FM 3-20.98

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Reconnaissance and Scout Platoon

Headquarters, Department of the Army

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Field Manual
No. 3-20.98

Headquarters
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Reconnaissance and Scout Platoon

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Preface

FM 3-20.98 provides basic tactics, techniques, and procedures (TTP) for the tactical employment of the reconnaissance and scout platoons of the reconnaissance squadrons in the heavy, infantry, and Stryker brigade combat teams (HBCT, IBCT, and SBCT) as well as the battlefield surveillance brigade's (BFSB) reconnaissance and surveillance squadron and the cavalry squadron of the armored cavalry regiment (ACR). This publication—

- Provides doctrinal guidance for commanders and leaders of the currently transitioning organizations who are responsible for planning, preparing, executing, and assessing operations in the reconnaissance and scout platoons.
- Serves as an authoritative reference for personnel developing doctrine (fundamental principles and TTP), materiel and force structure, institutional and unit training, and standing operating procedures (SOP) for reconnaissance and scout platoon operations. It does not, however, cover deployment; reception, staging, onward movement, and integration; or redeployment operations.
- Describes doctrine that is based on suggestions, insights, and observations from previously developed doctrine and from units and leaders taking part both in operational situations, such as Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), and in training at the Army's combat training centers. These doctrinal principles and procedures are intended to be used as a guide and are not to be considered inflexible. Each situation in combat must be resolved by an intelligent interpretation and application of the doctrine outlined in this manual.
- Is directed toward the reconnaissance and scout platoon leader and platoon sergeant (PSG). The manual reflects and supports Army operations doctrine as covered in FM 3-0, *Operations*; FM 3-90, *Tactics*; FM 3-90.6, *The Brigade Combat Team;* and FM 3-20.96, *Reconnaissance Squadron*. It is not a stand-alone reference for reconnaissance and scout platoon operations; rather, it is intended to be used in conjunction with those and other existing doctrinal resources.
- Outlines the framework in which the five types of reconnaissance and scout platoons (HBCT, IBCT, SBCT, BFSB, and ACR) will operate, either by themselves or together as part of the troop or larger organization. The manual also includes discussions of doctrine that is applicable to each specific type of platoon.

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Unless otherwise stated in this publication, masculine nouns and pronouns do not refer exclusively to men.

Introduction

PURPOSE

FM 3-20.98 provides the leaders of the reconnaissance and scout platoons with doctrine relevant to current and future operations. Doctrine described in this manual is applicable across the full spectrum of military operations—offense, defense, stability, and civil support.

THE RECONNAISSANCE SQUADRON AND THE RECONNAISSANCE AND SURVEILLANCE SQUADRON

There are five types of reconnaissance squadrons:

- **HBCT reconnaissance squadron.** The HBCT reconnaissance squadron employs both mechanized and motorized reconnaissance platforms in the reconnaissance troops.
- **IBCT reconnaissance squadron.** The IBCT reconnaissance squadron employs one dismounted and two motorized reconnaissance troops.
- **SBCT reconnaissance squadron.** The SBCT reconnaissance squadron employs motorized reconnaissance platforms in the reconnaissance troops.
- **BFSB reconnaissance and surveillance squadron.** The BFSB reconnaissance and surveillance squadron employs two motorized reconnaissance troops and a long-range surveillance company.
- **ACR cavalry squadron.** The ACR cavalry squadron employs three cavalry troops and an armor company.

The previous edition of FM 3-20.98, *Reconnaissance Platoon*, published in October 2002, was limited to doctrinal and operational considerations for the reconnaissance platoons of Divisional and ACR cavalry squadrons, the SBCT, and the now-defunct brigade reconnaissance troop. This edition expands the discussion of doctrine, organization, and operations to include the reconnaissance and scout platoons of the HBCT, IBCT, SBCT, BFSB, and ACR.

Recent history and the Army's experience of the past decade confirm the advantages of being well informed in a conflict with an adaptive and determined enemy. The more the platoon and troop know about the enemy, the more likely they can make critical decisions that will help them to achieve decisive results. For instance, if the BCT commander knows enemy dispositions in detail, he can be more effective in assigning areas of operation (AO), isolating portions of the enemy, and allocating his maneuver battalions against targets. In turn, these actions will help the BCT gain tactical surprise in a manner suited to the successful outcome of the operation.

The comprehensive squadron reconnaissance effort is integrated within a joint multiechelon reconnaissance network in which higher cues lower, lower feeds back to higher, and adjacent units share information. The squadron integrates reconnaissance and surveillance assets such as—

- Scouts.
- Radars.
- Electronic, electro-optical, and infrared devices.
- Chemical, biological, radiological, and nuclear (CBRN) systems.
- Unmanned aircraft systems (UAS).
- Human intelligence (HUMINT) assets.

RECONNAISSANCE AND SCOUT PLATOONS

The reconnaissance and scout platoon's multifaceted role is dedicated to supporting the reconnaissance squadron and troop in the development of situational awareness (SA) and situational understanding (SU) and in tracking the enemy throughout the AO. With his understanding of the squadron and troop commander's concept and intent, the platoon leader is aware of the major decisions the squadron commander must make and the elements of the enemy's defense (or offense) that are most significant to the squadron's course of action (COA).

The operational environment (OE) requires reconnaissance and scout platoons to be responsive, flexible, and multidisciplined organizations to meet the needs of the squadron commander. To facilitate the troop commander's decision-making process, the platoon is equipped and organized to satisfy squadron information requirements and specifically to answer the commander's critical information requirements (CCIR). In the AO, the platoon conducts reconnaissance and security operations, collecting information that enables the BCT commander to focus combat power and effects with precision to support current and future operations throughout the AO.

The reconnaissance and scout platoons may conduct screen and other security operations, but it is designed to be most effective when employed in reconnaissance roles. To avoid giving away their position, scouts will rarely engage the enemy with direct fire on their own initiative. Rather, they are armed with direct fire weapons only for protection. Mortars are provided to reconnaissance troops (except in the BFSB) for immediate suppression and disengaging fires. Without revealing their locations, all scouts can engage targets through the fires network with a variety of indirect means, depending on the requirement.

THE CHANGING OPERATIONAL ENVIRONMENT

The dynamics of warfare in open and mixed terrain tactical environments have changed. OEF, OIF, and a variety of war games demonstrate the value of integrated joint operations in the OE, with powerful, mobile ground forces working closely with air and naval elements. These joint capabilities, affording air superiority and naval supremacy, will allow our forces, including the reconnaissance troop, to deploy and maneuver freely.

The U.S. Army's operational concept in this environment will feature close cooperation between highly mobile forces on the ground and Army aviation and air component elements. The emphasis will be on mobile, protected firepower, balanced with mechanized and motorized infantry.

In the future, enemies may possess sufficient combat power to overwhelm a reconnaissance squadron. The enemy commander, however, will be unable to mass his combat power because his need to maneuver will expose his forces to concentrated firepower delivered by Army and joint fires. To avoid exposure, the enemy commander must move his mounted forces with far greater care. When operating without air superiority, they will be restricted to dispersed, positional operations and to limited local counterattacks along covered and concealed routes. They will operate in mixed terrain, seeking cover and concealment in towns, villages, and broken ground to avoid exposure to air attack and to overmatching long-range fires.

U.S. forces also face the challenge of fighting in urban areas. This is partly because adversaries will seek asymmetrical advantages and partly because rapid urbanization worldwide will make urban conflict difficult to avoid. In addition, urban centers are of ever-increasing strategic and operational value. Cities are vital national resources and their prompt liberation or seizure can become a political imperative. Moreover, they may provide protection for vital war-fighting systems, such as long-range missiles and command and control (C2) nodes. Clearing them may become a necessity, with both military and political implications. Finally, adversary or failed states may not choose to, or may be unable to, oppose U.S. intervention with conventional forces and capabilities. Instead, they may pursue strategic aims unconventionally in the challenging terrain of major urban centers, employing unconventional military, paramilitary, irregular, or terrorist elements. Thus, although the conventional wisdom from an operational standpoint may still be to defer clearing large urban complexes as long as safely possible, strategic necessity will often require land combat forces to enter and control cities.

Chapter 1
Overview

In the simplest terms, reconnaissance and scout platoons serve as the commander's eyes and ears in the area of operations (AO). This field manual focuses on the basic principles of reconnaissance and scout platoon operations in full spectrum operations. Reconnaissance and scout platoons are fundamental components of the reconnaissance squadrons in the three types of brigade combat teams (BCT)—the heavy brigade combat team (HBCT) , infantry brigade combat team (IBCT) , and Stryker brigade combat team (SBCT) —as well as in the reconnaissance and surveillance squadron of the battlefield surveillance brigade (BFSB) . In addition, scout platoons are the cornerstone elements of the armored cavalry regiment (ACR). A reconnaissance platoon identical to the HBCT reconnaissance squadron platoon is also available to the commander of the HBCT combined arms battalion (CAB). All of these platoons are organized, manned, and equipped to provide accurate, timely, and relevant combat information over a complex operational environment (OE) associated with a large AO. This information, in turn, enables the unit commander to make rapid, well-informed tactical decisions. Within the highly variable environments and threat profiles of future AOs, the reconnaissance and scout platoons are essential to successful intelligence, surveillance, and reconnaissance (ISR) operations in several ways:

- They provide a significant dismounted, mounted, and aerial reconnaissance capability.
- They enable the higher headquarters to decisively employ its combat power.
- They maximize security by providing timely, accurate, and relevant combat information.

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SECTION I – THE OPERATIONAL ENVIRONMENT

1-1. An OE is defined in JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, as "a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander." The range of potential and likely OEs encountered by U.S.

forces in the future is extensive and increasingly diverse. It is nearly impossible to anticipate which of the many possible OEs the platoon may confront. Reconnaissance and scout platoons must be trained, adaptable, and ready to operate effectively on short notice. They must possess a wide range of skills, proficiencies, and capabilities to function effectively in any OE (see FM 3-0 for additional information).

VARIABLES OF THE OE

1-2. The OE is dynamic and multidimensional; it is a collection of complex and interrelated variables. The Army has developed a set of variables, known by the mnemonic abbreviation PMESII-PT, that military planners can use to describe any particular OE in which conflicts or other U.S. military activities occur:

- Political.
- Military.
- Economic.
- Social.
- Information.
- Infrastructure.
- Physical environment.
- Time.

Note. The operational variables of PMESII-PT may be useful to the platoon leader and his section leaders. Refer to FM 3-0 for more information on PMESII-PT variables. In most situations involving planning and mission analysis at the platoon level, leaders will focus on the mission variables known as the factors of METT-TC: mission, enemy, terrain and weather, troops and support available, time available, and civil considerations. In addition, analysis of civil considerations is further organized using the categories represented in the memory aid ASCOPE: areas, structures, capabilities, organizations, people, and events. A detailed discussion of METT-TC and ASCOPE is in Chapter 2.

CULTURAL AWARENESS

1-3. Cultural awareness has become an increasingly important competency for small-unit leaders. Like all other competencies, it requires self-awareness, self-directed learning, and adaptability. Perceptive junior leaders learn how cultures affect military operations. They study major world cultures and put a priority on learning the details of the new OE when they are deployed. Effective small-unit leaders adapt to new situations, realizing that each cultural context requires unique solutions. They learn that their words and actions may be interpreted differently in different cultures.

1-4. Successful accomplishment of military missions requires Soldiers and leaders to develop an awareness of the cultures with which they interact. To apply this cultural awareness, they must first understand the key elements—including beliefs, values, behaviors, and norms—that compose (or are important to) any culture, whether friendly or enemy, local or foreign. Soldiers and leaders must then take into account these cultural considerations:

- **U.S. culture.** They must understand the key elements of U.S. culture and how these elements influence their own perceptions of other cultures. In addition, they must recognize the impact of American culture, including how people of other nations and cultures perceive the United States and its people.
- **Cultures in the OE.** Soldiers and leaders must understand the key elements of specific cultures within the OE with which they expect to interact during operations. This includes indigenous populations as well as coalition partners.

- **Impact of culture on military operations.** Military personnel must not only know what cultural awareness is, but must also factor specific cultural information into the decisions and actions they take to accomplish their missions. Information that may have a direct impact on military operations includes—
  - The influence of religion(s) on how a population behaves.
  - The impact of geography on a population.
  - Actions or speech that may insult or offend the members of certain cultures.
  - The dangers of stereotyping and other biases.
  - Differences in what indigenous populations and coalition partners value.
  - The influence of social structure and relationships.
  - Historical events and how they affect behaviors, beliefs, and relationships.
  - How to communicate effectively with coalition partners and indigenous persons.
  - The impact of cultural awareness on command and control (C2).

FULL SPECTRUM OPERATIONS

1-5. Full spectrum operations require simultaneous combinations of four elements—offense, defense, and stability or civil support. These operations, described in detail in FM 3-0 and refined further in FM 1-0, are the following:

- **Offensive operations.** These operations are combat operations conducted to defeat and destroy enemy forces and seize terrain, resources, and population centers.
- **Defensive operations.** These are combat operations conducted to defeat an enemy attack, gain time, economize forces, and develop conditions favorable for offensive or stability operations.
- **Stability operations.** Stability operations maintain or reestablish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief.
- **Civil support operations.** These operations address the consequences of man-made or natural accidents and incidents beyond the capabilities of civilian authorities within the United States and its territories.

Note. Army forces conduct civil support operations as part of homeland security. Homeland security provides the Nation with strategic flexibility by protecting its citizens, critical assets, and infrastructure from conventional and unconventional threats.

1-6. Army forces conduct full spectrum operations abroad by executing offensive, defensive, and stability operations as part of integrated joint, interagency, and multinational teams. Army forces within the United States and its territories conduct full spectrum operations by combining civil support, offensive, and defensive operations to support homeland security. For additional information, see FM 3-0.

AREA OF OPERATIONS

1-7. While retaining the ability to conduct operations in contiguous AOs, the reconnaissance and scout platoons must be prepared to operate routinely in an OE with noncontiguous AOs. This will be applicable whether the platoon is conducting operations in the context of major combat operations (MCO), limited interventions, or stability operations. Depending on the nature and evolution of the operation, conditions may require the platoon to operate in a contiguous AO. Conversely, it may have to conduct operations in noncontiguous AOs, with tactical actions that are separated spatially but are focused with respect to timing and purpose against key enemy capabilities and assets. Figure 1-1 depicts examples of contiguous and noncontiguous AOs. See Chapter 2 this manual and FM 3-20.971 for additional information.

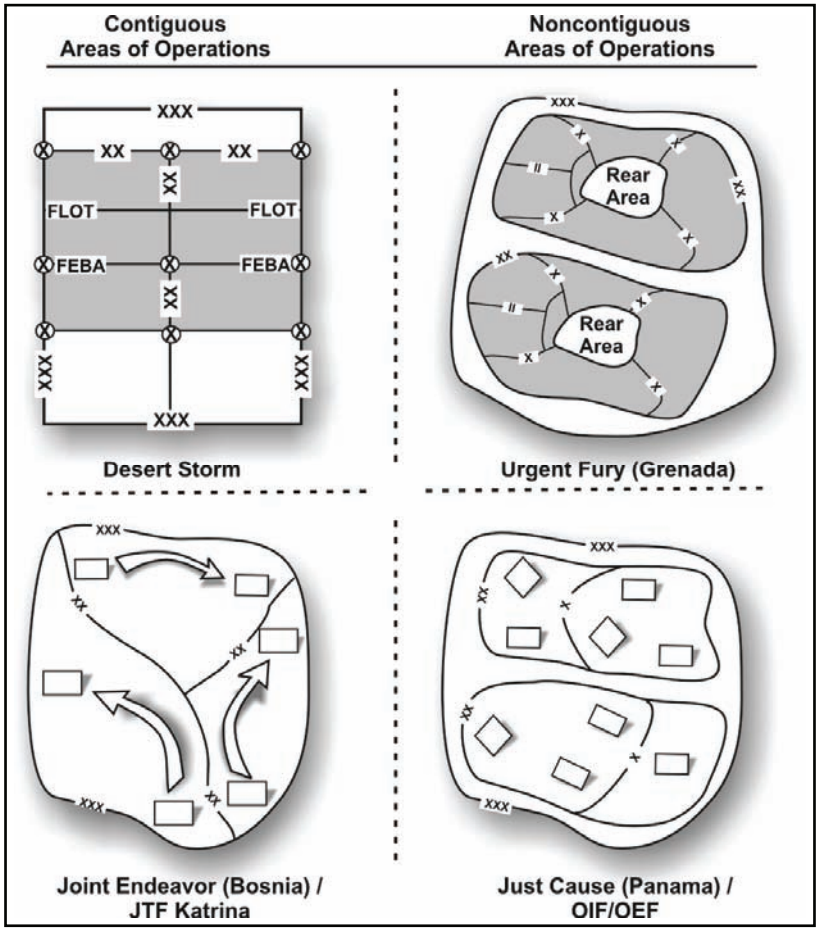

Figure 1-1. Contiguous and noncontiguous areas of operations

1-8. If the troop is covering dispersed areas, reconnaissance and scout platoons may operate out of their own assembly areas in their specified AOs. In an OE with noncontiguous AOs, the platoon may collocate its assembly areas with another unit and conduct separate operations in the other unit's AO. When the platoon or its elements are assigned missions that overlap a maneuver unit's AO, it is imperative that the reconnaissance leader integrate and synchronize his unit's operations with those of the maneuver unit. When platoons are operating independently, the troop still exercises C2 and provides sustainment to the platoons. In stability operations, the reconnaissance objective (focus) is often the population itself rather than the terrain within the AO. The platoon can best reconnoiter this objective with human intelligence (HUMINT) assets.

THREAT TACTICS, TECHNIQUES, AND PROCEDURES (TTP)

1-9. Current and future threats, empowered by global weapons proliferation and an increasingly networked world, will emerge from failed, failing, and unstable states. These threats will include regional or state-centered despots, transnational criminal organizations, drug cartels, terrorist groups, and/or potential major military competitors. For additional information on enemy TTP, see FM 3-0 and FM 3-20.96.

1-10. The threat's goal is to defeat the reconnaissance platoon by confounding its ability to achieve and maintain superior situational awareness (SA) and situational understanding (SU). Current and future OEs place junior leaders in complex situations where their tactical actions may have international, informational, and political implications as well as operational and strategic impact.

1-11. The unparalleled visibility and reach of both sensors and shooters mean that units must be able to provide overwatch in mutual support of moving formations and to perform immediate action at ranges beyond line of sight. The unit also must be prepared to fight opponents who are similarly equipped and trained and who are operating on their own ground. Adaptive adversaries will modify their operations to reduce their signatures to frustrate intelligence preparation of the battlefield (IPB) efforts and to deceive the unit by showing it what it expects to see.

1-12. Threat elements will complicate targeting by closing distances to neutralize fires or by shielding forces in cities and mixing among civilian populations. The threat will further complicate the unit's targeting efforts by using niche high-technology systems, making it more difficult to discern signatures of high-payoff systems.

THE THREAT IN MAJOR COMBAT OPERATIONS

1-13. Threat forces in MCO oppose U.S. forces with a variety of high-technology systems built into mechanized, motorized, and light infantry forces. These forces may be equipped with newer generation tanks and infantry fighting vehicles and have significant numbers of antitank guided missile (ATGM) systems, man-portable air defense systems, advanced fixed- and/or rotary-wing aviation assets, missiles, rockets, artillery, mortars, and mines. In addition, they may possess weapons of mass destruction (WMD). Enemy forces in MCO may be capable of long-term resistance using conventional formations such as divisions and corps, but they may also conduct sustained unconventional operations and protracted warfare.

Israeli Forces in Lebanon

In August 2006 Israeli Defense Forces conducted operations into southern Lebanon in order to recover two Soldiers that had been kidnapped during a planned ambush. Once in Lebanon the Israelis discovered that the Hezbollah had spent the last few years preparing the AO. Several towns had been linked together into a complex web of defensive positions that included reinforced bunkers, communications tunnels, and prepared demolitions, minefields, and IEDs along all major avenues of approach. All of the prepared positions were overwatched by sophisticated antitank weapon ambushes using well-rehearsed engagement techniques. These defenses were commanded and controlled using the existing telephone, radio, and television infrastructures and were manned by personnel that were fully trained, prepared and rehearsed.

THE THREAT IN SMALL SCALE CONTINGENCIES

1-14. In SSC environments, the threat employs forces characterized by limited armor. Some are equipped with small numbers of early generation tanks or have mechanized forces. Most, however, consist predominantly of infantry elements. Insurgents, terrorists, paramilitary units, special purpose forces, special police, and local militias are present in the environment. They are expected to have robust communications using conventional military devices augmented by commercial equipment such as cell phones. They may not be capable of long-term, sustained, high-tempo combat operations, but they generally are capable of conducting long-term, unconventional terrorist and insurgent operations.

THE THREAT IN STABILITY OPERATIONS

1-15. In stability operations, the threat is likely to be insurgents or terrorists who are highly motivated. These forces may employ advanced communications, some precision weapons (such as guided mortar rounds), and some ground-based sensors in varying combinations with conventional weapons, mines, and improvised explosive devices (IED). The threat usually conducts psychological and information warfare against the host nation (HN) government and population, and it may use terrorist techniques such as assassinations or kidnappings. Task organization with civil affairs (CA), psychological operations (PSYOP), and other special operations forces (SOF) may be necessary to communicate with the population and restore law and order.

THE THREAT IN COUNTERINSURGENCY OPERATIONS

1-16. Threat elements pose a unique challenge for commanders in counterinsurgency (COIN) operations. Insurgent organizational structures are functionally based and continually adaptive. Insurgent organizations can be rooted in ethnic or tribal groups. They also often take part in criminal activities or link themselves to political parties, charities, or religious organizations. These conditions and practices make it difficult to determine what and who constitutes the threat. The insurgency's long-term effectiveness is determined by its ability to generate and sustain popular support—or at least acquiescence and tolerance. This ability is usually the insurgency's center of gravity.

SECTION II – RECONNAISSANCE AND SCOUT PLATOON ORGANIZATIONS

1-17. Reconnaissance and scout platoons are organized to conduct reconnaissance and security operations throughout the troop and squadron AO. Using information technology and air/ground reconnaissance capabilities in complex terrain, the platoons can develop the situation by focusing on multidimensional and asymmetrical threats in a designated AO. This allows the higher echelon commander to maintain SA and develop SU. This discussion focuses on the five organizational variations of the platoons:

- The reconnaissance platoon of the HBCT reconnaissance squadron and of the combined arms battalion (CAB).
- The motorized reconnaissance platoon of the IBCT reconnaissance squadron.
- The reconnaissance platoon of the SBCT reconnaissance squadron.
- The motorized reconnaissance platoon of the BFSB reconnaissance and surveillance squadron.
- The scout platoon of the ACR cavalry squadron.

PLATOON MISSIONS

1-18. Regardless of organization, the reconnaissance or scout platoon's primary missions in support of ISR operations are—

- Reconnaissance (see Chapter 3):
  - Zone reconnaissance.
  - Area reconnaissance.
  - Route reconnaissance.
  - Obstacle/restriction reconnaissance.
- Security (see Chapter 4):
  - Screen.
  - Area security (which includes route security and convoy security).
  - Local security.

GENERAL CAPABILITIES AND LIMITATIONS

1-19. The following general capabilities and limitations apply to all reconnaissance and scout platoons.

CAPABILITIES

1-20. The platoons have the following capabilities:

- They provide all-weather, continuous, accurate, and timely information through the combined use of long-range advanced scout surveillance systems (LRAS3), unmanned aircraft systems (UAS) provided by company or troop, and mounted and dismounted scouts.
- They can gather information about multiple threats within their AO.
- Leadership can rapidly assess situations and direct combat power and reconnaissance and surveillance capabilities to meet priority intelligence requirements (PIR).

- They can detect threat deception, decoys, and cover and concealment that otherwise would not be detected by single-capability surveillance means by employing integrated and synchronized reconnaissance and surveillance systems.
- They support targeting and target acquisition with available ground and aerial assets, including the fire support team's (FIST) fire support surveillance system and UASs.
- They can rapidly develop the situation.
- They can conduct stealthy reconnaissance and security operations.
- They reduce risk and enhance survivability by providing information that allows its parent elements to avoid contact or to achieve situational dominance if contact is necessary.
- They assist in shaping the OE by providing information or directing fires to disrupt the enemy.
- They can fight for information against light/motorized forces.

Note. The reconaissance platoon in the BFSB is extremely limited in its ability to fight for information because of the lack of organic mortars; armored fighting vehicles such as the cavalry fighting vehicle (CFV) or Stryker; and tube-launched, optically tracked, wire-guided (TOW) missile systems. It should fight for information only within the guidelines of the commander's engagement criteria or in self-defense.

LIMITATIONS

1-21. Reconnaissance and scout platoons have the following limitations, which can be mitigated with careful employment and/or augmentation:

- They have limited dismounted capability, requiring platoons to assume section missions to generate the required dismounts.
- They have limited direct fire standoff, lethality, and survivability in full spectrum operations.
- They may require augmentation in full spectrum operations.
- They require augmentation to perform economy of force operations.
- They have limited sustainment assets that must frequently operate over extended distances.

Note. Some of these limitations are mitigated in the ACR scout platoon, whose organization provides more tactical vehicles, firepower, sensors, and other operational assets than its counterparts in the HBCT, IBCT, SBCT, and BFSB.

ORGANIZATIONS

1-22. When conducting mounted operations, reconnaissance and scout platoons are organized according to the factors of METT-TC into an appropriate tactical organization consisting of a variable number of scout sections or squads. Each of the different types of reconnaissance platoon organizations has inherent capabilities and limitations depending on their tactical organization.

DISMOUNTED ORGANIZATION

1-23. As with mounted platoon organizations, each dismounted organization has its own set of capabilities and limitations. Every dismounted organization, as a minimum, consists of a **reconnaissance element** and a **security element**. The purpose of the reconnaissance element is to obtain data on information requirements (IR). The security element's primary responsibility is to protect the reconnaissance element. The security element may also serve as a reconnaissance element or have alternate responsibilities. Whichever role the security element plays, its primary objective is protecting the dismounted element.

1-24. A **two-man team** is the smallest dismounted element within a reconnaissance and scout platoon (see Figure 1-2) and may be formed from—

- An M3 cavalry fighting vehicle (CFV) reconnaissance squad (single vehicle) in the HBCT reconnaissance and ACR scout platoons.
- A Stryker reconnaissance vehicle (RV) reconnaissance squad from an SBCT reconnaissance platoon.
- A two-vehicle reconnaissance section within the IBCT or BFSB reconnaissance platoon.

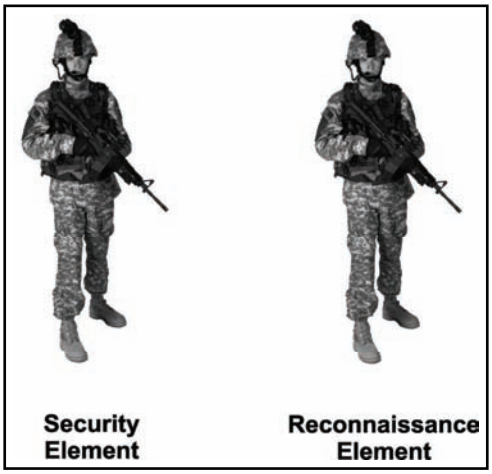

Figure 1-2. Dismounted two-man recon organization

1-25. The **three-man dismounted team** can perform reconnaissance and security tasks, man observation posts (OP), conduct surveillance tasks, conduct liaison with other units, or perform a combination of these tasks (see Figure 1-3). It is usually led by a scout sergeant or higher. In reconnaissance organizations (as well as the other dismounted organizations), the vehicle(s) may provide security for the entire element. The three-man team is the basic dismounted element in the following:

- An SBCT recon squad (single RV).
- An M3 CFV recon squad (single vehicle) in the ACR scout platoon.
- A three-vehicle IBCT or BFSB recon section.

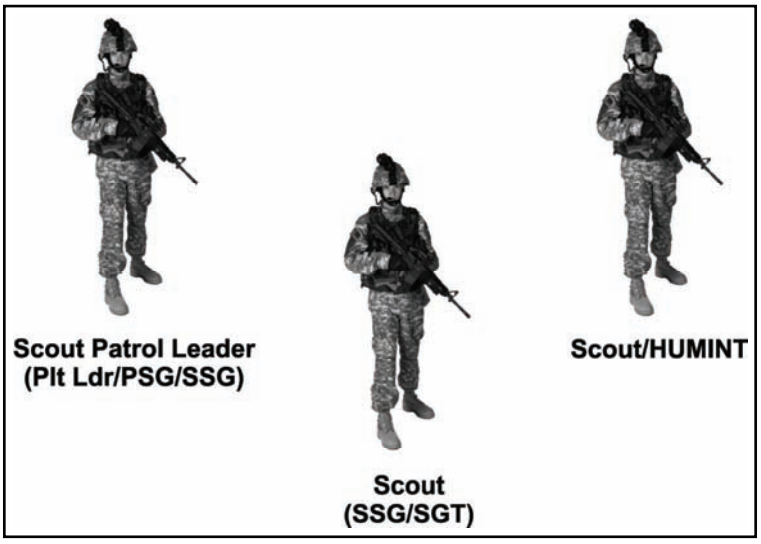

Figure 1-3. Dismounted three-man team

1-26. A **four-man organization** can perform reconnaissance tasks, security tasks, OP/surveillance tasks, liaison, or a combination of these tasks. It is normally led by a scout (staff sergeant or higher). Refer to Figure 1-4. This configuration may be formed from the following:

- The SBCT reconnaissance platoon leader's Stryker RV.
- A two-vehicle reconnaissance section in an SBCT reconnaissance platoon.
- A two-vehicle CFV section within an ACR scout platoon.
- A two-vehicle high-mobility multipurpose wheeled vehicle (HMMWV) and CFV section in an HBCT or CAB reconnaissance platoon.

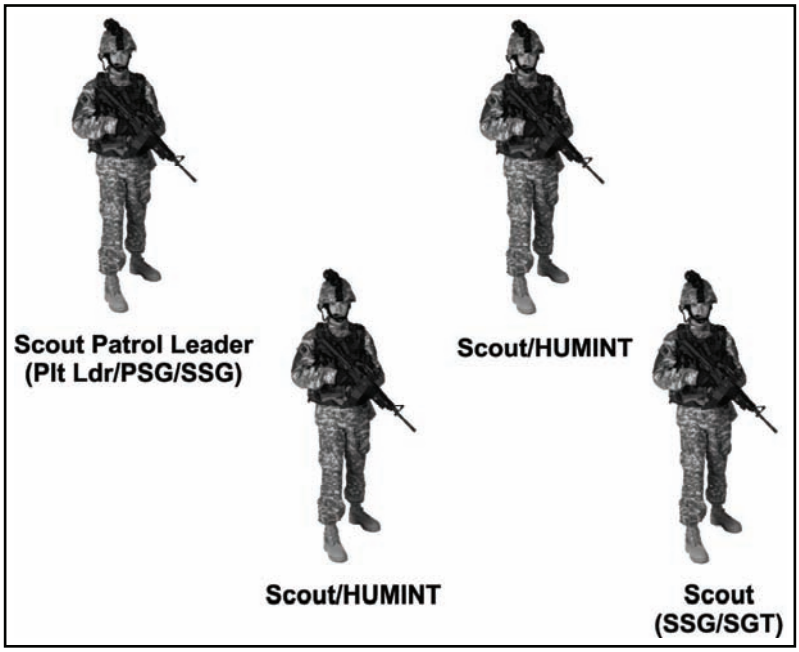

Figure 1-4. Dismounted four-man reconnaissance organization

1-27. When required by METT-TC, an entire section may dismount. It can perform reconnaissance tasks, security tasks, OP/surveillance tasks, liaison, or a combination of these tasks. The platoon leader, platoon sergeant (PSG), or senior staff sergeant leads this element.

1-28. A dismounted platoon can perform reconnaissance tasks, security tasks, OP/surveillance tasks, liaison, or a combination of these tasks. The platoon leader/PSG leads the dismounted platoon element, which always includes an element designated for security (reaction force) and control. The dismounted platoon organization may be used if the threat is high (security of the element requires mutual support) or vehicular movement is impossible. Infiltration, for example, may require the platoon to conduct dismounted tactical movement. The platoon's vehicles may provide security for the entire element; this organization normally leaves two personnel (driver and gunner) mounted on each vehicle.

HBCT AND CAB RECONNAISSANCE PLATOON

1-29. This platoon is equipped with three CFVs and five armored HMMWVs equipped with LRAS3 (See Figure 1-5).

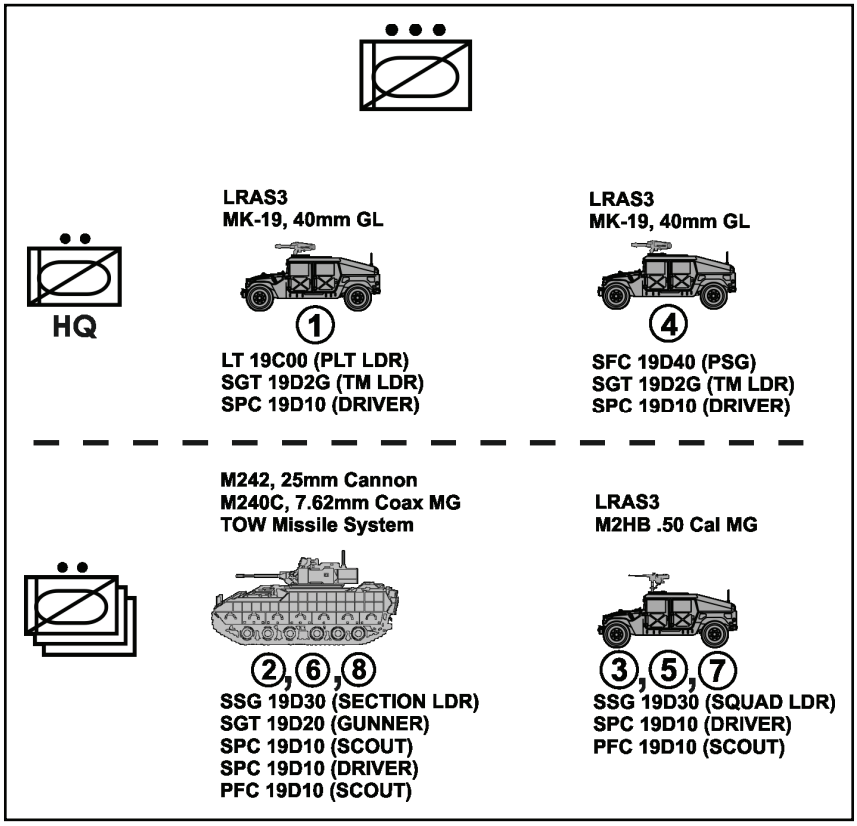

Figure 1-5. HBCT and CAB reconnaissance platoon

Capabilities

1-30. The HBCT and CAB reconnaissance platoon has the following capabilities:

- The M3A3 CFV provides firepower and survivability in full spectrum operations.
- The CFV has a 25-mm cannon, 7.62-mm coaxial machine gun, and tube-launched, optically tracked, wire-guided (TOW) missile system.
- Each CFV carries three dismounted scouts to execute dismounted tasks.
- The LRAS3 provides real-time ability to detect, recognize, identify, and geo-locate distant targets, while transmitting information directly to digital information systems such as Force XXI battle command—brigade and below (FBCB2).

Limitations

1-31. The HBCT and CAB reconnaissance platoon has the following limitations:

- It is vulnerable to enemy counterreconnaissance and security measures; fighting for information in full spectrum operations is limited.
- The M1114/M1152 HMMWV provides inadequate survivability against direct and indirect fires in operations teamed with the more survivable M3A3.
- With only two platoons per troop, the size of the AO and scope of traditional reconnaissance and security missions is limited.
- Limited dismounts reduce the capabilities of the platoon to conduct long-term OPs, continuous screening ability, or to conduct dismounted tasks associated with route, zone, and/or area reconnaissance.

Organization

1-32. The HBCT and CAB reconnaissance platoon has several organizational options, including the basic options covered in this discussion. The troop commander and/or platoon leader may develop other combinations to meet unique METT-TC requirements and to accommodate attachments.

Sections

1-33. The HBCT and CAB reconnaissance platoon, in most operations, is employed by reconnaissance sections. Each section is made up of a section leader, squad leaders, and their vehicle crews (or teams). These elements may be further organized into designated dismounted teams and squads as outlined in previous paragraphs.

1-34. **Four-section (two-vehicle) organization.** This is an effective organization when observing multiple avenues of approach or when multiple reconnaissance missions are required (refer to Figure 1-6). This organization provides security at the section level and gives the sections sufficient maneuver and C2 capability to conduct limited separate missions. These organizational considerations apply:

- The headquarters section consists of the platoon leader's and PSG's HMMWVs.
- Three reconnaissance sections (A, B, and C) that consist of one section leader's CFV and one squad leader's HMMWV.
- This configuration provides four personnel per reconnaissance section for dismounted operations.

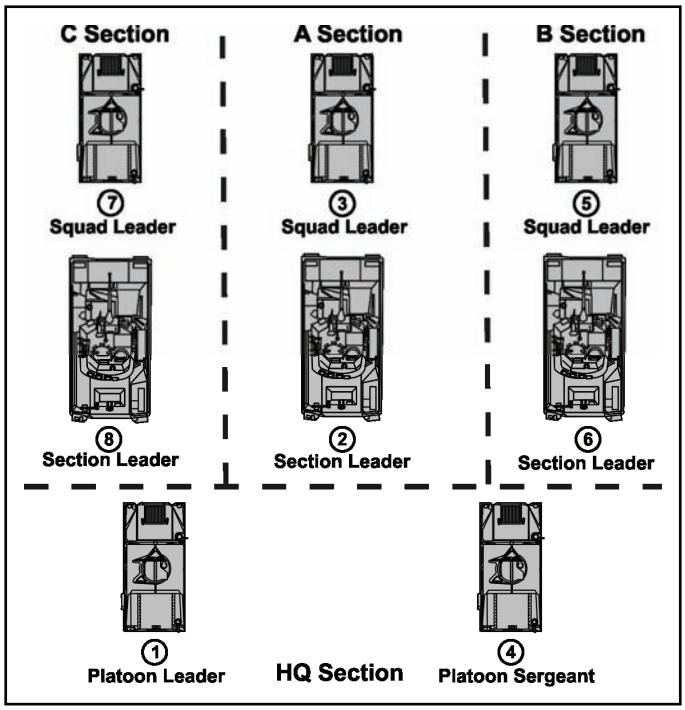

Figure 1-6. Four-section (two-vehicle) organization

1-35. **Three-section organization.** This organization is ideal for reconnaissance along a single route (refer to Figure 1-7). It allows employment of two short-duration OPs. The ability to concurrently conduct dismounted patrols is very limited. These organizational considerations apply:

- The headquarters section includes the platoon leader, mounted in a CFV, and the PSG, mounted in a HMMWV.
- Two reconnaissance sections (A and B) consist of one section leader's CFV, and two squad leader's HMMWVs.

- This configuration provides five personnel per reconnaissance section for dismounted operations.

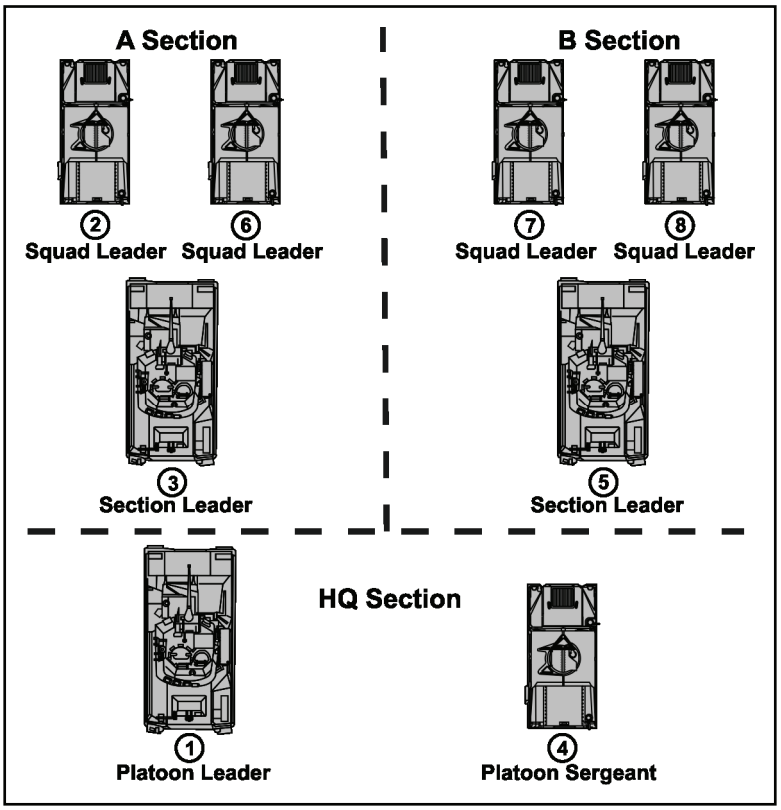

Figure 1-7. Three-section organization

Squads

1-36. The platoon may also be task organized for maneuver purposes into smaller reconnaissance squads. These normally consist of a single vehicle and its crew, but may require combining personnel from multiple vehicles/crews in accordance with METT-TC requirements.

IBCT MOTORIZED RECONNAISSANCE PLATOON

1-37. The three reconnaissance platoons are each organized with six armored scout HMMWVs (see Figure 1-8).

