

CHAPTER 5
OTHER TACTICAL OPERATIONS

This chapter discusses operations requiring special considerations. The fluid and rapidly changing environment of the AirLand battlefield will require units to conduct these operations more frequently and rapidly than in the past.

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Section I. RETROGRADE OPERATIONS

Retrograde operations are organized movements away from the enemy. A retrograde may be forced by enemy action or executed voluntarily. The underlying reason for conducting a retrograde operation is to improve a tactical situation or prevent a worse one from occurring. A retrograde operation may be used to economize forces, maintain freedom of maneuver, or avoid decisive combat. A battalion task force conducts a retrograde as part of a larger force to —

- Avoid combat under unfavorable conditions.
- Gain time.
- Reposition or preserve forces.
- Use a force elsewhere.
- Harass, exhaust, resist, and delay the enemy.
- Draw the enemy into an unfavorable position.
- Shorten lines of communication and supply.
- Clear zones for friendly use of chemical or nuclear weapons.
- Conform to the movement of other friendly forces.

5-1. TYPES AND PLANNING CONSIDERATIONS

a. **Types.** There are three types of retrograde operations: delay, withdrawal, and retirement. They can be characterized as follows:

Delay — Trade space for time and avoid decisive engagement to preserve the force.

Withdrawal — Break contact. (Free a unit for a new mission.)

Retirement — Move a force not in contact to the rear.

b. **Planning Considerations.** All retrogrades are difficult and inherently risky. To succeed, they must be well organized and well executed. A retrograde operation requires the following elements.

- (1) **Leadership and morale.** Maintenance of the offensive spirit is essential among subordinate leaders and troops in a retrograde operation. Movement to the rear may be seen as a defeat or a threat of isolation unless soldiers have confidence in their leaders and know the purpose of the operation and their role in it.
- (2) **Reconnaissance, surveillance, and security.** Timely and accurate intelligence is especially vital during retrograde operations. Reconnaissance and surveillance must locate the enemy so that security elements can deny him information and counter his efforts to pursue, outflank, isolate, or bypass all or a portion of the task force. The commander must constitute a security force that is strong enough to —
 - Secure enemy avenues of approach.
 - Deceive the enemy and defeat his intelligence efforts.
 - Overwatch retrograding units.
 - Provide rear guard, flank security, and choke point security.
- (3) **Mobility.** To conduct a successful retrograde, the task force seeks to increase its mobility and significantly slow or halt the enemy.
 - (a) The task force improves its mobility by—
 - Reconnoitering routes and battle positions.
 - Positioning air defense and security forces at critical points.
 - Improving roads, controlling traffic flow, and restricting refugee movement to routes not used by the task force.
 - Rehearsing movements.
 - Evacuating casualties, recoverable supplies, and excess materiel before the operation.
 - Displacing nonessential combat service support activities early in the operation.
 - Covering movements by fire.

- (b) The task force degrades the mobility of the enemy by—
 - Occupying and controlling choke points and terrain that dominate high-speed avenues of approach.
 - Destroying roads, bridges, and rafting on the avenues not required for friendly forces.
 - Improving existing obstacles and covering them with fire.
 - Employing indirect fire and smoke to degrade the enemy's vision and to slow his rate of advance. To ensure continuous coverage, task force mortars normally move in split sections.
 - Conducting spoiling attacks to keep the enemy off balance and force his deployment.
- (4) **Deception.** The objective of the deception is to hide the fact that a retrograde is taking place. This is essential for success. Deception is achieved by maintaining normal patterns of activity, such as radio traffic, artillery fires, patrolling, and vehicle movements. Additional considerations include using dummy minefield or decoy positions, and conducting feints and demonstrations under limited visibility conditions. Retrograde plans are never discussed on unsecure radio nets.
- (5) **Conservation of combat power.** The commander must conserve his combat power by —
 - Covertly disengaging and withdrawing less mobile units and nonessential elements before withdrawing the main body.
 - Using mobile forces to cover the withdrawal of less mobile forces.
 - Using minimum essential forces to provide security for withdrawal of the main body.

5-2. DELAY

A delay is an operation in which a force trades space for time while avoiding decisive engagement. The delay incorporates all of the dynamics of defense, but emphasizes preservation of the force and maintenance of a mobility advantage. The task force may attack, defend, or conduct other actions (such as ambushes and raids) during the delay to destroy the enemy or to slow his advance. The battalion task force may be given a delay mission as part of the covering force, as an economy-of-force operation to allow offensive operations in

another sector, or to control a penetration to set up a counterattack by another force.

a. Delay Missions.

- (1) A delay mission may be one of two types: delay in sector while avoiding decisive engagement, or delay forward of a specified line or position for a specified time. Examples of delay missions are:

TF 1-92 DELAYS IN SECTOR 151800B SEP _____ FROM NA _____ TO MR _____ TO MA _____ TO MB _____ TO DELAY THE ENEMY AS LONG AS POSSIBLE WHILE AVOIDING DECISIVE ENGAGEMENT.

or

TF 1-10 DELAYS IN SECTOR 030400A AUG _____ FROM NB _____ TO NB _____ TO NC _____ TO PREVENT THE ENEMY FROM CROSSING PL TIGER PRIOR TO 050400A AUG _____

- (2) Normally, a battalion task force delays in sector, and companies and platoons are assigned specific BPs to enhance command, control, and coordination across a wide area. In a delay, a determination must be made as to whether the preservation of the force or time is more important. This must be stated in the commander's intent.

b. Delay Fundamentals. The basic concept for delay is to retain freedom to maneuver while forcing the enemy to deploy repeatedly against successive battle positions. As the enemy uses artillery, deploys ground units, and begins maneuver, the delay force moves to subsequent battle positions to make the enemy initiate the same time-consuming process again. In doing this, the task force trades space for time. The delay is more difficult to execute if the initiative is left entirely to the enemy. Therefore, the task force commander must seize the initiative whenever possible. The following considerations are applied when planning and executing a delay:

- (1) **Centralize control and decentralize execution.** A delay is normally conducted on a wide front with maximum forces in contact and minimum forces in reserve. This results in a series of independent actions, and more consideration is given to attaching CS to companies.
- (2) **Maximize use of terrain.** Delay positions should be on terrain features that control the likely enemy avenues of approach. They should block the enemy where his movement is most canalized and facilitate maximum delay with minimum forces.

- (3) **Force the enemy to repeatedly deploy.** If possible, enemy reconnaissance elements will be ambushed. The enemy main body will normally be engaged at maximum range of all weapons to cause the enemy to deploy and maneuver. Repeated use of this technique slows the enemy and allows the commander to exchange space for time.
 - (4) **Maximize use of obstacles.** Reinforcing and existing obstacles are used on high-speed routes to slow the enemy's progress and to gain time for disengagement. To be effective, obstacles (including FASCAM) must be covered by fire.
 - (5) **Maintain contact with the enemy.** Continuous reconnaissance must be conducted to maintain contact with the enemy. Enemy forces will attempt to bypass, to envelop the flanks, or to penetrate between units conducting the delay. To prevent penetration or envelopment, contact must be maintained with all enemy forces encountered.
 - (6) **Avoid decisive engagement.** In a delay action, positions must be occupied long enough to force the enemy to deploy and maneuver. Disengagement criteria must be specified. The delay force moves from one delay position to another without becoming decisively engaged with the enemy unless required.
- c. **Delay Planning.** The following are planning considerations for development of courses of action to accomplish the delay mission:
- (1) Delaying forces must maintain a mobility advantage over the attacker. Enemy closure rates for the terrain should be calculated during wargaming and compared to friendly displacement rates between positions. Time-distance factors dictate the amount of time the commander has to engage the enemy and move his unit before becoming decisively engaged; these factors should be calculated for each avenue of approach. Situational templates must tell the commander where the enemy will be at certain times and help him decide where to emplace obstacles, and if or where decisive engagement is likely. The commander must use clearly defined decision or trigger points for displacing. This includes trigger points for employment of indirect fires and mortar displacement.
 - (2) Obstacles must slow the enemy long enough for the task force to engage and displace.
 - (3) Sectors of responsibility or battle positions are assigned to each committed company.

- (a) When using sectors, the task force commander assigns each likely enemy battalion avenue of approach in its entirety to one company. Boundaries are assigned so that terrain features that control fire and observation into a sector belong to the unit having responsibility for the sector. Contact and coordinating points are designated.
 - (b) If the terrain is suitable, battle positions are preferred in the delay.
- (4) The graphic control measures a commander chooses are key portrayals of his intent. Control measures used in the delay usually include —
- Phase lines of all higher commands.
 - Supplemental phase lines.
 - Checkpoints.
 - Battle positions and sectors.
 - Engagement areas and target reference points.
 - Contact points.
 - Passage points.
 - Assembly areas, main supply routes, and logistics release points.
 - Coordinating points.
 - Routes and lanes.

d. Delay from Successive Positions.

- (1) Delay from successive positions involves fighting rearward from one position to the next, holding each as long as possible or for a specified period. In this type of delay, all company teams are normally committed on each of the battalion task force delay positions or across the sector on the same phase line (see Figure 5-1, page 5-8).
- (2) Delay from successive positions is used when a sector is so wide that available forces cannot occupy more than a single line of positions. The disadvantages of this delay are lack of depth, less time to prepare subsequent positions, and possible occurrence of gaps between units. When ordered to move, the task force disengages, moves, and occupies the next designated position.

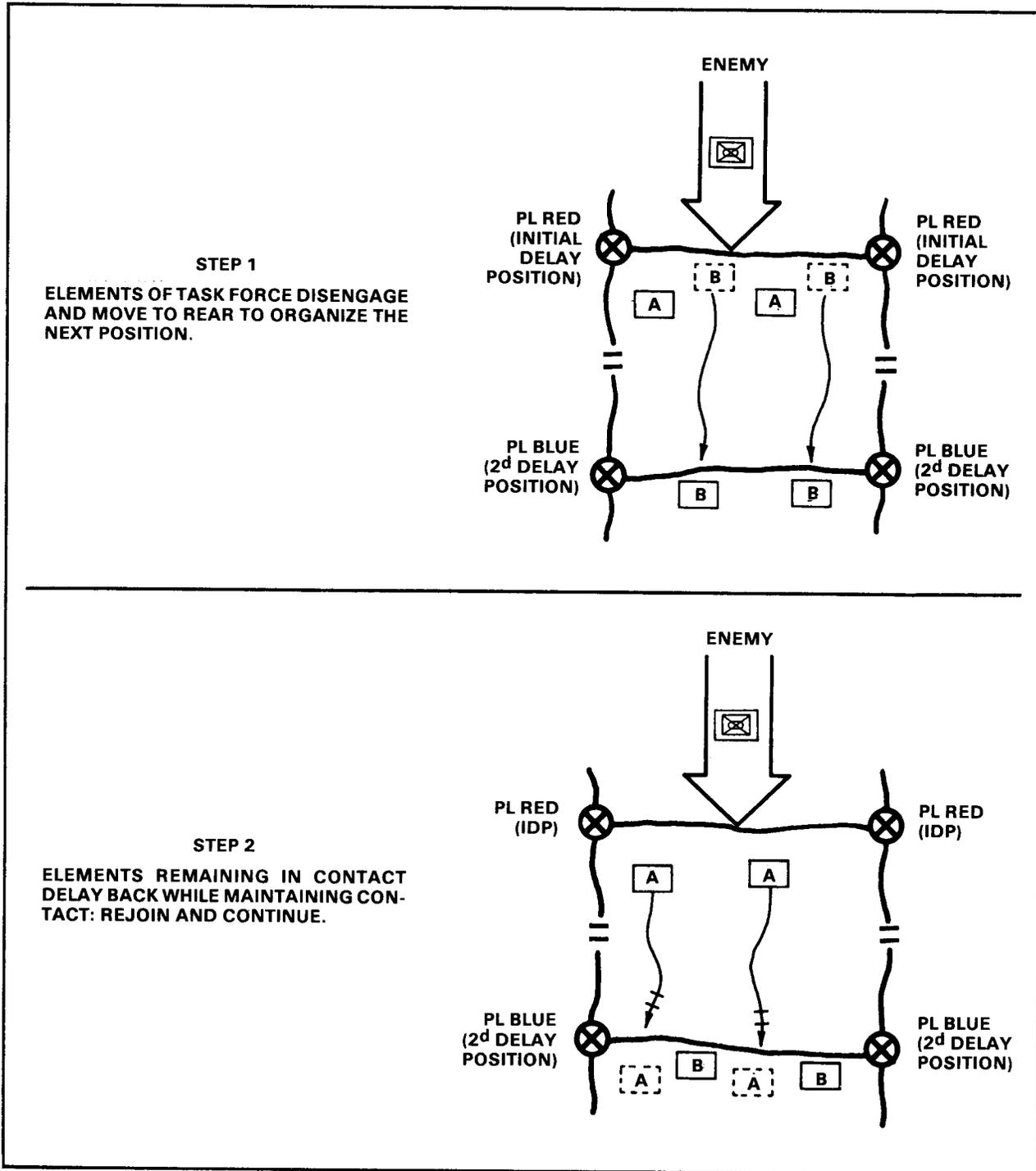


Figure 5-1. Delay from successive positions.

- (3) When the order to delay back is received, a portion of the unit concerned displaces directly to the rear and occupies the next designated position. The remainder of the unit maintains contact with the enemy between the first position and the next delay position. As these elements pass through, the enemy is engaged at maximum effective range from the next delay position. When the battalion task force is no longer able to hold the position without becoming decisively engaged, it moves to the next successive position.

e. Delay from Alternate Positions.

- (1) Delay from alternate positions may be used when a task force has a narrow sector or has been reinforced to allow positioning in depth. Employing this method, one or more company teams occupies the initial delay position and engages the enemy while the other teams occupy and prepare a second delay position. These elements alternate movement in the delay. While one element is fighting, the other occupies the next position in depth and prepares to assume responsibility for the fight.
- (2) Units occupying the initial delay position delay between it and the second delay position. When the delaying units arrive at the second delay position, they move through or around the units that are occupying the second position, and occupy the third delay position. Responsibility for delaying the enemy is assumed by the units on the second delay position. The delaying procedure is then repeated. Moving around the unit on the next delay position is preferred because this simplifies passage of lines (see Figure 5-2, page 5-10). Figure 5-3, page 5-11, provides a comparison of key considerations for use when determining the method of delay to be used.

f. Delay Position Selection.

- (1) A reconnaissance of delay positions is made as early as possible. Likely avenues of approach are determined, and plans are made to deny their use to the enemy. The commander selects positions that allow long-range fields of fire with routes suitable for rearward and lateral movement, and he establishes priorities of movement on these routes. Positions should incorporate as many of the following characteristics as possible:
 - Good observation and long-range fields of fire.
 - Covered or concealed routes of movement to the rear.
 - A road net or areas providing good cross-country trafficability.

- Natural (or reinforcing) obstacles on the front and flanks.
- (2) The commander assigns company team sectors astride likely enemy avenues of approach. Where possible, a company team is assigned a BP covering one major avenue of approach and the terrain dominating that avenue.
 - (3) The reserve is located initially in an area from which it can counterattack or move rapidly to reinforce.
 - (4) The battalion task force main CP and combat trains are well to the rear and normally behind the next rearward phase line. The tactical CP remains well forward in positions best suited to control the operation.

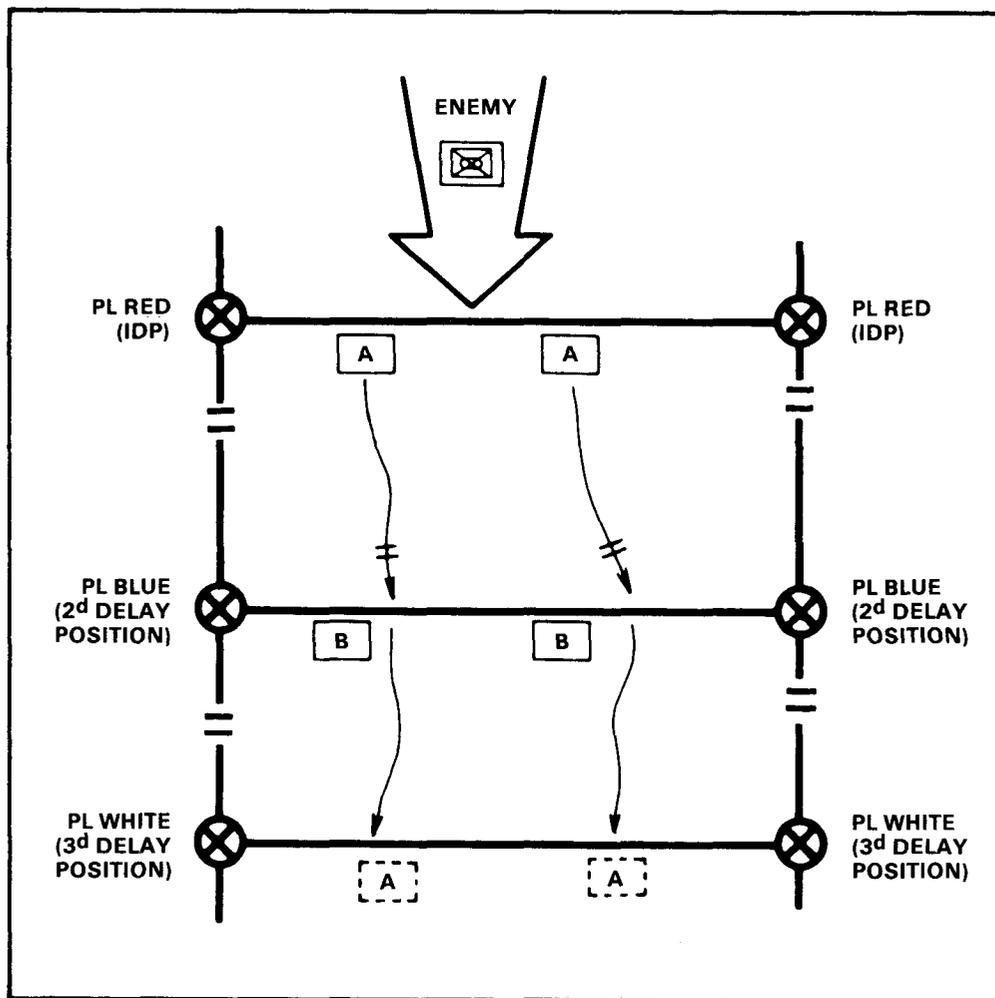


Figure 5-2. Delay from alternate positions.

METHOD OF DELAY	USE IS FAVORED WHEN:	ADVANTAGES	DISADVANTAGES
Delay from successive positions	<ul style="list-style-type: none"> — Sector is wide. — Forces available do not allow split operations. 	<ul style="list-style-type: none"> — Increased ability to mass fires. 	<ul style="list-style-type: none"> — Limited depth to the delay positions. — Less time available to prepare each position. — Less flexible.
Delay from alternate positions	<ul style="list-style-type: none"> — Sector is narrow. — Forces are adequate for split positions. 	<ul style="list-style-type: none"> — Allows positioning in depth. — Allows more time for equipment and soldier maintenance. 	<ul style="list-style-type: none"> — Requires continuous coordination. — Requires passages of lines.

Figure 5-3. Comparison of methods of delay.

- g. **Conduct of the Delay.** A commonly used sequence for the conduct of a delay is depicted as follows:
- (1) Initial delay positions are occupied, security and OPs are established, and priority of work is determined. Creating the illusion of a determined defense increases the amount of delay obtained.
 - (2) As the enemy approaches, long-range fires are used to inflict casualties, to disorganize him, and to force him to stop. If possible, enemy reconnaissance elements and advanced guard are destroyed by counterreconnaissance or ambushed.
 - (3) Each position occupied by a forward unit is defended until the enemy threatens an assault or envelopment of that position. Decisive engagement is avoided.
 - (4) The task force commander recommends to the brigade commander the appropriate time to move from brigade-designated delay positions. He moves on the basis of prearranged times, trigger points, or other decision criteria; on order, or when appropriate based on his commander's intent. He coordinates movement with higher and adjacent units. The task force moves only after considering the following.
 - (a) What is the strength, composition, and location of the enemy attacking force? Are elements of the task force threatened with decisive engagement or bypass?
 - (b) What is the status of adjacent units? How does their status affect the task force's capability to continue to delay?

