.

- Sequential (linear in nature).
- Concentrated (centralized in nature).
- Distributed (decentralized in nature).

The platoon leader should consider the following sequence of actions when planning a deliberate area ambush.

(a) A platoon is the smallest unit to conduct an area ambush. Platoons conduct area ambushes where enemy movement is largely restricted to trails or streams.

(b) The platoon leader should select one principal ambush site around which he organizes outlying ambushes. These secondary sites are located along the enemy's most likely approach to and escape from the principal ambush site. Squad-sized elements normally are responsible for each ambush site.

(c) The platoon leader must determine that the best employment of all weapon systems and vehicle platforms is used.

(d) Isolating squads are responsible for outlying ambushes and do not initiate their ambushes until after the principal ambush is initiated. They then engage to prevent enemy forces from escaping or reinforcing.

(3) **Antiarmor Ambush.** Platoons and squads conduct antiarmor ambushes to destroy one or two armored vehicles. The antiarmor ambush is organized around the platoon's three Javelins and two machine gun teams. The leader must consider additional weapons available to supplement its fires, normally AT4s. The leader must carefully position all antiarmor weapons to ensure the best shot (rear, flank, or top). The remainder of the platoon must function as support and security elements in the same way that they do for other combat patrols.

(a) In an antiarmor ambush, the platoon leader selects a general site for the ambush that restricts the movement of armored vehicles out of the kill zone. The leader should attempt to place his elements so that an obstacle is between them and the kill zone.

(b) The leader should consider the method for initiating the antiarmor ambush. The preferred method is to use a command-detonated antiarmor mine placed in the kill zone. The armor-killer teams, typically equipped with the platoon's Javelins, attempt to kill the first and last vehicles in the column. All other weapons open fire once the ambush has begun.

(c) The leader must consider how the presence of dismounted enemy will affect the success of his ambush. Because of the speed with which other armored forces can reinforce the enemy in the ambush site, the leader should plan to keep the engagement short and the withdrawal quick. The platoon will not clear through the kill zone as in other ambushes.

f. **Raid Patrol.** The raid patrol is a combat patrol whose mission is to attack a position or

installation for any or all of these purposes:

- Destroy the position or installation.
- Destroy or capture troops or equipment.
- Liberate personnel.

(1) Surprise, firepower, and violent action are the keys to a raid.

(a) Surprise is best achieved by attacking--

- When the enemy may least expect an attack.
- When visibility is poor.
- From an unexpected direction, such as from the rear or through a swamp or other seemingly impassable terrain.

(b) Fire is concentrated at critical points to suppress the enemy.

(c) Violence is best achieved by gaining surprise, by using massed fire, and by attacking aggressively.

(2) The patrol moves to the ORP as described for a reconnaissance patrol. The ORP is secured, the leaders conduct reconnaissance, and plans are confirmed. Elements and teams move to their positions. If possible, their movements are coordinated so that all reach their positions about the same time. This improves the patrol's capability for decisive action if the enemy detects the patrol early.

(3) The teams of the security element move to positions from which they can secure the ORP, give warning of enemy approach, block avenues of approach into the objective area, prevent enemy escape from the objective area, or perform any combination of these tasks within their capability.

(a) As the assault and support elements move into position, the security element keeps the leader of the patrol informed of all enemy action. It shoots only if detected or on the leader's order.

(b) Once the assault starts, the security element prevents enemy entry into, or escape from, the objective area.

(c) When the assault is completed, the security element covers the withdrawal of the assault and support elements to the ORP. It withdraws itself on order or on a prearranged signal.

(4) The support element moves into position so that it can suppress the objective and shift fire when the assault starts. It normally covers the withdrawal of the assault element from the immediate area of the objective. It withdraws itself on oral order or on signal.

(5) The assault element deploys close enough to the objective to permit immediate assault if detected by the enemy. As supporting fire is lifted or shifted, the assault element assaults, seizes, and secures the objective. It protects demolition teams, search teams, and other teams while they work. On order or signal, the assault element withdraws to the ORP.

(6) At the ORP, the patrol reorganizes and moves about 1,000 meters away to disseminate information. During reorganization, ammunition is distributed, casualties are treated, and status reports are given.

10-12. PRESENCE PATROL

US forces increasingly are deployed in support of stability and support operations (SASO) missions all around the world. The ICV-equipped infantry platoon conducts a presence patrol much the same as a combat patrol, and the planning considerations are much the same. The primary difference is that the patrol wants to be seen both as a show of force and to lend confidence and stability to the local population of the host nation. As its name implies, this patrol is constituted to effect a presence. A presence patrol can be used only if a peace agreement has been negotiated between belligerents. The presence patrol is armed, and it conducts the planning and preparation necessary for combat operations at all times. The patrol would be used as a component of a larger force conducting stability and or support operations. The platoon could be tasked to conduct mounted or dismounted patrols planned by the higher HQ to accomplish one or more of the following:

- Confirm or supervise an agreed cease-fire.
- Gain information.
- Cover gaps between OPs or checkpoints.
- Show a stability force presence.
- Reassure isolated communities.
- Inspect existing or vacated positions of former belligerents.
- Escort former belligerents or local populations through trouble spots.

APPENDIX A

SBCT PLATOON AND COMPANY ORGANIZATION AND VEHICLE DISMOUNTING

This appendix outlines the organization and drills necessary for conducting combat operations. The SBCT infantry platoon can fight as a part of a mounted or dismounted infantry company, or it may fight as part of a task-organized company of mechanized infantry and tank platoons. The SBCT infantry platoon is equipped much like a conventional Bradley platoon in that it has four vehicles and a light infantry platoon based on its number of rifle and weapon squads SBCT.

A-1. ORGANIZATION

Once the squads have dismounted, the mounted element will integrate into the company/platoon scheme of maneuver based on METT-TC. The mounted element is equipped with four ICVs organized in two sections with two vehicles each. When the squads and the platoon leader are dismounted, the platoon leader must ensure he has a designated representative to control the vehicles and crews. (Refer to Figure A-1, and Figures A-2 and A-3, for company, rifle platoon, and MGS platoon organization.)

NOTE: Leaders must consider their tactical cross-load plan when conducting operations. The SBCT rifle platoon vehicle seating capacity is 44 personnel; however, it is organized with 45 organic soldiers and one attachment (platoon trauma specialist) for a total of 46 soldiers.

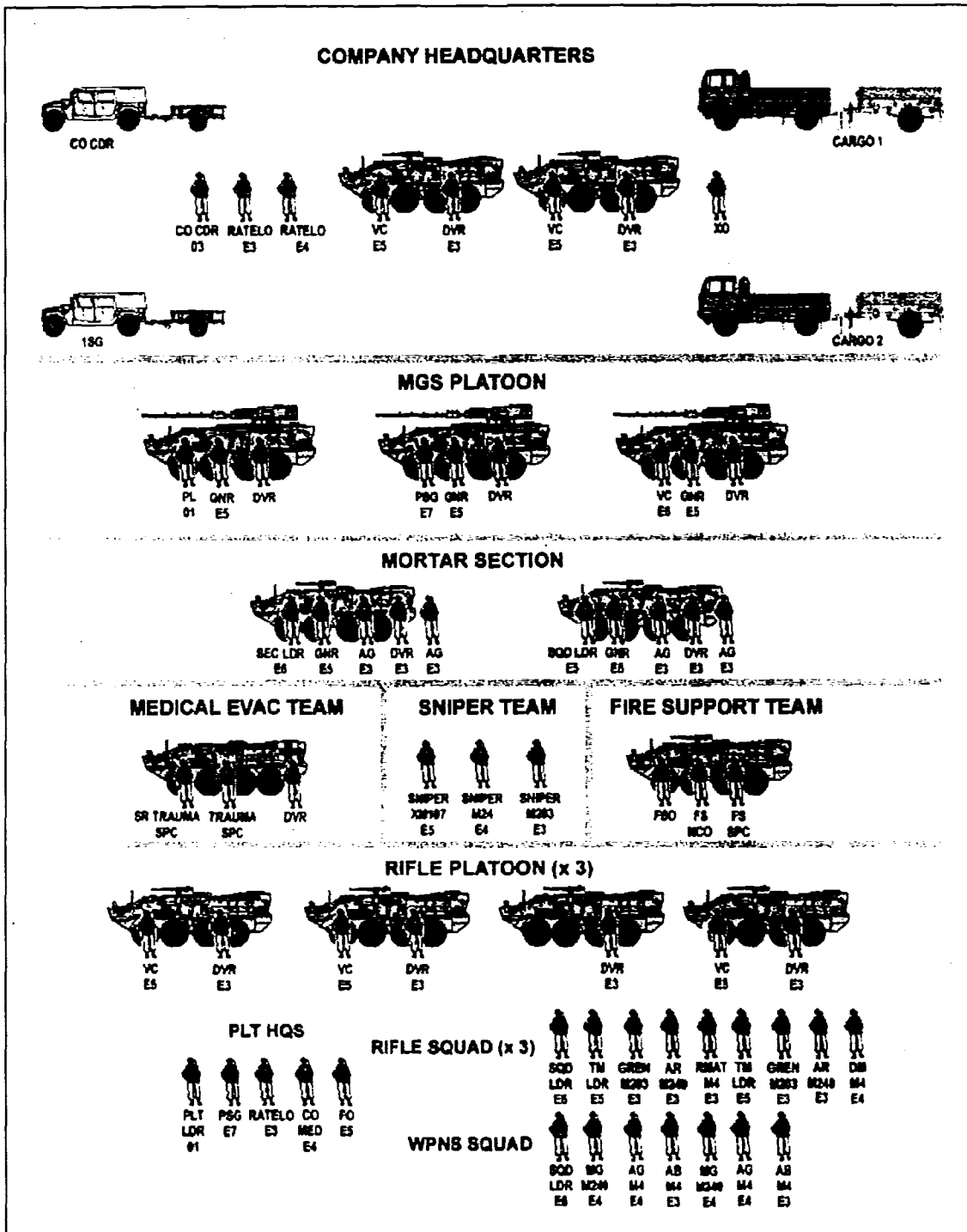


Figure A-1. SBCT infantry company organization.

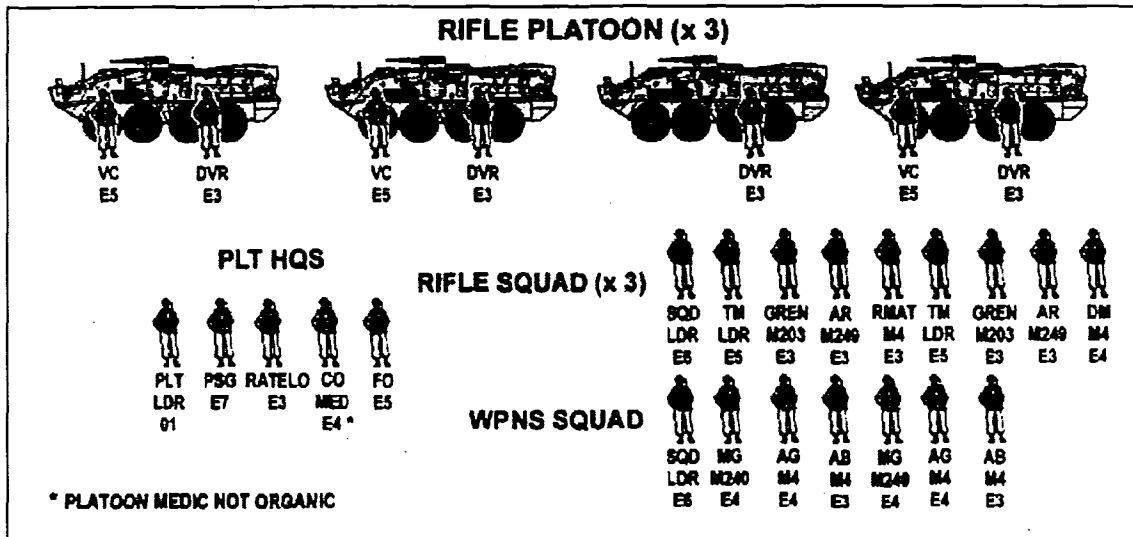


Figure A-2. Rifle platoon organization.

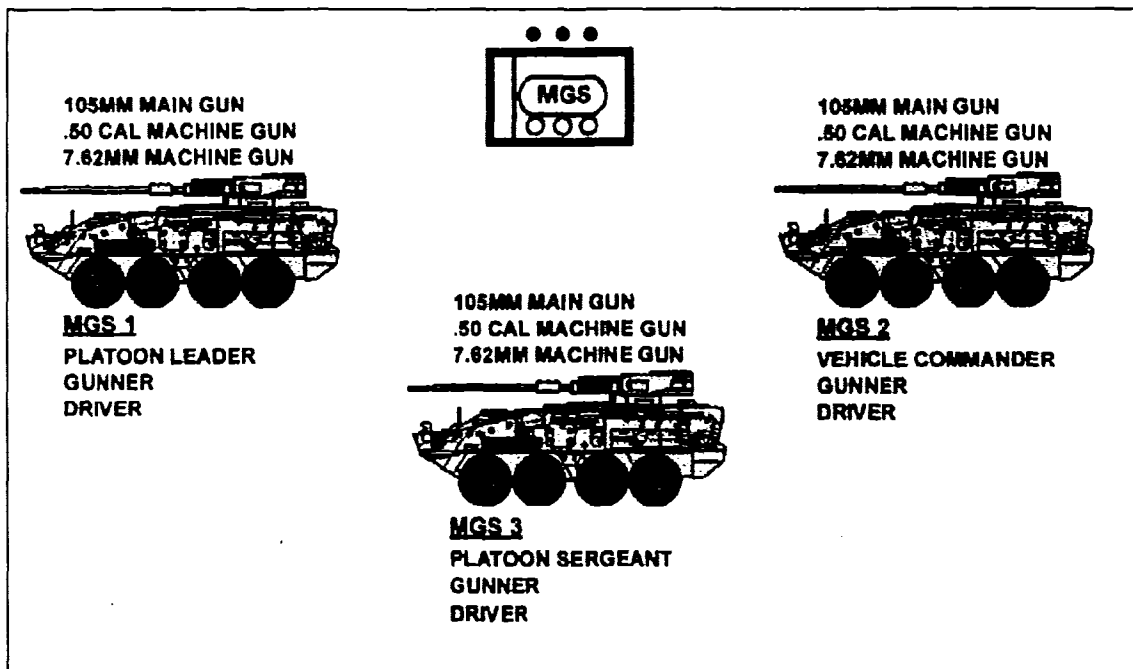


Figure A-3. MGS platoon organization.

A-2. VEHICLE DISMOUNTING

The ICV sections are the base elements for dismounted drills (Refer to Appendix E for Crew Drills). The capability to deliver a rifle squad intact in a single vehicle warrants the need for section drills.

- a. When the dismounted force prepares to exit, the VC coordinates with the infantry squad or team leader onboard and orients the leader with the terrain. The VC should provide a view of the threat area of concern, the location of other platoon vehicles, and covered and concealed positions close to the vehicle.

b. While viewing the squad leaders display and LWS screens and conducting voice coordination with the VC, the infantry squad or team leader provides specific instructions to the infantrymen to include assigning specific targets or sectors to each soldier. After this coordination, the leader is ready to give a dismount order to the infantry personnel onboard.

c. Before giving the order to dismount, the leader determines which side of the vehicle provides the best terrain to establish an initial position (left, right, or split). When the leader gives the dismount order, the squad immediately dismounts left or right of the vehicle or splits left and right. The leader positions at the rear of the vehicle and ensures the element occupies the positions as briefed in the vehicle. The leader also attempts to visually locate the other vehicles, infantry squads, and the platoon leader. Next, one of three things happen:

- The squad takes up positions in the vicinity of the vehicle.
- The vehicle moves away from the squad or assumes an overwatch position.
- The squad moves to conduct an assault, links up with the platoon, or continues the mission separately.

APPENDIX B

**M240B MACHINE GUN AND M249 SAW
EMPLOYMENT**

The M240B machine gun and the M249 SAW provide the heavy volume of close and continuous fire needed to accomplish the mission, and they can engage targets beyond the capability of individual weapons with controlled and accurate fire. The long-range, close defensive, and final protective fires delivered by the M240B machine gun form an integral part of a unit's direct fire plan. This appendix addresses the fundamental techniques of fire common to both the machine gun and the SAW.

B-1. M240B MACHINE GUN

The machine gun is the infantry platoon's primary weapon against a dismounted enemy. (Table B-1 provides specifications for the M240B and M249.) It provides a high volume of lethal, accurate fire to break up an enemy assault; it has limited effects against lightly armored vehicles; and it may cause vehicle crews to button-up and operate with reduced effectiveness. The platoon leader employs his M240B machine guns with the dismounted element or with a rifle squad to provide long range, accurate, sustained fires under all visibility conditions against dismounted infantry, apertures in fortifications, buildings, and lightly armored vehicles and trucks. The M240B also provides a high volume of short-range fire in self-defense against enemy aircraft. Machine gunners use point, traversing, searching, or searching and traversing fire to kill or suppress targets. Leaders position machine guns to--

- Concentrate fires where they want to kill the enemy.
- Fire across the platoon front.
- Cover obstacles by direct fire.
- Tie-in with adjacent units.

SPECIFICATIONS	M240B	M249
	7.62-mm gas operated machine gun	5.56-mm gas operated automatic
Weight	25.63 lb (11.1 kg)	15.07 lb (6.85 kg)
Length	1105 mm	1040 mm standard
Muzzle Velocity	853 m/s	965 m/s
Rate of Fire	Cyclic 650-850 rds/min	Cyclic 650-850 rds/min
Effective Ranges: Point	800 m	600 m
Area	1100 m (Tripod)	800 m

Table B-1. Specifications for M240B and M249.

a. In the offense the platoon leader has the option, based on his analysis of the factors of METT-TC, to establish his base of fire element with one or two machine guns, the SAW, or a combination of the two weapons. The platoon sergeant may position this element and control its fires when the platoon scheme of maneuver is to conduct the assault with the three dismounted squads. The machine gun, when placed on tripods, provides stability and accuracy at greater ranges than the bipod. The machine gunners target key enemy weapons until the assault element masks their fires. They also can suppress the enemy's ability to return accurate fire or to hamper the maneuver of the assault element. They fix the enemy in position and isolate him by cutting off his avenues of reinforcement. They then shift their fires to the flank opposite the one being assaulted and continue to target any enemy automatic weapons that provide mutual support to his position or engage any enemy counterattack. M240B fires also can be used to cover the gap created between the forward element of the assaulting force and terrain covered by indirect fires when the indirect fires are lifted and shifted. On signal, the machine gunners and the base-of-fire element displace to join the assault element on the objective.

b. In the defense, the machine gun provides sustained direct fires that cover the most likely or most dangerous dismounted avenues of approach and protect the unit against the enemy's dismounted close assault. The platoon leader positions his machine guns to concentrate fires in locations where he wants to do the most damage to the dismounted enemy and where they can take advantage of grazing enfilade fires, stand-off or maximum engagement range, and best observation of the target area. They provide overlapping and interlocking fires with adjacent units and cover tactical and protective obstacles with traversing or searching fires. When final protective fires are called for, machine guns (aided by SAW fires) place an effective barrier of fixed, direct fire across the platoon front.

B-2. M249 SQUAD AUTOMATIC WEAPON EMPLOYMENT

The SAW is primarily a squad leader's weapon to use in the close fight as a light automatic weapon. (Table B-1, provides specifications for the M249.) The SAW provides the rifle squads with a light automatic weapon to take with them into the assault. These weapons fire from the bipod, from the hip, or from the underarm position. They target any enemy supporting weapons being fired from fixed positions anywhere on the squad's objective. When the enemy's supporting weapons have been destroyed, or if there are none, the SAW gunners distribute their fire over that portion of the objective that corresponds to their team's position. The SAW in the hands of a rifleman can provide mobility and a high volume of fire up front in the assault or across the squad's position in the defense. In the defense, the SAW adds the firepower of 10 or 20 riflemen without the addition of manpower. Characteristically, SAWs are light, fire rapidly, and they have more ammunition than the rifles in the squad they support. Under certain circumstances, the platoon leader may designate the SAW as a machine gun and, with some adjustments, use it as a platoon weapon.

B-3. FUNDAMENTAL TECHNIQUES OF AUTOMATIC FIRE

The fundamental techniques of automatic fire are common to machine guns and squad automatic weapons. (For more detailed information refer to FM 23-68.)

a. **Techniques of Fire.** Techniques of fire include direct lay, assault fire, overhead fire, and fire from a defilade position. Only automatic rifles use assault fire. Only machine guns can employ overhead fire.

(1) **Direct Lay.** Gunners and automatic riflemen use the direct-lay technique by aligning the sights of the weapon on the target. This is the easiest and quickest means of delivering fire.

(2) **Assault Fire.** Automatic riflemen use assault fire when in close combat. Assault fire involves firing without the aid of sights using the hip, shoulder, and underarm positions. The underarm position is best when rapid movement is required. In all three positions, automatic riflemen adjust their fire by observing the tracer and the impact of the bullets in the target area. Additional considerations for automatic riflemen using assault fire include--

- Maintaining alignment with the rest of the assault element.
- Reloading rapidly.
- Aiming low and adjusting the aim upward toward the target.
- Distributing fires across the objective when not engaging enemy automatic weapons.

(3) **Overhead Fire.** Gunners can use overhead fire when there is sufficient low ground between the machine gun and the target area for the maneuver of friendly forces. Normally, overhead fires are conducted with the machine guns on tripods because they provide greater stability and accuracy and the vertical mil angles can be measured by using the elevating mechanism. Gunners must accurately estimate range to the target and establish a safety limit that is an imaginary line, parallel to the target, where fire would cause casualties to friendly soldiers. Gun crews and leaders must be aware of this safety limit. Leaders must designate signals for lifting or shifting fires. Gunners should not attempt overhead fires if the terrain is level or slopes uniformly, if the barrel is badly worn, or if visibility is poor.

(4) **Fire from a Defilade Position.** Defilade positions protect gunners from frontal or enfilading fires. Cover and concealment may not provide the gunner a view of some or all of the target area. In this instance, some other member of the platoon must observe the impact of the rounds and communicate adjustments to the gunner. Gunners and leaders must consider the complexity of laying on the target, the gunner's inability to make rapid adjustments to engage moving targets, the ease with which targets are masked, and the difficulty in achieving grazing fires for a final protective line.

b. **Characteristics of Fire.** To help the gunner understand the characteristics of fire for their weapons, the following definitions are helpful:

(1) **Trajectory.** Trajectory is the path of the bullet in flight. For the SAW, the path of the bullet is almost flat at ranges of 300 meters or less. At ranges beyond 300 meters, the trajectory curves as the range increases.

(2) **Maximum Ordinate.** This is the highest point the trajectory reaches between the muzzle of the weapon and the base of the target. It always occurs at a point about two-thirds of the distance from weapon to target and increases with range.

(3) **Cone of Fire.** This is the pattern formed by the different trajectories in each burst as they travel downrange. Vibration of the weapon, variations in ammunition, and atmospheric conditions all contribute to the trajectories that make up the cone of fire.

(4) **Beaten Zone.** This is the pattern formed by the rounds within the cone of fire striking the ground or the target. The size and shape of the beaten zone changes as a function of the range to and slope of the target. Gunners and automatic riflemen should engage targets to take maximum effect of the beaten zone. The simplest way to do this is to aim at the center base of the target. Most rounds will not fall over the target, and any that fall short will create ricochets into the target.

(5) **Danger Space.** This is the space between the weapon and the target where the trajectory does not rise above 1.8 meters (the average height of a standing soldier) and includes the beaten zone. Gunners should consider the danger space of their weapons when planning overhead fires.

c. Classifications of Automatic Weapons Fire. The US Army classifies automatic weapons fires with respect to the ground, the target, and the weapon.

(1) Fire with respect to the ground includes--

- **Grazing Fire.** Automatic weapons achieve grazing fire when the center of the cone of fire does not rise more than 1 meter above the ground. When firing over level or uniformly sloping terrain, the SAW can attain a maximum of 600 meters of grazing fire.
- **Plunging Fire.** Plunging fire occurs when weapons fire at long range, when firing from high ground to low ground, when firing into abruptly rising ground, or when firing across uneven terrain, resulting in a loss of grazing fire at any point along the trajectory.

(2) Fire with respect to the target includes--

- **Enfilade Fire.** Enfilade fire occurs when the long axis of the beaten zone coincides or nearly coincides with the long axis of the target. It can be frontal or flanking. It is the most desirable class of fire with respect to the target because it makes maximum use of the beaten zone.
- **Frontal Fire.** Frontal fire occurs when the long axis of the beaten zone is at a right angle to the front of the target.
- **Flanking Fire.** Flanking fire is delivered directly against the flank of a target.
- **Oblique Fire.** Gunners and automatic riflemen achieve oblique fire when the long axis of the beaten zone is at an angle other than a right angle to the front of the target.

(3) Fire with respect to the weapon includes--

- **Fixed Fire.** Fixed fire is delivered against a stationary point target when the depth and width of the beaten zone will cover the target.
- **Traversing Fire.** Traversing distributes fires in width by successive changes in direction.

- **Searching Fire.** Searching distributes fires in depth by successive changes in elevation.
- **Traversing and Searching Fire.** This class of fire is a combination in which successive changes in direction and elevation result in the distribution of fires both in width and depth.

d. **Types of Targets.** Targets have both width and depth. The size of the target, stated in terms of the number of aiming points required to engage it completely, determines its type.

(1) **Point Target.** Point targets require a single aiming point. Examples of this include bunkers, weapons emplacements, vehicles, and troops.

(2) **Area Targets.** Area targets require more than one aiming point. Machine gunners and automatic riflemen use traversing and searching (or a combination) to engage the target. Area targets are distinguished as linear, deep, and linear with depth. Gunners and automatic riflemen engage deep targets using searching fire. They engage linear targets using traversing fire. Finally, they engage linear with depth targets using traversing and searching fire.

e. **Rates of Fires.** Automatic weapons fire in one of three rates: rapid, sustained, or cyclic. Normally machine gunners engage targets at the rapid rate to suppress the enemy quickly. Thereafter, they fire at a sustained rate to conserve ammunition. Automatic riflemen use the three-round burst, resighting their weapons as quickly as possible. In engaging aerial targets machine gunners and automatic riflemen use the cyclic rate.

(1) **Rapid Fire.** Rapid fire is 200 rounds per minute in bursts of six to nine rounds at four- to five-second intervals.

(2) **Sustained Rate.** Sustained fire is 100 rounds per minute in bursts of six to nine rounds at four- to five-second intervals.

(3) **Cyclic Rate.** The normal cyclic rate of fire is 650 to 850 rounds per minute. To fire the cyclic rate, the gunner holds the trigger to the rear while the assistant gunner feeds ammunition into the weapon.

f. **Techniques for Automatic Weapons in the Defense.** Machine gunners and automatic riflemen use a number of techniques to ensure effective fires in defensive operations. Some techniques tie the characteristics of the weapons to the nature of the terrain. Others ensure distribution of fires across the squad or platoon front. Still others facilitate the concentration of fires against likely enemy avenues of approach or in engagement areas bounded by tactical obstacles. Finally, others aid in maintaining accurate fires during limited visibility. (For a detailed discussion refer to Appendix F.)

g. **Field-Expedient Methods.** The two most common field-expedient methods for laying the machine gun in the bipod mode on predetermined targets are the notched-stake or tree-crouch and the horizontal log or board technique.

(1) **Notched-Stake or Tree-Crotch Technique.** This technique is effective for all conditions of visibility. It involves sighting the weapon on each target and marking the position and

elevation of the stock with a notched-stake or tree-crotch. The automatic rifleman then scoops out a shallow groove to provide for the movement of the bipod legs and to keep the front end of the weapon aligned.

(2) **Horizontal Log or Board Technique.** Automatic riflemen use this technique to mark sector limits and engage linear targets. It is best suited for flat, level terrain and involves placing a log or board horizontally so the weapon slides along it easily. The board may then be notched along its length to lay the weapon on a specific target reference point. It may also have limiting stakes placed to define the left and right limits of the weapon.

h. Fire Control. Leaders control the engagements of their automatic weapons through the use of control measures, coordinating instructions, and fire commands. (For a detailed discussion of direct fire control refer to Appendix F.)

(1) In the offense, coordinating instructions to machine gunners include instructions to initiate fires, a description of how the platoon leader sees the sequence of automatic weapon engagements, and the location of other friendly soldiers in the area.

(2) In the defense, the leader describes the presence and subsequent action of friendly soldiers to the front of the platoon position (scouts, passing units), the initiation and sequence of weapon engagements, priority targets, and the planned or probable shifting of forces to displace or counterattack.

(3) The signal to initiate fires or FPLs on any occasions not covered by planning can be handled through fire commands. Fire commands must be clear and concise. Machine gunners and automatic riflemen repeat all fire commands. Fire commands contain the following elements:

- **Alert.** The leader must specify WHO is to engage.
- **Direction.** The leader must clearly indicate the general direction of the target. He may do so orally (giving a general orientation or designation of a reference point), by pointing, or by directing fires with tracer rounds from his own weapon. If he uses tracers, this becomes the last part of the command, and he directs, "Watch my tracer."
- **Description.** While visually following the target, the leader briefly describes the target, generally by the type of object: troops, vehicles, aircraft.
- **Range.** Leaders provide an estimate of the range to the target. Gunners and automatic riflemen use this estimate to set their rear sights and to know how far to look to identify the target.
- **Method of Fire.** This element includes two parts: the manipulation (class of fire with respect to the weapon--fixed, traversing, searching, or traversing and searching) and the rate of fire. When the leader omits the rate of fire, the gunner assumes a rapid rate.
- **Command to Open Fire.** Timing the initiation of fires is important to gain surprise. Leaders may preface the command to commence firing with "At my command" or "At my signal." Gunners and automatic riflemen respond with "Ready" when they have identified the target and are ready to engage. Leaders then give the specified

command or signal.

(4) Leaders adjust fires (direction, elevation, and rate), identify new targets, order cease-fires, or terminate the alert with subsequent fire commands.

(5) Squads and platoons establish SOPs governing the activities and automatic initiation, control, and cessation of fire for their automatic riflemen and gunners. These SOP items can include standard targets and how often to check with leaders once they have engaged the enemy.

i. **Dead Space Considerations.** Dead space defines an area where the waist of a soldier falls below a gunner's or automatic rifleman's point of aim. The most accurate method for determining dead space is to have one soldier walk the line of sight of the weapon (FPL or principal direction of fire [PDF]) and make a pace count of those areas where he encounters dead space. Dead space also can be determined by observing the flight of tracer ammunition from a position behind and to the flank of the weapon.

APPENDIX C

RISK MANAGEMENT

Risk is the chance of injury or death for individuals and damage to or loss of vehicles and equipment. Risk, or the potential for risk, is always present in every combat and training situation the platoon faces. Risk management must take place at all levels of the chain of command during each phase of every operation; it is an integral part of all tactical planning. The platoon leader, his NCOs, and all other platoon soldiers must know how to use risk management, coupled with fratricide reduction measures, to ensure that the mission is executed in the safest possible environment within mission constraints.

The primary objective of risk management is to help units protect their combat power through accident prevention, enabling them to win the battle quickly and decisively with minimal losses. This appendix outlines the process leaders use to identify hazards and implement a plan to address each identified hazard. It also includes a detailed discussion of the responsibilities of the platoon's leaders and individual soldiers in implementing a sound risk management program. For additional information on risk management, refer to FM 100-14.

Section I. RISK MANAGEMENT PROCEDURES

This section outlines the five steps of risk management. Leaders of the platoon always must remember that the effectiveness of the process depends on the involvement of the chain of command. They should never approach risk management with "one size fits all" solutions to the hazards the platoon will face. Rather, in performing the steps, they must keep in mind the essential tactical and operational factors that make each situation unique.

C-1. STEP 1, IDENTIFY HAZARDS

A hazard is a source of danger. It is any existing or potential condition that could entail injury, illness, or death of personnel; damage to or loss of equipment and property; or some other sort of mission degradation. Tactical and training operations pose many types of hazards. The platoon leader must identify the hazards associated with all aspects and phases of the platoon's mission, paying particular attention to the factors of METT-TC. Risk management never must be an afterthought; leaders must begin the process during their troop-leading procedures and continue it throughout the operation. Table C-1, lists possible sources of battlefield hazards that the platoon might face during a typical tactical operation. The list is organized according to the factors of METT-TC.

<p>MISSION</p> <ul style="list-style-type: none"> • Duration of the operation. • Complexity/clarity of the plan. (Is the plan well-developed and easily understood?) • Proximity and number of maneuvering units.
<p>ENEMY</p>

- Knowledge of the enemy situation.
- Enemy capabilities.
- Availability of time and resources to conduct reconnaissance.

TERRAIN AND WEATHER

- Visibility conditions, including light, dust, fog, and smoke.
- Precipitation and its effect on mobility.
- Extreme heat or cold.
- Additional natural hazards (broken ground, steep inclines, water obstacles).

TROOPS AND EQUIPMENT

- Equipment status.
- Experience the units conducting the operation have working together.
- Danger areas associated with the platoon's weapon systems.
- Soldier/leader proficiency.
- Soldier/leader rest situation.
- Degree of acclimatization to environment.
- Impact of new leaders or crewmembers.
- Friendly unit situation.
- NATO or multinational military actions combined with U.S. forces.

TIME AVAILABLE

- Time available for troop-leading procedures and rehearsals by subordinates.
- Time available for PCCs/PCIs.

CIVIL CONSIDERATIONS
<ul style="list-style-type: none"> • Applicable ROE or ROI. • Potential stability and support operations involving contact with civilians (such as NEOs, refugee or disaster assistance, or counterterrorism). • Potential for media contact and inquiries. • Interaction with host nation or other participating nation support.

Table C-1. Examples of potential hazards.

C-2. STEP 2, ASSESS HAZARDS TO DETERMINE RISKS

Hazard assessment is the process of determining the direct impact of each hazard on an operation (in the form of hazardous incidents). Use the following steps.

- a. Determine hazards that can be eliminated or avoided.
- b. Assess each hazard that cannot be eliminated or avoided to determine the probability that the hazard can occur.
- c. Assess the severity of hazards that cannot be eliminated or avoided. Severity, defined as the result or outcome of a hazardous incident, is expressed by the degree of injury or illness (including death), loss of or damage to equipment or property, environmental damage, or other mission-impairing factors (such as unfavorable publicity or loss of combat power).
- d. Taking into account both the probability and severity of a hazard, determine the associated risk level (extremely high, high, moderate, and low). Table C-2 summarizes the four risk levels.
- e. Based on the factors of hazard assessment (probability, severity, and risk level, as well as the operational factors unique to the situation), complete the risk management worksheet. Figure C-1 shows an example of a completed risk management worksheet.

RISK LEVEL	MISSION EFFECTS
Extremely High (E)	Mission failure if hazardous incidents occur in execution.
High (H)	Significantly degraded mission capabilities in terms of required mission standards. Not accomplishing all parts of the mission or not completing the mission to standard (if hazards occur during mission).

Moderate (M)	Expected degraded mission capabilities in terms of required mission standards. Reduced mission capability (if hazards occur during the mission).
Low (L)	Expected losses have little or no impact on mission success.

Table C-2. Risk levels and impact on mission execution.

A. Mission or Task: Conduct a deliberate attack		B. Date/Time Group Begin: 010035R May XX End: 010800R May XX		C: Date Prepared: 29 April XX	
D. Prepared By: (Rank, Last Name, Duty Position) CPT Smith, Cdr					
E. Task	F. Identify Hazard	G. Assess Hazard	H. Develop Controls	I. Determine Residual Risk	J. Implement Controls (How To)
Conduct obstacle breaching operations	Obstacles	High (H)	Develop and use obstacle reduction plan	Low (L)	Unit TSOP, OPOD, training handbook
	Inexperienced soldiers	High (H)	Additional training and supervision	Moderate (M)	Rehearsals, additional training
	Operating under limited visibility	Moderate (M)	Use NVDs, use IR markers on vehicles	Low (L)	Unit TSOP, OPOD
	Steep Cliffs	High (H)	Rehearse using climbing ropes	Moderate (M)	FM 3-97.6, Mountain Operations; TC 90-6-1, Mountaineering
	Insufficient planning time	High (H)	Plan and prepare concurrently	Moderate (M)	OPOD, Troop-leading procedures
K. Determine overall mission/task risk level after controls are implemented (circle one)					
<p style="text-align: center;"> LOW (L) MODERATE (M) HIGH (H) EXTREMELY HIGH (E) </p>					

Figure C-1. Completed risk management worksheet.

C-3. STEP 3, DEVELOP CONTROLS AND MAKE RISK DECISIONS

This step is accomplished in two substeps: develop controls and make risk decisions. These substeps are accomplished during the "make a tentative plan" step of the troop-leading procedures.

a. **Develop Controls.** After assessing each hazard, develop one or more controls that either will eliminate the hazard or reduce the risk (probability, severity, or both) of potential hazardous incidents. When developing controls, consider the reason for the hazard, not just the hazard by itself.

b. **Make Risk Decisions.** A key element in the process of making a risk decision is determining whether accepting the risk is justified or, conversely, is unnecessary. The decision-maker (the platoon leader, if applicable) must compare and balance the risk against mission expectations. He

alone decides if the controls are sufficient and acceptable and whether to accept the resulting residual risk. If he determines the risk is unnecessary, he directs the development of additional controls or alternative controls; as another option, he can modify, change, or reject the selected COA for the operation.

C-4. STEP 4, IMPLEMENT CONTROLS

Controls are the procedures and considerations the unit uses to eliminate hazards or reduce their risk. Implementing controls is the most important part of the risk management process; this is the chain of command's contribution to the safety of the unit. Implementing controls includes coordination and communication with appropriate superior, adjacent, and subordinate units and with individuals executing the mission. The platoon leader must ensure that specific controls are integrated into operations plans (OPLANs), OPORDs, SOPs, and rehearsals. The critical check for this step is to ensure that controls are converted into clear, simple execution orders understood by all levels. If the leaders have conducted a thoughtful risk assessment, the controls will be easy to implement, enforce, and follow. Examples of risk management controls include the following:

- Thoroughly brief all aspects of the mission, including related hazards and controls.
- Conduct thorough precombat checks (PCCs) and PCIs.
- Allow adequate time for rehearsals at all levels.
- Drink plenty of water, eat well, and get as much sleep as possible (at least 4 hours in any 24-hour period).
- Use buddy teams.
- Enforce speed limits, use of seat belts, and driver safety.
- Establish recognizable visual signals and markers to distinguish maneuvering units.
- Enforce the use of ground guides in assembly areas and on dangerous terrain.
- Establish marked and protected sleeping areas in assembly areas.
- Limit single-vehicle movement.
- Establish SOPs for the integration of new personnel.

C-5. STEP 5, SUPERVISE AND EVALUATE

During mission execution, leaders must ensure that risk management controls are properly understood and executed. Leaders must continuously evaluate the unit's effectiveness in managing risks to gain insight into areas that need improvement.

a. Supervision. Leadership and unit discipline are the keys to ensuring that effective risk management controls are implemented.

(1) All leaders are responsible for supervising mission rehearsals and execution to ensure

standards and controls are enforced. In particular, NCOs must enforce established safety policies as well as controls developed for a specific operation or task. Techniques include spot checks, inspections, SITREPs, confirmation briefs, buddy checks, and close supervision.

(2) During mission execution, leaders must continuously monitor risk management controls to determine whether they are effective and to modify them as necessary. Leaders also must anticipate, identify, and assess new hazards. They ensure that imminent danger issues are addressed on the spot and that ongoing planning and execution reflect changes in hazard conditions.

b. **Evaluation.** Whenever possible, the risk management process also should include an after-action review (AAR) to assess unit performance in identifying risks and preventing hazardous situations. During an AAR, leaders should assess if the implemented controls were effective. Following the AAR, leaders should incorporate lessons learned from the process into unit SOPs and plans for future missions.

Section II. IMPLEMENTATION RESPONSIBILITIES

Leaders and individuals at all levels are responsible and accountable for managing risk. They must ensure that hazards and associated risks are identified and controlled during planning, preparation, and execution of operations. The platoon leader and his senior NCOs must look at both tactical risks and accident risks. The same risk management process is used to manage both types. The platoon leader alone determines how and where he is willing to take tactical risks. The platoon leader manages accident risks with the assistance of his platoon sergeant, NCOs, and individual soldiers.

C-6. BREAKDOWN OF THE RISK MANAGEMENT PROCESS

Despite the need to advise higher headquarters of a risk taken or about to be assumed, the risk management process may break down. Such a failure can be the result of several factors; most often, it can be attributed to the following:

- The risk denial syndrome in which leaders do not want to know about the risk.
- A soldier who believes that the risk decision is part of his job and does not want to bother his platoon leader or section leader.
- Outright failure to recognize a hazard or the level of risk involved.
- Overconfidence on the part of an individual or the unit in being able to avoid or recover from a hazardous incident.
- Subordinates who do not fully understand the higher commander's guidance regarding risk decisions.

C-7. RISK MANAGEMENT COMMAND CLIMATE

The platoon leader gives the platoon direction, sets priorities, and establishes the command climate (values, attitudes, and beliefs). Successful preservation of combat power requires him to embed risk management into individual behavior. To fulfill this commitment, the platoon leader must exercise

creative leadership, innovative planning, and careful management. Most importantly, he must demonstrate support for the risk management process.

a. The platoon leader and others in the platoon chain of command can establish a command climate favorable to risk management integration by taking the following actions:

- Demonstrate consistent and sustained risk management behavior through leadership by example and emphasis on active participation throughout the risk management process.
- Provide adequate resources for risk management. Every leader is responsible for obtaining the assets necessary to mitigate risk and for providing them to subordinate leaders.
- Understand your own and your soldiers' limitations, as well as your unit's capabilities.
- Allow subordinates to make mistakes and learn from them.
- Prevent a "zero defects" mindset from creeping into the platoon's culture.
- Demonstrate full confidence in subordinates' mastery of their trade and their ability to execute a chosen COA.
- Keep subordinates informed.
- Listen to subordinates.

b. For the platoon leader, his subordinate leaders, and individual soldiers, responsibilities in managing risk include the following:

- Make informed risk decisions. Establish and then clearly communicate risk decision criteria and guidance.
- Establish clear, feasible risk management policies and goals.
- Train the risk management process. Ensure that subordinates understand the who, what, when, where, and why of managing risk and how these factors apply to their situation and assigned responsibilities.
- Accurately evaluate the platoon's effectiveness as well as subordinates' execution of risk controls during the mission.
- Inform higher headquarters when risk levels exceed established limits.

APPENDIX D**FRATRICIDE AVOIDANCE**

Fratricide is defined as the employment of friendly weapons that results in the unforeseen and unintentional death or injury of friendly personnel or damage to friendly equipment. Fratricide prevention is the platoon leader's responsibility. All leaders across all operating systems assist the platoon leader in accomplishing this mission. This appendix focuses on actions the platoon leader and his subordinate leaders can take with current resources to reduce the risk of fratricide.

In any tactical situation, it is critical that every platoon member know where he is and where other friendly elements are operating. With this knowledge, he must anticipate dangerous conditions and take steps either to avoid or to mitigate them. The platoon leader always must be vigilant of changes and developments in the situation that may place his sections and teams in danger. He also must ensure that all squad and team positions are constantly reported to higher headquarters so that all other friendly elements are aware of where they are and what they are doing. When the platoon leader perceives a potential fratricide situation, he personally must use the higher net to coordinate directly with the friendly element involved.

D-1. EFFECTS

Fratricide results in unacceptable losses and increases the risk of mission failure; it almost always affects the unit's ability to survive and function. Units experiencing fratricide suffer these consequences:

- Loss of confidence in the unit's leadership.
- Increasing self-doubt among leaders.
- Hesitancy in the employment of supporting combat systems.
- Over-supervision of units.
- Hesitancy in the conduct of night operations.
- Loss of aggressiveness in maneuver.
- Loss of initiative.
- Disrupted operations.
- General degradation of unit cohesiveness, morale, and combat power.