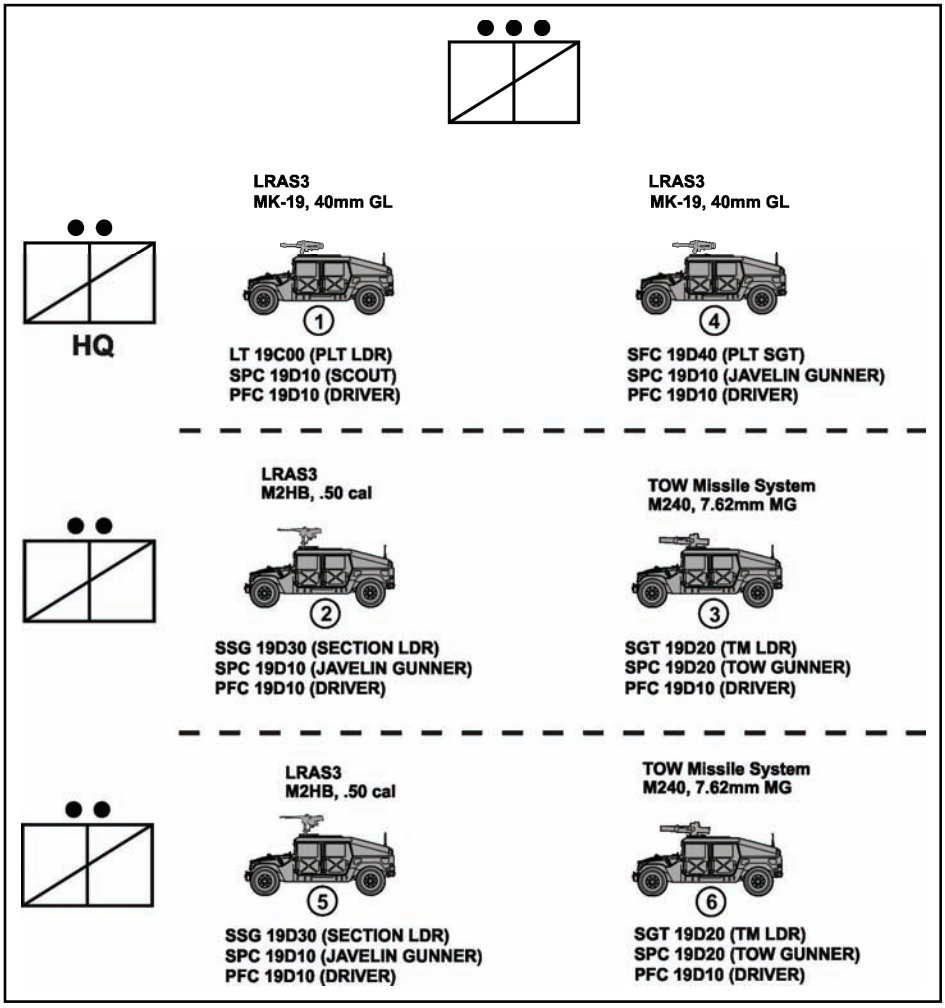

Figure 1-8. IBCT motorized reconnaissance platoon

Capabilities

1-38. The IBCT motorized reconnaissance platoon has the following capabilities:

- It possesses two mounted TOW systems.
- It is highly mobile and responsive.

Limitations

1-39. The IBCT motorized reconnaissance platoon has the following limitations:

- Because the platoon is vulnerable to enemy counterreconnaissance and security measures, fighting for information in full spectrum operations is very limited.
- The M1114/M1152 HMMWV provides inadequate survivability and mobility.
- The platoon possesses limited dismounted capability; each HMMWV carries a crew of three, one of whom is tasked to perform dismounted reconnaissance tasks.
- Limited dismounts reduce the capabilities of the platoon to conduct long-term OPs, continuous screening, or to conduct the dismounted tasks associated with route, zone, and/or area reconnaissance.

Organization

1-40. The IBCT reconnaissance platoon has a wide variety of organizational options, including the basic options covered in the following discussion. The troop commander and/or platoon leader may develop other combinations to meet unique METT-TC requirements and to accommodate attachments.

Sections

1-41. The IBCT reconnaissance platoon, in most operations, is employed by reconnaissance sections. Each section is made up of a section leader, squad leaders, and their vehicle crews.

1-42. **Two-section organization.** This is an effective organization when only two maneuver corridors have to be observed or when two distinct reconnaissance missions are required (refer to Figure 1-9). This organization maximizes security at the section level, gives the sections sufficient maneuver and C2 capability to conduct limited separate missions, and allows these dismounted capabilities:

- Nine personnel for purely dismounted operations such as a reconnaissance patrol.
- Three personnel (one per vehicle) for performing reconnaissance tasks while conducting mounted operations.
- Five personnel to man OPs or conduct patrols.

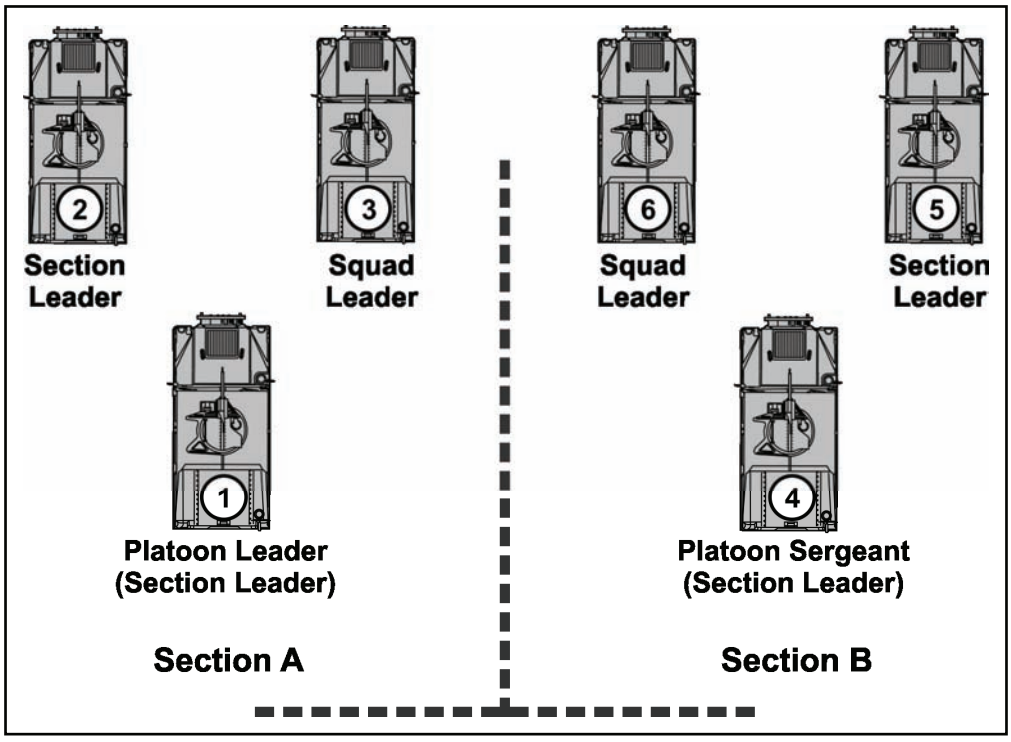

Figure 1-9. IBCT reconnaissance platoon two-section organization

1-43. **Three-section organization.** This organization is ideal for reconnaissance along a single route (refer to Figure 1-10). It allows employment of three short-duration OPs; however, the ability to concurrently conduct dismounted patrols is very limited.

Note. A consolidated headquarters section, with the platoon leader and PSG (see Figure 1-10), increases C2 capability and is an optional configuration.

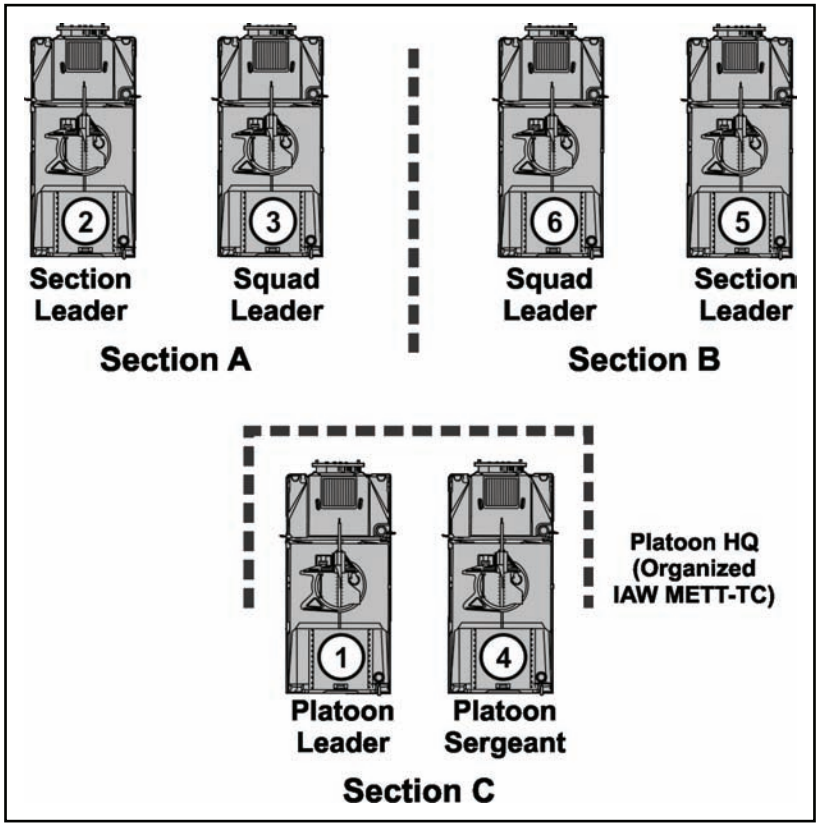

Figure 1-10, IBCT reconnaissance platoon three-section organization

1-44. **Six-vehicle organization.** The six-vehicle organization is the most difficult to control (refer to Figure 1-11). The platoon leader employs this organization when he must have six separate information sources at the same time. This organization only allows one dismount to provide local security.

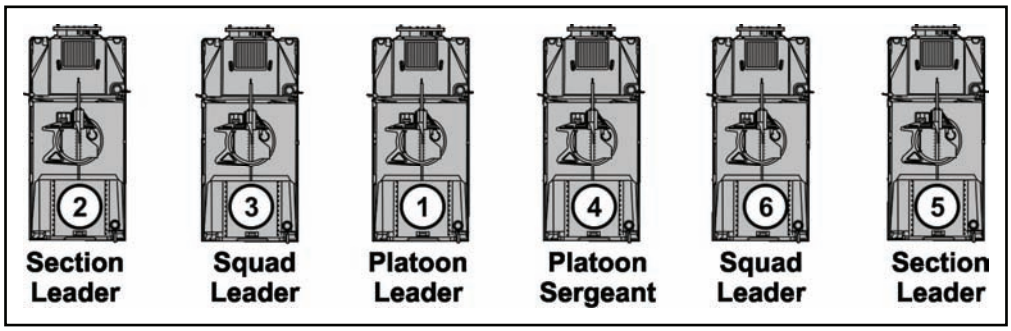

Figure 1-11. IBCT reconnaissance platoon six-vehicle organization

Squads

1-45. The platoon may also be task organized for maneuver purposes into smaller reconnaissance squads, each normally consisting of a single vehicle and its crew.

SBCT RECONNAISSANCE PLATOON

1-46. This platoon is organized with four Stryker RVs (see Figure 1-12).

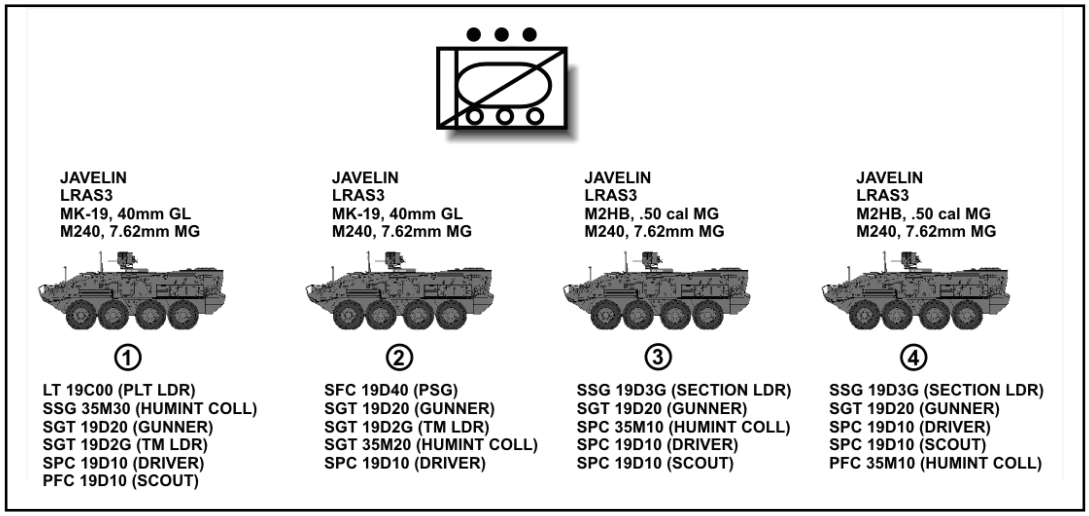

Figure 1-12. SBCT reconnaissance platoon

Capabilities

1-47. The SBCT reconnaissance platoon has the following capabilities:

- It possesses four Javelin systems.
- It possesses organic HUMINT personnel for employment at platoon levels.
- It has access to information and intelligence provided by assets in the squadron surveillance troop, such as the Shadow UAS, Prophet, Trojan Spirit, and chemical, biological, radiological, and nuclear (CBRN) reconnaissance platoon.

Limitations

1-48. The SBCT reconnaissance platoon has the following limitations:

- Because the platoon is vulnerable to enemy counterreconnaissance and security measures, fighting for information is limited.
- In performing route reconnaissance, four-vehicle/two-section platoons accept risk when individual Strykers reconnoiter lateral routes and terrain adjacent to the route.
- With limited dismounts within scout sections, the two scout sections must be combined to generate the required dismounts to execute a long-term OP, continuous screening, or to conduct the dismounted tasks associated with route, zone, and/or area reconnaissance.

Mounted Organization

1-49. The SBCT reconnaissance platoon is limited in organizational configurations because it has only four organic vehicles. Regardless of the mission it is executing or the formation or movement technique it is using, the SBCT reconnaissance platoon normally operates in one of three organizations during mounted operations: as three sections with one vehicle in each section and the platoon leader's vehicle providing C2, as two sections with two vehicles in each section, or as a four-vehicle platoon.

Two-Section Organization

1-50. The two-section organization is used when increased security is required, when the AO can be covered efficiently with only two elements, or when the threat situation is unknown. This type of organization limits the amount of terrain the platoon can cover and decreases the speed with which the platoon can perform its tasks. On the other hand, it increases internal section security by providing

mutually supporting fires. It also gives the platoon leader and PSG greater flexibility in performing C2 and sustainment requirements (see Figure 1-13).

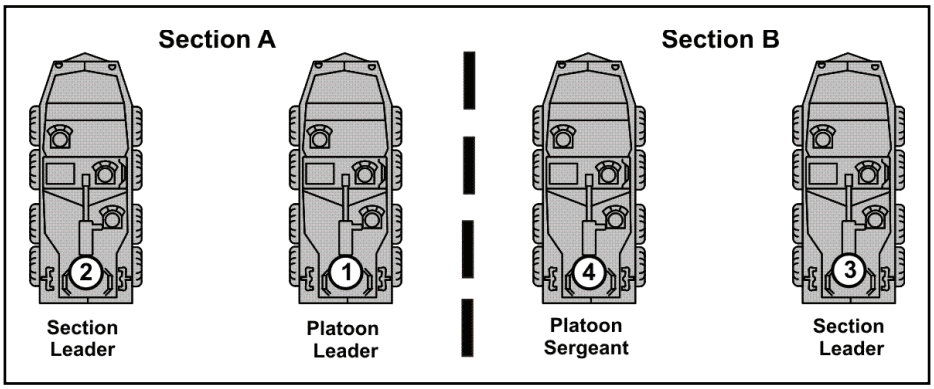

Figure 1-13. SBCT reconnaissance platoon two-section vehicle organization

Four-Vehicle Organization

1-51. The four-vehicle organization is the most difficult to control (refer to Figure 1-14). The platoon leader employs this organization when he must have four separate information sources at the same time or when the platoon is executing certain surveillance missions. This organization should be used when the threat is low or nonexistent. This formation may also be implemented during short-duration security missions, allowing for depth in the platoon's sector.

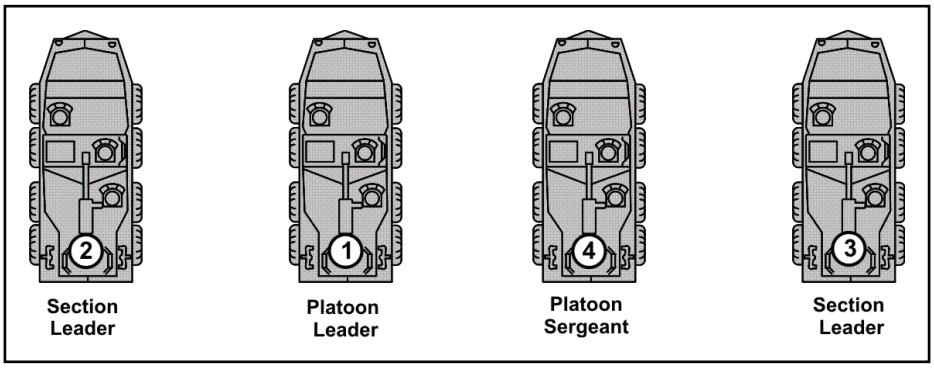

Figure 1-14. SBCT reconnaissance platoon four-vehicle organization

Dismounted Organization

1-52. Dismounted operations are the SBCT reconnaissance platoon's primary means for gathering information. The basic dismounted elements within the SBCT reconnaissance platoon are the team, squad, section, and platoon. Each vehicle has a designated dismounted team.

BATTLEFIELD SURVEILLANCE BRIGADE RECONNAISSANCE PLATOON

1-53. The BFSB reconnaissance platoon is a lightly armed organization and therefore does not usually fight for information unless it is significantly augmented. It relies on stealth to conduct reconnaissance and surveillance and to avoid combat. If an asset is compromised, it must either withdraw or exfiltrate to preserve its capability to collect information. If an asset becomes decisively engaged, it relies on its limited firepower and Army and joint fires for protection and to break contact. This platoon is organized with six armored HMMWVs (see Figure 1-15).

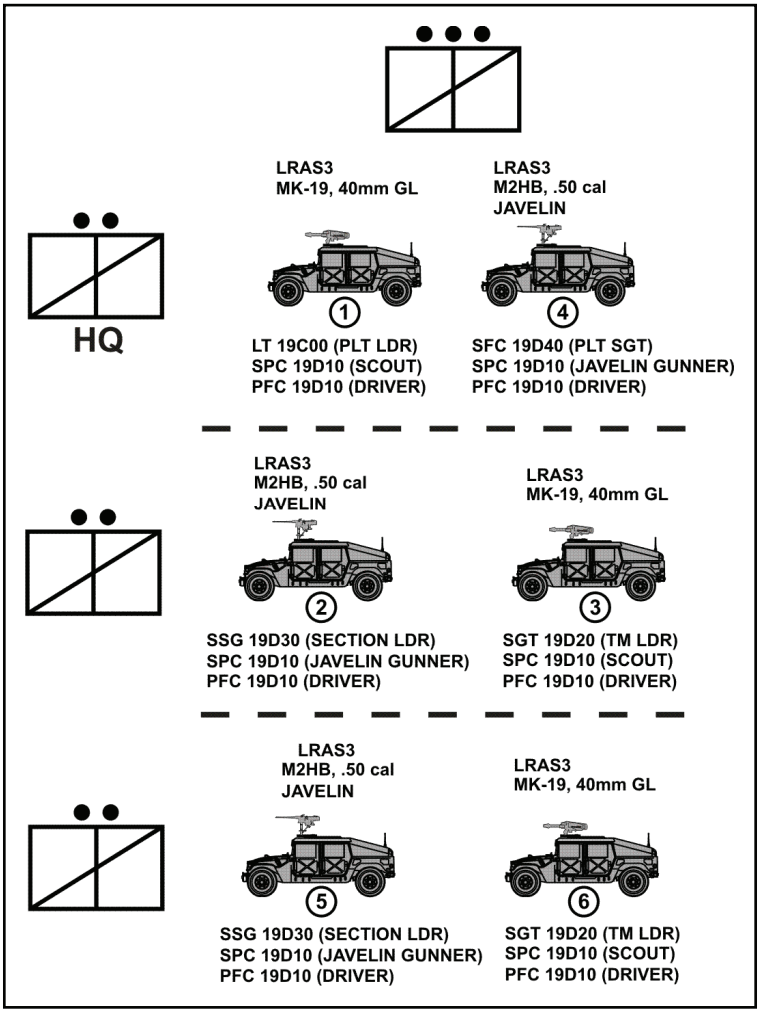

Figure 1-15. BFSB reconnaissance platoon

Capabilities

1-54. The BFSB reconnaissance platoon has the following capabilities:

- It is integrated into the BFSB ISR architecture and has access to information and intelligence collected by brigade assets.
- It possesses multiple Javelin missile systems.
- It has long-range communications capability beyond line of sight (LOS). Employed in conjunction with the troop FIST, this facilitates long-range target acquisition and interdiction.

Limitations

1-55. The BFSB reconnaissance platoon has the following limitations:

- Its ability to fight for information in full spectrum operations is very limited.
- It can conduct limited security missions in full spectrum operations.
- Its M1114/M1152 HMMWVs provide inadequate survivability and mobility.
- It does not have access to mortar support.
- Despite the advantages of its long-range communications systems, the platoon must accept risk when it operates outside the protective range of indirect fire support assets. This risk is further compounded by the platoon's lack of mortar support.

- Joint fires can support the platoon only under favorable METT-TC conditions, including weather.
- Joint fires support is further limited by organic laser designation capability.
- The platoon possesses limited dismounted capability; each HMMWV carries a crew of three, one of whom is tasked to perform dismounted reconnaissance tasks.
- With limited dismounts within scout sections, the two scout sections must be combined to generate the required dismounts to execute a long-term OP or continuous screening or to conduct the dismounted tasks associated with route, zone, and/or area reconnaissance.

Note. The BFSB reconnaissance platoon's unique combination of capabilities and limitations poses distinct doctrinal and operational challenges for the troop commander and platoon leader. On one hand, the platoon will often operate over extended distances because of its advanced technical capabilities, including long-range communications equipment. On the other, leaders at all levels must plan and conduct operations taking into account the platoon's limitations, such as firepower and protection considerations (lack of mortars and armored fighting vehicles; limitations in laser target acquisition/designation; reliance on indirect fires and/or joint fires).

Organization

1-56. Much like the IBCT reconnaissance platoon, the BFSB reconnaissance platoon has a wide variety of organizational options, including the basic options covered in the following discussion. The troop commander and/or platoon leader may develop other combinations to meet unique METT-TC requirements and to accommodate attachments.

Sections

1-57. **Two-section organization.** This is an effective organization when only two maneuver corridors have to be observed or when two distinct reconnaissance or surveillance missions are required (see Figure 1-16). This organization maximizes security at the section level and gives the sections sufficient maneuver and C2 capability to conduct limited separate missions. This organization allows the following dismount capabilities:

- Three personnel (one per vehicle) for performing reconnaissance tasks while conducting mounted operations.
- Five personnel to man OPs or conduct patrols.

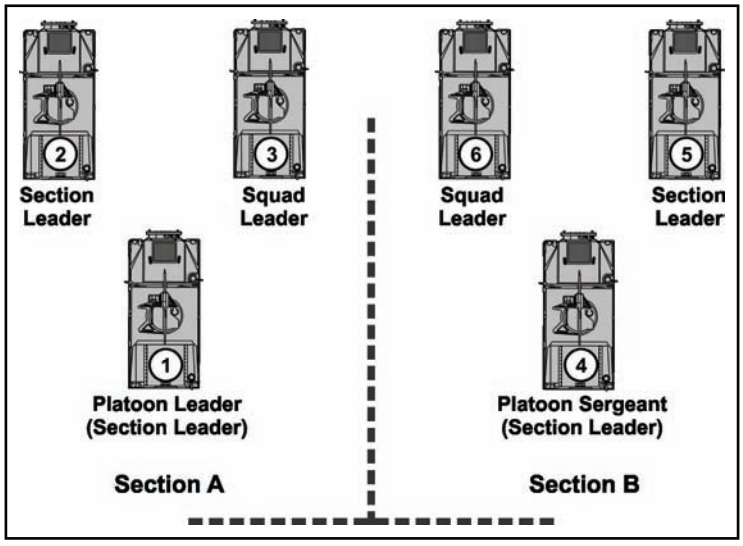

Figure 1-16. BFSB reconnaissance platoon two-section organization

1-58. **Three-section organization.** This organization is ideal for reconnaissance along a single route (refer to Figure 1-17). It allows employment of three short-duration OPs. The ability to concurrently conduct dismounted patrols is very limited.

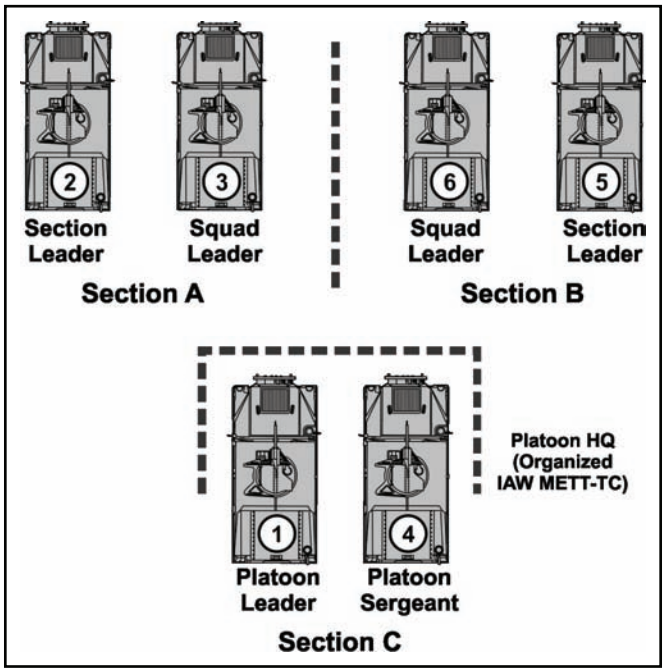

Figure 1-17. BFSB reconnaissance platoon three-section organization

1-59. **Six-vehicle organization.** The six-vehicle organization is the least secure and most difficult to control (refer to Figure 1-18). It should be used only when there are simultaneous multiple surveillance requirements. This organization allows for only one dismount to provide local security.

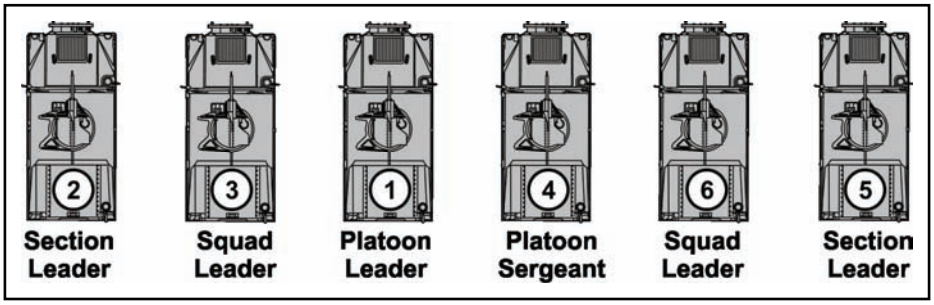

Figure 1-18. BFSB reconnaissance platoon six-vehicle organization

Squads

1-60. The platoon may also be task organized for maneuver purposes into smaller reconnaissance squads; these are normally a single vehicle and its crew.

ARMORED CAVALRY REGIMENT SCOUT PLATOON

1-61. This platoon is equipped with six CFVs and is found in the ACR (see Figure 1-19.)

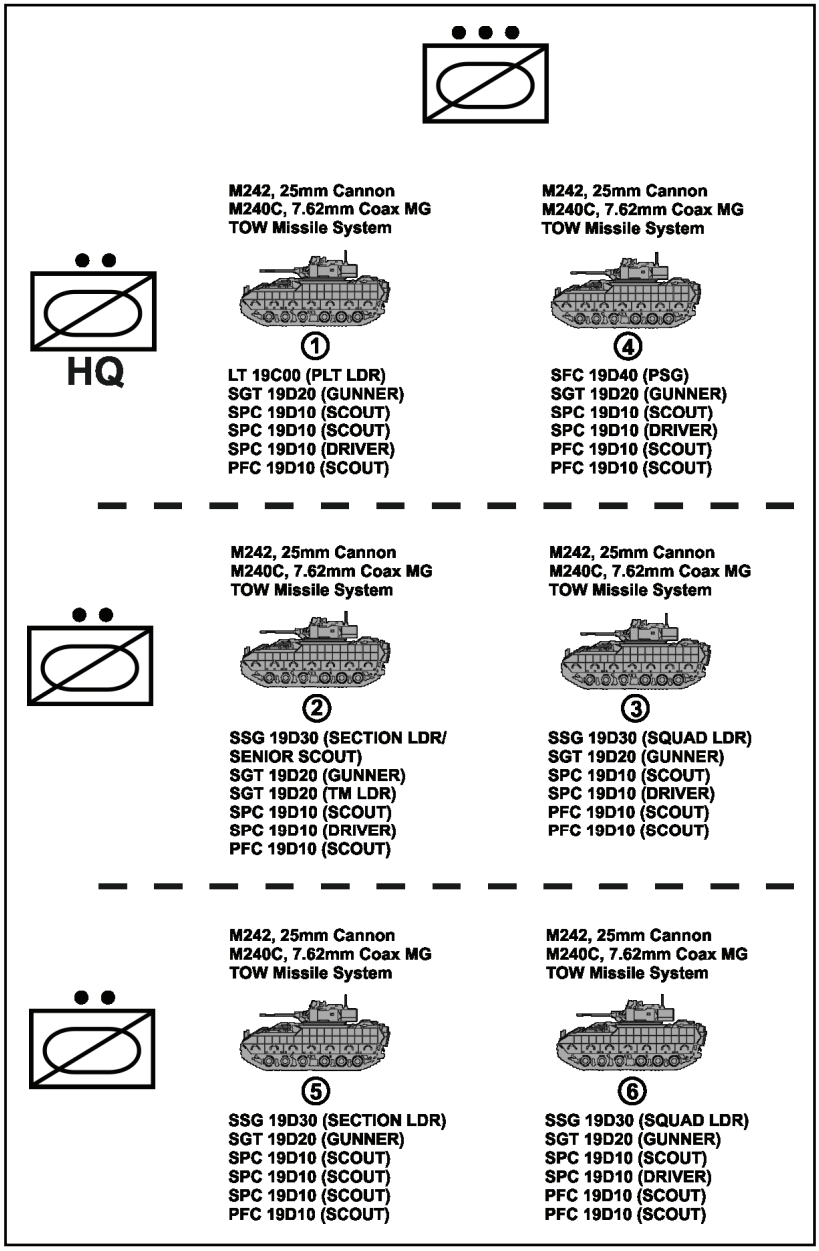

Figure 1-19. ACR scout platoon

Capabilities

1-62. The ACR scout platoon has the following capabilities:

- The CFV provides firepower and survivability in full spectrum operations.
- The CFV is armed with a 25-mm cannon, 7.62-mm coaxial machine gun, and TOW missile system, all tied into a thermal imaging system.
- Each CFV carries three dismounted scouts to execute dismounted tasks.
- Combined with the ACR cavalry troop's organic tank platoons, the scout platoon is more capable of fighting for information and executing security operations than any other reconnaissance platoon.

Limitations

1-63. The ACR scout platoon has the following limitations:

- It is less stealthy.
- It possesses limited dismounted capability; and must combine sections to generate the required dismounts to execute a long-term OP or continuous screening or to conduct the dismounted tasks associated with route, zone, and/or area reconnaissance.

Organization

1-64. Regardless of the mission it is executing or the formation or movement technique it is using, the ACR scout platoon normally operates in one of the following organizations.

Sections

1-65. **Three-section organization.** This is the basic organization for the ACR scout platoon (see Figure 1-20). This organization allows the platoon to achieve a compromise between the requirement of employing a maximum number of elements during the reconnaissance or security mission and the need for security. Other attributes of this organization include the following:

- It is the ideal organization for the conduct of a route reconnaissance mission.
- In a screen mission, this organization allows employment of three long-duration OPs, which are occupied for 12 or more hours.
- It also facilitates the simultaneous conduct of dismounted patrols.

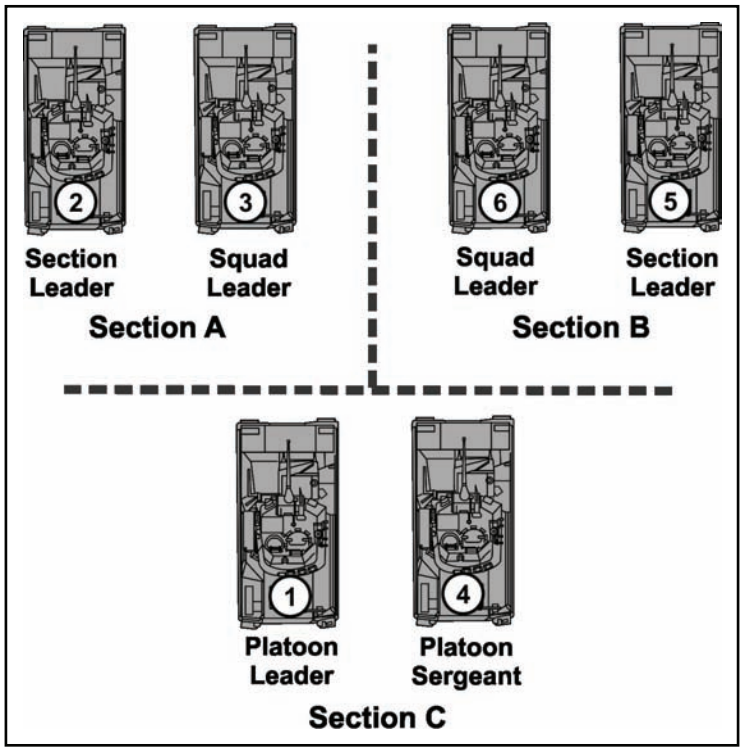

Figure 1-20. ACR scout platoon three-section organization

1-66. **Two-section organization.** The two-section organization is used when increased security is required, when the AO can be covered efficiently with only two elements, or when operational strength (less than six vehicles operational) makes the three-section organization impossible. See Figure 1-21.

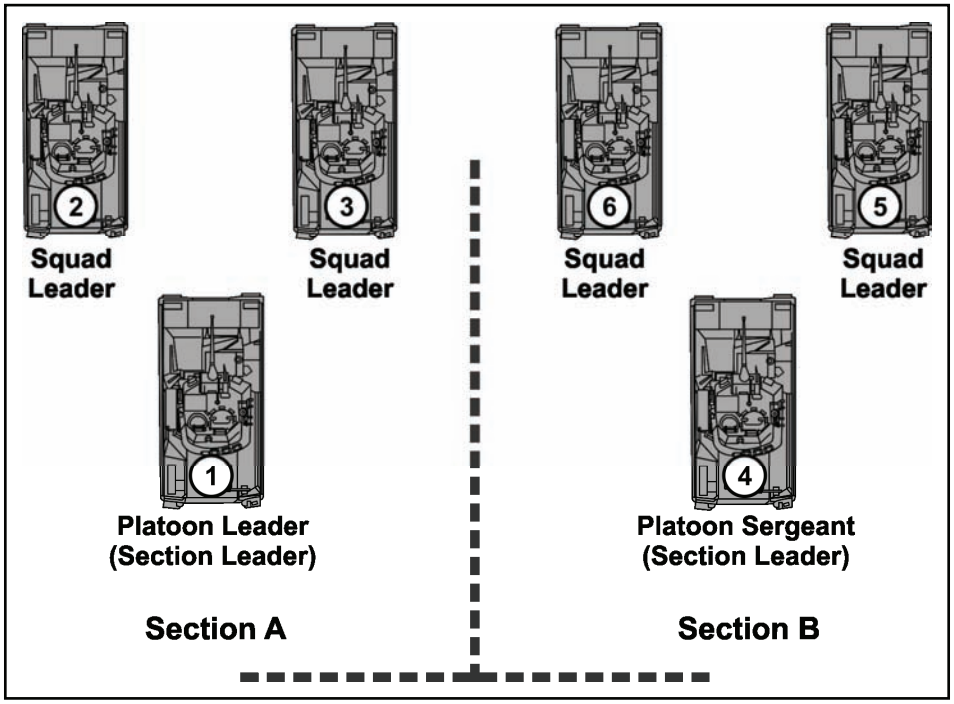

Figure 1-21. ACR scout platoon two-section organization

1-67. **Six-vehicle organization.** The six-vehicle organization is the most difficult to control (see Figure 1-22). The platoon leader employs this organization when he must have six separate information sources at the same time.

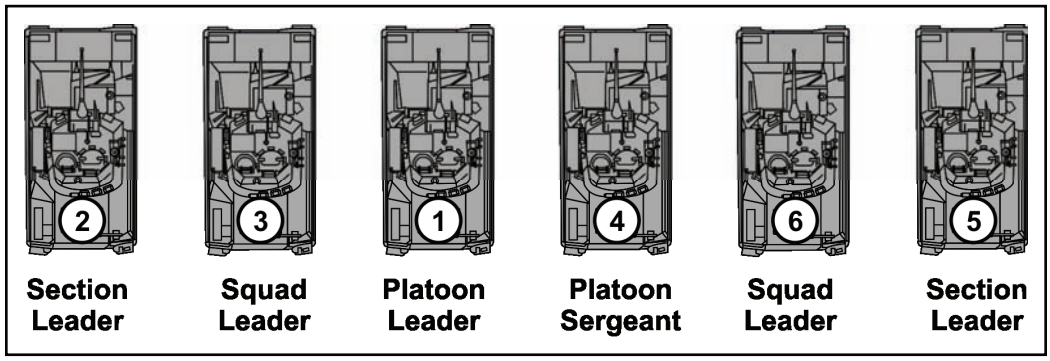

Figure 1-22. ACR scout platoon six-vehicle organization

Squads

1-68. The platoon may also be task organized for maneuver purposes into smaller reconnaissance squads; this is normally a single vehicle and its crew.

SECTION III – INTEGRATION OF SENSORS

1-69. Current and emerging sensor technology enables reconnaissance units to detect and identify targets at increased distances. Ground sensors and UAS sensors provide the platoon with early warning and help

limit exposure to enemy reconnaissance and acquisition systems. In turn, this capability affords the platoon maximum standoff range and allows the commander to make timely decisions.

1-70. These sensors, working in conjunction with scouts, increase the platoon's SA during periods of limited visibility, in dead space, and especially in the ever changing and complex AO. For additional information, refer to FM 2-0.

RECONNAISSANCE MANAGEMENT

1-71. No single reconnaissance asset can answer every intelligence requirement, and there are rarely enough reconnaissance assets to cover every requirement. The squadron staff and the troop commander employ a mix of reconnaissance management methods; such as cueing, mixing, redundancy, and task organizing; in an attempt to use limited assets most effectively and collect the most critical information with the fewest assets as quickly as possible.

CUEING

1-72. Cueing is the integration of one or more types of reconnaissance or surveillance systems to provide information that directs follow-on collection of more detailed information by another system. For example, aircraft equipped with the joint surveillance target attack radar system (JSTARS) and Guardrail can cover large areas and cue follow-on ground reconnaissance or UAS surveillance once an enemy force is identified. The commander can dispatch ground reconnaissance or UASs to verify the information and track the enemy for targeting purposes. Similarly, a reconnaissance platoon could cue troop surveillance assets such as UASs.

MIXING

1-73. Mixing entails using two or more different assets to collect information regarding the same intelligence requirement. For example, a BCT UAS may detect and locate a moving enemy tactical force, while MI uses organic and supporting assets to determine its identity, organizational structure, and indications of future plans.

REDUNDANCY

1-74. Redundancy is using two or more like assets to collect information regarding the same intelligence requirement. An example of redundancy at the platoon level is employing a ground OP and remote sensors that cover the same named area of interest (NAI).

TASK ORGANIZATION

1-75. To increase the effectiveness and survivability of reconnaissance and scout platoons, troop commanders may task organize sensor assets by placing them under the control of a platoon. For example, to conduct reconnaissance of possible river crossing sites at extended distances from the squadron's location, the platoon could be task organized with a combat observation lasing team (COLT), a signal retransmission (retrans) element, an engineer element, and a mechanized infantry squad.

ORGANIC SENSORS

1-76. The two primary sensor systems organic to the reconnaissance organizations are the LRAS3 and the RQ-11 Raven UAS. In addition to these two systems, the platoon can receive additional support from squadron and higher echelon assets. For additional information on organic sensors, refer to FM 3-20.971.

LONG-RANGE ADVANCED SCOUT SURVEILLANCE SYSTEMS

1-77. The LRAS3 is the premier ground reconnaissance and surveillance system for the Army's reconnaissance units. The LRAS3 is a long-range, multisensor system that provides real-time ability to

detect, recognize, identify, and geo-locate distant targets, while transmitting information directly to digital information systems such as FBCB2.

1-78. The LRAS3 is employed by all types of reconnaissance platoons. It can be mounted on HMMWVs and Strykers or employed on a tripod for dismounted operations.

1-79. The LRAS3 enables the platoon to conduct 24-hour reconnaissance and surveillance missions while remaining beyond enemy acquisition and engagement ranges. It provides precise far-target location by incorporating an advanced forward-looking infrared (FLIR) sensor, a global positioning system (GPS), and a day television camera.

Capabilities

1-80. The LRAS3 has the following capabilities:

- The system affords 24-hour reconnaissance and surveillance.
- It affords long-range detection and acquisition of potential targets out of direct fire contact.
- It can be configured for mounted and dismounted operations.
- It has GPS/digital interface.

Limitations

1-81. The LRAS3 has the following limitations:

- The system has no laser designation capability.
- Extreme weight limits mobility during dismounted operations.
- Because the system is not tied in with vehicle weapon systems, positioning on the Stryker RV and HMMWV challenges the gunner when transitioning from the LRAS3 to the primary weapon system and creates a blind spot.
- LRAS3's capability to see at extended ranges may sometimes create a blind spot around the vehicle. LRAS3-equipped vehicle crews must be vigilant in providing local security.

UNMANNED AIRCRAFT SYSTEMS

1-82. UAS operations support the commander as he plans, coordinates, and executes operations, providing ISR capabilities to enhance his SA. Army UASs can also perform acquisition, detection, designation, and battle damage assessment (BDA) to improve targeting. The platoon may employ UASs from the troop such as the RQ-11 Raven, but can also have direct access to real time or near-real time feeds from additional UAS support provided by the squadron, BCT, or higher headquarters (see Chapter 6 for additional information on UAS enabling operations and the RQ -7 Shadow).

Missions

1-83. UASs are capable of locating and recognizing enemy forces, moving vehicles, weapon systems, and other targets that contrast with their surroundings. In addition, UASs are capable of locating and confirming the position of friendly forces and the presence of noncombatant civilians. UASs can support ground units in the following missions:

- Reconnaissance.
- Surveillance.
- Security.
- Attack.
- Defense.

Capabilities

1-84. UASs bring numerous capabilities to Army units, providing near real time reconnaissance, surveillance, and target acquisition. They can be employed throughout the AO. Employed as a team, UASs

and manned systems provide excellent reconnaissance and security capabilities. UASs provide the following additional capabilities:

- Support target acquisition of enemy forces.
- Assist in route, area, and zone reconnaissance.
- Locate enemy elements and help determine their composition, disposition, and activity.
- Maintain contact with enemy forces from initial contact through BDA.
- Provide target coordinates with enough accuracy to enable immediate target handover, as well as first-round fire-for-effect engagements.
- Provide or enhance multispectrum sensor coverage of the AO.
- Provide information to manned systems, thus increasing survivability.
- Reduce or eliminate exposure time of manned systems in high-risk environments.
- Provide an extended three-dimensional vantage, both in distance and time, at critical decision points (DP) in difficult terrain.
- Perform decoy, demonstration, feint, and deception operations.
- Support mission duration beyond the capability of manned systems.
- Provide digital connectivity, allowing for rapid dissemination of information.