- (c) What is the condition of the delay force in terms of losses in men, equipment, and morale?
 - (d) How strong is this particular position in relation to other positions that may be occupied?
 - (e) Is unit survivability or time key to the mission?
- (5) When maximum delay has been achieved, movement to the next delay position begins. Coordination of fires and recognition signals between the moving element and adjacent, supporting, and overwatch elements is an important task.
- (6) If elements of the task force are threatened with decisive engagement or have become decisively engaged, the commander may take several actions to facilitate their disengagement. In order of priority, he may do any of the following.
- (a) Allocate priority of all indirect supporting fires to the threatened unit. This is the most rapid and responsive method of increasing combat power of the unit.
 - (b) Direct adjacent units to engage enemy targets forward of the threatened unit. This may require repositioning of units adjacent to or behind the threatened unit.
 - (c) Reinforce the unit.
 - (d) Conduct a counterattack to disengage.
- (7) To redesignate a reserve, the task force commander designates the least engaged force to perform reserve missions, especially when delaying on successive positions. The reserve may also consist of an element in depth. When assigned multiple missions, the reserve force must be given priority of missions for planning. Reserve missions are —
- Reinforcing.
 - Assisting in disengagement.
 - Providing overwatch.
 - Assuming another unit's mission.
 - Counterattacking.
 - Blocking.
- (8) Each delay must end with a planned operation such as a defense, a withdrawal, or an attack.

5-3. WITHDRAWAL

A withdrawal is an operation in which all or part of the battalion frees itself for a new mission. A withdrawal is conducted to break contact with the enemy when the task force commander finds it necessary to reposition all or part of his force or when required to attain separation for employment of special purpose weapons. It may be executed at any time, during any type of operation. There are two types of withdrawals — withdrawal not under enemy pressure and withdrawal under enemy pressure. Both types begin while the battalion is under the threat of enemy interference. Preferably, withdrawal is made while the battalion is not under heavy enemy pressure.

Withdrawals are either assisted or unassisted. An assisted withdrawal uses a security force provided by the next higher headquarters to assist the main body in breaking contact with the enemy and to provide overmatching fires. In an unassisted withdrawal, the task force provides its own security force.

a. **Planning Considerations.** Planning considerations for the withdrawal are the same as for the delay. Withdrawals are accomplished in three overlapping phases.

- (1) **Preparatory phase.** Reconnaissance and quartering elements are dispatched, warning orders are issued, and planning is initiated. Trains, main CP elements, and nonessential vehicles are relocated to the rear.
- (2) **Disengagement phase.** Designated elements begin their movement to the rear. When contact with the enemy is broken, they assemble and conduct a tactical movement to a designated assembly area or position.
- (3) **Security phase.** A detachment left in contact (DLIC) assists disengagement of other elements, assumes responsibility for the battalion sector, deceives the enemy, and protects the movement of disengaged elements with maneuver and fires. This phase ends when the DLIC completes its movement to the rear.

b. **Withdrawal Not Under Pressure.**

- (1) A withdrawal not under enemy pressure depends on speed of execution and deception. If the task force is not under attack, then withdrawal is not under enemy pressure. Deception and operations security are essential to success. The enemy must not be aware that a withdrawal is taking place.

- (a) Deceptive measures used are—
 - Simulating or continuing normal activities, with a DLIC that deceives the enemy into believing that defending forces are still in position.
 - Continuing communications in a normal manner.
 - Continuing patrolling activity.
 - Using limited visibility to cover withdrawal.
- (b) Operations security complements the deception effort. Nothing is transmitted that might compromise the intention to withdraw. Noise and light discipline is maintained. Movements may be masked by artillery fire, and counterreconnaissance activities are continued.
- (2) Before the withdrawal, a thorough reconnaissance is conducted, and control measures are established to ensure control. Each company's key leaders need to know the plan of withdrawal in detail and should participate in the leader's reconnaissance. The leaders reconnoiter the start points, routes, release points, and assembly areas (see Figure 5-4). Reconnaissance should be conducted during a condition of visibility that approximates the withdrawal conditions.
- (3) The task force commander states the following in the operation order:
 - When the withdrawal will start.
 - Where the task force assembly area is (if used) and what each company team is to do upon arrival there.
 - The location of each company team assembly area.
 - What routes to take from the company team assembly areas to the task force assembly area, or to the next position.
 - The DLIC's size, composition, mission, and commander.
 - Subsequent task force and company team missions.
- (4) In an assisted withdrawal, the brigade establishes a security force. The task force commander withdraws behind this force.
- (5) In an unassisted withdrawal not under pressure, a DLIC is organized from elements from each company in contact with the enemy. Command and control of the DLIC is exercised to closely simulate normal task force activities. The task force S3 is in charge of the battalion DLIC, with company XO's in charge of their respective DLICs. The task force commander may leave a company team intact as the

DLIC. When that occurs, elements of the company team are repositioned to cover the entire task force sector. When the main danger is on a single company team's approach, the task force commander may leave that team in position and attach security elements from the other approaches to it.

- (6) The task force commander determines the size and composition of the DLIC based on METT-T. The DLIC is able to detect the enemy, deceive him, and engage him on all avenues of approach with both direct and indirect fires.

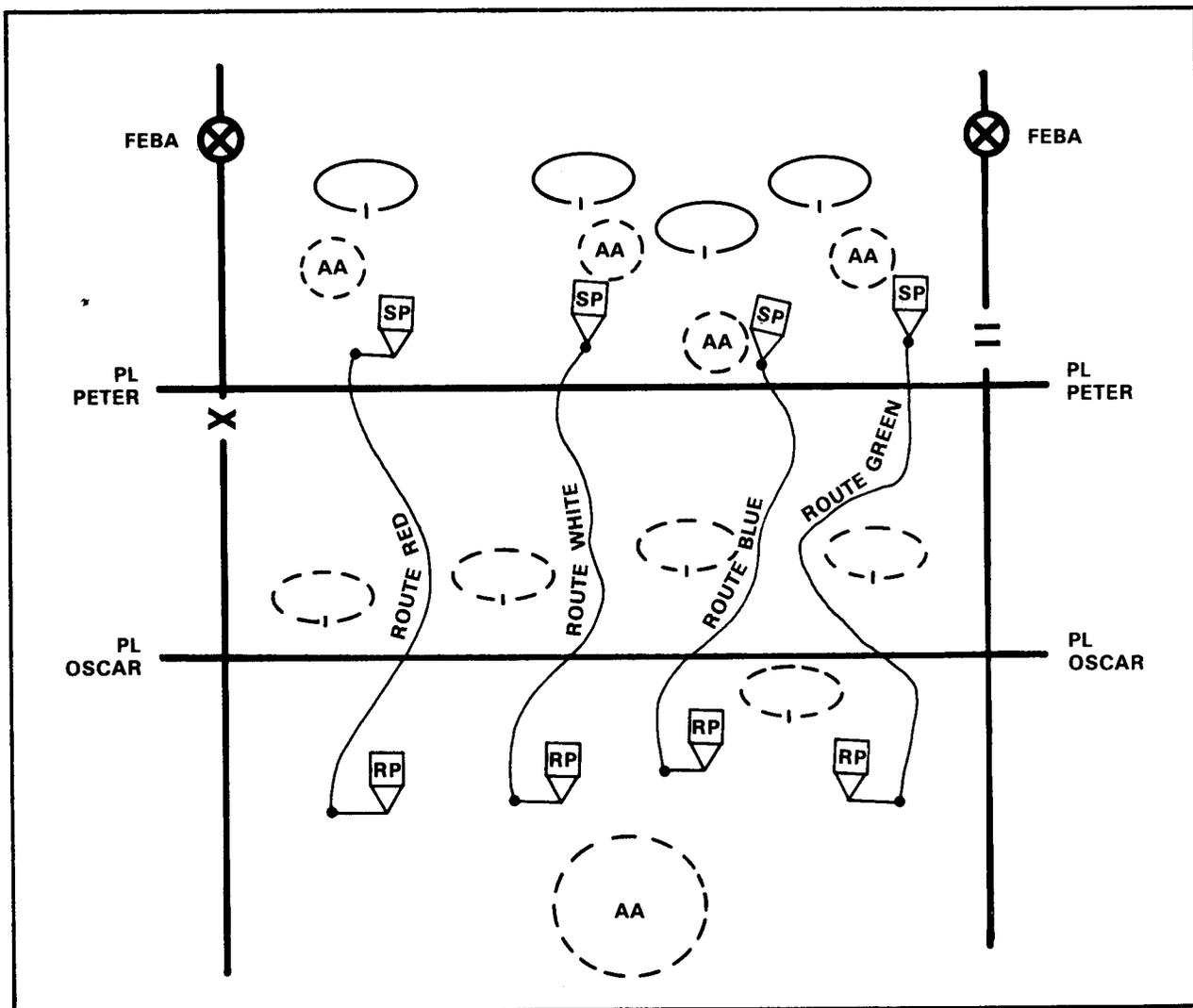


Figure 5-4. Control measures for withdrawal not under pressure.

- (7) The main body of the task force is composed of the remaining maneuver, combat support, and control elements. Its mission is to displace using stealth, move along designated routes, assemble, and move to a new location in preparation for the next mission.
- (8) Reserves or units positioned in depth within the battalion sector may coordinate withdrawal before, during, or after the displacing elements of the forward companies. Generally, they will withdraw after these elements. This increases flexibility and security in the event the enemy detects the withdrawal and attacks.
- (9) The main body moves on designated routes to the next position according to priorities established by the task force commander. Main body elements may also be given on-order missions to defend, delay, or counterattack during the withdrawal (see Figure 5-5).

c. Withdrawal Under Pressure.

- (1) A withdrawal under enemy pressure depends on maneuver and firepower to break contact as the enemy attacks the task force. A reconnaissance is conducted to the rear to identify routes that offer the best cover and concealment and to determine engineer assistance required to overcome obstacles. The planning closely resembles that of the delay in regard to the use of available organic and nonorganic assets.
- (2) The task force commander should prescribe specific control measures (see Figure 5-6, page 5-19) to maintain order during the withdrawal under enemy pressure. These measures may include—
 - Sectors.
 - Battle positions.
 - Phase lines.
 - Routes.
 - Passage lanes or passage points.
 - Contact points.
 - Checkpoints.
 - Battle handover line.
- (3) Success of the withdrawal under pressure depends on facilitating disengagement of the main body by massing its own fires and overmatching fires provided by a security force.

The brigade commander may place adjacent units or a reserve in overwatch, or may require them to conduct security operations or limited counterattacks to support the withdrawing task force.

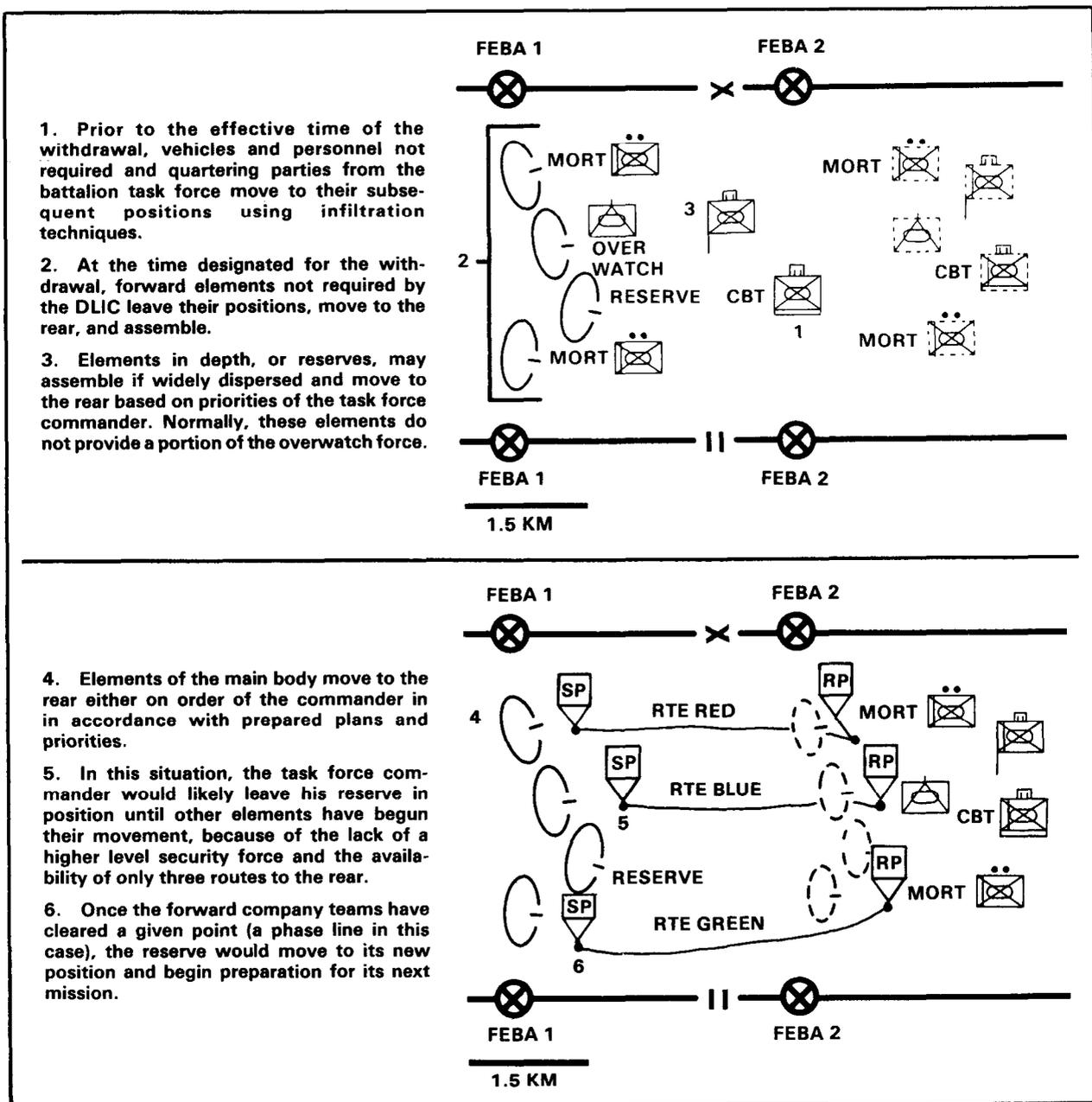


Figure 5-5. Withdrawal not under enemy pressure.

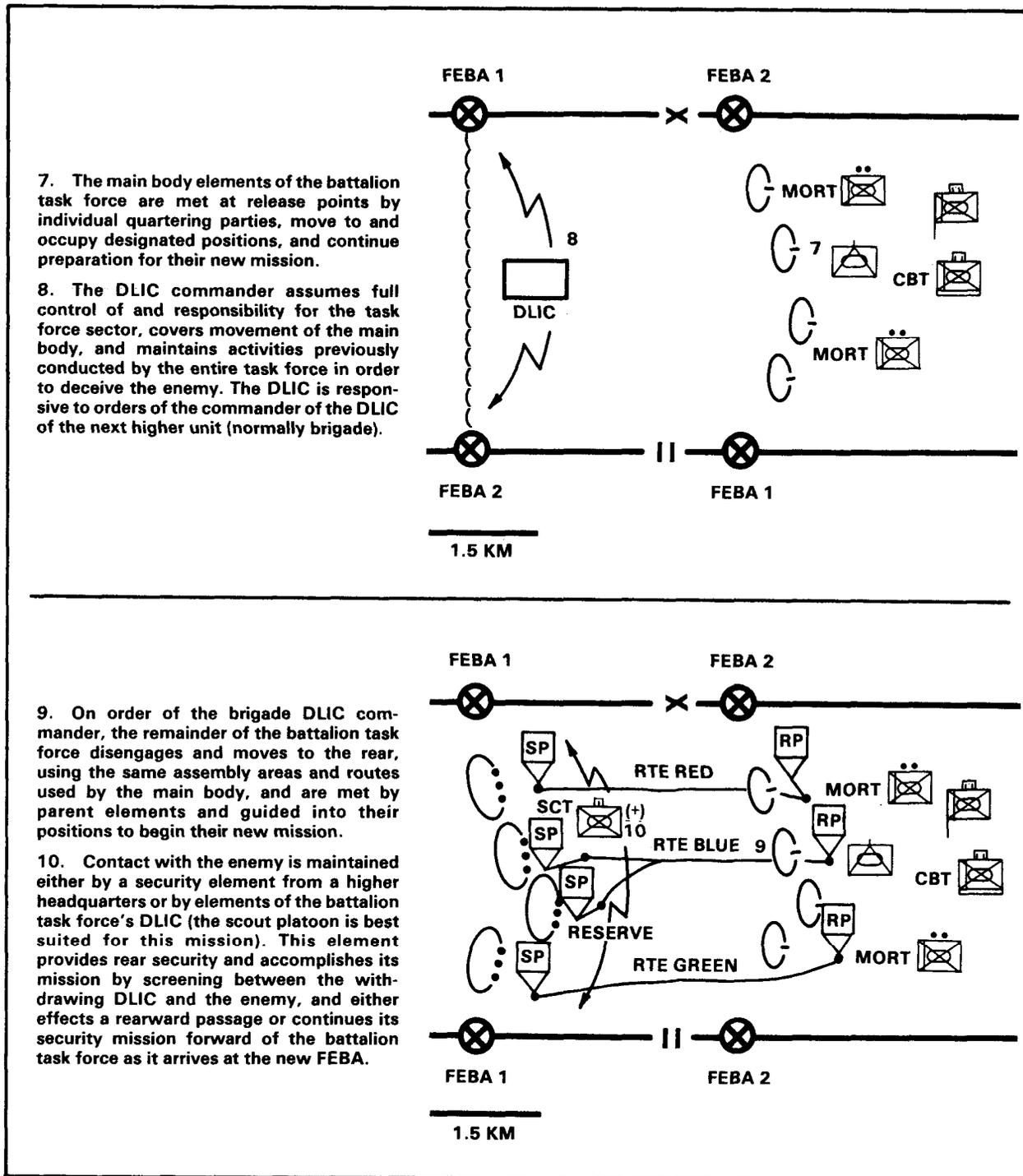


Figure 5-5. Withdrawal not under enemy pressure (continued).