D-2. CAUSES

The following paragraphs discuss the primary causes of fratricide. Leaders must identify any of the factors that may affect their units and then strive to eliminate or correct them.

a. **Failures in the Direct Fire Control Plan.** These occur when units do not develop effective fire control plans, particularly in the offense. Units may fail to designate engagement areas or to adhere to the direct fire plan, or they may position their weapons incorrectly. Under such conditions, fire discipline often breaks down upon contact. An area of particular concern is the additional planning that must go into operations requiring close coordination between mounted elements and dismounted teams.

b. **Land Navigation Failures.** Units often stray out of assigned sectors, report wrong locations, and become disoriented. Much less frequently, they employ fire support weapons in the wrong location. In either type of situation, units that unexpectedly encounter another unit may fire their weapons at the friendly force.

c. **Failures in Combat Identification.** Vehicle commanders and machine gun crews cannot accurately identify the enemy near the maximum range of their systems. In limited visibility, friendly units within that range may mistake one another as the enemy.

d. **Inadequate Control Measures.** Units may fail to disseminate the minimum necessary maneuver control measures and direct fire control measures. They also may fail to tie control measures to recognizable terrain or events. As the battle develops, the plan cannot address branches and sequels as they occur. When this happens, synchronization fails.

e. **Failures in Reporting and Communications.** Units at all levels may fail to generate timely, accurate, and complete reports as locations and tactical situations change. This distorts the common operating picture at battalion and brigade level (available on FBCB2) and can lead to erroneous clearance of fires.

f. **Weapons Errors.** Lapses in individual discipline can result in fratricide. These incidents include charge errors, accidental discharges, mistakes with explosives and hand grenades, and use of incorrect gun data.

g. **Battlefield Hazards.** A variety of explosive devices and materiel may create danger on the battlefield--unexploded ordnance, booby traps, and unmarked or unrecorded minefields, including scatterable mines. Failure to mark, record, remove, or otherwise anticipate these threats leads to casualties.

h. **Reliance on Instruments.** A unit that relies too heavily on systems such as GPS devices or FBCB2 and Land Warrior will find its capabilities severely degraded if these systems fail. The unit will be unable to maintain situational understanding because it will not have a COP. To prevent potential dangers when system failure occurs, the platoon leader must ensure that he and his platoon use a balance of technology with traditional basic soldier skills in observation, navigation, and other critical activities.

D-3. PREVENTION

The measures outlined in this paragraph provide the platoon with a guide to actions it can take to reduce or prevent fratricide risk. These guidelines are not intended to restrict initiative. Leaders must learn to apply them, as appropriate, based on the specific situation and the factors of METT-TC.

a. **Principles.** At the heart of fratricide reduction and prevention are five key principles:

(1) **Identify and Assess Potential Fratricide Risks During the Troop-Leading Procedures.** Incorporate risk reduction control measures in WARNOs, the OPORD, and applicable FRAGOs.

(2) **Maintain Situational Understanding.** Focus on areas such as current intelligence, unit locations and dispositions, obstacles, NBC contamination, SITREPs, and the factors of METT-TC. The SBCT infantry platoon gains an advantage in situational understanding with FBCB2 and Land Warrior by automatically updating the COP.

(3) **Ensure Positive Target Identification.** Review vehicle and weapons identification cards. Become familiar with the characteristics of potential friendly and enemy vehicles, including their silhouettes and thermal signatures. This knowledge should include the conditions, including distance (range) and weather, under which positive identification of various vehicles and weapons is possible. Enforce the use of challenge and password, especially during dismounted operations.

(4) **Maintain Effective Fire Control.** Ensure fire commands are accurate, concise, and clearly stated. Make it mandatory for soldiers to ask for clarification of any portion of the fire command that they do not understand completely. Stress the importance of the chain of command in the fire control process and ensure soldiers get in the habit of obtaining target confirmation and permission to fire from their leaders before engaging targets they assume are enemy elements. Know who will be in and around the area of operations.

(5) **Establish a Command Climate that Emphasizes Fratricide Prevention.** Enforce fratricide prevention measures, placing special emphasis on the use of doctrinally sound techniques and procedures. Ensure constant supervision in the execution of orders and in the performance of all tasks and missions to standard.

b. Guidelines and Considerations. Additional guidelines and considerations for fratricide reduction and prevention include the following.

(1) Recognize the signs of battlefield stress. Maintain unit cohesion by taking quick, effective action to alleviate stress.

(2) Conduct individual, leader, and collective (unit) training covering fratricide awareness, target identification and recognition, and fire discipline.

(3) Develop a simple, executable plan.

(4) Give complete and concise operation orders. Include all appropriate recognition signals in paragraph 5 of the OPORD.

(5) To simplify operation orders, use SOPs that are consistent with doctrine. Periodically review and update SOPs as needed.

(6) Strive to provide maximum planning time for leaders and subordinates.

(7) Use common language (vocabulary) and doctrinally correct standard terminology and control measures.

- (8) Ensure thorough coordination is conducted at all levels.
- (9) Plan for and establish effective communications.
- (10) Plan for collocation of CPs whenever it is appropriate to the mission, such as during a passage of lines.
- (11) Make sure ROE are clear.
- (12) Conduct rehearsals whenever the situation allows adequate time to do so.
- (13) Be in the right place at the right time. Use position location and navigation devices (GPS or POSNAV), know your location and the locations of adjacent units (left, right, leading, and follow-on), and synchronize tactical movement. If the platoon or any element becomes lost, its leader must know how to contact higher headquarters immediately for instructions and assistance.
- (14) Establish, execute, and enforce strict sleep and rest plans.

APPENDIX E

BATTLE DRILLS AND CREW DRILLS

SBCT infantry battle and crew drills describe how platoons and squads apply immediate action and fire and maneuver to commonly encountered situations and equipment malfunctions. They require leaders to make decisions rapidly and to issue brief oral orders quickly. A platoon's ability to accomplish its mission often depends on soldiers, leaders, squads, and sections executing key actions quickly. All soldiers and their leaders must know their immediate reaction to enemy contact and equipment malfunction as well as follow-up actions.

Drills are limited to situations requiring instantaneous response; therefore, soldiers must execute drills instinctively, which results from continual practice. Drills provide platoons with standard procedures essential for building strength and aggressiveness. They identify key actions that leaders and soldiers must perform quickly. They provide for a smooth transition from one activity to another; for example, from movement to offensive action to defensive action. They provide standardized actions that link soldier and collective tasks at platoon level and below. (Soldiers perform individual tasks to common task test [CIT] or self-development test [SDT] standard.) Drills must be understood by each individual and leader, and must be continually practiced by the platoon.

NOTE: The format for drills discussed in this chapter includes the title, the SITUATION that would cue the unit or the leader into initiating the drill, the REQUIRED ACTIONS in sequence, and supporting illustrations. Where applicable, drills are cross-referenced with material in FMs, other drills, or both. Battle drills are in Section I and crew drills are in Section II (crew drills to be published). (See ARTEP 7-8-Drill for the task, conditions, and standards for dismounted drill training.)

Section I. BATTLE DRILLS

Field Manual 25-101 defines a battle drill as "a collective action rapidly executed without applying a deliberate decision-making process." Battle drills --

- Require minimal orders from leaders and are standard throughout the Army.
- Are sequential actions vital to success in combat or critical to preserving life.
- Apply to platoon or smaller units.
- Are trained responses to enemy actions or leaders' orders.
- Represent mental steps followed for offensive and defensive actions in training and combat.

NOTE: The following drills are numbered to correspond to the numbering system used in ARTEP 7-8-Drill.

BATTLE DRILL 2. REACT TO CONTACT

SITUATION: A squad or platoon receives fires from enemy individual or crew-served weapons.

REQUIRED ACTIONS: (Figure E-1).

- a. Soldiers immediately take up the nearest covered positions and return fire in the direction of contact.
- b. Team or squad leaders locate and engage known or suspected enemy positions with well-aimed fire, and they pass information to the squad or platoon leader.
- c. Fire team leaders control fire using standard fire commands (initial and supplemental) containing the following elements:
 - Alert.
 - Direction.
 - Description of target.
 - Range.
 - Method of fire (manipulation and rate of fire).
 - Command to commence firing.
- d. Soldiers maintain contact with the soldiers on their left and right.
- e. Soldiers maintain contact with their team leaders and report the location of enemy positions.
- f. Leaders check the status of their personnel.
- g. The team or squad leaders maintain contact with the squad or platoon leader.
- h. The squad or platoon leader--
 - (1) Moves up to the fire team or squad in contact and links up with its leader. (The platoon leader brings his RATELO, platoon FO, the squad leader of the nearest squad, and one machine gun team. The squad leader of the trail squad moves to the front of his lead fire team. The platoon sergeant also moves forward with the second machine gun team and links up with the platoon leader, ready to assume control of the base-of-fire element.)
 - (2) Determines whether or not his squad or platoon must move out of an engagement area.
 - (3) Determines whether or not he can gain and maintain suppressive fires with his element already in contact (based on the volume and accuracy of enemy fires against the element in contact).
 - (4) Makes an assessment of the situation. He identifies--
 - The location of the enemy position and obstacles.

- The size of the enemy force engaging the unit in contact. (The number of enemy automatic weapons, the presence of any vehicles, and the employment of indirect fires are indicators of the enemy strength.)
- Vulnerable flanks.
- Covered and concealed flanking routes to the enemy position.

(5) Determines the next course of action (for example fire and movement, assault, breach, knock out bunker, enter and clear a building or trench).

(6) Reports the situation to the platoon leader or company commander and begins to maneuver his unit.

(7) Calls for and adjusts indirect fire (mortars or artillery). (Squad leaders relay requests through the platoon leader.)

- i. Team leaders lead their teams by example (for example, "Follow me, do as I do")
- j. Leaders relay all commands and signals from the platoon chain of command.

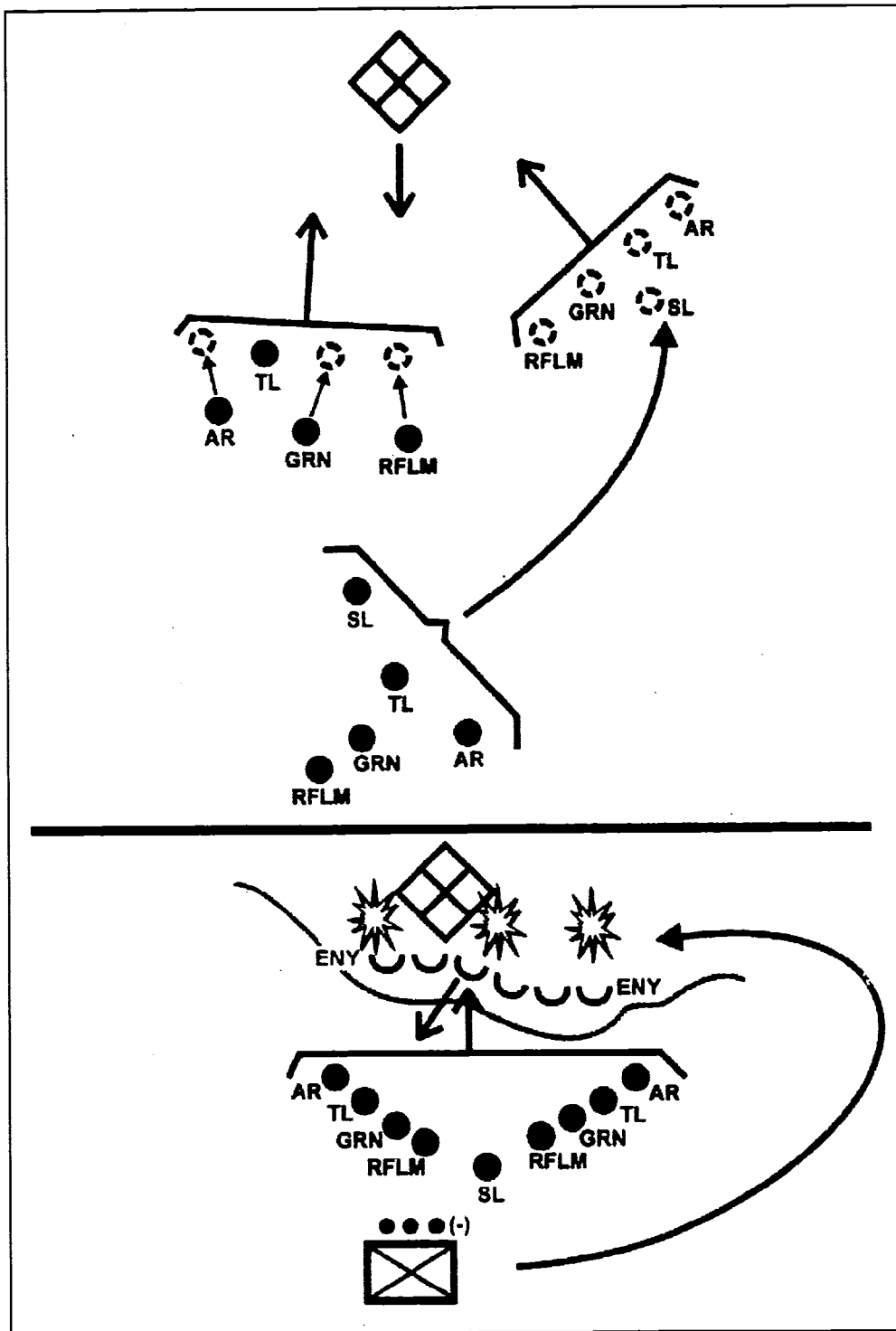


Figure E-1. React to contact (dismounted).

Battle Drill 2A. REACT TO CONTACT (SECTION OR PLATOON) (MOUNTED)

SITUATION: While mounted, the platoon receives fires from enemy individual or crew-served weapons (including light antiarmor weapons).

REQUIRED ACTIONS: (Figure E-2).

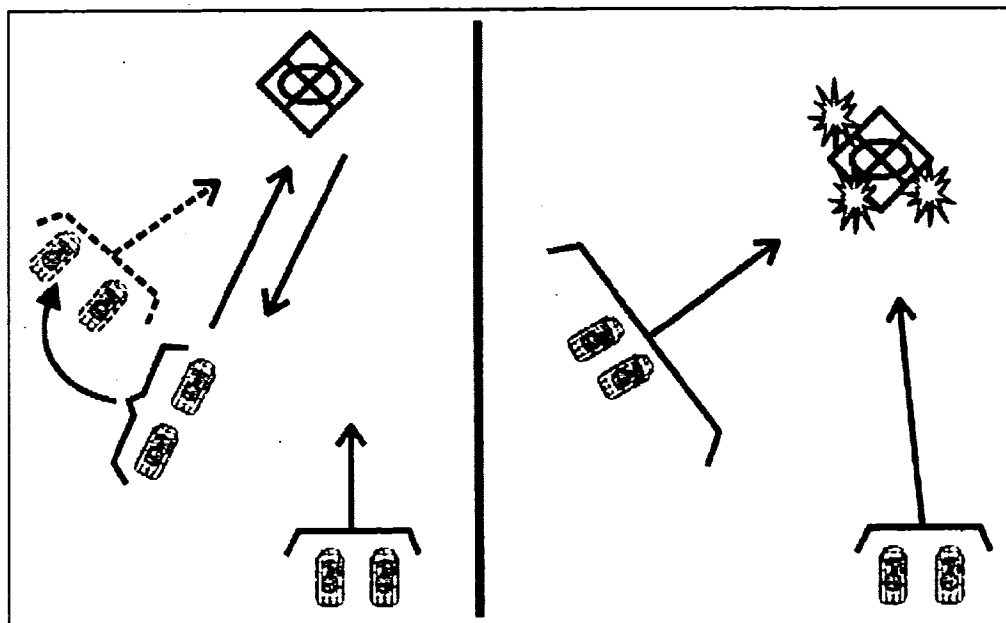


Figure E-2. React to contact (mounted).

- a. Vehicles of the section in physical contact with the enemy immediately return fire in the direction of contact while moving out of the beaten zone. The section leader of the section in contact (if not the platoon leader) reports contact to the platoon leader.
- b. All vehicles move to the nearest covered and concealed positions.
- c. Upon reaching the covered and concealed position, the section in physical contact continues to engage the enemy with well-aimed fire. The squads dismount to provide local security and or add suppressive fires against the enemy position.
- d. Vehicles of the section not in physical contact orient their weapons in the direction of the enemy.
- e. The platoon leader or platoon sergeant reports contact to the company commander.

NOTE: Once the platoon has executed the React to Contact drill, the platoon leader makes a quick assessment of the situation (for example, enemy size and or location). He decides on a course of action. The platoon leader may elect to bypass, if permitted to do so by the company commander. The platoon leader reports the situation to the company commander.

- f. Vehicle commanders within a section maintain visual contact with each other (wingman concept).
- g. Vehicle commanders maintain communications with the platoon leader.
- h. Vehicle commanders relay all commands to mounted infantry squads.

BATTLE DRILL 3. BREAK CONTACT

SITUATION: The squad or platoon is under enemy fire and must break contact.

REQUIRED ACTIONS: (Figure E-3).

- a. The squad or platoon leader directs one fire team or squad in contact to support the disengagement of the remainder of the unit.
- b. The squad or platoon leader orders a distance and direction, or a terrain feature, or last objective rally point for the movement of the first fire team or squad.
- c. The base of fire (fire team or squad) continues to suppress the enemy.
- d. The moving element uses fragmentation, concussion, and smoke grenades to mask its movement.
- e. The moving element takes up the designated position and engages the enemy position.
- f. The unit leader directs the base-of-fire element to move to its next location. (Based on the terrain and the volume and accuracy of the enemy's fire, the moving fire team or squad may need to use fire and movement techniques.
- g. The squad or platoon continues to bound away from the enemy until (the squad or platoon must continue to suppress the enemy as it breaks contact)--
 - It breaks contact.
 - It passes through a higher level support-by-fire position.
 - Its fire teams or squads are in the assigned position to conduct the next mission.
- h. The leader should consider changing his unit's direction of movement once contact is broken. This will reduce the ability of the enemy to place effective indirect fires on the unit.
- i. If the unit becomes disrupted, soldiers stay together and move to the last designated rally point.
- j. Squad or platoon leaders account for soldiers, report, reorganize as necessary, and continue the mission.

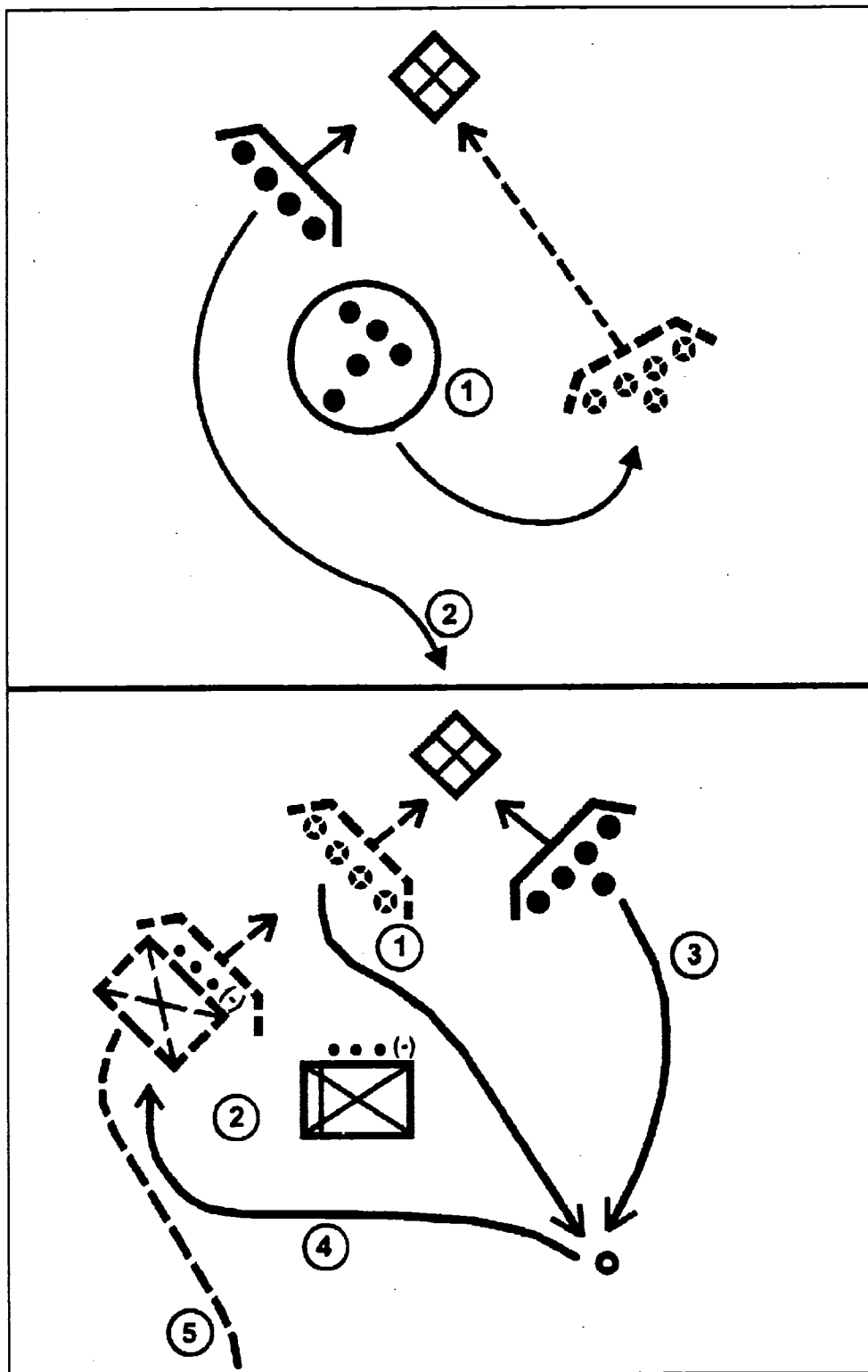


Figure E-3. Break contact dismounted.

Battle Drill 3A. BREAK CONTACT (SECTION OR PLATOON) (MOUNTED)

SITUATION: The platoon is mounted (except for security elements). It is under enemy fire and must break contact.

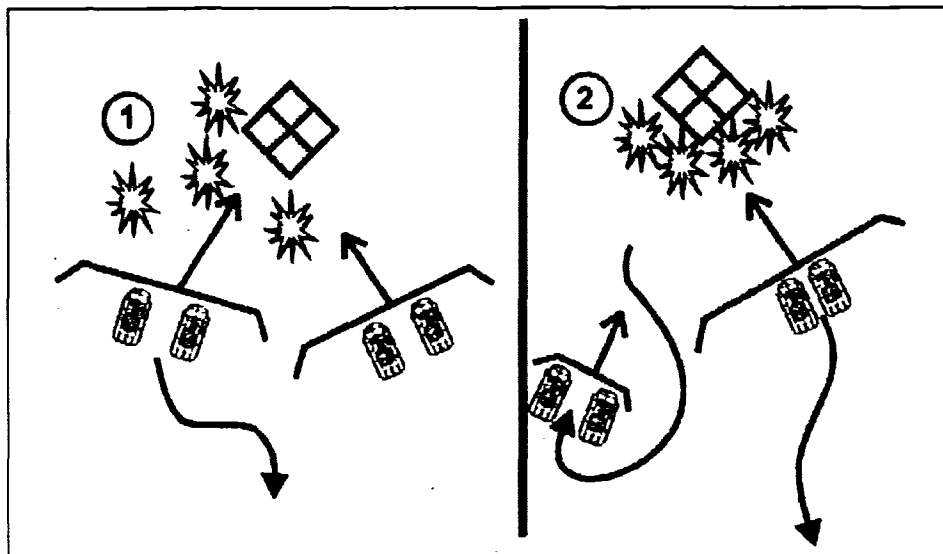
REQUIRED ACTIONS: (Figure E-4).

Figure E-4. Break contact (mounted).

- a. The platoon leader gives the order to break contact.
- b. The platoon leader directs one section to be the base-of-fire element to support the disengagement of the other section.
- c. The platoon leader orders a distance and direction, a terrain feature, or last objective rally point for the moving section.
- d. The base-of-fire section continues to engage the enemy. It attempts to gain suppressive fire long enough to support the bound of the moving element. (The platoon uses all available direct and indirect fires, including smoke, to assist in disengaging.) The section leader controls fires using standard fire commands containing the alert, direction, description of target, range, method of fire, and command to commence firing.
- e. The moving section's security element remounts.
- f. The moving section continues to fire while moving to an overwatch position and continues to provide suppressive fires.
- g. The platoon leader directs the supporting section to move to its next location.
- h. The platoon continues to bound away from the enemy (suppressing the enemy as it breaks contact) until--
 - It breaks all contact.
 - It passes through a higher level base-of-fire position.
 - Its sections are in the assigned position to conduct the next mission.

- i. In the absence of a leader's instructions, the platoon moves to the last designated rally point.
- j. Section and squad leaders account for soldiers, report, reorganize as necessary, and continue the mission.
- k. The platoon leader reports the situation to the company commander.

BATTLE DRILL 4. REACT TO AMBUSH

SITUATION: If the squad or platoon enters a kill zone and the enemy initiates an ambush with casualty-producing device and a high volume of fire, the unit takes the following actions.

REQUIRED ACTIONS: (Figure E-5.)

- a. In a near ambush (within hand-grenade range), soldiers receiving fire immediately return fire, take up covered positions, and throw fragmentation, concussion, and smoke grenades.
 - (1) Immediately after the grenades detonate, soldiers in the kill zone assault through the ambush using fire and movement.
 - (2) Soldiers not in the kill zone immediately--
 - Identify enemy positions.
 - Initiate immediate suppressive fires against the enemy.
 - Take up covered positions.
 - Shift fires as the soldiers in the kill zone assault through the ambush.
- b. In a far ambush (beyond hand-grenade range), soldiers receiving fire immediately return fire, take up covered positions, and suppress the enemy by--
 - Destroying or suppressing enemy crew-served weapons first.
 - Obscuring the enemy position with smoke (M203).
 - Sustaining suppressive fires.
 - (1) Soldiers (teams or squads) not receiving fires move by a covered and concealed route to a vulnerable flank of the enemy position and assault using fire and movement techniques.
 - (2) Soldiers in the kill zone continue suppressive fires and shift fires as the assaulting team or squad fights through the enemy position.
- c. The platoon FO calls for and adjusts indirect fires as directed by the platoon leader. On order, he lifts fires or shifts them to isolate the enemy position or to attack them with indirect fires as they retreat.
- d. The squad or platoon leader reports, reorganizes as necessary, and continues the mission.

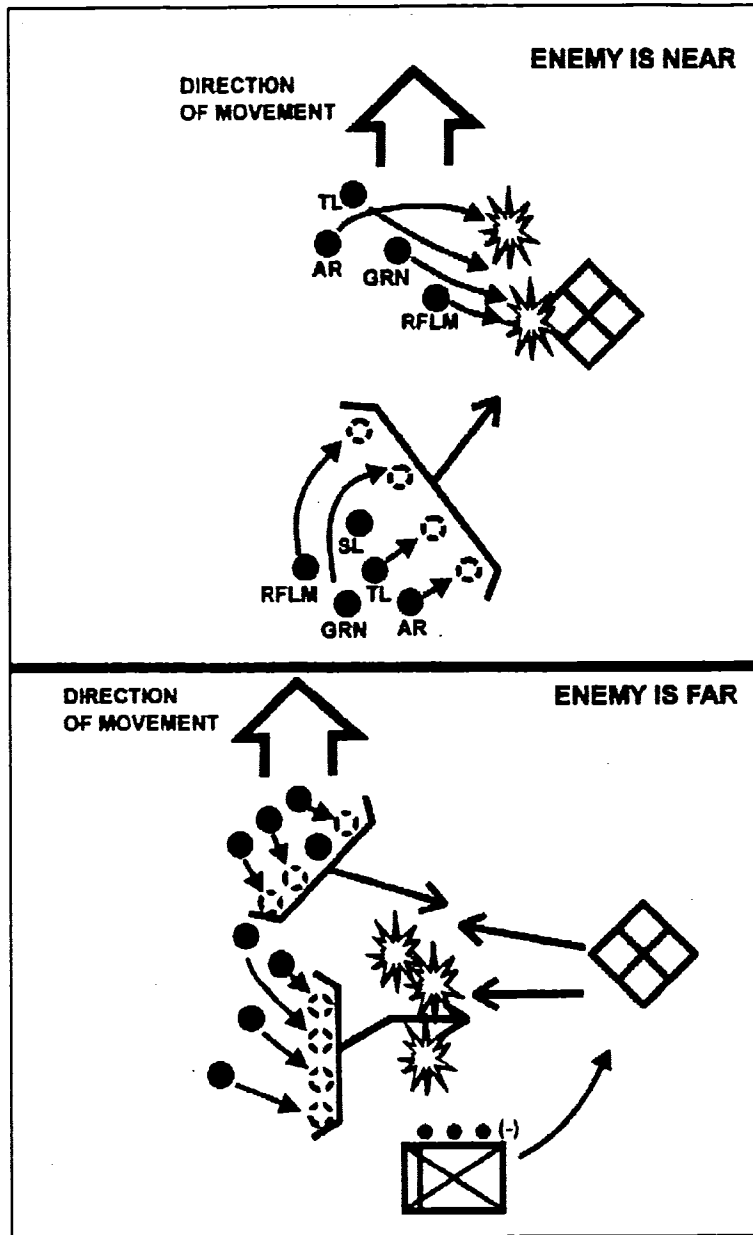


Figure E-5. React to ambush.

BATTLE DRILL 5. KNOCK OUT BUNKERS

SITUATION: The platoon identifies enemy in bunkers while moving as a part of a larger force.

REQUIRED ACTIONS: (Figure E-6, and Figure E-7.

a. The platoon initiates contact:

(1) The squad in contact establishes a base of fire.

(2) The platoon leader, his RATELO, platoon FO, and one machine gun team move forward to link up with the squad leader of the squad in contact.

(3) The platoon sergeant moves forward with the second machine gun team and assumes control of the base-of-fire element.

(4) The base-of-fire element--

(a) Destroys or suppresses enemy crew-served weapons first.

(b) Obscures the enemy position with smoke (M203).

(c) Sustains suppressive fires at the lowest possible level.

(5) The platoon FO calls for and adjusts indirect fires as directed by the platoon sergeant.

b. The platoon leader determines that he can maneuver by identifying--

- Enemy bunkers, other supporting positions, and any obstacles.
- Size of the enemy force engaging the platoon. (The number of enemy automatic weapons, the presence of any vehicles, and the employment of indirect fires are indicators of enemy strength.)
- A vulnerable flank of at least one bunker.
- A covered and concealed flanking route to the flank of the bunker.

c. The platoon leader determines which bunker is to be assaulted first and directs one squad (not in contact) to knock it out.

d. If necessary, the platoon sergeant repositions a squad, fire team, or machine gun team to isolate the bunker as well as to continue suppressive fires.

e. The assaulting squad, with the platoon leader and his RATELO, move along the covered and concealed route and take action to knock out the bunker.

(1) The squad leader moves with the assaulting fire team along the covered and concealed route to the flank of the bunker.

(a) The assaulting fire team approaches the bunker from its blind side and does not mask the fires of the base-of-fire element.

(b) Soldiers constantly watch for other bunkers or enemy positions in support of it.

(2) Upon reaching the last covered and concealed position--

(a) The fire team leader and the automatic rifleman remain in place and add their fires to suppressing the bunker (includes the use of AT4s).

(b) The squad leader positions himself where he can best control his teams. On the squad leader's signal, the base-of-fire element lifts fires or shifts fires to the opposite side of the bunker from the assaulting fire team's approach.

(c) The grenadier and rifleman continue forward to the blind side of the bunker. One soldier takes up a covered position near the exit, while one soldier cooks off (two seconds maximum) a grenade, shouts FRAG OUT, and throws it through an aperture.

(d) After the grenade detonates, the soldier covering the exit enters the bunker, firing short bursts, to destroy the enemy. The soldier who throws the grenade should not be the first one to clear the bunker.

(3) The squad leader inspects the bunker to ensure that it has been destroyed. He reports, reorganizes as needed, and continues the mission. The platoon follows the success of the attack against the bunker and continues the attack of other bunkers.

f. The platoon leader repositions base-of-fire squads as necessary to continue to isolate and suppress the remaining bunkers and maintain suppressive fires.

g. The platoon leader either redesignates one of the base-of-fire squads to move up and knock out the next bunker or directs the assaulting squad to continue and knock out the next bunker.

NOTE: The platoon leader must consider the condition of his assaulting squad(s) (ammunition and exhaustion) and rotate squads as necessary.

(1) On the platoon leader's signal, the base-of-fire element lifts fires or shifts fires to the opposite side of the bunker from which the squad is assaulting.

(2) At the same time, the platoon FO shifts indirect fires to isolate enemy positions.

h. The assaulting squad takes action to knock out the next bunker (see paragraph e, above).

i. The platoon leader reports, reorganizes as necessary, and continues the mission. The company follows up the success of the platoon attack and continues to assault enemy positions.

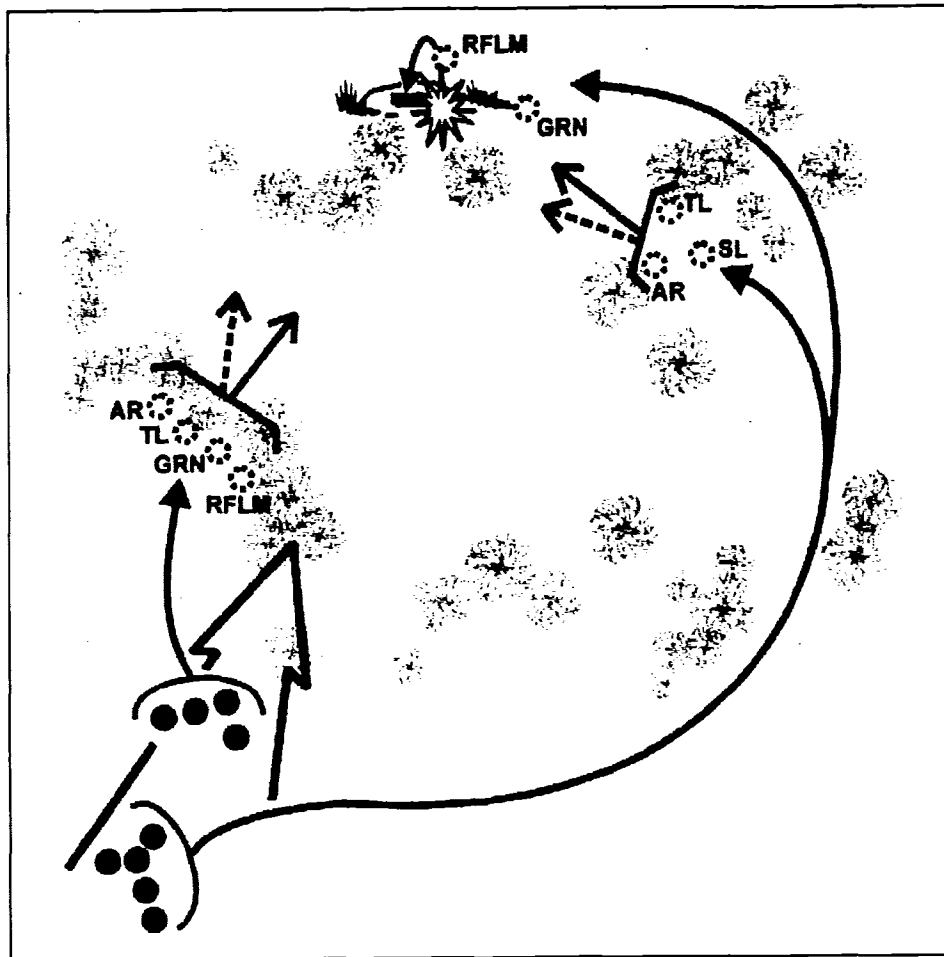


Figure E-6. Knock out a bunker (squad).

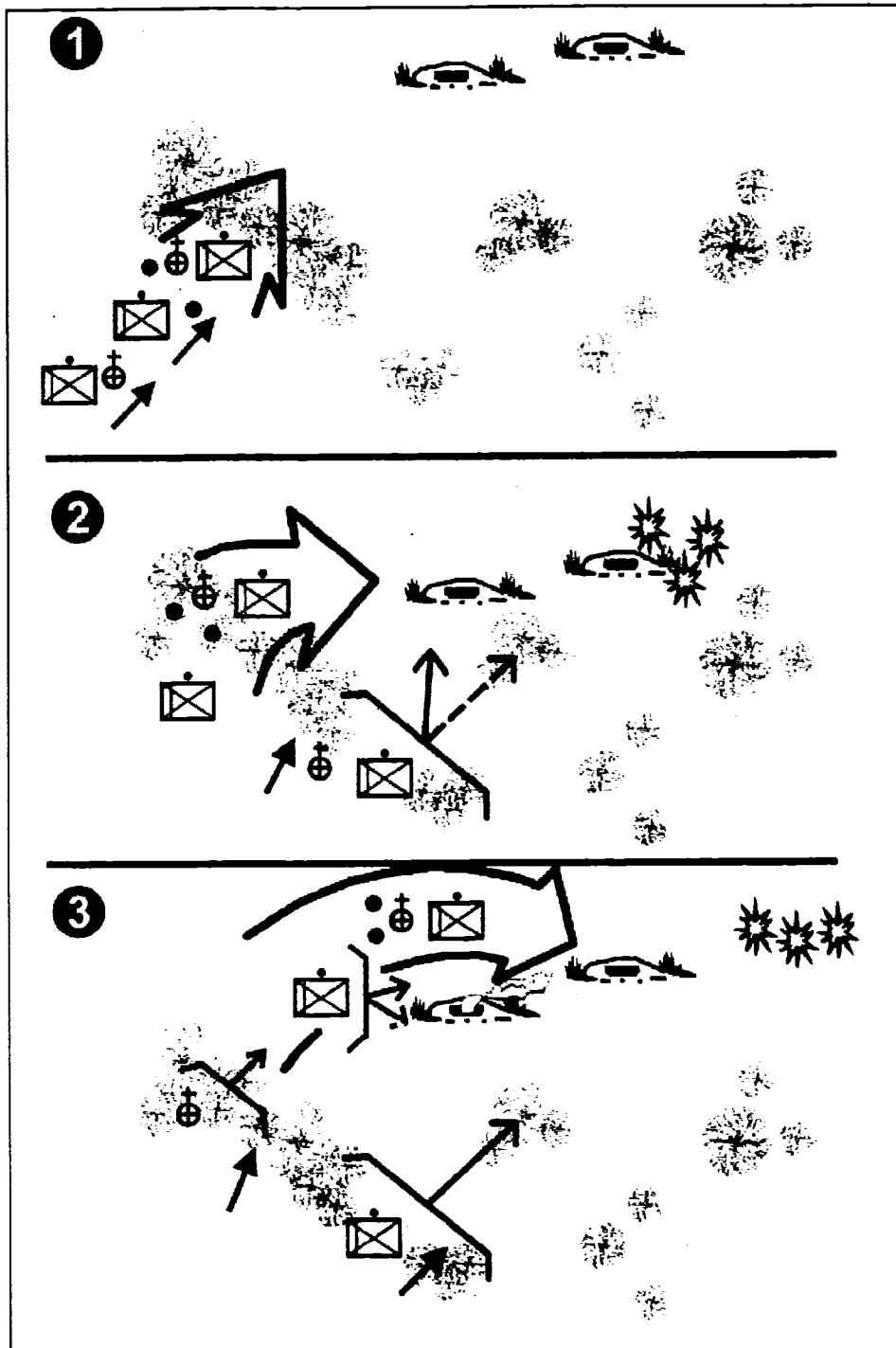


Figure E-7. Knock out bunkers (platoon).

BATTLE DRILL 6. ENTER BUILDING/CLEAR ROOM

SITUATION: Operating as part of a larger force, the squad is moving and identifies an enemy force in a building.

REQUIRED ACTIONS: (Figure E-8, and Figure E-9).

NOTE: The discussion that follows assumes that only the platoon's organic weapons support the infantry squad. The preferred method of entering a building is to use a tank main gun round, direct fire artillery round, or TOW, Javelin, or Hellfire missile to clear the first room. Additionally, some UO situations may require precise application of firepower. This is true of a UO environment where the enemy is mixed with noncombatants. The presence of civilians can restrict the use of fires and reduce the combat power available to a platoon leader. His platoon may have to operate with "no fire" areas. ROE can prohibit the use of certain weapons until a specific hostile action takes place. The use of hand grenades and suppressive fire to enter rooms may be prohibited to preclude noncombatant casualties and collateral damage. All leaders must be aware of the ROE. They must include the precise use of weapons in their planning for UO missions. This includes how the platoon will employ its organic weapons including snipers and other weapon systems it may have in support (for example AC 130 or AH 64 aircraft). Leaders must coordinate the use of marking systems to prevent casualties due to friendly fire. FM 3-06.11 (FM 90-10-1) provides additional techniques for platoons and squads in UO.

- a. The fire team initiating contact establishes a base of fire and suppresses the enemy in and around the building.
- b. The squad leader determines that he can maneuver by identifying--
 - The building and any obstacles.
 - The size of the enemy force engaging the squad.
 - An entry point. (Assaulting fire teams should enter the building at the highest level possible.)
 - A covered and concealed route to the entry point.
- c. The fire team in contact--
 - Destroys or suppresses enemy crew-served weapons first.
 - Obscures the enemy position with smoke (M203).
 - Sustains suppressive fires.
- d. The squad leader directs the fire team in contact to support the entry of the other fire team into the building.
- e. If necessary, the supporting fire team repositions to isolate the building as well as continue suppressive fires. (Normally, the platoon has added its supporting fires against the enemy.)
- f. The squad leader designates the entry point of the building. The platoon and squad shift direct fires and continue to suppress the enemy in adjacent positions and to isolate the building. The platoon FO lifts indirect fires or shifts them beyond the building.
- g. The squad leader and the assaulting fire team approach the building and position themselves at either side of the entrance. (Soldiers should avoid entering buildings through doors and windows

because enemy weapons from inside the building normally will cover these.)

h. Allowing cook-off time (two seconds maximum) and shouting FRAG OUT, the lead soldier of the assaulting fire team prepares and throws a grenade into the building.

DANGER

IF WALLS AND FLOORS ARE THIN, THEY DO NOT PROVIDE PROTECTION FROM HAND GRENADE FRAGMENTS.

i. After the explosion, the next soldier enters the building and positions himself to the right (left) of the entrance, up against the wall, engages all identified or likely enemy positions with rapid, short bursts of automatic fire, and scans the room. The rest of the team provides immediate security outside the building.

(1) The size and shape of the room may cause the soldier entering the room to move to the left or right. The first soldier in the room decides where the next man should position himself and gives the command NEXT MAN IN, LEFT (or RIGHT). The next man shouts COMING IN, LEFT (RIGHT), enters the building, positions himself to the left of the entrance, up against the wall, and scans the room. Once in position, he shouts NEXT MAN IN (RIGHT or LEFT).

(2) Depending on the enemy's situation, the size of the entry and the training of the squad, two soldiers can enter the room simultaneously after the grenade detonates. The soldier from the right side of the entry enters, fires from left to right, and moves to right with his back to the wall. At the same time, the soldier on the left enters from the left, fires from right to left, and moves to the left with his back to the wall. One soldier goes high, the other low, to prevent firing at one another. This method puts more firepower in the room quickly but is more difficult and requires more practice. When both soldiers are in position, the senior soldier gives the command NEXT MAN IN (RIGHT or LEFT).

j. The assaulting fire team leader shouts COMING IN (RIGHT or LEFT), enters the building initially moving left or right and against the wall, and positions himself where he can control the actions of his team. He does not block the entrance. He makes a quick assessment of the size and shape of the room and begins to clear the room. He determines if the remaining man in his team is required to assist in clearing the room.

(1) If the team leader decides to bring the last man in, he shouts NEXT MAN IN, LEFT (or RIGHT). The last man in the fire team shouts COMING IN LEFT (or RIGHT), enters the building, and begins to clear through the room.

(2) If the team leader decides not to bring the last man in, he shouts NEXT MAN, STAND FAST. The last man remains outside the building and provides security from there. The team leader then directs the soldier on the right of the entrance to begin clearing. The team leader reports to the squad leader and then assumes the duties of the soldier on the right of the entrance to provide support.

DANGER

WHILE CLEARING ROOMS, SOLDIERS MUST BE ALERT FOR TRIP WIRES AND BOOBY TRAPS. THEY SHOULD NOT EXPOSE THEMSELVES THROUGH OPEN WINDOWS OR DOORS.

- k. Once the room is cleared, the team leader signals to the squad leader that the room is cleared.
- l. The squad leader enters the building and marks the entry point in accordance with the unit SOP. The squad leader determines whether or not his squad can continue to clear rooms and still maintain suppressive fires outside the building. It normally takes a platoon to clear a building.
- m. The squad leader and assault fire team move to the entrance of the next room to be cleared and position themselves on either side of the entrance. The squad enters and clears all subsequent rooms by repeating the actions discussed in paragraphs h through l, above.
- n. The squad leader directs the team to continue and clear the next room. The squad leader rotates fire teams as necessary to keep the soldiers fresh, to equitably distribute the dangerous duties, and to continue the momentum of the attack.
- o. The squad leader follows the fire team that is clearing to ensure that cleared rooms are properly marked in accordance with the unit SOP.
- p. The squad leader assesses the situation to determine if he can continue clearing the building. He reports the situation to the platoon leader. The platoon follows the success of the entry into the building.
- q. The squad consolidates its position in the building and then reorganizes as necessary. Leaders redistribute ammunition.