Limitations

1-85. UASs are excellent enablers, especially employed as part of an overall collection plan that takes advantage of their capabilities. At the same time, they have limited effectiveness in locating enemy forces that are well covered or concealed. Tactical UASs, such as Shadow and Raven, are not well suited for wide-area searches. Other limitations include the following:

- Vulnerability to enemy fire.
- Significant audio signature.
- Weather restrictions (such as wind, cloud cover, and turbulence).
- Requirement to maintain line of sight (LOS) to ground control stations.
- Limited frequencies for UAS control.
- Airspace command and control issues.
- Limited sensor field of view.
- Limited detection capability in areas of heavy vegetation.
- Assembly area survivability.

UAS Planning Considerations

1-86. Planning for UAS operations should include the following:

- Unit AO.
- Mission statement.
- Weather conditions.
- Time window for the UAS mission.
- Reconnaissance objective.
- PIR and IR.
- Line of departure (LD) or line of contact (LC).
- Initial NAIs.
- Routes to the AO.
- Restricted operations area for both UASs and rotary wing aircraft.
- Altitudes.
- Ingress route (azimuth, distance, time).
- Egress route (azimuth, distance, time).

- Entry control points.
- Holding points.
- Emergency recovery point (including route).
- Control point location.

RQ-11 Raven

1-87. The Raven is a man-portable, hand-launched small UAS designed for reconnaissance, surveillance, and remote monitoring. It is organic to the troop and is a critical addition to the troop's ability to conduct reconnaissance and security missions in full spectrum operations. See Figure 1-23 for an example of the Raven.

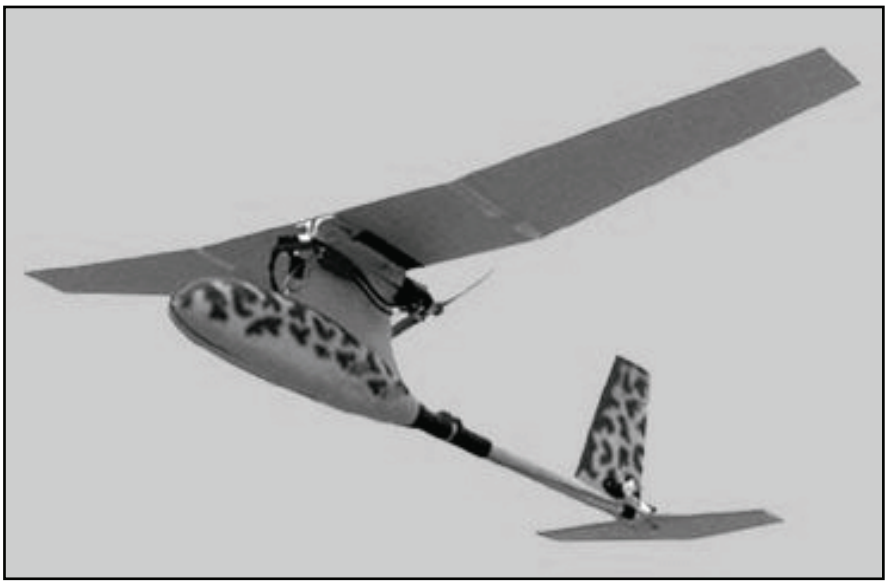

Figure 1-23. RQ-11 Raven UAS

Employment

1-88. The operator can launch and recover a Raven in minutes from unprepared terrain without special equipment. The craft can either fly under active remote control from the ground control station (GCS) or fly completely autonomous missions using GPS waypoint navigation. Most Raven missions occur at altitudes of 100 to 300 feet (30.5 to 91.4 meters). Mission time can range from 60 to 90 minutes. The Raven will immediately return to its launch point when the "home" command is selected. Figure 1-24 shows a Soldier launching a Raven.

Figure 1-24. Soldier launching a Raven UAS

1-89. Design features on the Raven include the use of the military standard GPS and a rechargeable battery option. The majority of missions use a lithium-ion battery pack rechargeable through a variety of sources, including the 28-volt direct current outlet on a HMMWV. The Raven system also includes a Panasonic Toughbook computer used in conjunction with the GCS, as well as a Sony Handycam video camera. The computer uses FalconView joint mapping software to provide the overlay of the video image on top of a five-color map display. The video camera allows the recording of Raven imagery for additional analysis or exploitation.

Components

1-90. The Raven transmits live airborne video images and compass headings (location information) to the GCS and remote video terminal (RVT), enabling operators to navigate, search for targets, recognize terrain, and record all information for later analysis.

1-91. Because of the 10-kilometer LOS range of the RVT and GCS, the commander plans for and trains Raven operators on handover operations between the two components. Commanders and leaders ensure that subordinates are familiar with the handover procedure to know how best to prepare for handover and how to determine the most opportune time and place to perform the procedure.

1-92. To obtain the clearest LOS for conducting operations, the Raven GCS is typically located at the highest available elevated position away from the command post (CP). The Raven RVT is generally located in the CP.

1-93. Operation of the GCS usually occurs at a fixed site, allowing for an unobstructed LOS. The GCS, however, can continue to operate the Raven while inside a moving vehicle. The primary concern when operating from a moving vehicle is selecting a route that provides a continuous LOS with the Raven.

1-94. The RVT display is a receive-only monitor with no aircraft control functions. It is used to view real-time video from any LOS location within 5 to 10 kilometers of the aircraft. See Figures 1-25 and 1-26 for photos of an RVT and its employment.

Figure 1-25. Raven UAS remote video terminal (RVT)

Figure 1-26. Soldiers employing the Raven remote video terminal (RVT)

Raven Technical Specifications, Capabilities, and Limitations

1-95. Specifications for the Raven are the following:

- Power: Lithium-ion (Li-Ion) rechargeable battery.
- Wingspan: 4.5 ft (1.37 m).
- Weight: Aircraft – 4 lb (1.81 kg) (12 lb [5.44 kg] with carrying case); GCS – 17 lb (7.71 kg).
- Range: 8 to 12 km.
- Airspeed: 23 knots loiter, 34 knots cruise, 60 knots dash.
- Altitude: 150 to 1,000 ft (45.72 to 304.8 m) above ground level.
- Endurance: 60 to 90 minutes (Li-Ion – rechargeable).
- Payload(s): Electro-optical/infrared sensors.
- Launch/recovery: Hand-launched; auto land or manual recovery on soft, unimproved surface.
- Crew: Two MOS-nonspecific Soldiers.

1-96. The RQ-11 Raven has the following unique capabilities:

- Hand-launched; auto land or manual recovery.
- Auto navigation using military GPS.
- Manual navigation and flight modes.
- Quick assembly (less than three minutes).
- Man/backpack portable.
- Reusable (100+ flights).
- Climb to operational altitude in one to two minutes.

1-97. The RQ-11 Raven has the following unique limitations:

- Zero wind (calm) conditions increase difficulty of launch. Consider using mounted launch or launch from atop building or elevated terrain.
- Winds in excess of 20 knots decrease system endurance because of increased battery use and can cause uncommanded altitude deviations. High winds prevent Raven employment.
- Extreme heat and cold reduce endurance (battery life) and degrade system performance. Overheating can cause GCS failure.
- Only front- or side-look camera operation is possible at night.
- Fragile components limit Raven capabilities.

Reconnaissance Operations

1-98. When UASs complement the troop and platoon during reconnaissance operations, they normally operate 1 to 10 kilometers forward of the troop or platoon, dependent on the factors of METT-TC. The UASs can conduct detailed reconnaissance of areas that are particularly dangerous to ground reconnaissance elements, such as open areas and defiles. They can also be effectively employed in support of operations in urban terrain. UASs can conduct route reconnaissance forward of the platoon or be employed in conjunction with the platoon when it is necessary to reconnoiter multiple routes simultaneously. The platoon leader can employ the UASs to conduct screening in support of the troop during area or zone reconnaissance missions. Upon contact, the UASs provide early warning for the platoon and then maintain contact until the platoon conducts reconnaissance handover (RHO) from the UASs to a ground element.

Security Operations

1-99. In security operations, UASs complement the platoon by assisting in identification of enemy reconnaissance and main body elements and by providing early warning forward of the platoon. In addition to acquiring enemy elements, UASs can play a critical role in providing security through the depth of the screen by observing dead space between ground OPs. UASs can support the platoon during area security missions by screening or conducting reconnaissance. UASs can provide early warning when the platoon is

conducting convoy security missions or securing a critical point. They can identify enemy ambush positions forward of the convoy or can locate a bypass to allow the convoy to move around an obstacle. See Figure 1-27 for examples of Raven UAS images.

Figure 1-27. Images from actual Raven UAS video feed

UAS-Ground Reconnaissance Handover

1-100. When the UAS makes contact, particularly during reconnaissance operations, the operator will update FBCB2 and hand over the contact to ground scouts via FM radio as quickly as possible. Rapid RHO allows the UAS to avoid enemy air defense weapons and also helps to maintain the tempo of the operation.

1-101. During the handover, the UAS assists in providing direction to the ground element charged with establishing contact with the enemy. They maintain contact with the enemy until ground units are in position and have also established sensor or visual contact.

1-102. The first actions in the RHO process are a spot report (SPOTREP) and a situation report (SITREP) from the UAS operator to the ground element. These reports are sent by radio voice, followed by FBCB2. Next, the UAS reconnoiters the area for secure positions for the ground element, identifying tentative hide, overwatch, and OP positions and likely mounted and dismounted routes into the area.

1-103. The ground element moves to initial hide positions along the route selected by the commander based on UAS-collected information. The ground element then moves to establish sensor or visual contact with the enemy. Once this contact is established, the ground element sends a SPOTREP to the UAS operator via FM, followed by FBCB2. When the UAS operator confirms that the ground element can observe enemy elements and has a clear picture of the situation, handover is complete. The UAS can be committed to a follow-on mission in support of the platoon.

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Chapter 2

Command and Control

The essential task of all leaders, including those in the reconnaissance or scout platoon, is applying the art and science of war to the C2 of forces. Through C2, the platoon leader, PSG, and other leaders initiate the actions of their units. They influence and synchronize the elements of combat power to impose the will of the commander on the situation and defeat the enemy. Leaders exercise C2 in a dynamic OE where unexpected opportunities and enemies rapidly present themselves.

Contents

SECTION I – TROOP-LEADING PROCEDURES

2-1. Inadequate planning will invariably lead to poor mission performance. To prevent this from happening, the reconnaissance platoon must be proficient in troop-leading procedures. These procedures are the basis of the dynamic process by which units develop plans and orders at every level of leadership. The troop-leading process consists of eight steps discussed in this chapter in the traditional order. The process, however, is not rigid, and the steps are not necessarily sequential. The tasks involved in some steps—such as initiate movement, issue the warning order (WARNO), and conduct reconnaissance—may recur several times during the process. Although listed as the last step, activities associated with supervising and refining the plan and other preparations occur throughout the troop-leading process.

OPERATIONAL CONSIDERATIONS

2-2. The following points summarize important factors involved in troop-leading procedures:

- **Understanding the mission.** The platoon leader must understand his mission; he develops this knowledge by conducting an effective mission analysis to identify all specified and implied tasks. At a minimum, he understands the focus of the reconnaissance (terrain-, enemy-, or civilian-oriented, or a combination), the tempo of the operation, and his engagement criteria. He also develops the facts and assumptions related to his mission with regard to the factors of METT-TC.

- **IPB.** The platoon leader must understand the IPB process. He develops knowledge of how his platoon's actions feed the IPB for higher command elements. Likewise, it is critical for the platoon leader to understand that IPB in not just a process performed during the planning phase; rather, he is prepared to continually update his IPB throughout the mission.
- **Time management.** The platoon leader makes the most efficient use of the time available for planning, preparation, and issuing the order. He ensures that his subordinate leaders then have sufficient time to conduct their own troop-leading procedures. Refer to the discussion of reverse planning and timeline development later in this chapter.
- **Effective orders.** The platoon leader must be able to issue an operation order (OPORD) or fragmentary orders (FRAGO) to convey the nature of the mission so his subordinates understand the operations they will be conducting. He can issue these orders orally, digitally, or using a combination of the means.
- **Rehearsals.** The platoon leader must be proficient in conducting rehearsals. At a minimum, he conducts rehearsals of major events in his mission (actions on expected contact and actions on the objective), actions on contact/battle drills (if different), and casualty evacuation (CASEVAC).
- **Precombat checks and inspections.** Before execution, Soldiers must be prepared for their mission and have confidence in their equipment. To accomplish this, the platoon conducts, at a minimum, precombat checks (PCC) and, if feasible, precombat inspections (PCI) before the mission begins.

Note. For additional information on crew orders, rehearsals, PCCs, and PCIs, refer to the discussion of the "supervise and refine" step of troop-leading procedures later in this chapter.

2-3. The key to success is ensuring that the platoon is prepared to move by the time specified in the order with operational weapons and equipment and the basic load of supplies as specified by the order and/or the platoon leader. All personnel must be able to explain the higher unit's mission, the higher commander's intent, the platoon mission, and their specified tasks and duties to support the mission. The platoon must receive, brief, and inspect all attachments. It should also consider and address the elements of SERE (survival, escape, resistance, evasion).

MILITARY DECISION-MAKING PROCESS

2-4. Decisions are the means by which a commander or leader translates the information available to him and his vision of the desired endstate of an operation into the actions necessary to achieve that endstate. Decision-making is a conscious process for selecting a COA from two or more alternatives. As outlined in FM 5-0, it is a learned skill that entails knowing if to decide, then when to decide, and finally what to decide. The process includes an understanding of the consequences of each decision.

2-5. The military decision-making process (MDMP) is the Army's adaptation of this analytical approach to decision-making and problem solving. It provides the commander or leader with a valuable tool in developing his estimate of the situation and his plan. Although the process begins with the receipt of the mission, the analytical aspects of the MDMP continue at all levels throughout the operation. FM 5-0 provides a detailed examination of the MDMP.

2-6. At platoon level, many actions associated with the MDMP are based on standing operating procedures (SOP) and standard unit drills; these include evacuation of wounded Soldiers, rearming and resupply procedures, and individual crew responsibilities. This allows the platoon to operate quickly and efficiently without constant guidance from the platoon leader. SOPs are especially critical in helping to maintain combat preparedness when leaders are tired as a result of the stress of continuous operations. Because SOPs are so critical, it is necessary that everyone in the platoon know and understand them.

CONDUCT OF TROOP-LEADING PROCEDURES

2-7. Regardless of the time available, leaders must always remember this principle: "see the terrain, see the enemy, see yourself." Only after they view and evaluate the terrain and the enemy can they determine what

their own actions should be in that given situation. They update this visualization continuously throughout the troop-leading process, basing this new "picture" of the AO on their own refinements to the plan, additional information from various sources, and/or developments in the reconnaissance or security operation.

2-8. Troop-leading procedures begin when the platoon leader receives the first indication of an upcoming operation (often by WARNO from higher) and continue throughout the planning, preparation, and execution phases of the mission. The platoon leader maximizes the available planning time by starting as soon as the first bit of information becomes available. He normally uses one-third of the available time to plan, prepare, and issue the order; his vehicle commanders then have the remaining two-thirds of the time available to conduct their own troop-leading procedures. This system of time allocation is known as the "one-third/two-thirds" rule of planning and preparation.

2-9. Figure 2-1 lists the eight troop-leading steps and illustrates their role in relation to the MDMP, which plays an important role in the troop-leading process. The following discussion provides a step-by-step overview of troop-leading procedures. Refer to FM 5-0 for further discussion of troop-leading procedures.

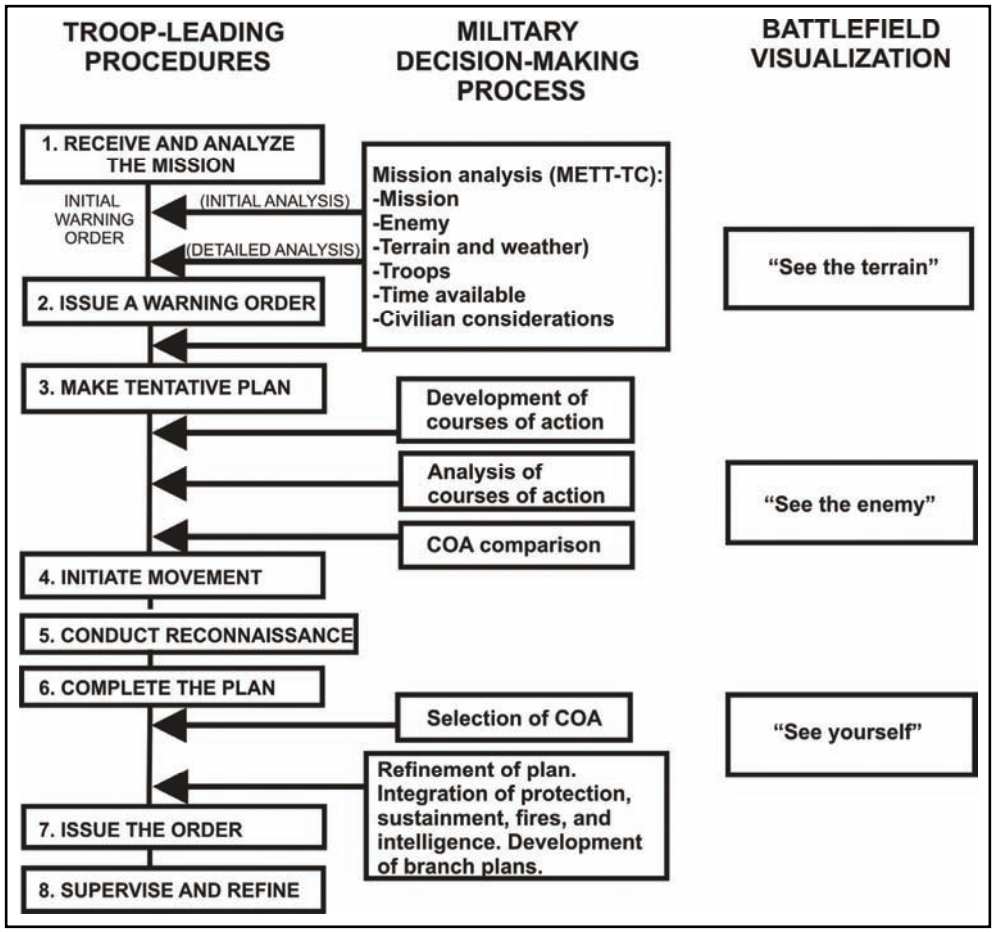

Figure 2-1. Relationship of troop-leading procedures and military decision-making process

RECEIVE AND ANALYZE THE MISSION

2-10. The platoon leader normally receives his orders as an oral, written, and/or digital OPORD, as a FRAGO, or as a WARNO. Upon receipt of the order, he begins analyzing the mission using the factors of METT-TC: mission, enemy, terrain and weather, troops and support available, time available, and civil considerations. Mission analysis is a continuous process. The platoon leader constantly receives

information during the planning phase and must decide if it affects his mission. If it does, he then decides how to adjust his plan to meet this new situation.

Initial Actions

2-11. Although mission analysis is continuously refined throughout the troop-leading process, the platoon leader's initial actions are normally based only on the initial WARNO from higher. These include an initial METT-TC analysis covering the terrain and the enemy and friendly situations.

2-12. The platoon leader may also conduct his initial time analysis, develop an initial security plan, begin parallel and collaborative planning, and issue his own initial WARNO to provide guidance and planning focus for his subordinates. Parallel planning is when two or more echelons plan for an operation nearly simultaneously. Collaborative planning is where two or more echelons interact to develop plans for an operation. At a minimum, the initial platoon WARNO should cover the enemy and friendly situations, movement instructions, and coordinating instructions such as an initial timeline and security plan.

Note. The initial analysis is normally conducted as quickly as possible to allow the platoon leader to issue the initial WARNO in a timely manner. He conducts a more detailed METT-TC analysis after issuing the initial WARNO.

Note. The technique of using multiple WARNOs is a valuable tool for the platoon leader during the troop-leading process. He can issue WARNOs for several purposes: to alert subordinates of the upcoming mission, to initiate the parallel planning process, and to put out tactical information incrementally as it is received (ultimately reducing the length of the OPORD). Refer to FM 5-0 for a discussion of how multiple WARNOs are employed at various stages of the troop-leading process.

METT-TC Analysis

2-13. The following discussion provides detailed information on the six METT-TC factors.

Note. The platoon leader does not necessarily analyze METT-TC sequentially. How and when the platoon leader analyzes each factor depends on when the information is made available to him.

Mission

2-14. After receiving an essential task and purpose, either in a WARNO or in the OPORD, the platoon leader can then begin the analysis of his own mission. He may use a refined product to better visualize the interrelationships of the terrain, the enemy, and friendly forces. These may include a modified combined obstacle overlay (MCOO) and/or the situational template (SITTEMP), if available. The platoon leader's goal in this analysis is to clarify what the platoon is to accomplish and why the platoon must accomplish it. Key considerations in the analysis include the following:

- What is my task and purpose for this operation?
- What is the commander's intent?
- What are the specified tasks for the operation (those the commander stated must be accomplished)?

Note. In the OPORD, these tasks are outlined in paragraph 3, which comprises the commander's intent, concept of the operation, tasks to subordinate units, and coordinating instructions.

- What are the implied tasks for the operation? These are other tasks, not specifically noted by the commander, that must be accomplished to achieve the purpose or specified tasks.
- What are the essential tasks for the operation? These are all tasks, both specified and implied, that are absolutely required to ensure mission success.

- What is the **focus** of the operation?
- What is the **tempo** of the operation?
- What are the **engagement criteria** for the platoon? For the troop? For the squadron/battalion?

Enemy (Threat Forces)

2-15. The platoon leader's analysis of the enemy situation should focus on the areas outlined in FM 3-90—including doctrinal analysis and objectives, composition and disposition, capabilities, weaknesses, anticipated COAs, and factors that can influence these COAs—as well as those in FM 34-130, which covers IPB. The analysis can focus on the following considerations:

- What types of enemy units is the platoon up against?
- Where are these units?

Note. If possible, these locations should be templated to vehicle level.

- What are the enemy units doing?
- How strong are they?
- What kind of equipment do they have? What are their weapon types and effective ranges?
- What are their capabilities and weaknesses?
- Where are they vulnerable?
- Where are their engagement areas?
- What are the enemy's intentions, doctrinal objectives, and most probable COA(s)?
- How will enemy elements react to the eight forms of contact? These are the following:
  - Visual contact.
  - Physical contact (direct fire).
  - Indirect fire contact.
  - Contact with obstacles of enemy or unknown origin.
  - Contact with enemy or unknown aircraft.
  - Contact involving CBRN conditions.
  - Situations involving electronic warfare (EW) tactics (such as jamming, interference, and imitative deception).
  - Situations involving nonhostile elements (such as civilians).
- What can the enemy do in response to friendly actions?

Terrain (and Weather)

2-16. The platoon leader analyzes the terrain using the factors of OAKOC: observation and fields of fire; avenues of approach; key terrain; obstacles; and cover and concealment. The following discussion of OAKOC focuses on questions the platoon leader can use in his analysis.

2-17. **Observation and fields of fire.** The platoon leader's analysis should cover these considerations:

- Where can the enemy observe and engage my platoon, and how do I counter this capability?
- Where can I establish OPs to maximize my ability to see the AO?

2-18. **Avenues of approach.** These are areas through which a unit can maneuver. The definition of an avenue of approach is an area that provides sufficient ease of movement and enough width to allow passage of a force large enough to significantly affect the outcome of the operation. The platoon leader's analysis should include these considerations:

- Where are the most favorable mounted and dismounted avenues of approach for enemy and friendly forces?
- Where are the best air avenues of approach for enemy forces?

2-19. **Key and decisive terrain.** Key terrain is any location or area whose seizure, retention, or control affords a marked advantage either to friendly forces or to the enemy. Decisive terrain is key terrain whose seizure and retention is mandatory for mission accomplishment. The platoon leader's analysis should cover these factors:

- Where is the decisive terrain?
- Where and what is the key terrain?
- How can the platoon use key terrain to support the mission?
- How will enemy units use key terrain to support their mission?

2-20. **Obstacles.** In terrain analysis, the platoon leader first identifies existing and reinforcing obstacles that may limit mobility (affecting such features as objectives, avenues of approach, and mobility corridors).

2-21. Existing obstacles include, but are not limited to, the following:

- Gullies, ravines, gaps, and ditches more than three meters wide.
- Streams, rivers, and canals more than one meter deep.
- Mountains or hills with a slope in excess of 60 percent.
- Lakes, swamps, and marshes more than one meter deep.
- Tree stumps and large rocks more than 18 inches high.
- Forest or jungles with trees 8 inches or more in diameter and with less than 4 meters of space between trees.
- Man-made existing obstacles, including built-up areas such as towns, cities, or railroad embankments.

2-22. Reinforcing obstacles include, but are not limited to, the following:

- Minefields.
- Antitank ditches.
- Road craters.
- Abatises.
- Wire obstacles.

2-23. Based on the degree of obstruction posed by obstacles, terrain is further classified in one of the following categories:

- **Unrestricted.** This is terrain that is free of any restriction to movement; no actions are required to enhance mobility. For wheeled vehicles, this terrain is typically flat or moderately sloped, with scattered or widely spaced obstacles such as trees or rocks. This type of terrain generally allows wide maneuver and offers unlimited travel over well-developed road networks.
- **Restricted.** Restricted terrain hinders movement to some degree. Little effort is needed to enhance mobility, but units may have to zigzag or make frequent detours. They may have difficulty maintaining optimum speed, moving in some types of combat formations, or transitioning from one formation to another. For wheeled vehicles, restricted terrain typically encompasses moderate to steep slopes and/or moderate to dense spacing of obstacles such as trees, rocks, or buildings. Swamps and rugged ground are examples of restricted terrain for dismounted infantry forces. Logistical or rear area movement in this type of terrain may be hampered by poorly developed road systems.
- **Severely restricted.** This terrain severely hinders or slows movement in combat formation unless some effort is made to enhance mobility. This could require commitment of engineer forces to improve mobility or deviation from doctrinal tactics, such as using a column rather than a line formation or moving at speeds much lower than otherwise preferred. Severely restricted terrain for wheeled vehicles is typically characterized by steep slopes, densely spaced obstacles, and/or the virtual absence of a developed road system.

2-24. **Cover and concealment.** The platoon leader should include the following considerations in his analysis of cover and concealment:

- What routes within the AO offer cover and concealment for my platoon or for enemy elements?
- What dismounted and/or mounted routes offer my platoon the best available cover and concealment?

2-25. **Weather.** The platoon leader analyzes weather conditions as part of his evaluation of the terrain. The following considerations should be included in this evaluation:

- What are the light conditions (including percentage of night illumination) and visibility?
- How has recent weather affected the AO?
- What are the times for beginning of morning nautical twilight (BMNT), sunrise, sunset, end of evening nautical twilight (EENT), moonrise, and moonset?
- Will weather become better or worse during the mission?
- How will fog, rain, dust, heat, snow, wind, or blowing sand affect the troops and equipment of both friendly and enemy forces during the mission?
- How will weather conditions affect the employment of chemical weapons and/or obscurants?

Troops and Support Available

2-26. The platoon leader's analysis of troops and support available for an operation includes an assessment of the platoon's vehicles and equipment. His analysis should include the following considerations:

- What is the present condition of the platoon's Soldiers, vehicles, and equipment?
- What is the supply status of ammunition, fuel, and other necessary items?
- What is the turnaround time for resupply operations (time between transmission of the request and delivery of supplies)?
- What is the state of training of the platoon?
- What is the state of morale?
- How much sleep have the Soldiers had?
- How much sleep can they get before and during the operation?
- Does the platoon need any additional equipment to support or accomplish its mission?
- What attachments does the platoon have (or require) to accomplish its mission?
- What direct support (DS) and general support (GS) is available to support the platoon's mission?
- How many OPs (mounted/dismounted and long-/short-duration) can be manned with the available assets?
- How big a frontage can be covered with the available assets?

Time Available

2-27. The platoon leader's analysis of the time available for an operation begins with the "one-third/two-thirds" rule of planning and preparation discussed earlier in this section. This principle allows the platoon leader to use one-third of planning and preparation time himself, then to allocate at least the remaining two-thirds to subordinates. Additional considerations in the analysis should include the following:

- How much time is available to plan and conduct reconnaissance?
- How much time is available for rearming, refueling, and resupply?
- How long will it take the platoon to move to planned OPs, to the line of departure (LD), and/or to the objective?
- Is there enough time for rehearsals?
- How much time is available to the enemy for the activities listed in the previous items?
- How does the potential enemy timeline for planning and preparation compare with that developed for friendly forces?

Civil Considerations

2-28. Civil considerations are how the man-made infrastructure, civilian institutions, and attitudes and activities of the civilian leaders, populations, and organizations within an AO influence the conduct of military operations. Rarely are military operations conducted in uninhabited areas. Most of the time, units are surrounded by noncombatants. These noncombatants include residents of the AO, local officials, and governmental and nongovernmental organizations (NGO). Based on information from higher headquarters and their own knowledge and judgment, Army leaders identify civil considerations that affect their mission. Civil considerations are analyzed in terms of six factors, known by the memory aid ASCOPE (see FM 6-0):

- **Areas.** These are key civilian localities or aspects of the terrain within an AO that are not normally militarily significant. This characteristic approaches terrain analysis (OAKOC) from a civilian perspective. Commanders analyze key civilian areas in terms of how they affect the missions of their individual forces as well as how military operations affect these areas.
- **Structures.** These include structures that play significant roles and are traditional high-payoff targets such as bridges, communications towers, power plants, and dams. Other structures such as churches, mosques, national libraries, and hospitals are cultural sites that international law or other agreements generally protect. Still others are facilities with practical applications such as jails, warehouses, television and radio stations, and print plants.
- **Capabilities.** Capabilities refer to the ability of local authorities—those of the HN, aggressor nation, or some other body—to provide a populace with key functions or services such as public administration, public safety, emergency services, and food. Include are those areas in which the populace may need help after combat operations, such as public works and utilities, public health, economics, and commerce. Also included are those resources and services that can be contracted to support the military mission, such as interpreters, laundry services, construction materials, and equipment.
- **Organizations.** Organizations are nonmilitary groups or institutions in the AO. They influence and interact with the populace, the force, and each other. They generally have a hierarchical structure, defined goals, established operations, fixed facilities or meeting places, and a means of financial or logistic support.
- **People.** People is a general term used to describe nonmilitary personnel encountered by military forces. The term includes all civilians within an AO as well as those outside the AO whose actions, opinions, or political influence can affect the mission.
- **Events.** Events are routine, cyclical, planned, or spontaneous activities that significantly affect organizations, people, and military operations. Examples include national and religious holidays, agricultural crop/livestock and market cycles, elections, civil disturbances, and celebrations. Other events are disasters from natural, man-made, or technological sources.

2-29. In his analysis of how the platoon will handle situations involving civilians and other aspects of the civil environment (including stability operations and civil support operations), the platoon leader should assess the following considerations:

- How will existing civil considerations affect the mission? What are the potential negative effects of civilian contact?
- What are the applicable rules of engagement (ROE) and/or rules of interaction (ROI)?
- What procedures and guidelines will the platoon use in dealing with refugees, prisoners, and other civilians?
- Will the platoon be working with civilian organizations, such as governmental agencies, private groups, or the media?
- Will the platoon conduct stability operations (such as civil security or civil control) or civil support operations (such as response to disaster or terrorist attack)?

Information Sources

2-30. In planning and preparing for the mission, the platoon leader may find that he requires additional sources of information to help answer some of the questions raised in the analysis of METT-TC. The

platoon can receive and/or request information from a variety of sources to assist in planning and understanding the OE, including the following:

- Paragraph 1 of the OPORD (especially those portions covering the enemy and the applicable terrain and weather).
- UAS imagery and video (such as photos/video of a route or danger area to assist with the METT-TC assessment).
- Satellite imagery (for example, showing locations of increased military traffic).
- Engineer database information on terrain, such as from the Terrabase program.
- HUMINT reports from brigade and higher, such as a human density overlay.
- Relevant information from ongoing assessment of the OE using the political, military, economic, social, information, and infrastructure–physical environment and time (PMESII-PT) framework.
- Signal intelligence (SIGINT) and measurement and signal intelligence (MASINT) reports from the surveillance troop.

Composite Risk Management

2-31. Leaders must make a thorough risk assessment, identifying and evaluating hazards the platoon will face during the operation. They then develop composite risk management (CRM) controls and ensure that all subordinate leaders and individual scouts implement them to eliminate or reduce the risks. Refer to Appendix E of this manual for a detailed discussion of the CRM process. For additional information on CRM, refer to FM 5-19.

Reverse Planning and Timeline Development

2-32. After completing his METT-TC analysis, the platoon leader conducts reverse planning to ensure that all specified, implied, and essential tasks can be accomplished in the time available. He develops a reverse planning schedule (timeline), as illustrated in Figure 2-2. Beginning with actions on the objective, he works backward through each step of the operation and then through preparation and planning activities to the present time. This process also helps the platoon in making efficient use of planning and preparation time.

Note. Simultaneous planning and preparation are key factors in effective time management during the troop-leading process. The next five steps (issue the WARNO; make a tentative plan; initiate movement; conduct reconnaissance; complete the plan) may occur simultaneously and/or in a different order. As noted, the final troop-leading step, supervise and refine, is on-going throughout the process.

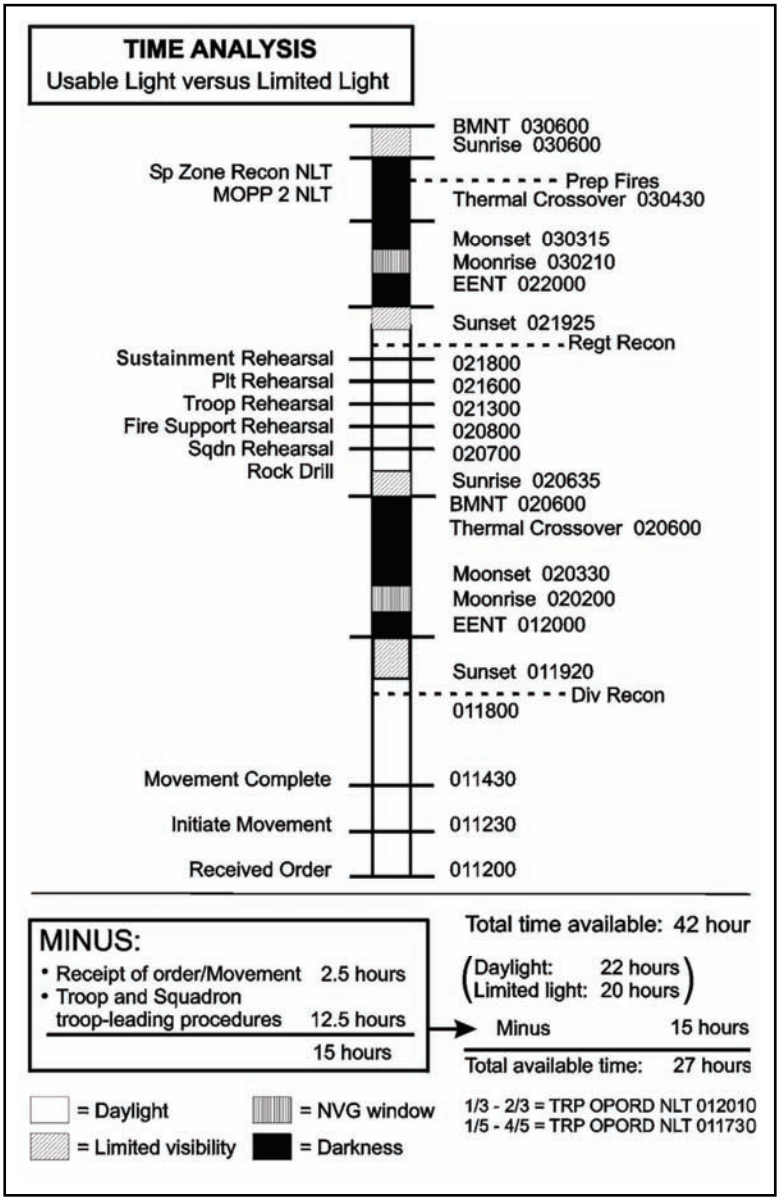

Figure 2-2. Example reverse planning timeline

ISSUE THE WARNO

2-33. After the platoon leader has analyzed his orders and worked out his mission and related tasks, he must quickly pass this information to his subordinate leaders. This is accomplished through the WARNO. As a minimum, the following information must be included:

- Elements and individuals to whom the WARNO applies.
- Enemy situation as stated in the higher unit's order.
- The time and nature of the operation.
- The earliest time of movement.
- Coordinating instructions, including an initial timeline.
- The time and place the OPORD will be issued.

2-34. If possible, the platoon leader should issue a conventional (analog) and/or digital overlay of the AO. In the absence of further orders, this gives the platoon an idea of the scope of the operation. Also, the platoon leader should inform his subordinates of the results of his reverse planning process and delegate appropriate preparation tasks to the PSG and to the section and squad leaders. If possible, the platoon leader should also include the task organization of the platoon. In addition to accounting for all required preparatory tasks, the reverse planning schedule should include a sleep plan. All elements should acknowledge receipt of the WARNO.

Note. The sleep plan should be a 24-hour plan with the goal of maximizing available sleep time in the planning, preparation, and execution phases of the operation. It covers all platoon members.

MAKE A TENTATIVE PLAN

2-35. Based on results of his mission analysis, the platoon leader develops a tentative plan that addresses all specified, implied, and essential tasks using the OPORD format (see Appendix A of this manual).

INITIATE MOVEMENT

2-36. After issuing a WARNO and making a tentative plan, the platoon leader may choose to initiate movement. The platoon leader should at least be able to determine when the platoon will move. He announces this in terms of a readiness condition (REDCON) level. Each REDCON level indicates critical tasks and time available to prepare for future operations. The following considerations apply:

- **REDCON-1** (be prepared to move immediately). These conditions are in effect:
  - All personnel alert and ready for action.
  - Vehicles loaded and secured, weapons manned, with engines running.
  - OPs not manned.

Note. A variant of REDCON-1 is REDCON-1(-); the same conditions apply except that the vehicles are not started in REDCON-1(-).

- **REDCON-2** (be prepared to move in 15 minutes). These conditions are in effect:
  - All personnel alert.
  - OPs and wire pulled in.
- **REDCON-3** (be prepared to move in half an hour). These conditions are in effect:
  - Fifty percent of each crew/squad stand down for rest, feeding, and maintenance.
  - Remaining 50 percent man vehicles, OPs, and weapons and monitor radios/phones.
- **REDCON-4** (be prepared to move in one hour). These conditions are in effect:
  - Two men per platoon make dismounted checks of platoon area.
  - One man per vehicle monitors radios/phones and mans turret weapon.

2-37. All personnel remain at 100 percent alert until prioritized mission preparations are complete. The platoon leader initiates the appropriate REDCON when the work is finished. As the time for mission execution nears, he increases the REDCON in accordance with guidance from higher, achieving REDCON-1 before the platoon must move.

CONDUCT RECONNAISSANCE

2-38. This step of the troop-leading procedures allows the platoon leader to confirm the validity of his tentative plan and to refine the plan. The platoon leader should conduct the reconnaissance with his subordinate leaders. This will allow them to see the terrain and develop a better visualization of the projected plan. At a minimum, the platoon leader conducts this step as a detailed map reconnaissance. He should at least confirm his initial march route to the LD or start point (SP) and check initial positions. If

possible, he should also check some of the area beyond the LD; this may require permission from the commander. Additional information to augment either a physical or map reconnaissance would include the MCOO and still or video photographs from UASs.

2-39. If the platoon leader cannot personally conduct on-site reconnaissance, he should make the most efficient use of available time by tasking his subordinates to accomplish specific reconnaissance requirements. An example of this is tasking a squad leader to reconnoiter and time routes to the SP. The platoon leader must conduct the reconnaissance with an open mind; not everything he sees will match his tentative plan. He must be flexible enough to make changes as necessary and competent enough to work out new plans rapidly.

Note. For detailed discussions of reconnaissance procedures, refer to Chapter 3 of this manual.

COMPLETE THE PLAN

2-40. The platoon leader refines his plan based on the results of the reconnaissance. He then completes the plan using these results and any new information from his commander and members of his platoon. He should keep the plan as simple as possible, at the same time ensuring that it effectively supports the commander's intent.

2-41. As he completes and refines his plan, the platoon leader should consider delegating planning responsibilities to other members of the platoon. He can then use the information developed by these Soldiers in developing his order and in establishing an effective platoon SOP. Examples of delegated planning responsibilities include the following:

- A section sergeant researches and briefs terrain and weather.
- A noncommissioned officer (NCO) sets up rehearsals.
- The PSG researches, plans, and briefs sustainment considerations (such as CASEVAC and vehicle recovery operations).
- An NCO translates graphics to FBCB2 and overlays.
- Section sergeants plan specific reconnaissance patrols in support of the overall mission.
- An NCO plans and briefs occupation procedures for such areas as objective rally points (ORP), OPs, and surveillance sites.
- An NCO plans and briefs specific communications issues (paragraph 5 of the OPORD).
- An NCO plans and briefs specific coordinating instructions, such as the collection plan, actions on contact, special equipment, linkup tasks, and methods of handling enemy prisoners of war (EPW).
- A leader finalizes the CRM process, as outlined in Appendix E of this manual.

2-42. Using this type of planning delegation will help the platoon leader ensure that his subordinate leaders are in synchronization with the plan. It also facilitates a more rapid planning process. The platoon leader must remain fully aware of all facets of the plan and of the activities of his subordinates. He must also give clear guidance for this technique to be successful.

ISSUE THE ORDER

2-43. The platoon leader issues his finalized order in the five-paragraph OPORD format, as discussed in Appendix A of this manual. He refers to notes to make sure he does not forget anything. He ensures that all subordinate leaders understand the entire plan as well as their particular portion of it. To ensure complete understanding of the operation, the platoon leader should end the order with a confirmation brief of key points by his leaders.

2-44. Whenever possible, the platoon leader should issue his order to the entire platoon. At a minimum, he should issue the order to his subordinate leaders and vehicle commanders. Once everyone has arrived at the place and time specified in the WARNO, the platoon leader or PSG should ensure that everyone has

recorded the applicable graphic control measures. The platoon leader should issue the revised operations overlay before he starts; he should have a copy of the graphics for each of his leaders. The PSG ensures that each subordinate leader's overlay matches the platoon leader's overlay. To use his time most efficiently, the platoon leader should use a walk-through rehearsal as part of his briefing of paragraph 3 of the order.