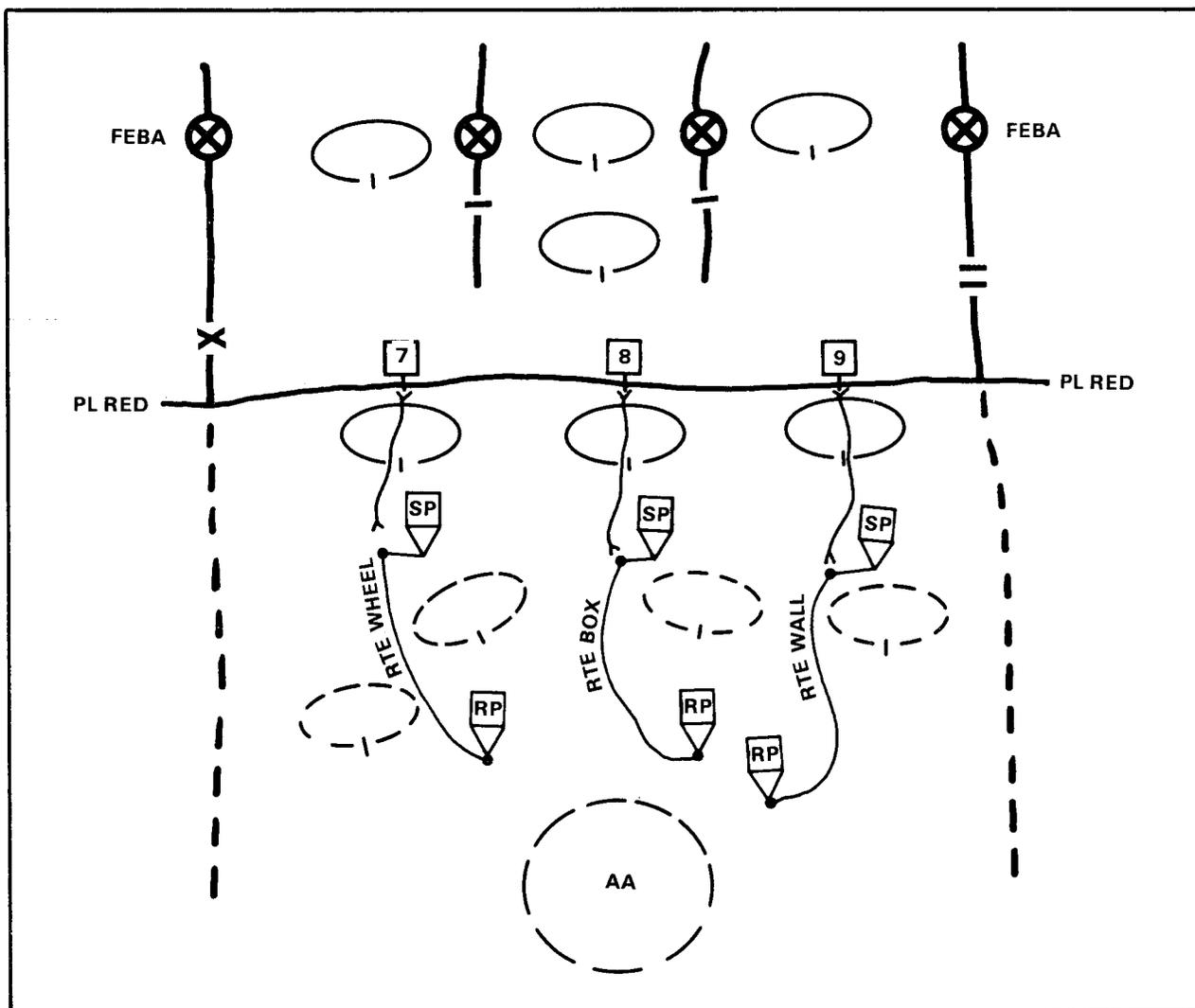


Figure 5-6. Control measures for withdrawal under enemy pressure.

- (4) To assist withdrawing elements, the security force must be strong enough to detect and engage the enemy on all avenues of approach. The task force may form its own security force from forward company team elements. Missions of the security force are —
- Stop, disrupt, disorganize, or reduce the enemy's capability to pursue.
 - Reduce, through smoke and suppressive fires, the enemy's capability to observe movement of the task force.

- Rapidly concentrate additional combat power in critical areas.
- (5) As the order to withdraw is given, the battalion must engage the enemy with concentrated direct and indirect fire to enable the withdrawing force to disengage, conduct a rearward passage through the security force, assemble, and move to their next position.
- (6) The security force assumes the fight from the forward elements. This includes delaying the enemy advance while the bulk of the task force conducts movement to the rear. On order or when other predetermined criteria are met, the security force disengages itself and moves to the rear as a rear guard. Depending on the task force's next mission, the security force may be required to maintain contact with the enemy throughout the operation.

5-4. RETIREMENT

- a. A retirement is a retrograde operation in which a force that is **not in contact** with the enemy moves to the rear in an organized manner. A retirement is usually made at night. If enemy contact is possible, on-order missions are given to the march units.
- b. A retirement may have an adverse impact on the morale of friendly troops. Leadership must be positive and must keep troops informed of the purpose of the retirement and future intentions of the chain of command.
- c. A task force conducts a retirement as part of a larger force.

Section II. PASSAGE OF LINES

A passage of lines is an operation in which one unit is passed through the positions of another. When a unit moves toward the enemy through a stationary unit, it is a forward passage. Rearward passages are movements away from the enemy through friendly units. The covering force withdrawing through the main battle area, or an exploiting force moving through the initial attacking force, are examples.

5-5. PURPOSE

- a. A passage of lines is necessary when one unit cannot bypass another. A passage of lines may be conducted to:

- Continue an attack or counterattack.
 - Envelop an enemy force.
 - Pursue a fleeing enemy.
 - Withdraw covering forces or main battle.
- b. The task force is vulnerable during a passage of lines. As units are concentrated, the fires of the stationary unit may be masked and the task force is not disposed properly to react to enemy action. Detailed reconnaissance and coordination are key to ensure a quick and smooth passage.

5-6. PLANNING CONSIDERATIONS

The commander of the passing unit makes a tentative plan for the conduct of the operation as follows.

- a. **Organization.** Task organization is determined and effected before movement to passage.
- b. **Order of Movement.** An order of movement is prescribed, based on the scheme of maneuver once passage is completed, the number of passage points, the degree of security required, the enemy situation, and the terrain. A movement order precludes confusion and congestion by setting priorities on unit movements.
- c. **Command and Control.**
- (1) Multiple passage points and routes are established with centralized control. To ensure coordination of passage with a minimum of confusion and misunderstanding, the command groups of the passing and stationary units are collocated. In this manner, the FSOs and FACs of the two units can coordinate and pass responsibility in accordance with the commanders' guidance.
 - (2) In a forward passage of lines, the commander of a passing unit assumes responsibility for the zone of attack when his lead elements reach the release point(s) of the passage lanes. In a rearward passage of lines, the responsibility for a sector normally changes when the passing unit lead elements enter the passage lane or cross the battle handover line, whichever comes first. Responsibility may also be event-related, based on the passage of a specific number of companies through the passage points. Coordination and control of the task force through the passage points are facilitated if the boundaries of the passing unit and the stationary unit coincide.

- d. **Control Measures.** Within the area of passage, the same control measures should be used by both passing and stationary units. Control measures include—
 - Assembly areas.
 - Battle handover line (BHL).
 - Attack position.
 - Passage lanes.
 - Passage point.
 - Time of passage.
 - Recognition signals.
 - Contact point.
 - Routes, including start and release points.
- e. **Fire Support.** Direct and indirect fires of the stationary unit are integrated into the fire support plan of the passing unit. Command and control may be collocated to provide coordinated and responsive support. All direct and indirect fire support responds directly to the commander responsible for the zone of action.
- f. **Reconnaissance.** A thorough reconnaissance covers routes to, through, and beyond the area of passage. The reconnaissance should note existing and proposed troop locations. A technique to ensure deception during a forward passage is to limit the number and size of reconnaissance parties and use vehicles of the stationary unit.
- g. **Coordination.** During the planning process, commanders and staffs of the units involved coordinate the following:
 - Exchange of intelligence.
 - Exchange of tactical plans.
 - Exchange of signal operation instructions (SOI) information.
 - Arrangements for reconnaissance.
 - Security measures during the passage.
 - Selection of areas of passage and provisions for guides.
 - Priorities for routes and facilities, including provisions for movement control. The passing unit has priority.
 - Time or circumstances when responsibility for the control of the area of operations is transferred.
 - Fire and other combat support to be provided by the unit in contact.

- Combat service support to be provided by the unit in contact, including medical, maintenance, and recovery assistance.
- Exchange of liaison personnel.
- Exchange of information on minefield and other obstacles.
- Command relationship between the passing unit's CS and CSS assets and the unit in contact, including site locations.
- Tactical cover and deception plans.

5-7. REARWARD PASSAGE

This paragraph implements STANAG 2082 (Edition 5), paragraph 5c.

- a. The commander of the stationary unit designates the contact point for coordination and notifies the passing unit of its location, if this has not been designated by higher headquarters. The stationary unit eavesdrops on the forward unit's net to stay abreast of the tactical situation.
- b. The contact point is normally on an easily identifiable terrain feature forward of the battle handover line. At the prescribed time, liaison parties from the two units meet and do the following:
 - (1) Exchange:

This subparagraph implements STANAG 2129 (Edition 3), paragraph 6c(1).

- Latest enemy information (size and type of force, location and direction of movement).
 - Recognition signals.
 - Signs and countersigns.
 - SOI information.
- (2) Verify:
- Provisions for and placement of guides.
 - Estimated time of main body arrival, and numbers and types of vehicles to pass.
 - Time or event for battle handover.
 - Minefield and obstacle information.
 - Passage points, lanes, and alternates.

- (3) Coordinate:
- Passed force's security force positions to support the handover.
 - Supporting direct and indirect fires.
- c. Scouts of the stationary unit screen along the battle handover line and monitor the passing unit's command net.
 - d. After verification that the passage points are occupied, scouts or liaison parties make contact at each passage point. The passing unit's scouts must know which units are to pass through their respective passage points. The passing unit will pass in order CSS elements, main CP, combat support elements, tactical CP, and combat units. For ease of control, the passing unit temporarily collocates its tactical CP with the tactical CP of the stationary unit near the FEBA.
 - e. The passage points should be manned with the passing task force scouts and representatives from the forward companies of the stationary units. Lanes through obstacles are marked and provisions are made to quickly close them. Both scout platoon leaders collocated near the battle handover line monitor the progress of the passage and are not distracted with the requirement to man passage points. The stationary unit scout platoon may not have sufficient combat power to screen the battle handover line. Additional combat power can be obtained by placing a tank or antiarmor platoon under OPCON of them or by using a company team in lieu of the scouts. The scout platoon may be placed under OPCON of the company team. A composite force using scouts, antiarmor platoons, and a tank platoon may also be formed and placed under the command of the antiarmor company commander.
 - f. The mission of the unit on the battle handover line is to assume responsibility for the fight from the forward task force. If passing units are in contact, their maneuver elements must bound behind the BHL, covered by the passed unit. The passing units must quickly redeploy into column formation, display the proper visual signal, orient weapons toward the enemy, and move rapidly to the passage point and to the release point. Care must be taken to avoid friendly obstacles emplaced in the MBA. The BHL should also be far enough forward to allow the passing unit room to move into the column, yet close enough to permit overwatch by units along the FEBA (see Figure 5-7).
 - g. The stationary unit's scouts notify their forward company teams that friendly forces are at the BHL and are en route to the passage point.

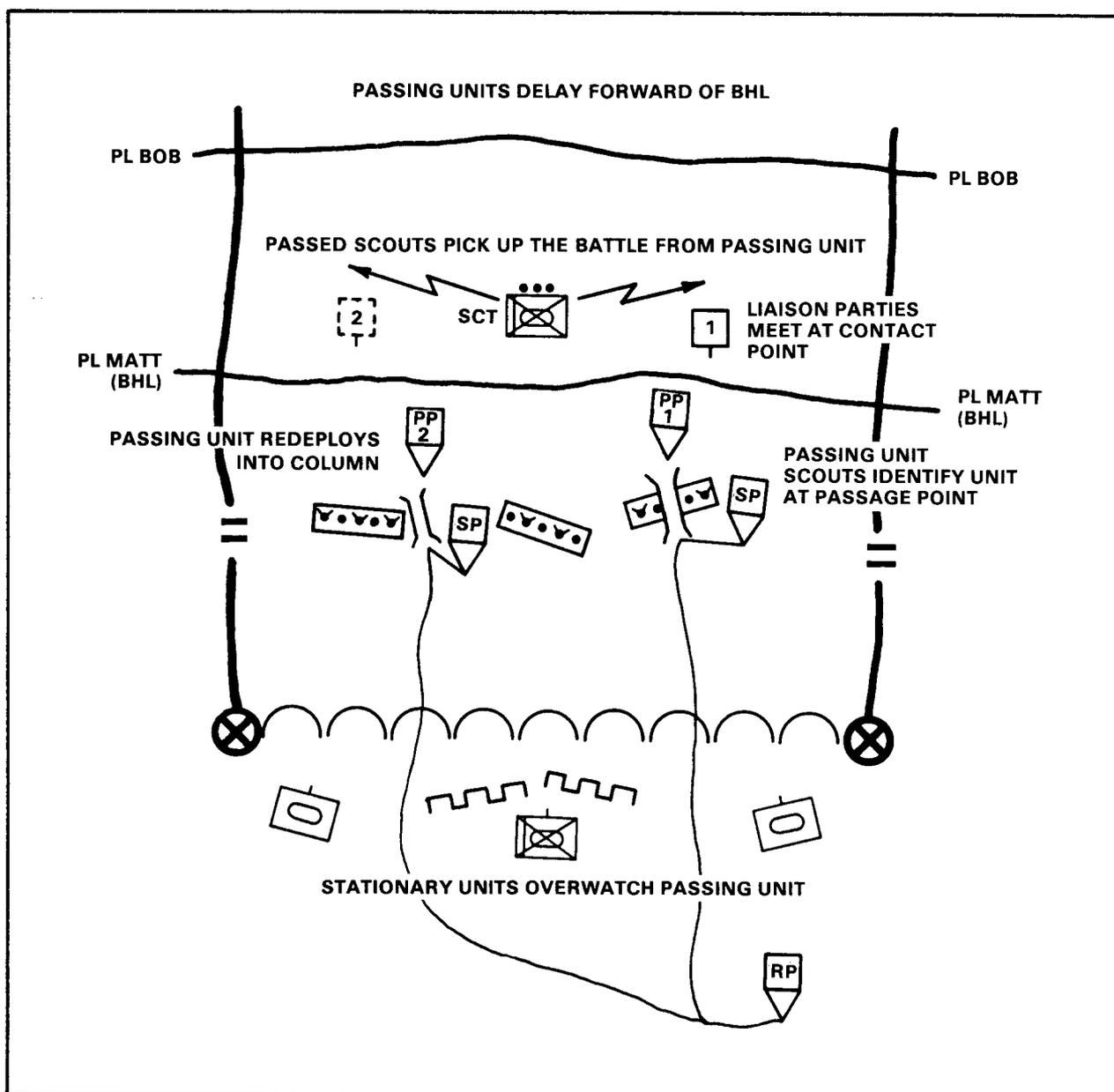


Figure 5-7. Battalion task force rearward passage of lines.

- h. The passing unit's vehicles move quickly through passage points and are led along the routes to the rear, while overmatched by the stationary unit. The stationary task force commander, company team commanders, and platoon leaders must carefully observe this passage. The only time the stationary unit should

fire is when positive enemy identification is made. The commander of the passing unit is responsible for identifying the last element of his command as it passes through the stationary unit's positions.

- i. Disabled vehicles are self-recovered, destroyed in place, or assisted by other elements of the passing unit. The stationary unit provides medical assistance, fuel, oil, lubricants, and maintenance as required after passage is complete.
- j. Because of potential congestion at passage points, passing units must move rapidly to minimize exposure time.

5-8. FORWARD PASSAGE

This paragraph implements STANAG 2082 (Edition 5), paragraph 5b.

- a. Upon receipt of the order to pass forward through another unit, the stationary and passing battalion task force commanders initiate actions similar to a rearward passage. The task force commander and/or S3 coordinates a forward passage. The critical information exchanged is the same as in a rearward passage, except the stationary unit will know more about the terrain and enemy situation than the passing unit (see Figure 5-8).
- b. The stationary unit commander is responsible for establishing the contact points, passage points, and routes, if they are not specified in the brigade order. As a minimum, the stationary commander provides guides at contact points to lead the passing unit to passage or release points near the FEBA or LD/LC.
- c. The passing unit main CP collocates with the main CP of the stationary unit. Passed forces maintain normal radio traffic. Passing company teams maintain listening silence on their task force command net. The stationary unit's guides notify their commander that movement of the passing force forward from the contact points has begun.
- d. The stationary force provides overmatching direct and indirect fires for the passing forces. The passing force FSO collocates with the stationary force FSO. The passing force heavy mortars are positioned by the passing force commander after coordination with the stationary commander. Fire missions are approved by the stationary unit FSO until sector responsibility is passed. After that, any fire missions for the stationary unit heavy mortar platoon are cleared through the passing unit FSO.

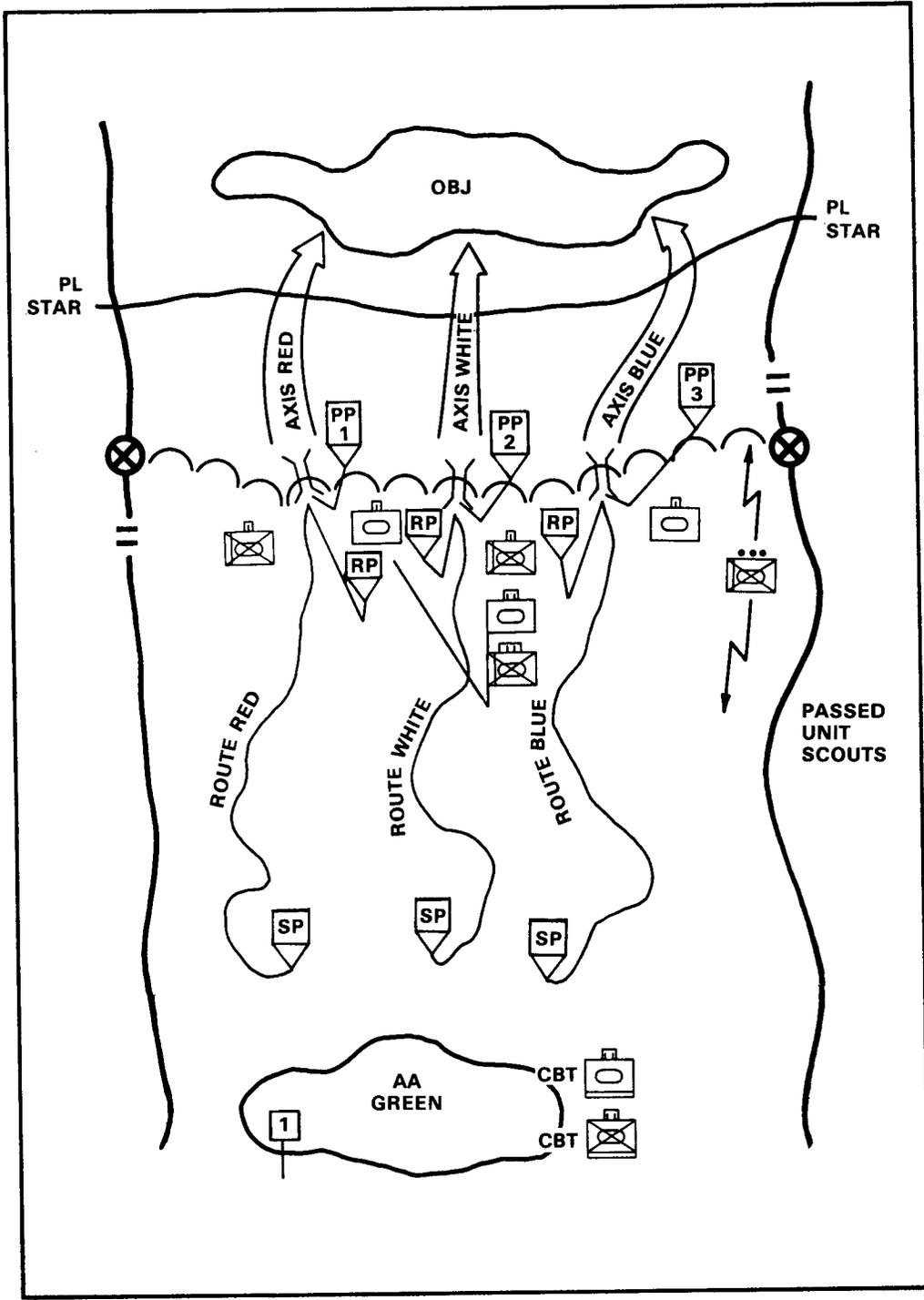


Figure 5-8. Forward passage of lines.

Section III. RELIEF OPERATIONS

This section implements STANAG 2082 (Edition 5), paragraph 5a and Annex A.