NOTE: Normally the squad or platoons will suppress enemy in buildings with large caliber weapons (ICVs, MGSs, or tanks if available).

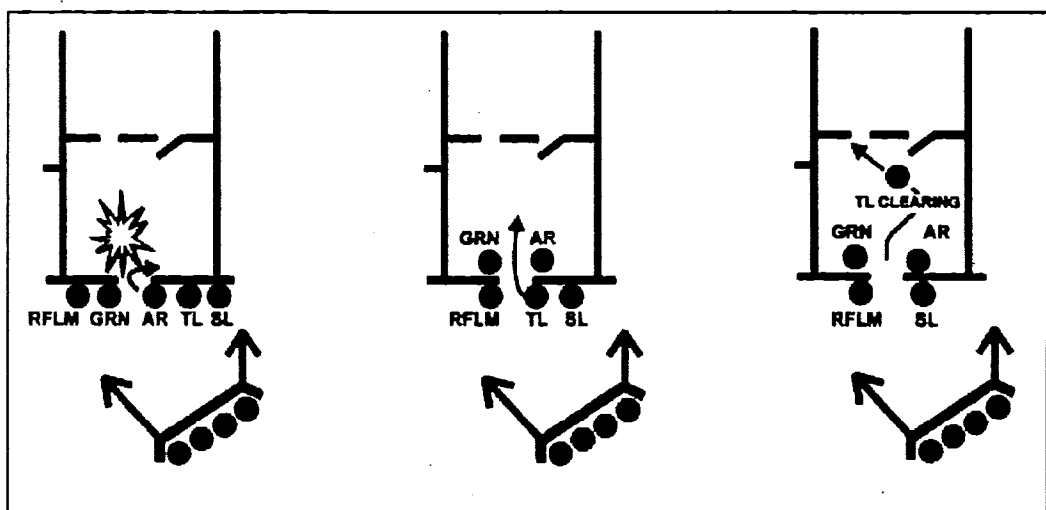


Figure E-8. Enter a building (squad).

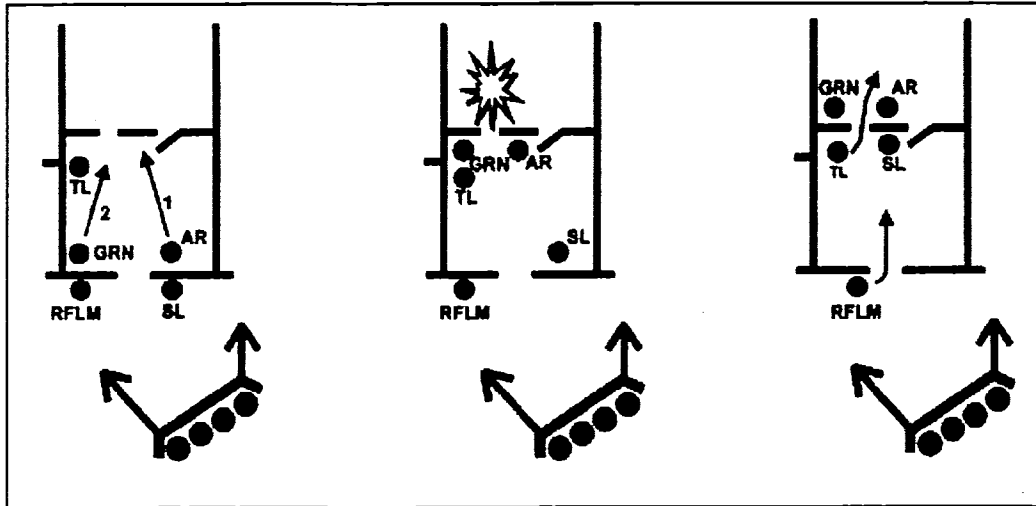


Figure E-9. Clear a room (squad).

BATTLE DRILL 7. ENTER/CLEAR A TRENCH

SITUATION: The platoon is attacking as part of a larger force and identifies enemy in a trench line. The platoon deploys and establishes a base of fire. The platoon leader determines that he has sufficient combat power to maneuver and assault the trench line.

REQUIRED ACTIONS: (Figure E-10, and Figure E-11).

- a. The platoon leader directs one squad to enter the trench and secure a foothold.
- b. The platoon leader designates the entry point of the trench line and the direction of movement once the platoon begins clearing.
- c. The platoon sergeant positions soldiers and machine guns to suppress the trench and isolate the entry point.
- d. The assaulting squad executes actions to enter the trench and establish a foothold. The squad leader directs one fire team to assault and one fire team to support by fire initially, then follow and support the assaulting fire team. He designates the entry point of the trench line.

(1) The squad leader and the assault fire team move to the last covered and concealed position short of the entry point.

(a) The squad leader marks the entry point.

(b) The base-of-fire element shifts direct fires away from the entry point and continues to suppress adjacent enemy positions or isolate the trench as required.

(c) The assault fire team leader and the automatic rifleman remain in a position short of the trench to add suppressive fires for the initial entry.

(d) The two remaining soldiers of the assault fire team (rifleman and grenadier) continue toward the entry point. They move in rushes or by crawling.

(e) The squad leader positions himself where he can best control his teams.

(2) The first two soldiers (rifleman and grenadier) of the assault fire team move to the edge of the trench; parallel to the trench and on their backs; on the squad leader's command, cook-off grenades (two seconds maximum), shout FRAG OUT, and throw the grenades into the trench.

(a) After ensuring that both grenades detonate, the soldiers roll into the trench, landing on their feet, and back-to-back. They fire their weapons down the trench in opposite directions. Immediately, both soldiers move in opposite directions down the trench, continuing to fire three-round bursts. Each soldier continues until he reaches the first corner or intersection. Both soldiers halt and take up positions to block any enemy movement toward the entry point.

(b) Upon detonation of the grenades, the assault fire team leader and the automatic rifleman immediately move to the entry point and enter the trench. The squad leader directs them to one of the secured corners or intersections to relieve the rifleman or grenadier who then rejoins his buddy team at the opposite end of the foothold.

(3) The squad leader remains at the entry point and marks it.

(4) The squad leader reports to the platoon leader that he has entered the trench and secured a foothold. The platoon follows the success of the seizure of the foothold with the remainder of the platoon as part of the platoon actions to clear a trench line.

(5) The squad reorganizes as necessary. Leaders redistribute ammunition.

e. The platoon leader directs one of the base-of-fire element squads to move into the trench and begin clearing it in the direction of movement from the foothold.

f. The base-of-fire element repositions as necessary to continue suppressive fires.

g. The platoon leader moves into the trench with the assaulting squad.

h. The assaulting squad passes the squad that has secured the foothold and executes actions to take the lead and clear the trench.

(1) The squad leader designates a lead fire team and a trail fire team.

(2) The lead fire team and the squad leader move to the forward-most secure corner or intersection. The squad leader tells the team securing that corner or intersection that his squad is ready to continue clearing the trench. The trail fire team follows, maintaining visual contact with the last soldier of the lead team.

NOTE: Throughout this technique, the team leader positions himself at the rear of the fire team to have direct control (physically, if necessary) of his soldiers. Other soldiers in the fire team rotate the lead. Soldiers rotate the lead to change magazines and prepare grenades. Rotating

the lead provides constant suppressive fires down the trench and maintains the momentum of the attack as the squad clears the trench.

(3) The lead fire team passes the element securing the foothold.

(a) The lead soldier of the fire team moves abreast of the soldier securing the corner or intersection, taps him, and announces TAKING THE LEAD.

(b) The soldier securing the corner or intersection acknowledges that he is handing over the lead by shouting OKAY. He allows the fire team to pass him.

(4) The lead fire team starts clearing in the direction of movement. They arrive at a corner or intersection.

(a) Allowing for cook-off (two seconds maximum) and shouting FRAG OUT, the second soldier prepares and throws a grenade around the corner.

(b) Upon detonation of the grenade, the lead soldier moves around the corner firing three round bursts and advancing as he fires. The entire fire team follows him to the next corner or intersection.

(5) The squad leader--

- Follows immediately behind the lead team.
- Ensures that the trailing fire team moves up and is ready to pass the lead at his direction.
- Rotates fire teams as necessary to keep his soldiers fresh and to maintain the momentum of the attack.
- Requests indirect fires, if necessary, through the platoon leader.

DANGER

**THE FIRE TEAMS MUST MAINTAIN SUFFICIENT
INTERVAL TO PREVENT THEM FROM BEING
ENGAGED BY THE SAME ENEMY FIRES.**

(6) At each corner or intersection, the lead fire team performs the same actions described above (paragraph [5]).

(7) If the lead soldier finds that he is nearly out of ammunition before reaching a corner or intersection, he announces AMMO.

(a) Immediately, the lead soldier stops and moves against one side of the trench, ready to let the rest of the team pass. He continues to aim his weapon down the trench in the direction of movement.

(b) The next soldier ensures that he has a full magazine, moves up abreast of the lead soldier, taps him, and announces **TAKING THE LEAD**.

(c) The lead soldier acknowledges that he is handing over the lead by shouting **OKAY**, positions rotate, and the squad continues forward.

(8) The trailing fire team secures intersections and marks the route within the trench as the squad moves forward. The trailing fire team leader ensures that follow-on squads relieve his buddy teams to maintain security.

(9) The squad leader reports the progress of the clearing operation. (The base-of-fire element must be able to identify the location of the lead fire team in the trench at all times.)

i. The platoon leader rotates squads to keep soldiers fresh and to maintain the momentum of the assault.

j. The platoon sergeant calls forward ammunition resupply and organizes teams to move it forward into the trench.

k. The base-of-fire element ensures that all friendly forces move into the trench **ONLY** through the designated entry point. (All movement must be made in the trench to avoid casualties by friendly fires.)

l. The platoon leader reports to the company commander that the trench line is secured, or that he is no longer able to continue clearing.

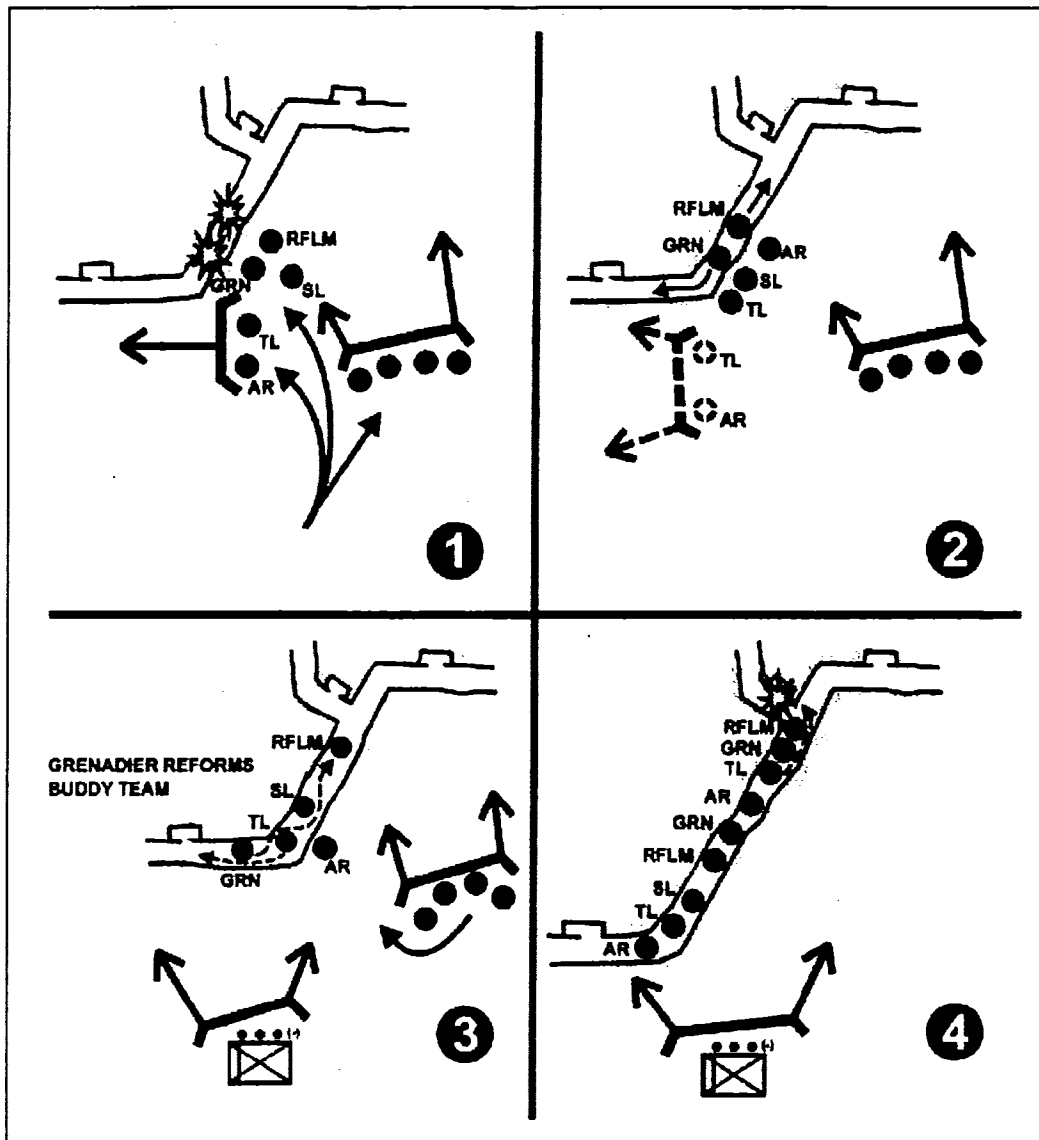


Figure E-10. Enter a trench (squad).

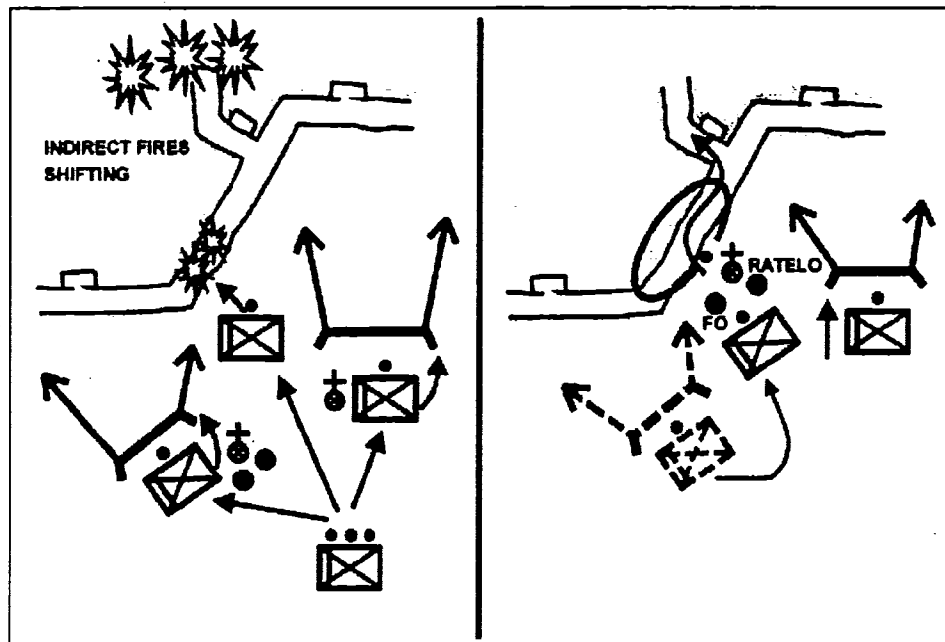


Figure E-11. Clear a trench line (platoon).

BATTLE DRILL 8. CONDUCT INITIAL BREACH OF A MINED WIRE OBSTACLE (PLATOON)

SITUATION: The platoon is operating as part of a larger force. The lead squad identifies a wire obstacle, reinforced with mines that cannot be bypassed, and enemy positions on the far side of the obstacle.

REQUIRED ACTIONS: (Figure E-12, and Figure E-13)

- a. The platoon leader, his RATELO, platoon FO, and one machine gun team move forward to link up with the squad leader of the lead squad.
- b. The platoon leader determines that he can maneuver by identifying--
 - The obstacle and enemy positions covering it by fire.
 - The size of the enemy force engaging the squad. (The number of enemy automatic weapons, the presence of any vehicles, and the employment of indirect fires are indicators of enemy strength.)
 - A breach point.
 - A covered and concealed route to the breach point.
 - A support-by-fire position large enough for a squad reinforced with machine guns.
- c. The platoon leader directs one squad to support the movement of another squad(s) to the breach point. He indicates the support-by-fire position, the route to it, the enemy position to be suppressed, the breach point, and the route that the rest of the platoon will take to it. He also gives

instructions for lifting and shifting fires.

d. Once the breach has been made, the platoon leader designates one squad as the breach squad and the remaining squad as the assault squad. (The assault squad may add its fires to the base-of-fire element. Normally, it follows the covered and concealed route of the breach squad and assaults through immediately after the breach is made.)

e. The designated squad moves to and establishes a base of fire.

f. The platoon sergeant moves forward to the base-of-fire element with the second machine gun team and assumes control of the element.

g. On the platoon leader's signal, the base-of-fire element--

- Destroys or suppresses enemy crew-served weapons first.
- Obscures the enemy position with smoke (M203).
- Sustains suppressive fires at the lowest possible level.

h. The platoon leader designates the breach point and leads the breach and assault squads along the covered and concealed route to it.

i. The platoon FO calls for and adjusts indirect fires as directed by the platoon leader.

j. The breach squad executes actions to breach the obstacle.

(1) The squad leader directs one fire team to support the movement of the other fire team to the breach point.

(2) The squad leader identifies the breach point.

(3) The base-of-fire element continues to provide suppressive fires and isolates the breach point.

(4) The breaching fire team, with the squad leader, move to the breach point using the covered and concealed route.

(a) The squad leader and breaching fire team leader employ smoke grenades to obscure the breach point. The platoon base-of-fire element shifts direct fires away from the breach point and continues to suppress key enemy positions. The platoon FO lifts indirect fires or shifts them beyond the obstacle.

(b) The breaching fire team leader positions himself and the automatic rifleman on one flank of the breach point to provide close-in security.

(c) The grenadier and rifleman of the breaching fire team probe for mines and cut the wire obstacle, marking their path as they proceed. (Bangalore is preferred, if available.)

(d) Once the obstacle has been breached, the breaching fire team leader and the automatic rifleman move to the far side of the obstacle and take up covered and concealed positions with the rifleman and grenadier. The team leader signals to the squad leader when they are in position and ready to support.

(5) The squad leader signals the supporting fire team leader to move his fire team up and through the breach. He then moves through the obstacle and joins the breaching fire team, leaving the grenadier and rifleman of the supporting fire team on the near side of the breach to guide the rest of the platoon through.

(6) Using the same covered and concealed route as the breaching fire team, the supporting fire team moves through the breach and takes up covered and concealed positions on the far side.

(7) The squad leader reports to the platoon leader and consolidates as needed.

k. The platoon leader leads the assault squad through the breach in the obstacle and positions them beyond the breach to support the movement of the remainder of the platoon or assaults the enemy position covering the obstacle.

l. The platoon leader reports the situation to the company commander and directs his base-of-fire element to move up and through the obstacle. The platoon leader leaves guides to guide the company through the breach point.

m. The company follows up the success of the platoon as it conducts the breach and continues the assault against the enemy positions.

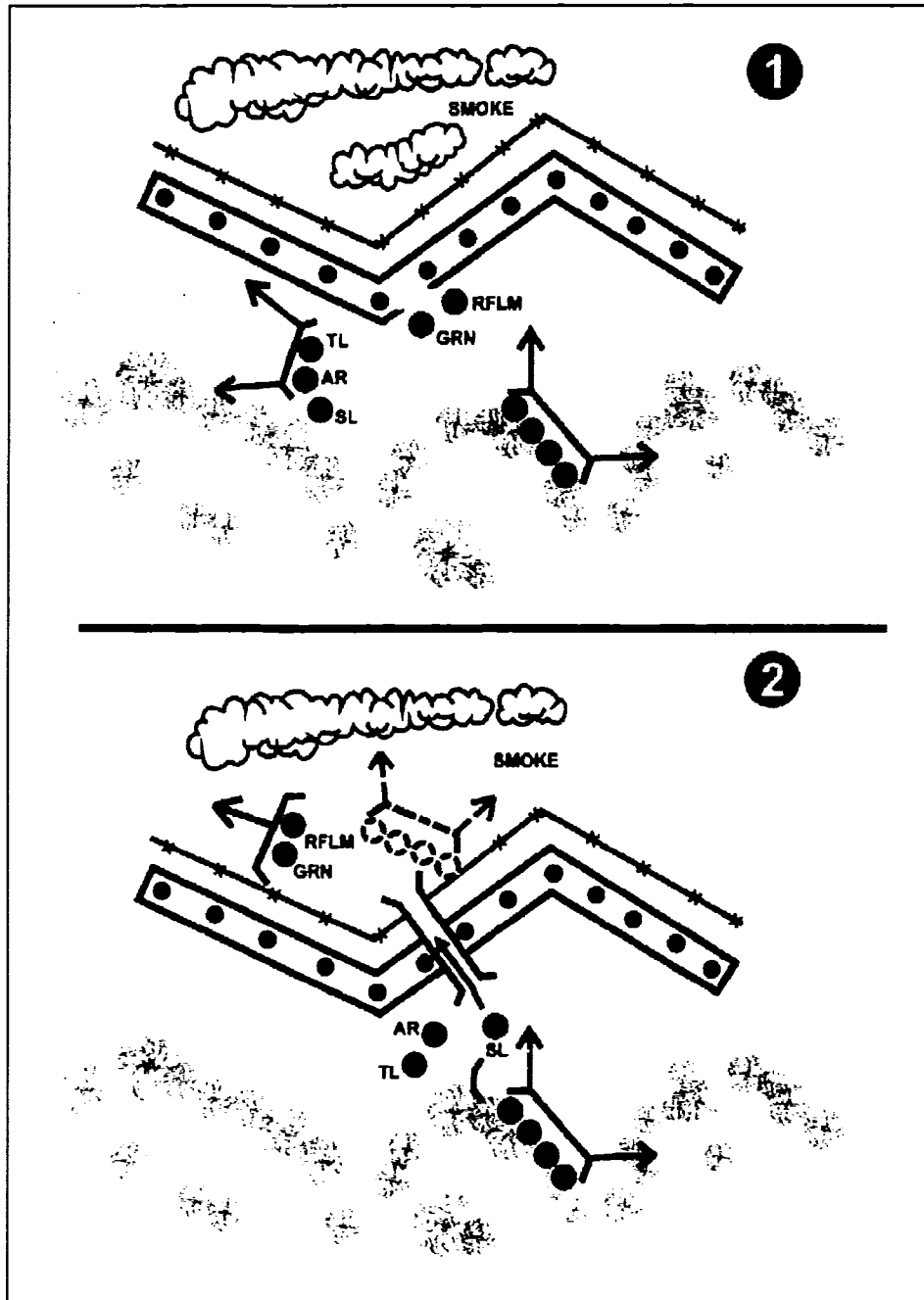


Figure E-12. Conduct initial breach of a mined wire obstacle (squad).

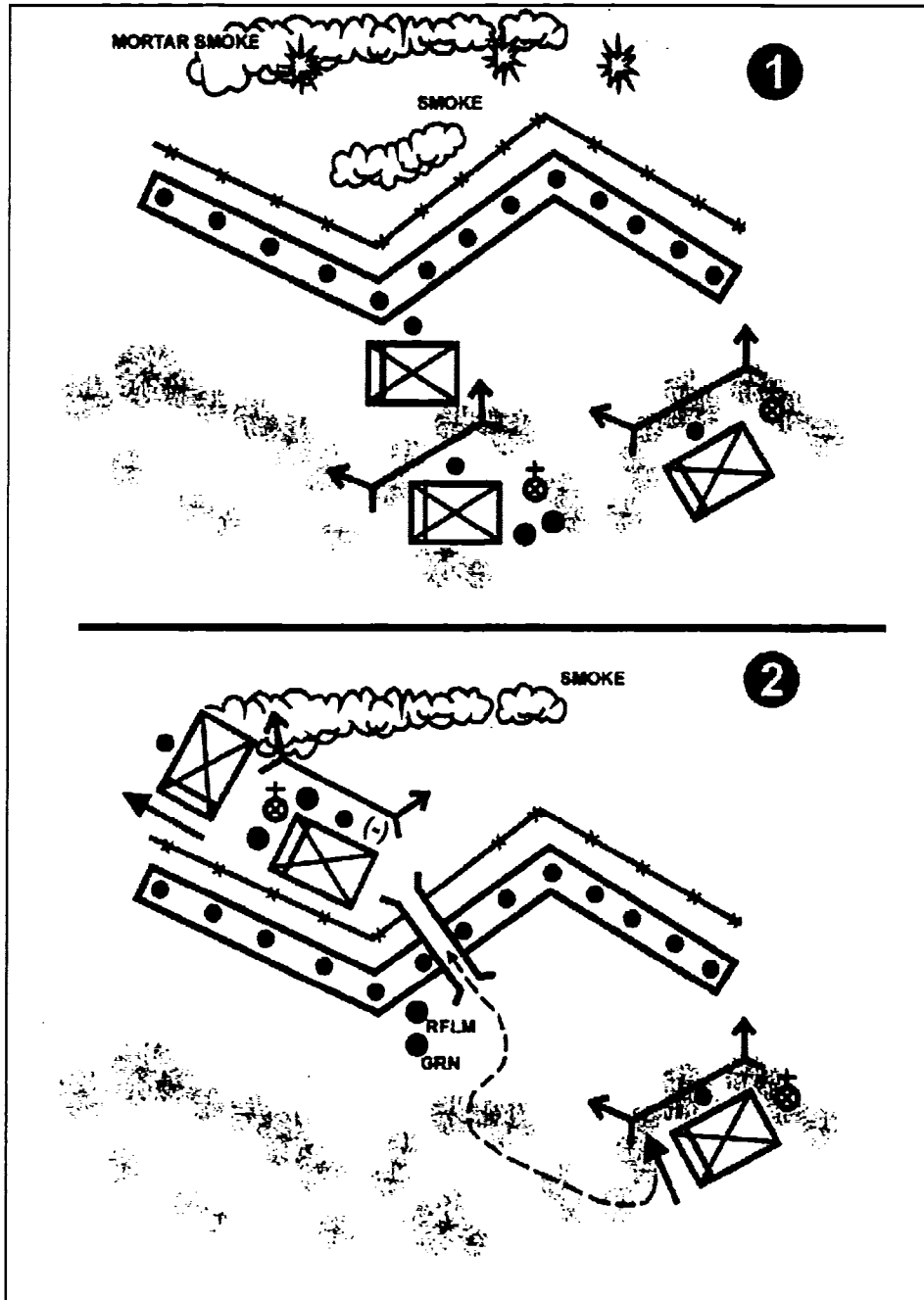


Figure E-13. Conduct initial breach of a mined wire obstacle (platoon).

Section II. CREW DRILLS

A crew drill is a collective action that the crew of a weapon or piece of equipment must perform to successfully use the weapon or equipment in combat or to preserve life. This action is a trained response to a given stimulus, such as a leader’s order or the status of the weapon or equipment. It requires minimal orders to accomplish and is standard throughout the Army.

Crew Drill 1. BAIL OUT (CREW/SQUAD)

SITUATION: The ICV, with a squad mounted, has received hostile fire requiring the crew and squad to

evacuate the vehicle.

REQUIRED ACTIONS:

a. Bailout procedures for the ICV crew.

(1) *Vehicle Commander:*

(a) Alerts soldiers by the intercommunications system or by voice command if the intercom system does not work. Commands BAIL OUT.

(b) Turns RWS power off by pressing the RWS fire control unit ON/OFF power switch.

NOTE: As soldiers dismount they should use the ICV for cover from enemy direct fires.

(c) Disconnects the CVC helmet and secures weapon.

(d) Evacuates the vehicle through the troop compartment or VC's hatch.

(e) Accounts for driver.

(f) Secures vehicle.

(2) *Driver:*

(a) Stops the vehicle.

(b) Lowers the ramp.

(c) Shuts down the vehicle by turning the electrical master switch OFF or pulls the fuel cut-off handle to the OFF position.

(d) Disconnects the CVC helmet and unfastens his seat belt.

(e) Secures his weapon.

(f) Evacuates the vehicle through the driver's hatch, if possible. If the driver cannot evacuate through the driver's hatch, he exits through the troop compartment.

b. Bailout procedures for the troop compartment and squad members.

(1) *Squad Leader or Fire Team Leader:*

(a) Announces BAIL OUT.

(b) Pulls the quick disconnect to release the CVC helmet or headset.

(c) Disconnects his seat belt.

- (d) Secures his weapon and squad radio.
- (e) Evacuates the vehicle through the ramp or ramp access door.
- (f) Accounts for soldiers and equipment.

(2) ***Squad/Fire Team Members:***

- (a) Disconnects seat belts.
- (b) Pulls the quick disconnect to release CVC helmets as appropriate.
- (c) Secures weapons (individual and crew).
- (d) Evacuates the vehicle through the ramp door or the cargo hatch.

CREW DRILL 2. EVACUATE INJURED PERSONNEL FROM AN ICV

SITUATION: A crewmember or squad member has been injured.

REQUIRED ACTIONS:

- a. Evacuate vehicle commander's hatch.

(1) Evacuate the VC through the vehicle commander's hatch.

(a) *Squad leader* commands EVACUATE THE VEHICLE COMMANDER.

(b) *Driver--*

- Moves to the nearest covered position and halts the vehicle.
- Lowers the wire cutter.

(c) *Squad leader--*

- Turns RWS power off by pressing the RWS Fire control Unit ON/OFF power switch.
- Conducts immediate first aid.
- Places the VC in position for removal from the vehicle.
- Adjusts the seat to the raised position, being careful not to cause further injury.
- Unfastens the VC's seat belt and disconnects CVC helmet.
- Designates fire team to evacuate the VC.

(d) *Fire Team* exits the vehicle through the ramp access door, the ramp, or ,if necessary, the cargo hatch.

- Moves to the front of the vehicle to assist in removing the injured VC.
- Two Fire Team members mount the vehicle from the front and move to VC hatch.

(e) *Fire Team Members*--

- Open and secure the VC hatch.
- Place a belt (or similar device) around the VC's chest and slowly pull the VC out. If the VC is wearing a CVC suit, grasp the straps on the back of the suit and pull the VC out of the vehicle. (This step may require two squad members to extricate the VC thru the hatch.)
- Two fire team members dismount to the left front of the vehicle to assist in transferring the VC from the vehicle to the ground.
- Lower the VC from the vehicle to the fire team members on the ground.
- Fire team members place the VC on the ground and administer first aid.

b. **Evacuate VC-Troop Compartment.** Evacuate the VC through the troop compartment.

(1) *Squad Leader.* Commands EVACUATE VEHICLE COMMANDER.

- (a) Turns RWS power OFF by pressing the RWS fire control unit ON/OFF power switch.
- (b) Conducts immediate first aid.
- (c) Places the VC in position for removal from the vehicle.
- (d) Adjusts the seat to the full down position, being careful not to cause further injury.
- (e) Unfastens the VC's seat belt.
- (f) Designates fire team to evacuate the VC.

(2) *Driver:* Moves to the nearest covered position, halts the vehicle, and lowers the ramp.

(3) *Fire Team Members.* Two fire team members remove the injured VC from the vehicle, lay him on the ground, and perform first aid, as required.

c. **Evacuate Driver-Troop Compartment.** Evacuate the driver through the troop compartment.

(1) *Vehicle Commander.* Commands EVACUATE THE DRIVER

NOTE: If the driver is unable to halt the vehicle, a squad member must move forward, lower the driver's seat, and turn the master electrical power switch to the off position to stop the engine. The vehicle will slowly come to a stop on level ground.

(2) **Squad Leader—**

- (a) The squad leader removes the Javelin round from the stowage cradle and places it in the center of the troop compartment or directs a squad member to remove the Javelin round from the stowage cradle and place the round in the center of the troop compartment.
- (b) The squad leader rotates the squad leader display out of the way.
- (c) The squad leader directs a fire team to evacuate the driver.

(3) **Fire Team Leader.** Directs a fire team member to evacuate the driver.

(4) **Fire Team Member—**

- (a) The designated fire team member removes his LBV but retains his body armor.
- (b) The designated fire team member crawls forward through the driver's compartment access and unbuckles the driver's seat belt.
- (c) The designated fire team member releases the seatback release handle and lowers the driver's seat backrest.
- (d) The designated fire team member administers immediate first aid.
- (e) The soldier pulls the driver backwards out of his seat towards the troop compartment.
- (f) The soldier reclines rearward over the Javelin missile stowage rack and passes the driver's body over his as other fire team members pull the driver into the troop compartment.
- (g) Fire team members remove the driver from the vehicle, if possible, and administer first aid.

d. **Evacuate Driver-Driver's Hatch.** Evacuate the driver through the driver's hatch.

(1) **Vehicle Commander.** Commands EVACUATE THE DRIVER.

- (a) Lowers the wire cutter.
- (b) Opens the driver's hatch. If the driver's hatch is damaged and will not open, a squad member evacuates the driver back into the troop compartment (See Evacuate Driver-Troop Compartment).

(c) The VC duties can be performed by the squad leader or a squad member.

(2) Squad Leader—

(a) Removes Javelin round from the stowage rack and places it in the middle of the troop compartment.

(b) Designates fire team to evacuate driver.

(c) Designates a fire team to provide a replacement driver, check serviceability, make repairs if necessary, and continue the mission.

(3) Fire Team Leader—

(a) Designates a soldier to evacuate the driver.

(b) Directs the remainder of the fire team to dismount and execute the evacuation.

(4) Fire Team Members—

(a) The designated soldier removes his LBV and retains his body armor.

(b) The soldier moves forward behind the driver and releases the seatback release handle and lowers the seatback.

(c) The designated fire team member administers immediate first aid.

(d) The soldier disconnects the driver's CVC helmet and seat belt.

(e) The designated soldier remains in the vehicle and assists in the removal of the driver by untangling his legs as necessary.

(f) The fire team dismounts and executes the evacuation.

(g) One fire team member mounts the vehicle from the front and assists the VC in evacuating the driver. If the driver is wearing a CVC suit, grasp the straps on the back of the suit and pull the driver out of the vehicle.

(h) Two fire team members dismount to the left of the vehicle to assist by taking the driver from the VC and other fire team member.

(5) Vehicle Commander and Designated Fire Team Member—

(a) The VC crosses the driver's arms over his chest. (If this is not possible, he wraps a belt around the driver's chest to raise him.)

(b) The VC and the fire team member pull the driver out of the vehicle and hand him to the fire team members on the ground.

(c) The fire team members on the ground take the driver and lay him on the ground

and administer first aid.

e. **Evacuate Squad Member.** Evacuate an injured squad member.

- (1) **Squad/Fire Team Leader.** Informs the VC that a squad member is injured.
- (2) **Vehicle Commander.** Commands EVACUATE FIRE TEAM MEMBER.
- (3) **Driver.** Moves to the nearest covered position, halts the vehicle, and lowers the ramp.

NOTE: Depending on which soldier is injured, the squad leader designates which fire team will assist in evacuating the casualty. If the squad leader or fire team leader is injured, the next senior man takes charge.

- (4) **Squad/Fire Team Members.** Two fire team members remove the injured member, lay him on the ground, and perform first aid, as needed.

Crew Drill 3. EXTINGUISH A FIRE (CREW) (Upon automatic or manual discharge of the automatic fire extinguishing system)

SITUATION: The ICV crew and squad are mounted. The VC alerts personnel of a fire.

REQUIRED ACTIONS:

- a. Extinguish a fire in the engine compartment.

WARNING

Engine fire extinguisher assemblies contain HFC-125 (FE25). HFC-125 is a health hazard. Exposure to skin can cause freezing, and inhaling high concentrations may cause respiratory effects such as shortness of breath and produce heart rhythm irregularities.

(1) **Vehicle Commander.** Commands FIRE, ENGINE COMPARTMENT.

- (a) Alerts the soldiers of an engine compartment fire by the intercommunications system or by voice command if the intercommunications system does not work.
- (b) Presses power key on RWS integrated fire control unit and turns RWS power off.
- (c) Secures the portable fire extinguisher.
- (d) Evacuates the vehicle.

(2) **Driver—**

- (a) Stops the vehicle.

- (b) If the automatic fire suppression system has not extinguished the engine fire, he manually discharges the second-shot fire extinguisher assembly by momentarily holding the spring-loaded ENGINE MANUAL DISCHARGE toggle switch, located on the CONTROL ELECTRONICS PANEL, in the up position.
- (c) Manually discharges the first-shot fire extinguisher assembly by holding the spring-loaded ENGINE MANUAL DISCHARGE toggle switch, located on the CONTROL ELECTRONICS PANEL, in the up position for a minimum of five seconds.
- (d) Lowers the ramp.
- (e) Shuts down the engine by turning the auxiliary and electrical master switch off or pulls the fuel cut-off handle to the OFF position.
- (f) Disconnects the CVC helmet and unfastens the seat belt.
- (g) Secures his weapon.
- (h) Secures portable fire extinguishers.
- (i) Evacuates the vehicle through the driver's hatch, if possible. If the driver is unable to evacuate through the driver's hatch, he exits through the ramp.

(3) Squad Members--

- (a) Disconnect seat belts.
- (b) Squad leader or fire team leader pulls the quick disconnect to release the headsets.
- (c) Secure their weapons.
- (d) Evacuate the vehicle through the ramp or ramp access door.

NOTE: If the fire is not extinguished, use the portable fire extinguishers.

- b. Extinguish a fire in the troop compartment.

NOTE: The troop compartment fire extinguisher assemblies contain FN-200. When dispersed, the concentration inside the vehicle is considered to be non-toxic.

- (1) **Squad Leader or Fire Team Leader.** Alerts the VC of a troop compartment fire by intercommunications system or by voice command if the intercommunications system does not work. Announces FIRE, TROOP COMPARTMENT.
- (2) **Vehicle Commander.** Alerts the soldiers of a troop compartment fire by the intercommunications system or by voice command if the intercommunications system does not work. Commands FIRE, TROOP COMPARTMENT.

- (a) Presses power key on RWS integrated fire control unit and turns RWS power OFF.
- (b) Secures the portable fire extinguisher.
- (c) Evacuates the vehicle.

(3) ***Driver--***

- (a) Stops the vehicle in a position that provides cover and/or concealment, if possible.
- (b) If automatic fire extinguishing system has failed to operate properly manually discharges the fire extinguisher assemblies in the troop compartment by moving and holding the spring-loaded TROOP MANUAL discharge toggle switch, located on the CONTROL ELECTRONICS PANEL, in the up position.
- (c) Lowers the ramp.
- (d) Shuts down the engine by turning the auxiliary and electrical master switch off or pulls the fuel cut-off handle to the OFF position.
- (e) Pulls the quick disconnect to release the CVC helmet and seat belt.
- (f) Unfastens his seat belt.
- (g) Secures his weapon.
- (h) Opens driver's hatch and locks it in position.
- (i) Secures the portable fire extinguisher.
- (j) Evacuates the vehicle through the driver's hatch.

(4) ***Fire Team Members--***

- (a) Unfasten seat belts.
- (b) Secure weapons.
- (c) Evacuate the vehicle through the ramp.

NOTE: If the fire is not extinguished, use the portable fire extinguishers.

Crew Drill 4. DISMOUNT THE VEHICLE (PLATOON/SQUAD)

SITUATION: The platoon/squad is mounted and must dismount. The platoon leader orders the platoon/section to prepare to dismount.

REQUIRED ACTIONS: (Figure E-14).

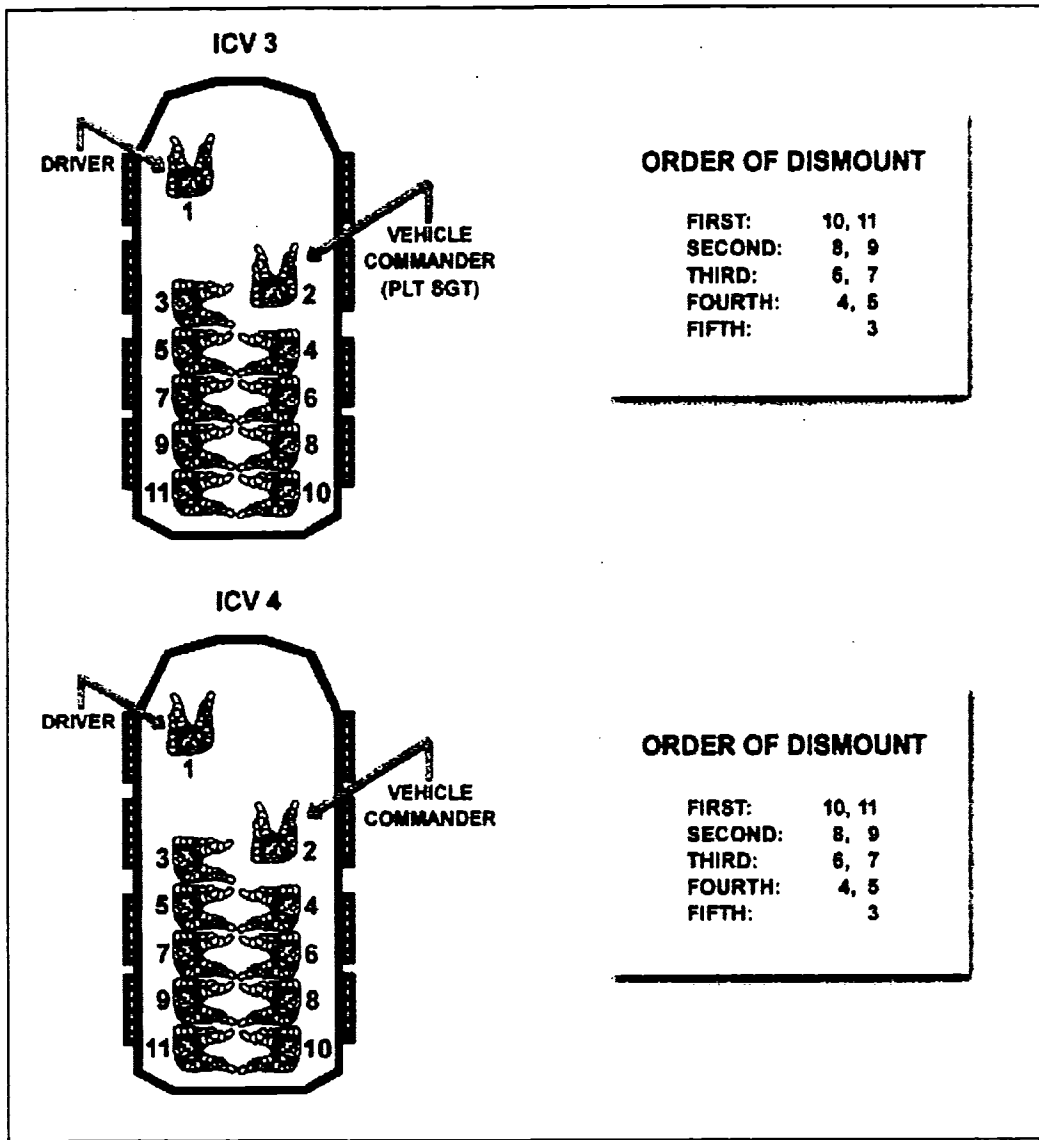


Figure E-14. ICV order of dismount (continued).

a. The platoon leader selects the dismount point.

b. The platoon leader orders personnel to dismount.

(1) Gives the warning PREPARE TO DISMOUNT.

(2) Designates dismounted platoon's weapons composition; for example, "No Javelins," "Heavy on AT4s," or "All M240B."

(3) Gives dismount instructions for each ICV; for example, "Right" (left), distance "Fifty meters," and any identifying terrain feature "Backside of hill." The VC may also give dismount instructions to the squad aboard. The VC can identify the location to the squad/team leader through the squad leader's display (SLD).

c. Squad/fire team leader(s) monitors commands. He then alerts the soldiers in the troop

compartment.