2-45. If he can issue the order from a favorable vantage point, the platoon leader can physically indicate the ground over which his scouts will maneuver. If a vantage point is not available, he can use a terrain cloth, sand table, or map as a reference. He should have a briefing kit available to build a model of the AO; items in the kit might include the following:

- Nylon rope and nails or spikes.
- "Micro" armor vehicles or other models.
- Preconstructed Plexiglas squares for units and equipment (blue for friendly elements, red for enemy forces).
- Pens and markers.
- Stakes.
- Engineer tape.
- Operational symbol cutouts.
- Dry erase board.

2-46. In extreme situations, FBCB2 allows the platoon leader to issue the OPORD to his sections or squads when they are widely dispersed and cannot gather at a central point. The platoon leader must alert his elements (via radio voice) that a new order is available on the FBCB2 and direct each element to acknowledge receipt of the order.

SUPERVISE AND REFINE

2-47. Flexibility is the key to effective operations. The reconnaissance platoon leader must be able to refine his plan whenever new information becomes available. If he adjusts the plan, he must inform the platoon and supervise implementation of the changes. Once the operation has begun, the platoon leader must be able to direct his platoon in response to new information and new situations.

2-48. Crew orders, rehearsals, and inspections are essential elements of the supervision process as the platoon prepares for the mission. The following discussion covers these procedures in detail.

Crew Orders

2-49. The platoon leader and PSG make sure all crewmembers have been briefed by their leaders or vehicle commanders and understand the platoon mission and concept of the operation. Combat orders are the means by which the platoon leader receives and transmits information, from the earliest notification that an operation will occur through the final phases of execution. They are absolutely critical to mission success. All members of the platoon must be familiar with the formats of WARNOs, OPORDs, and FRAGOs. For a detailed discussion of combat orders, refer to Appendix A of this manual.

Rehearsals

2-50. The platoon leader should never underestimate the value of rehearsals. They are his most valuable tools in preparing the platoon for the upcoming operation. Refer to FM 5-0 for a detailed discussion of rehearsal types, techniques, and procedures. The platoon leader uses well-planned, efficiently run rehearsals to accomplish the following purposes:

- Reinforce training and increase proficiency in critical tasks.
- Reveal weaknesses or problems in the plan.
- Synchronize the actions of subordinate elements.
- Improve each Soldier's understanding of the concept of the operation.

Rehearsal Types

2-51. The platoon leader can choose among several types of rehearsals, each designed to achieve a specific result and with a specific role in the planning and preparation timeline. The following discussion focuses on the four rehearsal types.

2-52. **Confirmation brief.** The confirmation brief is, in effect, a reverse briefing process routinely performed by subordinate leaders immediately after receiving any instructions, such as an OPORD or FRAGO. They confirm their understanding by repeating and explaining details of the operation for their leader. The platoon leader should conduct confirmation briefs after his subordinate leaders have received the OPORD, but before other phases of the platoon rehearsal begin.

2-53. **Backbrief.** Leaders perform this type of rehearsal throughout the planning and preparation timeline to help clarify their intent for their subordinates. The backbrief allows the platoon leader to identify problems in his own concept of the operation and his subordinates' understanding of the concept; he also uses the backbrief to learn how subordinates intend to accomplish their missions.

2-54. **Support rehearsal.** Support rehearsals are normally conducted within the framework of a single warfighting function, such as fires or sustainment, or a limited number of warfighting functions. The goals are to ensure that support elements can achieve their missions within the higher commander's plan and that their support plans are synchronized with the overall maneuver plan. The rehearsals are conducted throughout the planning and preparation timeline.

2-55. **Battle drill or SOP rehearsal.** This type of rehearsal is used to ensure that all participants understand a technique or a specific set of procedures. The platoon leader initiates battle drill and/or SOP rehearsals as soon as possible after receipt of the mission; he then can continue to conduct them as needed throughout the planning and preparation timeline. This rehearsal does not necessarily cover a published drill or SOP, giving the leader flexibility in designing the rehearsal. For example, the platoon leader could rehearse procedures for marking obstacle lanes or establishing local security.

Note. It is recommended that actions on contact drills be rehearsed frequently during planning and preparation.

Rehearsal Techniques

2-56. The platoon leader can choose among several techniques in conducting rehearsals, which should follow the crawl-walk-run training methodology to prepare the platoon for increasingly difficult conditions. Techniques for conducting rehearsals are limited only by the resourcefulness of the commander or leader; FM 5-0 outlines six basic techniques (full dress, reduced force, terrain model, sketch map, map, and radio). The following discussion covers these techniques, which are listed in descending order in terms of the preparation time and resources required to conduct them. Considerations in selecting a rehearsal technique include the following:

- **Time.** How much time will be needed for planning, preparation, and execution?
- **Terrain.** What are the applicable terrain considerations?
- **Multiechelon employment.** How many echelons are involved?
- **Operations security (OPSEC).** Will the rehearsal allow the enemy to gain intelligence about upcoming operations?

2-57. **Full force rehearsal.** This rehearsal produces the most detailed understanding of the mission, but is the most difficult to conduct in terms of preparation and resources. It involves every Soldier and system participating in the operation. If possible, units should conduct the full force rehearsal under the same conditions (such as weather, time of day, terrain, and use of live ammunition) that they will encounter during the actual operation.

2-58. **Reduced force rehearsal.** This rehearsal normally involves only key leaders of the unit and is thus less extensive than the full dress rehearsal in terms of preparation time and resources. The commander

decides the level of leader involvement. The selected leaders then rehearse the plan, if possible on the terrain to be used for the actual operation. The reduced force rehearsal is often conducted to prepare leaders for the full dress rehearsal.

2-59. **Terrain model rehearsal.** This is the most commonly used rehearsal technique, employing an accurately constructed model to help subordinates visualize the operation in accordance with the commander's or leader's intent. When possible, the platoon leader places the terrain model where it overlooks the actual terrain of the AO or is within walking distance of such a vantage point. Size of the model can vary, but it should be large enough to depict graphic control measures and important terrain features for reference and orientation. Participants walk or move "micro" armor around the table or model to practice the actions of their own vehicles in relation to other members of the platoon.

2-60. **Sketch map rehearsal.** Units can use the sketch map technique almost anywhere, day or night. Procedures are similar to those for the terrain model rehearsal. The sketch must be large enough to allow all participants to see as each subordinate "walks" through an interactive oral presentation of his actions. Platoon elements can use symbols or "micro" armor to represent their locations and maneuver on the sketch.

2-61. **Map rehearsal.** Procedures are similar to those for the sketch map rehearsal except that the commander or leader uses a map and operation overlay of the same scale as he used to plan and control the operation. This technique is useful in conjunction with a confirmation brief or backbrief involving subordinate leaders and vehicle commanders. The platoon leader uses the map and overlay to guide participants as they brief their role in the operation.

2-62. **Radio rehearsal.** The commander or leader conducts this rehearsal by having his unit simulate critical portions of the operation orally and interactively over established communications networks. The radio rehearsal may be especially useful when the situation does not allow the platoon to gather at one location. To be effective, the radio rehearsal requires all participants to have working communications equipment and a copy of the OPORD and applicable overlays. Subordinate elements check their communications systems and rehearse events that are critical to the platoon plan.

Checks and Inspections

2-63. PCCs and PCIs allow leaders to check the platoon's operational readiness. The key goal is to ensure that Soldiers and vehicles are fully prepared to execute the upcoming mission. The platoon leader makes sure the entire chain of command conducts PCCs and PCIs.

Precombat Checks

2-64. Equipment operators, vehicle crewmen, and individual Soldiers conduct PCCs before executing operations. These checks are designed to ensure that equipment is in working order, required supplies are on hand, and Soldiers are ready to execute the mission. PCCs are conducted in accordance with appropriate technical manuals, supply catalogs, and unit SOPs. Areas covered by PCCs include the following:

- Preventive maintenance checks and services (PMCS) of essential equipment.
- Vehicle load plans.
- Inspections of TA-50 equipment.
- CBRN protective equipment and combat lifesaver bag inventories.
- Resupply of rations, water, fuel, oil, all weapons, ammunition, pyrotechnics, first-aid kits, and equipment batteries for such items as flashlights, night observation devices (NOD), mine detectors, and automatic chemical agent detector alarms.
- Individual readiness. This includes ensuring that crewmembers understand the mission and tactical situation and are in the correct uniform and mission-oriented protective posture (MOPP) level.
- Vehicle readiness, including camouflage and light leaks.

- Prepare-to-fire checks for all weapons. This includes reporting or repairing deficiencies and making sure that weapons are boresighted and all sights are referred. Machine guns should be test-fired, if possible.
- Communications checks, including radio, FBCB2, and tactical satellite (TACSAT) systems. This includes verifying proper uploading of data for digital equipment, proper filter settings, and integration of attached assets in digital systems.

Precombat Inspections

2-65. Leaders in reconnaissance and scout platoons conduct PCIs to ensure that subordinate leaders and Soldiers have executed the necessary PCCs. Obviously, leaders cannot possibly check everything. They should focus on key pieces of equipment and details of the plan that are critical to mission accomplishment. The platoon leader and PSG should coordinate their inspections to make optimum use of available time and to avoid redundant inspections. PCIs must be completed in time to fix deficiencies before mission execution begins.

SECTION II – BATTLE COMMAND

2-66. Battle command is the art and science of understanding, visualizing, describing, directing, leading, and assessing forces to impose the commander's will on a hostile, thinking, and adaptive enemy. Battle command applies leadership to translate decisions into actions—by synchronizing forces and warfighting functions in time, space, and purpose—to accomplish missions (FM 3-0).

2-67. Battle command is the process that leaders use to assimilate information from many sources, to visualize the OE and assess the situation, and then to direct military action as required to achieve victory. Thinking and acting are simultaneous activities for leaders as they conduct battle command.

2-68. C2 of elements in full spectrum operations is the biggest challenge faced by combat leaders. Command involves directing elements; control entails the steps taken to ensure that the directions are carried out. The greatest tactician in the world would be ineffective if he did not properly use the methods available to direct and control his elements. C2 must be kept extremely simple to be effective.

2-69. Battle command is an important consideration for all types of reconnaissance and scout platoons in providing their higher commands with critical information. The accuracy and timeliness of this information will often have a direct impact on the success or failure of the troop, squadron/battalion, and higher commands.

COMMAND AND CONTROL IN THE PLATOON

2-70. The platoon leader leads his platoon and is assisted by the PSG. He uses a variety of techniques to plan operations, issue orders, employ the platoon, and communicate. At platoon level, effective use of C2 is a function of several critical factors:

- The commander's intent.
- Leadership.
- Training.
- Sound and thoroughly understood SOP.
- The tactically sound employment of graphic control measures and communications equipment and techniques.

2-71. As noted, the reconnaissance or scout platoon's primary functions are to gather information (reconnaissance), conduct surveillance, and perform limited security missions. Except when they are operating as a part of a larger force, the reconnaissance and scout platoons are not organized and equipped to undertake operations that entail a significant offensive component, such as counterreconnaissance, armed reconnaissance, reconnaissance by fire, or reconnaissance in force. The unique information-gathering capabilities of these platoons should be preserved by limiting direct contact with the enemy force to that necessary for self-defense.

COMMAND RELATIONSHIPS

2-72. As part of a reconnaissance or cavalry troop, the reconnaissance or scout platoon is subject to command relationships similar to those of other platoons in a company-size organization. In an armor or infantry battalion, the reconnaissance platoon performs several critical tasks in support of the battalion commander's concept of the operation. The platoon responds to its platoon leader, who receives guidance from the troop or battalion commander, depending on their command relationship.

2-73. As the commander's eyes and ears, the platoon leader must stay in contact with either the troop/battalion commander or the troop command post (CP) or battalion tactical operations center (TOC). This is necessary if the platoon leader is to keep the platoon informed of the next higher commander's current situation as well as the current enemy situation. He must also ensure that information developed by the platoon is transmitted higher.

2-74. The commander must ensure that his initial OPORD and any following FRAGOs focus the platoon on its mission by telling the platoon leader what is expected of the reconnaissance or security effort in each phase of the operation. The intent includes the commander's criteria for displacement of the reconnaissance or scout platoon as tactical operations progress. He must make it clear whether he intends for the platoon to conduct stay-behind operations if the enemy main body has passed its locations or to pass through friendly lines before the arrival of the enemy main body.

2-75. The commander also specifies PIR for which the platoon is responsible. PIR cover the information for which the commander has an anticipated and stated priority in his planning and decision-making. Often stated in question form, these tactical and operational considerations are the foundation for development of reconnaissance and surveillance (R&S) plans and for execution of operations involved in the overall ISR effort.

2-76. In reconnaissance or cavalry troop operations, the troop executive officer (XO) generally acts as the officer in charge (OIC) of the troop TOC. He operates from a vehicle CP; this vehicle gives him the communications capability and facilities to receive, collate, and pass to higher headquarters the routine reconnaissance information processed by the troop's reconnaissance or scout platoons. In this system, the platoon sends routine reports to the troop XO rather than to the troop commander. The troop commander monitors routine actions, receives high-priority information to transmit on command nets, and controls the troop once contact is made. In a CAB, reconnaissance platoons generally report to their TOCs, although they may report high-priority information directly to the battalion commander or S3.

FBCB2 IN THE BATTLE COMMAND STRUCTURE

2-77. Employment of the FBCB2 system significantly enhances the reconnaissance and scout platoon's battle command capability. FBCB2 is a network of computers, GPS equipment, and communication systems that work together to provide combat leaders with real-time information of unprecedented quantity and quality. FBCB2 affords the platoon with a variety of capabilities, including the following:

- Maintain friendly SA.
- Track actual and templated positions and obstacles to maintain enemy SA.
- Submit preformatted standardized reports. These include SALUTE (size, activity, location, unit, time, and equipment, applicable to enemy forces) reports; situation reports (SITREP); medical evacuation (MEDEVAC) reports/requests; NBC (CBRN) reports, and call for fire (CFF) reports.
- Rapidly disseminate graphic overlays and written FRAGOs.

FBCB2 COMPONENTS

2-78. Each of the vehicles in the reconnaissance or scout platoon is equipped with the three basic components of the FBCB2 system. First, the GPS provides precise location and date/time information that is the basis for reporting real-time friendly locations and for generating laser-designated map spots for reporting purposes. Second, the single channel ground/airborne radio system (SINCGARS) provides a secure means of transmitting both radio voice and digital traffic between vehicles in the platoon. In

addition to the SINCGARS, platoon vehicles are equipped with the enhanced position location and reporting system (EPLRS). The EPLRS provides a secure digital connection and serves as a router, efficiently sending message traffic internally within the platoon and also out to the higher command and fire support nets. This routing capability ensures that information is passed even if the chain of command is disrupted by physical separation, casualties, or mechanical failures. Finally, the FBCB2 terminal includes a monitor, keyboard, mouse, and a variety of computing functions; these features provide the crew with direct access to the system. Together, these FBCB2 components form the lower tactical internet. Figure 2-3 illustrates components of FBCB2 in a reconnaissance or scout platoon.

2-79. The upper tactical internet consists of a variety of tactical computer systems and communications equipment located primarily at the squadron/battalion level and higher. The most important of these are the maneuver control system, the all source analysis system (ASAS), the advanced field artillery tactical data system (AFATDS), and the battle command sustainment and support system (BCS3). These systems draw upon the reports and positional data passed on the lower tactical internet to provide SA at higher command levels. In turn, these systems can push information such as location of adjacent units, known and templated enemy positions, graphics, and OPORDs down to FBCB2 users.

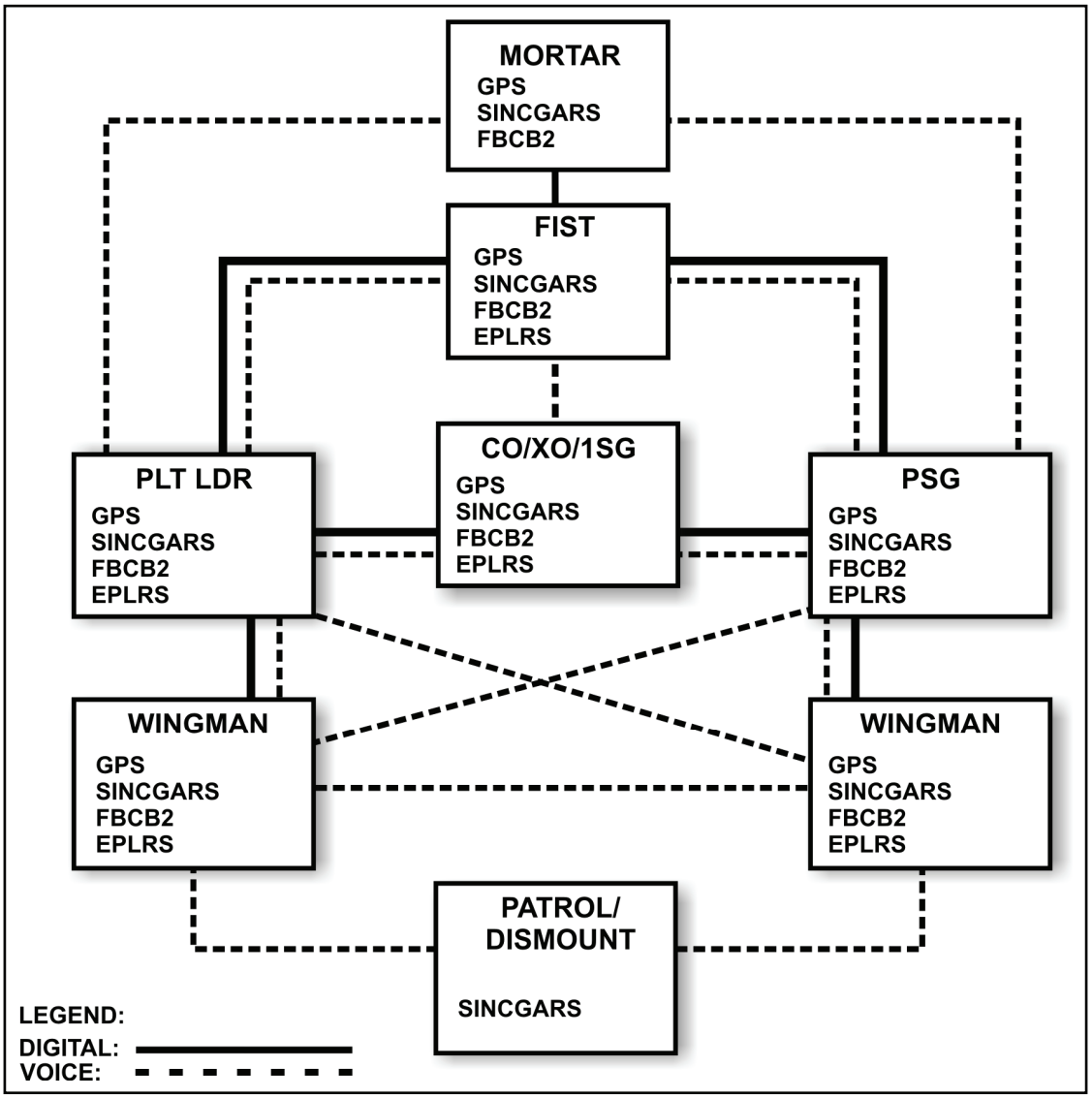

Figure 2-3. Interaction of FBCB2 components for a reconnaissance or scout platoon

FBCB2 CAPABILITIES

2-80. This discussion focuses on several areas in which FBCB2 enhances the platoon's battle command capabilities.

Friendly Situational Awareness

2-81. To enhance friendly SA, the FBCB2 screen displays an icon for each individual vehicle in the platoon. This provides the vehicle commander with a clear picture of where he is located in relation to the platoon and the platoon leader; with a picture of where he is operating in relation to the rest of the higher unit. While the system functions automatically for vehicles equipped to operate on the tactical internet, it does not provide locations for every friendly element in the area of influence. For example, the system does not automatically track dismounted scout teams operating at extended distances from their vehicles. In addition, it does not cover infantry squads from the brigade, nondigitally equipped units, or allied troops that may be operating in or adjacent to the platoon's AO. Icons representing these elements may be imported into FBCB2 based on radio reports, but these are not updated in real time. As a result, FBCB2 cannot be the sole instrument used for clearing fires; it does not substitute for the leader's or commander's judgment in preventing fratricide.

Enemy Situational Awareness

2-82. FBCB2 creates enemy SA from both top-down and bottom-up feeds. The higher unit S2 inputs enemy icons into the system based on spot reports (SPOTREP) generated by assets outside the unit; these include the JSTARS and sensor assets organic to surveillance troops, such as tactical UAS flights, radio intercepts, and ground sensors. Based on his IPB, the S2 augments these actual locations with templated positions in the form of a SITTEMP.

2-83. As the reconnaissance or scout platoon conducts operations, it adds to the enemy SA by sending SPOTREPs of enemy activity and obstacles via the FBCB2. When a vehicle commander sends a SPOTREP, he automatically creates an icon representing the enemy on FBCB2 systems in his platoon. The platoon leader or PSG evaluates the validity of the report and forwards it to the TOC. At the troop level, the report is evaluated to ensure it is accurate and is subsequently forwarded to the other platoons in the troop and higher to the squadron. This process is the same for the reconnaissance platoon in a battalion.

2-84. To keep the enemy SA current, units must update SPOTREPs concerning enemy locations that are represented by icons on the FBCB2. Updates must be sent whenever the enemy situation changes, such as when an enemy element moves or is destroyed. Icons will "fade" and eventually disappear from the FBCB2 screen as their information ages. The unit SOP governs the rate at which icons fade.

2-85. Members of the reconnaissance platoon must remember that the enemy SA provided by FBCB2 is only as good as the reports that the system receives. It will never give a 100-percent complete or accurate enemy picture. The platoon leader and his vehicle commanders must ensure that vehicle scanning plans and the platoon R&S plan are adequate to detect enemy forces not yet reported by digital means.

Standardized Reporting

2-86. FBCB2 streamlines the reporting process by providing the reconnaissance platoon with the capability to send and receive standardized reports (see Figure 2-4). FBCB2 can process SALUTE reports (listed on the FBCB2 screen as SALT reports), MEDEVAC requests, NBC-1 reports, calls for fire, check fire reports, and SITREPs. Additional FBCB2 capabilities include the following:

- It helps to ensure that all required information is included in a particular report or request.
- It reduces the chance of errors in transmission.
- It allows for the storage of messages for retrieval and reference.

Note. There is still a requirement for radio voice message traffic. For example, leaders must still transmit contact reports to initiate battle drills and cue leaders to check their FBCB2 screens for updated information. Additionally, vehicle commanders may need to send oral descriptions of enemy locations, routes, or obstacles to help clarify the situation. This is especially true in close or urban terrain where the FBCB2 cannot display the terrain in sufficient detail to assist leaders in making effective decisions.

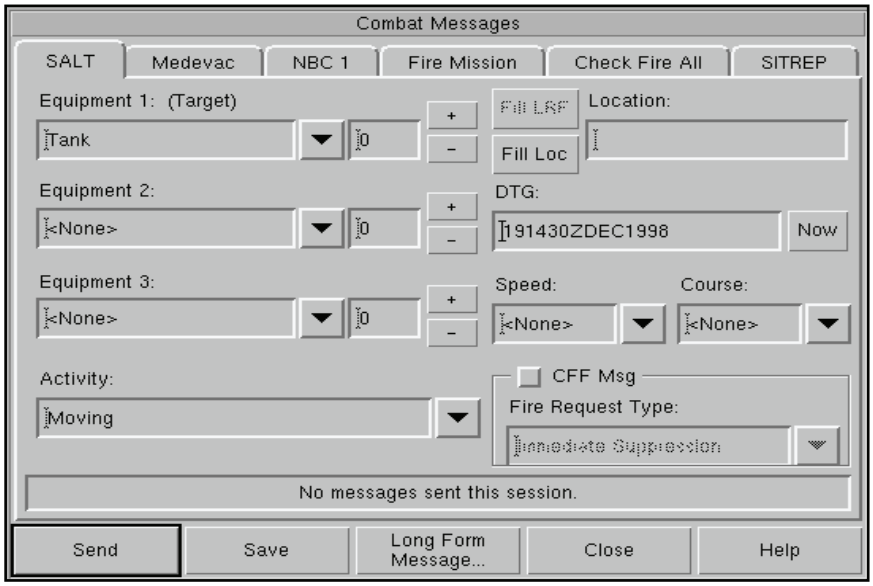

Figure 2-4. FBCB2 display for standardized reports

Combat Orders and Graphics

2-87. FBCB2 greatly enhances the speed and precision of the orders process. The system allows leaders to add or modify operational graphics during the planning process or execution. This ensures that every element has the most current information to control movement and fires. In addition, commanders can use free text messages to transmit OPORDs, FRAGOs, and operational update briefings over extended distances without the loss of time and information inherent in radio voice communications. Like standardized reports, graphics and orders can be sent, received, and stored for retrieval and reference.

SITUATIONAL AWARENESS

2-88. SA is the immediate knowledge of the conditions of the operation, constrained geographically and in time (refer to FM 3-0). This knowledge includes awareness of both the friendly and enemy situations and of relevant terrain. The goal is for leaders to attain SU. SU is the product of applying analysis and judgment to relevant information to determine the relationships among the mission variables to facilitate decision-making. It entails the ability to relate information and events through space and time to form logical conclusions and make decisions that anticipate events. Since the platoon normally operates dispersed as individual sections or squads, it is essential that all reconnaissance leaders maintain SA so they can make sound, quick tactical decisions (SU).

2-89. The commander uses the memory aid of METT-TC to identify mission variables in the AO. The reconnaissance or scout platoon leader in turn uses METT-TC and his commander's intent in mission planning and SA sustainment. To have a clear picture of the AO, the platoon leader must have virtually perfect knowledge of the friendly situation one level higher. He must have a relatively complete knowledge of the terrain, and he must know as much as possible about the enemy. It is important that the platoon

leader use this knowledge to update his section and squad leaders periodically regarding the higher situation.

2-90. The framework of the AO can vary from a linear area with obvious front and rear boundaries and closely tied adjacent units to a dispersed and decentralized structure with few secure areas and unit boundaries and no definable front or rear. Between these extremes are an unlimited number of possible variations. Maintaining SA becomes more difficult as the AO becomes less structured. Modern, highly mobile operations with small forces lend themselves to a less rigid framework that challenges the scout's ability to maintain an accurate picture of the AO.

Note. The requirement to maintain a real-time picture of the area of influence one level higher does not relieve the scout of the requirement to understand the situation and commander's intent two levels higher. The difference is that his understanding of the situation two levels higher does not have to be as specific. FBCB2 will assist all scouts in the platoon in maintaining real-time SA.

2-91. Almost all of the information the platoon leader needs comes in the form of reports over his FM communications system or FBCB2. He receives many reports based on his platoon's understanding of shared, common graphics. Effective graphics require that the subordinate elements report periodically as they accomplish requirements. The platoon leader must be aware of when his scouts report so he can maintain a current visualization of the situation. If an element does not report in a timely manner, the platoon leader must quickly determine the situation of the overdue element.

2-92. The platoon leader must learn how to relate the information he is receiving to his common operational picture (COP), which is perhaps the most important skill in maintaining SA. He should plot all friendly position reports up to one level higher than his own. The leader also plots SPOTREPs.

AREAS OF INFLUENCE

2-93. An area of influence is a geographical area wherein a commander is directly capable of influencing operations by maneuver and fire support systems normally under the commander's command or control (see JP 1-02). Areas of influence normally surround and include the AO. AOs are geographical areas, including airspace, usually defined by lateral, forward, and rear boundaries assigned to a commander or leader, in which that commander or leader has responsibility and the authority to conduct operations. Each section or squad has its own AO; the platoon AO is the sum of individual section/squad AOs.

2-94. Numerous factors define the area of influence such as the locations of friendly forces, including the platoon's individual sections, squads, OPs, and patrols; the effects of terrain, weather, and movement; and the ranges of all available platoon weapons and sensing systems, including supporting fires (see Figure 2-5).

2-95. The platoon leader assesses the OE in all phases of mission planning and execution. During the planning process, the assessment is a critical factor in selection of routes and tentative positions. Once mission execution begins, the platoon leader's knowledge of his AO and area of influence within the OE is critical when he must issue timely and effective orders as the situation changes.

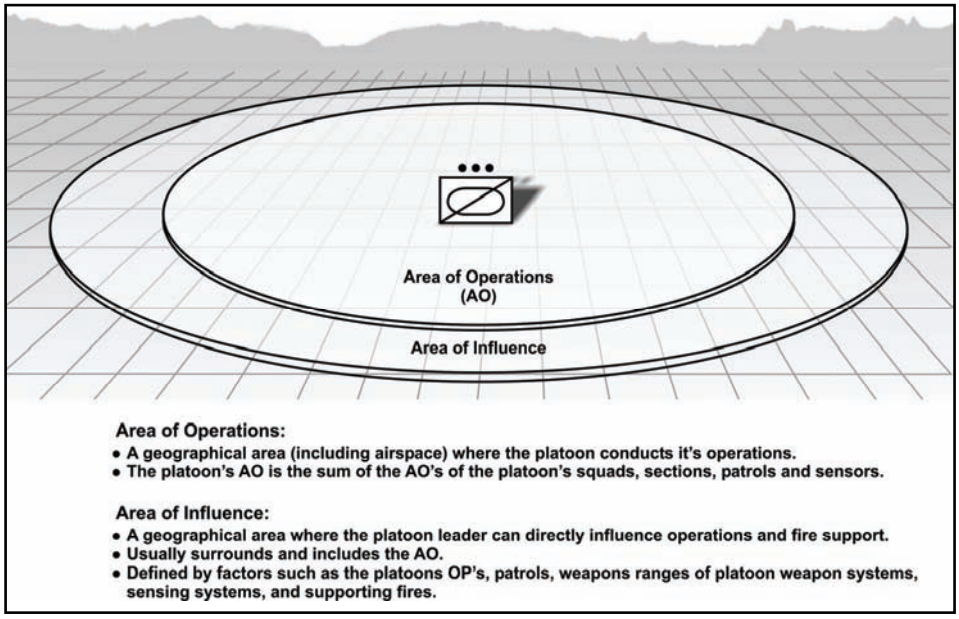

Figure 2-5. Scout platoon's AO and area of influence

2-96. The platoon leader must be aware at every moment how the OE changes as friendly and enemy forces move and as terrain and visibility conditions change (as shown in Figures 2-6 and 2-7). He must evaluate how these changes affect his AO and area of influence. He must consider other METT-TC variables as well.

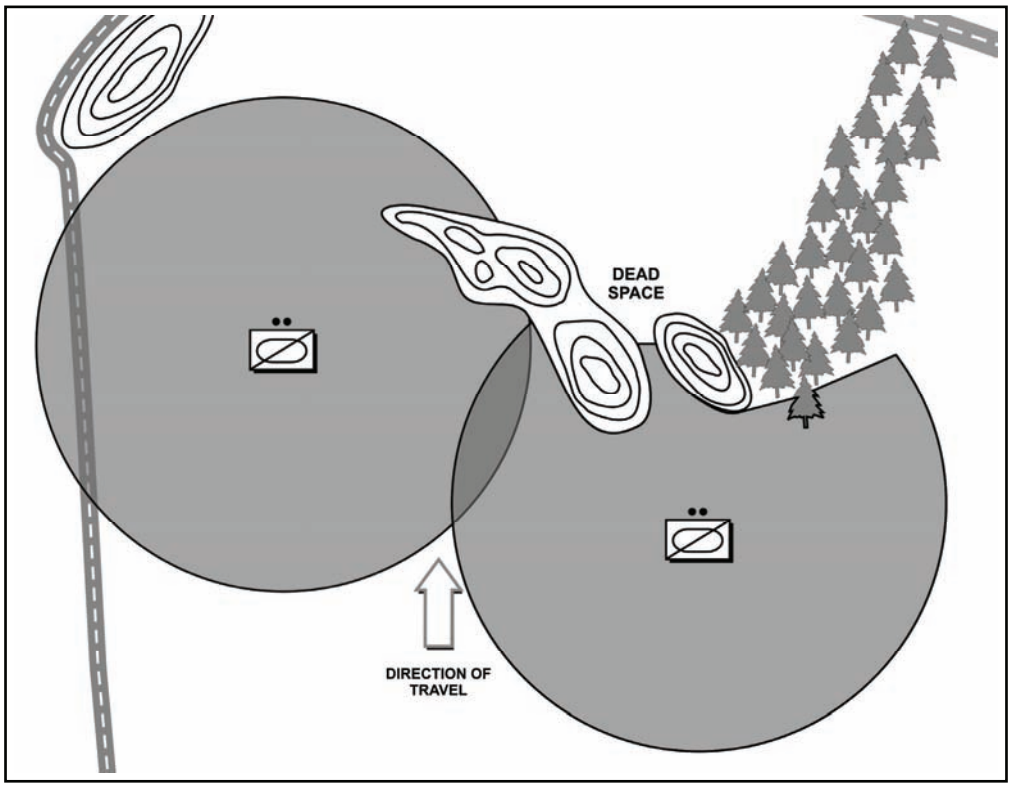

Figure 2-6. Effects of movement on the area of influence (part one)

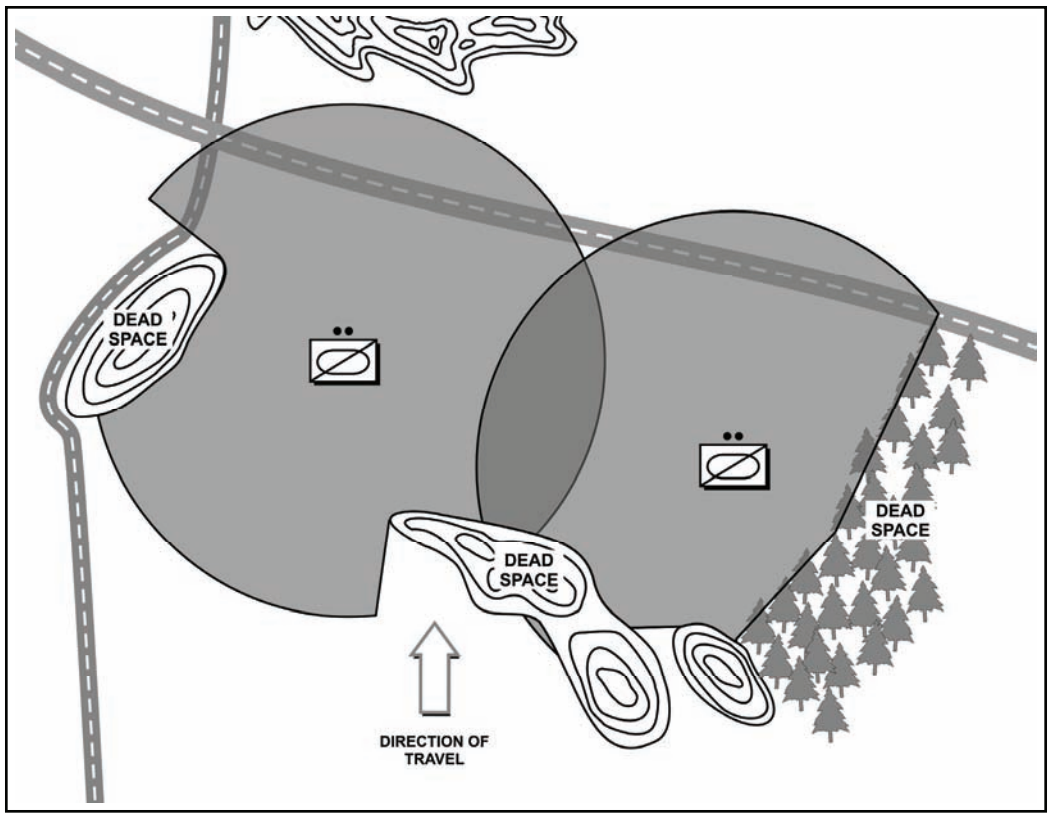

Figure 2-7. Effects of movement on the area of influence (part two)

2-97. As the operation progresses, the platoon leader must take active measures to shape the platoon's area of influence to his best advantage. In many situations, he should attempt to eliminate any gaps and other dead space that exist within the area of influence. The platoon leader can accomplish this by maneuvering sections or squads, repositioning OPs, and deploying patrols or remote sensors. He must also ensure that organic and attached assets are positioned to achieve overlapping coverage of critical points within the platoon's area of influence.

2-98. The purpose of overlapping coverage is to prevent the enemy from overcoming the friendly reconnaissance effort by degrading or destroying a single platform or sensor. It also prevents the enemy from gaining an advantage during periods when environmental or weather conditions, including limited visibility, degrade the platoon's observation capability or sensor performance. Refer to Figures 2-8 and 2-9 for an illustration of how the platoon leader can optimize his area of influence.

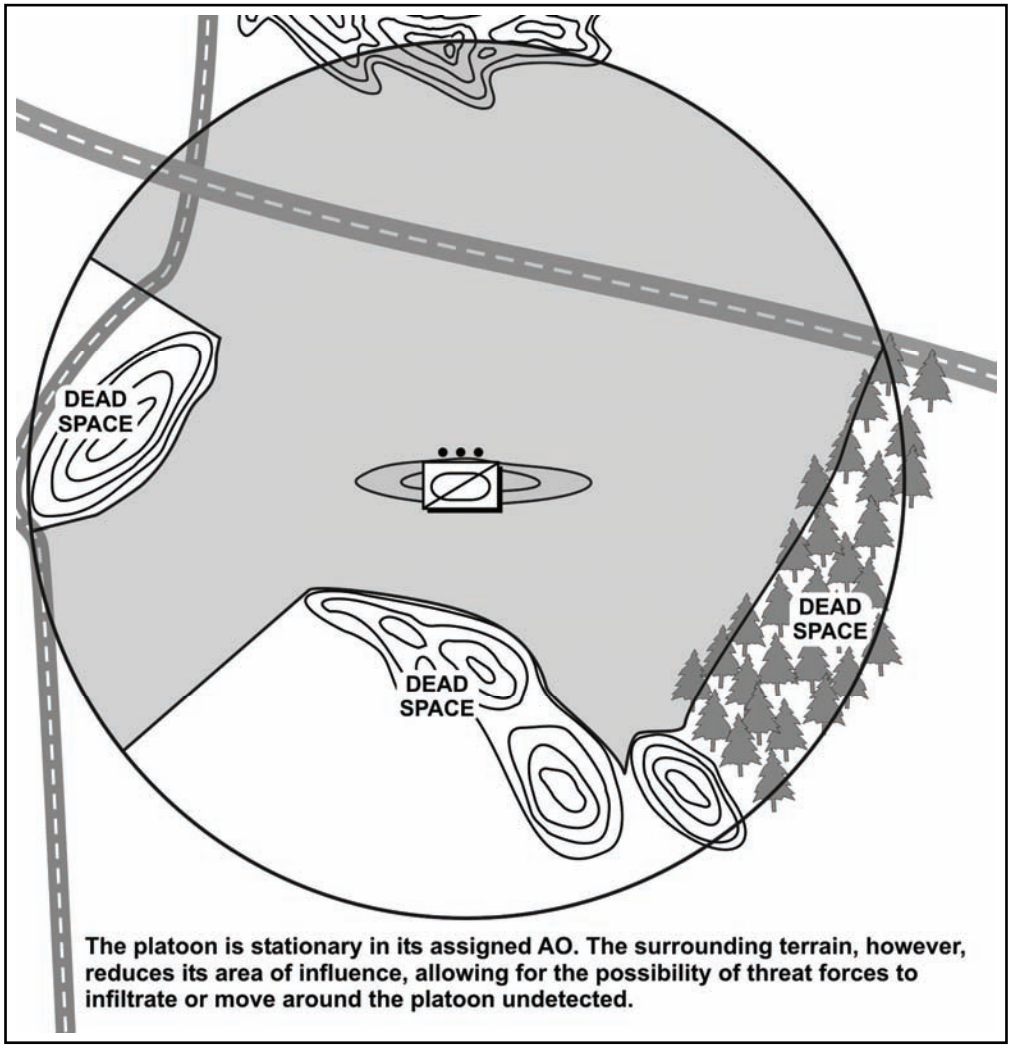

Figure 2-8. Optimizing the area of influence (part one)

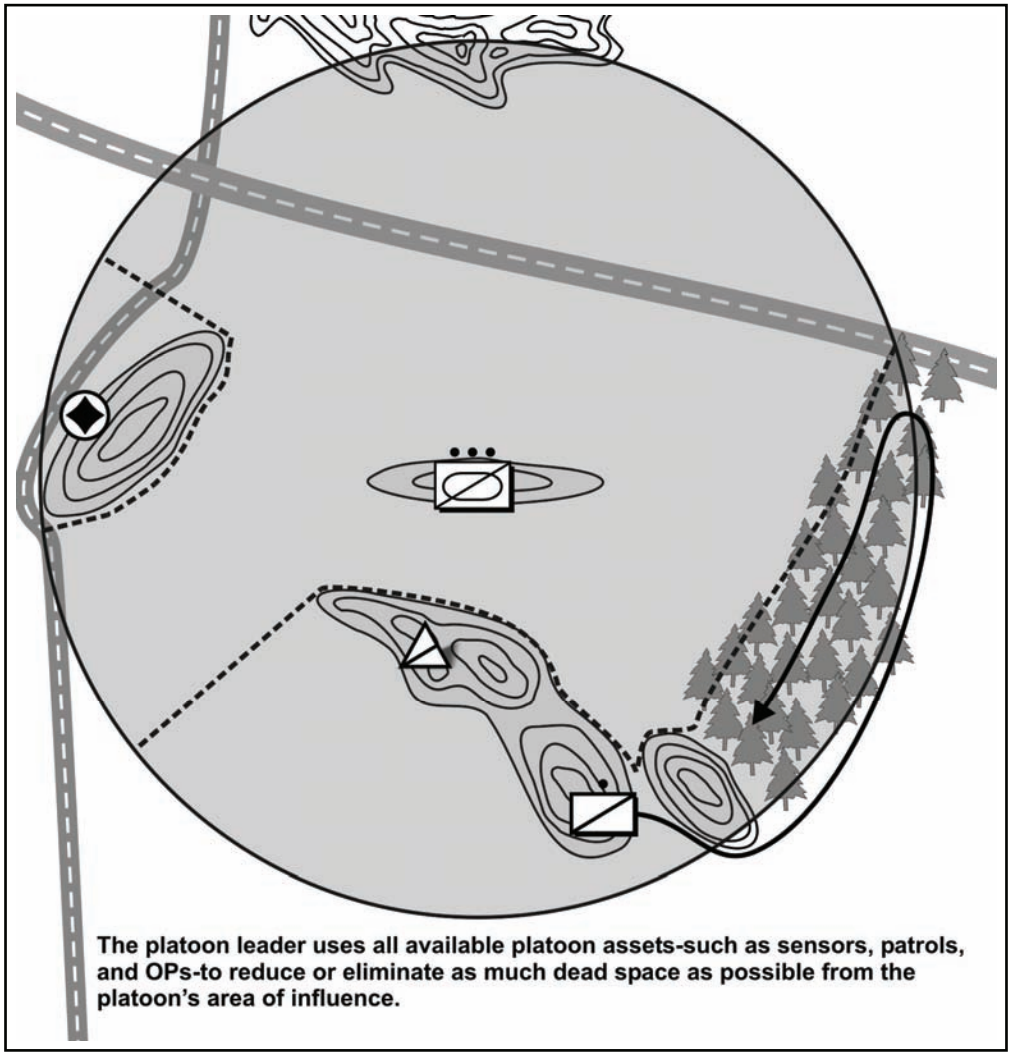

Figure 2-9. Optimizing the area of influence (part two)

FRATRICIDE

2-99. Recent experience has shown that fratricide is a significant danger to all mobile forces where weapon system lethality is significantly greater than identification friend or foe (IFF) capability. Fratricide is the result of many factors, including inadequate direct fire control plans, navigation errors, combat identification failures, and incorrect or inadequate operational graphics. For an in-depth discussion of fratricide and its prevention, refer to Appendix D of this manual.