A relief is an operation in which a unit is replaced in combat by another unit. Responsibilities for the mission and assigned sector or zone of action are assumed by the incoming unit. Reliefs may be conducted during offensive or defensive operations and during any weather and light conditions. They are normally executed during limited visibility to reduce the possibility of detection.

5-9. PURPOSE

The purpose for relief is to maintain the combat effectiveness of committed elements. A relief may be conducted to —

- Reconstitute a unit that has sustained heavy losses.
- Introduce a new unit into combat.
- Rest units that have conducted prolonged operations.
- Decontaminate or provide medical treatment to a unit.
- Conform to a larger tactical plan or make mission changes.

5-10. TYPES

A unit may conduct a relief operation using one of the following:

a. Relief to Continue the Defense.

- (1) **Area relief.** The area relief is least common. It is conducted when units are dissimilar or when improved defensive terrain is away from the line of contact.
- (2) **Relief in place.** The relief in place is the most common and is used when units have similar organizations or when occupied terrain must be retained. This particular type of relief requires more time than the area relief. Additionally, the relief in place requires detailed planning and coordination, as the incoming unit will be assuming the same positions and missions of the outgoing unit.

b. Relief to Continue the Offense.

- (1) **Area relief.**
- (2) **Forward passage of lines.** This is the most common form of relief in the offense. It takes the least amount of time

and coordination. This form of relief also assists in maintaining the momentum of the attack.

- (3) **Relief in place.** This is the least common form of relief in the offense because of the detailed coordination and length of time it takes to conduct the operation.

5-11. CONDUCT OF THE RELIEF

a. Liaison.

- (1) Upon receipt of the order to conduct the relief, the task force commander and staff develop their estimates. The relieving unit establishes continuous liaison with the relieved unit immediately upon receipt of the relief order.
 - (a) The orders group moves to the main CP of the unit being relieved to coordinate the operation.
 - (b) The relieving unit XO supervises unit movement to an assembly area to the rear of the relieved unit.
- (2) Liaison involves coordination of the task force maneuver and fire support plan, and an intelligence update that includes past, present, and probable enemy action.

b. **Sequence of Relief.** The sequence of relief is from rear to front. Three different methods may be used to conduct the relief (see Figure 5-9, page 30). In determining which sequence will be used, particular attention is given to the combat effectiveness of the companies and their subsequent missions.

- (1) **Relieving units one at a time.** This method is the most time-consuming. The combat trains of the two units may be collocated to facilitate coordination and transfer of equipment, excess ammunition, fuel, water, and medical supplies. Relieving units maintain radio-listening silence and monitor the relieved unit's command net. Relieving task force scouts may initially be used as guides. When relief along the FEBA is complete, they move forward to relieve the scouts of the relieved unit.
- (2) **Relieving units simultaneously.** This method is the fastest, but sacrifices secrecy and causes confusion because all units move at once. When the command groups and combat trains are collocated and plans and equipment have been exchanged, the units of the relieving battalion task force move at once along designated routes. Relief occurs simultaneously at each location. Relieved units withdraw immediately once they are relieved; they do not wait for the other units of the task force.

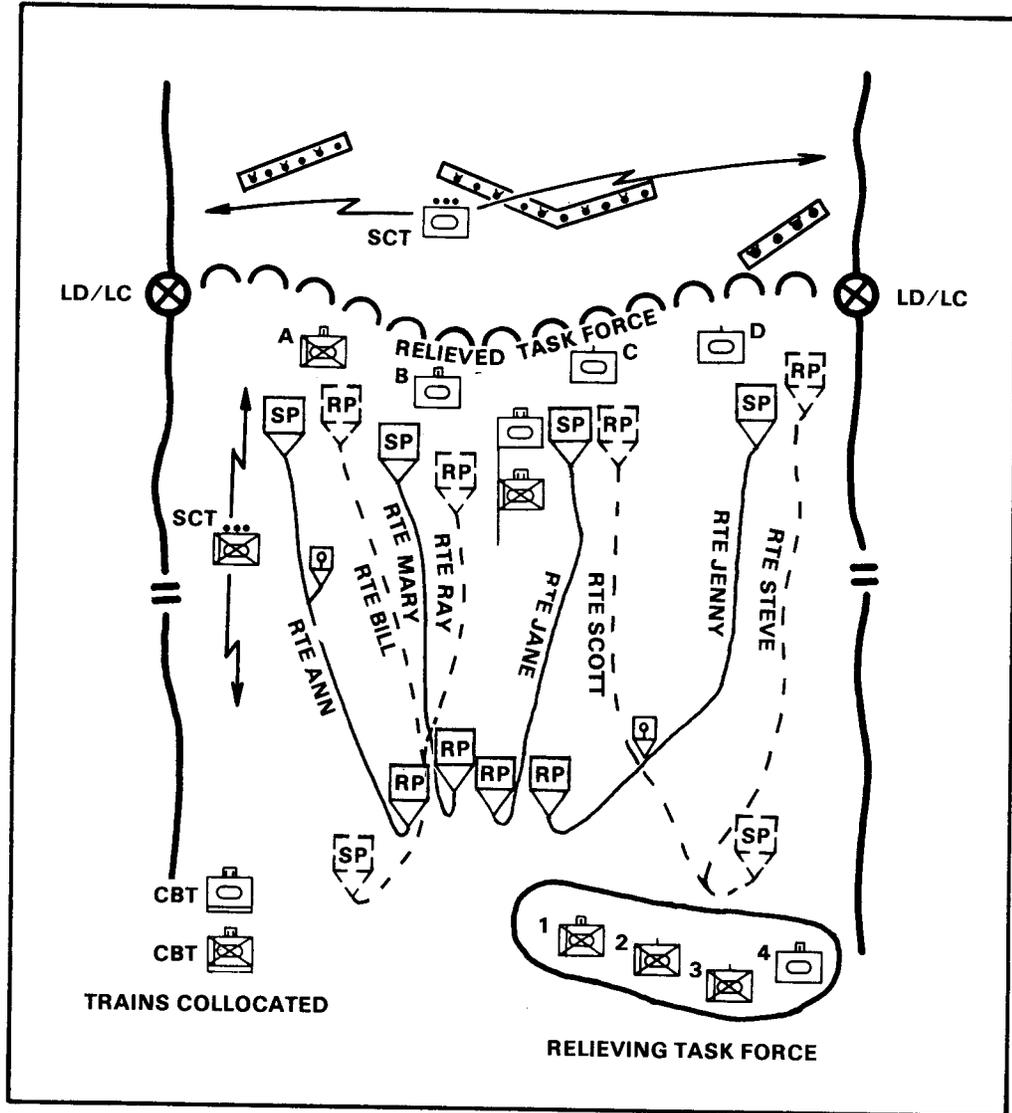


Figure 5-9. Relief of a task force.

- (3) Relieving by occupying in-depth or adjacent position (area relief). A relief in place can be conducted by occupying in-depth or adjacent positions. To facilitate this method, the relieving unit should be able to place direct fires on the other unit's direct fire control measures (TRPs, EAs). This method is particularly useful if the unit being relieved has been chemically or radiologically contaminated. The relieving unit maintains radio-listening silence until the responsibility of the sector or zone is passed. The unit being relieved maintains

normal traffic. Coordination between units is directed by higher headquarters and accomplished at brigade and/or division designated contact points. The relieved unit withdraws one unit at a time or simultaneously, depending on the situation.

- c. **Location and Types of Obstacles.** Unit obstacle locations are identified; minefield are recorded and verified; and minefield records are transferred.
- d. **Fire Support.** Detailed fire support coordination and liaison are conducted between the two units. Target lists are given to the incoming unit. If fire support assets are to be relieved, they are the first to collocate and the last to leave. Fire support assets of the relieved unit remain in position throughout the relief of maneuver units and are prepared to support both units throughout the relief. For example, mortar units and FISTs to be relieved remain in position until the relief of infantry units is completed. Range cards, target lists, and overlays should be given to the incoming unit to ensure the effective delivery of fire. Fire support assets of the relieving unit move into positions as quickly as possible so they can support both units during the relief.
- e. **Movement Control.**

This subparagraph implements STANAG 2082 (Edition 5), paragraph 6

Movement control is maintained by designating and ranking routes in priority order. Guides are positioned at critical points along the routes. Assembly areas (AAs) are designated and activities to be performed in these areas are specified. Separate AAs are designated for the incoming and outgoing units to minimize confusion. Time spent within AAs is minimized to avoid possible compromise.

- f. **Passage of Command.** The task force commanders mutually agree to the sequence of relief and for the passage of command. The passage of command normally takes place when one-half of the relieving unit is in position.
- g. **Enemy Contact during a Relief in Place.** If either unit gains direct fire contact with an enemy force, it immediately notifies the other unit and the higher headquarters directing the relief. If responsibility has not passed, the relieving unit immediately becomes under OPCON of the relieved unit. The relieving unit's mortars will fire missions as directed by the commander of the unit being relieved. If responsibility has passed, the relieved battalion task force commander and staff may become under OPCON of the relieving unit. The presence of collocated CPs

facilitates rapid coordination and action if enemy contact is encountered during the relief. Unity of command is imperative.

h. **Exchange of Equipment.** When a relief is conducted during limited visibility, grounded crew-served weapons should not be moved, since re-laying them is difficult. Equipment exchanged may include—

- Machine gun tripods, and other supports for crew-served weapons or equipment.
- Bulky or excess supplies.
- Wire.
- Emplaced sensors and radar sets.
- M8 alarms.

i. **Security and Deception.**

- (1) Communication security measures include using wire as the primary means of communication. Radios are used as little as possible, and the outgoing unit's radios are manned until the relief is completed.
- (2) Deception plans should aid secrecy and surprise. The normal patterns of activity must be maintained by the relieved unit. The relieving unit must conform to this pattern until the relief is completed.

j. **Exchange of Liaison Personnel.** Well before the operation, plans and liaison personnel are exchanged between the relieved and relieving unit. Liaison personnel are exchanged down to company level. Those from the outgoing unit remain with the incoming unit until it is familiar with the situation.

k. **Reconnaissance and Surveillance.** Normal patrols and radar activity are continued. Surveillance teams and radar equipment of the outgoing unit remain on position until the relief is completed. If time is available and the situation permits, the company commanders, scout and mortar platoon leaders conduct a reconnaissance before the relief. Reconnaissance should be conducted during both daylight and darkness, as the incoming unit must know the location of individual and vehicle positions, weapons, communication centers, command posts, aid stations, and all other essential facilities. This reconnaissance should also include all routes for vehicle and foot traffic, the specific location of assembly areas, and locations for service support units. Reconnaissance parties in the forward areas should be small. Vehicles and aircraft used for the reconnaissance should be furnished by the unit being relieved.

1. **Relief Order.** When planning and coordination are complete, the TF commander then issues his order. To reduce confusion and maintain secrecy, the relief order should, as a minimum, include—
 - Time at which responsibility for the sector, BP, or zone is effective.
 - Fire support plan.
 - OPSEC considerations.
 - Deception plans.
 - Time, method, and sequence of relief.
 - Routes and critical control measures.
 - Concept of subsequent mission.
 - Plans for additional positions — changes to present concept.
 - Contingency plans.
 - Location and transfer of responsibility for obstacles.
 - Transfer of ammunition, wire lines, POL, and materiel to incoming unit.

Section IV. BREAKOUT FROM ENCIRCLEMENT

A breakout is an offensive operation conducted by an encircled force. A force is considered encircled when all ground routes of evacuation and reinforcement are cut off by the enemy.

5-12. PURPOSE

- a. A breakout from encirclement is conducted to allow the encircled force to regain freedom of movement or contact with friendly units. Encirclement does not imply that the battalion task force is surrounded by enemy forces in strength. Threat doctrine stresses momentum and bypassing of forces that cannot be quickly reduced. An enemy force may be able to influence the task force's subsequent operations while occupying only scattered positions and may not be aware of the task force location or its strength and composition. The task force can take advantage of this by attacking to break out before the enemy is able to take advantage of the situation.

- b. To be successful in breakout from encirclement, a battalion task force must—
- Deceive the enemy as to the composition, strength, and intentions of the task force.
 - Conduct reconnaissance, then concentrate sufficient combat power at an enemy weak point.
 - Provide security to the flanks and rear of the task force as it moves out of the encircled area.

5-13. PLANNING CONSIDERATIONS

The following special considerations must be weighed in planning a breakout.

- a. **Time of Attack.** Attacking at night or during other conditions of limited visibility is advantageous; however, if waiting for limited visibility risks the destruction of the battalion task force, the attack is executed as soon as possible.
- b. **Location of Attack.** The battalion attacks the enemy's weakest point. Against scattered resistance, it attacks through gaps between enemy units. If the enemy is more concentrated, a penetration may be necessary.
- c. **Speed of Execution.** Breakout operations depend largely on speed of execution. Once the breakthrough is achieved, elements move rapidly out of the encircled area, maintaining the momentum of the attack to link with friendly units.
- d. **Security.**
- (1) As soon as the task force commander determines that his unit has been encircled, he moves his mortars, combat trains, and main CP toward the center of the area to ensure their survival. Additionally, he may have to redeploy some of the maneuver companies to provide all-round security.
 - (2) Since the battalion task force concentrates the bulk of its forces to break through enemy resistance, its rear and flanks are vulnerable. A rear guard is organized to protect those areas. A feint by the rear guard may deceive the enemy as to the intentions of the task force.
- e. **Evacuation of Wounded.** Wounded soldiers are not left behind. Evacuation of severely wounded by air may be done once the breakout is completed. Less severely wounded soldiers can be evacuated in conjunction with emergency resupply.

f. Destruction of Equipment and Supplies. Equipment and supplies should be carried out of the encircled area. Some usable equipment and supplies may have to be abandoned in order to execute breakout operations quickly. This materiel must be destroyed or disabled.

g. Combat Support. The battalion task force uses suppressive fire to support movement.

h. Organization.

- (1) Regardless of previous command relationships, all elements encircled become attached to the senior tactical commander. The battalion task force is then organized into four elements for breakout operations: rupture force, reserve force, main body, and rear guard. If possible, the task organization of the battalion should complement both the breakout and subsequent attack or linkup (see Figure 5-10).

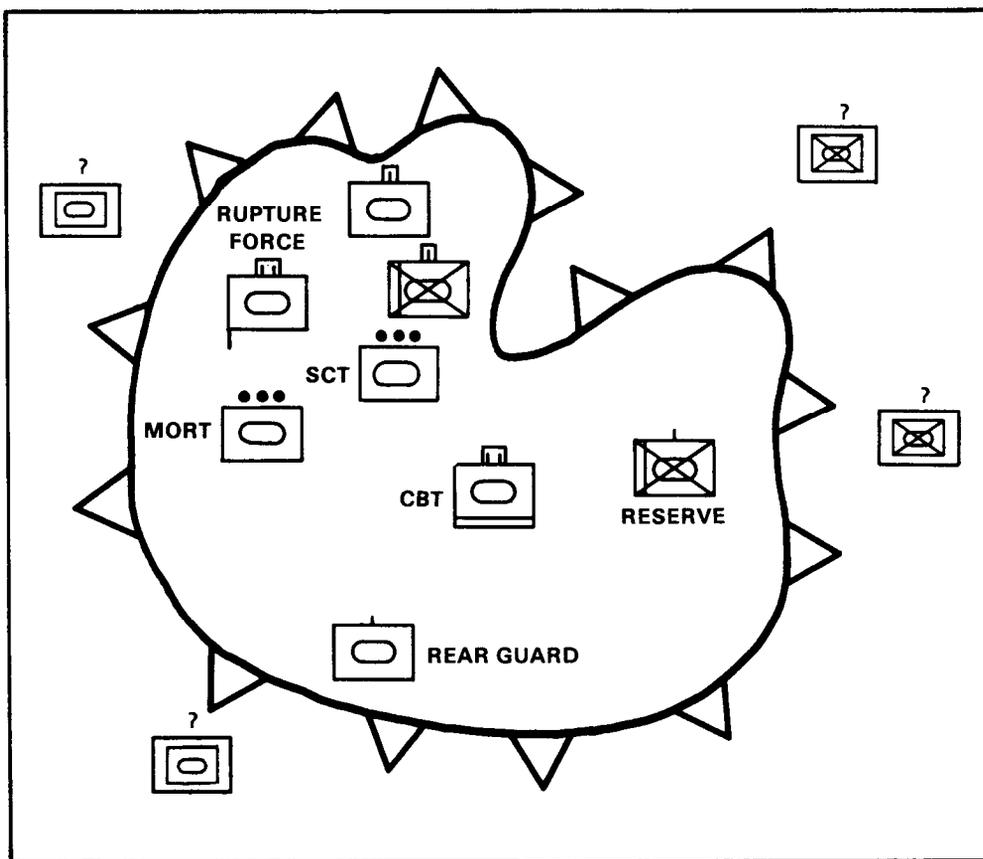


Figure 5-10. Organization for a breakout.

- (a) A rupture force penetrates enemy positions and opens a gap for the remainder of the battalion task force to pass through. Once it has opened a gap, the rupture force holds the shoulders until the main body has passed through. Then it either joins the rear guard or becomes the rear guard, depending on the situation. The rupture force should be organized with the necessary combat power to accomplish the initial rupture of the enemy forces.
 - (b) A reserve force follows and assists the rupture force. The reserve force normally passes through the rupture force, maintaining the momentum of the breakout operation. In determining the composition of the reserve force, the commander decides how much combat power is needed to make the penetration and how much is required to maintain momentum once the operation has started. Once the reserve passes through the rupture force, it usually leads the task force in a subsequent movement to contact.
 - (c) The main body consists of the command group, main CP, and CS and CSS elements. CS elements are task-organized to support the attack. CSS elements move as a single group within the main body. Positive command and control of this element by the S4 combat trains CP precludes unnecessary delay in the task force movement.
 - (d) A rear guard protects the rear of the battalion task force as it moves out of the encircled area. The rear guard must be strong enough to delay or disrupt an enemy attack. It is normally a company team, or a reinforced company. The battalion task force heavy mortar platoon is usually attached to the rear guard.
- (2) The scout platoon may be employed to assist the reserve after its transition to the advance guard. The scouts can conduct forward reconnaissance or screen to the flanks of the advance guard. They may also be placed under OPCON of the rear guard to screen or to maintain contact with the enemy.
- (3) Since the task force will be required to fight in numerous directions during the breakout, control of task force subordinate elements must be clearly defined. Command of the rupture, reserve, rear guard, CS, and CSS elements is assigned to maintain the momentum of the attack, even if communications within the task force are lost or degraded. The tactical CP is positioned to command and control the rupture operation initially.

- i. **Other Preparations for the Attack.** After the task force commander has completed his estimate, he issues orders and initiates the attack. The rupture force moves to its attack position. The rear guard assumes the defensive responsibility and remains in position to protect the task force rear area and deceive the enemy as to the rupture force's intentions. Control measures for the operation are limited to objectives for the rupture force, an axis of advance, and checkpoints.

5-14. CONDUCT OF THE BREAKOUT

The following scenario is used to illustrate the conduct of the breakout.

At the designated time of attack, the rupture force conducts a deliberate attack to seize its initial objective and hold the shoulders of the penetration (see Figure 5-11, page 38). Once the penetration is made, the reserve force assumes the lead as the task force either continues a deliberate attack or begins a movement to contact. The primary effort of the task force is to make the initial penetration, then to maintain the momentum of the attack. The main body follows the reserve force through the penetration. Initially, priority of fire support goes to the rupture force(s).

The rupture force attacks clearly defined objectives and destroys enemy encountered en route, consolidates and reorganizes their objectives, then establishes hasty defensive positions to widen and secure the shoulders of the penetration.

With the rupture completed and the shoulders secured, the reserve force passes through the penetration and attacks another clearly defined objective or conducts a movement to contact. It is critical for the majority of the battalion task force to leave the encircled area as rapidly as possible.

The rear guard delays to the rupture force's location, then defends with the rupture force until the main body has cleared the penetration. The rupture force then follows the main body while the rear guard continues to delay.