- d. The drivers move the vehicles to the designated dismount point and orient the front of the vehicle toward the enemy.
- e. The VC orients the RWS to provide overwatching support and supporting fire, if necessary.
- f. The platoon leader gives the command DISMOUNT.
- g. The driver stops the vehicle and lowers the ramp or the VC orders the ramp access door opened.
- h. The squad members dismount in the specified order and then move to covered and concealed positions. The squad leader establishes contact with the platoon leader.
- i. The mounted element occupies appropriate covered or concealed positions and overwatches the dismounted element with the appropriate weapon or maintains a hide position until called forward to link up with the dismounted element.
- j. Platoon/squad leader reports to higher headquarters.
- k. All squad members search for enemy positions and respond to orders.
- l. Squad and fire team leaders position or reposition squad members (if needed).
- m. The platoon sergeant or section leader repositions the ICVs, as necessary.

CREW DRILL 5. MOUNT THE VEHICLE (PLATOON/SECTION)

SITUATION: The squads are dismounted and must remount the vehicle. The platoon/squad leader orders the platoon to mount its vehicles.

REQUIRED ACTIONS: (Figure E-15).

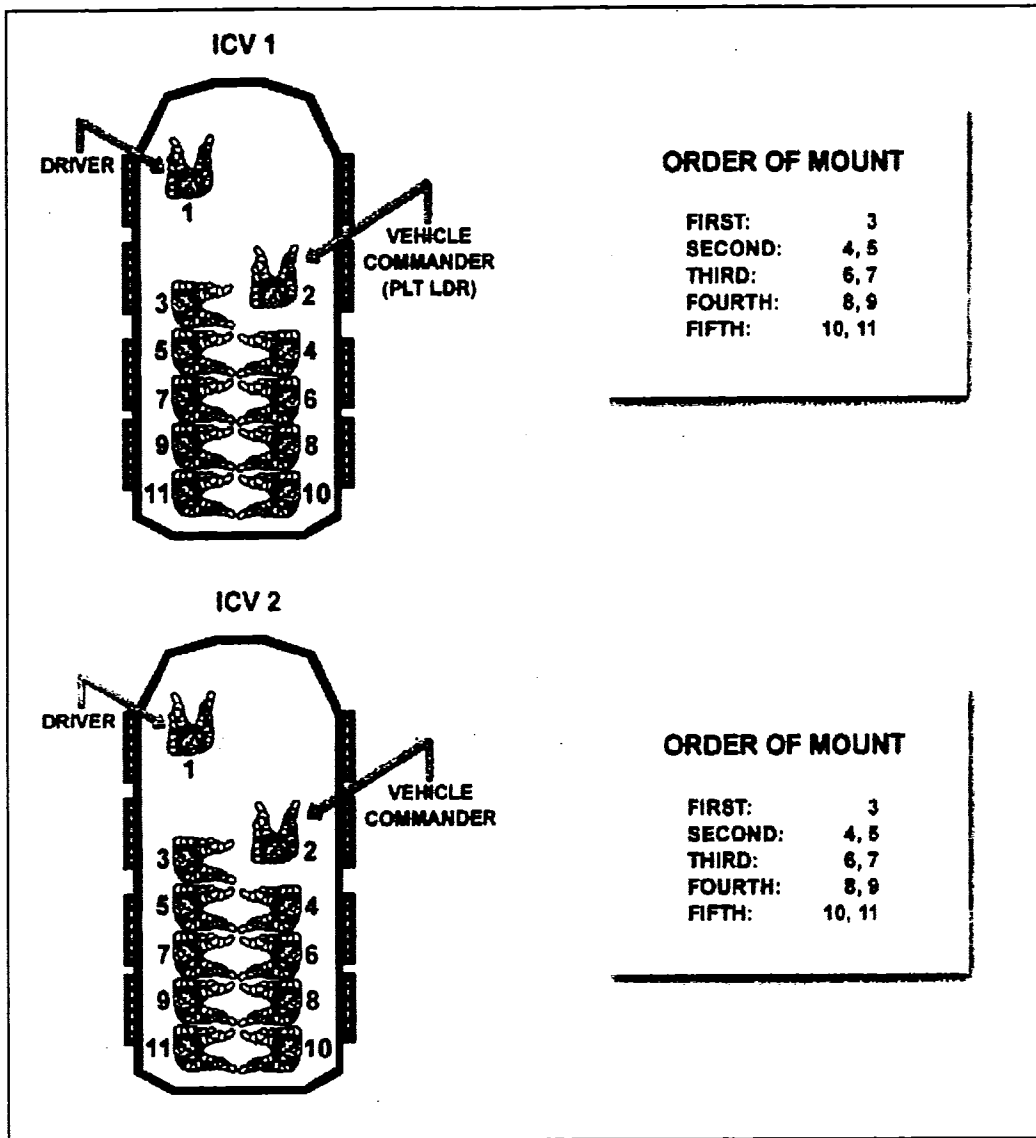


Figure E-15. ICV order of mount.

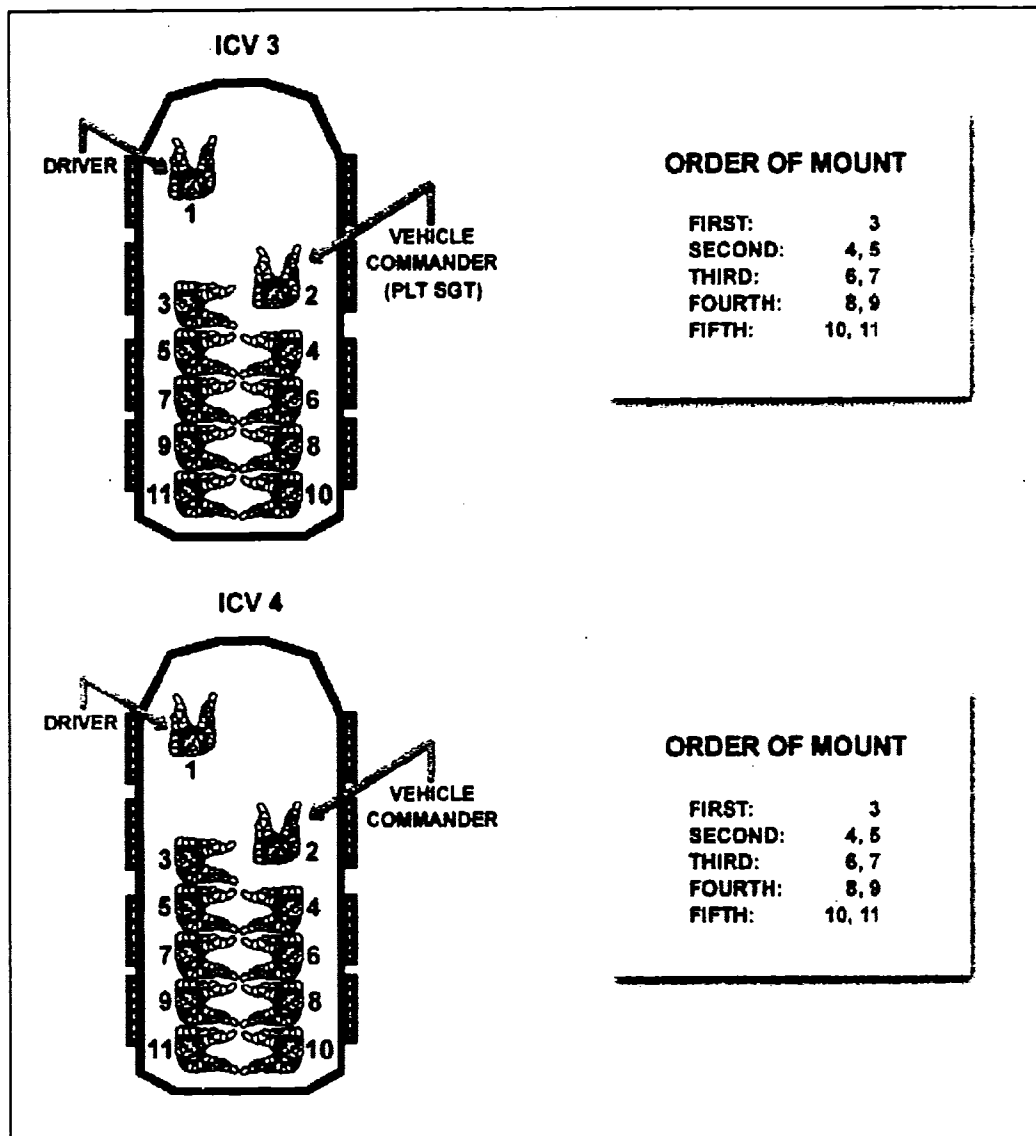


Figure E-15. ICV order of mount (continued).

- a. The platoon/squad leader(s) gives the order PREPARE TO MOUNT or the appropriate signal to the squads to mount their ICVs, and designates a mount/remount point.
- b. Both elements (mounted and dismounted) move to the mount/remount point using covered and concealed routes.
- c. The crew, using the appropriate weapons, over watches primary enemy avenues of approach and provides supporting fire and smoke, if necessary. The VC orders the driver to lower the ramp or the squad to enter through the ramp access door.
- d. The platoon/squad leader order MOUNT. (The order to mount may come with clarifying instructions; for example, "1st Squad and 3rd squad, provide a base of fire until the 2nd Squad and weapons are mounted.")
- e. Each squad mounts in the order specified. The squad leader designates which fire team mounts

first; for example, Team A mount first, Team B provide over watching fires.

f. Soldiers mount/remount the vehicle in reverse sequence of dismount.

g. The platoon leader/VC prepares for mounted operations.

(1) Each squad leader accounts for all personnel and equipment in the ICV and reports to the VC. Announces, ALL UP.

(2) The platoon leader designates a direction of movement, formation, and movement technique from the mount point.

(3) The platoon leader establishes visual or radio contact with the other VCs.

(4) The team leader ensures the dismounted weapons are on SAFE once the soldiers have mounted.

(5) The VC orders the driver to raise the ramp or the fire team to close the ramp access door.

h. The platoon leader reports to the company commander.

CREW DRILL 6. CHANGE FORMATION (MOUNTED) (PLATOON)

SITUATION: The platoon is moving and must change formation. The platoon leader gives arm-and-hand signal, flag signal, or radio for change of formation.

REQUIRED ACTIONS: (Figures E-16 through E-31).

a. The platoon leader directs the formation change by giving the standard arm-and-hand signals, flag signals, or by radio.

b. The VCs relay arm-and-hand or flag signals.

c. The VCs direct drivers into position in the new formation. The driver maintains the position in the formation based on the platoon leader and wingmen.

d. The VCs traverse the RWS toward likely enemy positions or assigned sectors and scan for targets in their sectors. The VCs will scan the limits of their sectors using the RWS position indicator (for example, scan from 12 to 2).

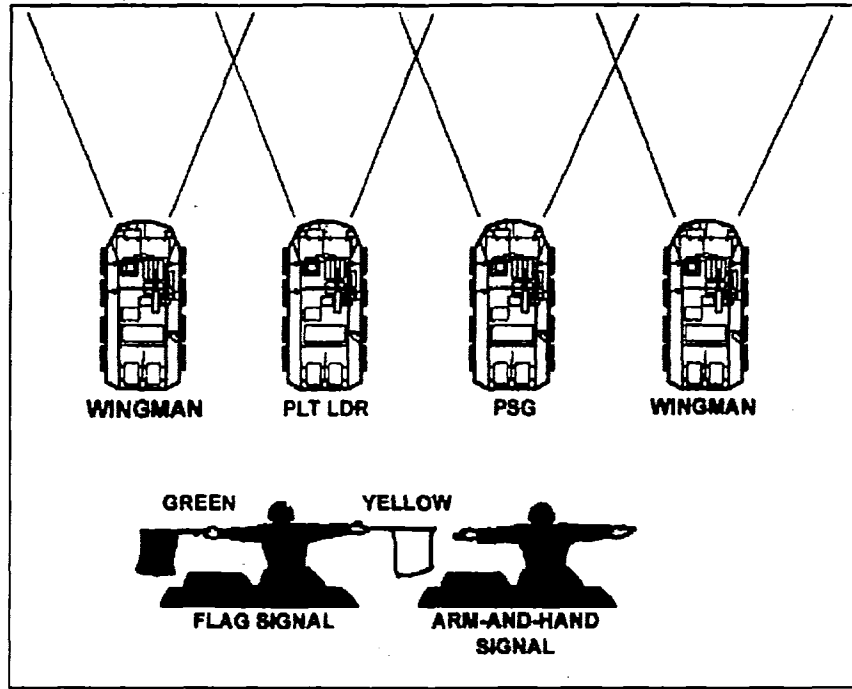


Figure E-16. Line formation.

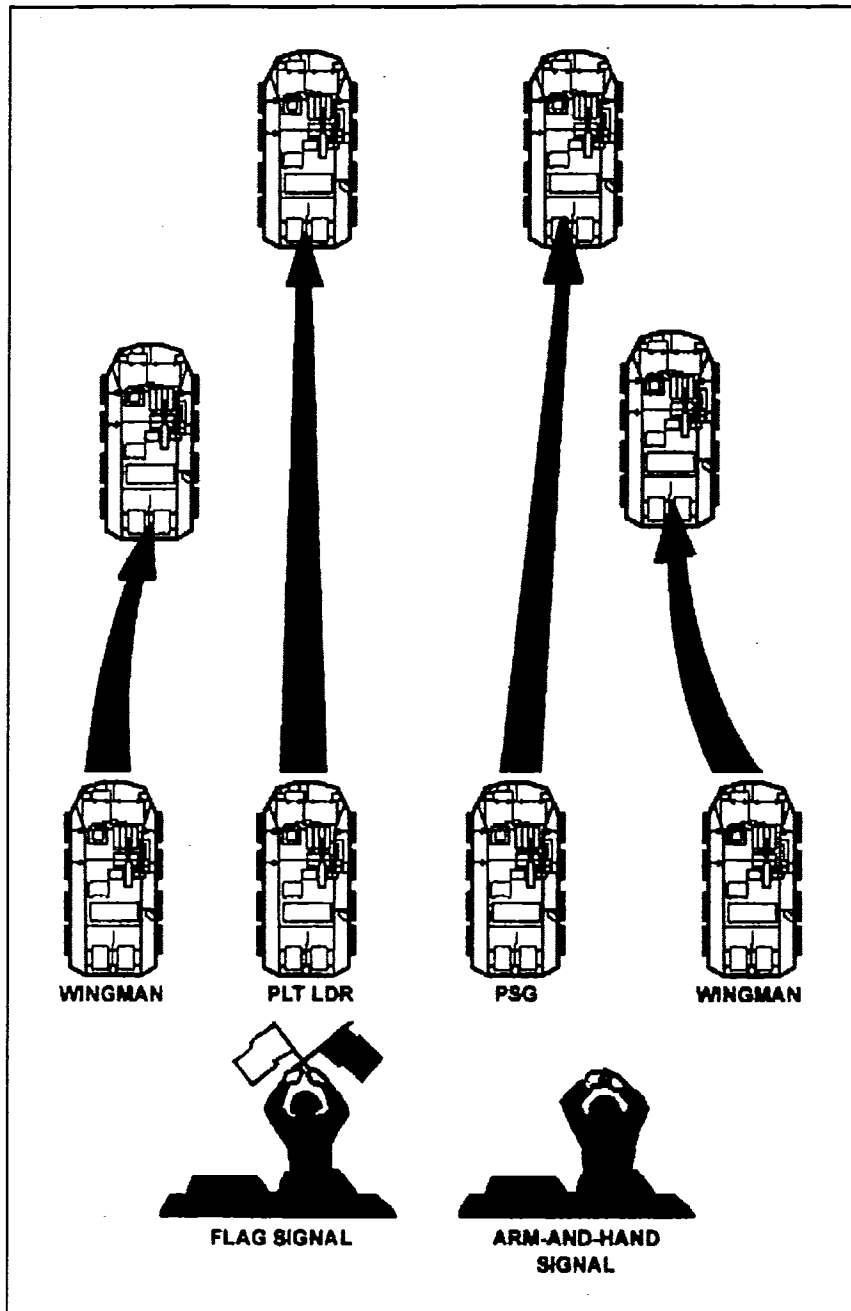


Figure E-17. Line to wedge formation.

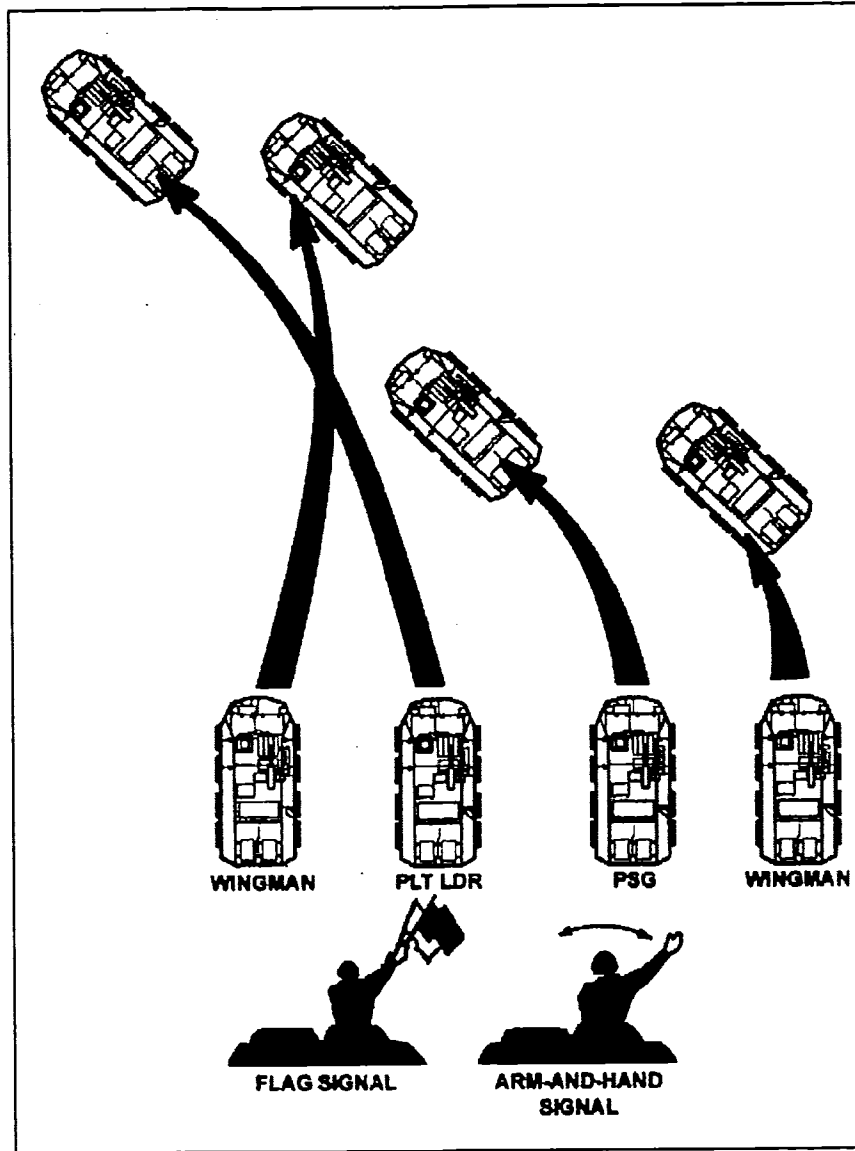


Figure E-18. Line to column formation.

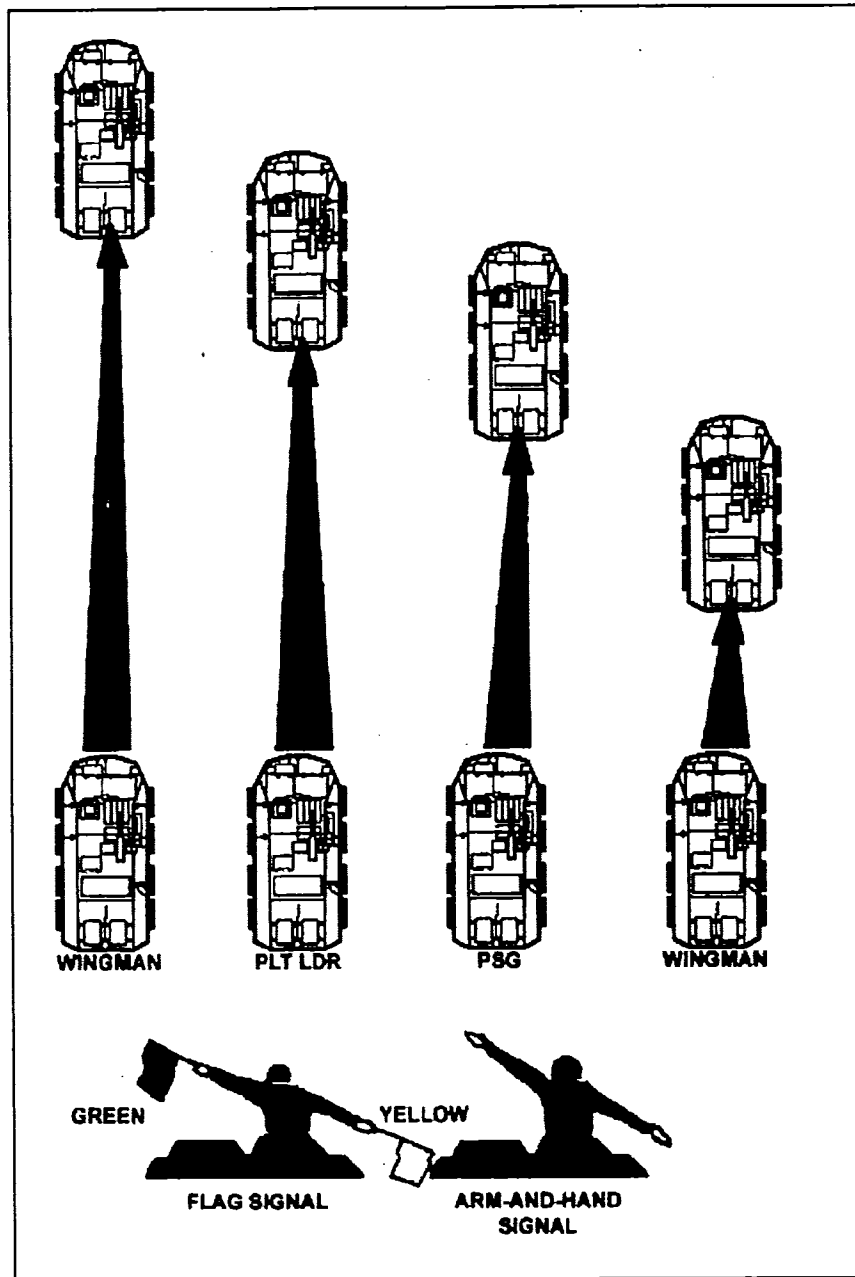


Figure E-19. Line to echelon formation.

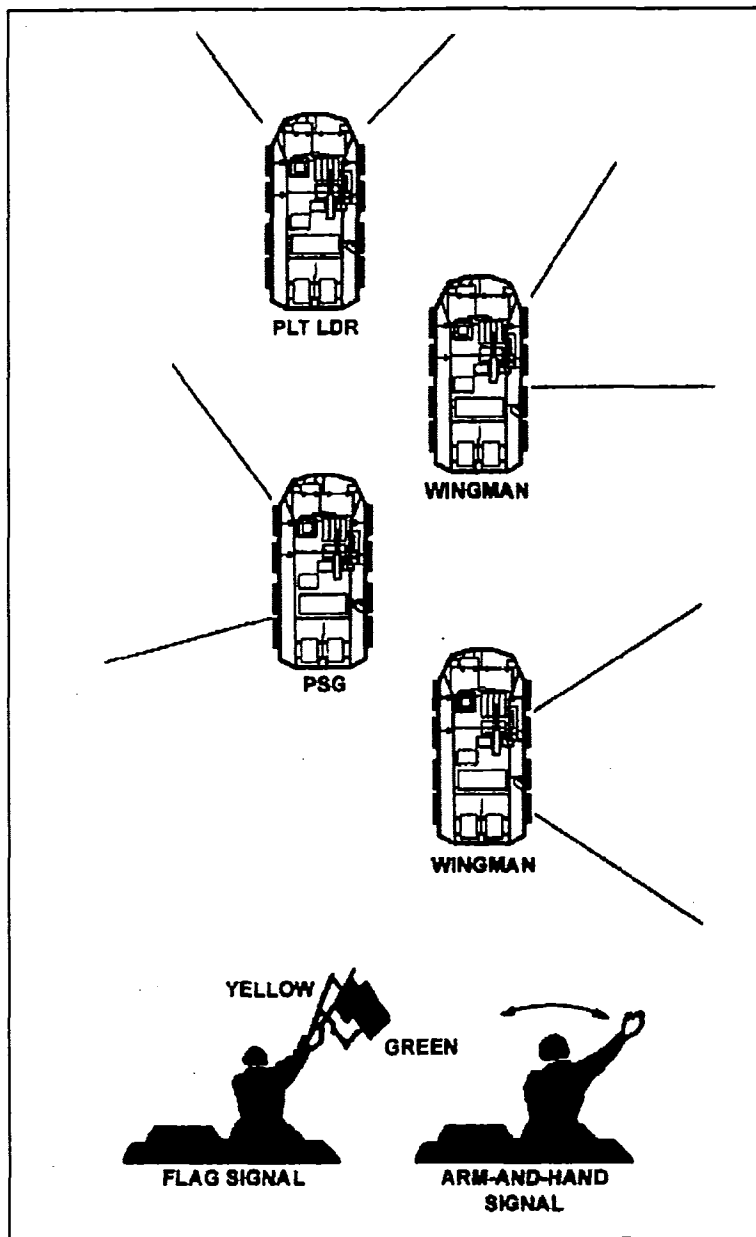


Figure E-20. Column formation.

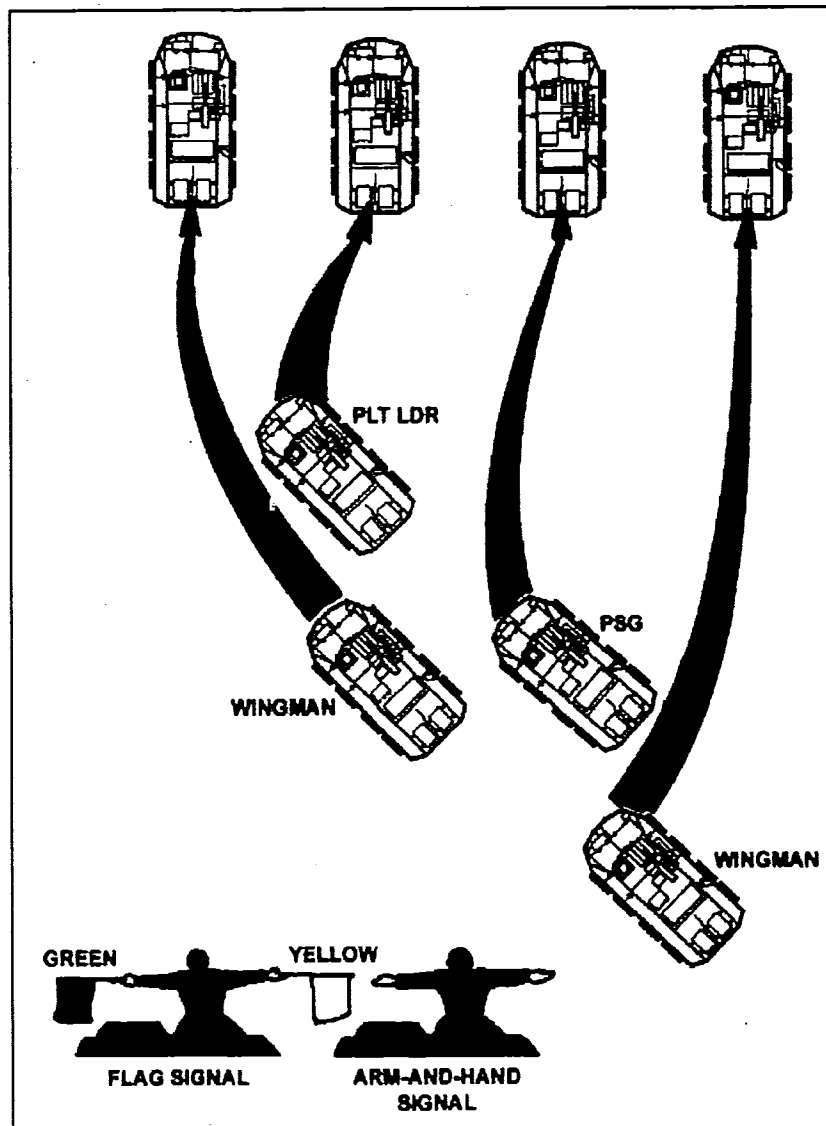


Figure E-21. Column to line formation.

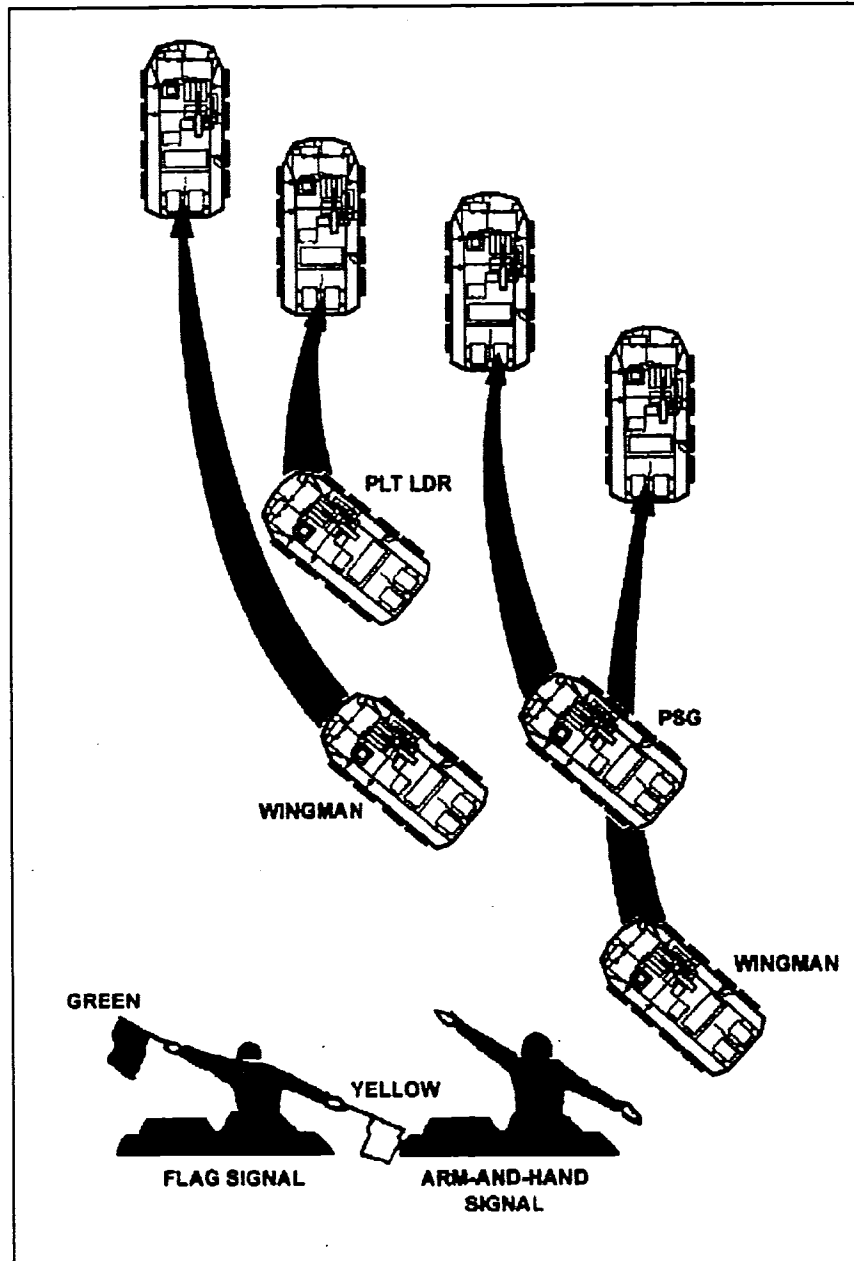


Figure E-22. Column to echelon formation.

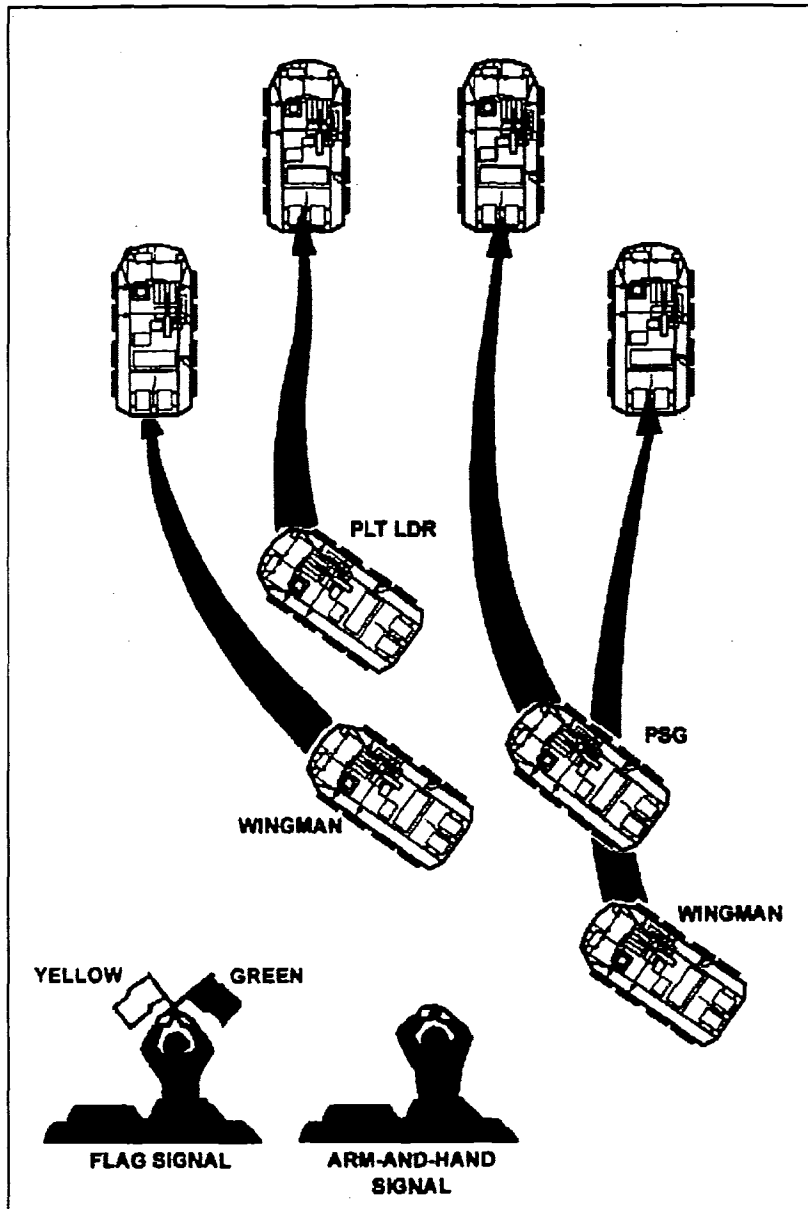


Figure E-23. Column to wedge formation.

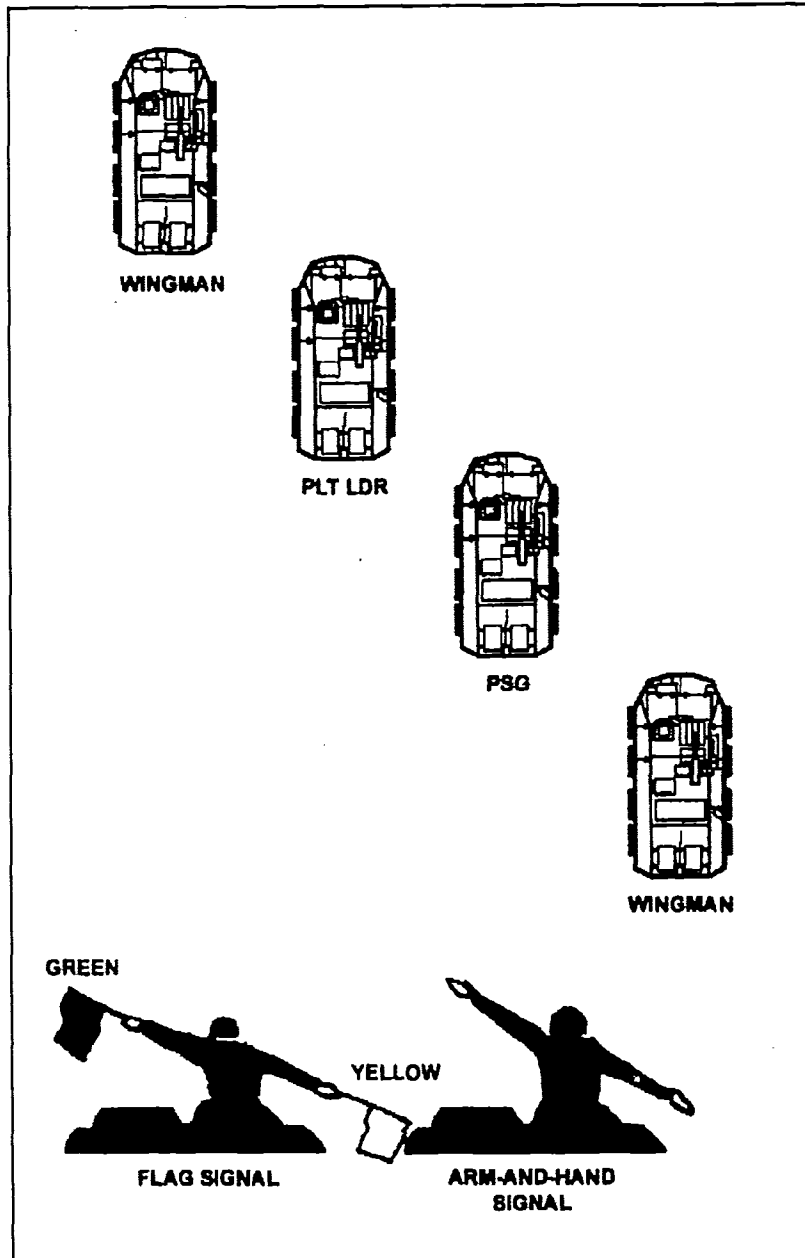


Figure E-24. Echelon formation (right).

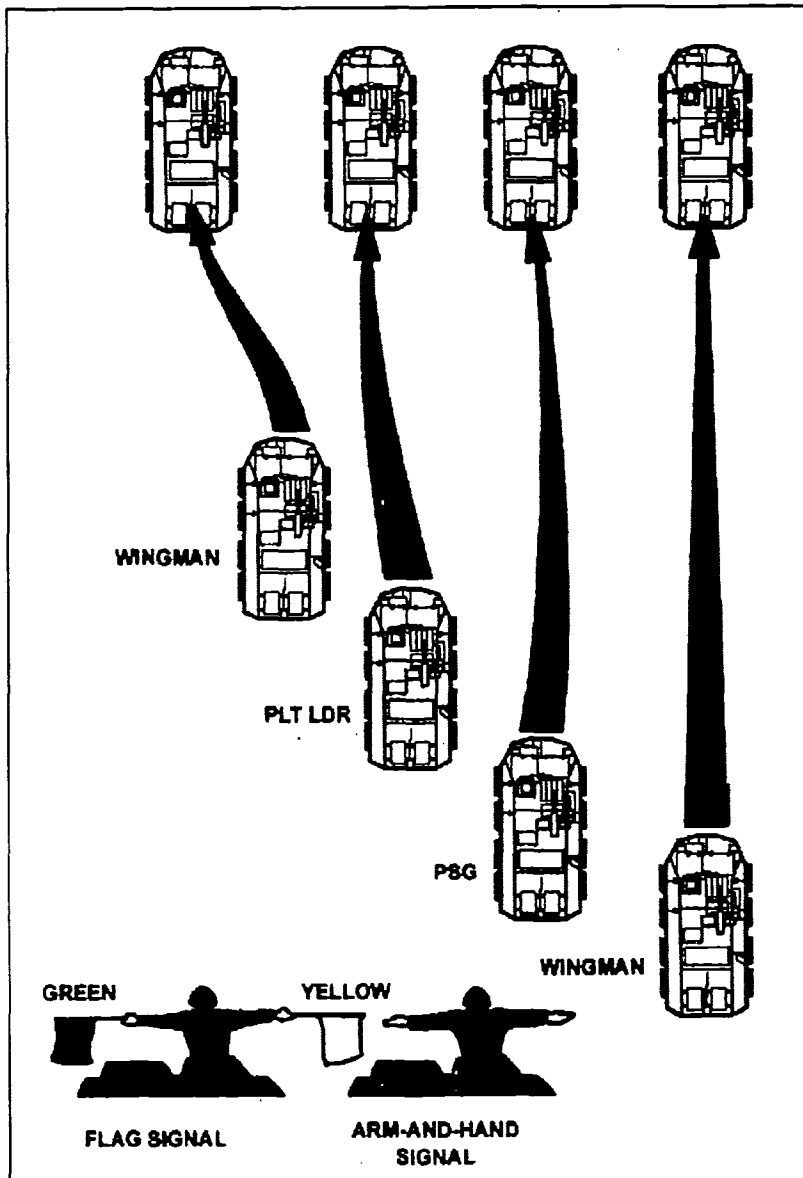


Figure E-25. Echelon to line formation.

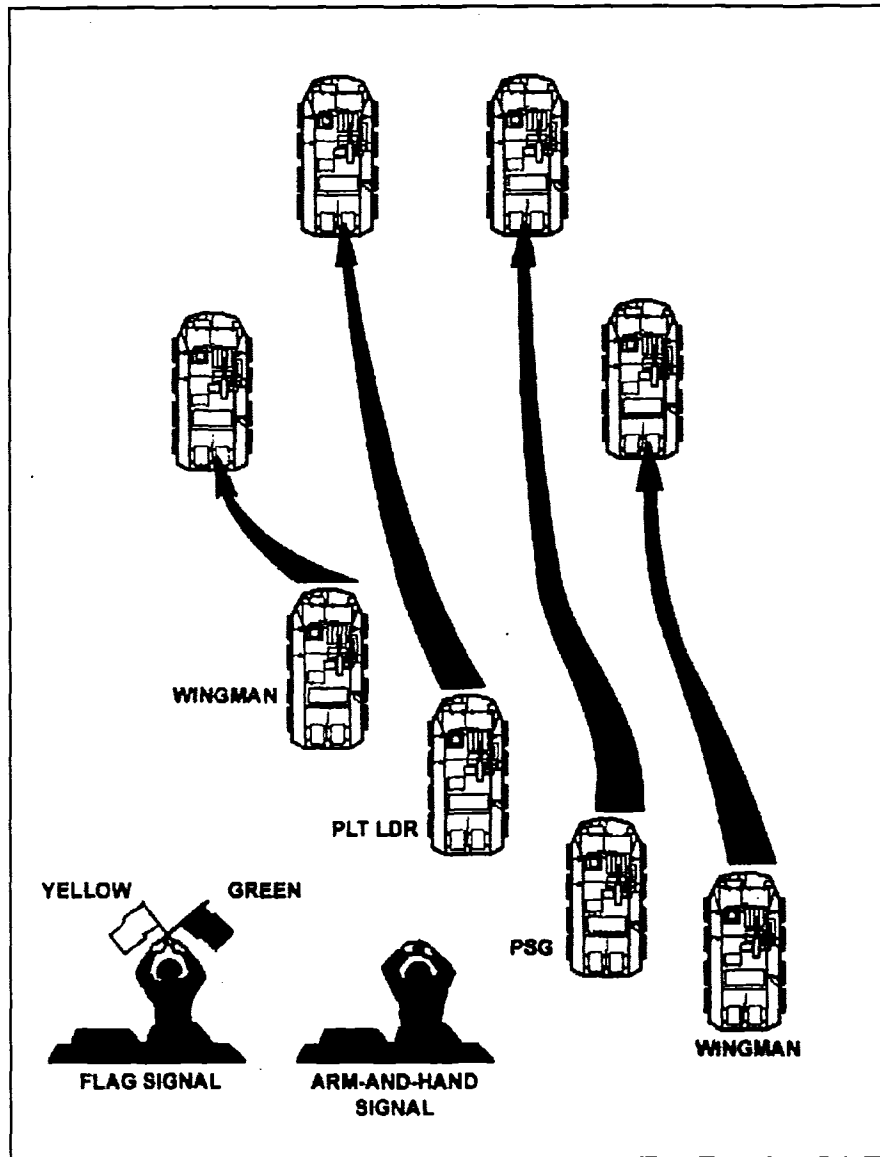


Figure E-26. Echelon to wedge formation.