Note. In many situations, the primary cause of fratricide is the lack of positive target identification. To prevent fratricide incidents, commanders and leaders at all levels must ensure positive target identification before they issue commands to fire. In addition, all units must accurately report their locations during combat operations, and TOCs and CPs must carefully track the locations of all subordinate elements in relation to those of all friendly forces.

SECTION III – INTELLIGENCE PREPARATION OF THE BATTLEFIELD

2-100. IPB is a systematic, continuous process of analyzing and visualizing the OE in a specific geographic area for a specific mission or in anticipation of a specific mission (see FM 34-130 for additional information). It is designed to support staff estimates and military decision-making. Applying the IPB process at the squadron and troop level helps the commander to selectively apply and maximize his combat power at critical points in time and space in the AO by—

- Describing the OE in which the unit is operating and the effects of the OE on the unit.
- Determining likely enemy COAs.

BASICS OF IPB

2-101. The IPB process is conducted continuously prior to and during the initial planning for an operation and during the conduct of the operation. As described in the following discussion, each of the four steps of the IPB process consists of several principal judgment decisions and evaluations that together form the basic "how to" of IPB.

2-102. The steps and principles of the IPB process remain constant regardless of the type of mission, unit, staff section, or echelon conducting IPB. The application of the principles, however, varies with each specific situation. Similarly, a given unit or staff section does not always prepare all IPB products in every situation. Determining which products to prepare and identifying their relative priority depends on the factors of METT-TC and command guidance.

IPB STEPS

2-103. IPB consists of four steps:

- Define the OE.
- Describe the environmental effects on operations.
- Evaluate the enemy.
- Determine enemy COAs.

DEFINE THE OE

2-104. This step covers the following:

- Identify significant characteristics of the OE.
- Identify the limits of the command's AO.
- Establish the limits of the area of influence and the area of interest.
- Identify the amount of detail required and feasible within the time available for IPB.
- Evaluate existing databases and identify intelligence gaps.
- Collect the material and intelligence required to conduct the remainder of IPB.

DESCRIBE THE ENVIRONMENTAL EFFECTS ON OPERATIONS

2-105. This step covers the following:

- Analyze the AO, focusing on these considerations:
  - Terrain analysis using the factors of OAKOC.
  - Weather analysis, including wind speed and direction, visibility, temperature and humidity, cloud cover, and precipitation.
  - Analysis of other characteristics of the AO.
- Analyze all other relevant aspects of the OE (METT-TC).
- Describe the effects of all relevant OE variables on enemy and friendly capabilities and broad COAs. The byproduct of this step is a MCOO that visually depicts all challenges and restrictions that will affect movement and maneuver.

EVALUATE THE ENEMY

2-106. This step covers the following:

- Update or create enemy models, focusing on the following considerations:
  - Convert enemy doctrine or patterns of operation to graphics.
  - Describe in words the enemy's tactics and options.
  - Identify high-value targets (HVT) and high-payoff targets (HPT).
- Identify enemy capabilities.

DETERMINE ENEMY COAS

2-107. This step covers the following:

- Identify the enemy's likely objectives and desired endstate.
- Identify the full set of COAs available to the enemy.
- Evaluate and prioritize each COA.
- Develop each COA.
- Identify initial ISR requirements.

Note. The byproducts of this final step are SITTEMPs that visually depict the enemy's most likely course of action and most dangerous course of action.

SECTION IV – COMMUNICATIONS

2-108. The primary mission of reconnaissance and scout platoons is to provide information to the commander about the enemy and other conditions of the OE. Because of the extended frontages and distances over which the platoon operates, it must rely heavily on effective communications techniques. These techniques include not only the means of communications (such as wire, visual signals, or radio and digital systems) and the proper way of using them, but also the effective application of operational terms, radiotelephone procedures (RTP), and digital TTP.

2-109. The platoon leader must ensure that all of his Soldiers understand communications procedures. For radio systems, including TACSAT, this includes the different nets on which the platoon operates, as well as positioning considerations, field-expedient communications techniques, and visual signals. In employing the platoon's digital systems, including FBCB2, the platoon's scouts must understand how to prepare and send reports, orders, and overlays and how to use hot keys.

MEANS OF TACTICAL COMMUNICATIONS

2-110. The reconnaissance and scout platoon always has several available means of communications. Whether it is using messenger, wire, visual, sound, radio signals, or digital systems, the platoon must remain flexible enough to react quickly to new situations. Use of each of these means of communications must be carefully planned to avoid dependence on a single method.

2-111. SOPs can give the platoon a tremendous advantage in mission accomplishment. Hand-and-arm/flag signals aid in controlling platoon movement. Clear and concise radio transmissions can reduce transmission times.

MESSENGER

2-112. This is the most secure means of communications available to the platoon. Messenger service is generally very flexible and reliable. In an assembly area, it is the preferred means. On an infrequent basis, members of the platoon may be called on to act as messengers to the parent unit's higher headquarters.

WIRE

2-113. This method of communications is especially effective in static positions or during the conduct of a screening mission. It is very versatile and can be used in many different situations. Using one of the many wire devices available, the platoon establishes hot loops to communicate within the platoon, with OPs, and with the parent unit CP in assembly areas.

VISUAL

2-114. Visual communications are used to transmit prearranged messages quickly over short distances. Sections or squads within the platoon may rely heavily on this type of communications. Since the platoon rarely operates as a unit over short distances, however, visual signals are seldom used at the platoon level. In those cases when the entire platoon is together, such as in a coil, in an assembly area, or on a road march, all vehicle commanders must stay alert so they can receive visual signals from the platoon leader and pass them on to other vehicle commanders in the platoon.

2-115. Whenever visual signals are used, they must be clear enough to be understood by vehicle commanders as they operate in tactical situations. Standard hand-and-arm or flag signals work well during periods of good visibility. Flashlights, chemical lights, or other types of lights are required during limited visibility. The platoon must exercise extreme care when using lights to avoid alerting the enemy to friendly intentions.

2-116. Pyrotechnic ammunition can also be used for visual signaling. The meanings of these signals are identified in paragraph 5 of the OPORD and in the unit signal operating instructions (SOI). The main advantage of pyrotechnics is the speed with which signals can be transmitted. Key disadvantages are the enemy's ability to see them and, potentially, to imitate them.

SOUND

2-117. This form of communications is used mainly to attract attention, transmit prearranged messages, and spread alarms. Sound signals carry only short distances; in addition, range and clarity are greatly reduced by noise from combat operations. Since they are open to enemy interception, use of sound signals may be restricted for security reasons. Prearranged meanings for sound signals are outlined in the unit SOP and SOI; they must be kept simple to prevent misunderstandings.

RADIO

2-118. The radio is the platoon's most flexible and most frequently used form of communications. Types of radio communications include electromagnetic transmissions over FM, AM, UHF, and VHF spectrums and use of TACSAT systems.

2-119. The most effective way to use the radio is to follow standard guidelines for effective RTP; these include brevity, proper use of authentication tables, and the use of approved operational terms. Enemy direction-finding units can trace radio signals. Once found, the transmitter can easily be destroyed. For this reason, the platoon leader and PSG must strictly enforce radio discipline regardless of encryption devices; survival of the platoon depends on good radio habits.

Radio Voice Communications

2-120. Operations normally depend on radio as the primary means of communications for both voice and digital traffic. Net discipline and SOP minimize needless traffic. To avoid detection by enemy direction-finding equipment, the platoon uses other means of communications whenever possible to supplement the radio and minimize emissions. Once in contact, the primary means of communications will be radio voice.

TACSAT Communications

2-121. Because the platoon often conducts reconnaissance operations over great distances, the unlimited range of TACSAT radios can prove extremely valuable.

DIGITAL

2-122. FBCB2 is the digital system that enhances the battle command capability by linking the platoon internally and to its higher headquarters. As noted in the discussion in Chapter 1 of this manual, FBCB2 is part of the Army Battle Command System (ABCS), a network of computers, GPS equipment, and communications systems that work together to provide combat leaders with real-time information of unprecedented quantity and quality. FBCB2 and the ABCS allow for advanced reporting, orders and graphics sharing, and database management.

COMMERCIAL LINES

2-123. The platoon may communicate via commercial lines when approved by higher headquarters. Careful consideration must be given to securing commercial lines and limiting the amount and type of classified material sent over nonsecure lines. If the platoon is forced to withdraw, existing wire lines, including commercial lines, are cut and sections removed so the enemy cannot use them.

RECONNAISSANCE AND SCOUT PLATOON RADIO NETS AND RESPONSIBILITIES

NET ORGANIZATION

2-124. The following radio nets are employed and/or monitored by leaders in reconnaissance and scout platoons. (See Figure 2-10.)

Note. The platoon leader may assign section or squad leaders to monitor the nets of units operating to the front and/or rear of the platoon. These units' nets would become the alternate nets monitored by the leaders. This technique supports SA and facilitates RHO or battle handover (BHO).

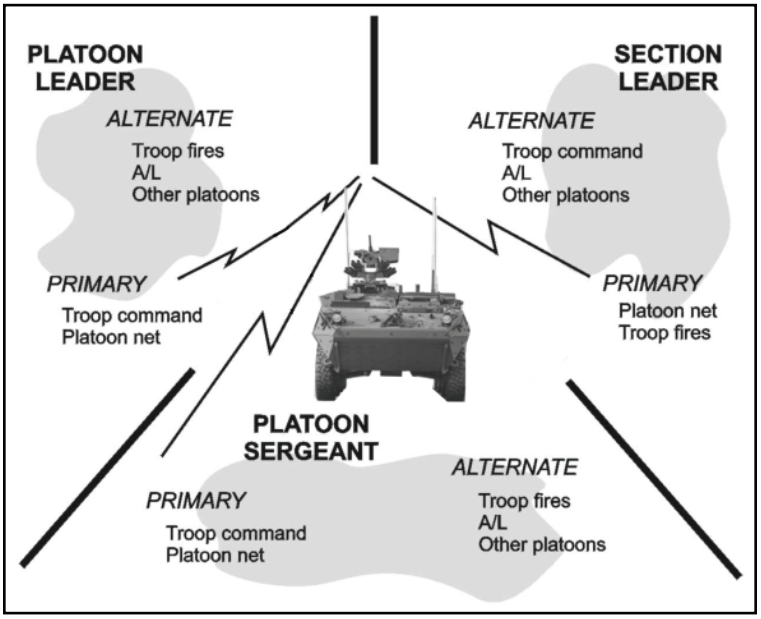

Figure 2-10. Reconnaissance and scout platoon nets

Platoon Net

2-125. This net is used to conduct all platoon operations. All elements within the reconnaissance and scout platoon must have the ability to monitor and transmit on this net at all times. Making sure this happens is one of the keys to effective C2 during the conduct of tactical operations. All scouts must also have the ability to rapidly change to any other platoon net as required to coordinate contact points or handover of enemy targets.

Troop Command Net

2-126. This net is used to maneuver the reconnaissance troop as well as to process most routine reports not sent on FBCB2. The troop TOC is the net control station, and the platoon leader or PSG sends routine reports to the troop XO. This net can be used by platoon leaders to talk to each other and coordinate key tactical actions of their platoons; however, platoon leaders will use each other's platoon nets to pass routine messages not of interest to the commander.

2-127. Both the platoon leader and PSG must always have the ability to monitor and transmit on this net. All scouts must be able to move to this net to send reports and receive guidance if they are unable to contact their platoon leader or PSG.

Troop Fires Net

2-128. Many troops operate a troop fires net to send calls for fire to the troop fire support officer (FSO) or directly to the troop mortars. Reconnaissance and scout platoon leaders should direct all radios not actively operating on another net to enter this net. All scouts must have the ability to change to this net and coordinate indirect fire.

Note. Scouts must also be prepared to change to the nets of supporting elements such as tank and mobile gun systems (MGS) to coordinate supporting fires.

Administrative and Logistics Net

2-129. The PSG will usually monitor the administrative and logistics (A/L) net for the platoon, but the platoon leader must be familiar with it as well. The PSG uses it as required to send routine A/L reports. This net is also used to coordinate resupply operations and evacuation of casualties.

Retransmission

2-130. When the platoon operates at extended distances from the CP or TOC, it may use the retransmission (retrans) net to facilitate effective communications between the platoon leader and the higher unit. The platoon leader should request use of the retrans net during all missions requiring FM communications at extended ranges.

PLATOON RESPONSIBILITIES

Net Control

2-131. The platoon net is the key to C2 of the reconnaissance or scout platoon. The smooth functioning of this net allows accurate information to be passed quickly both to and from the platoon leader. This information flow is critical in maintaining the platoon leader's SA and in enhancing C2. When contact is made, the volume of traffic on the platoon net will increase drastically. The platoon must be organized to control, understand, and process this vast amount of information while engaging the enemy and possibly being engaged in turn. The following guidelines will help to ensure that the information flowing over the net is organized and controlled in a way that permits the platoon leader to both understand it and issue orders in response to it.

Net Discipline

2-132. The PSG is responsible for net discipline. In this capacity, he will challenge any violation of procedure as it occurs. Improper or inefficient radio procedures, even in routine administrative reports, inhibit effective C2. Proper RTP are the cornerstone of effective C2 in the platoon. All scouts must be experts in communications procedures. This not only ensures efficient communications within the platoon, but also allows all members of the platoon to communicate effectively with outside elements such as the squadron, battalion, or troop CPs and TOCs, other platoons, and subordinate and/or supporting elements.

TECHNIQUES OF EFFECTIVE COMMUNICATIONS

2-133. The platoon leader and PSG are responsible for ensuring that their scouts understand and adhere to the following guidelines, which can contribute to more effective, more secure tactical communications.

KNOW THE SYSTEM

2-134. Each scout must be an expert at using and maintaining his communications system. In particular, he must understand its capabilities and limitations. He must also understand how to maintain the system and how to troubleshoot it whenever he suspects it is not functioning properly. This is particularly important for scouts in the BFSB because of the reconnaissance platoon's specialized long-range communications equipment.

MINIMIZE DURATION

2-135. All messages sent within or from the platoon must be short and informative. The longer the message, the greater the opportunity for enemy elements to use electronic means to determine the platoon's location. Message length can be controlled in several ways:

- Write the message down and then eliminate all unnecessary words from the written message before sending it.
- Read the message as written when sending it.
- Use a brevity code that reduces the need to explain the tactical picture in detail.
- Break long messages into several parts and send each separately.

MINIMIZE SIGNATURE

2-136. When sending a message, every scout must be conscious of the size and nature of the electronic signature that he is emitting. He must consider the following methods for reducing the size of the signature:

- Use terrain to mask the signature from the direction of the enemy.
- Set the transmitter power to low if that setting will provide sufficient range (as it often does within the platoon, section, or squad).
- Whenever possible (particularly in stationary operations), use an expedient directional antenna to restrict the enemy's ability to monitor the signal.

USE AN EFFECTIVE FORMAT

2-137. A thorough knowledge of report formats is critical in ensuring timely reporting of enemy information, especially in fast-moving tactical situations. Every scout should be familiar with the report formats that are outlined later in this chapter and know how to use them effectively. At the same time, however, scouts must never delay reports only to assure the correct format; ALWAYS REPORT ACCURATE INFORMATION AS QUICKLY AS POSSIBLE!

2-138. As a basic guideline, reports of enemy activity follow the SALUTE format, covering these factors:

- **Size.** This includes the number of sighted personnel, vehicles, or other equipment.
- **Activity.** This covers what the enemy is doing.
- **Location.** This is usually reported as the grid coordinates of enemy elements.
- **Unit.** This covers any indications useful in unit identification, such as patches, signs, and vehicle markings.
- **Time.** This item details when enemy activity was observed.
- **Equipment.** This includes description or identification of all equipment associated with the enemy activity.

SECTION V – REPORTING

2-139. As noted, the primary function of the reconnaissance or scout platoon is to gather and report information (reconnaissance). The platoon reports information, using either analog equipment or digital means (FBCB2), in a timely and accurate manner that enhances the decision-making process of its higher headquarters and/or that enables the higher headquarters to employ effective fires to defeat the enemy. The use of FBCB2 enhances the scouts' capability to send timely and detailed reports to all elements of the combined arms force. Initial contact reports should still be analog, providing immediate notification to all, yet allowing the element in contact to focus on the required actions in contact procedures. Once disengaged, or where there is no further enemy to the element, the element leader can follow up the initial contact report with a detailed, digital report. Refer to Appendix A for detailed information on reports.

2-140. The platoon's unique information-gathering capabilities provide the commander with information that has tactical value concerning the enemy, terrain, and effects of weather within an AO. Scouts reconnoiter terrain to determine movement and maneuver conditions. When they find the enemy, they determine its disposition, strengths, and weaknesses in detail. The platoon provides the information necessary to allow combined arms forces to maneuver against the enemy, strike where the enemy is most vulnerable, and apply overwhelming effects to defeat it. The platoon's accurate and timely reporting of enemy locations and strength can make the difference between victory and defeat.

OPERATIONAL CONSIDERATIONS

2-141. Important considerations and guidelines for reconnaissance and scout platoons in the reporting of tactical information include the following:

- Conduct effective communications. This entails understanding the means of tactical communications (such as wire, visual signals, analog radio, or digital communications), the

correct application of operational terms, and the use of effective RTP. Refer to the discussion of communications earlier in this chapter.

- Verify all information before reporting it higher.
- Report the following types of information as quickly as possible:
  - Information of potential intelligence value.
  - Enemy information.
  - Requests for medical assistance and evacuation.
- As needed, use report formats and procedures to supplement and enhance combat orders, including WARNOs, OPORDs, and FRAGOs.

REPORT GUIDELINES

2-142. The platoon should follow these guidelines in reporting tactical information:

- Do not overload radio nets by repeating information.
- Use local time zones for all reports unless otherwise specified.
- Send only the parts or lines of a report that contain new information or changes.
- Though each report has a prescribed format to ensure the completeness of the information reported, users must remember that timely reporting, especially of enemy activity, is critical in fast-moving tactical situations.
- Do not delay reports only to assure correct format.

DIGITAL REPORTING AND C2 MESSAGES

2-143. In addition to its capabilities related to providing SA data, FBCB2 offers a variety of functions that can enhance C2 in the platoon. The system has four categories of C2 messages:

- Alerts and warnings (examples include NBC reports and warnings of danger zones such as CBRN contaminated areas, obstacles, or enemy locations).
- Joint support information (interfaces with other branches of service).
- Combat reporting (such as the commander's SITREP).
- Mission planning information (including OPORDs and FRAGOs).

Note. This discussion includes an explanation of geo-referenced messages, which create icons linked to a location on the FBCB2 map. These messages can be used in each of the C2 categories.

ALERTS AND WARNINGS

2-144. Alerts and warnings are sent via reports, free text messages, or geo-referenced messages. They are posted on the flash immediate priority routine (FIPR) message queue and are displayed on the function bar of the main FBCB2 screen and as a symbol on the map screen.

2-145. When the platform penetrates the safety radius of a danger zone, the FBCB2 alarm is triggered, an alert message is displayed on the warnings/alerts marquee, and an entry is made in the warnings tab group. The danger zone tab group will display the type, distance, direction, location, and originator of all danger zone information received. Danger zone information is transmitted in specific joint variable message format (JVMF) messages as SA data. FBCB2 receives the message and displays the SA/danger zone information in the danger zone tab group.

COMBAT REPORTING MESSAGES

2-146. These JVMF messages have been modified and grouped together to provide single-button access to the message template, requiring fewer keystrokes to complete and send the message. Combat messages are—

- SALUTE.
- MEDEVAC.
- Fire mission (call for fire).

- Check fire.
- SITREP.

MISSION PLANNING INFORMATION

2-147. Mission planning information includes orders and request-type messages that contain JVMF message templates. They include the following:

- WARNOs.
- Operational plans (OPLAN) and OPORDs.
- FRAGOs.
- Logistics orders and requests.
- Free text messages.

GEO-REFERENCED MESSAGES

2-148. These messages, which can be used in the C2 categories discussed earlier, create icons linked to a location on the FBCB2 map. They are also disseminated across the tactical internet as SA data. Geo-referenced messages can be used for the following:

- Obstacle reports.
- NBC-1 reports.
- Bridge reports.
- Supply point status reports.
- Contact reports.
- Engagement reports.

2-149. FBCB2 users can choose to hide or display all geo-referenced data from the filter dialog box. Geo-referenced messages contain "hook" information—detailed information on the status of any icon. To access "hook" information on a geo-referenced icon, however, the user must have been a recipient of the message.

Chapter 3

Reconnaissance Operations

Reconnaissance and scout platoons will conduct reconnaissance to provide their commander with information that has tactical value concerning the enemy, terrain, weather, and civil considerations within an AO. Scouts reconnoiter terrain to determine current and future movement and maneuver conditions. Once contact with the enemy is made, they determine the enemy's disposition, strengths, and weaknesses in detail. The platoon provides the information necessary to allow combined arms forces to maneuver against the enemy, strike where the enemy is most vulnerable, and apply overwhelming power to defeat it. In addition, scouts must be able to perform the multidimensional aspect of reconnaissance to gather the information needed for execution of stability operations and civil support operations.

Contents

SECTION I – INTRODUCTION

3-1. Reconnaissance is conducted as part of all scout missions, both mounted and dismounted, and always maximizes all available assets. Scouts conduct dismounted reconnaissance to gather detailed information, to enhance security, and to move with stealth or in rugged terrain. They conduct mounted reconnaissance when time is critical and they need to cover a large area quickly. Mounted reconnaissance allows scouts to maintain a fast tempo in combat operations and to make maximum use of optics, firepower, communications, and protection provided by scout vehicles.

3-2. Scouts reconnoiter terrain to determine movement and maneuver conditions relevant to both friendly and enemy forces. Scouts must thoroughly understand how the enemy deploys its reconnaissance and security forces, as well as the sequence and timing of their entry into the AO. When they find the enemy, scouts determine its disposition, strengths, and weaknesses in detail. The scouts' accurate and timely reporting of enemy locations and strength can make the difference between success and failure of the operation. At the same time, it is critical that scouts never lose sight of their reconnaissance objectives or become committed in engagements that invariably attrit reconnaissance forces and eliminate their freedom to maneuver.

PURPOSE

3-3. Based on their commander's intent and guidance, scouts conduct reconnaissance forward of friendly forces to provide current, accurate information about the enemy, terrain, weather, and civil considerations such as culture, infrastructure, and physical resources within a specified AO. In simplest terms, the reconnaissance and scout platoon and its higher headquarters take steps to link the purpose of the reconnaissance to one or more of the following requirements:

- Obtain information to answer the commander's critical information requirements (CCIR).
- Obtain information to fill voids in the unit IPB by answering IR and specific information requirements (SIR).
- Support targeting requirements by conducting target acquisition and surveillance.

3-4. These actions provide follow-on forces with an opportunity for freedom of maneuver and rapid closure to their objective. Scouts use the fundamentals of reconnaissance to prevent maneuver elements from being surprised or interrupted, and in doing so they protect these forces from losing men and equipment along the way to the objective. Reconnaissance and scout platoons perform three types of reconnaissance: route, zone, and area.

FUNDAMENTALS OF RECONNAISSANCE

3-5. The seven fundamentals are common to all successful reconnaissance operations. Scout leaders must ensure that their planning, preparation, and execution of reconnaissance missions adhere to these fundamentals. These fundamentals are covered in the following discussion during the execution of reconnaissance missions. For additional information, refer to FM 3-20.96 and FM 3-90:

- Ensure continuous reconnaissance.
- Do not keep reconnaissance assets in reserve.
- Orient on the reconnaissance objective.
- Report all information rapidly and accurately.
- Retain freedom of maneuver.
- Gain and maintain threat contact.
- Develop the situation rapidly.

ENSURE CONTINUOUS RECONNAISSANCE

3-6. The current OE requires maximizing the use of reconnaissance assets for continuous reconnaissance which updates the unit's SA. Reconnaissance and scout platoons are integral to this ISR effort; however, it is limited in its ability to conduct and sustain continuous reconnaissance. The platoon conducts continuous reconnaissance in the following situations:

- Before movement to confirm planning, and ensure freedom of movement up to the LD.
- During operations, in depth, by integrating a wide range of sensors, including tactical UAS and ground sensors ahead of scouts to ensure maximum effectiveness and survivability. SBCT reconnaissance platoons may include tactical HUMINT collection teams (HCT) gaining information from the population.
- After operations when the platoon maintains contact while screening or through combat patrols (including HCTs).

DO NOT KEEP RECONNAISSANCE IN RESERVE

3-7. Reconnaissance assets, like artillery assets, are never kept in reserve. When committed, reconnaissance and scout platoons use all of their resources to accomplish the mission. This does not mean that all assets are necessarily committed at the same time. At times, the platoon leader must be prepared to withhold or position his assets to ensure they are available at critical times and places. All reconnaissance assets should be treated as committed assets, with specific missions assigned at all times. Do not place Soldiers in reserve to obtain the rest and recovery required to sustain the reconnaissance effort. Rather, the commander must develop a rest plan that allows his assets to sleep, eat, and recover as time and conditions allow, such as during planning periods or operational lulls.

ORIENT ON THE RECONNAISSANCE OBJECTIVE

3-8. The reconnaissance platoon's scheme of maneuver is focused on a reconnaissance objective or set of objectives despite contact. The objective may be a terrain feature, a specific area, an enemy formation, or other type of threat force (such as a paramilitary element). It may be designated by an NAI, target area of interest (TAI), checkpoint, or objective symbol. A multidimensional reconnaissance objective, especially in stability operations or civil support operations, may include locating weapons smuggling activities and caches, pinpointing facilities for constructing IEDs, and locating war criminals for apprehension. While sensors can assist, it requires the scout on the ground developing and refining the information to perform reconnaissance. It is critical that the reconnaissance and scout platoon leadership completely understand the mission focus before they begin the planning process.

REPORT ALL INFORMATION RAPIDLY AND ACCURATELY

3-9. Information loses value over time. Scouts must report all information exactly as they see it and as fast as possible. Scouts must never assume, distort, or exaggerate what they observe. Inaccurate information is dangerous. Information detailing the absence of a threat in the OE is just as vital as where the threat is observed. Scouts posting information within the FBCB2 infrastructure can report and share information on the OE faster than using radio voice traffic alone.

RETAIN FREEDOM TO MANEUVER

3-10. Scouts must be free to maneuver in the AO. If the enemy fixes them, the scouts must fight to free themselves to accomplish their mission. Scouts must continually maintain SA of the OE as it develops. They must employ IPB, tactical movement, and battle drills to plan for and/or react to unexpected situations. Contact should be made by the smallest element possible, usually the squad or crew. When contact is made, the platoon leader must continue to develop the situation. This allows the platoon leader to retain the initiative and continue the mission.

GAIN AND MAINTAIN THREAT CONTACT

3-11. Scouts seek visual contact with the threat first and foremost. This can be done through ISR products from UASs and other sensors. It is critical the platoon leader make contact under favorable terms or as directed by the commander. During operations, once the scouts gain contact with the threat, they maintain contact using all available means (sensors, radar, sound, and visual). They maintain contact until a change of mission is specified by their coordinating instructions or engagement criteria require handoff to an element designated to maintain contact.

DEVELOP THE SITUATION RAPIDLY

3-12. Scouts must quickly determine the size, composition, and activity of a threat. They must be prepared to fight for the information and develop the situation to gain that information. Scouts do not classify what they see; this is determined by their commander or unit's staff. Once scouts find the flanks of the threat force, they may dismount to gain information, without being detected on any barriers or obstacles surrounding the threat position. These actions must be done quickly, with minimum guidance.

SECTION II – RECONNAISSANCE PLANNING

3-13. The purpose of this section is to outline the planning, techniques, methods, and tactical employment involved in executing reconnaissance missions. To reduce vulnerability in the AO, scouts conduct reconnaissance to achieve a balance between an acceptable level of risk and the security necessary to ensure mission accomplishment. Often this is expressed as a tradeoff between speed and security. The faster the reconnaissance is conducted, the higher the likelihood that the scout's risk will increase, that the quality of the reconnaissance will be degraded, and that enemy forces in the AO will be missed.

3-14. While conducting their missions, scouts must use all the reconnaissance skills that they have trained and rehearsed. They must take every opportunity to hone these skills. By the nature of their missions, scouts can never achieve perfect security; however, thorough knowledge of the various reconnaissance methods and their employment, combined with an understanding of a mission's particular METT-TC requirements, allows the scout leader to choose, and mix, reconnaissance methods that both maximize security and ensure mission accomplishment.

OPERATIONAL CONSIDERATIONS

3-15. This discussion focuses on several areas of reconnaissance TTP (including techniques, planning guidance, methods, and tactical employment skills) that scouts can employ. These have proven effective in a variety of situations and form a foundation for how to conduct reconnaissance. Scouts must use their experience, professional judgment, and common sense to analyze a given situation and employ the appropriate TTP. There are times when the scout must think like the enemy to understand how to find him. Usually, successful execution will require platoon leaders to use a variety of TTP (often in combinations and/or variations) that reflect METT-TC considerations and that are focused on the particular task or the platoon's unique capabilities.

3-16. To help the platoon leader determine the appropriate reconnaissance TTP, the commander should provide him with information and guidance on the reconnaissance focus, tempo, and engagement criteria. These factors, known as the commander's reconnaissance planning guidance, are commonly characterized using such terms as stealthy, forceful, deliberate, and/or rapid. The commander must carefully describe how he uses these terms in his planning guidance. Figure 3-1 illustrates an example of the factors that influence the tempo of reconnaissance, in this case stealthy to forceful.

Note. Reconnaissance focus, tempo, and engagement criteria are covered in the discussion of planning considerations later in this chapter and in FM 3-20.96.

3-17. Reconnaissance that uses a stealthy approach is time-consuming and emphasizes avoiding detection by the enemy. To be effective, it must rely on dismounted reconnaissance assets and maximum use of covered and concealed terrain. This reconnaissance can be directly supported by the use of UASs with the unit or by planned UAS missions conducted by higher command. HUMINT resources may provide information that allows scouts to avoid chance meeting engagements and to create situations in which they gain visual contact and avoid detection. A forceful approach, conducted without regard for whether the reconnaissance force will be detected, often involves mounted elements, including combat units that do not ordinarily take part in reconnaissance. For example, the HBCT reconnaissance platoon and the ACR scout platoon are more suited to be forceful because they have increased armor protection; dismounted scouts in an IBCT reconnaissance platoon and mounted elements in the BFSB reconnaissance platoon are better suited in using infiltration. See Figure 3-1.

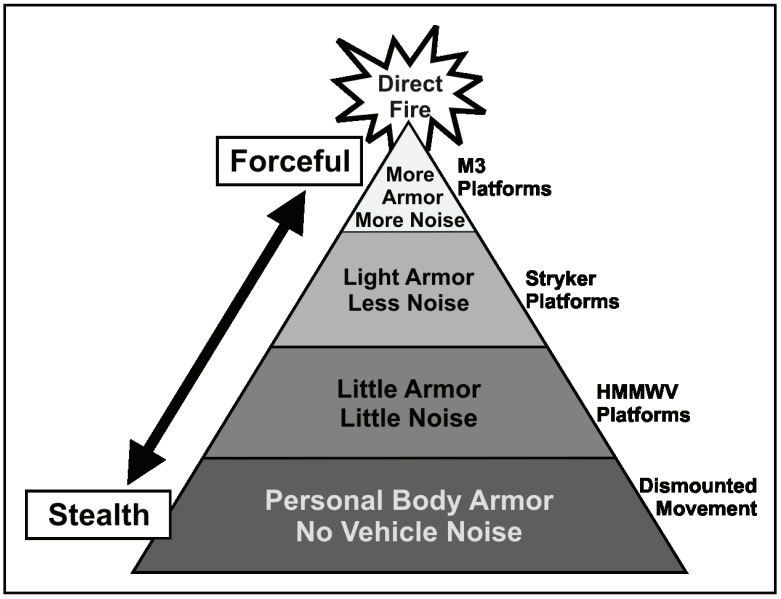

Figure 3-1. Characteristics of tempo in reconnaissance

3-18. The terms deliberate and rapid relate directly to the tempo of reconnaissance and to the degree of completeness required by the commander. A deliberate operation yields a thorough, detailed reconnaissance of a particular area or zone. This is completed by scouts on the ground-measuring curves, employing HUMINT assets to talk to the local population, clearing lateral routes, and completing the platoon's implied tasks. In absence of the HUMINT assets, the platoon leader and PSG must interact with the coalition and even civilian population in order to accomplish the mission. A detailed reconnaissance overlay may be required for the commander. A rapid approach to reconnaissance is focused on a few key tasks. This causes the platoon to have a minimum amount of time necessary to cover a particular area or zone. Often scouts will only confirm or deny the presence of the enemy and trafficability of the unit's march route.

3-19. Discreet and aggressive are considerations in developing the engagement criteria. A discreet approach to reconnaissance is conducted under restrictive engagement criteria; it limits the ability of the reconnaissance force to fight for information. Aggressive reconnaissance emphasizes identification of the enemy's combat power by techniques that may include fighting for information. It may entail the employment of armored vehicles and/or the use of heavy weapons. The platoon leader must always remain aware that aggressive information gathering can provide the enemy with an indication of friendly capabilities and future intentions.

RECONNAISSANCE TECHNIQUES

3-20. There are two general techniques of reconnaissance: push and pull.

RECONNAISSANCE PUSH

3-21. This technique is used once the commander is committed to a COA or maneuver option. The commander ***pushes*** his R&S assets forward as necessary to gain greater visibility on specific NAIs and to gain information on which the COA is based. The commander's detailed plan will often encompass several possible COAs triggered by decision points (DP) that occur during operations. As the unit deploys, the reconnaissance effort shifts to accomplish the following:

- Provide DP trigger criteria information to facilitate the commander's decisions to adopt particular COA.

- Locate undiscovered enemy strengths and weaknesses on which the commander can capitalize (rather than executing previously planned COAs).

RECONNAISSANCE PULL

3-22. The commander uses R&S assets to confirm or deny initial CCIR prior to the decision on a COA or maneuver option, thus ***pulling*** the supported unit (battalion or brigade) to a point offering tactical advantage and creating a decisive move. Success of the reconnaissance pull requires an integrated reconnaissance plan that can be executed prior to the commander having to make a COA decision. It is used when the enemy situation is not well known and/or the situation is rapidly changing. It also requires a detailed reconnaissance plan and decision-making processes. The reconnaissance pull will focus on changing assumptions into confirmed information through accurate reporting. Initial assumptions and PIR are used to deploy reconnaissance assets early to collect information for use in the development of COAs.

PLANNING CONSIDERATIONS

3-23. Critical to the platoon leader's ability to execute his mission is a clear understanding of the **focus**, **tempo**, and **engagement criteria** of the reconnaissance mission. This information can be labeled as commander's reconnaissance planning guidance. It is an extension of the commander's intent and is meant to fully clarify the intent for the reconnaissance effort. It should be received from higher as well as issued to subordinates. The commander's reconnaissance planning guidance provides specific information the platoon leader needs to know to plan his mission. Figure 3-2 shows the role of the elements of battle command—understand, visualize, describe, and direct—in the development of the commander's planning guidance for reconnaissance. For additional information on planning considerations and guidance, refer to FM 3-20.96.

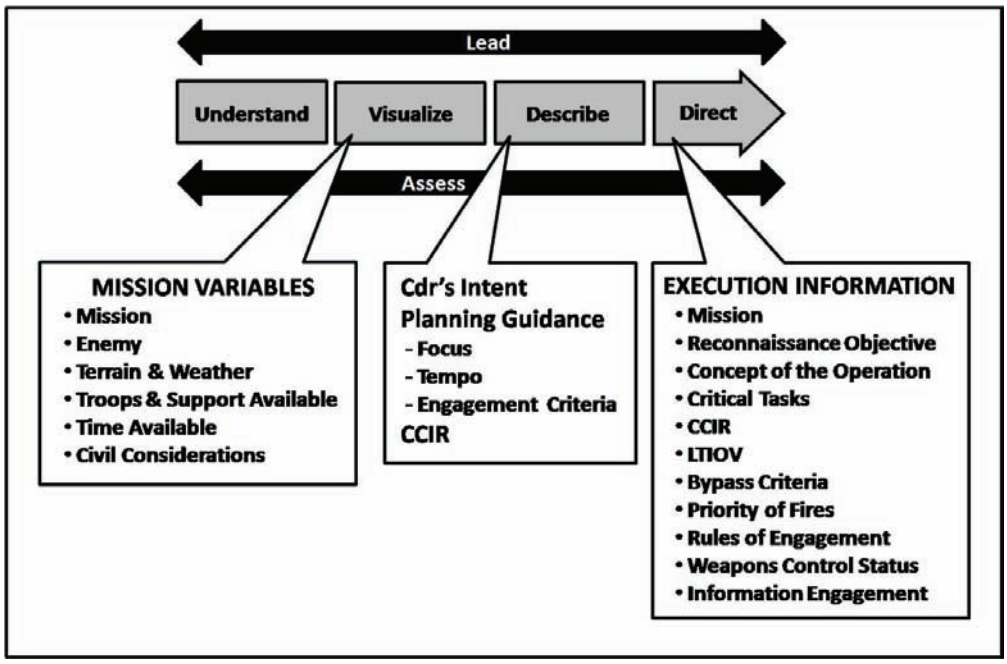

Figure 3-2. Development of guidance for reconnaissance operations

FOCUS

3-24. The **focus** of the reconnaissance allows the platoon leader to determine which critical tasks he wants the platoon to accomplish first. It helps him narrow the platoon's scope of operations to get the information that is most important to squadron and brigade operations. In small-scale contingency (SSC) operations,

the platoon focus might be terrain-oriented or enemy security force-oriented. In an environment involving stability operations, the platoon might be focused on determining local populace sentiment or on identifying local paramilitary leaders. While all critical tasks have some degree of applicability in any given operation, certain ones are more important for specific missions and must be clearly articulated at each level.

3-25. Considerations related to the focus include the following (the first three items are the mission variables of METT-TC that are most closely related to focus in the reconnaissance OE):

- Enemy/threat (conventional and/or nonconventional forces, terrorist organizations, and criminal elements).
- Terrain (bridges, routes, and defensible terrain) and weather.
- Civilian considerations (including society/human demographics, infrastructure, and HUMINT).
- Any other aspects of METT-TC that are directly relevant to the mission.
- Reconnaissance critical tasks to be conducted or deleted.

Note. As noted throughout this chapter, the focus should be linked to the purpose of the reconnaissance operation to accomplish any or all of the following tasks: answer the CCIR, fill voids in the unit IPB (as related to the IR SIR), and/or support targeting operations through target acquisition.

TEMPO

3-26. The **tempo** of the reconnaissance allows the platoon leader to establish associated time requirements and correlate them with planning time, movement formations, engagement criteria, and methods, such as dismounted or mounted reconnaissance. The platoon leader establishes the tempo using the troop commander's planning guidance and analysis of the applicable mission variables of METT-TC:

- Mission.
- Enemy.
- Time available.

3-27. The tempo for reconnaissance may be described using terms such as "stealthy," "forceful," "deliberate," or "rapid." However, the platoon leader—again using the reconnaissance guidance from the troop commander—must ensure that he clearly defines for his subordinates how he interprets these terms.

ENGAGEMENT CRITERIA

3-28. The **engagement criteria** establish which targets—and under what circumstances—the platoon is expected to destroy and which ones it is expected to hand off to higher elements. Conversely, by coupling his understanding of what the commander wants the platoon to destroy with his understanding of the enemy's most likely COA, the platoon leader will break down what the sections will destroy. This enables the platoon leader to—

- Conduct the platoon's direct firing planning.
- Develop engagement areas.
- Plan for the destruction of specified enemy vehicles.

3-29. Considerations related to the engagement criteria include the following:

- What are the applicable ROE?
- What situations will lead to a fight for the supported unit?
- What situations will lead to a reconnaissance platoon fight?
- What weapon systems will be used to engage what types of targets?
- What are the tactical situations that effect escalation of force (EOF) employment?
- Does the higher order or guidance include specific engagement criteria?

3-30. In reconnaissance that employs discreet/restrictive engagement criteria, reconnaissance forces are restrained from initiating combat to gain information. Reconnaissance that is fast-paced—with aggressive/permissive engagement criteria—allows the reconnaissance force to fight for information. As with other broad descriptions used in the reconnaissance guidance, the platoon leader must specifically explain for his subordinates what is meant by these terms. For more a detailed discussion of engagement criteria, refer to FM 3-20.96.

3-31. The platoon leaders must plan for and rehearse EOF procedures for operations within the OE. EOF is a tool for scouts to determine whether a person is demonstrating hostile intent. Scouts may consider a wide range of steps before using lethal force which results in weapons discharge or results in damage to individuals or property. Reconnaissance and scout platoons following EOF procedures enable their scouts to make quick reasonable decisions to protect themselves while preventing unnecessary deaths and collateral damage during the application of force without limiting the scout's ability to protect themselves.

3-32. Leaders must plan to use the correct equipment and current intelligence information, to reduce unnecessary use of lethal force and promote a positive image of the Army. Rehearsal during troop-leading procedures ensures leaders and scouts understand how EOF supports ROE, as well as the difference between the two, to include the impact of EOF incidents on local nationals and the negative perceptions which may complicate the OE.

THE OE IN RECONNAISSANCE OPERATIONS

3-33. Reconnaissance and scout platoons must be prepared to operate beyond the traditional roles of reconnaissance, surveillance, and target acquisition of enemy forces. Today, scouts must adjust their traditional roles to fulfill the broader mission of providing SU in its fullest sense. This involves an understanding of the OE in all its aspects, covering political, economic, social, information, infrastructure, physical environment, and time variables in addition to the military aspects of the OE. This multidimensional requirement means that the platoon must develop an understanding of what is happening and why. In the asymmetric environment, identifying enemy centers of gravity, decisive points, and the means to influence the enemy's will and behavior—while observing proper ROE—is one of the most important contributions that the platoon can make to ensure successful mission accomplishment. For more information on the OE, refer to FM 3-0.