The rupture force defends as long as possible to allow the rear guard to establish hasty defensive positions. On order, the rupture force moves, using the fastest movement technique the situation allows, to join the main body.

Once the breakout is completed, the battalion task force continues its attack to link up with friendly units. The task force may have to conduct hasty attacks or bypass enemy resistance as it fights its way toward friendly forces.

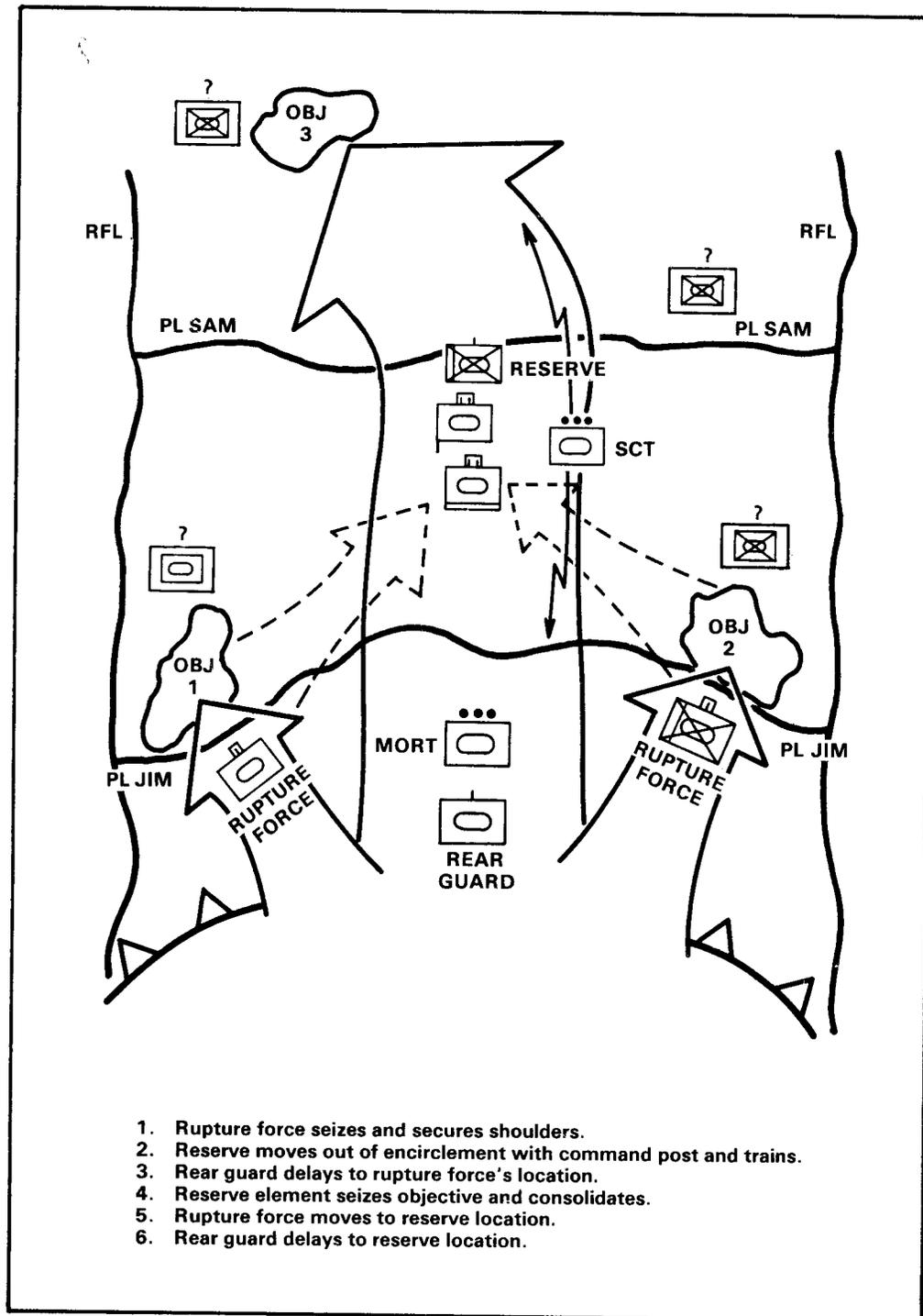


Figure 5-11. Conduct of a breakout.

Section V. LINKUP

A linkup is the meeting of two or more friendly ground forces that have been separated by the enemy.

5-15. PURPOSE

The battalion task force may participate as part of a larger force, or it may conduct a linkup with its own resources. Linkup is conducted to relieve or join a friendly force, or to encircle an enemy force.

5-16. PLANNING CONSIDERATIONS

- a. **Command Relationships.** The headquarters directing the linkup must establish command relationships between forces and the responsibilities of each force during the operation.
- b. **Liaison and Responsibilities.** When possible, the commanders of the units involved establish liaison. If conditions permit, the commander and liaison teams meet face-to-face before the operation begins. If the enemy is between the forces conducting a linkup, this liaison may not occur and coordination is then accomplished by radio. During the operation, the two units attempt to maintain continuous radio contact with each other or the higher headquarters. As a minimum, the units exchange the following information:
 - Enemy and friendly situations.
 - Locations and types of obstacles (existing and reinforcing).
 - Fire support plan.
 - Air defense control measures.
 - Recognition signals.
- c. **Communications.** The headquarters directing the linkup is responsible for ensuring that SOI and recognition signals are compatible between the two forces. If the linking units do not have the same CEOI, the higher headquarters directs one unit to change — normally the unit not in contact. If the units involved in the operation are neither under OPCON nor attached, they maintain their parent command nets; however, recognition signals must be exchanged.
- d. **Coordination of Schemes of Maneuver.** All elements in a linkup carefully coordinate their operations to minimize the risk of fratricide. This coordination continues throughout the

operation and increases as the units approach the linkup points. Control measures used are as follows.

- (1) **Zones of attack or axes of advance.** If one or more of the forces are moving, their direction and objective are controlled by the higher headquarters.
 - (2) **Phase lines.** Movement is controlled by a higher headquarters through the use of phase lines.
 - (3) **Restrictive fire lines (RFLs).** These lines are used to prevent friendly forces from engaging one another with indirect fires. One technique is to make the phase lines on-order RFLs. As the unit crosses a phase line, the next phase line becomes the RFL.
 - (4) **Coordinated fire line (CFL).** This line is used in linkup operations to allow direct fire engagement of targets outside the areas of both units.
 - (5) **Checkpoints.** Checkpoints are used to control movement and designate overwatch positions.
 - (6) **Linkup and alternate linkup points.** The linkup point is a designated location where two forces meet and coordinate operations. The point must be easily identifiable on the ground, and recognition signals must be planned. Alternative linkup points are established in the event that enemy action precludes linkup at the primary point.
- e. **Actions Following the Linkup.** If possible, subsequent operations should be coordinated before the linkup operation and modified, if necessary, when the linkup occurs. The two commanders should collocate near the linkup point, or at a prearranged location, to confirm or coordinate their subsequent operations.

5-17. CONDUCT OF THE LINKUP

The following examples illustrate two types of linkup operations.

Example 1: DOUBLE ENVIRONMENT.

In the first example (see Figure 5-12), two battalion task forces are advancing on separate axes to encircle an enemy force by linking up to the rear of that force. The task forces have coordinated their actions, have maintained radio communications and have exchanged liaison officers. The control measures included on the operation overlays were exchanged.

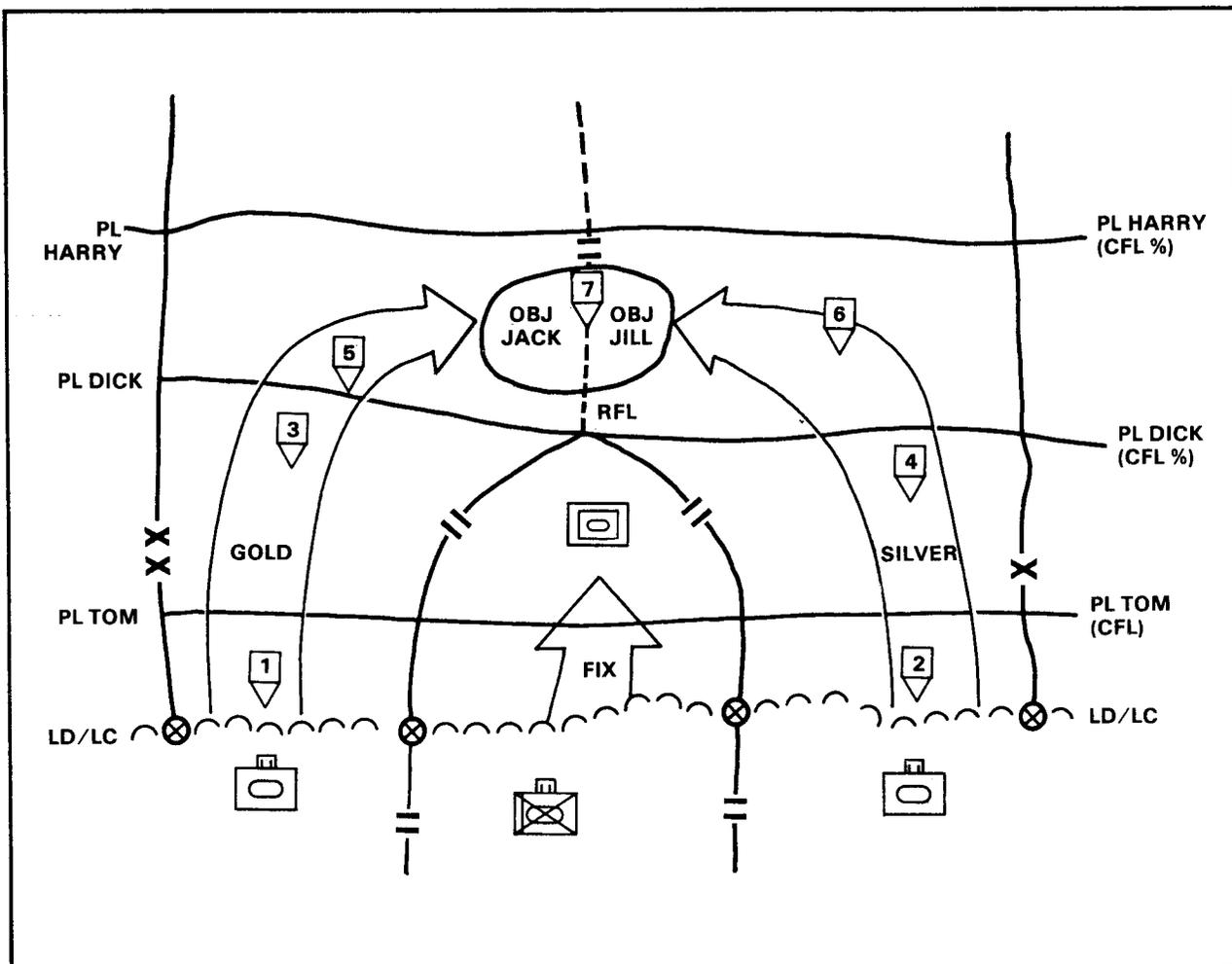


Figure 5-12. Double envelopment.

The two task forces proceed as in a normal attack with the coordination of the two attacks accomplished by brigade. Each task force main CP monitors the progress of the other task force in the operation. The commander is directing the fight forward. As the task forces cross PL DICK and come into direct fire range of one another, both task forces display recognition signs and the two commanders establish direct communications.

The intent of the higher commander is to encircle and reduce the enemy force. Therefore, the task forces move into position after linkup and prevent the enemy from breaking out of the encirclement. The task forces should also ensure that they are secure from enemy forces attempting to link up with the encircled force.

Example 2: LINKUP WITH AN ENCIRCLED FORCE

In the second example (see Figure 5-13), the brigade is conducting an air assault followed by a linkup with an armored task force. In this operation, the CFL and RFL will shift as the operation progresses. Ideally, ground and air attacks commence simultaneously. As in the previous example, each unit main CP monitors the progress of the other battalion while the commander directs the battle. The CFL and RFL are shifted as the operation progresses. As the armored task force nears the linkup point, direct and indirect fires are more tightly controlled to preclude friendly casualties. Upon linkup, the tactical CPs of the units meet face-to-face for coordination of subsequent operations.

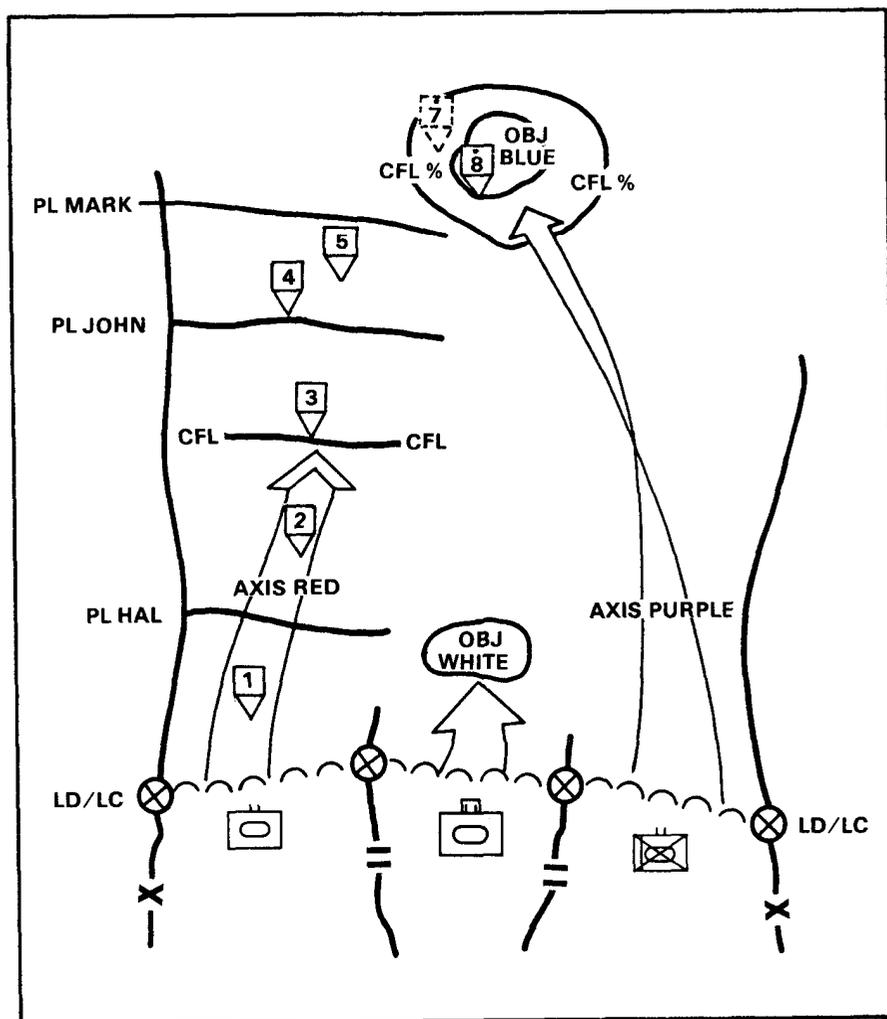


Figure 5-13. Linkup.

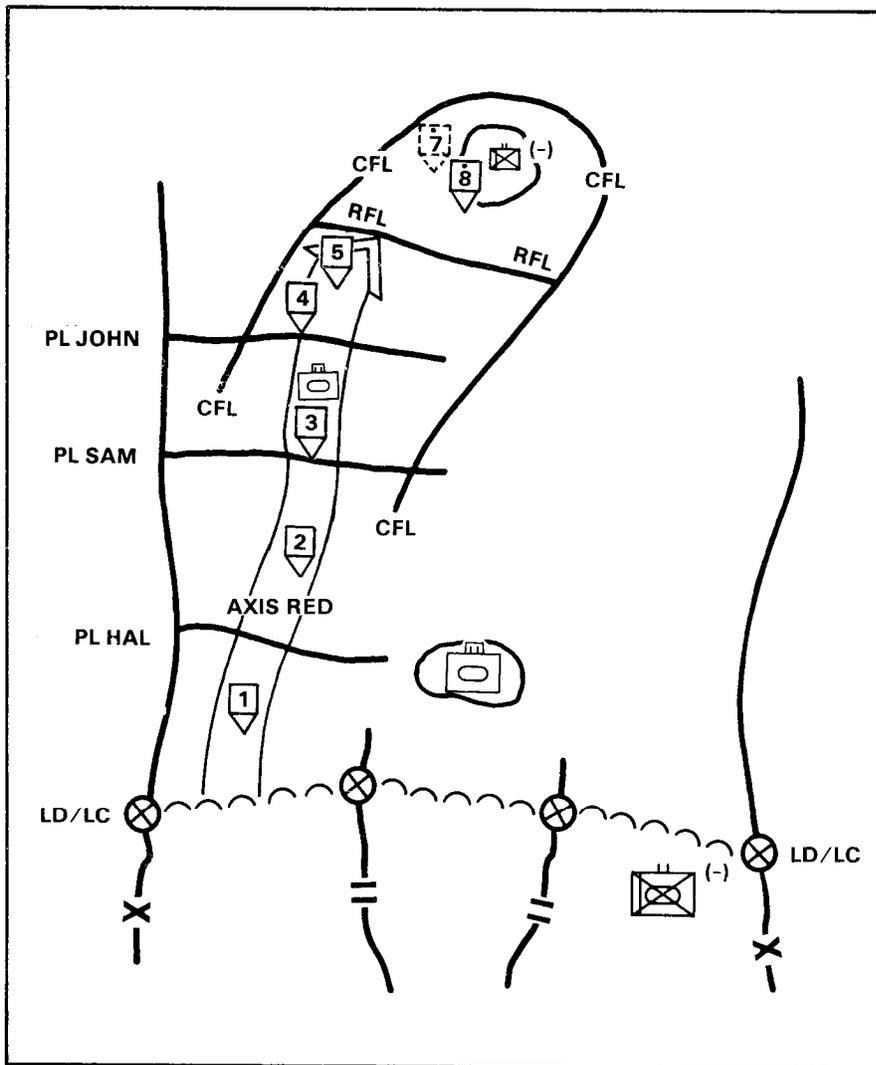


Figure 5-13. Linkup (continued).

Section VI. HASTY WATER CROSSINGS

The three types of water crossings conducted by a battalion task force are hasty, deliberate, and retrograde. Hasty water crossings are normally used by the battalion task force to maintain momentum. A hasty water crossing is a decentralized operation to cross an inland body of water such as a canal, lake, or river. These operations include crossings by tactical bridging or by swimming or fording vehicles.

The battalion normally participates in a deliberate or retrograde river crossing as a part of a larger force. (For a detailed explanation of deliberate and retrograde water crossings, see FM 90-13 and FM 71-3.)

5-18. PURPOSE

Hasty water crossings are conducted to maintain the momentum of an operation. The approach to the water obstacle is made rapidly on a broad front whenever possible. Hasty crossings using captured bridges or fords are the product of rapid offensive action.

5-19. CHARACTERISTICS

- a. Although the crossing is termed *hasty*, detailed planning ensures that fire support and crossing means are available when the force arrives at the water obstacle. Hasty crossings are feasible when the site is lightly defended, when crossing means are readily available, and when mechanized infantry and fire support are sufficient.
- b. Crossings are not entirely dependent on the seizure of bridges or fords. Normally, mechanized infantry units cross first to establish a bridgehead on the far bank to protect the crossing of the remainder of the command.
- c. Hasty water crossings are characterized by—
 - Speed, surprise, and minimum loss of momentum.
 - Decentralized operations with organic, existing, or expedient resources.
 - Weak (or no) enemy defenses on both banks.
 - Minimum concentration of forces.
 - Quick continuation of the operation.