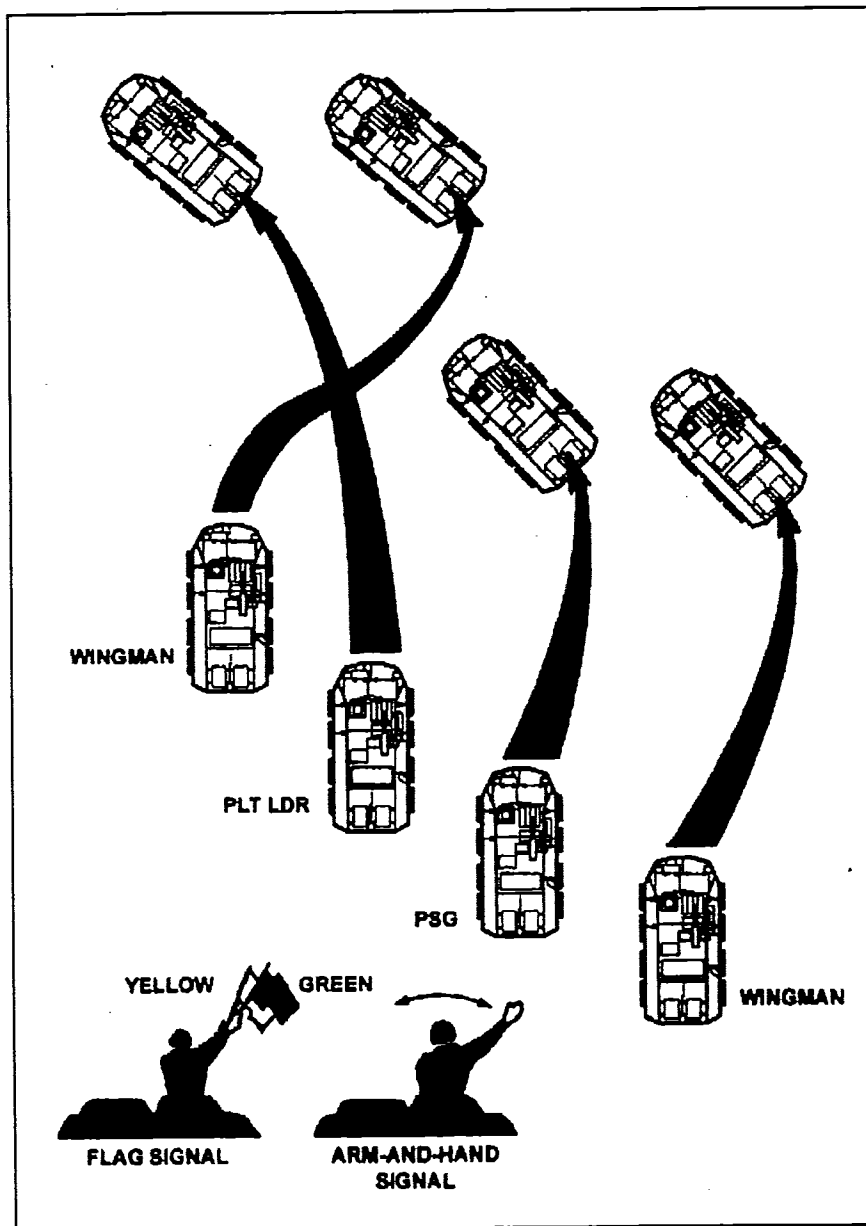


Figure E-27. Echelon to column formation.

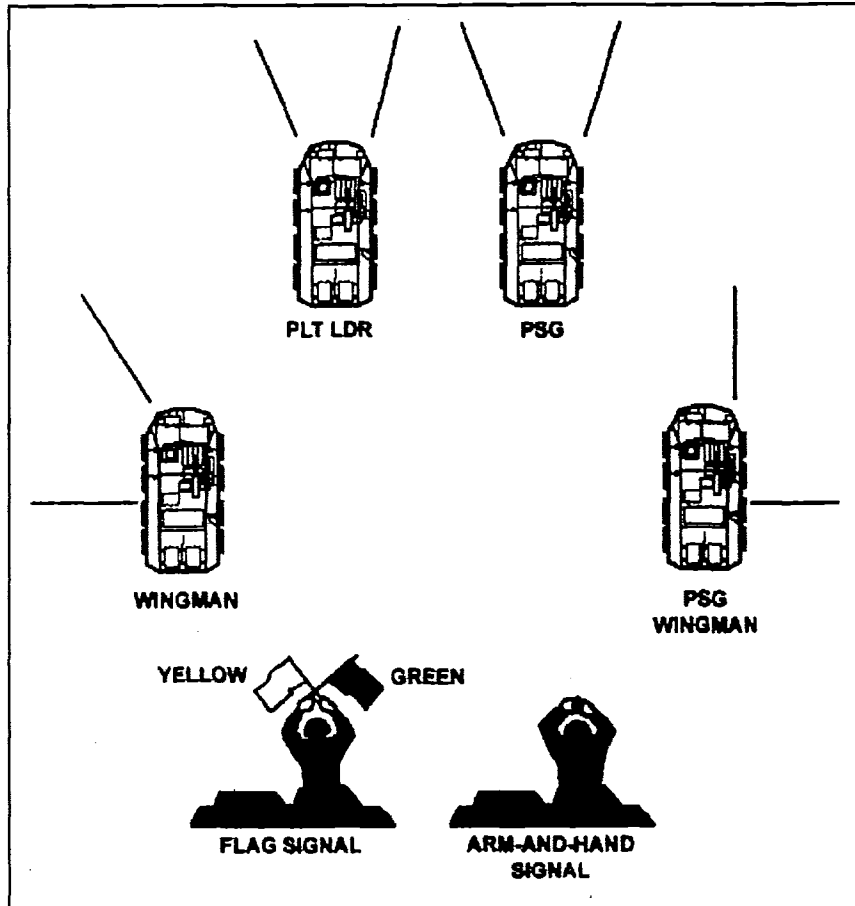


Figure E-28. Wedge formation.

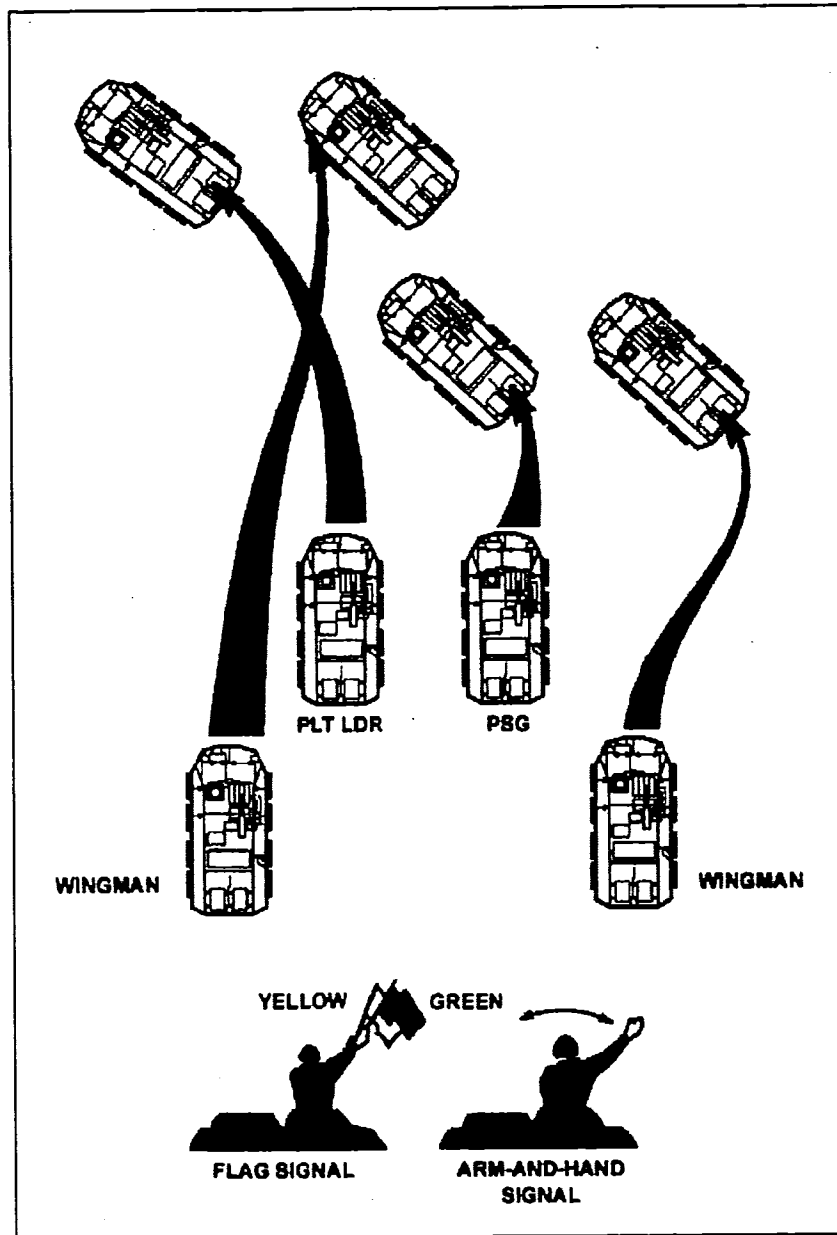


Figure E-29. Wedge to column formation.

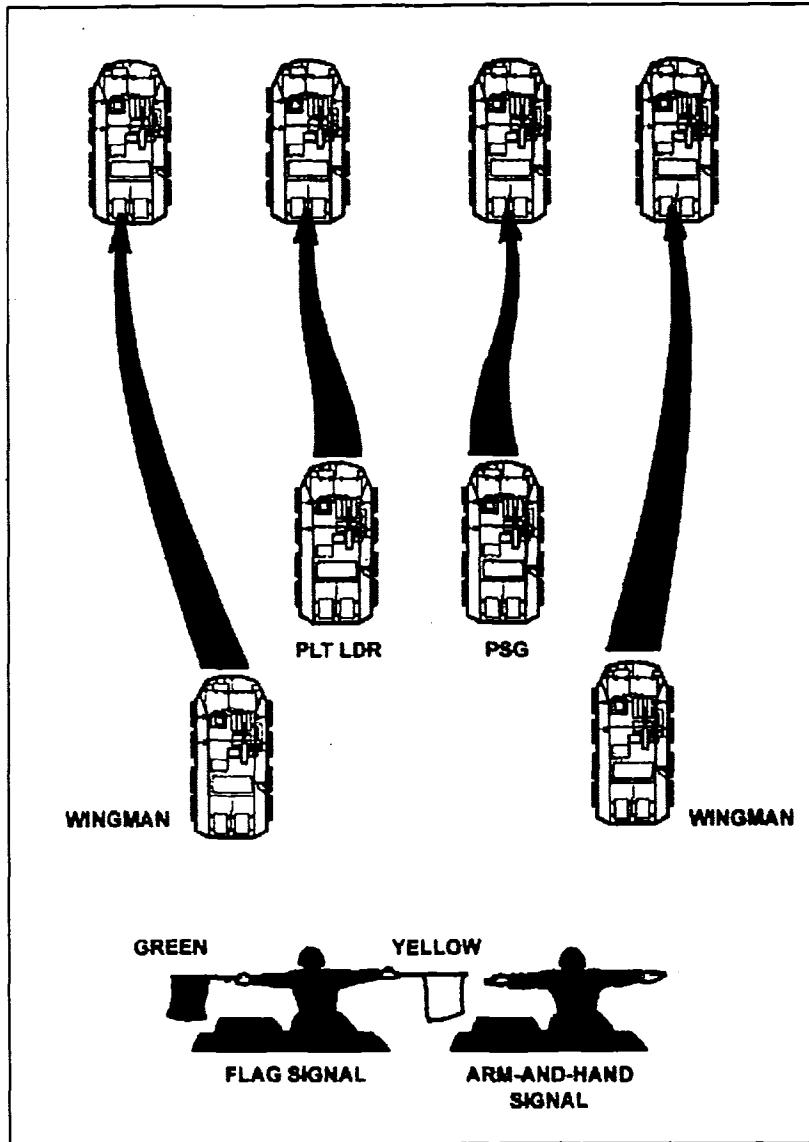


Figure E-30. Wedge to line formation.

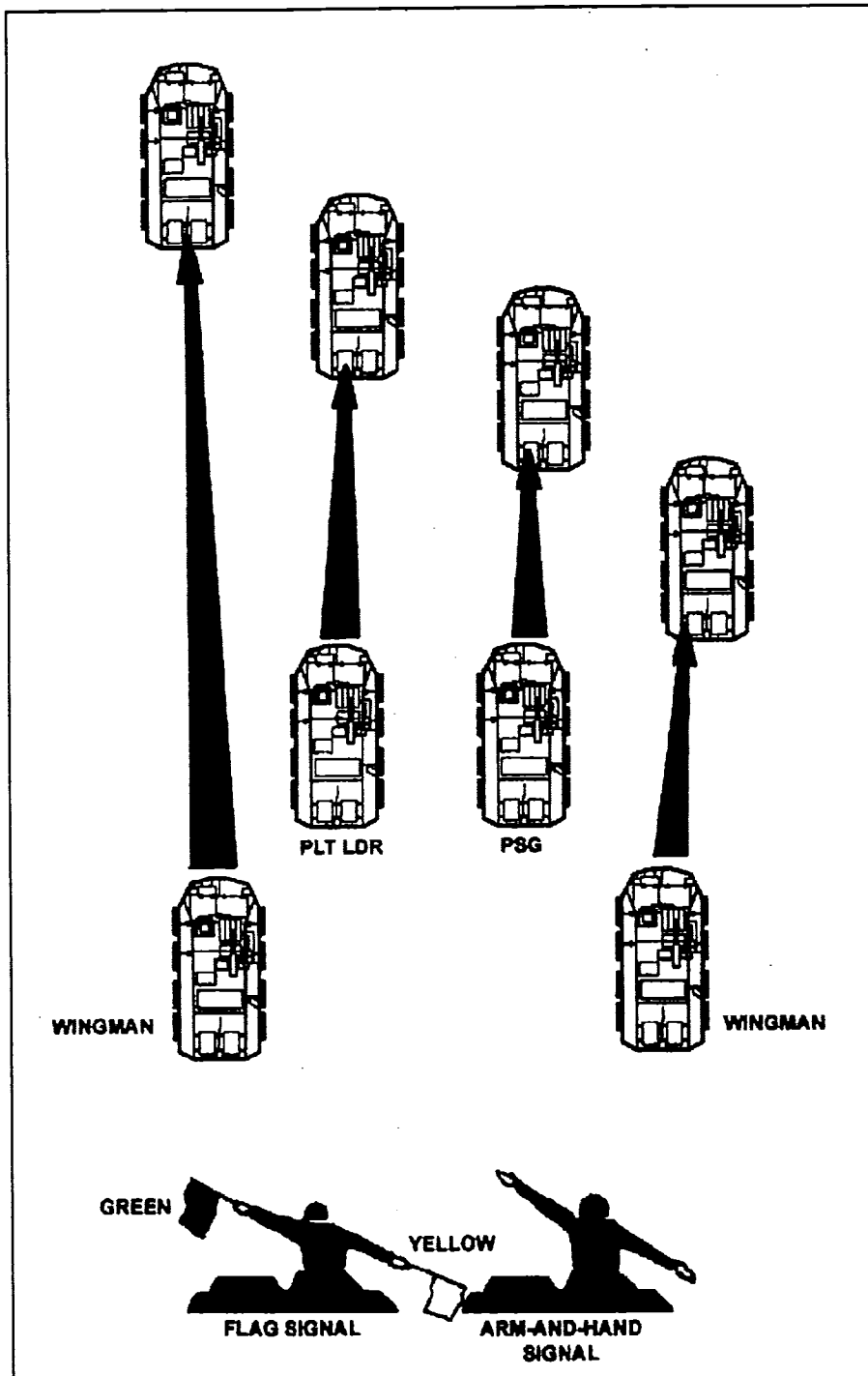


Figure E-31. Wedge to echelon formation.

CREW DRILL 7. SECURE AT THE HALT (PLATOON)

SITUATION: The platoon is moving and must halt.

REQUIRED ACTIONS: (Figures E-32 through E-35).

- a. The platoon leader gives the arm-and-hand signals for herringbone or coil formation.

- b. The platoon halts in the herringbone or coil formation.
- c. Each VC ensures his vehicle is correctly positioned, using cover and concealment.
- d. The platoon leader orders the squads to dismount and provide local security. (Dismount IAW the task, Dismount the Vehicle.)
- e. The squads occupy hasty fighting positions, as designated by the squad leader, in the vicinity of their respective ICV. The squad leader contacts the team leader and adjusts security positions as necessary.
- f. Soldiers continue to observe designated sectors.

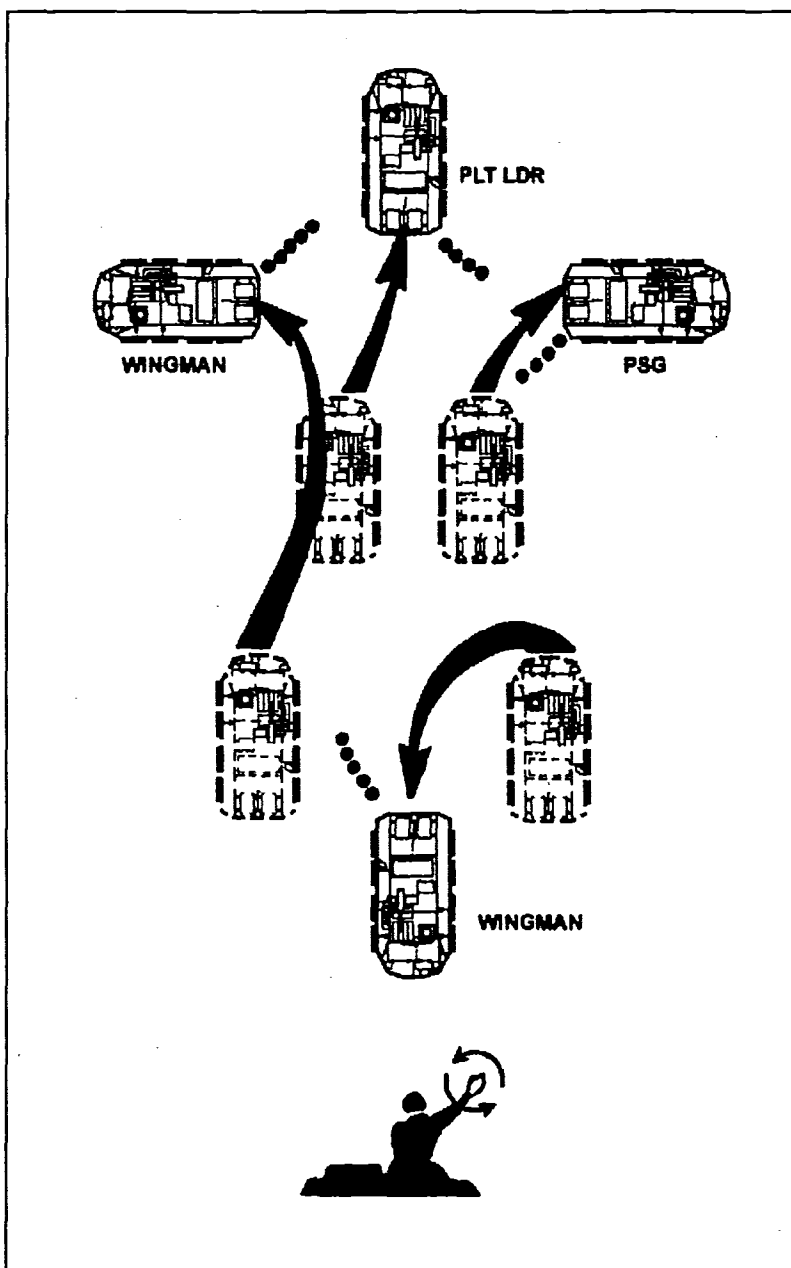


Figure E-32. Wedge to coil formation.

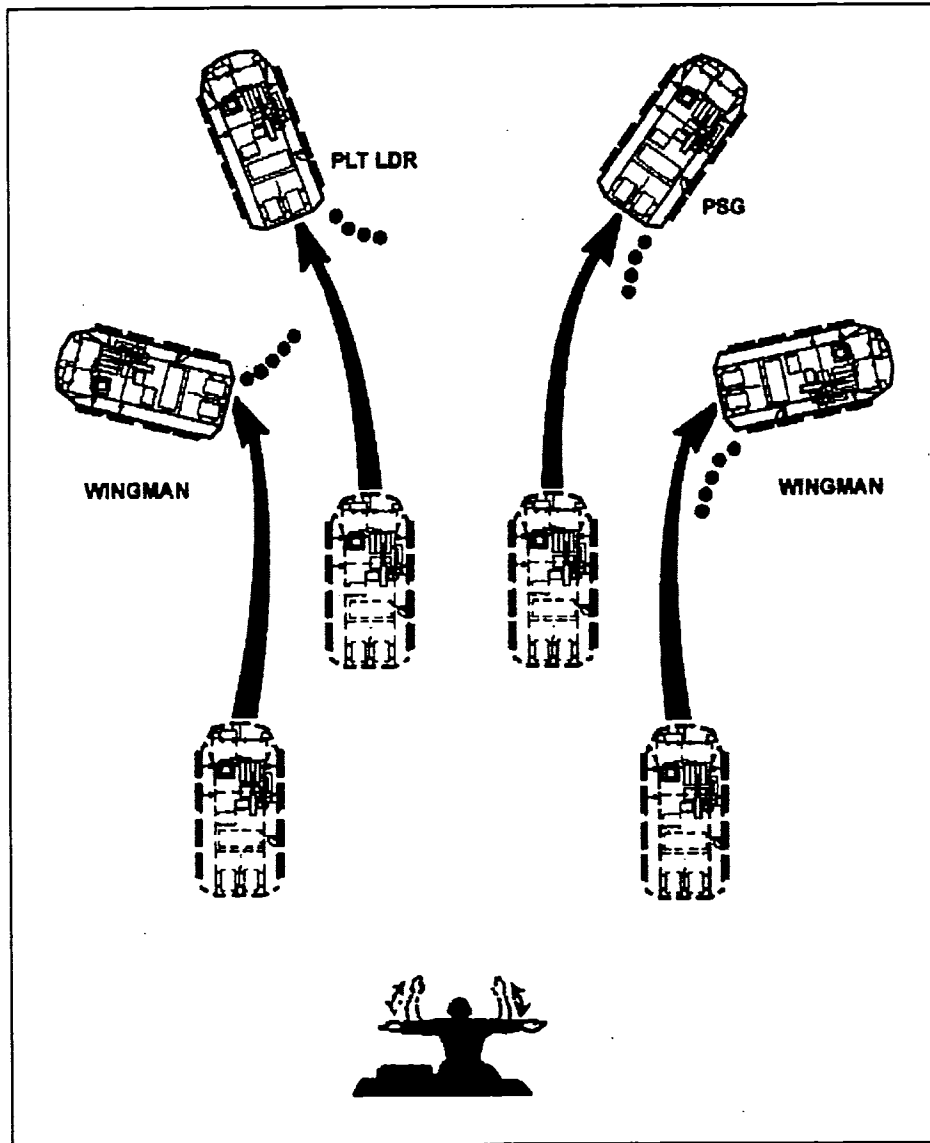


Figure E-33. Wedge to herringbone formation.

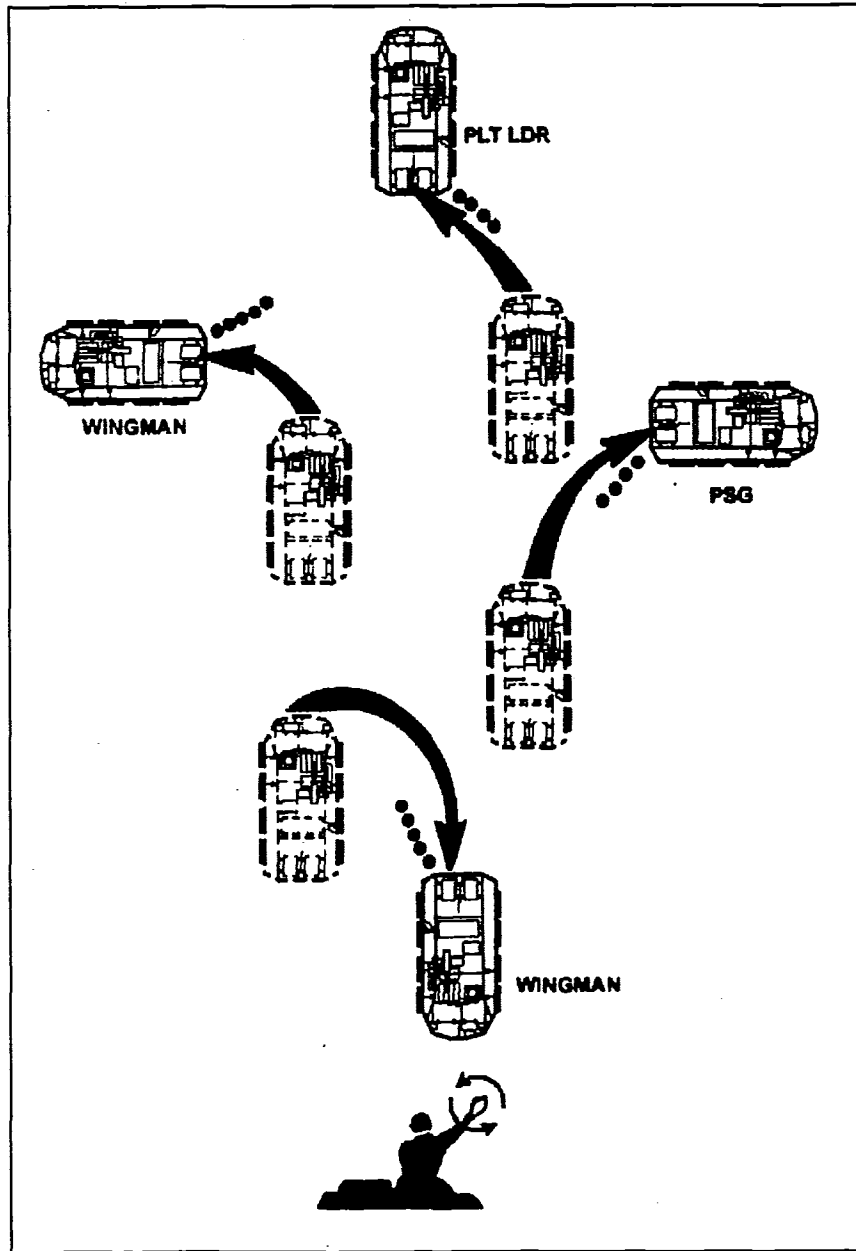


Figure E-34. Column to coil formation.

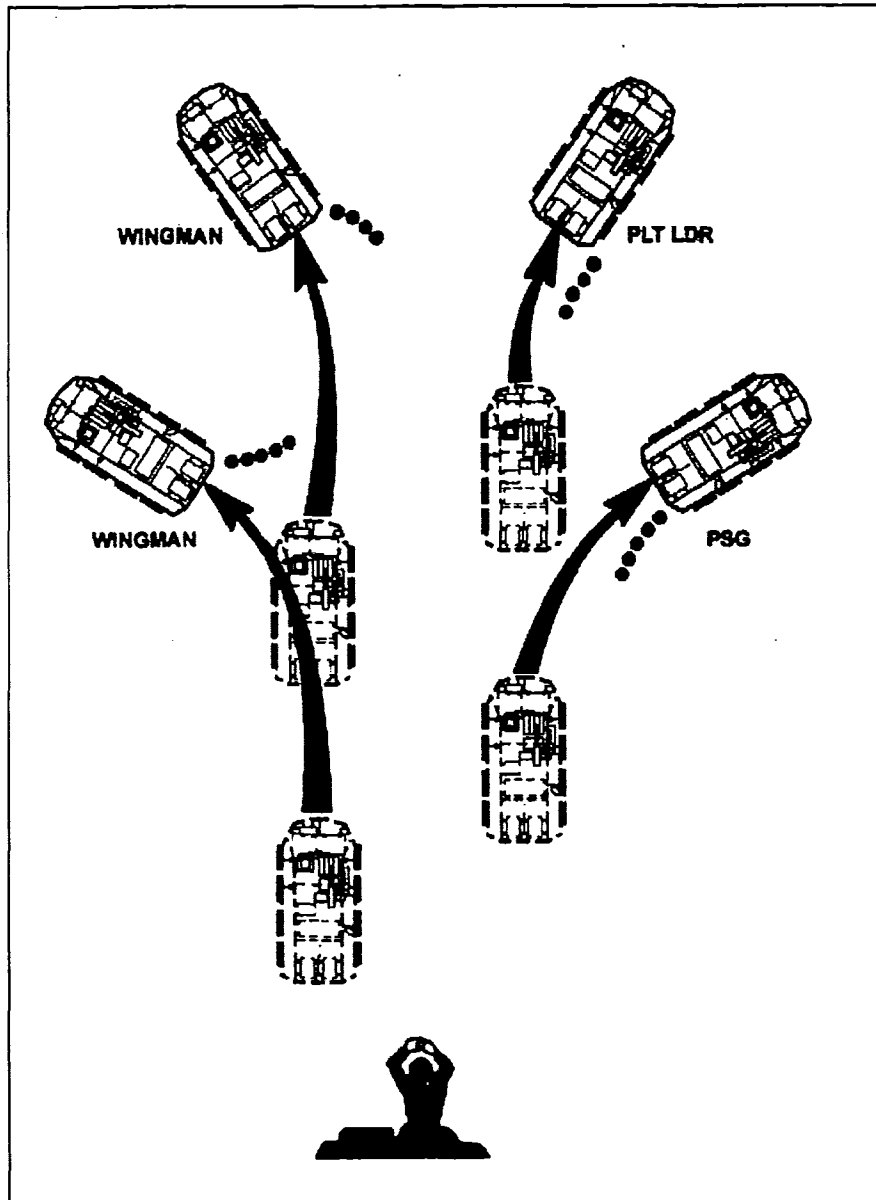


Figure E-35. Column to herringbone formation.

CREW DRILL 8. EXECUTE ACTION RIGHT OR LEFT (PLATOON)

SITUATION: The platoon is moving and must execute action right or left.

REQUIRED ACTIONS: (Figures E-36 through E-43.)

- a. The platoon leader signals action right or left using arm-and-hand, flags, or radio.
- b. The drivers immediately execute a turn in the direction indicated while moving into a line formation.

(1) The platoon sergeant orients his vehicle on the platoon leader's vehicle.

- (2) Wingmen orient their ICVs on the platoon leader and platoon sergeant vehicles.
- c. The platoon leader orders the VCs to seek covered positions for their vehicles or has them continue to move in the direction indicated.
 - d. The VCs orient the RWS toward the enemy, and the VCs search for targets.
 - e. The platoon leader determines if it is necessary to dismount the rifle squads.
 - f. The platoon leader reports the situation to the company commander, if necessary.

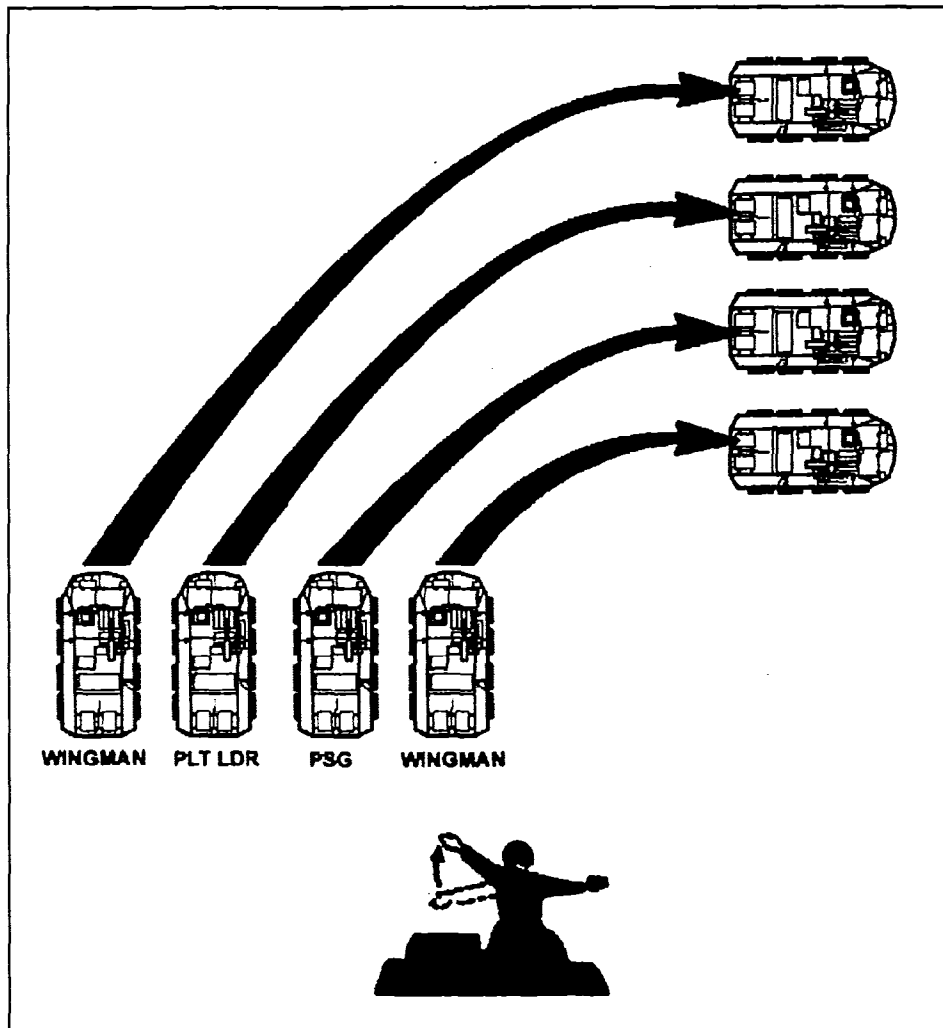


Figure E-36. Action right from line.

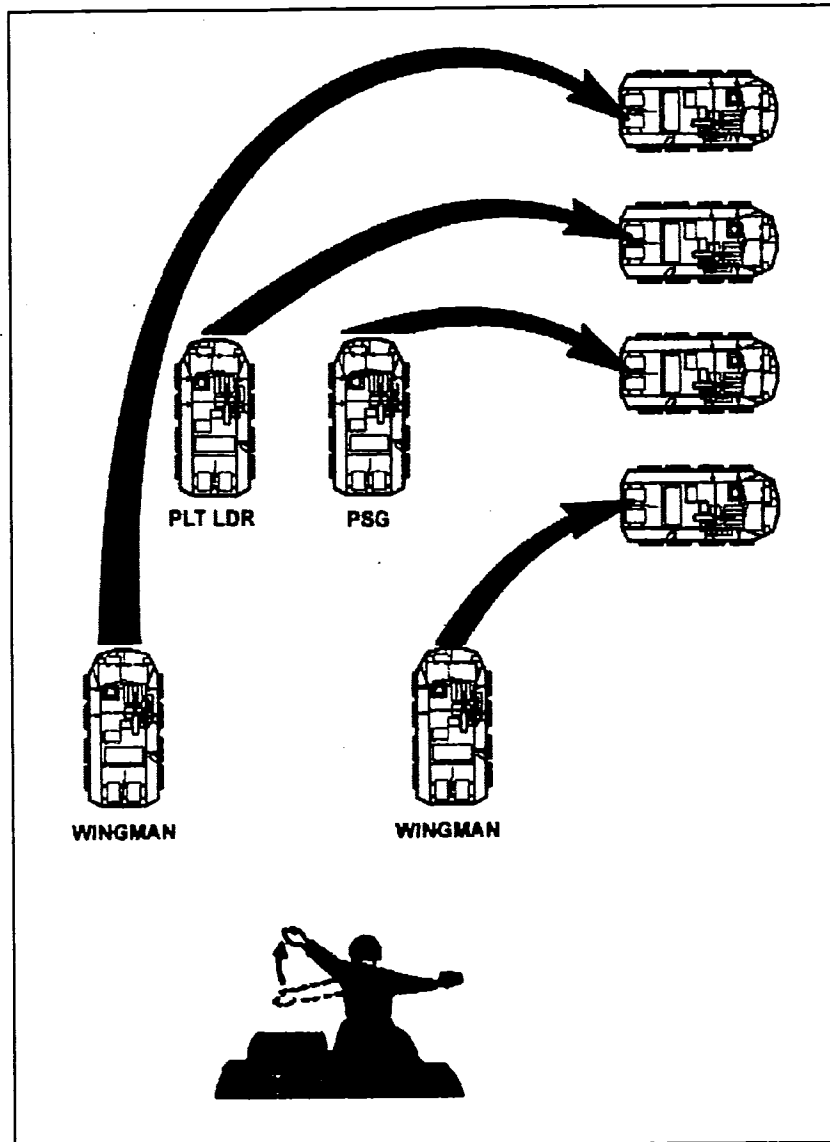


Figure E-37. Action right from wedge.

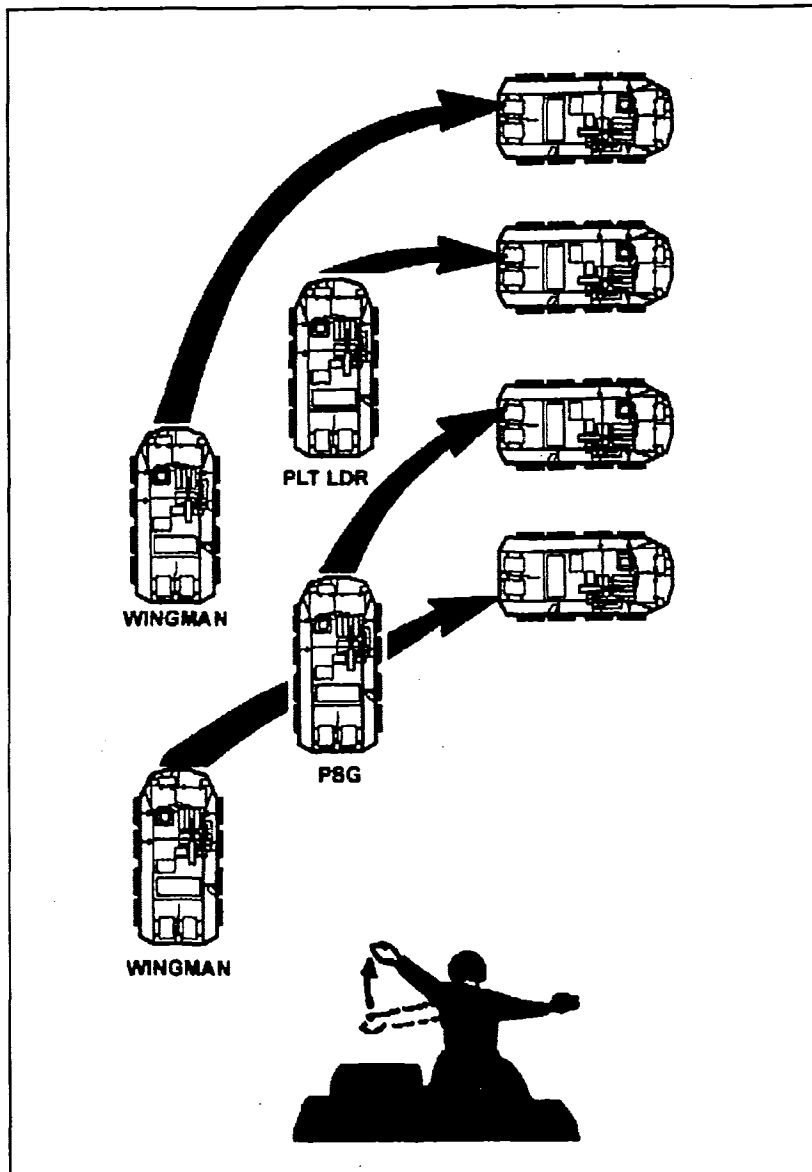


Figure E-38. Action right from column, wingman on left.

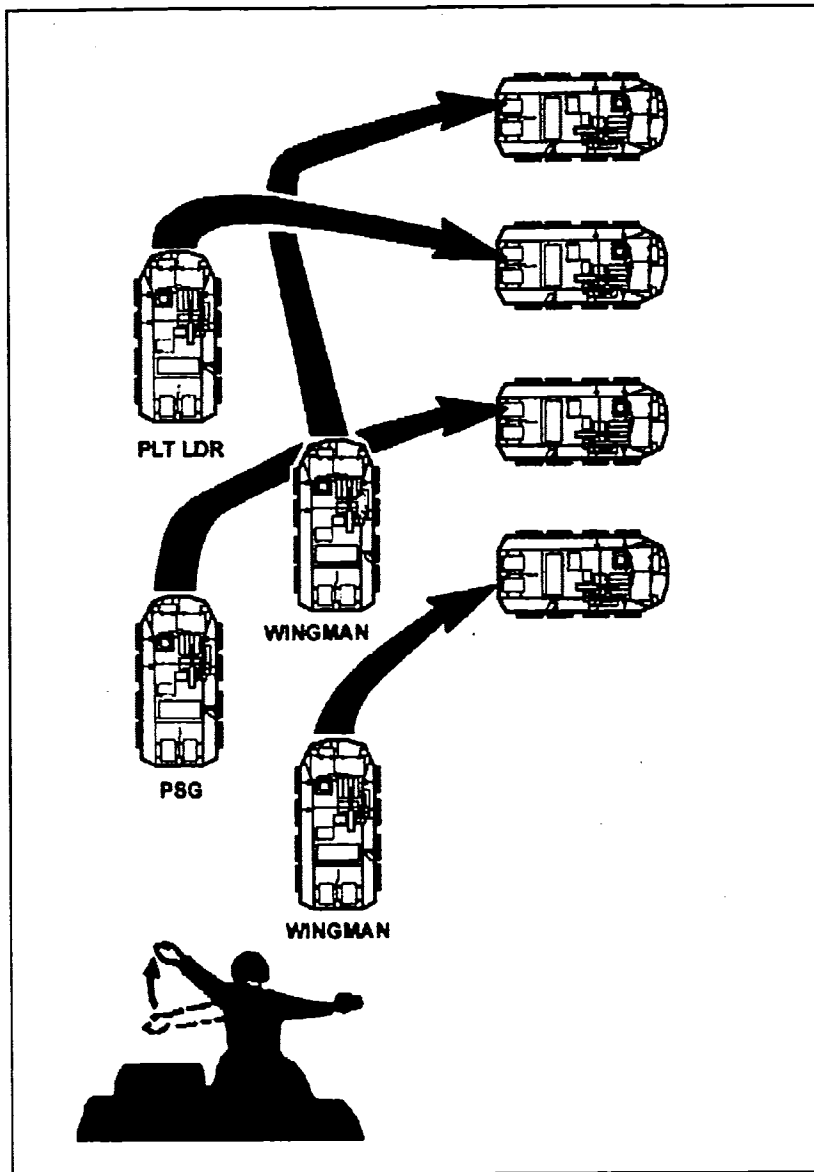


Figure E-39. Action right from column, wingman on right.

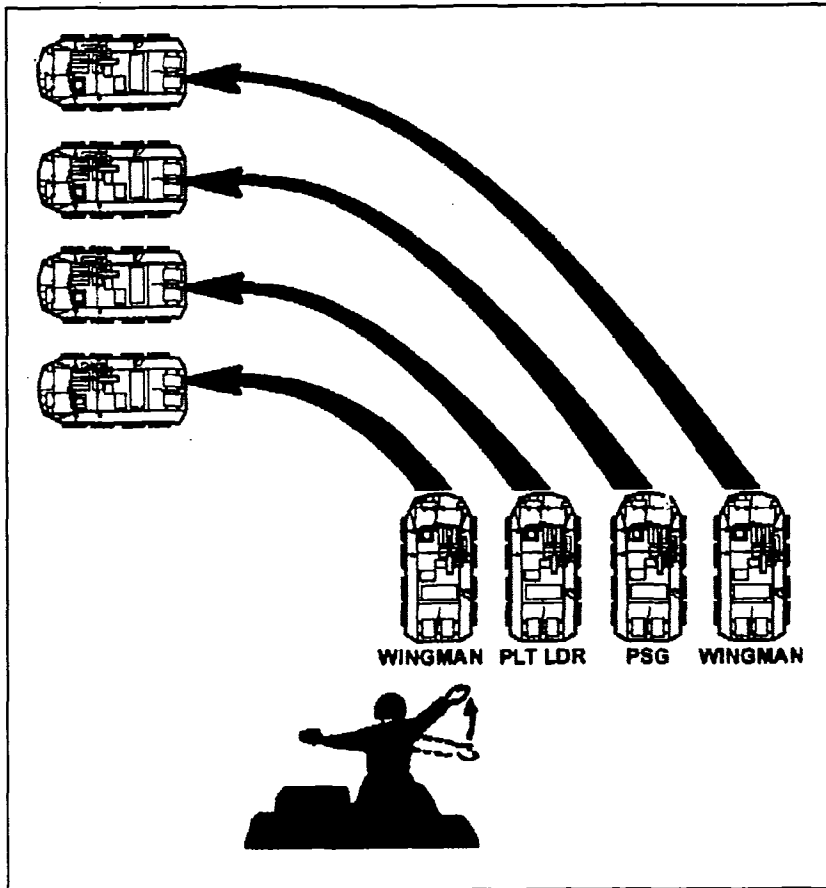


Figure E-40. Action left from a line.