NONTRADITIONAL ASPECTS OF THE OE

3-34. The Army has traditionally focused its efforts on traditional combat operations, based on open terrain, force-on-force battles, and symmetrical enemy formations, focusing on gaining information on the enemy and terrain. Platoon planning, however, must expand to include nontraditional aspects of OE variables that could influence its operations.

Asymmetric Warfare

3-35. Conditions in the new millennium, coupled with the technological developments of the information age, raise the specter of asymmetric warfare, a concept in which a weak opponent successfully engages a stronger opponent using a variety of non-conventional TTPs. The goal is to gain an advantage in hopes of achieving the weaker force's objectives and goals. Asymmetric threats include—

- Regional military forces.
- Paramilitary forces.
- Guerrillas and insurgents.
- Terrorists.
- Criminal groups.
- Certain civilian groups and individuals.
- Political parties.
- Religious groups.

3-36. Threat elements will use a number of nontraditional approaches in conducting asymmetric warfare, including the following:

- Information operations (IO).
- Weapons of mass destruction (WMD).
- Operations in complex terrain.
- Civilian involvement (include hiding within the population and staging evasive attacks).

Urban Considerations

3-37. The urban environment confronts commanders with a combination of difficulties rarely found in other settings in which the Army conducts operations. The distinct characteristics of the urban environment are primarily a function of the following factors:

- The increasing size and global prevalence of urban areas.
- The combinations of man-made features and supporting infrastructure superimposed on the existing natural terrain.
- The density of civilians in close proximity to combat forces.

3-38. The human dimension represents potentially the most important and the most perplexing factor for commanders to understand and evaluate. Although urban terrain is complex, understanding it is a relatively straightforward process in comparison to comprehending the multifaceted nature of urban society. The urban environment is, first, a human environment. That makes it different from all other types. An urban environment is not solely defined by its structures or systems but by the people who compose it. It reacts and interacts with an army in ways that no natural environment can.

3-39. Military operations often require Army forces to operate in close proximity to a high density of civilians, whose presence, attitudes, actions, and needs in turn affect the conduct of operations. Civilian populations continually influence, to varying degrees, military operations within an AO. As urban areas increase in size, they become less and less homogenous; therefore, commanders must understand and account for the characteristics of a diverse population whose beliefs and actions may vary based on many factors. Improving communications with the local population (especially using interpreters) can improve intelligence gathering and win acceptance of the platoon within that AO. Security requirements might change when these personnel are on vehicles and around digital communication systems.

3-40. The decisive terrain during a military operation, particularly in stability operations, may be the civilian inhabitants themselves. To gain and/or retain the support of the civilian population, commanders must first understand (through reconnaissance) the complex nature and character of the urban society and its infrastructure. Scouts must then understand and accept that every military action (or inaction) may influence, positively or negatively, the relationship between the urban population and Army forces and, by extension, have a significant impact on mission success. With this awareness, commanders visualize decisions they must make, plan operations, and implement programs. They can take immediate action to maintain support of a friendly populace, gain the support of neutral factions, or neutralize hostile elements. Unit continuity books maintaining feedback on past operations within the area will provide insight on past successful and unsuccessful missions and their results.

3-41. Understanding how operations affect the urban society (and vice versa) normally begins with reconnaissance of the society and its infrastructure. As noted, these two characteristics of the reconnaissance OE allow the commander to determine the locations and numbers of civilians as well as the infrastructure in relation to decisive points within the AO. The commander can then decide whether civilian presence and/or density represent a significant risk to the accomplishment of the mission.

3-42. In the broader mission of providing information for SU in terms of understanding the OE, the platoon must direct its reconnaissance based on the PMESII-PT operational variables and METT-TC. This multidimensional reconnaissance is not a mission; rather, it expands on the traditional focus of reconnaissance by concentrating on additional unconventional threats, urban factors (such as society and infrastructure), and other considerations that can influence military operations. For the platoon to make an

effective contribution to the multidimensional reconnaissance effort, leaders must clearly understand this expanded focus for reconnaissance in the OE. For more information on urban operations, see FM 3-06.11.

CHARACTERISTICS OF THE OE

3-43. To successfully accomplish the reconnaissance mission, the platoon leadership must clearly understand the characteristics of their OE. The OE is described by the eight PMESII-PT operational variables (see Chapter 1). Considering these variables will enhance the platoon's ability to fully understand its environment and conduct detailed, comprehensive reconnaissance and surveillance operations.

3-44. The reconnaissance platoon's OE includes physical areas—the air, land, maritime, and space environments. This includes the information that shapes the OE as well as enemy, threat, friendly, and neutral elements that have an impact on operations. The OE is different every time a unit is deployed and evolves as each operation progresses. Army forces use established operational variables to understand and analyze the OE where they are conducting operations. During mission analysis, they use mission variables (METT-TC) to focus analysis on specific elements of the environment that apply to their mission. However, they can draw relevant information from an ongoing analysis of the operational variables. See FM 3-0 for a detailed discussion of the operational variables. See the discussion of the factors of METT-TC—including the analysis of terrain using OAKOC and of civil considerations using ASCOPE—in Chapter 2.

RECONNAISSANCE HANDOVER

3-45. Reconnaissance handover (RHO) is the action that occurs between two elements to coordinate the transfer of information and/or responsibility for observation (reconnaissance and/or surveillance) of potential enemy contact or to coordinate transfer of an assigned area from one element to another. The term "element" refers to all echelons involved in the RHO from OPs to squadron-sized elements to include assets such as ground sensors and UASs.

3-46. RHO shares many critical tasks with BHO: relief in place, linkup, and passage of lines. Unlike BHO, however, it does not imply the assumption of a fight or being within enemy direct fire range. Instead, scouts focus on planning, preparing, and executing the passing of information of enemy contact or an assigned area (and the related responsibility for it) from one element to another.

3-47. This task provides the continuous surveillance, FBCB2 connectivity, overlapping communications, and commander's focus (which may differ for each echelon) required when planning and executing layered reconnaissance and surveillance with multiple assets. RHO is normally associated with a designated coordination point (RHOCP) or reconnaissance handover line (RHOL), which is in effect a phase line. It may entail handover of a sector/zone, NAI, TAI, and/or enemy contact. Scouts may exchange visual, electronic, digital, or analog information sources or any combination of these during the RHO. For additional discussion of RHO, refer to FM 3-20.971.

OPERATIONAL CONSIDERATIONS FOR RECONNAISSANCE HANDOVER

3-48. Reconnaissance and surveillance operations require the platoon conducting the handover to effectively coordinate with higher, lower, and adjacent units. Planning for these operations requires the RHO coordination to start at the higher echelons and executed at the lowest element.

Planning

3-49. Planning for RHO may take place before an operation or may be conducted during operations as part of a change of mission. When planning is conducted before an operation, the completed plan is reviewed, ensuring layered, redundant reconnaissance and surveillance using all available ISR assets. Once this is determined, the locations and/or criteria for RHO are coordinated with higher headquarters as applicable. Pertinent control measures related to RHO, such as the RHOL (phase line) between units or the potential RHOCP to facilitate ground linkup, are then added with other graphic control measures to aid in C2.

3-50. Platoons follow the control measures and criteria specified by higher headquarters. The platoon leader accepts responsibility for the handover from an external element. The unit commander will direct how handover will be transferred to other elements. While the commander dictates pertinent control measures, the platoon leader may recommend additional measures to support C2. The platoon leadership must plan to coordinate and execute RHO tasks.

Preparation

3-51. Coordination begins as RHO requirements between units are identified. Scouts may perform the following actions:

- Identify the communications plan between the units which includes radio frequencies, net IDs, and EPLRS needlines.
- Conduct linkup to exchange host files if units are from different maneuver control systems.
- Exchange COMSEC variables for communications and establish the tactical internet between the two forces.
- Implement recognition signals to prevent friendly troops from exchanging fires. These signals may be pyrotechnics, armbands, vehicle markings, panels, colored obscurant munitions such as smoke grenades, distinctive light patterns, and passwords.

Note. The SA provided by FBCB2 can significantly enhance friendly recognition.

Note. Initial coordination with aviation assets may begin with digital communications. When possible, reconnaissance and scout platoon leaders need to incorporate air-ground integration.

3-52. Indirect fires are coordinated, and fire support information is exchanged between units, including:

- Assets available, fire control measures, critical friendly zones (CFZ), preplanned targets, final protective fires (FPF), and smoke missions.
- Information that will be displayed on the FBCB2 and map graphics overlay.
- Section leaders requesting targets deemed necessary for protection during RHO.

3-53. Scouts exchange ISR (R&S) plans to provide an understanding of how higher IR may fulfill the lower unit's or passing unit's IR needs. This will allow troop or battalion reconnaissance assets to understand follow-on unit IR needs while remaining focused on troop/battalion requirements. The remarks block of the ISR (R&S) matrix may also be used to identify established RHO coordination.

3-54. The criteria for target handover (engagement criteria) are identified and coordinated, including who will interdict the target if it exceeds the unit's engagement criteria. The platoon leader must plan to include the following:

- Designation of follow-on forces to destroy targets exceeding the platoon's engagement criteria.
- Coordination of forward passage of lines to support that unit's attack.
- Decision that the reports of enemy forces exceeding the engagement criteria of the element/unit in contact may act as a trigger for follow-on forces to initiate movement up to the forward passage of lines.
- Planning and practice of passage of lines for handover to an attacking force. This is critical to facilitating rapid combat identification and engagements which reduce risk of fratricide.

Note. Army aviation assets may screen far forward of the RHO providing information and early warning of enemy actions. This can reduce the required time needed to complete the RHO. See Chapter 6 for further information on air-ground integration.

3-55. Coordination is conducted to identify the transfer and/or acceptance of C2 of elements in positions between passing and relieved units. On-order missions may be identified for elements/units to support

RHO. An example of this would be a CAB reconnaissance platoon establishing and maintaining contact with a moving contact by a UAS while RHO of the contact is being conducted with an approaching CAB. The initial contact report may act as a trigger for UAS launch, allowing the supporting UAS crew time to prepare. As RHO begins, the UAS is launched to support the handover. This level of coordination will allow the UAS maximum time on station, ensuring redundant observation of a threat. During handover, the gaining stationary unit engages the enemy while the previous unit moves out of the area.

3-56. During rehearsals, RHO coordination is confirmed and practiced to ensure clarity and understanding. Leaders must plan for and rehearse contingencies so all elements are able to take action and maintain initiative.

Note. Throughout RHO planning and preparation, all elements/units must be prepared to transition to BHO in the event they are engaged by enemy forces.

Execution

3-57. Elements/units may conduct RHO with follow-on or security (stationary) forces, accept RHO from a forward force, or provide C2 for the handover.

3-58. During execution of RHO, liaison with a unit may consist of collocating both units' C2 nodes as well as attaching scouts to the forward maneuver units to facilitate movement of elements into positions and control of ISR elements. Leaders should execute the following actions:

- Use reliable digital and/or radio voice linkup to exchange critical information.
- Use recognition signals as the distance closes between the forces to prevent fratricide.
- Exchange information and positions in a face-to-face link up.

3-59. Leaders complete final coordination and exchange relevant information. Leaders should maintain a continuity book of ISR information. During RHO, this information is exchanged with the gaining unit to ensure continuous operations and SA.

3-60. When handing over targets to the gaining unit, the platoon and squad leaders—

- Use a laser, if available, to designate targets and cue observers to aid target acquisition and identification for the RHO gaining unit. Target handover is not complete until the accepting unit can acquire the targets.
- Receive FBCB2 updates and properly account for vehicles and crews to prevent being confused with enemy elements.
- Facilitate the follow-on force's attack by conducting reconnaissance pull and executing targeting, including previously coordinated indirect fires, for the passing unit.

Note. The unit conducting RHO may be required to support the unit accepting the handover by executing the responsibilities of the stationary unit while conducting a forward passage of lines or relief in place.

EXAMPLES OF RECONNAISSANCE HANDOVER

Handover Between Troop and Reconnaissance Platoon

3-61. Figures 3-3, 3-4, and 3-5 depict an example RHO from an HBCT reconnaissance troop to a CAB scout platoon during a zone reconnaissance.

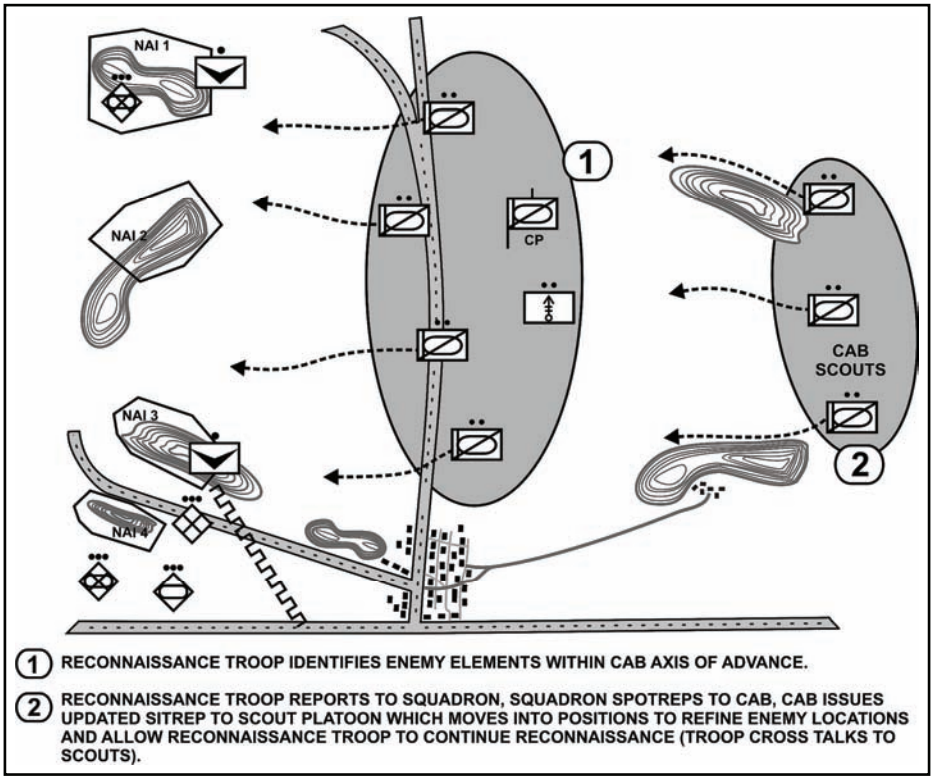

Figure 3-3. Example of reconnaissance handover (phase one)

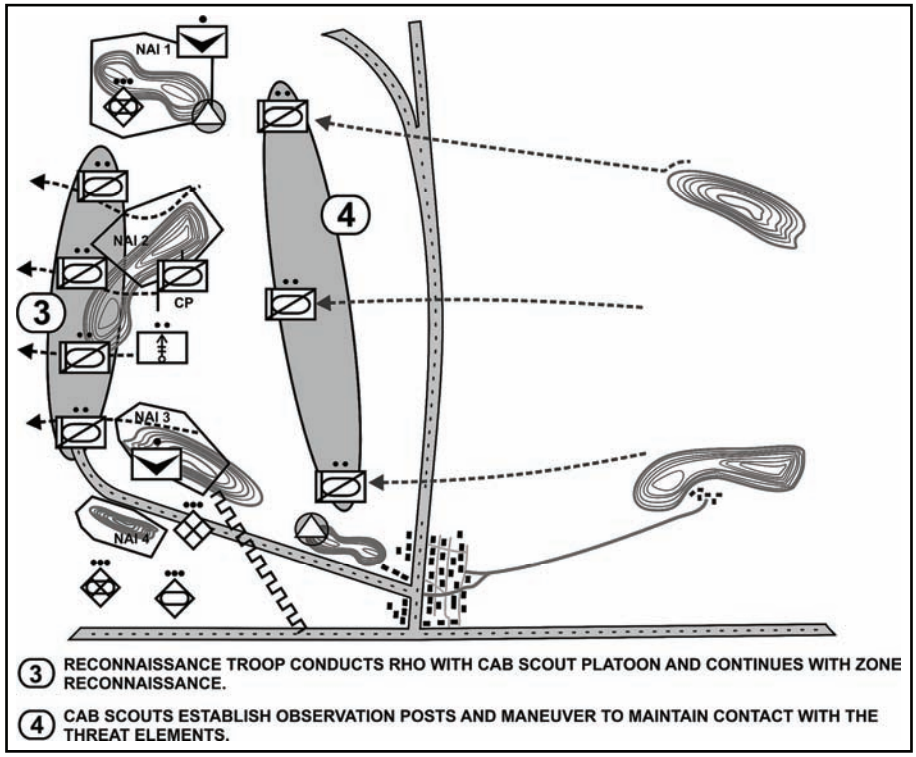

Figure 3-4. Example of reconnaissance handover (phase two)

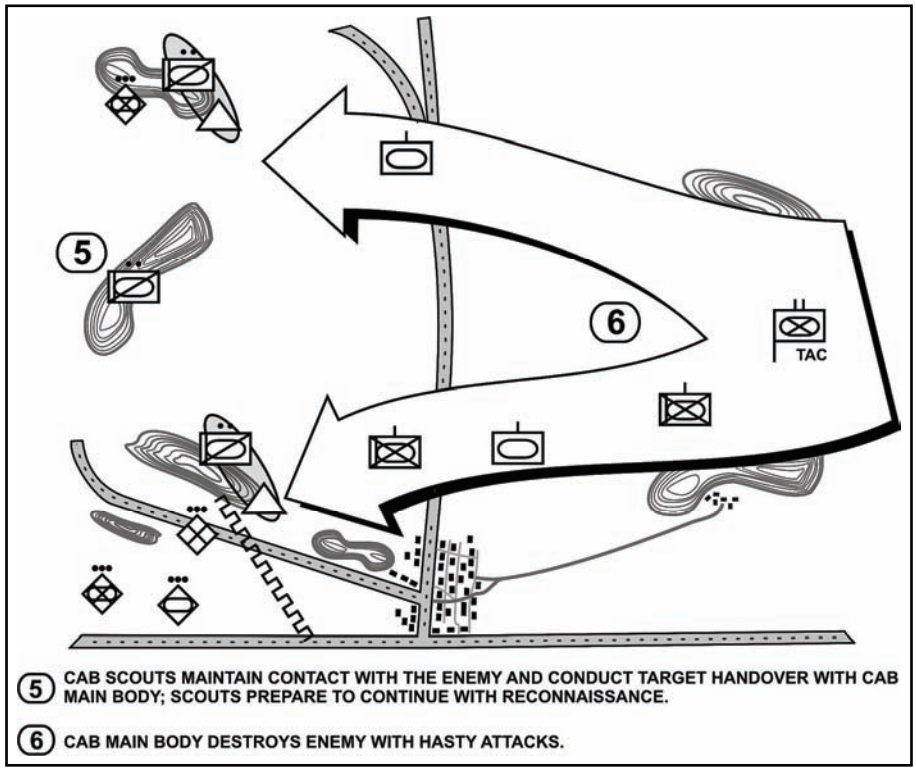

Figure 3-5. Example of reconnaissance handover (phase three)

Handover in Urban Terrain

3-62. The platoon may conduct RHO during an area reconnaissance mission in urban terrain. When one of the platoon's squads moves through an area and makes contact with a potential source that may be able to provide information relevant to the brigade, the squad reports this contact and begins to exploit the source through tactical questioning (TQ). The platoon leader forwards the reports higher and the BCT tasks a supporting HUMINT asset to develop the contact further. The squad then conducts RHO, passing responsibility for the source and all information collected to that point to the follow-on HUMINT asset.

Higher-Level Handover

3-63. Coordination of RHO between higher-level units is initiated and planned at brigade level and above, but it is executed at the lower level. After coordinating instructions for the RHO (who, what, when, where, why, and how) are determined, the commander/XO and platoon leader will begin coordination (radio voice or digital) for the RHO.

3-64. The commander/XO integrates directed handover into the scheme of maneuver. Using the control measures and criteria specified by the commander, the platoon leader designates which section will accompany him to conduct the RHO. Multiple RHOCPs may be arranged for use in contingencies or to reduce the time of movement for the passing elements by using multiple points for movement. In this case, section leaders and squad leaders are positioned to conduct the additional RHOCPs. Quality control of graphic overlays depicting RHOCPs is critical.

RECONNAISSANCE METHODS

3-65. Scouts will use four basic reconnaissance methods: sensor, aerial, mounted, and dismounted. In the course of a mission, the platoons will employ a combination of all methods to achieve the commander's objective. Using two or more methods simultaneously will provide depth and redundancy throughout the AO while accomplishing the reconnaissance mission based on the factors of METT-TC, reconnaissance guidance (focus, tempo, engagement criteria), and the commander's intent. Mounted and dismounted surveillance is employed simultaneously, providing flexibility and capitalizing on the strengths of both methods. Though maneuver during a reconnaissance operation may be rapid and primarily mounted, dismounted activities are more deliberate and require stealth and security; stealth is paramount in most reconnaissance operations in order for scouts to survive.

SENSOR RECONNAISSANCE

3-66. Reconnaissance by sensor allows flexibility while available reconnaissance assets are tied up. Sensors provide redundancy and cover areas where contact is possible and cannot be directly observed or for surveillance of areas that must be covered over extended periods. Sensors may be used to "cue" aerial, dismounted, and/or mounted reconnaissance to move into the area and confirm or deny a contact. Sensors can also extend surveillance distance between ground reconnaissance and the enemy, increasing maneuver distance and warning time for the parent unit. Considerations for sensor employment include the following:

- Prophet may operate under higher headquarters control within the troop's AO; however, it can provide radio voice reports of enemy units operating near supported platoons.
- Ground surveillance systems may support the platoon with information and warnings while operating within the platoon AO.
- Hornets emplaced in dead space may warn elements conducting reconnaissance of an approaching enemy from unlikely directions updating the platoon's SA through FBCB2.

3-67. The higher headquarters may direct sensor reconnaissance to—

- Expand the scope of missions in a larger AO.
- Conduct missions of an extended duration.
- Conduct CBRN reconnaissance for WMD or contaminated areas.
- Trigger (cue) a more thorough ground or aerial reconnaissance of a given area.
- Trigger reach back (for example, Prophet triggers the troop to gain more information from Guardrail).

AERIAL RECONNAISSANCE

3-68. The ground scout must understand the capabilities and limitations of available aviation and UASs during reconnaissance. Once operating together, aerial and ground reconnaissance assets can compensate for each other's limitations and significantly increase the effectiveness of their combined reconnaissance effort. When available, aerial reconnaissance can be employed to complement ground reconnaissance. Aerial assets are an integral part of reconnaissance operations. Reconnaissance and scout platoon leaders must understand aviation and UAS performance capabilities in all weather conditions. Platoon leaders should plan for UAS use when available to reach beyond their organic capabilities.

3-69. The platoon will have access to the Raven UAS. This company/troop level asset can be transported easily in scout vehicles or by rucksack for dismounted movement. The Raven's optics, which include infrared, allow the system to detect larger enemy forces at a considerable distance providing real-time, up-to-date, over-the-horizon view. This increases reaction time to a specific threat, which maintains the platoon's advantage. The Raven can fly automatically, navigating with GPS technology on programmable routes, to target areas.

Aerial Employment Considerations

3-70. Aerial employment considerations include—

- Weather conditions.
- Whether the platoon can observe the target area from the flight pattern selected.
- Deconflicting flight paths and areas of interest covered by UAS to maximize terrain coverage.
- Positioning operator on terrain that supports control of the UAS.
- Flight time from launch to loiter position and back for recovery.
- Coordinating air-ground systems through higher headquarters S-3.
- Posturing the platoon for recovery of the UAS.
- Ground communication with aircraft operating in the platoon sector.

Advantages

3-71. Aerial reconnaissance advantages include—

- Aerial reconnaissance is the fastest form of reconnaissance.
- UASs are unaffected by terrain.
- UASs can reconnoiter difficult or impossible terrain.
- UASs can detect enemy in dead space.
- Scouts can synchronize reconnaissance efforts with aircraft and UAS assets in the same AO.
- UASs are available when satellites often are not.
- UASs can be launched when needed to optimize loitering time.
- Helicopters can be refueled forward reducing turnaround time to return to station.

Disadvantages

3-72. Conversely, aerial reconnaissance is limited by—

- Weather conditions that degrade the night-vision capability of the aircraft's sensors.
- Fuel requirements that limit time in sector.
- Air and missile defense (AMD) threats.
- The detail with which terrain can be observed.
- The inability to identify stationary enemy elements smaller than platoon size or moving elements of squad size or smaller.
- The requirement of ground crews to recover the UAS.

MOUNTED RECONNAISSANCE

3-73. Mounted operations give reconnaissance platoons the ability to conduct reconnaissance while maintaining the speed and momentum required for the operation. Mounted reconnaissance also allows the scouts to take advantage of the firepower, optics, and protection afforded by their vehicles. Scouts will often have to dismount to provide local security, clear dangers areas, or clear dead space within their AO.

Employment Considerations

3-74. Mounted reconnaissance is normally used under these conditions:

- Time is limited.
- Detailed reconnaissance is not required.
- IPB provides accurate information on the enemy.
- The UAS is performing coordinated reconnaissance tasks in support of ground forces.
- Ground sensors are conducting reconnaissance activities in support of ground forces.
- Terrain is open.

Advantages

3-75. Speed and momentum are rarely necessary in a reconnaissance operation, but they are often critical to the successful execution of offensive operations that the reconnaissance mission may support. In addition to speed, mounted reconnaissance offers scouts the advantages of their reconnaissance vehicle. These advantages depend on the specific vehicle employed, but they can include firepower, armor protection, enhanced navigation and communications capability, and thermal optics.

Disadvantages

3-76. The disadvantages of mounted reconnaissance include the loss of stealth due to the visual, noise, and thermal signatures of the vehicles (the CFV is noisier than the HMMWV) and the loss of some detail because of restricted vision and impairment of the senses of smell and hearing. These disadvantages increase the scouts' vulnerability to enemy fires as they conduct reconnaissance.

DISMOUNTED RECONNAISSANCE

3-77. The primary purpose of dismounted reconnaissance is to obtain detailed information about terrain features, obstacles, or enemy forces. In addition, scouts dismount and reconnoiter forward of their vehicle to provide security for the vehicle before moving through danger areas such as open spaces, hilltops, curves, or other blind spots in the AO. They also dismount to set up short-duration or long-duration OPs. Dismounted reconnaissance is inherently stealthier and presents a less aggressive appearance in populated areas. The objective of a dismounted reconnaissance is not limited to reconnaissance or clearing an urban area. The objective could also be to seek out the civil aspect of an urban area such as the political, tribal, or religious leaders prior to movement into an area.

Employment Considerations

3-78. In general, scouts conduct dismounted reconnaissance when the following conditions apply:

- Detailed reconnaissance is required.
- Stealth is required.
- Threat contact is expected or visual contact has been achieved.
- Restricted terrain is encountered.
- Time is available.
- Danger areas are encountered.
- Security is the primary concern.
- IPB indicates close proximity to enemy positions.

3-79. Dismounted scouts provide security for each other as they move. Ideally, at least two scouts work together when operating dismounted. When only a single scout dismounts, he should never move out of immediate supporting distance of the vehicle.

Advantages

3-80. Dismounted reconnaissance is the preferred method when stealthy movement is desired. Scouts on foot benefit from the concealment offered by folds in the terrain; in addition, they do not emit a significant visual or audio signature. Dismounted reconnaissance techniques allow the reconnaissance or scout platoon to observe enemy vehicles and Soldiers at close range without being detected. Scouts conducting dismounted reconnaissance can also quickly transition to a stationary OP for a short period of time without suffering any loss of effectiveness. Overt dismounted patrols can search areas for an enemy presence with finer detail than mounted missions and have the option to leave a covert small unit killer team for sniper or IED team interdiction.

Disadvantages

3-81. Disadvantages of dismounted reconnaissance include a relatively slow rate of movement for personnel on foot, extensive requirements for detailed preliminary planning and coordination, and considerable risk to scouts who are conducting dismounted operations. Unless they establish a radio relay, scouts cannot conduct dismounted reconnaissance in depth because of the relatively short range of man-portable FM communications systems. When dismounted reconnaissance takes place during hours of darkness, target acquisition depends largely on hand-held NODs, whose capabilities can be degraded. If a dismounted patrol gains physical contact and is in danger of becoming decisively engaged, the reaction force may be required to extract the patrol before becoming combat ineffective.

Tools for Dismounted Reconnaissance

3-82. Dismounted scouts employ a variety of equipment and other tactical tools to enhance their capability to report information accurately and to call for and adjust indirect fires. At a minimum, they carry the following items:

- SOPs.
- Personal weapons.
- Squad automatic weapon (M249 or M240B).
- Communications equipment (SBCT platoons are standardized with FBCB2).
- Maps.
- GPS system.
- A compass.
- Binoculars (and NODs, if necessary).
- NODs and thermal devices.

Note. Dismounted scouts may carry additional equipment as dictated by unit SOP or specific mission requirements.

TACTICAL EMPLOYMENT

RECONNAISSANCE BY FIRE

3-83. In reconnaissance by fire, direct and indirect fire is used on positions where there is a reasonable suspicion of enemy occupation; the goal is to cause the enemy to disclose his presence by moving or by returning fire. In rare circumstances, the reconnaissance or scout platoon or section may use this reconnaissance method when enemy contact is expected and time is limited or when the platoon cannot

maneuver to develop the situation. In such a situation, it is critical for the platoon leader to conduct thorough war-gaming and rehearsals to prepare for the probable enemy reaction. UASs or unmanned ground vehicles (UGV) may be used in this role to gain contact by fire without placing scouts in the line of fire.

Employment Considerations

3-84. Examples of enemy locations and/or contact situations in which reconnaissance by fire may be employed include the following:

- Contact with a natural or man-made obstacle.
- Detection of an obvious kill zone.
- Evidence of a suspected enemy position that fits the SITEMP.
- Signs of recent activity (such as track marks or trash).
- Bunker complexes that may or may not be occupied.
- Information gained through use of a reliable HUMINT source.

3-85. Reconnaissance by fire eliminates any element of surprise the scouts may have had, and it is likely to give the enemy detailed knowledge of their location. It may, however, reduce the chance of scouts being ambushed within established kill zones. Even if scouts employ UASs/UGVs and do not expose themselves, the enemy will assume that there is a presence in the area, send an alert, and begin searching.

3-86. Reconnaissance by fire does not work in all cases. For example, disciplined troops in prepared positions will not react to the scouts' fires. As a result, reconnaissance by fire must not entail the indiscriminate use of direct and indirect fires at all wood lines and hilltops in the hopes of causing the enemy to react. The enemy will recognize this for what it is; it will not react to it. This also wastes valuable ammunition.

Use of Indirect Fire

3-87. Scouts can conduct reconnaissance by fire by calling for and adjusting indirect fire. Reconnaissance by indirect fire provides security for the scouts because it does not disclose their exact position; in addition, all scouts are available to observe the effects of the fire. Scouts must be aware of the fact that accurate or adjusting artillery fire indicates there is an observation team in the vicinity making adjustments. This will draw patrols in search of the scouts.

3-88. Reconnaissance by indirect fire has disadvantages as well. Indirect fire requires more coordination and communication than direct fire; it is also less responsive and may be less accurate. Indirect fire can be subject to factors beyond the control of the platoon, such as the supporting unit's Class V supply status, counterbattery threats, and command approval. Additionally, the effects of indirect fire may obscure the scouts' vision.

FIGHTING FOR INFORMATION

3-89. As discussed earlier in this manual, reconnaissance organizations such as BCT reconnaissance troops and ACRs cavalry squadrons not only use common techniques and assets (HUMINT, passive surveillance, and technical means) to conduct reconnaissance operations, but also are capable of employing combat power to fight for information. Because these units are usually the forward-most elements in MCO environments, they must have the capability to survive meeting engagements and to destroy or impede enemy forces as necessary to sustain operations in high-threat areas. Reconnaissance platoons must maintain contact once they have established it. If a section leader has established a sensor contact with the enemy, the platoon must pursue the contact until it has finally identified and reported the enemy force. In general, platoons are capable of fighting through enemy reconnaissance (destroying the enemy's "eyes and ears") to gain combat information needed by higher unit commanders. In shaping operations, the ability to fight for information is important when determining the intent of an enemy (for example, whether the enemy is willing to defend, withdraw, fight when confronted, or wait for a specific target such as C2 or resupply elements) without committing main body infantry or armor units.

3-90. The ability to fight for information is linked directly to the unit's engagement criteria and capabilities; therefore, the ability to fight for information is not limited only to ACR. All reconnaissance and scout platoons must be prepared to fight for information and report it. When an organization faces an inferior force that is within its engagement criteria, it may have to fight for information even if it is not traditionally equipped to fulfill this role. The inferior enemy or insurgent will attempt to make contact with reconnaissance elements at the lowest level, creating a situation that removes the Army's technological advantage. Because the ability to fight for information is enemy-based, a clear understanding of the enemy and its capabilities is required for units not normally conducting aggressive reconnaissance. As the OE changes, it is critical for platoon, section, and squad leaders to maintain awareness to prevent being drawn in and cut off while fighting for information. (These considerations are especially critical for the BFSB reconnaissance platoon because of its limitations in fighting for information; refer to the discussion of the BFSB reconnaissance platoon in Chapter 1.)

Note. The following discussion covers infiltration and exfiltration as part of reconnaissance operations. Many reconnaissance missions can be executed in the following sequence to ensure survivability for scouts: insertion; infiltration (mounted or dismounted); execution of the mission; exfiltration (mounted or dismounted); extraction. Refer to FM 3-20.971 for additional discussion.

INFILTRATION

3-91. Infiltration is a form of maneuver that the reconnaissance or scout platoon can use to move through the enemy security zone or main battle area to accomplish its mission. Entailing the use of stealthy forms of movement, infiltration is primarily conducted by, but not limited to reconnaissance and HMMWV mounted platoons due to their increased vulnerability to enemy direct and indirect fires. Aerial and waterborne platforms may also employ tactics based on infiltration techniques to gain information on the enemy. UAS assets may be employed using infiltration to gain information if this is within system capabilities. Platoons planning this type of infiltration must acknowledge the risk of the UAS being engaged and becoming unrecoverable.

3-92. The primary focus of infiltration is to move to a designated point without being detected or engaged by the enemy. During infiltration, the platoon's elements use pre-designated lanes to reach their objective. The infiltrating elements employ cover, concealment, and stealth to move through identified or templated gaps in the enemy.

3-93. The platoon can infiltrate by dismounted teams; mounted by vehicles, by sections, or as a complete platoon; or using a combination of mounted and dismounted teams. It can infiltrate as an entire element at one time or move into sector by echelon, at different times. Two examples of infiltration operations follow the discussion of operational considerations.

Purpose of Infiltration

3-94. Purposes of infiltration include the following:

- Reconnoiter a specified area and establish OPs.
- Emplace remote sensors.
- Establish communications relay capability for a specific period in support of other reconnaissance operations.
- Determine enemy strengths and weaknesses.
- Locate unobserved routes through enemy positions.
- Determine the location of high-payoff enemy assets.
- Emplace small unit kill teams for interdiction missions.
- Recover UASs to protect technologies from the enemy.
- Provide surveillance for follow-on echelons moving into sector.

Planning and Coordination

3-95. Infiltration imposes a number of distinct, and often difficult, operational considerations on the reconnaissance or scout platoon which include methods of infiltration, extended operations time, reaction force requirements, CASEVAC resources, and escorted or covert exfiltration methods.

3-96. The amount of intelligence information available to the reconnaissance or scout platoon leader during the planning process will determine the risk involved in conducting the infiltration. Platoon leaders must conduct a thorough mission analysis, focusing on enemy activities in the areas of movement, historical locations of attacks, and likely areas of future ones to prevent accidental contact. As he plans the operation, the platoon leader must conduct IPB to include selecting appropriate routes and movement techniques based on the mission, the terrain and weather, the likelihood of enemy contact, the expected and/or necessary speed of movement, and the depth to which the platoon's elements must penetrate. Once these factors have been considered, the platoon leader must make the decision to infiltrate either mounted or dismounted or a combination of both. Even if he decides the platoon can conduct a mounted infiltration, his plan must take into account that the situation may require scouts to dismount and reconnoiter an area before the vehicles move forward. The platoon leader's infiltration plan must provide platoon elements with enough time for preparation and initial movement. The initial plan should also cover CASEVAC, evasion, extraction, and reinforcement, as well as any special equipment requirements.

3-97. The platoon leader must conduct detailed coordination with any friendly elements through which the platoon will pass when executing infiltration tactics; this includes integration of communications, fires, and sustainment activities. In addition, the platoon's higher headquarters must coordinate the activities of adjacent friendly units to ensure that they do not compromise the platoon and its elements as they conduct the infiltration. Coordination should include UAS support, aerial or satellite imagery, and HUMINT briefings when possible. Coordination for mounted and dismounted passage may require different locations through which the platoon is to move. If the patrol drops off the covert small unit kill team somewhere along the patrol's route, coordination should reflect the change in personnel numbers returning through the checkpoint. Patrol leader's must call in no fire areas (NFA) once beyond friendly units, and lift them once their patrol begins moving again. Prior coordination may be required for swift movement to support patrols depending on the location of the reaction force.

Infiltrating Elements

3-98. The size of the infiltrating elements depends on several factors:

- The mission.
- Time available.
- Cover and concealment.
- The target acquisition capabilities of both friendly and enemy forces.
- Available communications assets.
- Navigation capabilities and limitations.

3-99. If the platoon is tasked to gather information over a wide area, it may employ several small teams to cover the complete sector. In most situations, smaller elements are more suitable to take advantage of available cover and concealment. Another consideration is that some elements of the platoon may not use infiltration. If the platoon is moving into sector in echelon, the initial echelons may infiltrate to a specific location and provide surveillance for follow-on echelons that are moving into sector using a more conventional movement technique. A reconnaissance patrol is typically four scouts. It becomes more difficult for patrols to hide as the size of the patrol increases. A small unit kill team should be larger than a typical reconnaissance patrol with up to six scouts. This allows the team to divide into two elements, which enables the hunter-killer elements to support each other when moving in contact.

Infiltration Lanes or Routes

3-100. The platoon's higher headquarters will assign the platoon an infiltration lane or zone, requiring the platoon leader to gather the necessary information and intelligence to prepare for the mission. The platoon

leader must decide whether to move the entire platoon along a single lane or assign separate lanes for each section or vehicle.

3-101. Each alternative presents distinct advantages and disadvantages. Moving the entire platoon on a single lane makes navigation and movement easier to control, but it can increase the chance of the platoon being detected by enemy forces. Moving on multiple lanes may require development of additional control measures, make C2 more difficult, and can create navigation problems. On the other hand, it can reduce the chances of detection by the enemy.

3-102. In choosing infiltration lanes, the platoon leader must ensure that lanes afford sufficient width to allow each element to change its planned route to avoid enemy contact. He must also consider civilian activity along each lane and within the infiltration zone as a whole. The infiltration route should avoid obstacles, populated areas, and areas occupied or covered by enemy elements. The route should provide cover and concealment by placing ridgelines, rivers, and other restricted terrain between the platoon and enemy forces. The plan should also make use of limited visibility and adverse weather.

3-103. As noted, the focus for the platoon during infiltration is to remain undetected and avoid contact with any enemy elements. In conjunction with intervisibility (IV) lines, IPB (MCOO), and the Terrabase program can be used on templated enemy positions and dominant terrain to help refine route selection. Using Terrabase at various points of the infiltration route, the platoon leader can determine where the route can be observed by the enemy and identify potential danger areas prior to moving into the AO. If time permits and assets are available, UASs or dismounted patrols/observation may be used to proof the route and to survey danger areas and influencing terrain. The use of UASs, however, must be weighed carefully against the potential for compromising the infiltration route. If the enemy detects the UASs, it may be able to focus on suspected infiltration routes. On the other hand, information from the UASs can prevent a section moving into a manned outpost or dead space covered by sensors.

3-104. The multiple lane infiltration is the preferred method of infiltration for mounted and dismounted infiltration. The platoon infiltrates through the enemy by sections when multiple lanes have been identified (see Figure 3-6). This method typically has one section moving at any time. Planning and coordination for the multiple lane infiltration is virtually the same as by echelon. The main differences are that increased coordination is required, the platoon execution is decentralized, and the platoon does not move all the sections through the same lane.

3-105. Each section sergeant should conduct his own linkup(s) and plan for specific targets along their route of movement. Platoon leaders plan supporting fires for each infiltration lane in case one or all the sections are detected and engaged. The PSG plans for CASEVAC and possible extractions on more than one lane to include moving with armor escort. In some instances, the platoon leader can plan to execute a patrol's extraction before it is clear of the infiltration lane. Platoons must be careful not to overuse UASs since excessive activity may give the enemy a hint of possible activity and compromise one or all the sections.

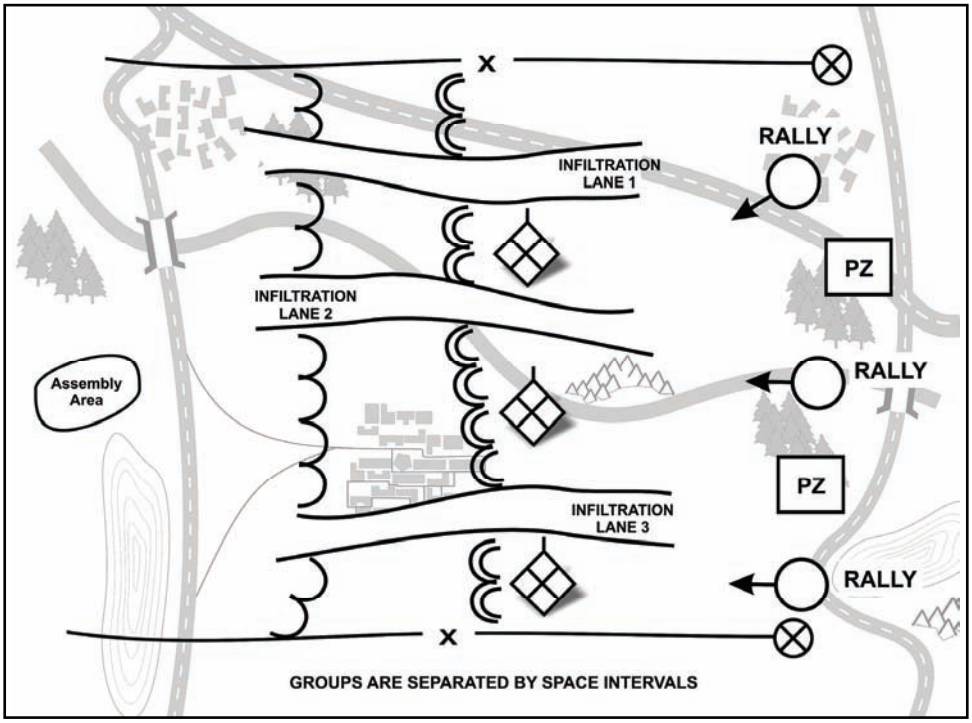

Figure 3-6. Platoon conducts infiltration by echelon, multiple lanes

Communications

3-106. In general, infiltrating elements should maintain radio listening silence except to send critical information that the commander has directed to be reported immediately or to report contact with enemy forces. When operating out of range of normal radio communications, an infiltrating element that must transmit required information should move to high ground or set up a long-range expedient antenna. Platoons may utilize TACSAT for communications during long-range operations, if equipped.