5-20. PLANNING CONSIDERATIONS

- a. **Command and Control.** Control of elements in and around the site is accomplished by the battalion XO.
- b. **Crossing Assets.** All available assets are used to cross the most troops and items of equipment in the shortest possible time. Vehicles that have a swimming capability are used to expedite

the crossing. The main battle tank (M1), without preparation, has a 1.2-meter fording capability. In addition, supporting engineers may furnish or construct such additional crossing means as AVLBs, rafts, bridges, and assault boats. Available assault helicopter assets can also move troops, supplies, and equipment across the river.

c. **Timing of the Crossing.** The decision whether to cross in daylight or in darkness depends on the need for concealment, state of training of troops, nature of the terrain, characteristics of the water obstacle (and any obstacles on the far bank), enemy disposition and capabilities, and the need for speed. Specific actions that must be timed carefully to ensure success of the crossing are—

- Movement of crossing troops into attack positions.
- Movement of reserve elements into assembly areas.
- Use of smoke.
- Feints, demonstrations, and other deception measures.
- Suppressive fires.
- Artificial illumination.

d. **Selection of Crossing Sites.**

- (1) Unless a repairable or intact bridge is seized, crossing areas must be reconnoitered and selected. During the advance, it is usually not feasible to determine the exact location of each crossing site. Nevertheless, during planning stages, information pertinent to the general crossing area is collected and analyzed to determine likely crossing sites and to guide further reconnaissance.
- (2) In the selection of crossing fronts, areas, and sites, both technical and tactical requirements must be considered and evaluated. The crossing should be planned on a wide front with several attacks at separated localities to deny the defender the capability of massing his fires or his counter-attack on more than one of these localities. The following desirable site characteristics are sought in a river crossing (and generally apply to any water-crossing operation):
 - Banks lightly held or undefended by the enemy.
 - Ready access to a good avenue of approach to objectives on the far bank.
 - Dominating terrain on the near bank for artillery observation and direct fire.

- A bend in the water toward the attacker (salient) of such size and configuration that it favors the concentration of the crossing (assaulting) force and denies the enemy effective direct fire on the crossing site.
- Covered approaches to the river.
- Existing or easily constructed access routes from roads to the site.
- Unobstructed water area.
- Suitable above and below water level banks requiring minimum preparation for entry and exit of amphibious and fording vehicles.
- A stretch of river avoiding areas where the current is swift. Moderate current is less than 1.5 meters per second.
- Bed composition and water depth that will permit fording.
- Swim sites—
 - where the speed of stream current is less than the swimming speed of the vehicle.
 - with gentle gradient and a firm bottom for entering and leaving the water (ford bottoms may be improved with AVLBS).
- Raft sites —
 - with a gentle current near each bank.
 - with a streambed free from ledges, rocks, shoals, islands, sandbars, and other obstructions that would prevent or hinder crossings.
 - with banks not so high or steep as to require excessive grading for approach. The water close to the bank should be deep enough to float a loaded raft without grounding.
 - with cover and concealment on both banks for vehicles or troops waiting to be loaded or unloaded.
- Floating bridge —
 - with firm stream banks.
 - with moderate current generally parallel to the banks.

e. **Reconnaissance of Crossing Sites.** Elements having an opportunity to physically reconnoiter the crossing site should be augmented by engineers. Engineers provide technical expertise on the characteristics of the crossing site and reduction of any

obstacles the enemy may employ. The purpose of reconnaissance is to locate, mark, and report suitable crossing sites. This includes determining the amount and type of enemy resistance; marking approaches and crossing sites with flags, engineer tape, and ropes; and inspecting captured bridges and abutments. Most important to the task force commander is the result of on-site physical reconnaissance by scouts, mechanized infantry, and engineers with respect to entrances and exits, stream velocities, streambed conditions, and depths for vehicle swimming and fording operations. Reconnaissance may be conducted under enemy observation and fire. Up-to-date aerial reconnaissance and photography, radar observations, and infrared imagery provide task force commanders with information on shorelines, crossing conditions, approaches, streambed, approximate velocity of current and stream depth, possible shallow fording sites and submerged obstacles, and favorable bank gradients.

5-21. CONDUCT OF HASTY WATER CROSSINGS

During the movement to the water obstacle, the task force commander deploys his force for the anticipated crossing. He task-organizes to ensure that sufficient combat and engineer assets are at the crossing site to eliminate enemy resistance and to maintain momentum. He advances as rapidly as possible to seize bridges intact before the enemy can destroy them. The lead company clears the near bank of defending or delaying enemy elements and sets up overwatch. Reconnaissance personnel and engineers immediately reconnoiter the crossing area. An air assault may be used to neutralize enemy defenses on the far bank. Supporting engineers with river crossing equipment are positioned well forward in the formation so they can rapidly assist in crossings or bridge repair. Often, a partly demolished bridge can be quickly made usable by supporting engineers using AVLBs to overbridge weakened or demolished spans.

a. Engineers.

- (1) Engineers closely follow the lead elements and remove or neutralize any demolitions or mines on bridges, on approaches, or at the crossing sites. Task force personnel, augmented by engineers when available, conduct the site reconnaissance. Engineers support the crossing operation by—
 - Improving entrances and exits.
 - Removing obstacles at entrances and exits.
 - Conducting or assisting in underwater reconnaissance.

- Providing assault boats, rafts, ferries, and bridging.
- Improving ford sites (AVLBs can be used to protect the bottom of ford sites).

(2) Engineer crossing equipment and capabilities.

- (a) **Armored vehicle launched bridge (AVLB).** The AVLB lays a 60-foot class 60 bridge over 57-foot gaps in 4 minutes.
- (b) **Mobile assault bridge (MAB).** It can be linked rapidly (150 meters per hour) to form bridges or rafts of various sizes and capacities. The maximum single vehicle load for the MAB is class 64.
- (c) **Ribbon bridge (RB).** With the aid of boats, bridge bays form class 70 bridges or rafts at the rate of 20 or more feet per minute.
- (d) **Medium girder bridge (MGB).** One MGB set allows for the construction of a 102-foot class 60 bridge which spans 95-foot gaps. With a reinforcement kit and two sets of MGB, a 160-foot span (MLC 60) can be constructed. The MGB can withstand class 70 loads.

b. **Preparation.** Armored vehicles may be required to stop briefly in a covered and concealed location so that they can be prepared for the crossing. Additionally, the entry site may require improvement.

c. **Movement.** The movement to the water obstacle is timed so that the initial crossing unit does not pause at the crossing site, but moves directly into the water. The time between the approach to the water obstacle and the crossing must be held to a minimum. Once started, the crossing is completed as rapidly as possible.

d. **Formation and Priority of Crossing.**

- (1) The mission, number of entrances and exits, and the number of vehicles to cross are the most important considerations in determining the formation and priority for crossings. When the water is shallow and free of obstacles, and when the banks permit, tanks ford in a platoon column formation.
- (2) Amphibious vehicles should cross in waves, preferably formed by platoon. With no current, each wave should cross in line formation. Echelon formation should be used where there is a current. In an echelon formation, the vehicles move out in successive order, starting with the vehicle farthest downstream and proceeding to the vehicle farthest upstream. This will ensure that upstream vehicles do not drift into

downstream vehicles. Amphibious vehicles should cross downstream from tanks using ford sites.

- (3) If no bridges or ford sites are available for tanks, then BFVs assault to the far bank while the tanks provide direct fire support. BFVs and dismounted troops seize limited objectives, conduct reconnaissance, and improve exits. Additional troops and equipment may be rafted to secure and expand the bridgehead. When available, air cavalry and air assault units can be used to assist in securing and expanding the bridgehead and aviation units for ferrying troops and equipment. When the far shore is clear of enemy, bridges or rafts are erected and the remaining troops and vehicles cross. Priority is given to tanks and air defense weapons.
- (4) Vehicles that have to recross the water obstacle by swimming will require entrances and exits for one-way passage. This will avoid traffic congestion and confusion created by oncoming vehicles at the original crossing sites.
- (5) In an NBC environment, over-concentration of troops in the bridgehead area must be avoided to prevent presenting a lucrative target.

e. **Fire Support.** Maximum fire support is employed against known and suspected enemy positions on the far shore. Smoke (see Figure 5-14, page 50) is often used, particularly on the flanks, to screen the reconnaissance and crossing. When tanks support by direct fire, fire control measures must be well coordinated.

f. **Limited Visibility.**

- (1) These crossings differ from daylight crossings because stringent control and coordination are required to prevent massing of vehicles at entrance and exit sites and to prevent accidents. The amount of natural light and availability of night vision devices and thermal imaging systems must be considered when planning a limited visibility crossing.
- (2) During crossings in limited visibility, entrance and exit sites must be marked by lights or other means that permit detection by the driver or vehicle commander. Reference points on the far shore must be readily identifiable or illuminated to assist in maintaining direction.

g. **Crossings During Cold Weather.**

- (1) Ice thickness may permit crossings of tanks and heavy vehicles; however, a reconnaissance is necessary to determine if the ice will support these vehicles. The banks may require improvement to permit entrance and exit.

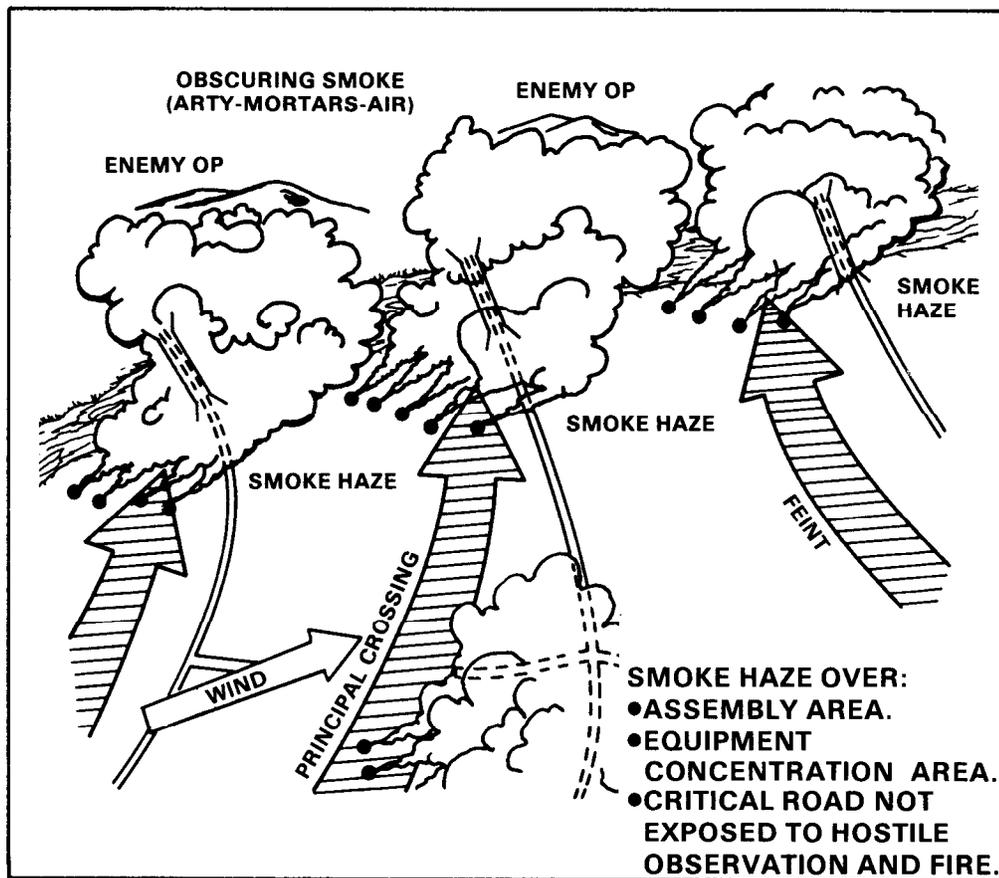


Figure 5-14. Smoke employment during crossing operations.

- (2) When ice conditions do not permit crossing by vehicles and there are no bridges available, clearing the ice may be quicker and less time-consuming than reinforcing it. Dismounted elements cross to the far bank by foot or are air assaulted to secure the area and to reconnoiter and prepare exit sites. Reconnaissance elements on the near bank select and prepare entrances and determine where to place explosives to clear lanes through the ice (fewer explosives are required if placed under the ice). When more than one lane is to be cleared, the distances between lanes must be sufficient to prevent the ice between lanes from drifting and closing other lanes or damaging vehicles. After blasting, M113's can move into the water to clear the lanes of loose and drifting ice; BFVs are not well suited for this task, because of the vulnerability of their water barriers. Amphibious vehicles should not be used to break ice.

- (3) During the crossing, ruts will develop at entrances and exits and may require bulldozing or filling. Consideration must be given to placing engineers in the formation so that they will be available for this task.
- h. **Recovery.** During all water-crossing operations, maintenance personnel and equipment should be near both sides of crossing sites to assist in the recovery of stalled or sunken vehicles.
- i. **Control.** The battalion task force XO (or CSM) assumes the duty of crossing control officer (or NCOIC) after the site has been secured and the attack is being continued on the far bank. This frees the commander to concentrate on the unit's mission. The company team executive officers provide the same function for company teams if required. The S4 controls the crossing of the combat trains, and the HHC company commander controls the crossing of the field trains.
- j. **GSR.** During limited visibility, radar may be used to detect enemy troop activity on the far bank such as withdrawal, reinforcement, or shifting of units.

Section VII. GUARD OPERATIONS

A guard operation is a security operation in which a unit protects a larger unit by maintaining surveillance, providing early warning, destroying enemy reconnaissance elements, and preventing enemy ground observation of and direct fire against the main body.

5-22. PURPOSE

The guard force provides the larger force warning, reaction time, and maneuver space. The guard force delays, destroys, or stops the enemy within its capability. The commander conducting the guard operation must know the intent of the higher force commander and the degree of security required.

5-23. TYPES OF GUARD OPERATIONS

Guard operations can be to the front, rear, or flanks of the main body (see Figure 5-15, page 52). Battalion task forces have the mobility, organization, and equipment needed to perform a guard operation as a part of a brigade or division offensive operation. They may be assisted by air cavalry or attack helicopter units under their operational control.

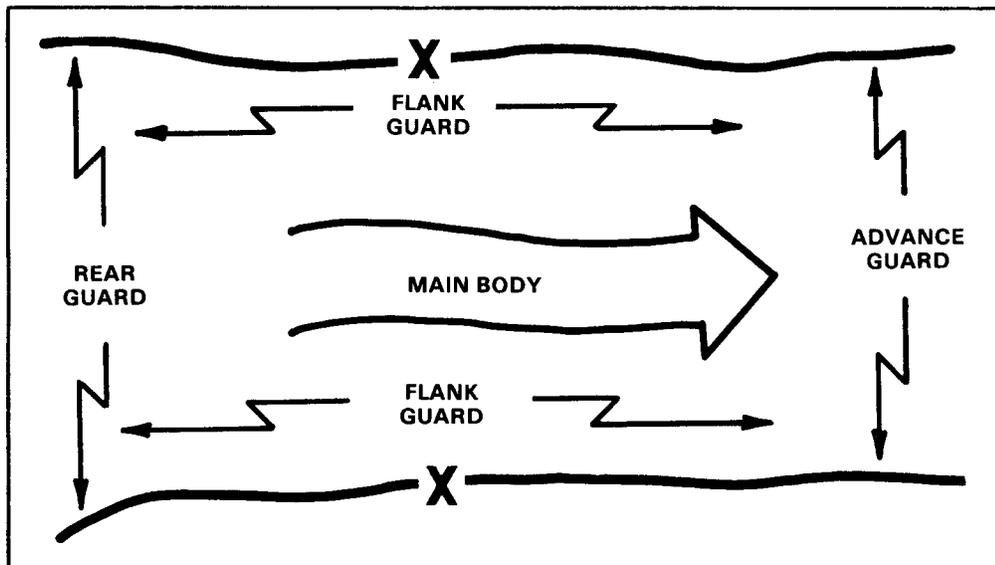


Figure 5-15. Rear, flank, and advance guard operations.

5-24. CONDUCT OF GUARD OPERATIONS

The guard force protects the main body from surprise, direct fire, and premature deployment. The guard is expected to attack, delay, or defend as required to destroy enemy reconnaissance elements and force deployment of the enemy's first echelon. Commanders receiving flank guard missions must clear the area between the main body and its designated positions. The guard force may require additional ground or air assets to accomplish this. A battalion task force conducting an advance guard operation for a moving force must protect the entire front of the moving force. Normally, the battalion task force is augmented (OPCON, attached, or DS) with engineer, air defense, chemical, air cavalry, or attack helicopter forces. Units performing guard missions are normally given priority of fires from designated field artillery units within the main body.

a. Advance Guard.

- (1) A task force conducting an advance guard normally conducts a movement to contact with company teams advancing on axes (see Figure 5-16), in zone (see Figure 5-17, page 54), or, rarely, along directions of attack, depending on the commander's estimate.
- (2) The trail elements of the task force should be at least 3,000 to 4,000 meters forward of the main body lead elements to

allow freedom of maneuver for the main body. The main body commander must establish phase lines to control the movement of the main body and the advance guard. During this operation, advance guard units should remain within main body artillery range.

- (3) The advance guard force attempts to destroy enemy forces through hasty attacks. It may be necessary for the task force to mass at certain locations, destroy the enemy, report, and continue. If enemy resistance is too well prepared and cannot be destroyed, the battalion task force reconnoiters to identify a bypass route for the main body, report the enemy size and location, and (when given permission) fix and bypass the enemy. It is then the responsibility of the following attacking forces to destroy the bypassed enemy. The main body commander may elect not to bypass the enemy, but to conduct a deliberate attack. In this instance, the advance guard keeps the enemy contained and prepares to pass main body elements through to eliminate the enemy.

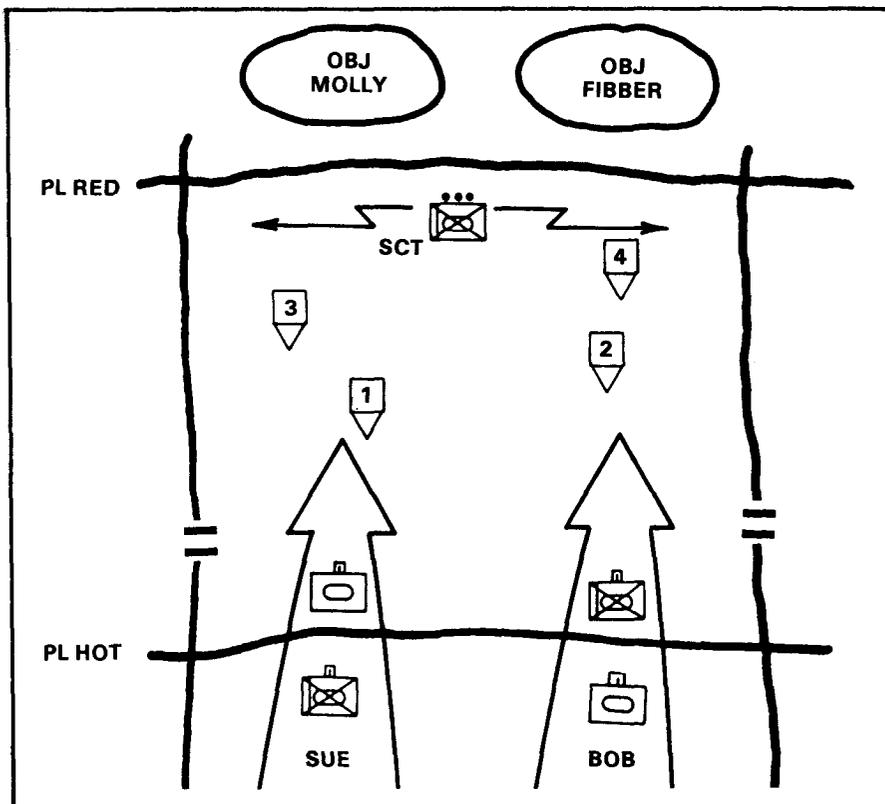


Figure 5-16. Advance guard (company teams advancing on axes).