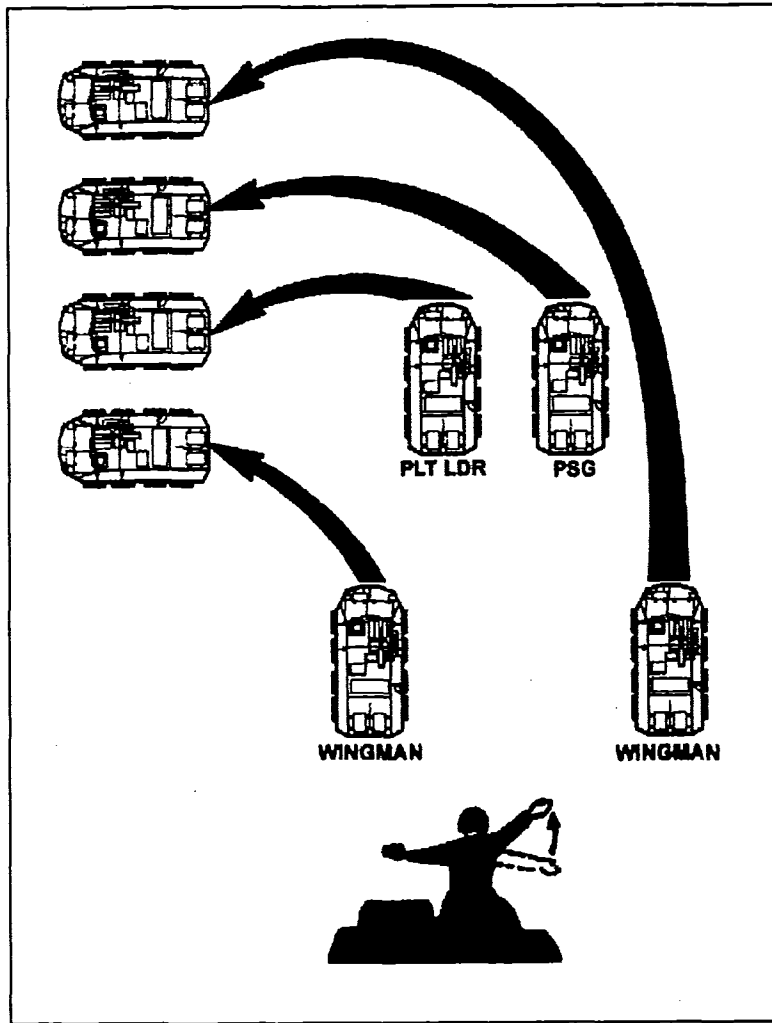


Figure E-41. Action left from a wedge.

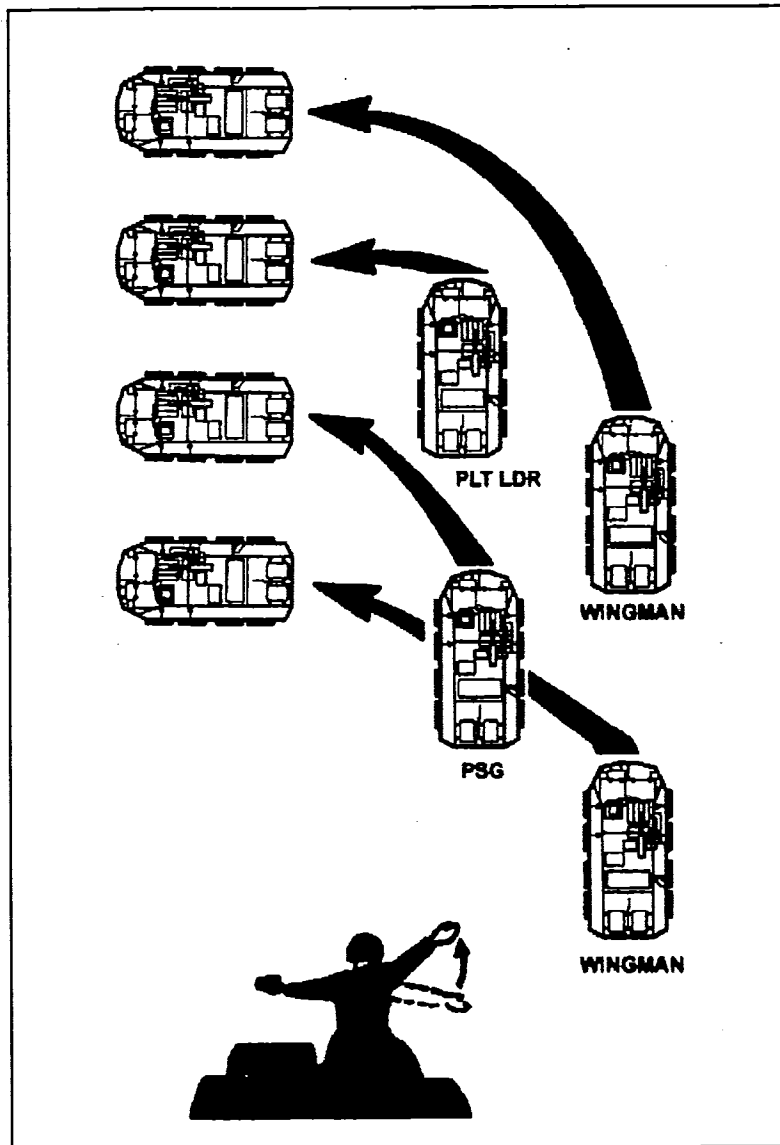


Figure E-42. Action left from a column, wingman on right.

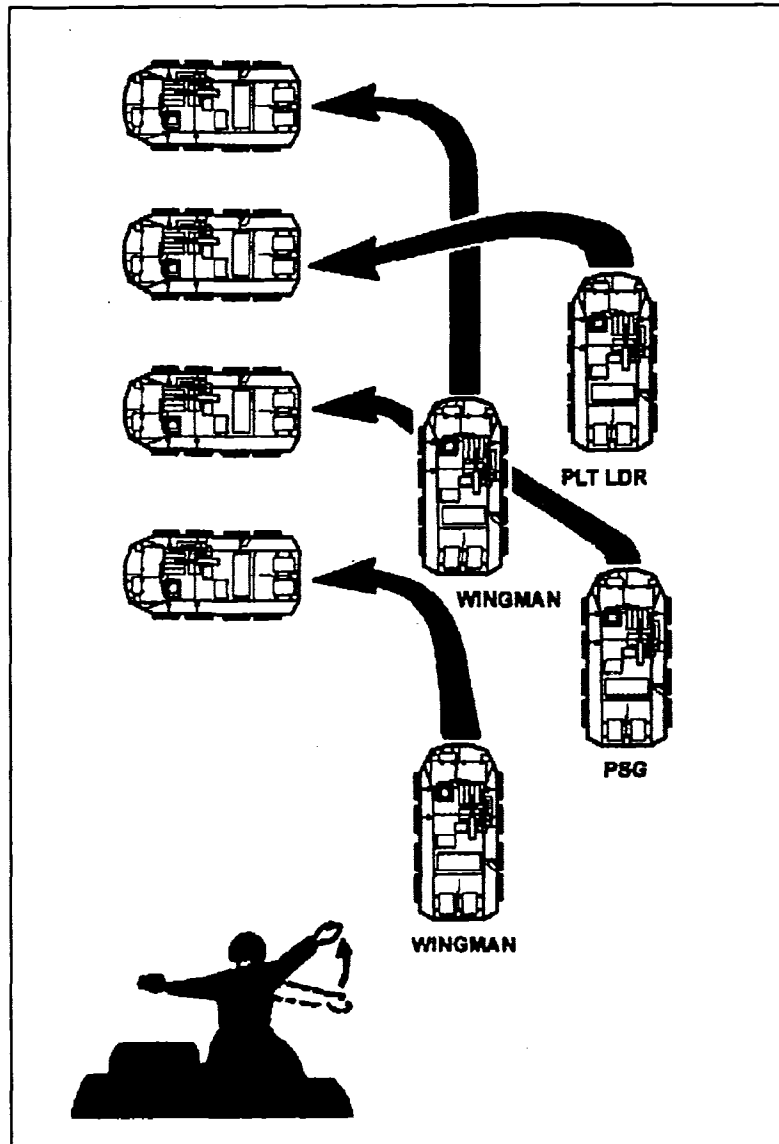


Figure E-43. Action left from a column, wingman on left.

CREW DRILL 10. DESTROY OR ABANDON AN INFANTRY CARRIER VEHICLE (CREW)

SITUATION: Given an order to destroy or abandon the ICV, AT4, Javelin, 15 one-pound blocks of TNT (or equivalent), equipment to complete an electric or nonelectric firing circuit, or two incendiary grenades, and a vehicle crew and a rifle squad.

REQUIRED ACTIONS:

a. Destruction by Removal or Destruction of Main Components.

(1) Vehicle Commander--

- (a) Removes the M2 machine gun or MK19 grenade launcher backplate and destroys it.

(b) Smashes the radios.

(c) Execute the FBCB2 electronic self-destruct function and smashes computer screen.

(d) Secures his protective mask and individual weapon, equipment, and night vision goggles.

(2) **Driver--**

(a) Cuts the coolant lines.

(b) Cuts the engine oil hose.

(c) Smashes the AN/VVS-2 night vision viewer or drivers vision enhancer (DVE) (M2A3 only).

(d) Secures his protective mask, individual weapon, and gear.

(3) **Squad Members--**

(a) Smash the squad leader's display.

(b) Secure all night vision devices.

(c) Secure dismounted radio.

(d) Secure the Javelin command launch unit (CLU).

(e) Secure their protective mask and individual weapons and gear and evacuate the vehicle.

b. Destruction by Fire.

(1) **Vehicle Commander--**

(a) Traverses the turret to 4100 mils.

(b) Secures his protective mask and individual weapon.

(2) **Driver--**

NOTE: Discharge the automatic fire suppression system prior to attempting to destroy the vehicle by fire. This will prevent accidental activation of the automatic fire suppression system and fire being inadvertently extinguished.

(a) Manually discharges the second-shot fire extinguisher assembly, by momentarily holding the spring-loaded ENGINE MANUAL DISCHARGE toggle switch, located on the CONTROL ELECTRONICS PANEL, in the up position.

(b) Manually discharges the first-shot fire extinguisher assembly by holding the spring-loaded ENGINE MANUAL DISCHARGE toggle switch, located on the CONTROL ELECTRONICS PANEL, in the up position for a minimum of five seconds.

(c) Lowers the ramp.

(d) Shuts down the engine by turning the auxiliary and electrical master switch OFF or pulls the fuel cut-off handle to the OFF position.

(e) Opens the engine compartment access door.

(f) Opens the main fuel manual shutoff valve and main fuel drain valve and cuts the fuel lines.

(g) Secures his weapon and protective mask and evacuates the vehicle.

(3) Squad Members--

(a) Open the cargo hatch.

(b) Secure the weapon and protective mask and evacuates the vehicle.

(4) Vehicle Commander--

(a) Secures two incendiary grenades.

(b) Places one grenade in the engine compartment and one in the driver's compartment and evacuates the vehicle.

c. Destruction by Antiarmor Fire.

(1) *Vehicle Commander and Driver* evacuate the vehicle.

(2) Squad Leader--

(a) Has the squad members dismount with protective masks, individual weapons, and light antitank weapons (AT4s).

(b) Has the antiarmor specialist secure the Javelin CLU and missiles.

(c) Moves the team past the minimum range of the Javelin (65-75 meters) and within maximum range of the AT4 (300 meters).

(d) Directs a volley of fire, aiming at the armament, engine, and drive train components.

d. Destruction by Demolition.

(1) *Squad Leader*. Directs fire team to destroy the vehicle by demolition.

(2) Fire Team Leader and Members--

- (a) Prepare three 1-pound blocks of TNT or the equivalent.
- (b) Place the charges as follows:
 - On the receiver of the M2 or MK 19.
 - On the FBCB2 and squad leaders display.
 - On the RWS.
- (c) Prepare six 2-pound charges using 1-pound blocks of TNT or the equivalent.
- (d) Place the charges as follows:
 - One charge on the accessory end of the engine.
 - The second and third charges on the engine - one on the left side and the other on the right side.
 - The fourth charge between the engine and the transmission.
 - The fifth and sixth charges on the left and right front drive wheels.

(3) Squad Leader--

- (a) Provides for dual priming to minimize the possibility of a misfire.
- (b) Connects all charges (the charges for the RWS and engine compartment) for simultaneous detonation.
- (c) Moves squad members and crew (with protective masks and individual weapons) to a covered area.
- (d) Detonates the charge.

NOTE: Ammunition and equipment that are not destroyed by the detonation should be removed from the vehicle and destroyed by other methods.

c. Destruction by Using Natural Surroundings. Squad members--

- Remove the major components (backplate from the M2 or MK19, FBCB2, squad leaders display, and RWS) and submerge them in water (lakes, ponds, rivers, and so forth). If possible, they submerge the vehicle.
- If no body of water is near, destroy as appropriate and widely disperse components, preferably into heavy underbrush or inaccessible areas.

CREW DRILL 11. PERFORM BEFORE-, DURING-, AND AFTER-COMBAT**OPERATION CHECKS (CREW)**

SITUATION: Perform operation checks during assembly area procedures, after an engagement, or during consolidation and reorganization.

REQUIRED ACTIONS:

- a. Before-combat operation checks.

NOTE: Follow all safety procedures while working in and around the RWS, and ensure that no weapons are loaded with ammunition when performing the before-combat operation checklist.

(1) **Squad Leader** (personally or through coordination with the team leaders)--

- (a) Checks to ensure that all personnel are properly wearing personal protective equipment IAW the unit SOP and commander's guidance (for example, protective mask, protective body armor, helmet, nerve-agent antidote).
- (b) Ensures that all personnel have hearing protection.
- (c) Ensures that all personnel have their assigned weapons and the prescribed ammunition load.
- (d) Checks to ensure that all weapons are loaded and placed on SAFE.
- (e) Ensures that ammunition and pyrotechnics are properly stowed (for example, grenades, flares, small arms ammunition, smoke, AT-4s, Javelins, Claymores, hand grenades).
- (f) Ensures that all target acquisition devices (for example, NVD, binoculars, AN/PVS-7/14,) are properly stowed.
- (g) Ensures that the hand grenades are worn properly.
- (h) Ensures that all dismount equipment is functional (for example, test fires the weapons, conducts a digital communications check and AN/PRC 119).
- (i) For night operations, ensures that all NVD and other target acquisition equipment are mounted and available and are operational and zeroed to the appropriate weapon for night operations.
- (j) Ensures that all personnel have additional equipment required to accomplish the mission IAW METT-TC (for example, minefield marking set, wire cutters, obstacle breach kit).
- (k) Reports the status of the squad to the platoon sergeant.

(1) Ensures all personnel and vehicles are camouflaged.

(2) **Vehicle Commander.** Ensures the following before-combat-operation checks are performed.

(a) Ensures that the RWS is on SAFE (electrical).

(b) Ensures that all vehicle weapons systems are properly installed and the prescribed ammunition is uploaded and stowed IAW the stowage and strapping diagram, vehicle load plan, and platoon SOP.

(c) Ensures RWS is operational and boresighted.

(d) Conducts a prefire check in accordance with the appropriate TM.

(e) Ensures the vehicle communications systems are operational.

(f) Checks individual equipment and weapons of the driver and gunner.

(g) Reports the status of the vehicle to the squad or section leader.

(3) **Driver--**

(a) Conducts before-operation-hull PMCS IAW TM 9-2320-311-10-1, TM 9-2320-311-01 or TM 9-2320-311-2.

(b) Reports the status of the vehicle to the VC.

(4) **Platoon Sergeant--**

(a) Consolidates the reports from the squad leaders and VCs, and reports the platoon's status to the platoon leader.

(b) Checks the trauma specialist for complete aid bag.

(c) Checks the FIST for individual weapons and equipment, operational mission equipment (for example, laser range finder), operational communications (for example, digital message device and radios), and any other mission-essential equipment.

(d) Checks other attachments as required.

(5) **Platoon Leader--**

(a) Checks the special equipment required to execute the mission and designates where it will be carried.

(b) Reports the platoon status to the company commander NLT the mission start time.

b. During-Combat Operation Checks. During-combat operation checks should be conducted in

a secure location during a lull in the battle.

(1) ***Squad Leader or Team Leader--***

- (a) Ensures the accountability of all soldiers and equipment.
- (b) Supervises aid to injured soldiers.
- (c) Ensures the weapons are on SAFE.
- (d) Checks ammunition status, gets more ammunition from vehicle if possible, cross-levels when necessary, and reports the critical shortages to the platoon sergeant.
- (e) Reports the status of personnel, equipment, and ammunition to the platoon sergeant.
- (f) Ensures dismounted security is established.

(2) ***Vehicle Commander--***

- (a) Ensures the RWS is in SAFE mode.
- (b) Checks ammunition status for the RWS, performs reload drills when required, cross-levels from other ICVs when necessary, and reports the critical shortages to the section leader or platoon sergeant.
- (c) Verifies the boresight of all weapons systems.
- (d) Checks for damaged equipment.
- (e) Ensures communications (radios and intercommunications) are operable.
- (f) Conducts a visual inspection of the RWS.
- (g) Performs during-operation RWS PMCS IAW TM 9-2320-311-01, TM 9-2320-311-01 or TM 9-2320-311-2.
- (h) Reports the status of the vehicle to the section leader or squad leader.
- (i) Supervises expedient vehicle repairs, if necessary.

(3) ***Driver--***

- (a) Performs during-operation-hull PMCS IAW TM 9-2320-311-10-1, TM 9-2320-311-01 or TM 9-2320-311-2.
- (b) Conducts a visual inspection of the exterior of the vehicle.
- (c) Checks all bolts and nuts on the wheels.

- (d) Checks fuel status and oil levels.
- (e) Checks the engine compartment for any visible signs of damage.
- (f) Reports the status to the VC.

(4) Platoon Sergeant--

- (a) Reports the status of the platoon to the platoon leader.
- (b) Supervises the evacuation of casualties.
- (c) Reports the location and status of inoperative vehicles and the WIA or KIA to the platoon leader.
- (d) Coordinates for resupply, if required (for example, POL, ammunition).

(5) Platoon Leader--

- (a) Reports the status of the platoon to the company commander (if resupply or repairs are necessary to complete the mission, if required by SOP, or if the platoon has suffered combat or maintenance vehicle losses).

c. After-Combat Operation Checks. After-combat operation checks are to be forwarded in conjunction with consolidation and reorganization, and the infantry is normally dismounted and provides the local security while the ICV crew performs the necessary checks.

(1) Squad Leader or Team Leader--

- (a) Ensures that dismounted security is established.
- (b) Checks for injured soldiers.
- (c) Accounts for all personnel and equipment.
- (d) Checks and ensures that all weapons are on SAFE.
- (e) Reestablishes the chain of command.
- (f) Checks the status of ammunition and supplies.
- (g) Ensures that hasty positions are prepared, ensures that the key weapons are manned, and replaces vehicle crewmembers, as needed.
- (h) Ensures that soldiers and vehicles are camouflaged as necessary.
- (i) Reports the status of soldiers, equipment, and ammunition to the platoon sergeant.

(2) Vehicle Commander--

- (a) Ensure RWS is in SAFE mode.
- (b) Ensures that ammunition resupply is conducted for all weapons on the vehicle.
- (c) Conducts a visual inspection of the RWS for damages.
- (d) Checks communications (radios and intercommunications) for damage.
- (e) Performs after-operation-RWS PMCS IAW TM 9-2320-311-10-1, TM 9-2320-311-01 or TM 9-2320-311-2.
- (f) Confirms zero with a few rounds.
- (g) Reports the status of the vehicle to the section leader or VC.

(3) Driver—

- (a) Conducts a visual inspection of the vehicle exterior.
- (b) Performs after-operation-hull PMCS IAW TM 9-2320-311-10-1, TM 9-2320-311-01 or TM 9-2320-311-2.
- (c) Checks all bolts and nuts on the wheels.
- (d) Checks fuel status and oil levels.
- (e) Checks the engine compartment for any visible signs of damage.
- (f) Reports the status to the VC.

(4) Platoon Sergeant—

- (a) Reports vehicle, soldiers, equipment, and ammunitions status to the platoon leader and company executive officer or first sergeant IAW the unit SOP.
- (b) Supervises evacuation of wounded soldiers, inoperative equipment, and vehicles.
- (c) Requests replacements and resupply (personnel, equipment, batteries, POL, ammunition) from the first sergeant IAW the unit SOP.
- (d) Supervises the repair of equipment and vehicles within the capability.

(5) Platoon Leader—

- (a) Determines and disseminates the lessons learned with the platoon sergeant and squad leaders.
- (b) Reports the platoon status to the company commander.

APPENDIX F**FIRE CONTROL AND DISTRIBUTION
TECHNIQUES**

Suppressing or destroying the enemy with direct fires is fundamental to success in close combat. Effective direct fires are essential to winning the close fight. Because fire and movement are complementary components of maneuver, the SBCT infantry platoon leader must be able to effectively mass the fires of all available resources at critical points and times to be successful on the battlefield. Effective and efficient direct fire control means that the platoon acquires the enemy rapidly and masses the effects of direct fires to achieve decisive results in the close fight.

Section I. PRINCIPLES OF DIRECT FIRE CONTROL

Effective direct fire control requires a unit to acquire the enemy rapidly, mass effects of fires, and achieve decisive results in the close fight. When planning and executing direct fires, the platoon leader and subordinate leaders must know how to apply several fundamental principles. The purpose of these principles of direct fire is not to restrict the actions of subordinates. Applied correctly, these principles help the platoon to accomplish its primary goal in any direct fire engagement (to acquire first and shoot first) while giving subordinates the freedom to act quickly upon acquisition of the enemy. The principles of direct fire control are:

- Mass the effects of fire.
- Destroy the greatest threat first.
- Avoid target overkill.
- Employ the best weapon for the target.
- Minimize friendly exposure.
- Prevent fratricide.
- Plan for extreme limited visibility conditions.
- Develop contingencies for diminished capabilities.

F-1. MASS THE EFFECTS OF FIRE

The platoon must mass the effects of its fires to achieve decisive results. Massing entails focusing fires at critical points, distributing the effects, and shifting to new critical points as they appear. Random application of fires is unlikely to have a decisive effect. For example, concentrating the platoon's fires at a single target may ensure its destruction or suppression; however, this probably will not achieve a decisive effect on the enemy formation, personnel, or position.

F-2. DESTROY THE GREATEST THREAT FIRST

The platoon engages targets in direct relation to the danger they present. If two or more targets of equal threat present themselves, then the platoon engages the closest target first. The SBCT platoon marks the defense engagement area so it can determine when to engage various targets and plans these ranges on its sketches and range cards. For example, the platoon should mark the engagement area at the Javelin maximum engagement distance (2,000 meters) to ensure that gunners do not waste missiles. Also, the platoon should mark the BMP danger area of 1,000 meters to determine when BMPs pose a viable threat.

F-3. AVOID TARGET OVERKILL

The platoon strives to avoid engaging a target with more than one weapon system at a time. To avoid target overkill, the platoon can divide engagement areas into sectors of fire or quadrants to better distribute direct fire among the platoon.

- a. The platoon can use many techniques to mark the engagement area. The platoon and company should develop an SOP for dividing the engagement area with both infrared and thermal target reference points so that all elements can distribute fires within the engagement area.
- b. Squads and platoons should mark the engagement areas with infrared devices for engagements during limited visibility. The thermal sights on the ICV cannot detect infrared sources; therefore, the engagement area also must be marked with thermal devices. For example, the platoon can burn a mixture of rocks, sand, and diesel fuel inside a fuel drum, ammunition can, or bucket shortly before dusk to give off a heat source for most of the night.
- c. The platoon leader also may designate rates of fire, by weapon system, to avoid target overkill. Predetermining the rates of fire allows the platoon leader to plan for sufficient ammunition for a desired effect on the enemy. The rates of fire are cyclic, rapid, and sustained.

F-4. EMPLOY THE BEST WEAPON FOR THE TARGET

Using the appropriate weapon for the target increases the probability of rapid enemy destruction or suppression. It also conserves ammunition.

- a. Target type, range, and exposure are key factors in determining the weapon that should be employed as well as the desired target effects. The platoon leader task-organizes and arrays his forces based on the terrain, enemy, and desired effects of fires.
- b. The platoon leaders, squad leaders, and VCs must ensure that they focus the fires of their weapons systems on the targets they should be engaging. For example, the Javelin is used against armored targets at ranges of 2,000 meters for stand-off protection, whereas the M240B machinegun is used to destroy unarmored vehicles and dismounted infantry at ranges within 1,000 meters.

F-5. MINIMIZE FRIENDLY EXPOSURE

Units increase their survivability by exposing themselves to the enemy only to the extent necessary to engage him effectively. Natural or manmade defilade provides the best cover. Crews and squads minimize their exposure by constantly seeking effective available cover, attempting to engage the enemy from the flank, remaining dispersed, firing from multiple positions, and limiting engagement times.

F-6. PREVENT FRATRICIDE

The platoon leader must be proactive in reducing the risk of fratricide, especially when it concerns his dismounted infantry squads on the multi-dimensional battlefield. He has numerous tools to assist him in fratricide avoidance. (For a detailed discussion of fratricide avoidance refer to Appendix D).

- a. The SBCT platoon can use infrared and thermal marking techniques to ensure that adjacent units do not mistakenly fire at friendly forces during limited visibility. The assault element can use the infrared codable Phoenix, infrared chemical lights, blacklight tube lights tied to poles, and many other methods to mark the assault element's progress. The platoon leader must ensure that the enemy does not have night vision capability before marking his soldiers' progress with infrared marking devices.
- b. By monitoring the unit locations, leaders at all levels can ensure that they know the precise locations of their own and other elements and can control their fires accordingly. The platoon leader and the platoon sergeant must know the location of each of the squads.

F-7. PLAN FOR EXTREME LIMITED VISIBILITY CONDITIONS

The platoon is equipped with thermal sights and night vision systems that allow the squads and ICVs to engage the enemy during limited visibility at nearly the same ranges that are applicable during the day. Dense fog, heavy smoke, and blowing sand may significantly reduce the platoon leader's ability to control the direct fires of the platoon if he has not taken those conditions into consideration.

F-8. DEVELOP CONTINGENCIES FOR DIMINISHED CAPABILITIES

A platoon leader usually develops a plan based on having all of his assets available and makes alternate plans to account for the loss of equipment or soldiers. The platoon leader should develop a plan that maximizes his unit's capabilities while still addressing the most probable occurrence. He should then factor in redundancy within the platoon. He may, for example, designate alternate sectors of fire for the squads that provide him the means of shifting fires if one squad has been rendered ineffective. These contingencies may become items within a unit SOP.

Section II. DIRECT FIRE CONTROL

Acquiring and destroying the enemy is a precursor to direct fire engagement with a vehicle, antiarmor weapon, machine gun, or individual weapon. Leaders must not assume that the unit will be able to see the enemy; they must expect the enemy to use cover and concealed routes effectively when attacking and to make best use of flanking and concealed positions in the defense. Therefore, the platoon must practice innovative techniques of direct fire control and distribution in offensive and defensive operations, especially since the enemy may not have an established or well-known order of battle. This is often the case when conducting stability operations.

F-9. FIRE CONTROL PROCESS

To bring direct fires against an enemy force successfully, leaders must continuously apply the four steps of the fire control process. (For a detailed discussion of the fire control process refer to FM 3-90.1.) At the heart of this process are two critical actions: rapid, accurate target acquisition and the massing of fires to achieve decisive effects on the enemy. Target acquisition is the detection, identification, and location of a target in sufficient detail to permit the effective employment of all of the platoon's

weapons. Massing focuses direct fires at critical points and then distributes the fires for optimum effect. The four steps of the fire control process are--

- Identify probable enemy locations and determine the enemy scheme of maneuver.
- Determine where and how to mass (focus and distribute) direct fires effects.
- Orient forces to speed target acquisition.
- Shift direct fires to refocus or redistribute their effects.

F-10 FIRE CONTROL MEASURES

Fire control measures are the means by which the platoon leader or subordinate leaders control fires. Application of these concepts, procedures, and techniques assists the unit in acquiring the enemy, focusing fires on him, distributing the effects of the fires, effectively shifting fires, and preventing fratricide. At the same time, no single measure is sufficient to effectively control fires. At the platoon level, fire control measures will be effective only if the entire unit has a common understanding of what the fire control measures mean and how to employ them. The following discussion focuses on the various fire control measures employed by the platoon. Table F-1 lists the control measures by whether they are terrain- or threat-based.

TERRAIN-BASED FIRE CONTROL MEASURES	THREAT-BASED FIRE CONTROL MEASURES
Target reference point (TRP) Engagement area Sector of fire Direction of fire Terrain-based quadrant Friendly-based quadrant Maximum engagement line (MEL) Restrictive fire line (RFL) Final protective line (FPL)	Fire patterns Target array Engagement priorities Trigger Weapons control status Rules of engagement (ROE) Weapons safety posture Engagement techniques

Table F-1. Common fire control measures.

a. **Target Reference Point.** A TRP (Figure F-1) is a recognizable point on the ground that leaders use to orient friendly forces and to focus and control direct fires. In addition, when TRPs are designated as indirect fire targets, they can be used in calling for and adjusting indirect fires. Leaders designate TRPs at probable enemy locations and along likely avenues of approach. These points can be natural or manmade. A TRP can be an established site, such as a hill or a building, or an impromptu feature designated as a TRP on the spot, like a burning enemy vehicle or smoke generated by an artillery round. Friendly units also can construct markers to serve as TRPs. Ideally, TRPs should be visible in three observation modes (unaided, passive-IR, and thermal) so all forces can see them. TRPs include the following features and objects:

- Prominent hill mass.

- Distinctive building.
- Observable enemy position.
- Destroyed vehicle.
- Ground-burst illumination.
- Smoke round.
- Laser point.

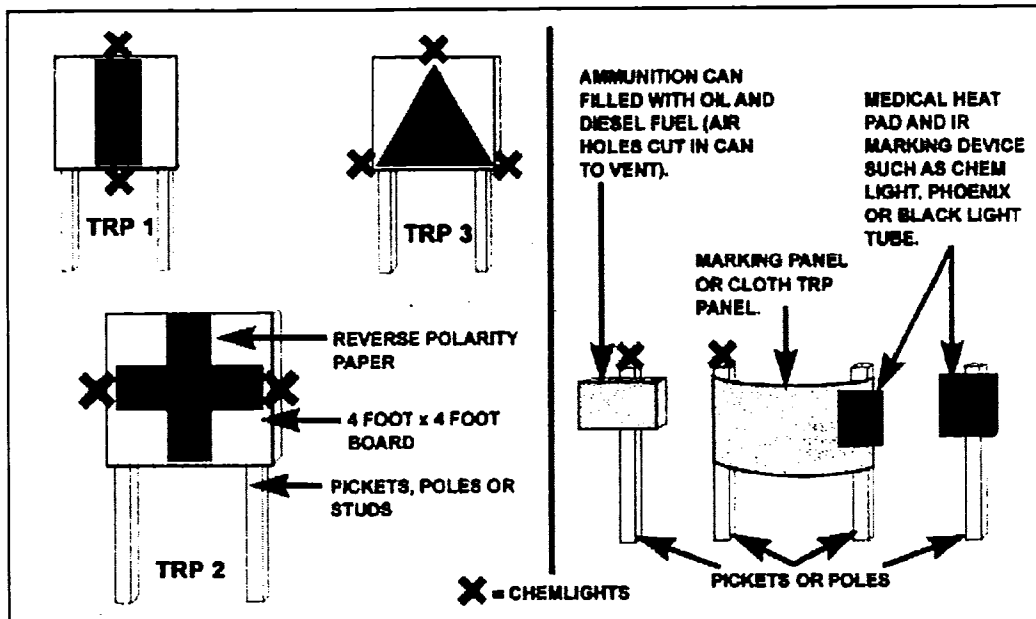


Figure F-1. Example of constructed TRP markers.

b. **Engagement Area.** This fire control measure is an area along an enemy avenue of approach where the platoon leader intends to mass the fires of available weapons to destroy an enemy force. The size and shape of the engagement area are determined by the degree of relatively unobstructed visibility available to the unit's weapons systems in their firing positions and by the maximum range of those weapons. Typically, commanders delineate responsibility within the EA by assigning each platoon a sector of fire or direction of fire; these fire control measures are covered in the following paragraphs.

c. **Sector of Fire.** A sector of fire is a defined area that must be covered by direct fire. Leaders assign sectors of fire to subordinate elements, crew-served weapons, and individual soldiers to ensure coverage of an area of responsibility. They also may limit the sector of fire of an element or weapon to prevent accidental engagement of an adjacent unit. In assigning sectors of fire, platoon leaders and subordinate leaders consider the number and type of weapons available. In addition, they must consider acquisition system type and field of view in determining the width of a sector of fire. For example, while unaided vision has a wide field of view, its ability to detect and identify targets at extended ranges and in limited visibility conditions is restricted. Conversely, most fire control acquisition systems have greater detection and identification ranges than the unaided eye, but their field of view is narrow. Means of designating sectors of fire

include the following:

- TRPs.
- Clock direction.
- Terrain-based quadrants.
- Friendly-based quadrants.

d. **Direction of Fire.** A direction of fire is an orientation or point used to assign responsibility for a particular area on the battlefield that must be covered by direct fire. Leaders designate directions of fire for the purpose of acquisition or engagement by subordinate elements, crew-served weapons, or individual soldiers. Leaders most commonly employ direction of fire when assigning sectors of fire because of limited time or insufficient reference points. Means of designating a direction of fire include the following:

- Closest TRP.
- Clock direction.
- Cardinal direction.
- Tracer on target.
- IR laser pointer.

e. **Maximum Engagement Line.** A MEL is the linear depiction of the farthest limit of effective fire for a weapon or unit. The weapon's maximum effective range, the target description, and the effects of terrain determine this line. For example, slope, vegetation, structures, and other features provide cover and concealment that may prevent the weapon from engaging out to the maximum effective range. A MEL serves several purposes for the platoon leader:

- To prevent squads or ICVs from engaging targets beyond the maximum effective ranges of their weapon systems.
- To establish criteria for triggers.
- To depict the maximum extent of the unit's battle space.

f. **Restrictive Fire Line.** An RFL is a linear fire control measure beyond which engagement is prohibited without coordination. In the offense, the platoon leader may designate an RFL to prevent a base of fire element from firing into the area where an assaulting element is maneuvering. This technique is particularly important when ICVs directly support the maneuver of infantry squads. In the defense, the platoon leader may establish an RFL to prevent the unit from engaging a friendly rifle squad positioned in restricted terrain on the flank of an avenue of approach.

g. **Final Protective Line.** The FPL is a line of fire established where an enemy assault is to be checked by the interlocking fires of all available weapons. The unit reinforces this line with

protective obstacles and an FPF whenever possible. Initiation of the FPF is the signal for elements, crews, and individual soldiers to shift fires to their assigned portion of the FPL.

F-11. THREAT-BASED FIRE CONTROL MEASURES

The platoon leader uses threat-based fire control measures to focus and control fires by directing the unit to engage a specific, templated enemy element rather than to fire on a point or area. Threat-based fire control measures may be difficult to employ against an asymmetric threat. The following paragraphs describe the TTP associated with this type of control measure.

a. **Fire Patterns.** Fire patterns are a threat-based measure designed to distribute the fires of a unit simultaneously among multiple, similar targets. Platoons most often use them to distribute fires across an enemy formation. Leaders designate and adjust fire patterns based on terrain and the anticipated enemy formation. The basic fire patterns are frontal fire, cross fire, and depth fire (Figure F-2).

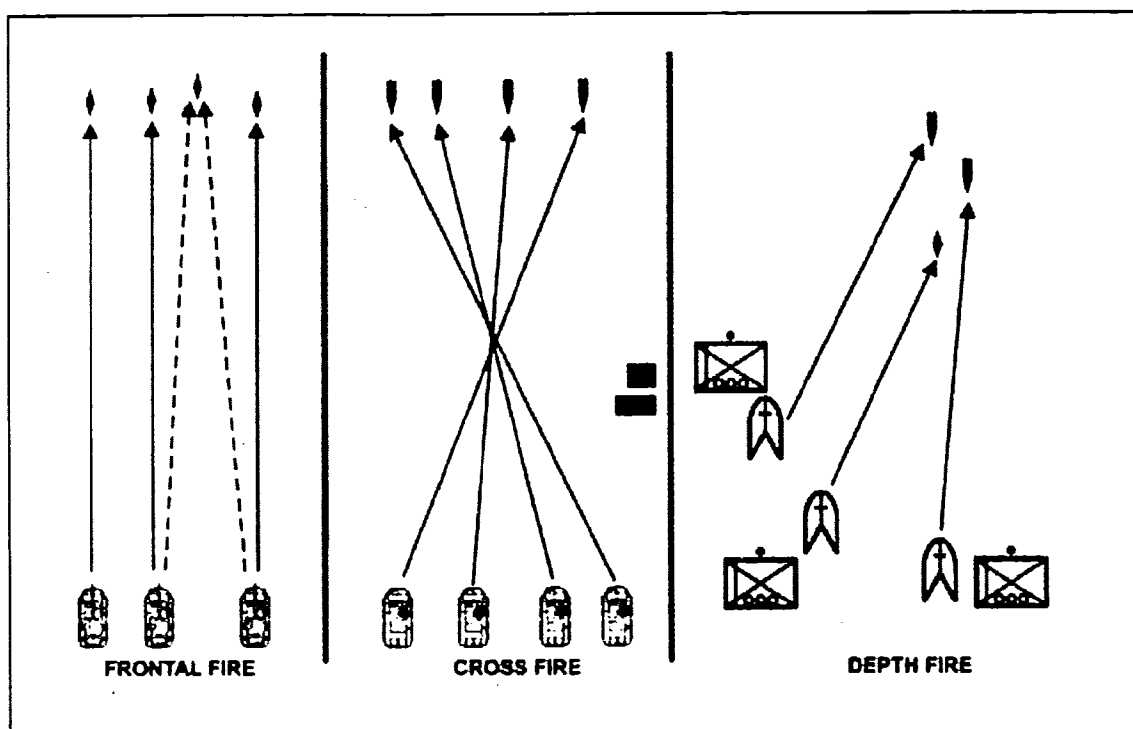


Figure F-2. Fire patterns.

(1) **Frontal Fire.** Leaders may initiate frontal fire when targets are arrayed in front of the unit in a lateral configuration. Weapon systems engage targets to their respective fronts. For example, the left flank weapon engages the left-most target; the right flank weapon engages the right-most target. As they destroy enemy targets, weapons shift fires toward the center of the enemy formation and from near to far.

(2) **Cross Fire.** Leaders initiate cross fire when targets are arrayed laterally across the unit's front in a manner that permits diagonal fires at the enemy's flank or when obstructions prevent unit weapons from firing frontally. Right flank weapons engage the left-most targets; left flank weapons engage the right-most targets. Firing diagonally across an engagement area provides more flank shots, thus increasing the chance of kills. It also

reduces the possibility that friendly elements will be detected if the enemy continues to move forward. As they destroy enemy targets, weapons shift fires toward the center of the enemy formation.

(3) **Depth Fire.** Leaders initiate depth fire when targets are dispersed in depth, perpendicular to the unit. Center weapons engage the closest targets; flank weapons engage deeper targets. As they destroy targets, weapons shift fires toward the center of the enemy formation.

b. **Engagement Priorities.** In concert with his concept of the operation, the company commander determines which target types provide the greatest payoff or present the greatest threat to his force. He then establishes these as a unit engagement priority. The platoon leader refines these priorities within his unit.

(1) **Employ the Best Weapons for the Target.** Establishing engagement priorities for specific friendly systems increases the effectiveness with which the unit employs its weapons. As an example, the engagement priority for the ICVs could be enemy personnel carriers (PCs) and then dismounted troops.

(2) **Distribute the Unit's Fires.** Establishing different priorities for similar friendly systems helps to prevent overkill and achieves effective distribution of fires. For example, if the commander establishes that Javelins will engage all armored vehicles, the platoon leader may designate the enemy's tanks as the initial priority for one Javelin pair while making the enemy's PCs the priority for the rifle squad's AT4s.

c. **Weapons-Ready Posture.** The weapons-ready posture is a means by which leaders use the situational up-dates via the COP or their estimate of the situation to specify the ammunition and range for the engagement. Range selection is dependent on the anticipated engagement range. Terrain, visibility, weather, and light conditions affect range selection.

(1) Within the platoon, weapons-ready posture affects the types and quantities of ammunition carried by rifle squads and vehicles.

(2) For infantry squads, weapons-ready posture is the selected ammunition and indexed range for individual and crew-served weapons. For example, an M203 grenadier whose most likely engagement is to cover dead space at 200 meters from his position might load HEDP and set 200 meters on his quadrant sight. To prepare for an engagement in a wooded area where engagement ranges are extremely short, an antiarmor specialist might dismount with an AT4 instead of a Javelin.

d. **Trigger.** A trigger is a specific set of conditions that dictates initiation of fires. Often referred to as engagement criteria, a trigger specifies the circumstances in which subordinate elements are to engage. The circumstances can be based on a friendly or enemy event. For example, the trigger for a platoon to initiate engagement could be three or more enemy combat vehicles passing or crossing a given point or line. This line can be any natural or manmade linear feature, such as a road, ridgeline, or stream. It may also be a line perpendicular to the unit's orientation, delineated by one or more reference points.

e. **Weapons Control Status.** The three levels of weapons control status outline the conditions, based on target identification criteria, under which friendly elements may engage. The platoon

leader sets and adjusts the weapons control status based on friendly and enemy disposition and the clarity of the situation. In general, the higher the probability of fratricide, the more restrictive the weapons control status. The three levels, in descending order of restriction, are--

- WEAPONS HOLD--Engage only if engaged or ordered to engage.
- WEAPONS TIGHT--Engage only targets that are positively identified as enemy.
- WEAPONS FREE--Engage any targets that are not positively identified as friendly.

As an example, the platoon leader may establish the weapons control status as WEAPONS HOLD when friendly forces are conducting a passage of lines. By maintaining an awareness of his own elements and adjacent friendly forces, however, he may be able to lower the weapons control status. In such a case, the platoon leader may be able to set a WEAPONS FREE status when he knows there are no friendly elements in the vicinity of the engagement. This permits his elements to engage targets at extended ranges even though it is difficult to distinguish targets accurately at ranges beyond 2,000 meters under battlefield conditions. The platoon leader also may establish a different weapons control status for his elements based on COP updates. Weapons control status is extremely important for forces using combat identification systems. Establishing the weapons control status as WEAPONS FREE permits leaders to engage an unknown target when they fail to get a friendly response.

f. **Rules of Engagement.** ROE specify the circumstances and limitations under which forces may engage. They include definitions of combatant and noncombatant elements and prescribe the treatment of noncombatants. Factors influencing ROE are national command policy, the mission and commander's intent, platoon leader's intent, the operational environment, and the law of war. ROE always recognize a soldier's right of self-defense; at the same time, they clearly define circumstances in which he may fire.

g. **Engagement Techniques.** Engagement techniques are effects-oriented fire distribution measures. The most common engagement techniques in platoon operations are--

- Point fire.
- Area fire.
- Volley (or simultaneous) fire.
- Alternating fire.
- Observed fire.
- Sequential fire.
- Time of suppression.
- Reconnaissance by fire.