Fire Support

3-107. Infiltration plans should always include employment of indirect fires, although these are used only in limited circumstances. The most common use is when the infiltrating unit makes enemy contact. The commander or platoon leader may employ indirect fires in another sector to divert attention away from the infiltration lanes. Patrol leaders have the ability to request more targets based on their route through the lanes. Indirect fires can also be useful in degrading the enemy's acquisition and observation capabilities by forcing him to seek cover. The use of obscurant munitions (such as smoke) can have positive and negative effects. Scouts can employ smoke to screen their movements through terrain; however, this draws the attention of observers. Obscuration may also be used to break contact when in contact during infiltration. In some cases, the smoke screen may hinder the patrol's ability to see enemy forces as it moves.

Actions on Contact

3-108. Each infiltrating element must develop and rehearse a plan that clearly defines its actions when faced with one or more of the eight forms of contact discussed in Chapter 5 of this manual. If detected, an infiltrating element will return fire, break contact, and report; these actions are also discussed in Chapter 5. Fighting through the enemy force, however, is the least preferred COA. Direct fire engagements are normally limited to whatever actions are required to break contact. To prevent compromise of their established locations and to retain the ability to report information, elements already established in sector may choose not to provide direct fire support for follow-on echelons in contact.

3-109. During infiltration using multiple lanes, the detection of one platoon's elements may alert the enemy and compromise other units in the infiltration zone. The OPORD must clearly state the criteria under which elements will either continue the mission or return to friendly lines if they are detected by the enemy. If an element makes visual contact but is not detected, it should continue the mission once it is sure they have not been observed.

Examples of Infiltration Operations

3-110. The following examples focus on the reconnaissance or scout platoon as it conducts infiltration either as a unit or by echelon.

A Platoon Infiltrating by Echelon Using a Single Lane

3-111. This example never has more than one section moving at any time. Planning and coordination for the infiltration is virtually the same as for the first example; the main difference is that the platoon does not move as a whole. Ground surveillance systems, radio intercept, and UASs may be used throughout the infiltration process, but caution must be taken not to compromise the infiltration route by frequent UAS flyovers.

3-112. At 1730 hours, a dismounted squad conducts a passage of lines and moves along an infiltration route to establish OP 1 (see Figure 3-7). Once established, this OP conducts surveillance along the mounted infiltration route and reports its observations to assist the platoon leader in refining the mounted infiltration plan. Elements of the platoon may act as the reaction force for this dismounted team.

3-113. At 2017, the first mounted section begins its infiltration along the designated route, moving to OP 2 (see Figure 3-7, movement #1) with the dismounts at OP 1 providing surveillance. OP 1 is also prepared to support the first mounted section's actions on contact with preplotted indirect fires if needed. Once the first mounted section is established at OP 2, OP 1 may also handle communications retrans duty as required.

3-114. The second mounted section begins infiltration at 0115 along the previously employed route. OP 1 and OP 2 provide surveillance for its movement to OP 3 (see Figure 3-8, movement #2).

3-115. At 0325, the third section infiltrates along the same route with OP 1, OP 2, and OP 3 providing surveillance. If OP 1 is not needed to conduct retrans, the third section picks the dismounted team up and proceeds to OP 4 (see Figure 3-8, movement #3). Establishment of all OPs is completed no later than 0500 with redundant observation on NAIs 1, 2, and 3.

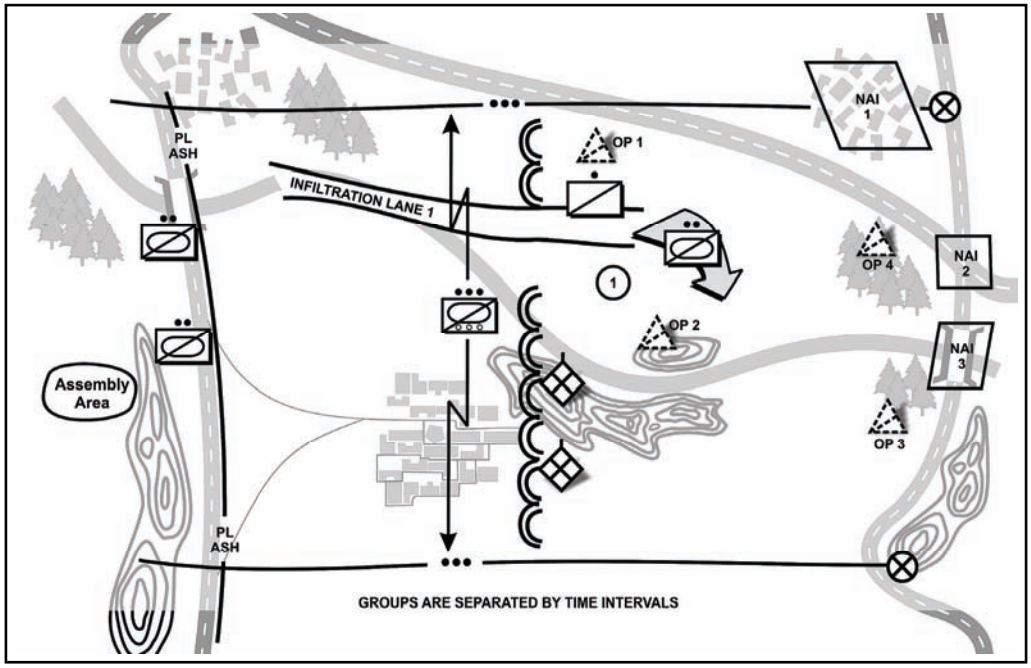

Figure 3-7. Platoon conducts infiltration by echelon, single lane

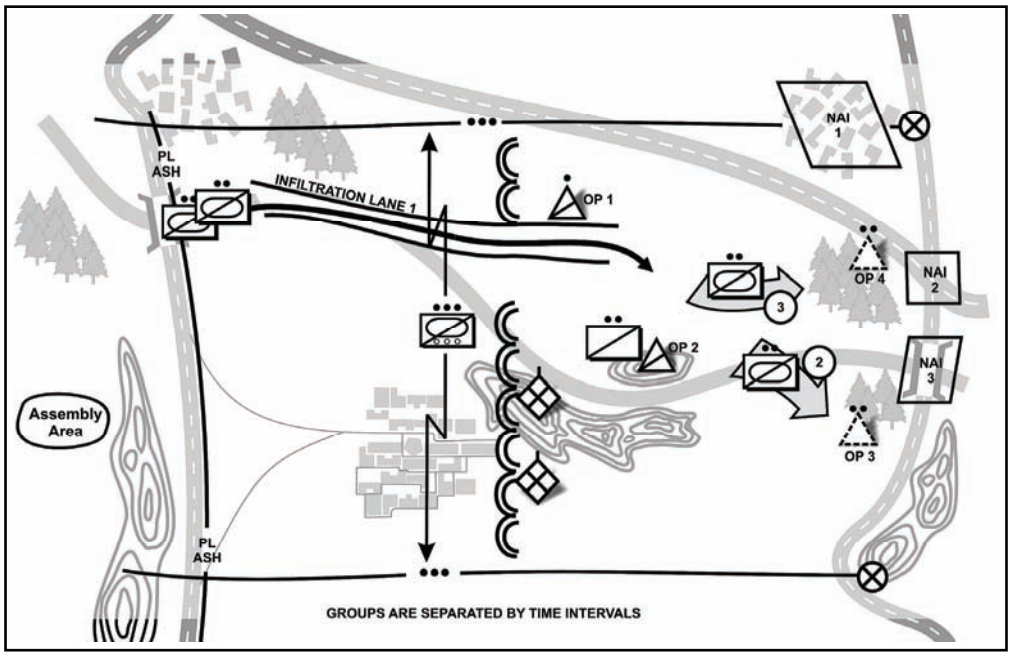

Figure 3-8. Platoon conducts infiltration by echelon, single lane (continued)

Mounted Infiltration of a Platoon Moving as a Unit

3-116. This example has a wheeled reconnaissance platoon moving as a whole along a predesignated infiltration route. Maximizing IV lines and using masking terrain are key considerations in selecting infiltration routes. Units must maximize all available tools and assets that support thorough IPB, with emphasis placed on OAKOC. A digital terrain program is a tremendous tool that can assist leaders in

terrain analysis. For example, digital terrain programs can aid in analysis of potential OP locations. In addition, it can be used on a potential infiltration route to determine positions from which the route can be observed; this will help identify danger areas and help focus the platoon's maneuver, observation, contingency planning, identification of hasty fighting positions, and indirect fire plans.

Note. Refer to the discussions of IPB and OAKOC factors in Chapter 2 of this manual.

3-117. Prior to the infiltration, UASs may be employed to check danger areas and reconnoiter the infiltration route and influencing terrain. This assists in refinement of the route. Coordination is made to receive either video or photos from the UAS reconnaissance flights. Ground surveillance systems and Prophet are deployed prior to infiltration to provide early detection and location of possible enemy forces operating in the area. The platoon also requests intelligence updates through the S2 prior to infiltration. The intelligence may come from numerous ISR assets that have previously worked in the area, including HUMINT operations that may have collected intelligence from the local inhabitants. Checkpoints or the terrain index reference system (TIRS)/grid index reference system (GIRS) may be used to control and report movement along the route. An initial rally point may be designated beyond the passage lane; this point may also act as a casualty or maintenance collection point. SOPs may dictate the use of checkpoints as rally points as well. The platoon leader briefs the reaction force and provides them a copy of the infiltration overlay.

3-118. When the infiltration begins, the platoon, moving as a whole, conducts a passage of lines and continues along the infiltration route (see Figure 3-9). Temporary halts are conducted throughout the movement to allow dismounts to move forward of the vehicles to reconnoiter danger areas. These danger areas may have been identified during the planning phase through the use of IPB to include a map reconnaissance, MCOO, digital terrain programs, and UASs. Each section maneuvers to its proposed OP location and establishes the OP to observe its designated NAIs. Refer to Chapter 5 of this manual for details on occupying an OP.

3-119. As the initial section establishes its OP, it also provides surveillance for those sections continuing on the infiltration route. The other sections follow the same procedures as the first section until all sections have established their OPs. In the event COLTs or other targeting assets are moving into sector to observe TAIs may use the same infiltration route and follow the same procedures as the scout sections in establishing their positions.

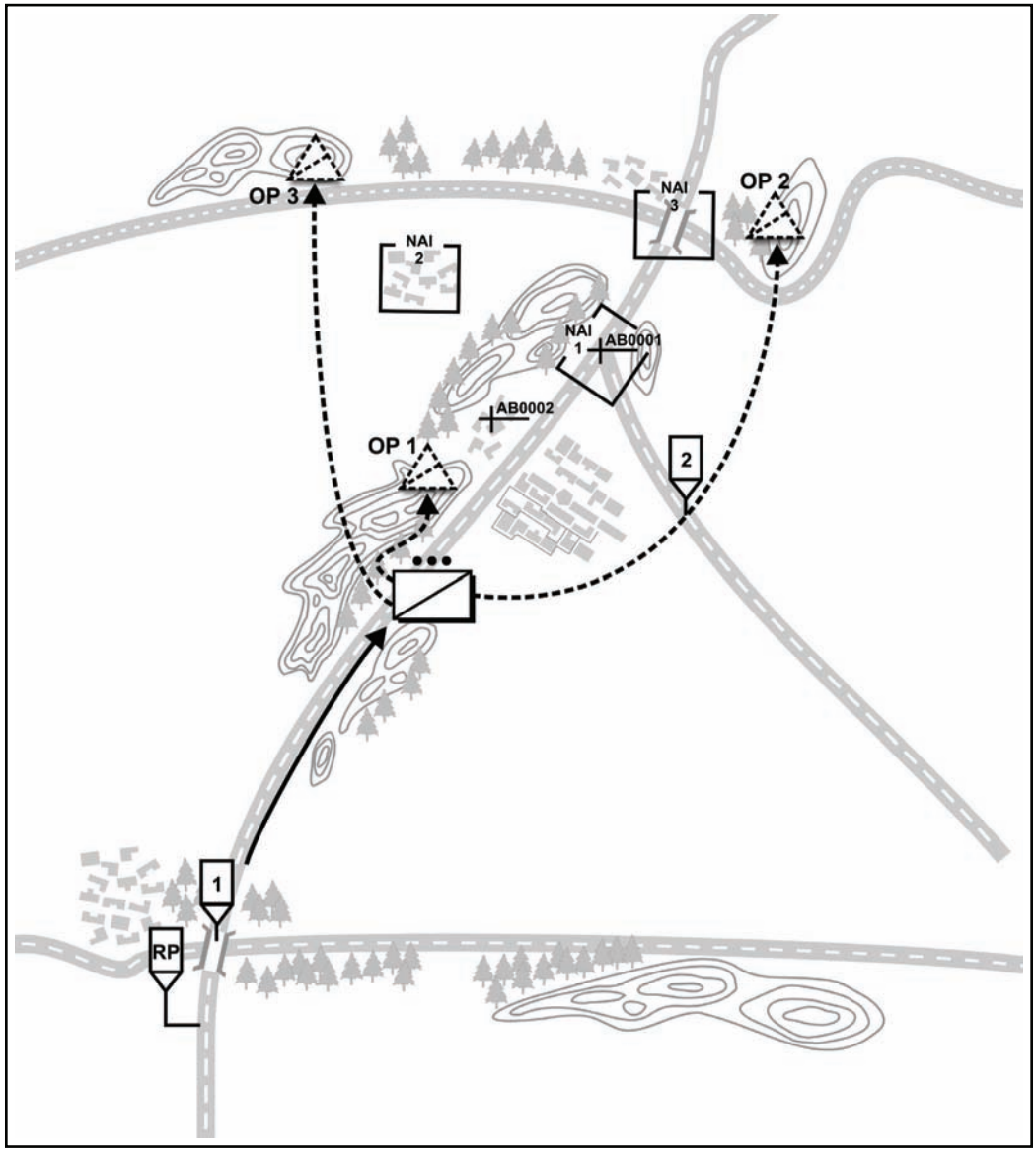

Figure 3-9. Platoon moving on an infiltration route

3-120. Once established, OP 1 observes NAI 1, OP 2 observes NAIs 3 and 1, and OP 3 observes NAIs 2 and 3 (see Figure 3-10). This observation plan allows observation redundancy of the NAIs and enhances the platoon's ability to conduct handover of contact from one OP to another. OP 1 must also be prepared to conduct handover of contact with the elements to its rear. These potential actions are coordinated prior to execution of the infiltration.

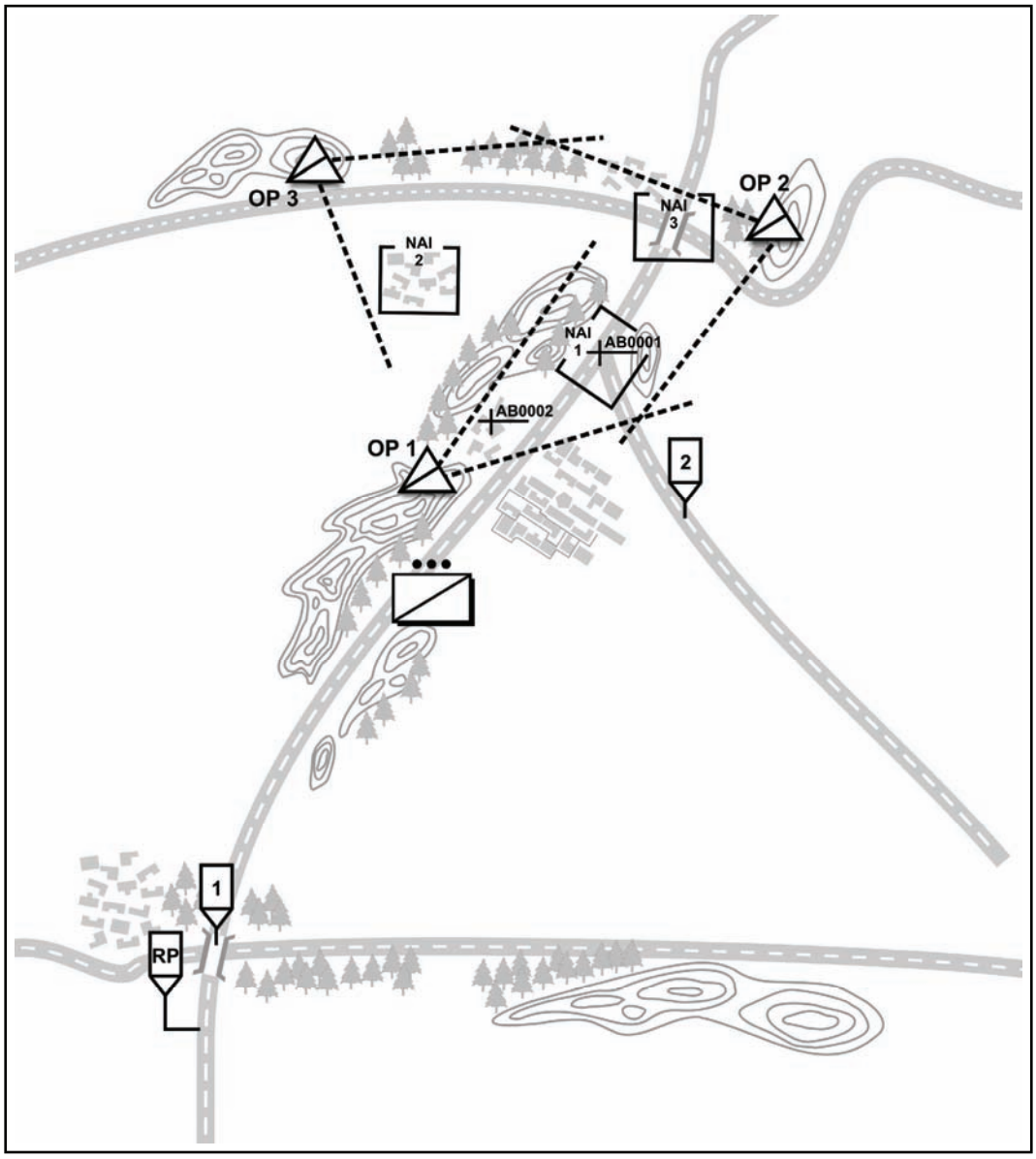

Figure 3-10. NAI observation plan with built-in redundancy

Platoon Infiltration by Echelon

3-121. This example never has more than one section moving at any time. Planning and coordination for the infiltration is virtually the same as for the first example; the main difference is that the platoon does not move as a whole. Ground surveillance systems, Prophet, and UASs may be used throughout the infiltration process, but caution must be taken not to compromise the infiltration route by frequent UAS flyovers.

3-122. Figure 3-11 depicts a dismounted squad conducting a passage of lines and moving along an infiltration route to establish OP 1 prior to mounted movement. Once established, this OP conducts surveillance along the mounted infiltration route and reports its observations to assist the platoon leader in refining the mounted infiltration plan. Elements of the platoon may act as the quick reaction force (QRF) for this dismounted team.

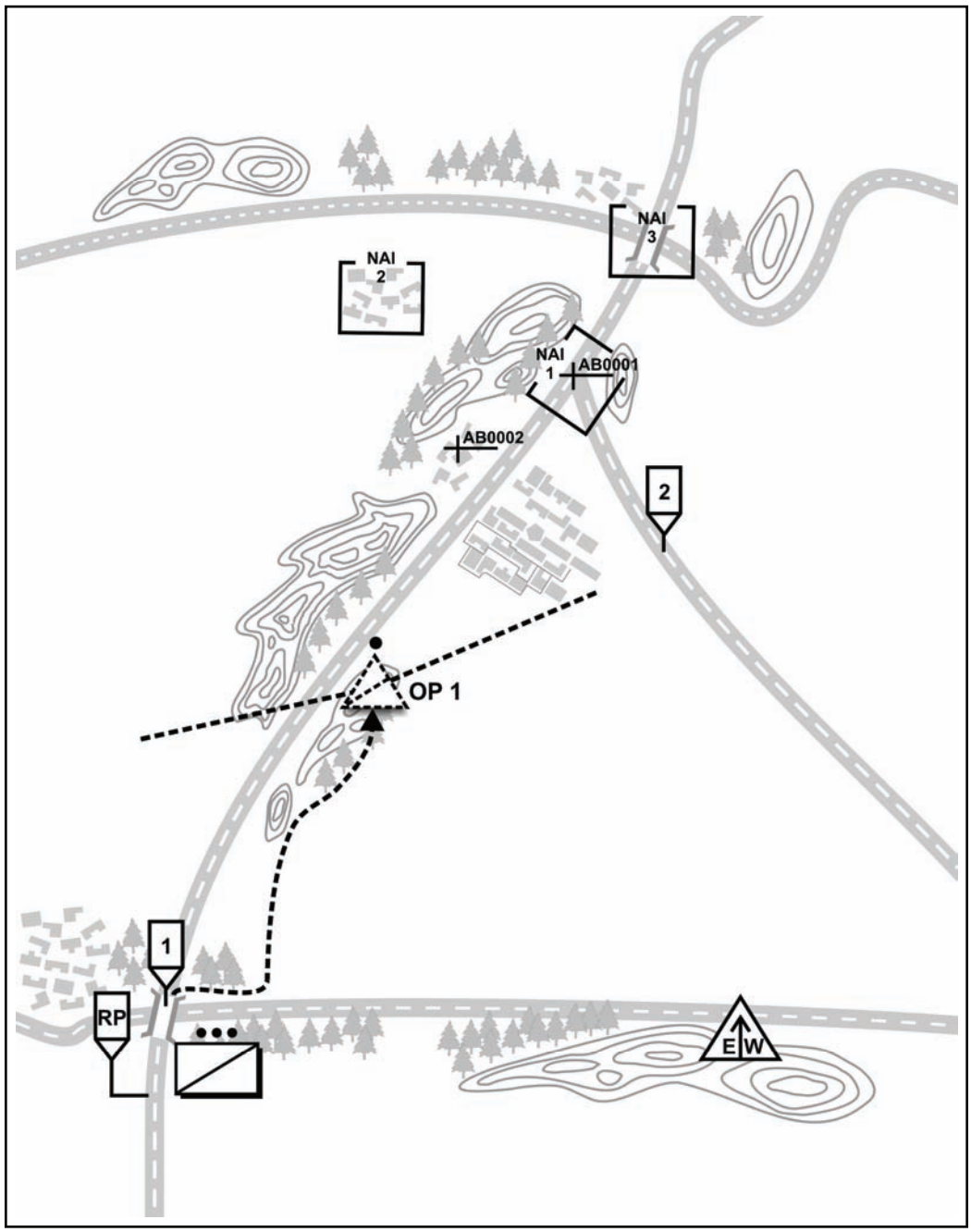

Figure 3-11. Initial infiltration of dismounted team

3-123. The first mounted section begins its infiltration along the designated route, moving to OP 2 (see Figure 3-12) with the dismounts at OP 1 providing surveillance. OP 1 is also prepared to support the first mounted section's actions on contact with preplotted indirect fires if needed. Once the first mounted section is established at OP 2, OP 1 may handle communications retrans duty as required.

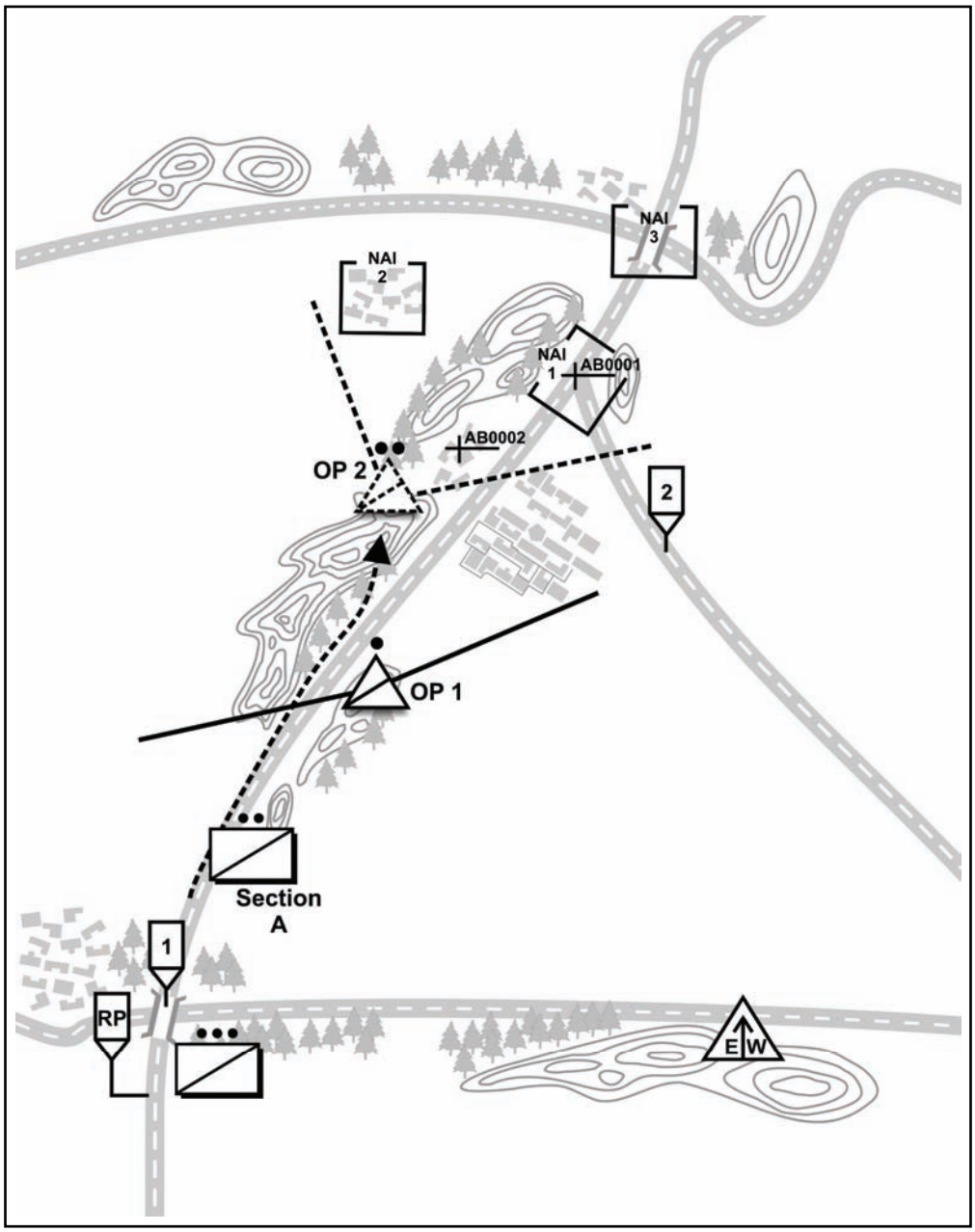

Figure 3-12. Infiltration of mounted section (A)

3-124. The second mounted section then begins infiltration along the previously employed axis. OP 1 and OP 2 provide surveillance for its movement to OP 3 (see Figure 3-13).

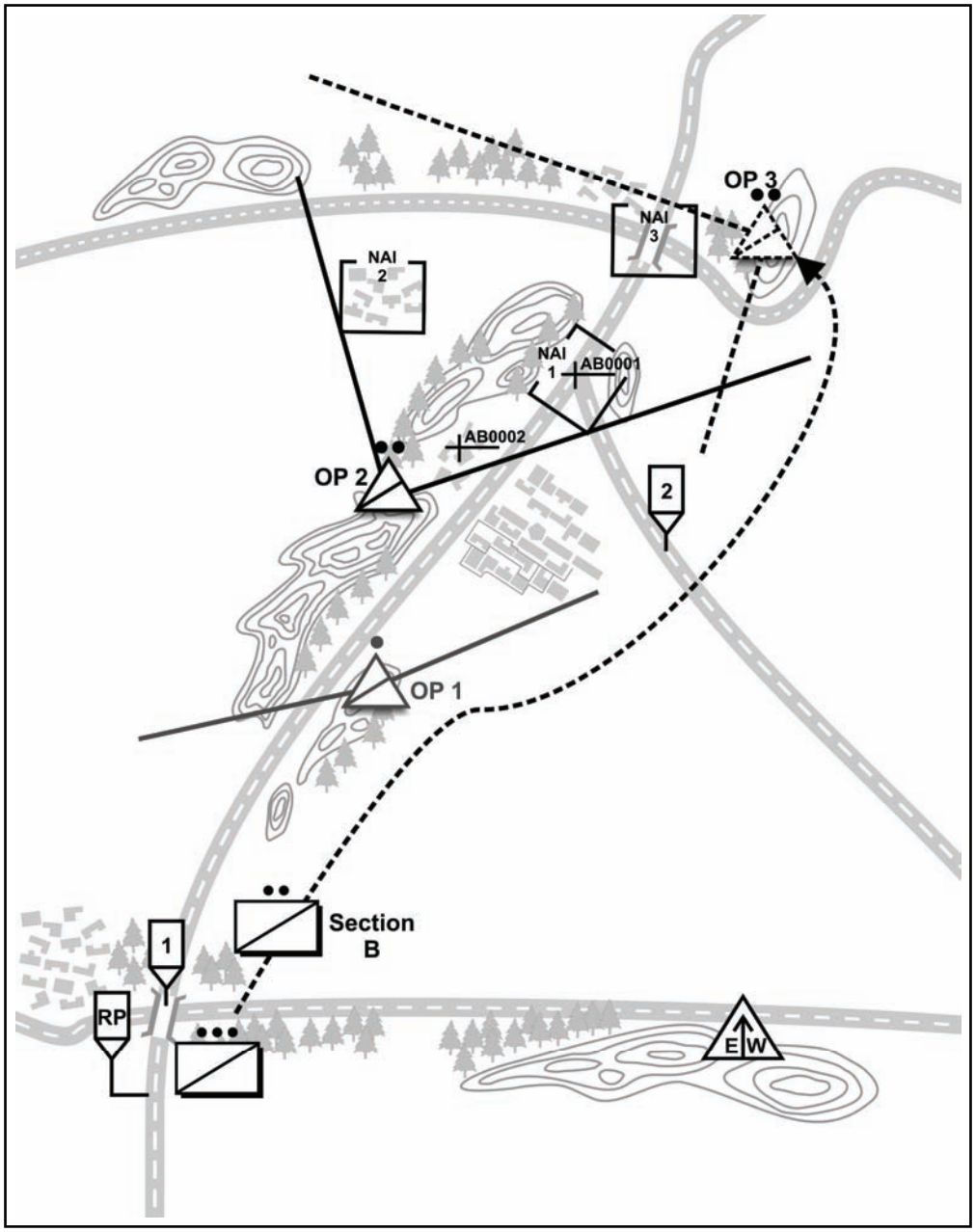

Figure 3-13. Infiltration of second mounted section (B)

3-125. The third section subsequently infiltrates along the same successful axis, with OP 1, OP 2, and OP 3 providing surveillance. If OP 1 is not needed to conduct retrans, the third section picks up the dismounted team and proceeds to OP 4 (see Figure 3-14). Establishment of all OPs is completed with redundant observation on NAIs 1, 2, and 3 (see Figure 3-15).

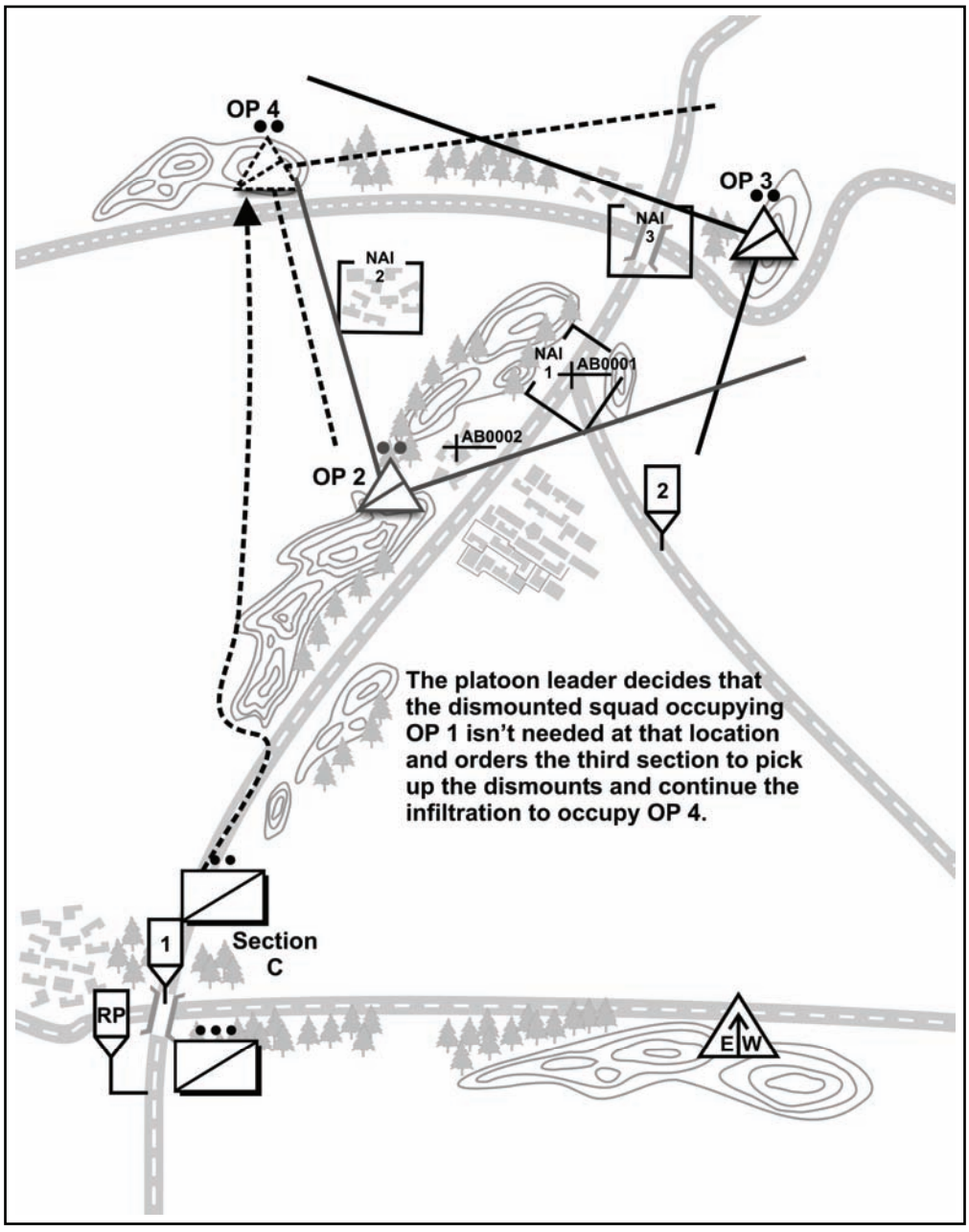

Figure 3-14. Infiltration of third mounted section (C)

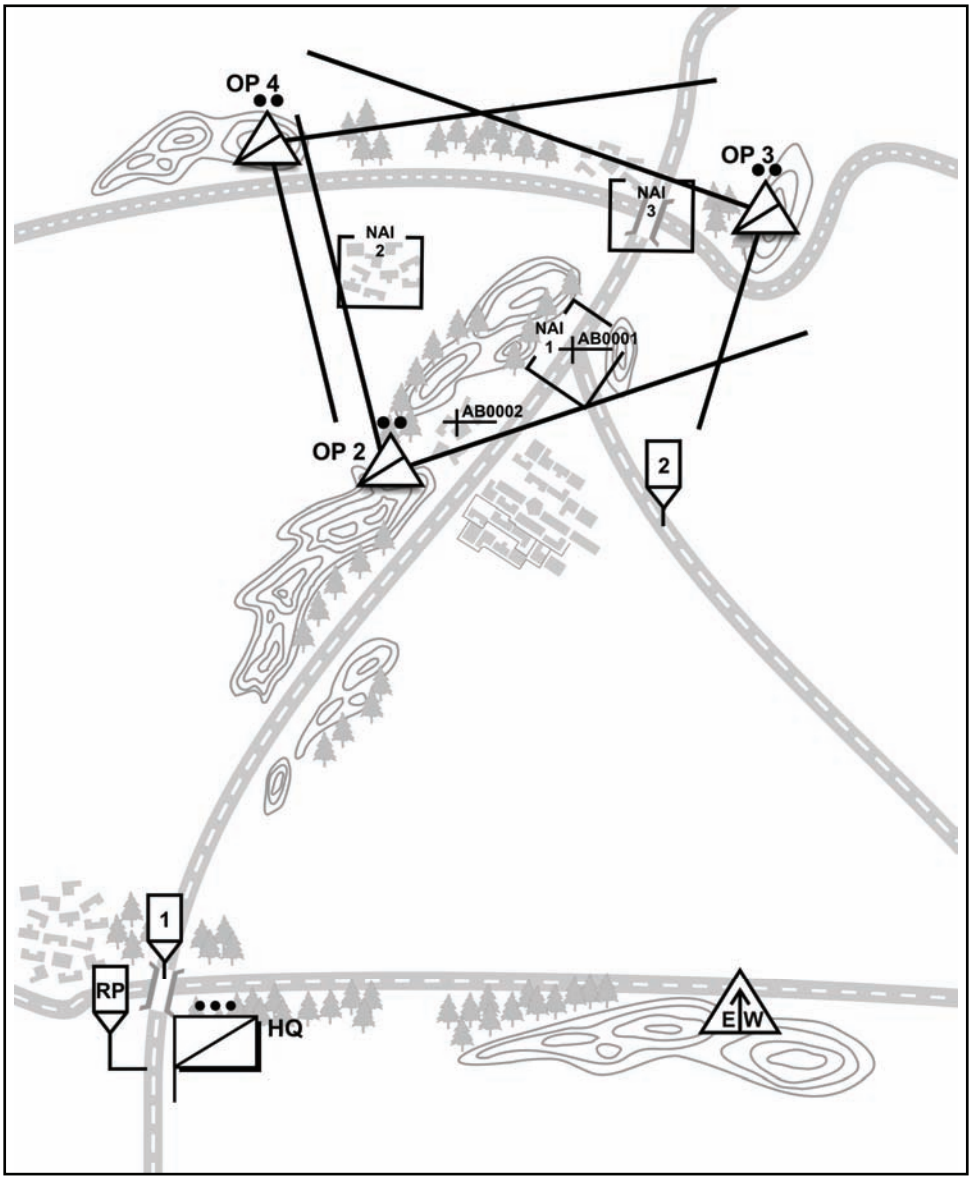

Figure 3-15. Infiltration complete with redundant observation of NAIs

Dismounted Infiltration of a Section Moving as a Unit

3-126. The following scenario describes the dismounted infiltration of a section moving as a unit.

Dismounted Infiltration Scenario

A HUMINT team learns of suspected insurgents surveying an area for possible attacks against coalition forces and marks two locations of frequent enemy activity. Intelligence reports that enemy elements are marking engagement areas. The CAB reconnaissance platoon receives a WARNO that the platoon will infiltrate a small unit kill team into the hostile area for interdiction. The platoon leader conducts a mission analysis and map reconnaissance plotting known enemy activities and times in the area. The platoon leader and S2 project future attacks and windows of opportunity. A UAS confirms a hide location and exfiltration routes that offer cover and concealment; these were located during map reconnaissance and digital terrain program review. The reconnaissance platoon coordinates with a convoy to facilitate infiltration. The reconnaissance platoon will send vehicles with the convoy which will insert scouts as close to the mission objective along the convoy's route. The OPORD and backward planning schedule is briefed, and the platoon PCC/PCIs begin for the section. The platoon conducts rehearsal with the command, insertion team, infiltration section, reaction force, ALO, S3, S2, convoy commander, and the exfiltration team. At 1900 hrs, the scout section inserts off a convoy truck conducting a temporary halt at a rest stop. The section mingles with drivers and discreetly moves into a wadi behind the parking area, and remains until dark. At 2300 hrs, the section begins moving north, in low ground to a GPS location identified by a SHADOW UAS. The scout section moves into a patrol base without making contact and locates the hide position at 0345 hrs. The section reports "set" at the hide site at approximately 0500 hrs and requests an NFA. The scout section reports suspected insurgents marking locations with sand bags along a road at 1700 hrs. The scout section uses MELIOS and coordinates a TRP on the sand bag's location. The reconnaissance platoon leader coordinates a scout sniper team to overwatch the extraction point. A CFV and M1 reaction force is positioned for the PSG to use for CASEVAC and extraction during contact. The S3-Air places two Apache helicopters on stand-by as the scouts make visual contact. Scouts report insurgent elements using the low ground, below the road, to reach the prepositioned sand bags. The enemy begins to emplace IEDs along the shoulder of the road at 2300 hrs. The BCT launches SHADOW to provide early warning of enemy movement outside the small unit kill team's visual range. The CAB commander launches Raven UASs to monitor the terrain around the scout section's escape route confirming negative contact. Scouts report munitions being delivered to the IED site at 0015 hrs. The scouts then engage the dismounts and wheeled vehicles with M240B, M249 SAW, and JAVELIN, thereby triggering the IED charge. Rifle shots are fired from a building across the road in all directions. A section leader fires M203 smoke rounds in the vicinity of the IED site to obscure the scout's exfiltration. Scouts send a SITREP and announce they are moving along exfiltration route. The platoon leader confirms the route and terrain is cleared ahead of exfiltrating scouts using Ravens. A SHADOW reports possible insurgents gathering at the IED location to the rear of the scouts. The reaction force is alerted for possible extraction support, under contact. APACHES lift off to interdict insurgent tracking party. The scout section reports arrival at the extraction point triggering the dispatch of the PSG and reaction force. APACHES receive target handover from the SHADOW and neutralize the tracking party one kilometer from the extraction point at 0315. The PSG links up with the scout section and extraction begins at 0325 hrs.

EXFILTRATION

3-127. The reconnaissance platoon and its elements may have to conduct exfiltration in several types of tactical situations. For example, reconnaissance forces that infiltrate an AO must exfiltrate once they gather

the required information. In another instance, the platoon may conduct a screen in support of a displacing unit during defensive operations, thereby requiring the scouts to use exfiltration to return to friendly lines.