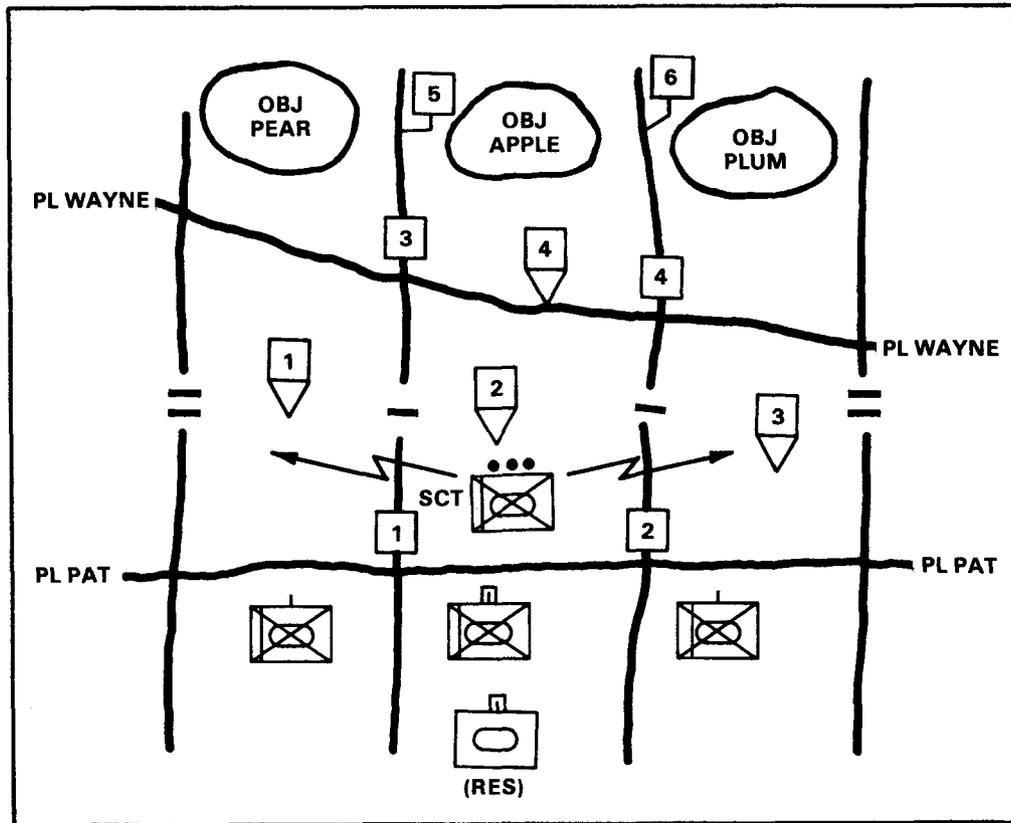


Figure 5-17. Advanced guard (company teams advancing in zone).

b. Flank Guard.

- (1) A battalion task force conducting a flank guard operation must first clear the area between the line of battle positions and the main body. Units attack, if necessary, to establish battle positions and then defend them.
- (2) Normally, the main body commander specifies which units to protect. This responsibility usually extends from the rear of the lead battalion task force in the main body to the rear of the main body, exclusive of the rear guard. It is the flank guard's responsibility to monitor movement of the main body and key his movement accordingly.
- (3) As the main body advances, the flank guard's elements move from battle positions using one or more of three basic methods.
 - (a) **Alternate bounds.** This method (see Figure 5-18) may be used when the protected force is advancing slowly

and strong enemy action is anticipated against the flank guard. In this method, designated elements of the flank guard occupy new positions as required by the movement of the main body. This method is secure but slow.

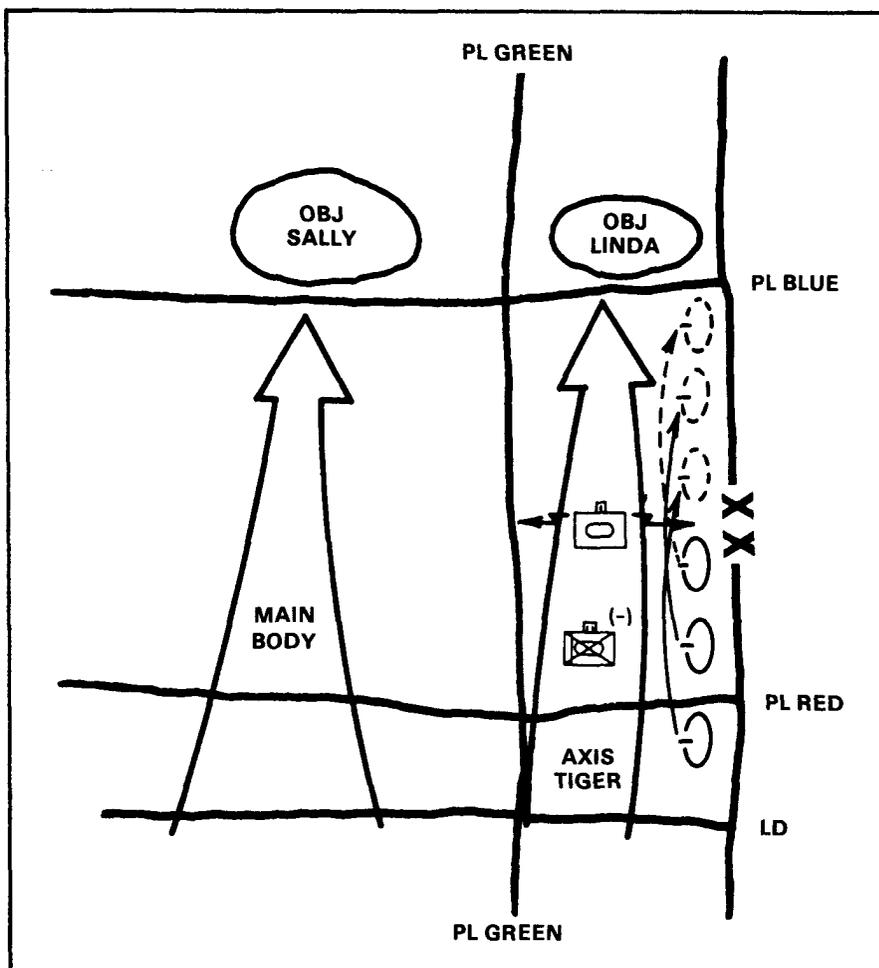


Figure 5-18. Movement by alternate bounds.

- (b) **Successive bounds.** This method (see Figure 5-19, page 5-56) is used when the movement of the main body is characterized by frequent short halts, and enemy action against the flank guard is light. Each company team occupies designated battle positions. When forward movement resumes, company teams move simultaneously, retaining their relative position in the flank guard formation as they move forward to occupy new battle positions.

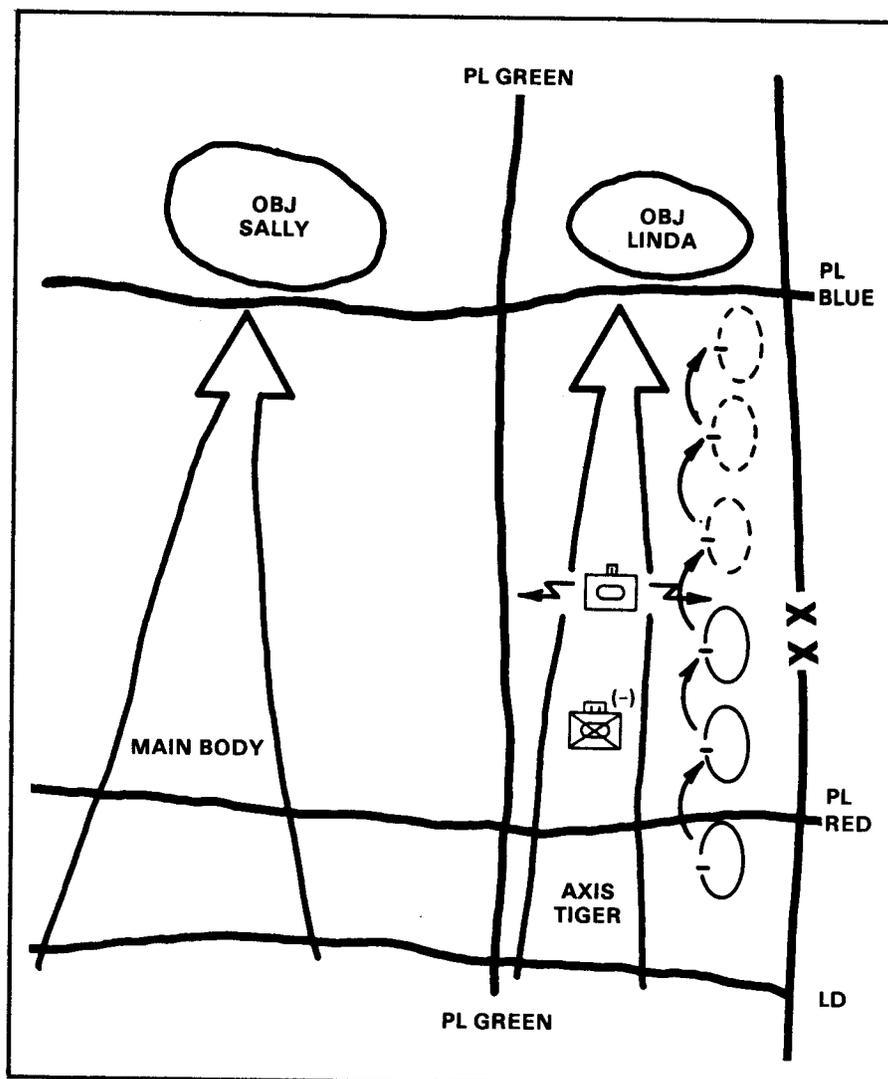


Figure 5-19. Movement by successive bounds.

- (c) **Moving guard.** This method is used when the main body is advancing rapidly at a constant rate and there is no enemy action on the flank (see Figure 5-20). The flank guard uses a column formation and moves without halting, adjusting its rate of advance to the movement of the main body. Air and ground elements from the main body or the flank guard reconnoiter to the flank as the remainder of the flank guard moves along the route of advance. Battle positions are still planned and, if necessary, are occupied.

- (6) If the task force must defend from more battle positions than it has company teams, the commander must seek relief from the main body commander. The flank guard commander should recommend reinforcing the flank guard with main body forces or relieving the unit of the responsibility for part of the area.
- (7) If the task force faces a strong enemy attack or counterattack, the flank guard commander may have to use a combination of offensive, defensive, and delaying techniques.

c. Rear Guard.

- (1) The rear guard protects the rear of the main body and all CS and CSS elements within the main body. It accomplishes this operation by conducting attacks, a defense, or a delay.
- (2) A battalion task force commander conducting a rear guard operation follows the same axis of advance as the protected force at a distance prescribed by the main body commander. (The prescribed distance is normally within artillery range.) The task force commander establishes company team battle positions (see Figure 5-21) or sectors (see Figure 5-22). With sectors, he designates phase lines and checkpoints to control movement.

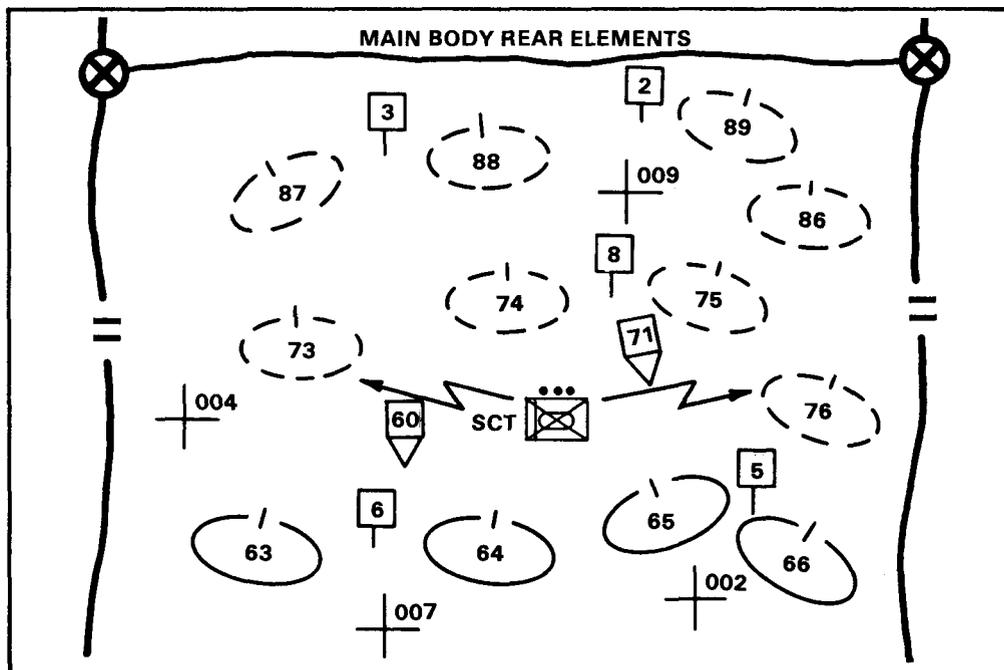


Figure 5-21. Rear guard — battle positions.

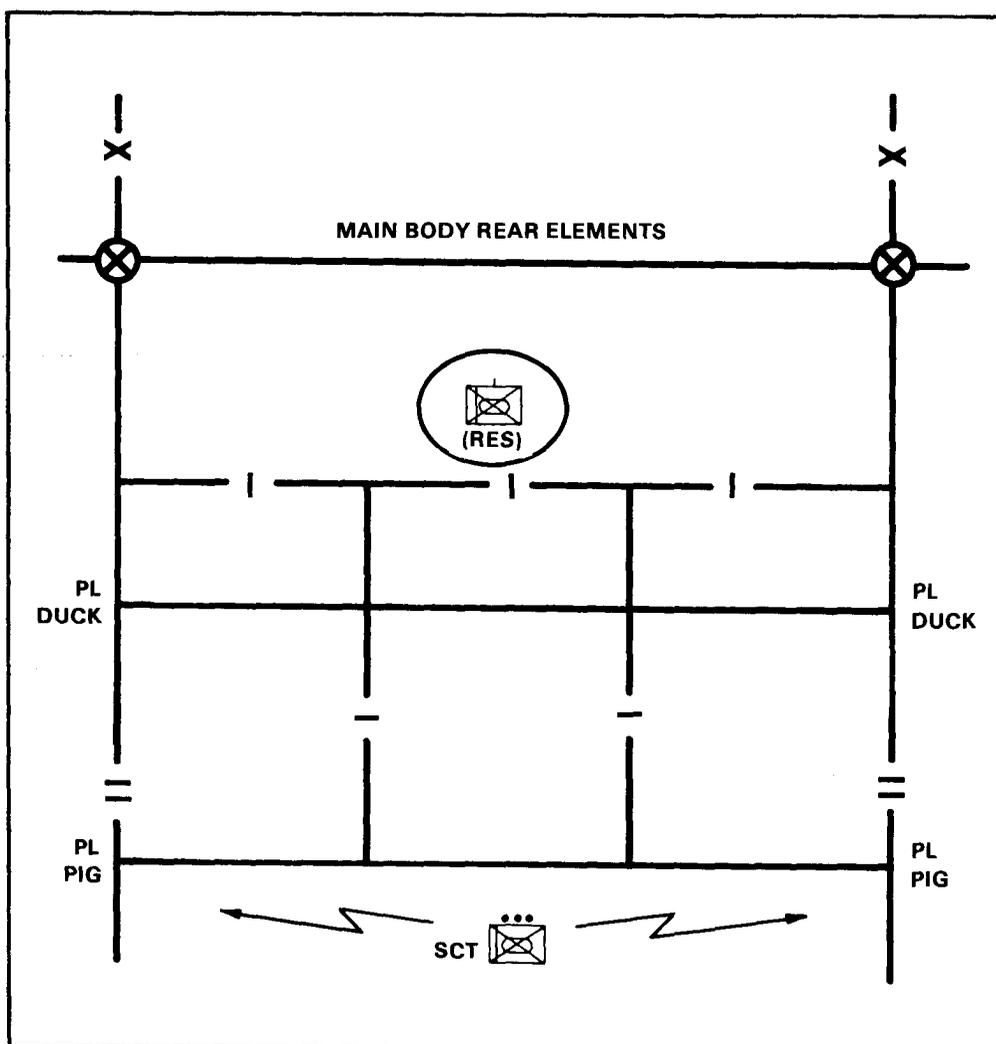


Figure 5-22. Rear guard — delay in sectors.

- (3) Battalion task force scouts are employed to screen between battle positions, to screen forward of battle positions, or to reconnoiter in-depth positions and routes. Additional duties may include liaison with main body rear elements or making contact with flank guard units. The rear guard's responsibility begins at the main body rear boundary and extends as far from this boundary as conditions (METT-T) allow. As a minimum, the farthest elements of the rear guard should beat least 3,000 to 4,000 meters to the rear of the main body rear boundary; the limiting factor on this distance is the range of the main body's supporting artillery.

Section VIII. OBSTACLE REDUCTION

In combat, the battalion commander can expect to be confronted by a variety of existing and artificial obstacles. Obstacles must be rapidly overcome to retain the initiative and maintain momentum. The commander must quickly decide whether to bypass, breach, or force through the obstacle. Forcing through is done only when no other way to overcome the obstacle exists; it results in high losses of personnel and equipment. The urgency of the mission is the deciding factor. In any event, obstacles must not be the focus of attention. They should be planned for and breached or bypassed quickly, almost in stride.

5-25. BYPASSING OBSTACLES

Obstacles are always bypassed when possible. When enemy “firesacks” can be avoided, bypassing an obstacle prevents friendly troops and vehicles from being exposed to enemy direct and indirect fire (see Figure 5-23). Scouts are deployed laterally around an obstacle to reconnoiter the limits of the obstacle, bypass routes, available cover and concealment, enemy locations and weapons, and enemy counterattack routes into the area on the far side of the obstacle and over bypass routes. Overwatch elements must immediately be established to provide protection for the scouts. This must be planned and rehearsed to save time and prevent confusion. Normally, the lead company establishes the overwatch. At the same time, scouts are reconnoitering laterally for bypass routes; and infantry and engineers are reconnoitering the obstacle, since bypass may not be possible. Aviation assets provide assistance in locating bypass routes, overmatching ground elements, and preventing enemy reinforcement or counterattack.

5-26. BREACHING OBSTACLES

Threat defensive doctrine emphasizes employment of obstacles in depth during defensive operations. Obstacles that will normally be encountered are—

- Minefields.
- Log obstacles such as abatis, log cribs, stumps, and posts.
- Tank ditches and craters.
- Wire obstacles.
- Chemical obstacles.