(1) **Point Fire.** Point fire entails concentrating the effects of a unit's fire against a specific, identified target such as a vehicle, machine gun bunker, or ATGM position. When leaders

direct point fire, all the unit's weapons engage the target, firing until they destroy it or until the required time of suppression expires. Employing converging fires from dispersed positions makes point fire more effective because the target is engaged from multiple directions. The unit may initiate an engagement using point fire against the most dangerous threat, then revert to area fire against other, less threatening point targets.

(2) **Area Fire.** Area fire involves distributing the effects of a unit's fire over an area in which enemy positions are numerous or are not obvious. If the area is large, leaders assign sectors of fire to subordinate elements using a terrain-based distribution method such as the quadrant technique. Typically, the primary purpose of area fire is suppression; however, sustaining effective suppression requires judicious control of the rate of fire.

(3) **Volley Fire.** Units employ volley fire to mass the effects of their fires rapidly or to gain fire superiority. For example, a unit may initiate a support-by-fire operation with volley fire then revert to alternating or sequential fire to maintain suppression. Volley fire also is employed to negate the low probability of hit and kill of certain antiarmor weapons. As an example, a rifle squad may employ volley fire with its AT4s to ensure rapid destruction of a BMP that is engaging a friendly position.

(4) **Alternating Fire.** In alternating fire, pairs of elements continuously engage the same point or area targets one at a time. For example, an infantry platoon may alternate the fires of a pair of machine guns or a vehicle section between vehicles. Alternating fire permits the unit to maintain suppression for a longer duration than does volley fire. It also forces the enemy to acquire and engage alternating points of fire.

(5) **Observed Fire.** Observed fire allows for mutual observation and assistance while protecting the location of the observing element and conserving ammunition. The company commander may employ observed fire between elements in the company. He may direct one platoon to observe while another platoon engages the enemy. The platoon may use observed fire when it is in protected defensive positions with engagement ranges of more than 800 meters. For example, the platoon leader may direct the mounted element to engage the enemy while the infantry squads and weapons squad observe the effects of the fires. The observing elements prepare to engage the enemy on order in case the mounted element fails to effectively engage the enemy, has malfunctions, or runs low on ammunition.

(6) **Sequential Fire.** In sequential fire, the subordinate elements of a unit engage the same point or area target one after another in an arranged sequence. Sequential fire also can help prevent the waste of ammunition, as when rifle squads wait to see the effects of the first Javelin before firing another. Additionally, sequential fire permits elements that have already fired to pass on information they have learned from the engagement. For example, an infantryman who missed a BMP with AT4 fires could pass range and lead information to the next soldier preparing to engage the BMP with an AT4.

(7) **Time of Suppression.** Time of suppression is the period, specified by the platoon leader, during which an enemy position or force must be suppressed. Suppression time is typically dependent on the time it will take a supported element to maneuver. Normally, a unit suppresses an enemy position using the sustained rate of fire of its automatic weapons. In planning for sustained suppression, leaders must consider several factors:

- The estimated time of suppression.

- The size of the area being suppressed.
- The type of enemy force to be suppressed.
- The range to the target.
- The rates of fire.
- The available ammunition quantities.

(8) ***Reconnaissance by Fire.*** Reconnaissance by fire is the process of engaging possible enemy locations to elicit a tactical response, such as return fire or movement. This response permits the platoon leader and subordinate leaders to make accurate target acquisition and then to mass fires against the enemy element. Typically, the platoon leader directs a subordinate element to conduct the reconnaissance by fire. He may, for example, direct an overwatching section to conduct the reconnaissance by fire against a probable enemy position before initiating movement by the bounding section.

APPENDIX G

JAVELIN EMPLOYMENT

The Javelin provides accurate, medium-range antiarmor fire for the SBCT infantry platoon. The Javelin is used in offensive operations to provide precision direct fires that suppress or destroy enemy armored vehicles and destroy fortifications. In defensive operations, the Javelin may be used to overwatch obstacles, destroy armored vehicles, and force the enemy commander to dismount prematurely, exposing his infantry to small arms and indirect fires. The Javelin can destroy targets from medium ranges (65 to 2,000 meters), including helicopters and fortified positions. The platoon leader also can use the Javelin's imaging infrared (I²R) sight capability to conduct surveillance of critical avenues of approach in all types of weather. The Javelin also may be used to engage bunkers, buildings, and other fortified targets commonly found during combat in built-up areas.

G-1. THE JAVELIN WEAPON SYSTEM

The Javelin is a dual-mode (top attack or direct attack), man-portable antitank missile with an increased capability to engage and defeat tanks and other armored vehicles (Table G-1). The Javelin has a missile contained in a disposable launch tube/container and a reusable tracker and is a fire-and-forget weapon system. Additionally, the Javelin has a soft launch that significantly reduces the visual and acoustical signature of the missile.

NOTE: The Javelin will replace the Dragon on a one-for-one basis in infantry and engineer units with no additional changes in current force structure.

Type System:	Fire and Forget
Carry Weight (Total):	49.2 lb (day & night)
Command Launch Unit:	14.1 lb (day & night)
Missile (w/launch tube):	35.2 lb
Crew:	Man portable
Ready to Fire:	Less than 30 sec.
Reload Time:	Less than 20 sec.
Method of Attack:	Top attack or direct attack (top attack is normal)
Range:	Top-attack mode: 150m-2000m Direct-attack mode: 65-2000m
Fighting Position Restrictions:	1m x 2m, ventilation is recommended
Guidance System:	<i>Imaging Infrared or I²R</i> seeker
Sights:	Integrated Day/Night sight unit
Time of Flight:	1,000m = approx. 4.6 sec 2,000m = approx. 14.5 sec
Sight Magnification:	4X day, 4X wide field of view and 9X narrow field of view night

Table G-1. Javelin technical characteristics.

a. **Command Launch Unit.** The nondisposable section of the Javelin is the CLU (Figure G-1). The Javelin's night sight and day sight are integrated into one unit. The *imaging infrared or I²R* sight has a 2,000-meter plus range, under most conditions, which greatly increases target acquisition by the infantryman. The sight can operate for over four hours on a single battery and requires no coolant bottles. It has a built-in test capability, which alerts the gunner if the system is not functioning properly during operation.

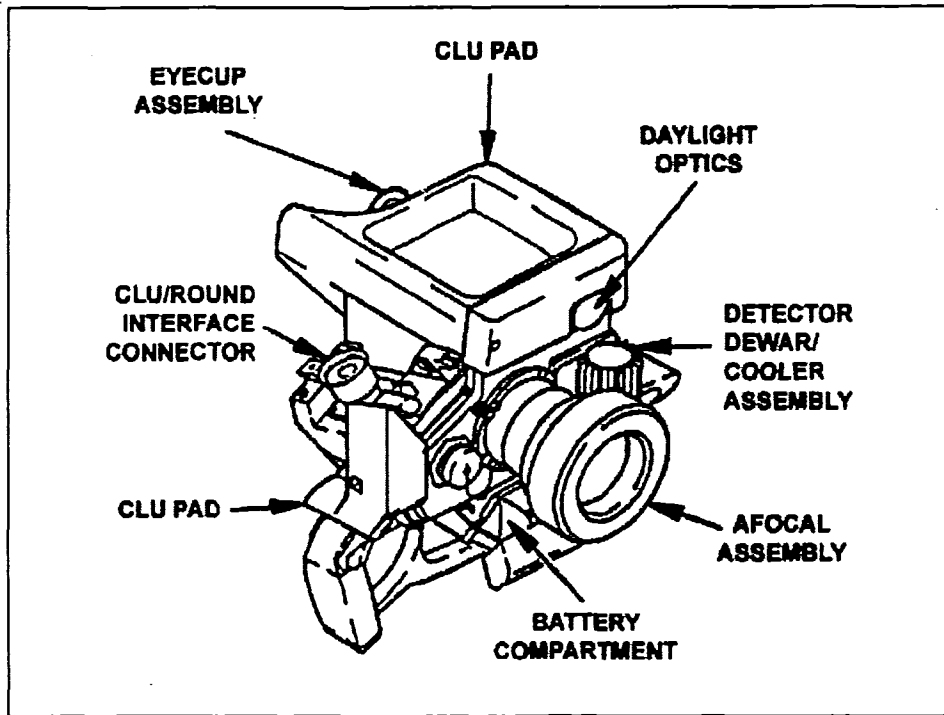


Figure G-1. Command launch unit.

b. **Missile.** The missile is contained in a disposable launch tube. It has a passive imaging infrared system, which locks on to the target before launch and is self-guiding. It uses a tandem shaped-charge warhead and a two-stage solid propellant with a low signature, soft-launch motor, and a minimum smoke flight motor. The launch tube assembly and missile is shown in Figure G-2.

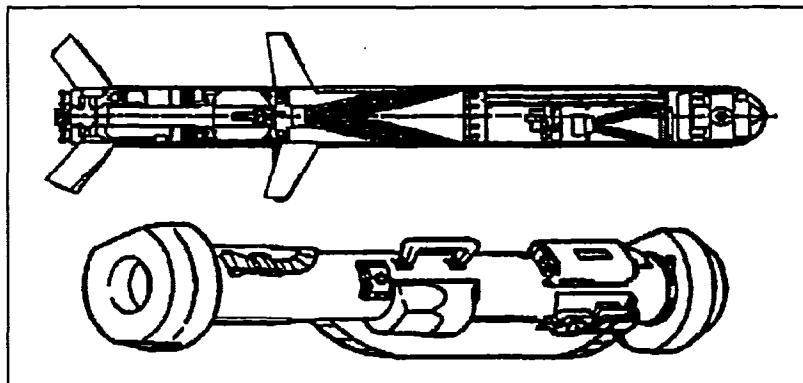


Figure G-2. Launch tube assembly and missile.

G-2. CAPABILITIES

The Javelin antitank missile has improved capabilities over the Dragon.

a. **Lethality.** The Javelin is more lethal than the Dragon. The Javelin's 2,000-meter range and its tandem warhead, which defeats all known armor, enhance the Javelin's lethality.

(1) In the top-attack mode, the missile strikes the thinner armor on the top of an armored vehicle rather than the thicker frontal and side armor plates. Top attack also prevents an enemy target from protecting itself by moving behind frontal cover. When used in urban areas or where obstacles might interfere with the top-attack flight path of the missile, the Javelin also can be fired in the direct attack mode.

(2) The fire-and-forget capability of the Javelin increases the probability of a hit. Because the gunner is no longer exposed to enemy suppressive fires while tracking the target until impact, he can use the missile's flight time to reload in a covered and concealed position and begin engaging another target.

b. **Survivability.** The Javelin's low launch signature decreases the enemy's ability to acquire gunners when they fire the missile. All gunner engagement tasks are accomplished before launching the missile, making time of flight irrelevant. The 2,000-meter range also places the Javelin gunner outside the armored vehicle's effective coaxial machine gun range. However, he is still within the range of the main gun.

(1) The Javelin uses a passive infrared system for target acquisition and lock-on. This means that it emits no infrared or radar beam for enemy vehicles or smart munitions to detect, further increasing the survivability of the Javelin gunner.

(2) The Javelin sight offers the commander a superior observation capability as compared to the Dragon. The Javelin sight can detect targets in excess of 3,000 meters.

(3) Because of the Javelin's low backblast, it can be fired from smaller, harder to locate, better protected positions that give the gunner a greater chance of remaining undetected or, if detected, surviving any suppressive fires.

c. **Agility.** The Javelin is man-portable and relatively lightweight for an antitank missile system, which allows the system to be moved about the battlefield with relative ease. The Javelin's soft launch capability allows it to be fired from inside buildings, bunkers, and other restricted spaces with less disruption to the gunner and less signature to be observed by the enemy. Although flank shots are still the preferred method of engagement, the Javelin's low signature launch and top-attack mode make frontal and oblique engagements more effective than in the past, giving the infantry leader additional options in his antiarmor fires planning and positioning.

d. **Flexibility.** The capabilities of the Javelin give the leader more flexibility in the use and emplacement of his antiarmor systems. This new degree of flexibility challenges the leader to make a careful METT-TC analysis to ensure that he is taking full advantage of the Javelin's capabilities.

(1) The greater range of the Javelin gives the leader a system that complements MGS fires, allowing him to achieve mutual support and greater overlapping fires between the systems.

The Javelin's lethality and more than 2,000-meter range allow the MGS to concentrate main gunfires on targets at standoff range. This allows the platoon leader to attack the enemy throughout the depth of his formation with antiarmor fires.

(2) Engaging at maximum standoff ranges and handing off the fight to the Javelin gunners provides more time for MGSs to be moved to alternate positions and allows the platoon leader to mass fires at the critical time and place on the battlefield.

G-3. LIMITATIONS

There are certain times when the Javelin system is not able to engage targets. These occur either when a target is not exposed long enough for the missile seeker to achieve proper lock on, or when atmospheric conditions interfere with the seeker.

a. **Limited Visibility.** Heavy rain, smoke, fog, snow, sleet, haze, and dust are referred to as limited visibility conditions. The presence of these conditions can affect the gunner's ability to acquire and engage targets with the Javelin, especially when using the day sight of the CLU. The gunner should use the I²R sight of the CLU to acquire targets because it provides the best target image during limited visibility conditions.

b. **Infrared Crossover.** Infrared crossover occurs at least twice in each 24-hour period when the temperatures of soil, water, concrete, and vegetation are approximately the same and the objects all emit the same amount of infrared energy. If there is little difference in the amount of infrared energy between a target and its background, then neither the Javelin CLU nor the missile seeker can see the target well, thus greatly degrading the performance of the Javelin. This situation may last as long as an hour, until either the background or the target changes temperature enough to become detectable.

c. **Time Space Factor.** Just because a target appears in the open and within range does not always mean a Javelin gunner can acquire it, lock-on it, fire, and hit it. A vehicle must be exposed long enough for the gunner to identify it as a target and then to achieve target lock-on with the Javelin missile seeker. This process is not instantaneous and varies with the skill of the gunner.

G-4. EMPLOYMENT CONSIDERATIONS

The Javelin's primary role is to destroy enemy armored vehicles. When there is not an armored threat, the Javelin can be employed in a secondary role of providing fire support against point targets such as bunkers and crew-served weapons positions. In addition, the Javelin's CLU can be used alone as a night vision device for reconnaissance, security operations, and surveillance.

a. **Mutual Support.** Javelins should be positioned so they can support other Javelins as firing pairs (Figure G-3), MGSs, or AT4s. In terrain that has multiple narrow avenues of approach, the platoon leader may assign them singly. In open terrain, the Javelin can be positioned to achieve overlapping sectors (Figure G-4). Mutual support prevents the enemy from isolating a portion of the friendly unit and then concentrating on one sector without being subjected to fire from another. If mutual support is achieved, when one Javelin is destroyed or forced to displace, the others can continue covering the assigned sector. As a rule of thumb, gunners normally should be positioned far enough apart so that enemy fires directed at one cannot suppress others.

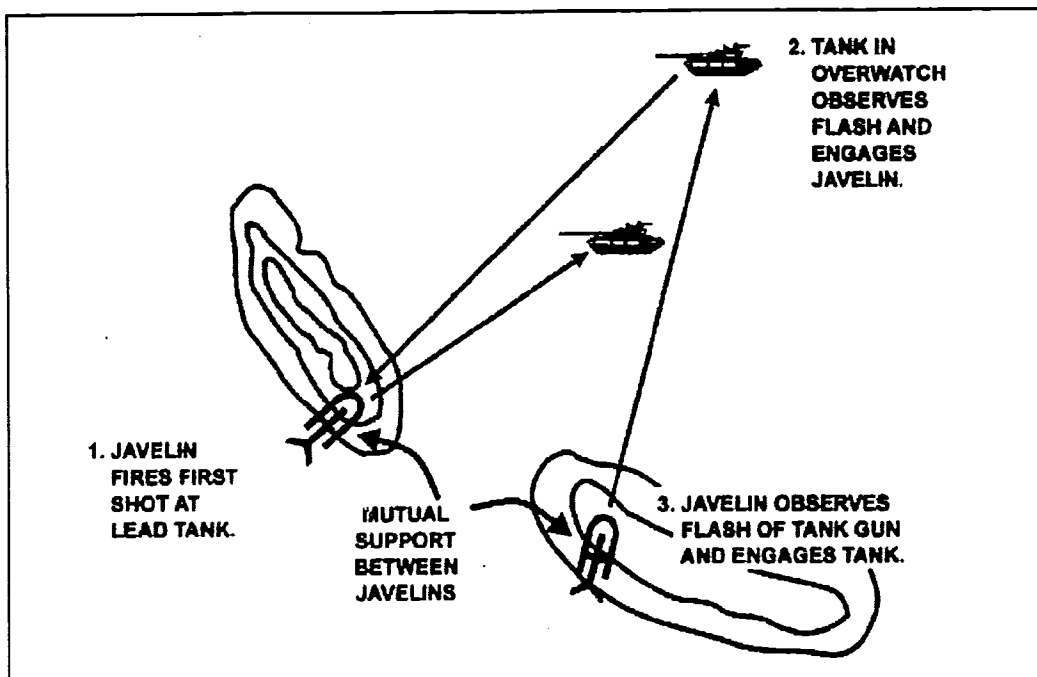


Figure G-3. Employment by firing pair.

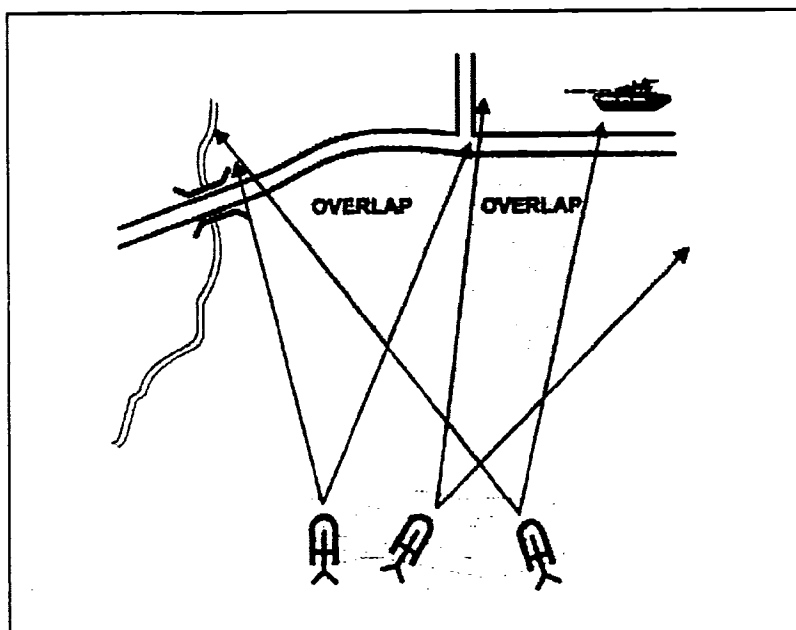


Figure G-4. Overlapping sectors of fire.

b. **Flank Shot Engagements.** Leaders should position Javelins to engage from the flank whenever possible because--

- Armored vehicles are most vulnerable from the flank.
- The focus of the crew normally will be to the front and not to the flank.

- Armored vehicles present the largest visual and infrared target from the flank.
- The vehicle's sighting systems, laser range finder, and firepower normally are oriented to the front, not the flank.
- Armored vehicles have less armor on the sides than on the front. This is important when engaging in the direct-attack mode.

c. **Javelin Standoff Advantage.** The difference between the Javelin's maximum range and the maximum effective range of the enemy tank's coaxial machine gun (Figure G-5) creates an advantage in a standoff. The Javelin's maximum range is 2,000 meters. The maximum effective range of a T-72 coaxial machine gun is 1,000 meters. The Javelin gunner should strive to engage enemy tanks in the 1,000- to 2,000-meter range.

NOTE: Most modern tanks, as well as infantry fighting vehicles, can fire high-explosive ammunition to suppress gunners out to 4,000 meters.

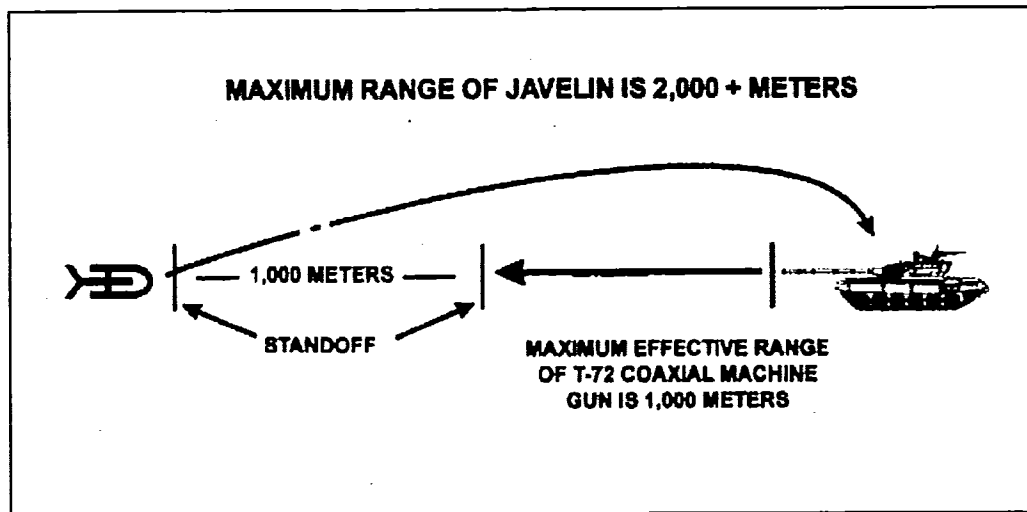


Figure G-5. Standoff range.

d. **Cover and Concealment.** Cover and concealment are critical to the survival of an antiarmor weapon system and its crew. The leader responsible for Javelin employment must analyze cover and concealment along with fields of fire and observation.

(1) **Cover.** Cover is protection from enemy weapons fire and may be natural or man-made. Natural cover includes reverse slopes, ravines, and hollows. Man-made cover includes fighting positions, walls, rubble, and craters.

(2) **Concealment.** Concealment is the ability to hide from enemy observation. Soldiers should avoid unnecessary movement, stay low and observe, and present themselves and their equipment using the lowest silhouette possible. They should alter familiar shapes by breaking up the common outlines of the position and equipment using vegetation and camouflage netting. They must pay attention to the varied colors and textures of the area to ensure the position blends in with its background. Additionally, noises, such as engines running, talking, and moving equipment, can be heard by enemy patrols and observation

posts. Shiny surfaces can reflect light for great distances; therefore, soldiers must be careful not to expose anything that shines.

e. **Soldier's Load.** When employing the Javelin in the dismounted role, the soldier's load becomes important. With a total system weight of just under 50 pounds, the Javelin is heavy. Although a man-portable weapon, one soldier cannot easily carry the Javelin cross country for extended periods. Leaders should be aware of this problem and address it as they would any other soldier's load difficulty. *FM 21-18* discusses soldier's load and cross-leveling equipment during movement to reduce the burden on soldiers. Leaders should develop unit SOPs that identify and describe the details of unit equipment cross leveling.

f. **Massed Fires.** Massed fires are achieved by coordinating the total effects of the platoon's combat power at the decisive place and time to gain favorable results against the enemy. The platoon achieves mass through mutual fire support, detailed fire control, and fire distribution measures that synchronize all of the fires of the platoon's weapon systems and elements. The Javelin always should be positioned so that its fires are part of a cohesive combination including small arms, crew-served weapons, MGS, mortar and artillery, as well as the close-in fires of the squads using AT-4 light antiarmor weapons.

G-5. JAVELIN EMPLOYMENT DURING URBAN COMBAT

Javelins provide overwatching antitank fires during the attack of a built-up area and an extended range capability for the engagement of armor during the defense. Within built-up areas, they are best employed along major thoroughfares and from the upper stories of buildings to attain long-range fields of fire. The missile's minimum arming range and flight profile could limit firing opportunities within the confines of densely built-up areas.

a. **Restrictions.** Ground obstacles and water do not restrict the Javelin, with its fire-and-forget capability. However, with its unique flight characteristics, overhead obstacles can limit its use in urban terrain. In the top-attack mode, the Javelin missile requires up to 160-plus meters of overhead clearance (Figure G-6). In the direct-attack mode, the Javelin requires up to 60-plus meters of overhead clearance (Figure G-7). Gunners must ensure that sufficient overhead clearance is available along the missile flight path before engaging targets in an urban environment.

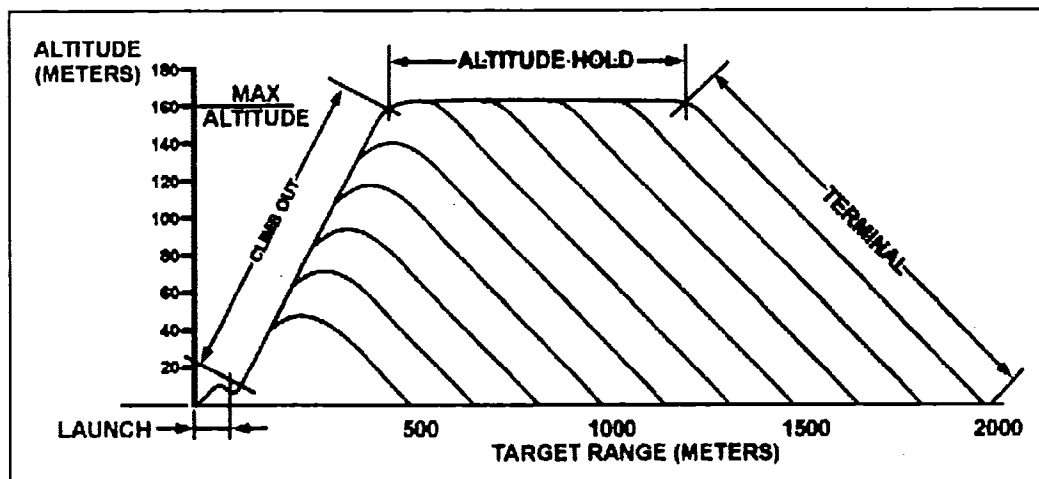


Figure G-6. Javelin flight profile in top-attack mode.

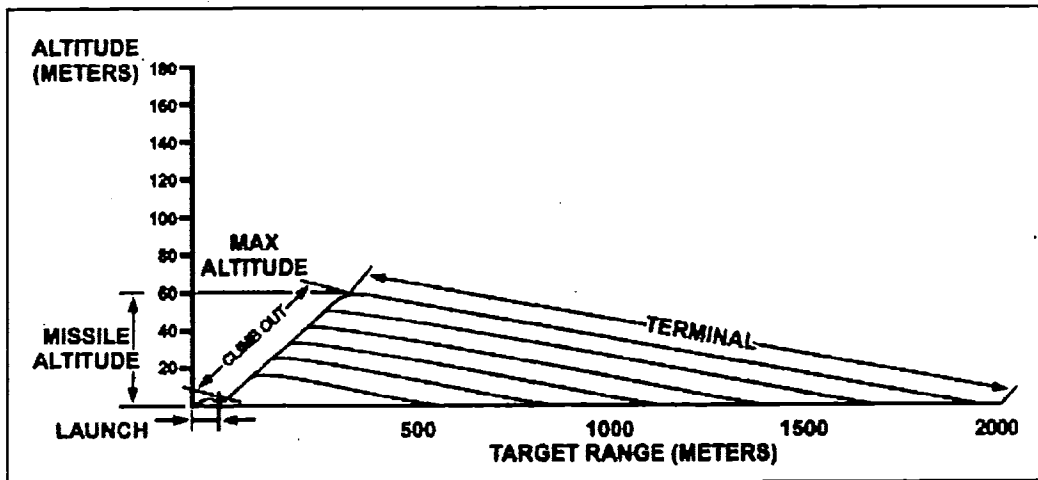


Figure G-7. Javelin flight profile in direct-attack mode.

b. **Dead Space.** The aspects of dead space that affect Javelin fires the most are arming distance and target and background temperature differences.

(1) The Javelin missile has a minimum arming window of 65-75 meters. Few areas in the inner city permit fires much beyond the minimum arming distance. Ground-level long-range fires down streets or rail lines and across parks or plazas are possible. The Javelin may be used effectively from the upper stories or roofs of buildings to fire into other buildings.

(2) The Javelin gunner must take into consideration the targeting dead space sometimes caused by the background of the target and its heat signature. When firing from the upper stories of a building towards the ground, the missile seeker sometimes cannot discriminate between the target and surrounding rubble, buildings, or paving if that background material has the same temperature as the target.

c. **Backblast.** The Javelin's soft launch capability enables the gunner to fire from within an enclosed area (Figure G-8) with a reduced danger from backblast overpressure or flying debris. Personnel within the enclosure still should wear a helmet, protective vest, ballistic eye protection, and hearing protection. To fire a Javelin from inside a room, the following safety precautions must be taken:

- Ceiling height must be at least 7 feet.
- The floor size of the room should be at least 15 feet by 12 feet.
- Window opening must be at least 5 square feet
- Door opening must be at least 20 square feet
- When launching a missile from an enclosure, allow sufficient room for the missile container to extend beyond the outermost edge of the enclosure.
- All personnel in the room must be forward of the rear of the weapon.

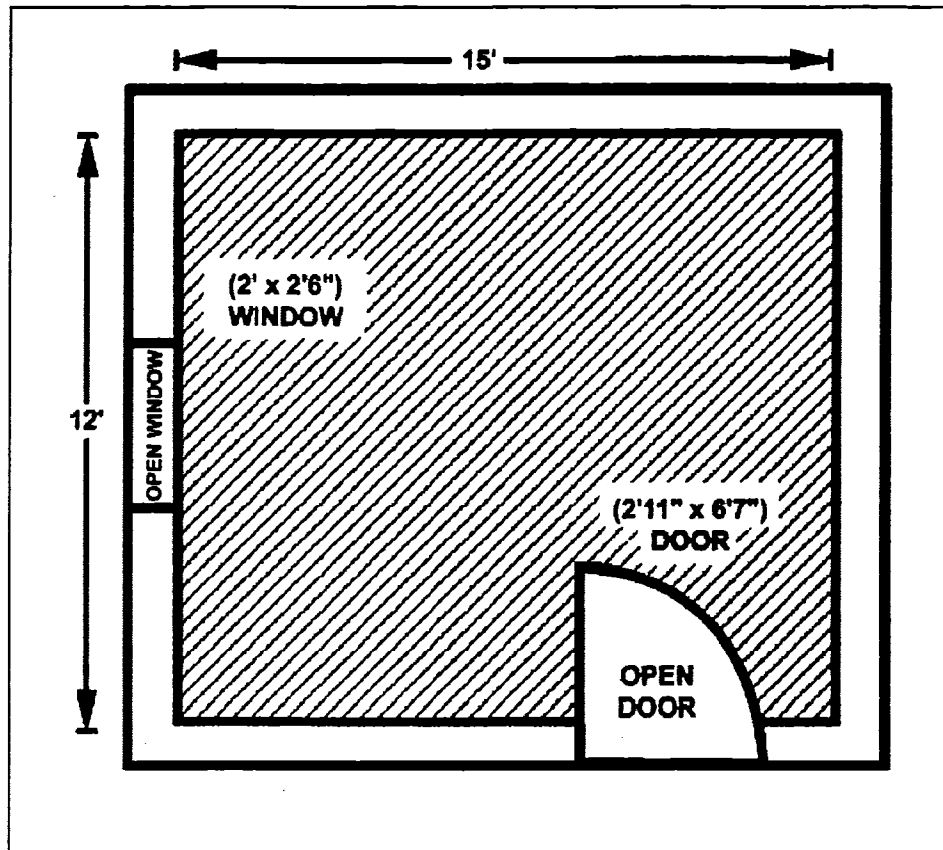


Figure G-8. Minimum room enclosure for Javelin firing.

d. **Weapon Penetration.** The warhead of the Javelin can achieve significant penetration against typical urban targets. Penetration, however, does not mean a concurrent destruction of the structural integrity of a position. When engaging a position in a building, the gunner must use the direct-attack mode to hit the target. When engaging a position or bunker in the open, the gunner may use either the top-attack or direct-attack mode.

G-6. JAVELIN FIRING POSITIONS

Each Javelin gunner should have a primary firing position and at least one alternate position. Depending on the factors of METT-TC, a supplementary position may also be assigned. A Javelin firing position must allow for target engagement and provide protection for the soldiers and the weapon system. When selecting firing positions, leaders should consider the following:

- Cover to the front, flank, and overhead.
- Concealment from ground and aerial observation.
- Good observation and fields of fire.
- Covered and concealed routes to and between positions.
- Mutual support between squad positions and with other elements.

- Below ridgelines and crests, preferably on the sides of hills.
- Avoid positions in swampy areas and very steep hillsides as well as positions on or near prominent terrain features.

a. **Types of Javelin Positions.** The platoon leader should consider what type of positions he needs for his key weapons, including the Javelin. If time and material are available, the standard Javelin fighting position with overhead cover should be used. If time or material is short, then the platoon leader may opt to have his squads prepare flush positions. This paragraph discusses the advantages and disadvantages of the two types of Javelin positions.

(1) **Standard Javelin Fighting Position with Overhead Cover.** The standard Javelin fighting position has cover to protect gunners from direct and indirect fires (Figure G-9). It is a fairly large position with room for the Javelin gunner and another squad member plus their equipment. The position should be concealed among irregularities in the terrain and should be well camouflaged.

(a) Advantages of this position are:

- Provides most protection against direct and indirect fire.
- Protects equipment from elements.

(b) Disadvantages of this position are:

- Requires extensive Class IV items or cut timber.
- Requires extensive labor and may require engineer assistance or demolitions.
- Creates large, distinctive silhouette; difficult to hide completely in open terrain.

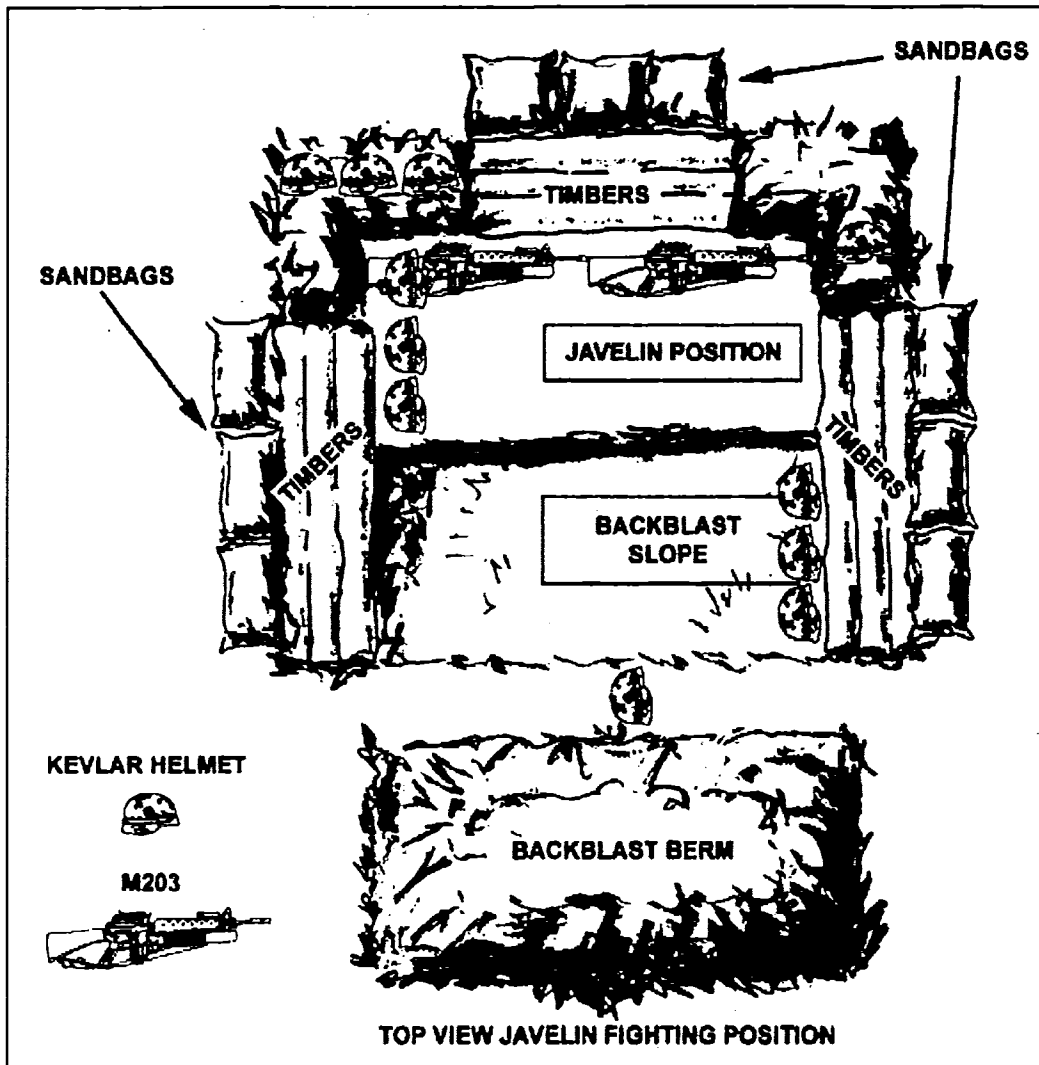


Figure G-9. Standard Javelin fighting position.

(2) **Flush Position.** The flush position (Figure G-10) is a hasty position that does not provide overhead protection for the gunner during firing. The position is basically a hole dug to approximately armpit depth. Overhead cover can be prepared either to the center or the flanks of the position.

(a) Advantages of this position are:

- Allows the Javelin gunner to reposition quickly.
- Less labor intensive (more positions built in same amount of time).
- Requires less Class IV than the standard Javelin position.

(b) Disadvantages of the position are:

- No overhead protection.

- Gunner not protected from indirect fires while in the target acquisition and firing sequence.
- Thermal signatures of gunner and assistant gunner not hidden.
- Gunner movements are easier to detect by the enemy.

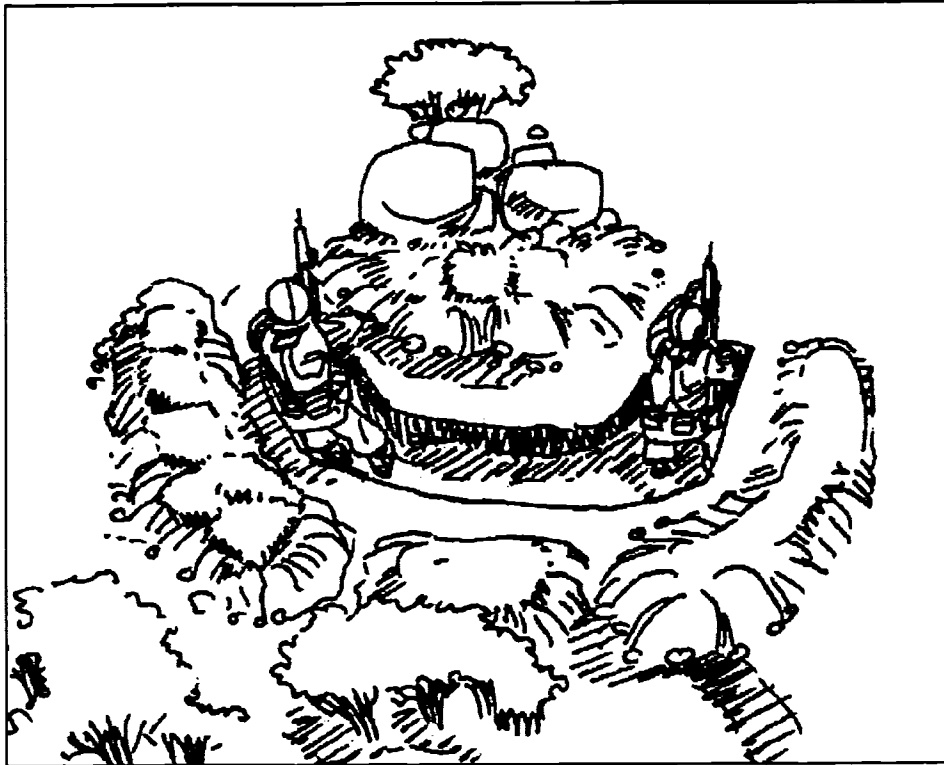


Figure G-10. Flush fighting position.

b. Occupation of Firing Positions. Javelin gunners should be careful to avoid detection while occupying a firing position; carelessly occupying a well-concealed position can compromise the position.

c. Preparation. The squad should prepare and improve a firing position from initial occupation until it is vacated. These actions include digging in, preparing a range card, and camouflaging the position. Once the position has been dug, it must be camouflaged using sod, leaves, brush, grass, or any other natural material. Camouflage nets or other man-made materials also can be used, but these work best if mixed with natural materials. Gunners must be ready to fight, even while preparing and improving the position. They must constantly observe the sector of responsibility to allow quick reaction if the enemy appears before the position is completely occupied.

d. Movement Between Firing Positions. Most enemy armor forces consider antitank guided missile systems to be critical targets. They expect antitank fires and will react immediately to suppress them. Because of this, Javelin gunners must be prepared to move to their alternate positions when the platoon or squad leader directs. The platoon or squad leader must coordinate the movement of their Javelins so that all of the weapons are not moving at once. Once the enemy has been destroyed, the leader can move the Javelins back to their primary firing position. Platoon fire plans must consider the amount of time needed to move Javelins between positions on the

battlefield. The plans also must provide alternate methods of destroying or disrupting the enemy to offset problems associated with movement. These alternate methods include mutual support of MK19, M2, and MGS; incorporation of obstacles and obscurants; and employing indirect fire, CAS, and attack helicopters, if available.

e. Routes Between Positions. The squad leader must personally reconnoiter all routes to alternate and supplementary positions. The routes to, from, and between positions should offer cover and concealment and should allow the gunner to enter the firing position from a direction opposite to the enemy's location.

G-7. DETECT, CLASSIFY, AND RECOGNIZE

US forces must engage targets quickly and efficiently to win in combat. Speed of target engagement depends on each Javelin gunner's proficiency in acquiring targets, identifying targets, and determining whether targets can be engaged. Dust and smoke make locating and identifying the enemy difficult. As the battle progresses, and friendly and enemy units merge into the same maneuver area, acquiring and identifying targets become crucial tasks. Gunners should be trained to acquire enemy targets that are camouflaged or partially concealed by terrain, vegetation, or smoke. They should also be trained to identify targets as friend or foe. Once soldiers know where to look, they must know how to detect enemy targets rapidly.

a. Primary Analysis. Because the Javelin's primary targets are armored vehicles, specifically tanks, gunners should look for terrain where these targets are most likely to appear. Understanding armor tactics and the characteristics of armor vehicles can help Javelin gunners recognize the terrain where these vehicles are most likely to be employed.

(1) **Enemy Analysis.** The tactics of many potential adversaries stress using speed and massive firepower to overwhelm and destroy an opposing force. This dictates a very high average daily rate of advance. To move consistently at a high rate, armored forces require firm ground to move rapidly and enough space to deploy, maneuver, and fire. High-speed avenues of approach, such as road networks, broad ridges, and flat or rolling terrain, should be observed constantly.

(2) **Terrain and Weather Analysis.** A detailed analysis of the terrain and weather is useful in pinpointing armored or mechanized avenues of approach and to evaluate them from the enemy's viewpoint. Some questions that the leader should ask himself are "How can the enemy use this terrain?" and "Where is he most likely to appear first?" Because weather significantly affects the trafficability of terrain, a ground reconnaissance is needed to obtain current, detailed information about roads, trails, manmade objects, density of trees and brush, and the seasonal conditions of streams and rivers. If a ground reconnaissance is not possible, an aerial reconnaissance should be conducted or recent aerial photographs should be used.

(3) **Armored and Mechanized Vehicles' Mobility Characteristics.** Javelin gunners can more easily determine where to look for enemy armored vehicles if they know the vehicles' mobility characteristics. If possible, tank and motorized rifle units will avoid terrain or obstacles that can stop or impede their movement. Terrain factors that restrict armored or mechanized vehicle mobility include--

- Slopes steeper than 30 degrees.

- Sturdy walls or embankments 3 or more feet high.
- Ditches or gullies 9 or more feet wide and 3 or more feet deep.
- Hardwood trees 10 inches or larger in diameter and 10 feet or less apart.
- Water obstacles at least 5 feet deep.
- Very swampy or very rough, rocky terrain.
- Built-up areas where vehicles are restricted to moving on confined roads, through park areas, or across sports fields.

b. Range Estimation. Javelin gunners do not need to know the exact range to a enemy target before engaging; they only need to know when it is in range. To speed this determination, gunners use a maximum engagement line. A Javelin maximum engagement line is an imaginary line drawn across a sector’s maximum allowable range from a Javelin firing position. To determine the location of this line on the ground, the squad leader or gunner identifies terrain features at or near maximum range. Therefore, any target that crosses or appears short of this line should be within range. Establishing a maximum engagement line greatly reduces target engagement times, especially for targets that seem to be near maximum range. Several range-determination techniques can be used to find the maximum range line or the range to specific targets.