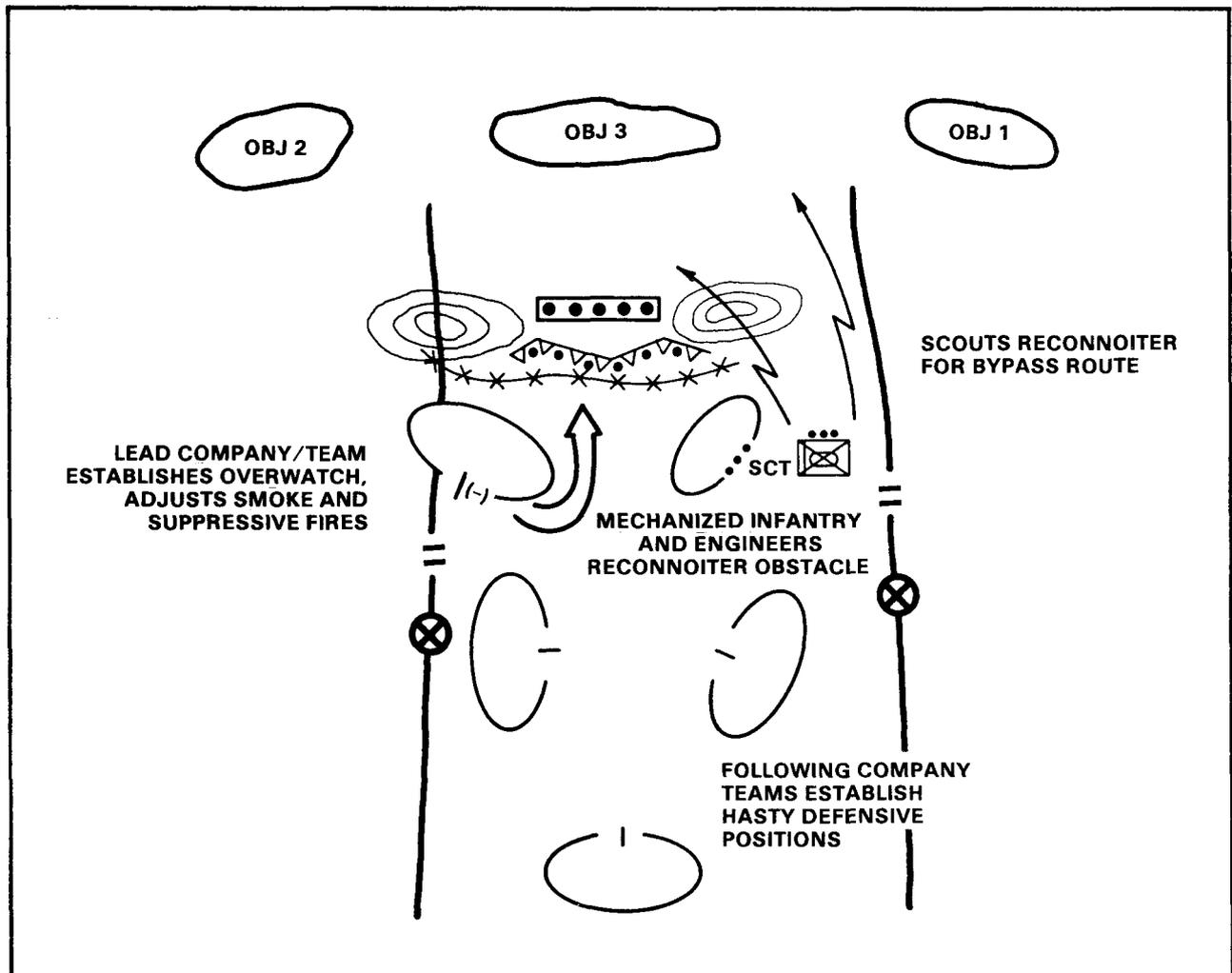


Figure 5-23. Bypassing an obstacle.

a. Methods of Breaching.

- (1) If bypass cannot be done, two methods of breaching may be employed.
 - (a) **Hasty (in-stride) breaching.** Hasty breaching is used when the momentum of the attack must be kept up. It will usually be conducted under fire; therefore, speed is extremely important. Combat engineers are located with the breaching force of the battalion to perform hasty breaches. However, time and distance factors may require hasty breaches by maneuver units without direct engineer participation.

- (b) **Deliberate breaching.** This is done when the hasty breach has failed or speed is not critical and time and additional resources are available. Engineers normally do the breach. Maneuver units provide security, reconnaissance, and overwatch for breaching forces.
- (2) Whether conducting a hasty or deliberate breach, the battalion uses established battle drills, habitual relationships, and SOPs.
- (3) The task force must look beyond the first obstacle belt to locate subsequent obstacle belts. The commander must prevent the battalion from being pinned between obstacle belts.

b. Organization.

- (1) The battalion task force normally organizes into three elements in anticipation of conducting breaching penetrations.
 - (a) **Support force.** The support force is the lead company/team(s). It provides close, continuous overmatching fires to support the breaching force initially, and then the assault force. As required, some of the support force may have their fires directly controlled by the assault force to ensure coordination of fires.
 - (b) **Breaching force.** The breaching force is the second element of the TF formation. It creates lanes in the enemy's obstacle system and forward defenses to allow passage of the assault force through the obstacle. The breaching force may be required to widen the lanes later to allow continuation of the operation. The breaching force is normally task organized with engineers and infantry. They are overmatched by the support forces.
 - (c) **Assault force.** The mission of the assault force is to attack through the breach and destroy the enemy protecting the obstacle (see Figure 5-24).
- (2) Detection of the obstacle is the most critical task. Various methods of detection are available, including air and ground reconnaissance. Normally, the scouts or lead unit in the attack will detect the obstacle first. Engineers should be positioned with the lead element to quickly assess the obstacle. The scouts may be augmented by one or more engineers for the same purpose. When possible, nighttime prebreaches are accomplished. If a unit runs into an obstacle, it must accomplish these four critical tasks:

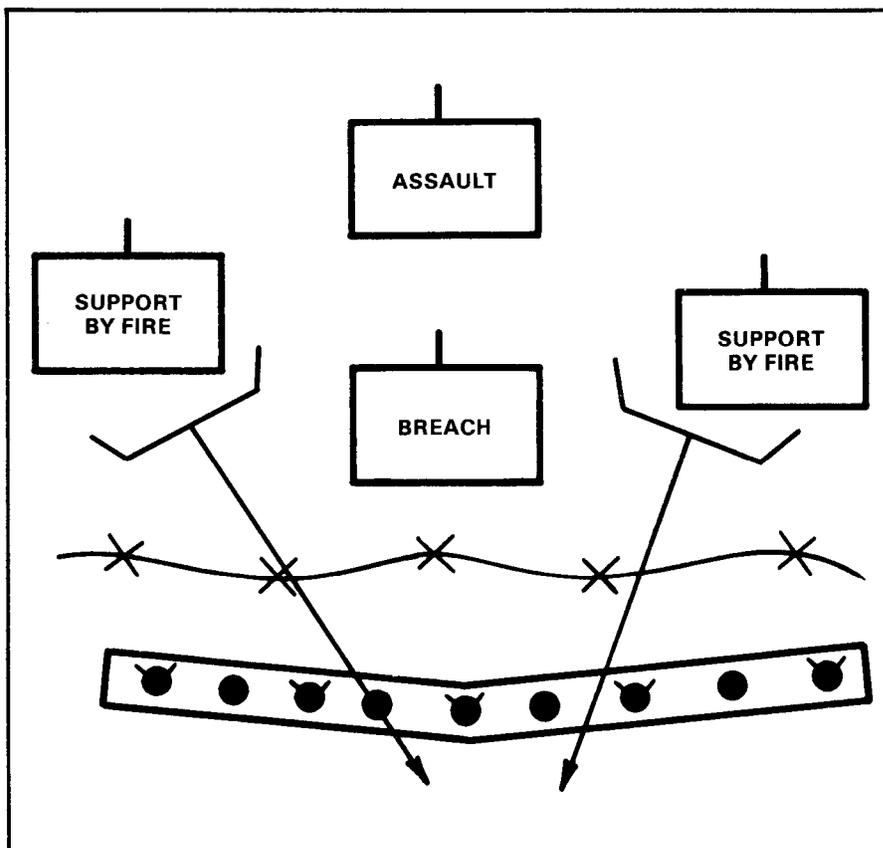


Figure 5-24. Organization for breaching an obstacle.

- (a) The lead unit immediately reports and establishes overwatch, and/or returns fire, including immediate suppressive indirect fires. Normally, the battalion heavy mortars provide HE and smoke.
 - (b) The battalion seeks a bypass.
 - (c) The lead unit reconnoiters the obstacle.
 - (d) The battalion begins a hasty breach if bypass is not possible.
- (3) The lead company becomes the support force and provides overwatch. If the decision to breach is made, scouts provide flank security and the breaching force conducts the breaching operation. Battalions may be augmented with obstacle breaching equipment such as rocket-propelled line charges, bangalore torpedoes, and AVLB. These items should be well forward and attached to the breaching force.

- (4) After the support force is in position, and is calling for indirect HE and smoke, the breaching force moves to the near edge of the obstacle.
- (5) During breaching, company teams should maintain dispersion to avoid a “pile-up” in front of the obstacle. Tactical dispersion is a must.
- (6) Once near the obstacle, the breaching force establishes its own overwatch, and breaching-equipped vehicles begin breaching operations. APCs and BFVs remain near the obstacle during breaching operations so the breaching team is afforded cover and transport if heavy indirect fire impacts. Only one lane must be breached initially, but at least two vehicle lanes are usually required for a task force.

c. Techniques of Conducting a Breach.

- (1) The initial objective of a breach is to make a safe route to the far side. This is done by breaching foot and vehicle lanes through the obstacle. The number and type of lanes breached depend on—
 - The size of the breaching force.
 - The depth and density of the obstacle.
 - The equipment available.
 - (a) **Foot lanes.** If a mounted assault breach is not feasible, then at least one foot lane is needed for each assault company. This lane is normally 2 meters wide and is marked with white marking tape, flashlights, or chemical lights along its centerline. Full use is made of darkness, smoke cover, breaching devices (mechanical or explosive), and covering fires. Initial lanes may be breached in defiles that give cover and concealment to assault troops, even though these lanes may not be widened into vehicle lanes later. The bangalore torpedo will clear foot lanes through mines and wire obstacles. It clears a path 3 to 4 meters wide through wire entanglements. It will clear a narrow foot path through a minefield by exploding most of the antipersonnel and single-pulse-fuzed antitank mines of the minefield. Once there are foot lanes through the minefield, assault forces move through rapidly to neutralize any nearby enemy positions and secure the far side of the obstacle.
 - (b) **Vehicle lanes.** After the first breach is made, foot lanes may be widened to one-way vehicle lanes at least 5 meters wide. Vehicle lanes also may be breached

separately from foot lanes. Existing roads are used when possible, clearing mines along their entire width. The mine clearing line charge (MICLIC) is a trailer-mounted, rocket-projected, explosive line charge towed by a variety of combat vehicles to within 50 feet of the minefield. When projected across the minefield and exploded, it clears a vehicle lane 5 to 8 meters wide and 100 meters long.

- (2) The task force must be prepared to breach obstacles without engineer support using organic equipment. Company teams must be capable of executing counterobstacle battle drills. Thus, attached tank companies may need an infantry platoon to assist in hasty obstacle breaching. Techniques of breaching using organic equipment are—
 - Pushing a destroyed vehicle through a minefield.
 - Driving through wire obstacles.
 - Using an M88 with its blade lowered to conduct “mine-skimming.”
 - Using mineroller and plow.
- (3) Each vehicle could carry a grappling hook with rope to facilitate breaching of wire obstacles.

d. Marking the Lane.

- (1) The path must be clearly marked in order for vehicles to follow safely and quickly through a breached lane. When available, a hand-emplaced minefield marking set (HEMMS) or cleared lane marking system (CLAMS) is used, but field commanders must be innovative in the use of expedient methods to accomplish the mission. Temporary marking is replaced by standard marking materials as soon as the tactical situation permits. Some commonly used and readily available field-expedient lane marking items are —
 - Engineer cloth tape 2 inches wide staked down with tent pegs or rocks.
 - Paint or oil (hang a 5-gallon canon the back of the leading tank and punch a nail-hole in the bottom so that the liquid streams out. This signature will only last long enough to get a few vehicles through.)
 - Plow.
 - Rocks.
 - Lime, flour, or other visible powder (summer).

- Cinders (on snow).
- Smoke grenades.
- Expended shell casings.
- Toilet paper.
- Chemical lights or flashlights (at night).
- Pickets with engineer tape or chemlight tied to them.

- (2) Distinctive markers must show where the lane begins and ends. There is a tendency for most drivers to start maneuvering before they are out of the minefield.
- (3) After the lanes are cleared, the assault team moves through the obstacle and deploys on the far side. This is done by establishing defensive positions and firing on known or likely enemy locations. The breaching force must establish far-side security to antitank weapons range and allow the assault force room to pass through and deploy (see Figure 5-25).

e. Hasty Breach of Log Obstacles.

- (1) Abatises are reduced by placing explosive charges at the point where the tree is still attached. After detonation, severed trees are removed by available vehicles, or by hand.
- (2) Log cribs can be dismantled by hand or forced through with bulldozers.

f. Hasty Breach of a Tank Ditch. A properly emplaced tank ditch is a formidable obstacle. Because of the equipment and effort required to construct the ditch and because of its importance to the defender, it is probably mined with antitank and antipersonnel mines, and reinforced with wire. In addition, tank ditches are always covered by direct and indirect fires (see Figure 5-26, page 5-68). When the battalion encounters a tank ditch, it must quickly and aggressively perform the following:

- Report.
 - Establish an overwatch with support force.
 - Dispatch scouts or reconnaissance patrols to locate a bypass.
 - Use elements of the breaching force to reconnoiter the obstacle.
 - Begin hasty breaching if bypass is not available.
- (1) The hasty breach cannot be started without first gaining fire superiority over the defending enemy and/or obscuring his field of fire with smoke and indirect fires. This is required during daylight and during limited visibility.

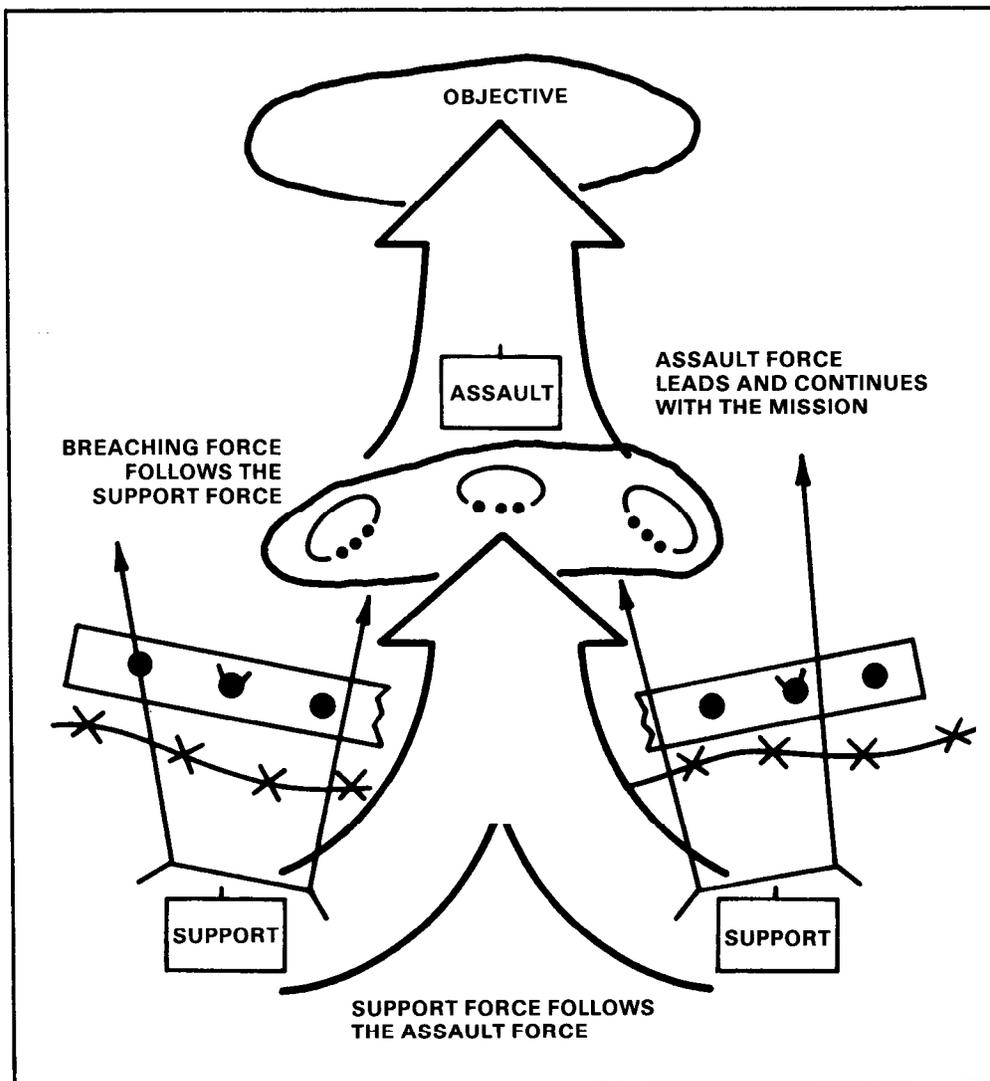


Figure 5-25. Assault force secures the far side.

- (2) Elements reconnoitering the obstacle attempt to locate weak spots. Any breaks in the wall or wire, or places where the ditch is partially filled or the banks are not steep, are potential crossing sites.
- (3) To begin the breach, artillery, mortars, CEVs, and tanks fire into and on top of the wall (spoil) on the enemy side. This is done to collapse the wall enough to partially fill the ditch, destroy wire, and detonate some mines. These fires are adjusted by the support force leader.

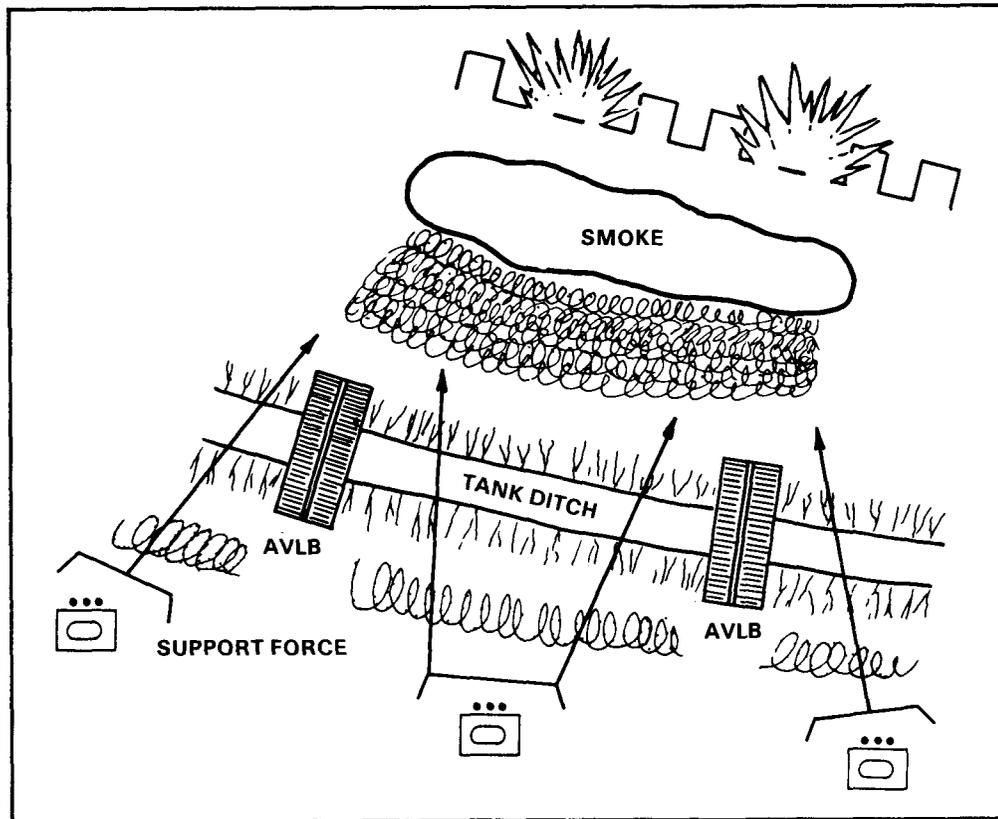


Figure 5-26. Actions at a tank ditch (bypass not possible).

- (4) Once the breaching force has cleared a lane to the ditch, engineers move forward with AVLBs. At least two are required. The breaching force assists in clearing mines and debris to allow the AVLBs to be positioned. AVLB can span gaps up to 60 feet.
- (5) If AVLBs are not available, then the tank ditch must be breached using CEVs, blade tanks, dozers, or explosive charges to break down the walls. Tanks may also drive up close to the edge of the ditch, and conduct repeated sharp turns to the left or right. Eventually the ditch walls will collapse on the rear side. Demolition can then be used to neutralize the far side.
- (6) Once the breaches are made, elements of the breaching force quickly cross and establish overwatch positions on the far side. As with minefield, the commander orders the assault force through to take the lead, followed by the breaching force, then the support force.