(1) **Laser Range-Finding Method.** Most units and all forward observer teams should have laser range-finders. The range from the Javelin position to an easily identifiable terrain feature can be determined easily with the laser range finder. Once the maximum engagement line is determined, the gunner makes a note of a terrain feature at that location on his range card. Any vehicle nearing that feature will be in range.

(2) **Object Recognition Method.** Range determination by object recognition is simple and can be accurate with training. The soldier looks at the target with his naked eye, sights through 7X binoculars, or uses a Javelin optical sight. Targets listed in Table G-2 are recognizable out to the ranges indicated--for example, if a target can be recognized with the naked eye as an armored or wheeled vehicle, it is probably within 2,000 meters. When using this method, the gunner must consider terrain, visibility conditions, and target size.

TARGETS	RANGE (meters)	
	NAKED EYE	7X SCOPE
Tank crew members	500	2,000
Soldiers, machine gun, mortar	500	2,000
Antitank gun, antitank missile launchers	500	2,000

Tank, APC, truck (by model)	1,000	4,000
Tank, howitzer, APC, truck	1,500	5,000
Armored vehicle, wheeled vehicle	2,000	6,000

Table G-2. Range determination recognition method.

(3) **Map and Terrain Association Method.** The maximum engagement line can be determined from a map. Do this for each firing position as follows:

- Draw an arc on the map across the assigned sector of fire at 2,000 meters.
- Examine the map to identify the distinctive natural or man-made terrain features that the line touches.
- Study the terrain in the sector of fire using binoculars or the Javelin CLU until all the selected terrain features are located and positively identified.
- Connect these features by an imaginary line from the maximum engagement line.

G-8. PRINCIPLES OF FIRE CONTROL

Effective fire control requires a unit to rapidly acquire the enemy and mass the effects of fire in order to achieve decisive results. The following principles are fundamental to achieving effective fires. When planning and executing direct fires, the platoon leader and squad leaders should apply these principles of fire control (refer to Appendix F for a detailed discussion of principles of fire control):

- Mass the effects of fire.
- Destroy the greatest threat first.
- Avoid target overkill.
- Employ the best weapon for the target.
- Minimize friendly exposure.
- Minimize the chances for fratricide.

G-9. FIRE CONTROL MEASURES

Fire control measures must enable Javelin gunners to distribute or mass fires effectively into a given area and over time. Fire control measures are the means by which the platoon leader or subordinate leaders control fires. Application of these concepts, procedures, and techniques assists the unit in acquiring the enemy, focusing fires on him, distributing the effects of the fires, effectively shifting fires, and preventing fratricide. At the same time, no single measure is sufficient to effectively control fires. At the platoon level, fire control measures will be effective only if the entire platoon has a common understanding of what the fire control measures mean and how to employ them. When executing direct

fires, the platoon leader and squad leaders should apply these methods of fire control (refer to Appendix G for a detailed discussion of methods of fire control):

- Distribution of fires over a given area.
- Massing of fires into a given area.
- Distribution of fires over time.
- Massing of fires in time and space.
- Target reference points.
- Trigger lines and phase lines.
- Engagement priorities.

G-10. SELF-DEFENSE AGAINST HELICOPTERS

Because Javelin positions are selected to cover enemy armor avenues of approach, the medium-range fields of fire afforded by these positions also enable Javelin gunners to engage aircraft.

a. **Weapons Control Status.** The weapons control status established for air defense weapons applies to Javelin gunners too. Unless ordered otherwise, gunners should fire in unit self-defense only; for example, only engage aircraft that are attacking friendly positions.

b. **Self-Defense Engagements.** A Javelin gunner can automatically engage an enemy helicopter that is attacking its position. The gunner's target engagement sequence is the same as against ground targets. The Javelin should be in the direct-attack mode when engaging helicopters. The rotors of the helicopter may interfere with the sensors of the missile in the top-attack mode and result in erratic flight of the missile and a target miss.

APPENDIX H

RANGE CARDS AND SECTOR SKETCHES

The success of a defense depends on the positioning of soldiers and weapons. To position their weapons effectively, platoon leaders must know the characteristics, capabilities, and limitations of their weapons, the effects of terrain, and the enemy. However, the platoon leader is not done after merely positioning his weapons. He must ensure that each weapon can effectively engage the enemy, and the sum of his weapons can effectively mass coordinated direct fires on the enemy. The platoon leader accomplishes this by making his soldiers produce detailed range cards and by making his squad leaders and section leaders produce detailed, coordinated sector sketches. He personally inspects individual soldier positions, reviews subordinate sector sketches, and coordinates with adjacent units to develop a detailed and accurate platoon sector sketch.

Section I. RANGE CARDS

A range card is a sketch of the assigned sector that a direct fire weapon system is intended to cover. A range card aids in planning and controlling fires and aids the crews and squad gunners in acquiring targets during limited visibility. It is also an aid for replacement personnel or platoons or squads to move into the position and orient on their sector. The individual soldier or gunner should make the range card so that he becomes more familiar with the terrain in his sector. He should continually assess the sector and, if necessary, update his range card. To prepare a range card, the gunner must know the following information.

- Sectors of fire.
- Target reference points.
- Dead space.
- Maximum engagement line.
- Weapons or gunners reference point.
- Weapons symbol, left and right limits, and north seeking arrow.

H-1. SECTORS OF FIRE

A sector of fire is a piece of the battlefield for which a gunner is responsible. He may be assigned a primary and a secondary sector. Leaders use sectors of fire to ensure fires are distributed across the platoon's area of responsibility.

- a. A sector of fire is assigned to cover possible enemy avenues of approach. Leaders should overlap sectors to provide the best use of overlapping fire and to cover areas that cannot be engaged by a single weapon system.
- b. The leader assigns left and right sector limits using prominent terrain features or easily recognizable objects such as large rocks, telephone poles, fences, or stakes.

H-2. REFERENCE POINTS AND TARGET REFERENCE POINTS

Leaders designate natural or man-made features as reference points. A soldier uses these reference points for target acquisition and range determination. Some reference points may also be designated as target reference points. A TRP is an easily recognizable point on the ground (natural or manmade) used to initiate, distribute, and control fires. The company or battalion designates TRPs, and platoon and squad leaders also should designate TRPs. TRPs always should be visible. These also may be useful as indirect-fire targets.

- a. The commander or platoon leader designates TRPs used as indirect fire targets so that target numbers can be assigned.
- b. TRPs should be visible through all spectrums available to the unit. They must be easily identifiable to the defender during daylight. TRPs must be heated so they can be recognized with thermal sights, and they must have an infrared signature so they can be recognized through night vision devices.

H-3. DEAD SPACE

Dead space is any area that cannot be observed or covered by direct-fire systems within the sector of fire. All dead space within the sector must be identified to allow the platoon leaders and squad leaders to plan indirect fires (mortars, artillery, MK19, or M203) to cover the area. The squad leader must walk the engagement area to identify dead space for his M249s and M240B. When the vehicles are used in the defense, the section leaders must walk the engagement area so gunners can detect dead spaces through their remote weapons sighting system.

H-4. MAXIMUM ENGAGEMENT LINE

The MEL is the depth of the sector and normally is limited to the maximum effective engagement range of the weapons systems. However, it can be less if there are objects that prevent the soldier from engaging targets at maximum effective ranges of his assigned weapon. To assist in determining the distance to each MEL, the soldier should use a map to ensure that the MELs are depicted accurately on the range card. Identifying the MEL will decrease ammunition expenditure during an engagement.

H-5. WEAPONS REFERENCE POINT

The weapons reference point (WRP) is an easily recognizable terrain feature on the map used to assist leaders in plotting the vehicle, squad, or weapon position. The WRP is used to assist leaders in plotting positions and assisting replacement personnel in finding positions.

H-6. Weapons symbol, left and right limits, and north seeking arrow.

- **Weapon Symbol.** Indicates the type of weapon that the range card was designed for.
- **Magnetic North.** Take the range card and orient it with the assigned sector of fire. Use a lensatic compass to determine magnetic north. Keep the range card oriented to the sector of fire and draw the magnetic north symbol in the appropriate direction in the *Magnetic North* box.
- **Left Limit and Right Limit.** Left and right limits are imaginary lines from the gunner's firing position to a designated point on the ground. Use terrain features when possible to designate left

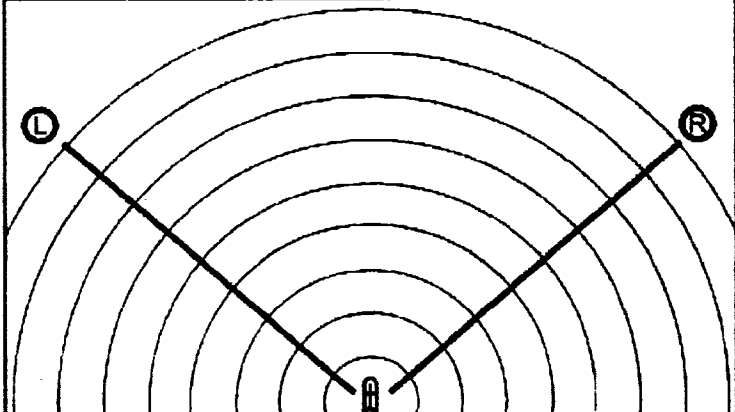
and right limits. Other recognizable objects such as a building or other man-made structures can be used. The area between the left and right limits depicts the gunner's sector of fire or area of responsibility.

H-7. PREPARATION PROCEDURES

The individual soldier or gunner prepares two copies of the range card. If alternate and supplementary firing positions are assigned, two copies are required for these as well. One copy is kept with the gunner and the other is given to the section or squad leader for his sketch.

- a. Draw the weapon symbol in the center of the small circle. Draw two lines from the position of the weapons system extending left and right to show the limits of the sector (Figure H-1). The area between the left and right limits depicts the gunner's sector of fire or area of responsibility. Number the left limit as *No. 1*, number the right limit *No. 2*, and place a circle around each number. *Record the azimuth and distance of each limit in the data section.*

STANDARD RANGE CARD
For use of this form see FM 7-7.1. The preparing agency is TRADOC.

SQUAD	May be used for all types of direct fire weapons.	PLT			
CO					MAGNETIC NORTH
					

DATA SECTION

POSITION IDENTIFICATION			DATE			
WEAPON		EACH CIRCLE EQUALS METERS				
NO.	DIRECTION/DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION	
REMARKS						

DA FORM 8617-A, FEB 1986 LEAF 1103

Figure H-1. Placement of weapon symbol and left and right limits.

b. Determine the value of each circle by finding a terrain feature farthest from the position and within the weapon system's capability. Determine the distance to the terrain feature. Round off the distance to the next even hundredth, if necessary. Determine the maximum number of circles that will divide evenly into the distance. The result is the value of each circle. Draw the terrain feature on the appropriate circle on the range card. Clearly mark the increment for each circle across the area where DATA SECTION is written. For example, in Figure H-2 a hilltop at 2,345 meters is used. The distance is rounded to 2,400 meters, divided by 8, and equals 300. Thus, each circle has a value of 300 meters.

STANDARD RANGE CARD
For use of all units see FM 7-7. The proponent agency is TRADOC.

SQUAD _____
PLT _____ May be used for all types of direct fire weapons.
CO _____

MAGNETIC NORTH

DATA SECTION

POSITION IDENTIFICATION _____ DATE _____

WEAPON _____ EACH CIRCLE EQUALS METERS 300

NO.	DIRECTION/DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS _____

DA FORM 5617-A, FEB 1986 LEAPM 11 88

Figure H-2. Circle value.

(1) Figure H-3, shows a farmhouse at 1,500 meters on the left limit. The wood line at 2,000 meters annotates the right limit. Determine the distance to these features by using a map or laser range finder. Note how the circle markings can assist in positioning the features on the range card.

STANDARD RANGE CARD
For use of this form see FM 7-7.1. The preparator agency is TMADDG.

SQD _____
PLT _____ May be used for all types of direct fire weapons. MAGNETIC NORTH
CO _____

DATA SECTION

POSITION IDENTIFICATION _____ DATE _____
WEAPON _____ EACH CIRCLE EQUALS METERS 300

NO.	DIRECTION/DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS _____

DA FORM 5517-R, FEB 1985 (2000 01 00)

Figure H-3. Terrain features for left and right limits.

(2) Draw all reference points and target reference points in the sector. Mark each with a circled number beginning with 1. Figure H-4 shows the hilltop as reference point (RP) 1, a road junction as RP 2, and road junction RP 3. There are times when a TRP and a reference point are the same point (for example, RP 2 and RP 3 above). The TRP is marked with the first designated number in the upper right quadrant, and the reference point is marked in the lower left quadrant of the cross. This occurs when a TRP is used for target acquisition and range determination. Road junctions are drawn by determining the range to the junction, by drawing the junction, and by drawing the connecting roads from the road junction.

STANDARD RANGE CARD
For use of this form see FM 7-7. The proponent agency is TRADOC.

SOC _____
 PLT _____ May be used for all types of direct fire weapons.
 CO _____

MAGNETIC NORTH

DATA SECTION

POSITION IDENTIFICATION _____ DATE _____

WEAPON _____ EACH CIRCLE EQUALS METERS 300

NO	DIRECTION: DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS _____

DA FORM 5617-R, FEB 1968 L&M V1 81

Figure H-4. Reference points and target reference points.

(3) Dead space (Figure H-5) is shown as an irregular circle with diagonal lines drawn inside. Any object that prohibits observation or coverage with direct fire will have the circle and diagonal lines extend out to the farthest maximum engagement line. If the area beyond the dead space can be engaged, the circle is closed.

STANDARD RANGE CARD
For use of this form see FM 7-7.3 The preparatory agency is TRADOC

SQD _____
 FLT _____ May be used for all types of direct fire weapons.
 CO _____

MAGNETIC NORTH

DATA SECTION

POSITION IDENTIFICATION _____ DATE _____

WEAPON _____ EACH CIRCLE EQUALS METERS 300

NO	DIRECTION/DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS _____

DA FORM 8617-R, FEB 1988 LEAD 61 04

Figure H-5. Dead space.

(4) MELs are shown as in Figure H-6. They are drawn at the maximum effective engagement range per weapon if there is no dead space to limit their range capabilities. MELs are not drawn through dead space.

STANDARD RANGE CARD
For use of this form and FM 7-7.1 The procuring agency is TRADOC

SOD _____
 PLT _____ MAGNETIC NORTH
 CO _____

May be used for all types of direct fire weapons.

DATA SECTION

POSITION IDENTIFICATION _____ DATE _____

WEAPON _____ EACH CIRCLE EQUALS METERS 300

NO	DIRECTION/DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS _____

DA FORM 5517-R, FEB 1988 LEADS 1/101

Figure H-6. Maximum engagement lines.

(5) The WRP (Figure H-7) is represented as a line with a series of arrows extending from a known terrain feature and pointing in the direction of the weapon system symbol. This feature is numbered last. The WRP location is given a six-digit grid. When there is no terrain feature to be designated as the WRP, the weapon system's location is shown as an eight-digit grid coordinate in the remarks block of the range card. (In Figure H-7 the WRP is number 4.)

STANDARD RANGE CARD
For use of this form see FM 7-7.3 The proponent agency is TRADOC

SQD _____
 PLT _____ May be used for all types of direct fire weapons.
 CO _____

MAGNETIC NORTH

DATA SECTION

POSITION IDENTIFICATION _____ DATE _____

WEAPON _____ EACH CIRCLE EQUALS METERS 300

NO.	DIRECTION/DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS _____

DA FORM 5517-R, FEB 1988 16490 1/01

Figure H-7. Weapon reference point.

c. Complete the data section (Figure H-8).

- (1) **Position Identification.** List primary, alternate, or supplementary positions. Alternate and supplemental positions must be clearly identified.
- (2) **Date.** Show date and time the range card was completed. Range cards, like fighting positions, are constantly updated. The date and time are vital in determining current data.
- (3) **Weapon.** The weapon block indicates weapon type.
- (4) **Each Circle Equals _____ Meters.** Write in the distance, in meters, between circles.
- (5) **NO (number).** Start with L and R limits, then list TRPs and RPs in numerical order.
- (6) **Direction/Deflection.** The direction is listed in degrees. The deflection is listed in mils.

(7) **Elevation.** The elevation is listed in mils.

(8) **Range.** This is the distance, in meters, from weapon system position to L and R limits and TRPs and RPs.

(9) **Ammunition.** List types of ammunition used.

(10) **Description.** List the name of the object (for example, farmhouse, wood line, or hilltop).

(11) **Remarks.** Enter the WRP data. As a minimum, WRP data includes a description of what the WRP is, its six-digit or eight digit grid coordinate, the magnetic azimuth, and the distance from the WRP to the position.

d. Complete the marginal information at the top of the card (Figure H-8).

(1) **Unit Description.** Enter unit description such as squad, platoon, or company. Never indicate a unit higher than company.

(2) **Magnetic North.** Orient the range card with the terrain and draw the direction of the magnetic north arrow.

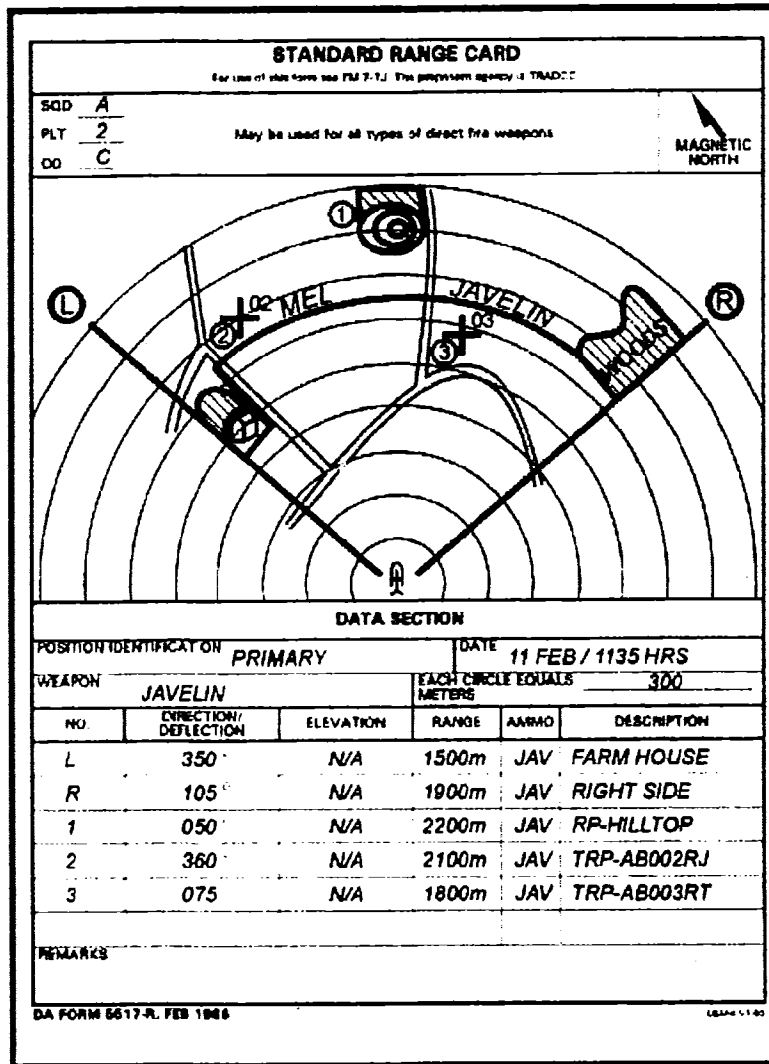


Figure H-8. Example of a completed range card.

Section II. SECTOR SKETCHES

Individual soldiers, crew-served weapon crews in the squads, and ICV gunners prepare range cards. Squad leaders prepare squad sector sketches, and section leaders prepare section sector sketches. The platoon leader reviews his squads' and sections' sector sketches and ensures the sketches meet his intent. If he finds any gaps or other flaws, the platoon leader adjusts weapons locations or sectors. Once the platoon leader approves the squad and section sector sketches, he prepares a consolidated report for the company commander and incorporates this into a consolidated platoon sector sketch. The platoon leader or platoon sergeant physically prepares the platoon sector sketch. The sector sketch can be on acetate taped to a map or it can be a hand drawn sketch. Accurate and detailed sketches aid in direct fire planning and in direct fire control and distribution.

H-8. SQUAD AND SECTION SECTOR SKETCH

The squad leaders and section leaders make two copies of their sector sketches; one copy goes to the

platoon leader, the other remains at the position. The squad leaders and section leaders draw sector sketches (Figure H-9) as close to scale as possible, showing:

- Main terrain features in the sector and the range to each.
- Each primary position.
- Engagement area or primary and secondary sectors of fire covering each position.
- M240B machine gun FPL or PDF (if applicable)
- M249 squad automatic weapon FPLs or PDFs.
- M2 and MK 19 FPLs or PDFs.
- Type of weapon in each position.
- Reference points and TRPs in the sector.
- Observation post locations.
- Dead space.
- Obstacles.
- MELs for all weapon systems.
- MELs for Javelin (if applicable) and AT4s.
- Indirect fire targets.

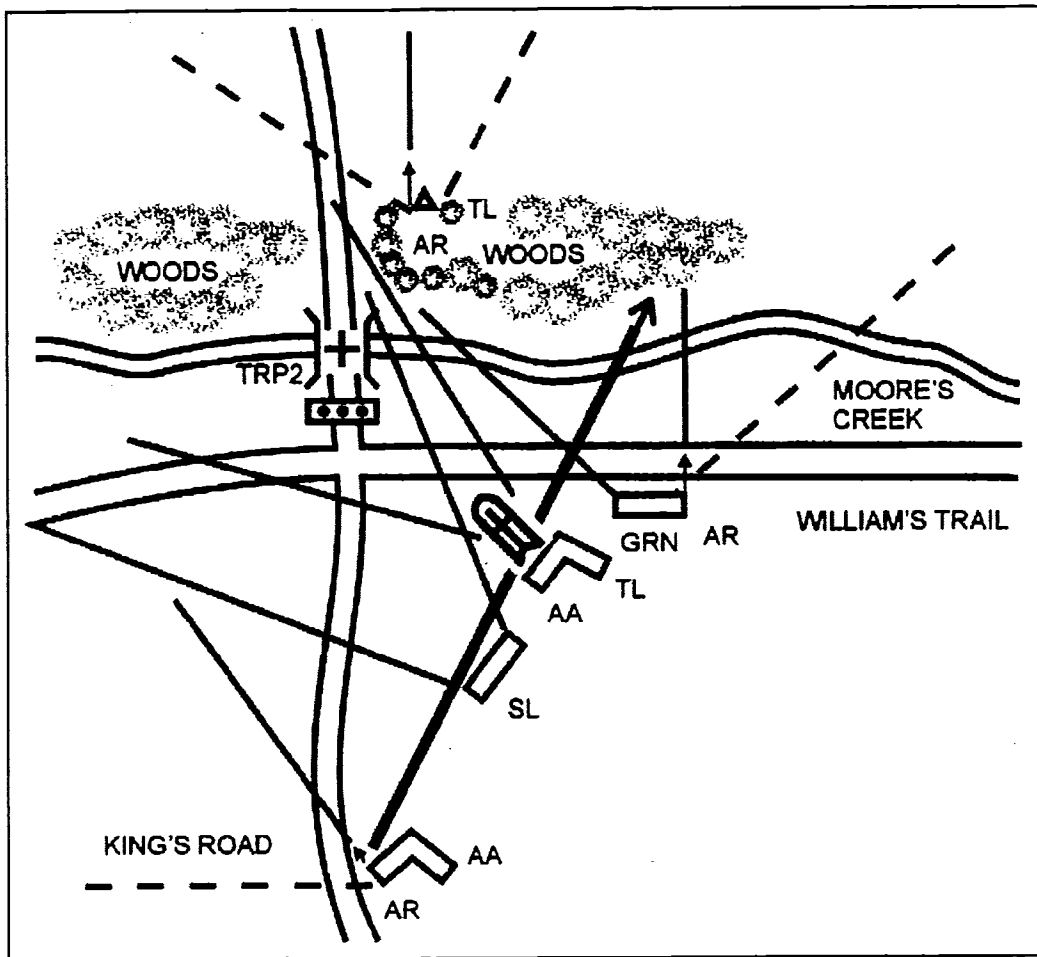


Figure H-9. Squad sector sketch.

H-9. PLATOON SECTOR SKETCH

Squad leaders and section leaders prepare their sketches and submit them to the platoon leader. The platoon leader combines all sector sketches (and possibly separate range cards) to prepare a platoon sector sketch. A platoon sector sketch (Figure H-10) is drawn as close to scale as possible and includes a target list for direct and indirect fires. One copy is submitted to the company commander, one copy is given to the platoon sergeant (controlling the mounted element), and one copy is given to the leader of the dismounted element (usually the platoon leader). As a minimum, the platoon sector sketch should show:

- Primary and secondary sectors of fire or engagement areas.
- Primary, alternate, and supplementary vehicle and squad positions.
- Remount points.
- Javelin, M240B, and M249 positions with primary directions of fire.
- M2 and MK19 positions with primary direction of fire.
- M240B and M249 FPLs or PDFs.
- MELs for all weapon systems.
- Observations posts.
- Target reference points.
- Mines and other obstacles.

- Indirect fire target locations and FPF location (if applicable).
- Position and sector of flanking unit vehicles.
- Priority engagement by weapon system and crew.

NOTE: FBCB2-equipped units provide leaders a more accurate means for recording and sharing sector sketch and range card data. If the platoon leader finds any gaps or other flaws, the platoon leader adjusts weapons locations or sectors. Once the platoon leader approves the squad sector sketches and vehicle range cards, he prepares a consolidated report and incorporates this into a consolidated platoon sector sketch. These locations are forwarded to company (then to battalion) using FBCB2 to plot the requisite no-fire areas and graphic fire control measures.

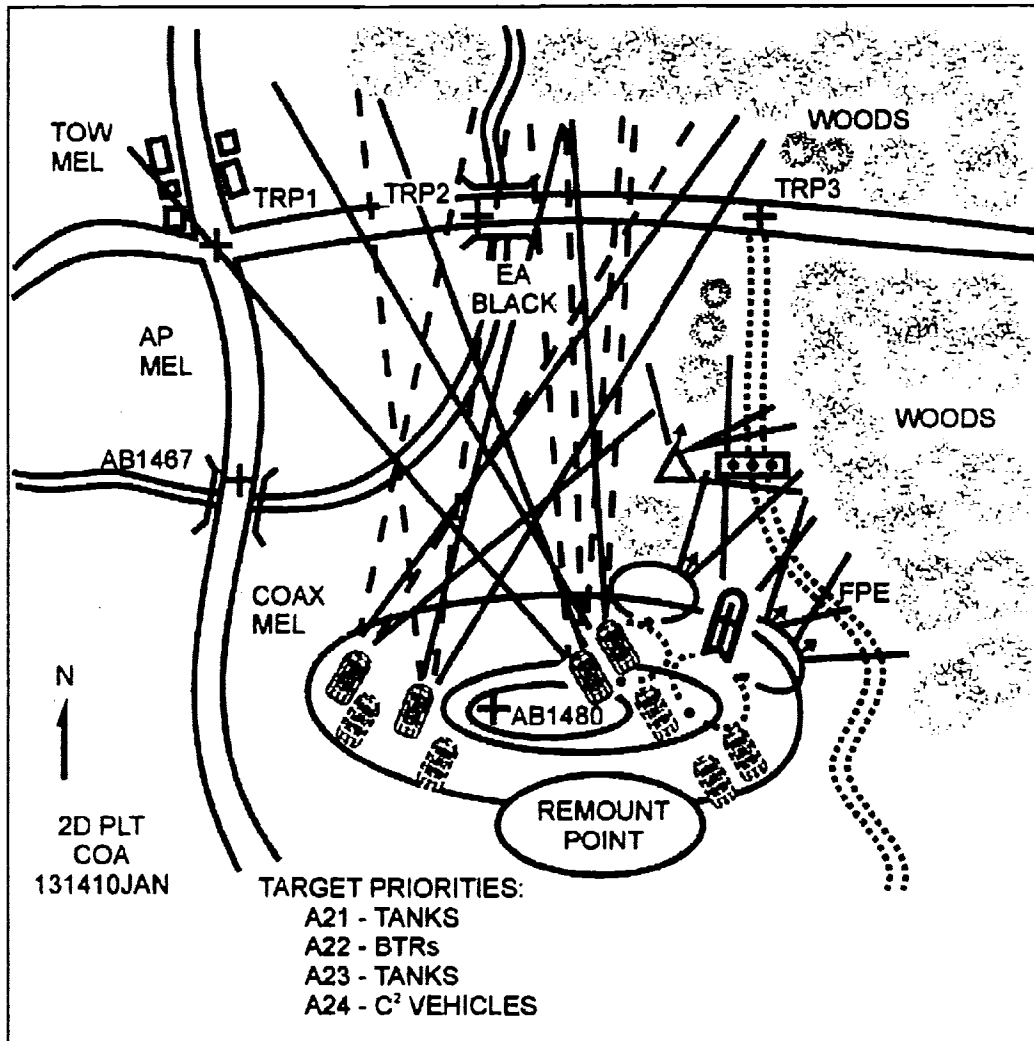


Figure H-10. Platoon sector sketch.

H-10. COORDINATION WITH ADJACENT UNITS

Platoon leaders coordinate with adjacent platoons, and squad leaders coordinate with adjacent squads, so that all positions and all platoons and squads are mutually supporting. The platoon leader must ensure that this coordination takes place. Coordination usually is initiated from left to right. As a minimum,

gaps between positions are covered by fire. Contact points are established to ensure friendly forces meet at some specific point on the ground to tie in their flanks. In many cases, the exchange of sector sketches will accomplish most of the coordination necessary for tying in the flank positions. Typical information that is exchanged includes:

- Locations of primary, alternate, and supplementary positions.
- Sectors of fire for ICVs, M240Bs, and Javelins.
- Location of dead space between platoons and how it is to be covered.
- Location of observation posts.
- Location and types of obstacles and how to cover them.
- Patrols (size, type, time of departure and return, and routes).

GLOSSARY

AA	assembly area; antiarmor
AAR	after-action review
ABF	attack by fire
ACE	ammunition, casualty, equipment (report)
ADA	air defense artillery
ADACC	air defense and air coordination cell
ADW	air defense warning
AFATDS	advanced field artillery tactical data system
AIM-1	laser aiming light for the M249, M60, and MK19
AMD	air and missile defense
AN/PAQ-4B/C	laser aiming light for the M16, M4, M203, codeable infrared light device
AN/PVS-14	night vision goggle
AN/TPQ-37	
AO	area of operation
AP	antipersonnel
ARTEP	army training and evaluation program
ASAS	all-source analysis system
ASLT POSN	assault position
AT	antitank
ATGM	antitank guided missile
ATK POSN	attack position
BAS	battalion aid station
BCIS	battlefield combat identification system
BDA	battle damage assessment
BHL	battle handover line

BMNT	beginning morning nautical twilight
BMP	Russian abbreviation for tracked infantry fighting vehicle
BN	battalion
BOS	battlefield operation systems
BP	battle position
BSA	brigade support area
BTR	abbreviation for Russian wheeled armored personnel carrier
C2	command and control
C3	command, control, and communications
C3I	command, control, communications, and intelligence
CAS	close air support
CASEVAC	casualty evacuation
CCP	casualty collection point
CDR	commander
CIV	commander's independent viewer
CLU	command launch unit
CO	company
COA	course of action
COLT	combat observation and laser team
COMSEC	communications security
COP	common operating picture
COTS	commercial off-the-shelf
CP	command post; checkpoint
CS	combat support
CSOP	combat security outpost
CSS	combat service support
CSSCS	combat service support control system

CTD	commander's tactical display
CTT	common task test
DA	Department of the Army
DAT	damage assessment team
DEUCE	deployable universal combat earthmover
DLIC	detachment left in contact
DM	designated marksman
DPICM	dual-purpose improved conventional munitions
DS	direct support
EA	engagement area
EENT	end of evening nautical twilight
EFST	essential fire support task
EPLRS	enhanced position location reporting system
EPW	enemy prisoner of war
ESV	engineer squad vehicle
ISG	first sergeant
FA	field artillery
FAAD	forward area air defense
FAC	forward air controller
FBCB2	force XXI battle command brigade and below
FDC	fire direction center
FEBA	forward edge of battle area
FFE	fire for effect
FIST	fire support team
FLIR	forward-looking infrared radar
FM	frequency modulated; field manual

FO	forward observer
FPP	final protective fire
FPL	final protective line
FRAGO	fragmentary order
FSE	fire support element
FSO	fire support officer
GCP-1	ground commander's pointer
GPS	global positioning system
GS	general support
GS-R	general support-reinforcing
HE	high explosive
HEAT	high explosive anti-tank
HEDP	high explosive, dual purpose
HMEE	high mobility engineer excavator
HPT	high profile target
HQ	headquarters
HTU	hand-held terminal unit
IAW	in accordance with
IBCT	interim brigade combat team
ICM	improved conventional munitions
ICV	infantry carrier vehicle
ID	identification
INU	inertial navigation unit
IPB	intelligence preparation of the battlefield

IR	infrared
ISR	intelligence, surveillance, and reconnaissance
IV	inter-visibility
IVIS	inter-vehicular information system
JP8	army common fuel
KIA	killed in action
LD	line of departure
LNO	liaison officer
LOC	line of communication
LOGPAC	logistics package
LWS	land warrior system
LZ	landing zone
MANPADS	man-portable air defense system
MBA	main battle area
MCOO	modified combined obstacle overlay
MCS	maneuver control system
MDMP	military decision-making process
MDI	modernized demolition initiator
MDS	modular decontamination system
MEC	medium engineer company
MEL	maximum engagement line
METT-TC	mission, enemy, terrain, troops and equipment, time available and civil considerations
MG	machine gun
MGS	mobile gun system

MICLIC	mine clearing line charge
MLRS	multiple launch rocket system
mm	millimeter
MOGAS	motor gasoline
MOPMS	modular pack mine system
MOPP	mission-oriented protective posture
MP	military patrol
MPAT	multipurpose antitank
MR	moon rise
MRE	meal, ready to eat
MRP	motorized rifle platoon
MS	moon set
MTC	movement to contact
NAI	named area of interest
NBC	nuclear, biological, and chemical
NCO	noncommissioned officer
NCS	net control system
NFA	no-fire area
NGF	naval gunfire
NLT	not later than
NVD	night vision device
NVG	night vision goggle
OBJ	objective
OAKOCCOKA	observation and fields of fire, avenues of approach, key terrain, obstacles, cover and concealment, obstacles, key terrain, avenues of approach
OBJ	objective

OP	observation post
OPCON	operational control
OPLAN	operations plan
OPORD	operations order
OPSEC	operational security
ORP	objective rally point
OT	observer target
OTN	own the night
PC	personnel carrier
PCC	precombat check
PCI	precombat inspection
PD	point of departure
PDF	principal direction of fire
PIR	priority intelligence requirements
PL	platoon leader
PLD	probable line of deployment
PLGR	precision lightweight global positioning system receiver
PNS	precision navigation system
POL	petroleum, oils, and lubricants
POSNAV	position navigation
PSG	platoon sergeant
PSYOP	psychological operations
PZ	pickup zone
RATELO	radiotelephone operator
RFL	restrictive fire line

RLEM	rifle-launched entry munitions
ROE	rules of engagement
ROI	rules of interaction
RRP	re-entry rally point
RSTA	reconnaissance, surveillance, and target acquisition
R&S	reconnaissance and surveillance
RP	release point; reference point
SALUTE	size, activity, location, unit, time, equipment (report)
SASO	stability operation and support operations
SAW	squad automatic weapon
SBCT	Stryker brigade combat team
SBF	support by fire
SDT	self-development test
SHORAD	short-range air defense
SINGARS	single-channel ground and airborne radio system
SITEMP	situational template
SITREP	situation report
SNAP	size or shape, nature or nomenclature, activity, protection or posture
SOI	signal operating instructions
SOP	standard operating procedures
SPOTREP	spot report
SR	sun rise
SS	sunset
SSCO	small-scale contingency operations
SU	situational understanding
SVML	standard vehicle-mounted launchers

TACP	tactical air control party
TI	tactical internet
TL	team leader
TLP	troop-leading procedures
TOW	tube-launched, optically tracked, wire-guided (missile)
TP-T	target practice-tracer
TRP	target reference point
TSOP	tactical standing operating procedures
TTP	tactics, techniques, and procedures
UAV	unmanned aerial vehicle
UO	urban operations (replacing term MOUT)
VC	vehicle commander
VIS	vehicular intercommunication system
VMS	vehicle motion sensor
WARNO	warning order
WCS	weapons control status
WIA	wounded in action
WP	whitephosphorus
WRP	weapons reference point
XO	executive officer

DEFINITIONS

Advanced Field Artillery Tactical Data System (AFATDS): A computer that provides fire support officers command and control and fire direction capabilities for field artillery. AFATDS replaces TACFIRE.

black lights: Various configurations of infrared light sources including buttons, post lights, bike lights, tube lights, and remote unit lights. The lights are powered by AA and 12-volt batteries. They can be used to mark landing and pickup zones, obstacles, checkpoints, routes, sectors of fire, TRPs, routes.

digital communications: The transmission of information using a digital radio.

digital system: Any combination of computers, radios, or software enhancing the soldier's ability to do his job.

digitization: The combination of a number of electronic enhancements designed to increase information sharing across the battlefield at all echelons. The enhancements functioning together are referred to as digitization

doctrine: The fundamental principles by which military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application.

flare, infrared, parachute: A parachute flare that emits infrared light once discharged. The flare is essentially the same as its conventional "white light" counterpart but it emits infrared light.

flare, handheld infrared: A handheld tube with an infrared flare on one end and a smoke on the other. The smoke burns for about 16 seconds and the flare's burn time is about 20 seconds.

goggles, night vision (AN/PVS-14): A night vision goggle fitted with a fourth generation image intensification tube that provides increased resolution and tube life. The goggles have a 40-degree field of view, weigh 680 grams, and are powered by two AA batteries or one lithium battery.

Javelin: An antitank weapon that has a 2,000+ meter range. It is a fire-and-forget missile that has a "top-down attack" capability. The Javelin has a second generation forward-looking infrared nightsight. The missile weight is approximately 50 pounds. This weapon is a replacement for the Dragon.

laser aiming light (Aim-1): A device that mounts on the M249, M-240B machine gun, and MK19 Grenade Launcher to fire an eye safe infrared laser aiming light on the target for improved target sighting. The Aim-1 weighs 200 grams and is powered by two AA batteries.

laser aiming light (AN/PAQ-4B/C): A pulsating infrared aiming laser that mounts on the M16, M4, M203, and M249. The laser is designed for use with night vision goggles and provides a pulsating laser on the spot the shooter intends to fire at for target sighting. The AN/PAQ-4 weighs 125 grams and is powered by two AA batteries.

magnifier 10X: A snap on/screw on optic lens for the AN/PVS-14 that magnifies the image seen in the image intensification tube to increase clarity and resolution. Weight is 190 grams.

own the night (OTN): Any system or piece of equipment designed to enhance the soldier's night fighting capability.

Phoenix codeable infrared light: An infrared light source used with night vision goggles that can be

programmed for a steady or flashing code or sequence up to 4 seconds in duration. The Phoenix weighs 57 grams and is powered by one 9 volt battery.

pointer, ground commander's (GCP-1): An infrared laser pointer/illuminator that provides clandestine target designation and illumination for night vision goggles. The laser beam can be adjusted from a thin to wide beam of infrared light, weighs 190 grams, and is powered by a 9-volt battery or two AA batteries.

POSNAV (position navigation): Any system providing individual soldier or unit locations via GPS or digital system. It greatly reduces the risk of navigation errors.

procedures: A standard detailed course of action that describes how to perform a task. Procedures prescribe the way of accomplishing tasks.

smoke, handheld infrared: A handheld tube with an infrared flare on one end and a smoke on the other. The smoke burns for about 16 seconds and the flare's burn time is about 20 seconds.

tactics: (1) The employment of units in combat. (2) The ordered arrangement and maneuver of units in relation to each other and/or to the enemy to use their full potential.

tactical SOP: A set of instructions covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness. The procedure is applicable unless ordered otherwise.

techniques: The general and detailed methods used by troops or commanders to perform assigned missions and functions, specifically, the methods of using equipment and personnel. Techniques describe a way, not the only way.

REFERENCES

DOCUMENTS NEEDED

These documents must be available to the intended users of this publication.

DA Form 5517-R Standard Range Card.

SOURCES USED

These are the sources quoted or paraphrased in this publication.

FM 7-8 Infantry Rifle Platoon and Squad. 22 April 1992.

READINGS RECOMMENDED

These sources contain relevant supplemental information.

ARTEP 7-8-DRILL Battle Drills for the Infantry Rifle Platoon and Squad. 3 November 1993.

FM 3-0 Operations. 14 July 2001.

FM 3-04.114 (FM 1-114) Air Calvary Squadron and Troop Operations. 1 February 2000.

FM 3-06.11 (FM 90-10-1) An Infantryman's Guide to Combat in Built-Up Areas. 12 May 1993.

FM 3-11.5 (FM 3-5) NBC Decontamination. 28 July 2000.

FM 3-21.11 The IBCT Company. (TBP)

FM 3-21.94 The SBCT Reconnaissance Platoon. (TBP)

FM 3-22.68 Crew-Served Machine Guns. (TBP) (This manual will supersede and replace FM 23-67 and FM 23-14.)

FM 3-34.2 (FM 90-13-1) Combined-Arms Breaching Operations. 31 August 2000.

FM 3-90 Tactics. 4 July 2001.

FM 4-02.26 (FM 8-10-26) Employment of the Medical Company (Air Ambulance). 16 Feb 1999. Change 1, 30 May 2002.

FM 5-34 Engineer Field Data. 30 August 1999.

FM 5-103 Survivability. 10 June 1985.

FM 6-30 Tactics, Techniques, and Procedures for Observed Fire. 16 July 1991.

FM 7-90 Tactical Employment of Mortars. 9 October 1992.

<u>FM 7-92</u>	The Infantry Reconnaissance Platoon and Squad (Airborne, Air Assault, Light Infantry). 23 December 1992.
FM 7-98	Operations in a Low Intensity Conflict. 10 October 1992.
<u>FM 8-10-6 (FM 4-02.2)</u>	Medical Evacuation in a Theater of Operations, Tactics, Techniques, and Procedures. 14 April 2002.
<u>FM 17-95</u>	Calvary Operations. 24 December 1996.
FM 21-18	Foot Marches. 1 June 1990.
<u>FM 23-10</u>	Sniper Training. 17 August 1994.
<u>FM 23-90</u>	Mortars. 1 March 2000.
FM 25-101	Battle Focused Training. 30 September 1990.
<u>FM 71-1 (FM 3-90.1)</u>	Tank and Mechanized Infantry Company Team. 26 January 1998.
FM 90-4	Air Assault Operators. 16 March 1987.
<u>FM 90-7</u>	Combined Arms Obstacle Integration. 29 September 1990.
<u>FM 90-8</u>	Counter guerrilla Operations. 29 August 1986.
FM 90-10	Military Operations on Urbanized Terrain (MOUT) (How to Fight). 15 August 1979.
FM 100-14	Risk Management. 23 April 1998.
<u>FM 100-19</u>	Domestic Support Operations (FM 7-10). 01 July 1993.
FM 100-20	Military Operations in Low Intensity Conflict. 05 December 1990.
FM 100-23	Peace Operations. 30 December 1994.
<u>FM 101-5-1 (FM 1-02)</u>	Operational Terms and Graphics (MCRP 5-2A). 30 September 1997.
<u>GTA 05-08-001</u>	Survivability Positions. 1 August 1993.
<u>GTA 07-06-001</u>	Fighting Position Construction--Infantry Leader's Reference Card. 1 January 1994.
<u>TC 7-98-1</u>	Stability and Support Operations Training Support Package. 05 June 1997.

INTERNET WEB SITES USED:

The following web sites were used in the preparation of this manual.

U. S. Army Publishing Agency, <http://www.usapa.army.mil>

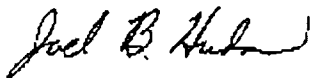
Army Doctrine and Training Digital Library, <http://www.adtdl.army.mil>

FM 3-21.9
2 DECEMBER 2002

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