Planning Considerations

3-128. In all situations, exfiltration must be planned as carefully as infiltration. Planning includes identifying casualty collection points and emergency resupply points along exfiltration routes, to provide supporting elements with a more secure, stealthy route into the sector to conduct these support operations. An effective exfiltration plan is essential in terms of mission accomplishment and morale. In most cases, planning for an exfiltration operation begins at the same time as planning for the infiltration (or other tactical operation) that precedes it. For example, the platoon leader must anticipate contingency measures that may be required if his elements must conduct an unplanned exfiltration during a reconnaissance operation. His exfiltration plan should factor in additional time that the platoon may need to react to unforeseen circumstances, such as inadvertent contact with enemy forces or unexpected restricted terrain. Platoon leaders must plan to integrate both indirect and direct fire support for protection during the exfiltration. UAS assets can assist by locating overwatch positions from which fire support assets can provide fires. Whether the platoon plans to exfiltrate on foot or by another transport method (ground vehicles, aircraft, or watercraft), detailed planning is required to establish criteria for a passage of lines to minimize the chances of fratricide. The exfiltrating force must also be prepared to plan for contingencies once the operation is under way, particularly if enemy contact occurs.

3-129. The exfiltration plan should also cover other types of contingencies that will not require the platoon to exfiltrate. For example, when a section or squad repeatedly misses mandatory radio contact, it must be assumed that the element has a communications problem, is in trouble, or both. The exfiltration plan might address this situation by calling for a resupply cache drop of new batteries and other means of communication at a predetermined location. The plan would mandate that the resupply location be specially marked to ensure that the equipment does not fall into enemy hands. Getting these supplies in place may require following infiltration methods already used by the platoon.

Movement Considerations

3-130. Urban areas create unique exfiltration challenges for the reconnaissance and scout platoon. Mounted elements negotiating the route to the exfiltration point will encounter buildings, narrow streets, scattered rubble and debris, which will hinder and delay vehicle movement. The principles of route selection, movement formations, movement techniques (overwatch preferred), and movement security are critical to the success of the exfiltration operation. Plans for extraction by applicable means (ground, air, or water) must be developed before the operation, covering procedural contingencies such as the loss of vehicles, evacuation of sick and wounded personnel, and disruption of communications. These plans should address various contingencies for movement such as evasion. Hazards in the area of movement must be avoided to improve scouts chances of escape. Displaced refugees and noncombatants slow movement on narrow roads creating situations where the exfiltration is compromised.

3-131. Elements may use successful infiltration routes as their exfiltration routes as well. However, repeated movement in one area increases the likelihood of being detected and ambushed. The more vehicles involved in the extraction, the greater the noise signature.

Routes and Extraction Points

3-132. The methods that the platoon uses for exfiltration route selection are the same as those discussed for infiltration earlier in this section. The platoon leader ensures that primary and alternate linkup points are not on a single azimuth leading away from the OP or exfiltration route.

3-133. Extraction points for dismounted personnel should be far enough away from the OP to ensure that the enemy does not hear vehicle or helicopter noises. The exfiltrating force should use mountains, dense foliage, and other terrain features to screen these noises. Under normal conditions in flat, open terrain on a clear night, rotary-wing aircraft lose most of their audio signature at a distance of approximately five kilometers. Rolling terrain can assist in hiding vehicle sounds as long as they maintain low engine RPM. In mountainous terrain, aircraft conducting the extraction can be seen or detected much easier when enemy

observers are in place on the hilltops that offer superior observation. Mounted infiltration faces challenges based on the vehicles used. The larger tracked vehicles used for mounted exfiltration or extraction (CFVs, Abrams tanks), encounter more mobility restrictions due to their size, and require dismounts for security at the halt. In the urban areas, exfiltration routes may be down narrow roads and alleys to mask movement. Extraction points may be easily hidden among the materials and debris found in the urban area. While the actual point may be in buildings or in open areas such as an intersection, a patrol may use surface or below surface hide locations to avoid detection. This may include inside and outside of buildings. Scouts must avoid detection since they are not prepared to fight decisive engagements. Exfiltration in the urban environment requires movement in and around multistory buildings that can both conceal movement, and provide advantageous enemy locations with superior fields of view for engaging scouts.

Methods of Extraction

3-134. Extraction can be conducted by air, water, or land. Each alternative presents the platoon with specific operational considerations as well as tactical advantages and disadvantages. The exfiltration plan and the OPORD must address these factors as well as operational contingencies such as actions the reconnaissance unit will take if an unplanned extraction becomes necessary.

3-135. Extraction by air or water means is favored when the resources are available and their use will not compromise the mission. These methods are used when long distances must be covered, when time of return is essential, when the extraction zone lacks adequate cover and concealment, when the enemy does not have air or naval superiority, or when complex terrain or heavily populated hostile areas obstruct ground extraction.

3-136. Reconnaissance forces normally conduct extraction via land routes when friendly lines are close or no other extraction method is feasible. Ground extraction is preferred when areas along the route are largely uninhabited, when enemy forces are widely dispersed, or under such pressure that they cannot conduct counterreconnaissance and security operations. In addition, ground extraction is preferred when terrain is sufficiently restricted to degrade enemy efforts to use mobile forces against the exfiltrating/extracting reconnaissance unit.

Emergency Exfiltration

3-137. The platoon may have to conduct emergency exfiltration if it is detected or engaged by an enemy force. This type of operation requires activation of an escape and evasion plan or deployment of a reaction or support force to assist with the extraction of friendly elements. Employment of the reaction force and supporting fires must be carefully coordinated and rehearsed before the insertion and infiltration (or other tactical mission, if applicable) is initiated. In all situations, the heavier the armor support, the louder the sound signature will become. PSGs must be involved in the coordination and rehearsal with these assets since they will be most likely assist in the exfiltration and extraction of their scouts.

SECTION III – MULTIDIMENSIONAL ASPECTS OF RECONNAISSANCE AND SURVEILLANCE

3-138. The multidimensional aspect of operations is part of all reconnaissance or scout platoon missions. The term “multidimensional” refers to the directed effort to obtain detailed information covering all types of threat forces (military, paramilitary, criminal, and other), civilian demographics (social/human), infrastructure (including utilities, transportation, and the political, economic, and agricultural situation), routes, obstacles, and terrain. Planning and execution of any reconnaissance or surveillance mission must always take into account the multidimensional aspect of the operation, especially in site exploitation (SE). In turn, the multidimensional aspect must include the effective integration and employment of the full range of ISR assets, including UASs and other sensors.

3-139. All reconnaissance and scout platoons must understand the multidimensional aspect of reconnaissance operations. The SBCT reconnaissance platoon is ideally suited to focus on the multidimensional aspect of reconnaissance and surveillance operations with organic HUMINT collectors. These platoons can enhance SU by working closely with their HUMINT Soldiers to collect and assess

information through contact with community leaders and the local populace. It is extremely important that scouts fully understand the commander's focus for the reconnaissance and the operational considerations of civil-military operations (CMO).

OPERATIONAL CONSIDERATIONS

3-140. The multidimensional aspect of reconnaissance requires leaders, specifically the HUMINT collectors, to develop relationships with local military/civilian leaders to gain information that may be pertinent to troop, squadron, and brigade operations. In these areas, Soldier-based, human-intensive intelligence compensates for the limitations of equipment-based sensors, which are better suited for providing SA in open and rolling terrain for conventional force-on-force operations. Effective use of the unit's HUMINT collectors is the key to gaining information from the populace, especially when the enemy may be hiding within the population.

3-141. The threat level will greatly influence the level of interaction between reconnaissance elements and the populace of the area. Understanding this human aspect of the OE (political, religious, ethnic, and criminal) will be a key factor in the analysis of threat centers of gravity and the execution of decisive operations. The ability to conduct the multidimensional aspect of reconnaissance can assist the commander in defeating or countering unconventional threats. In addition, the multidimensional aspect of any reconnaissance or surveillance mission can greatly enhance SA at all levels by providing operational information from previously untapped sources.

INTELLIGENCE COLLECTION

INTELLIGENCE ACTIVITIES

3-142. HUMINT and counterintelligence (CI) operations should be done by certified personnel outside of the platoon to prevent incidents that may be in violation of the Law of Land Warfare (see FM 2-0 and FM 27-10 for additional information). Reconnaissance and scout platoons may perform tasks that support these certified personnel in their activities. This may entail but is not limited to—

- **Interrogation and debriefing.** These activities involve the systematic questioning of individuals to obtain information related to specific collection requirements. Sources who are in the custody of U.S. forces, such as EPWs and detainees, are interrogated. All other sources are debriefed; these include friendly forces, civilian refugees, and local inhabitants.
- **Source operations.** These are collection operations using recruited and registered HUMINT sources. The registration of sources is a legal requirement in any sustained use of a specific individual as a source.

3-143. Reconnaissance and scout platoons operating in full spectrum operations will encounter threats that vary greatly in their nature and composition. Effective intelligence gathering may require the use of trained personnel to conduct or lead specific tasks, such as—

- **TQ.** This is an abbreviated form of interrogation or debriefing used to collect PIR-related information from human sources.
- **SE.** This is the action taken by a unit to ensure that documents, materials, equipment, and personnel are identified, collected, safeguarded, secured for analysis, and evaluated to facilitate the actions needed to plan and execute follow-on missions. Reconnaissance and scout platoons would have direct mission involvement in the "find, fix, finish, and exploit" steps of the SE targeting cycle. Refer to Appendix B for more information on SE.

INTELLIGENCE COLLECTION PERSONNEL

3-144. The IBCT reconnaissance platoon's organic HUMINT collectors, who are specifically trained in military intelligence (MI) operations, maximize the platoon's effectiveness in multidimensional aspects of reconnaissance missions. It is critical to understand and properly use these personnel. While the platoon leader is not likely to have the time to be an expert on every aspect of MI operations, he must be proficient

in HUMINT and CI training, operations, and implementation. Enemy counterintelligence personnel will target the unit's MI and HUMINT collectors in an attempt to deny U.S. forces useful information. Platoon leaders must take preventive steps to protect their HUMINT assets from falling prey to enemy CI agents. When possible, scouts act as a security detail as the HUMINT interacts with locals.

Human Collection Team (HCT) Personnel and Missions

3-145. The HCT provides GS to the squadron; the squadron in turn determines the HCT's priorities and generates taskings through the S-2. The collectors, either through training or by occupying specific positions such as an S-2, are tasked with collecting information for intelligence use from people or related documents.

Note. A HUMINT source is anyone who can provide information to answer collection requirements.

3-146. The HCT collectors in the SBCT reconnaissance platoon are ideally six-Soldier teams that provide the squadron with an organic, trained HUMINT/CI collection capability. The intelligence collectors will—

- Normally be distributed as one collector per squad and task organized based on METT-TC.
- Advise the platoon leader on intelligence collection operations.
- Provide initial assessment and quality control of HUMINT/CI collection and source identification.
- Act as the platoon HUMINT/CI trainer.

Note. Threat elements will target platoon resources (interpreters and civilian contractors) in order to prevent detection and analysis of their operations.

3-147. The HCT's mission within the platoon includes the following general tasks:

- Collect information of immediate tactical value from EPWs, detainees, refugees, and civilians in the AO.
- Collect data allowing predictive analysis of events in the platoon's AO.
- Collect information of immediate tactical value from foreign documents.
- Assist in the debriefing of friendly forces, such as patrols.
- Identify individuals for potential detailed exploitation by the CI teams in the brigade's military intelligence company (MICO).

3-148. Specific missions for HCT collectors in a MICO include, but are not limited to, the following:

- Conduct TQ.
- Conduct interrogation of EPWs and detainees.
- Debrief or interview civilians in the AO.
- Debrief friendly forces.
- Conduct HUMINT analysis.
- Conduct document and media exploitation (DOMEX).
- Support planning for intelligence gained from interviews and evidence.

3-149. HCTs are not organized and equipped at any level to perform tasks normally conducted by—

- Military police (MP), including riot and crowd control.
- Rapid reaction force.
- CA.
- PSYOP.

3-150. The reconnaissance and scout platoons are not trained HCT personnel and only assist augmenting HUMINT data collection. SBCT reconnaissance platoons will have organic HCTs and may establish habitual duties within the platoon to assist the HCT leader. Reconnaissance and scout platoons must plan to prevent the loss of HCT teams and their sources by providing security during movement and interaction with local population. When attached to the reconnaissance or scout platoon, the HCT operates under the control of the platoon leader and is supported directly by the platoon (including security) unless mission requirements create a need outside the platoon's augmentation. The PSG is responsible for the CASEVAC and reporting of all attached HCT personnel.

CI Personnel and Missions

3-151. As noted, CI collectors/agents are organic to the SBCT's MICO. Specific missions for CI teams in the MICO include, but are not limited to, the following:

- Identify and recommend countermeasures to threat intelligence collection and threat CI efforts.
- Conduct CI investigations.
- Conduct CI analysis.
- Provide CI support to threat and vulnerability analysis.

Note. See FM 34-60 for details of CI activities and employment.

HUMINT OPERATIONAL CONSIDERATIONS

3-152. HUMINT is a category of intelligence derived from information collected and provided by human sources. It uses human sources as a tool and a variety of collection methods, both passive and active, to gather information to satisfy the commander's intelligence requirements and cue other intelligence disciplines. HUMINT tasks include, but are not limited to, the following:

- Source operations using tactical and other developed sources.
- Liaison with HN officials and allied counterparts.
- Elicitation of information from the civilian populace, including transients.
- Identification of individuals as potential force protection sources.
- Debriefing of U.S. and allied forces and civilian personnel.
- Interrogation of EPWs and detainees.
- Information operations.
- Translation and exploitation of threat documents, media, and other materials.

3-153. All reconnaissance and scout platoon leaders can expect to conduct some form of HCT collection activities to gather the information needed to make decisions in support of the overall mission. HUMINT activities help the platoon leader shape the AO by providing information that enables him to respond to previously unforeseen threats. He focuses the HUMINT effort by carefully assigning missions and clearly defining the desired results. In orienting the unit's HUMINT efforts and capabilities, the platoon leader must decide who or what will be advantageous targets for collection activities. As noted, only the SBCT reconnaissance platoon has organic HUMINT personnel.

Role of HUMINT Collectors

3-154. The SBCT platoon's HUMINT Soldiers, who can be augmented by interrogators (from the MICO) when available, conduct collection operations in support of the overall mission. These operations rely on the use of both casual and recruited sources of information. The collection effort includes liaison activities; the debriefing of refugees, detainees, and EPWs; review of open source literature; and DOMEX. HUMINT collectors directly support SE and subsequent intelligence gathering operations against the enemy. These operations use the techniques identified in FM 34-5 and FM 2-22.3. Other resources include AR 381-172, which covers policy concerning counterintelligence force protection source operations (CFSO), and

AR 381-10, which outlines policies and procedures governing the conduct of intelligence activities by the Army.

3-155. In addition, during the planning process, the platoon leader must be aware of the combat multiplier capability that his HUMINT assets provide. In this role, the platoon's HUMINT personnel conduct the following tasks:

- Support to combating terrorism.
- Support to CMO (discussed later in this section).
- Support to OPSEC.
- Support to IO.
- Support to domestic civil disturbances.
- Liaison.
- Local operational data collection.
- Debriefing and interrogation.
- Threat assessment.
- Assessment of the HUMINT threat in the AO.

HUMINT Sources

3-156. Platoon leaders should be familiar with the types of sources HUMINT personnel will use to satisfy command PIR:

- **Casual source.** A casual source is one who, by social or professional position, has access to information of CI interest, usually on a continuing basis. Casual sources usually can be relied on to provide information that is routinely available to them. Casual sources include private citizens, such as retired officials or other prominent residents of an area.
- **Official sources.** These are liaison contacts. CI personnel conduct liaison with foreign and domestic CI, intelligence, security, and law enforcement agencies to exchange information and obtain assistance. CI personnel focus on investigative, operational, and threat information.
- **Recruited sources.** These include sources who support CFSO, as identified in FM 34-5. By design, CFSOs entail the use of human source networks, dispersed throughout the area that can provide timely and pertinent force protection information.
- **Refugees, detainees, and EPWs.** Interrogators normally conduct collection operations with these sources, often with technical assistance from a CI agent.
- **Open source publications.** These printed materials, as well as radio and television broadcasts, are valuable sources of information of CI interest and operational information. Depending on the resources, this support can be provided by interrogation personnel, allied personnel, indigenous employees, or reserve component translators.
- **Documents not openly available.** Such sources as adversary plans and reports are exploited in much the same way as open source publications.

Reconnaissance Support Activities

3-157. In military urban operations, people (EPWs and civilians) are the preeminent source of information. HUMINT collection provides information otherwise not available through SIGINT and image intelligence (IMINT). As an example, when a lodgment is made in a building, the HUMINT collectors:

- Move in and interrogate EPWs.
- Persuade holdouts to surrender.
- Help with the questioning and evacuation of noncombatants.
- Collect information on floor plans and defensive plans.
- Determine locations of combatants and noncombatants in the area.

3-158. Another focus of HUMINT teams is intelligence support to force protection. The teams establish a network of force protection sources, debrief casual sources, and interview/debrief local national employees. Scouts may provide security in the course of this support.

HUMINT Assessment Forms

3-159. Higher headquarters may provide assessment forms to further focus HUMINT collection efforts. These products help the platoon to gather information on all the OE variables in an urban environment and identify the basic human needs of the society (such as food, water, and shelter). For additional information, refer to FM 2-0 and FM 2-22.3.

CIVIL-MILITARY OPERATIONS

OPERATIONAL CONSIDERATIONS

3-160. Reconnaisance and scout platoons will encounter a number of factors during CMO that they seldom face in any other type of operations. This discussion covers some of these crucial, but often subtle, considerations.

Local Cultural Factors

3-161. One problem encountered by the reconnaissance or scout platoon in CMO is adapting to the local culture. Each culture has its own peculiar customs and courtesies. While they may seem insignificant to U.S. personnel, these customs and courtesies are very important to local nationals. Understanding a country's culture and adhering to its etiquette are very important. What is socially acceptable behavior in the United States could very well be offensive in other cultures. In many cultures, embarrassing a guest causes "loss of face." This inevitably undermines rapport and may cause irreparable harm to the liaison effort. Information continuity from a departing unit can be of great assistance to units because it supplies a history of events from which incoming units can learn.

3-162. The platoon may have to adapt to unfamiliar food, drink, etiquette, social customs, and protocol. While some societies make adjustments for an "ignorant foreigner," many expect an official visitor to be aware of local customs. Platoon personnel must make an effort to avoid cultural shock when confronted by situations completely alien to their background. They also must be able to adjust to a wide variety of personalities.

Local Agencies, Organizations, and Individuals

3-163. Members of the platoon also must understand the capabilities of outside agencies involved in CMO. Knowledge of the liaison source's capabilities in terms of mission, human resources, equipment, and training is essential in the process of requesting information or services.

3-164. The platoon may also have to deal with individuals who have had no previous contact with U.S. agencies and who are unsure of how to deal with U.S. Soldiers. Platoon leaders should request early in their planning process the services of an interpreter who is from, or experienced in, the AO the platoon will be assigned. The same should apply for HUMINT personnel if they are not organic to the unit. This provides a source of information of social interaction and attitudes along with customs. In their work with liaison sources, the platoon's Soldiers must remember that they represent the people, culture, and government of the entire nation.

3-165. The platoon leader and his HUMINT Soldiers must be aware of any known or hidden agendas of the individuals or organizations with which they conduct liaison. Furthermore, competition between agencies is often a problem. Platoon personnel must never play favorites and never play one agency against another. Ultimately, such actions could create rifts in security and cohesiveness and provide an advantage for threat forces.

Corruption, Bribery, and Gifts

3-166. Corruption is the impairment of integrity, virtue, or moral principles or the inducement to do wrong by bribery or other unlawful or improper means. In some countries, government corruption is a way of life. The reconnaissance or scout platoon must be familiar with these characteristics if indications of bribery, extortion, petty theft of government goods and funds, or similar incidents are discovered in the course of liaison. These characteristics violate the Army's values of duty, honor, and integrity. When corruption is discovered, the platoon leader must request command guidance before continuing liaison with the individual or organization in question.

3-167. Occasionally, because of the close professional relationships developed during CMO, a source may wish to present a personal gift. If possible, platoon personnel should diplomatically refuse the gift. If that is not possible, such as when rapport might be compromised, the Soldier can accept the gift. Any gifts received must be reported in accordance with AR 1-100 and can be kept only if higher authorities approve a request to do so.

Records and Reporting

3-168. The platoon leader should maintain complete and accurate records and reports that are essential in maintaining the continuity of CMO, including intelligence collection and liaison. All records must contain information on agencies contacted. It is preferable to have a file on each organization or individual contacted to provide a quick reference concerning location, organization, mission, and similar intelligence-related information. Limit information to name, position, organization, and contact procedures when the liaison is a U.S. representative. For contacts with foreign sources, use the formal administrative, operational, and information reporting procedures outlined in FM 34-5.

LIAISON OPERATIONS

3-169. An effective liaison directly contributes to the success of CMO, including the multidimensional effort. In many cases, full-time liaison officers (LNO) or sections are necessary to maintain regular contact with appropriate organizations and individuals. In most operations, without the support of the local government, agencies, and authorities, attempts to win the cooperation of the populace are almost certainly doomed to failure. Liaison responsibilities may fall on the platoon leader and PSG while section leaders maintain control of their sections and provide communications and security within that area. Platoon leaders must plan for contingencies that may occur during liaison meetings. To prevent mission failure, the PSG must ensure the section leaders rehearse the plan to include the variations of the contingency plan. Platoon leaders will be required to conduct liaison with entities in their AO such as—

- U.S. military forces.
- Multinational coalition forces.
- HN authorities.
- Other government agencies.
- Relief activities such as the Red Cross.

3-170. A basic tenet of liaison is the quid pro quo (meaning "something for something") exchange. While the LNO sometimes encounters individuals who cooperate out of a sense of duty or for unknown reasons of their own, an exchange of information, services, material, or other assistance normally is part of the interaction. In under-developed and unstable locations around the world, scouts will find the base motivation for cooperation from the local population is survival.

Critical Tasks

3-171. The reconnaissance or scout platoon and its HUMINT assets, if applicable, may be tasked to conduct liaison activities, either for the platoon's own operations or in support of higher missions. The IR and PIR must be identified and defined by the platoon leader. Critical tasks in liaison operations include the following:

- **Identify key authority figures.** Purpose: To assist in developing a list of priority contacts within the AO to facilitate mission success.

- **Match liaison personnel with each contact.** Purpose: To facilitate communication between local factions and the U.S. forces operating in the AO.
- **Evaluate contacts.** Purpose: To determine the capabilities of each contact within the AO and to ascertain the influence the contact has within the community.
- **Establish each liaison/contact agenda.** Purpose: To determine the endstate for each contact. Once this is established, the liaison officer knows how to conduct himself at meetings.
- **Identify IR.** Purpose: To assist in defining the scope of liaison activities. These can be developed through liaison with the civilian/military agency based on guidance from the higher and platoon OPORDs.
- **Use available HUMINT collection assets.** Purpose: To assist with liaison, develop IR, or debrief reconnaissance patrols.

Role of the SBCT Reconnaissance Platoon and its Intelligence Assets

3-172. The SBCT reconnaissance platoon's HUMINT Soldiers conduct liaison to obtain information, gain assistance, coordinate or procure material, and exchange views necessary to understand the liaison counterparts with whom friendly forces must work. All of these activities are essential for successful reconnaissance missions. Operational benefits derived from using the platoon's HUMINT assets in liaison activities include the following:

- Establishing working relationships with various commands, agencies, or governments.
- Exchanging operational information and intelligence within policy guidelines.
- Facilitating access to records and personnel of other agencies not otherwise available. Access includes gaining information via other agencies when cultural or ethnic constraints preclude effective use of U.S. personnel.
- Acquiring information to satisfy troop and squadron intelligence collection requirements.

3-173. SBCT reconnaissance platoon leaders who task HUMINT assets with liaison should provide the following guidance:

- **Liaison objectives.** Liaison objectives are the types of information to be collected, the methods of operations unique to the area, and the command objectives to be accomplished.
- **Limitations on liaison activities.** These limitations include the following:
  - **Prohibitions.** These include prohibitions against collection of specific types of information or against contacting certain types of individuals or organizations.
  - Delineation of areas of responsibility of other elements.
- **Authority.** The platoon leader must define the authority under which the specific liaison program is conducted as well as guidelines for joint and combined operations.
- **Applicable ROE/ROI.**
- **Additional factors.** The platoon leader should outline SOPs for related aspects, such as intelligence information reporting procedures and areas of responsibility and jurisdiction.

3-174. During transition from increased tension to open hostilities, the liaison emphasis shifts to support the platoon leader. Platoon leaders should ensure HUMINT Soldiers establish liaison with appropriate agencies before the outbreak of hostilities. Information and cooperation gained during this period can have a major impact on the effectiveness of both intelligence and combat operations. A LNO or intelligence collector that can speak directly to the foreign agencies and sources in the combat zone rather than rely on an interpreter improves platoon capabilities.

Example Liaison Techniques and Procedures

3-175. The following steps illustrate the techniques involved in liaison operations. It is meant to be a guide and should be modified to fit METT-TC. The majority of the steps are geared toward stability operations because, under these conditions, there are more things to consider. These steps, however, can

and should be modified to meet the operational requirements of the specific tactical situation. Steps in the liaison operation may include the following:

- Receive liaison requirements from higher headquarters and refine them (platoon leader, HUMINT NCO, PSG).
- Identify military forces, civil authorities, religious leaders, ethnic groups, local factions, and non-governmental organizations (NGO) operating in the AO.
- Develop liaison requirements and contact frequency for elements in the AO.
- Establish times and locations for initial liaison contacts with elements.
- Conduct liaison activities, taking the following actions:
  - Maintain a positive, cooperative image of the unit and other friendly forces with the populace in the AO.
  - Ensure uniforms and personal appearance is professionally maintained.
  - Provide communication and transportation for liaison elements.
  - Ensure LNOs and all Soldiers know the current political and military situation.
  - Enforce ROI, ROE, terms of reference (TOR), and status of forces agreements (SOFA) in all dealings with liaison counterparts.

Note. The following step may not be possible in SSC or similar tactical environments.

- Comply with requests for liaison assistance from the civil populace if consistent with unit constraints, taking the following actions:
  - Establish an on-call liaison to respond to crises that develop in the unit AO.
  - Update the platoon/troop situation map for current locations of liaison contacts.
  - Ensure that LNOs do not deploy beyond range of the platoon/troop QRF response.
  - Ensure that LNOs are prepared to cope with hijacking or kidnapping.
- Coordinate with observer teams operating in the unit AO as required, taking the following actions:
  - Identify United Nations (UN) military observer teams operating in the unit AO.
  - Establish contact with UN military observers at checkpoints or as specified in the regional force SOP.
  - Exchange information on military, paramilitary, and mass civilian movements; minefields and obstacles; intentions and missions of belligerents; and locations of key faction force leaders.
  - Stabilize areas identified as having escalating tensions.
  - Identify potential “hot spots” of increased tensions.
  - Determine which factions may be involved and the regions affected.
  - Designate forces to stabilize the area, within capability, or request additional support.
  - Coordinate with belligerents to resolve real or perceived problems.
  - Report developments of any destabilizing situation to higher headquarters, as required.
  - Contact forces or civilians involved.
  - Establish an upgraded alert status and security awareness of units in the affected area and in adjacent areas, as needed.
  - Dispatch LNOs to all elements involved.
- Employ LNOs to initiate coordination for negotiations or dispute resolution using neutral facilities, taking the following actions:
  - Identify all units, agencies, and individuals within the sector with whom liaison or coordination must be conducted.
  - Specify linkup times and locations.
  - Develop an agenda for liaison meetings.

- Comply with local protocols and established limits of support in accordance with TORs, SOFAs, or other directives.
- Maintain continuous contact until disputes are resolved and/or tensions are reduced.

- Coordinate a meeting with local officials, taking the following actions:
  - Direct that only major problems are brought to the attention of LNOs and local liaison counterparts and then only after subordinates have been unable to resolve the issues.
  - Demonstrate resolve, confidence, commitment, and concern for local customs and people living in the AO by attending major local events.
  - Implement immediate response to any serious deception or breach of trust, or confidence that has occurred.

SECTION IV – ROUTE RECONNAISSANCE

3-176. Reconnaissance and scout platoons conduct route reconnaissance to gain detailed information about a specific route or axis; this includes the terrain on both sides of the route that the enemy could use to influence movement on the route. The platoon is usually tasked with this form of reconnaissance when the commander wants to use a certain route, but first wants to make sure that the route is free of obstacles and enemy forces and that it will support the movement of his vehicles. Because of the large number of critical tasks associated with route reconnaissance, the platoon normally can conduct detailed reconnaissance of only one route. Table 3-1 summarizes the effects of movement on the route reconnaissance mission.

Table 3-1. Effect of movement on route reconnaissance

The mission becomes ↓	***When the platoon has to move →***	***Stealthily***	***Forcefully***	***Deliberately***	***Rapidly***
Time-consuming		X		X	
Expedited			X		X

3-177. The HBCT and ACR platoons are better suited to fight for route information when contact is made with a heavier or armored enemy. This is typical of standing military organizations. For the IBCT reconnaissance troop, anything above individual enemy troops and light wheeled vehicles will require augmentation such as MGS or ATGM vehicles, CFVs, and tanks. Engineer attachments are desirable during a detailed route reconnaissance when information about the routes, roads, and bridges must include exact weight classifications or structural information. Engineer attachments can also increase the flexibility of the platoon by allowing more than one route to be covered. When augmentation is not available, the IBCT platoon may still conduct a route classification in which it continues to clear lateral routes with limitations based on protective fire capabilities.

CRITICAL TASKS

3-178. During a route reconnaissance, the reconnaissance or scout platoon must be prepared to accomplish a wide range of tasks. Based on the time available and the commander's intent, however, the platoon may be directed to conduct the reconnaissance to acquire specific information only. To be ready for either type of situation, the platoon leader must clearly understand the following critical tasks that may have to be accomplished in a route reconnaissance:

- Determine the trafficability of the route.
- Find and report all enemy forces that can influence movement along the route, as well as terrain the enemy can use to dominate movement.
- Reconnoiter all built-up areas along the route.
- Reconnoiter, to the limit of direct fire range, all lateral routes.
- Inspect and classify all bridges on the route.

- Locate fords or crossing sites near all bridges on the route.
- Inspect and classify all overpasses, underpasses, and culverts.
- Reconnoiter all defiles along the route.
- Locate minefields and other obstacles along the route.
- Locate a bypass around built-up areas, obstacles, restrictions, and contaminated areas.
- Determine the type and volume of traffic on the route.
- Report route information.

TECHNIQUES

3-179. Because of the number of critical tasks that must be accomplished, the augmented reconnaissance and scout platoons (addition of engineers or infantry), can usually conduct a detailed reconnaissance of only one route. The following discussion outlines techniques of getting all the tasks accomplished as rapidly and securely as possible.

3-180. The order the platoon leader receives specifies the route the platoon must reconnoiter and defines the start time and the route from the SP to the release point (RP). These control measures specify how much terrain on both sides of the route the platoon must reconnoiter and where the operation must begin and end. Additionally, the order may specify:

- Platoon boundaries.
- Phase lines.
- Contact points.
- Limit of advance (LOA).
- Reconnaissance objective.

3-181. The boundaries are drawn on both sides and include the terrain that dominates the route. They usually extend out to include terrain from which an enemy force may influence movement among the route, ensuring that the scouts reconnoiter all key terrain. The LD is drawn from one boundary to the other behind the SP. This allows the platoon to cross the LD and be fully deployed before reaching the route. The LOA or objective is placed beyond the RP on the last terrain feature that dominates the route or at a location out to about 3 kilometers.

3-182. The platoon leader may add additional phase lines, contact points, and checkpoints to the graphics he receives from his commander. Phase lines are used to help control the maneuver of the platoon. The contact points ensure that the sections or squads maintain contact at particular critical points. Checkpoints are used along the route or on specific terrain to control movement or to designate areas that must be reconnoitered. Leaders should limit control measures to the minimum number required to accomplish the mission while allowing subordinates maximum freedom to maneuver.

3-183. In coordination with the FSO, the platoon leader plans artillery targets on known or suspected enemy positions and on dominant terrain throughout the AO. The platoon leader evaluates the factors of METT-TC to select a platoon organization. He must ensure that at least one section has responsibility for reconnoitering the route.

3-184. A three-section organization is usually the type best suited for reconnaissance of one route. One section reconnoiters the terrain on the left side of the route, another covers the terrain on the right side, and the third section reconnoiters the route and controls the movement of the other two. In this organization, the platoon leader's section has specific responsibility to reconnoiter the route. If contact is likely, the platoon leader should not organize the PSG into a maneuvering section since this could interfere with CASEVAC missions.

Note. The first example of route reconnaissance in the following discussion is for an SBCT reconnaissance platoon in a low-threat environment. As noted, without augmentation, a reconnaissance platoon cannot reconnoiter a route by itself in a high-threat environment; it takes part in a route reconnaissance as part of a larger force, such as a reconnaissance troop. The second example is for an HBCT reconnaissance platoon in a higher threat environment. In all platoon configurations, graphic overlays are posted in the FBCB2 system, depicting the required platoon configuration. To prevent becoming fixed if contact occurs and CASEVAC is necessary, it is important for the platoon maintain momentum and freedom to maneuver.

EXAMPLE OF AN SBCT RECONNAISSANCE PLATOON ROUTE RECONNAISSANCE

3-185. The platoon leader is responsible for the platoon's movement through the sector. He uses checkpoints to control and report the platoon's movement and to focus on key terrain or features that may influence movement along the route. When platoon leaders have UASs available, they should take advantage of the system's ability to observe the following:

- Dead space around dominant terrain features to warn of possible enemy attacks.
- Avenues of approach beyond terrain features to prevent undetected enemy approach.
- Area around the route ahead of the platoon to gain advance knowledge of obstacles.

3-186. In this low-threat scenario, an SBCT reconnaissance platoon has been ordered to conduct reconnaissance of a route in the troop sector. Enemy contact is not likely and the troop's AO is considered friendly. The troop has one platoon conducting checkpoint operations and one acting as squadron QRF, leaving the platoon conducting the route reconnaissance to operate independently. The troop commander has provided the tempo and engagement criteria and has focused the platoon leader on confirming trafficability of the route for vehicles within the SBCT, identifying key terrain along the route, and surveying the citizens of communities along the route to determine their feelings concerning upcoming elections. The troop commander is clear in his guidance that the platoon leader is to stay on hard surface roads.

3-187. The platoon leader organizes the platoon into two sections, which move using the traveling overwatch technique. Bravo section, consisting of the PSG and his wingman, take the lead while Alpha section, consisting of the platoon leader and his wingman, provide overwatch. The platoon leader reports when the platoon arrives at and crosses the SP. (See Figure 3-16.)

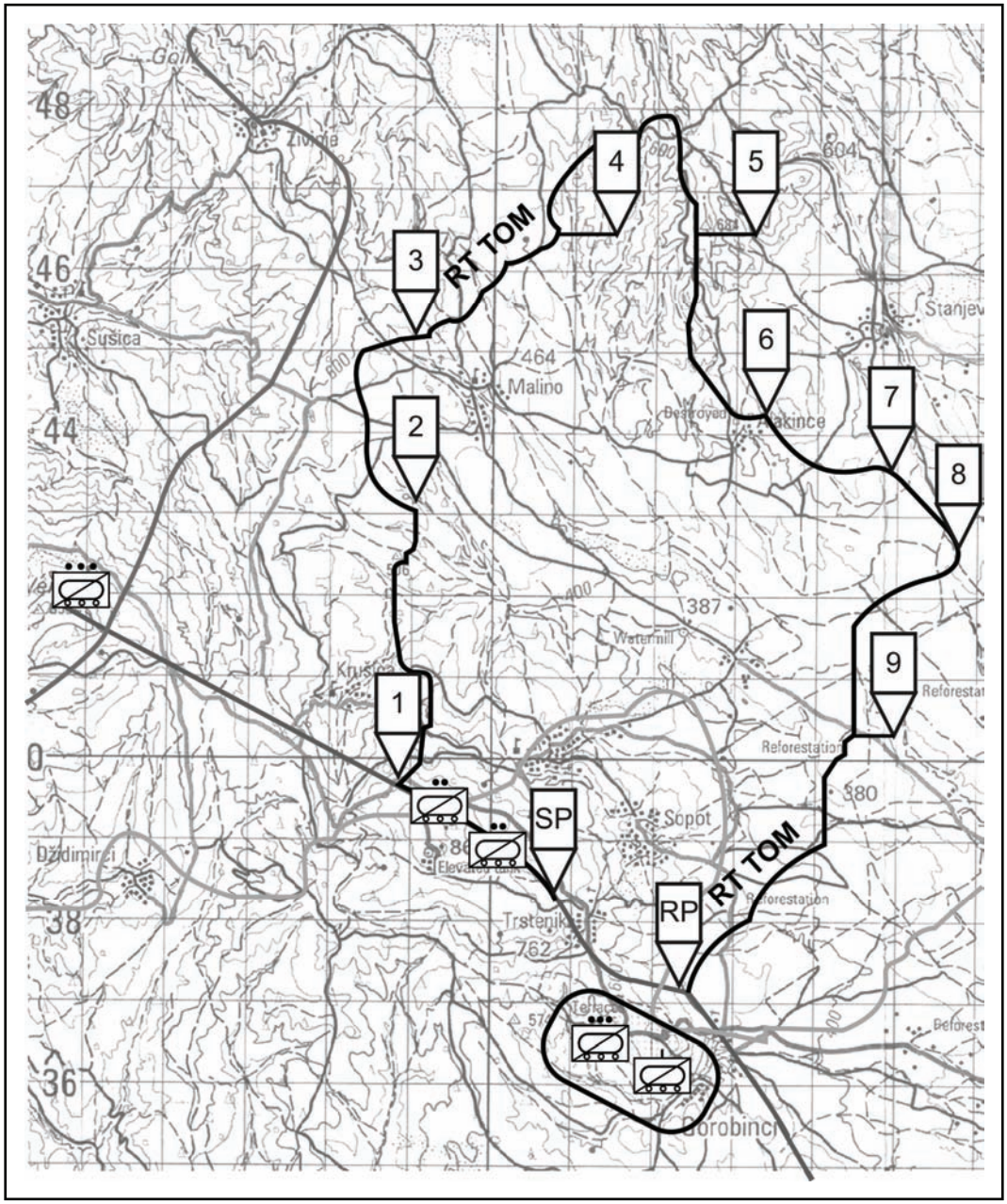

Figure 3-16. SBCT reconnaissance platoon route reconnaissance (part one)

3-188. Bravo section moves along the route at a speed dictated by the platoon leader in his OPORD. The platoon makes steady progress until checkpoint 3, which is near a small village. There the platoon halts, consolidates, and conducts HUMINT operations. The platoon leader, two scouts from his vehicle, his HUMINT collector, and his interpreter walk to the police chief's office to let him know their intentions and to find out if he knows of any obstructions along the route. (See Figure 3-17.)

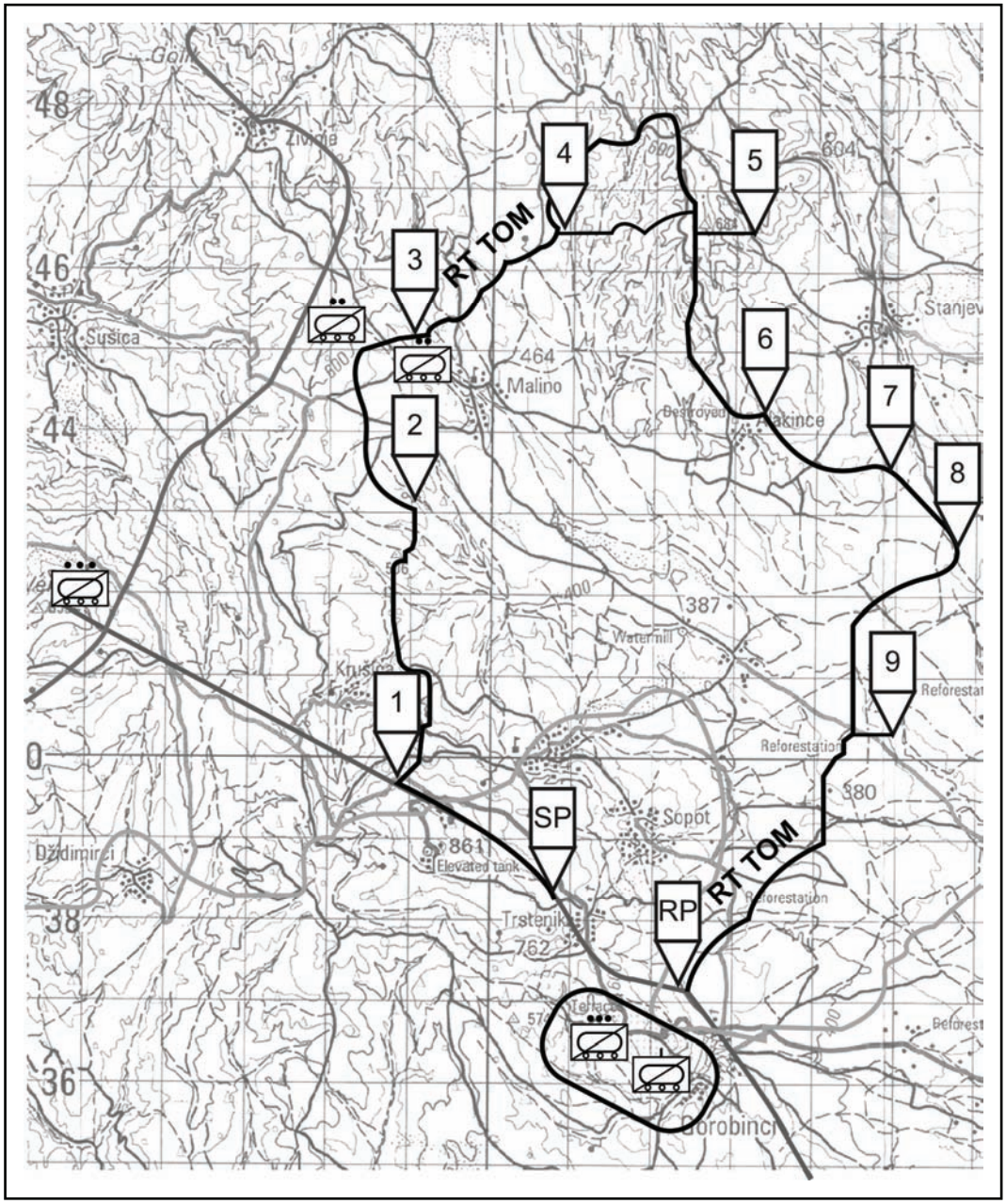

Figure 3-17. SBCT reconnaissance platoon route reconnaissance (part two)

3-189. The police chief identifies an obstacle north of checkpoint 4 and shows the platoon leader the route the locals use to bypass the obstacle. Additionally, two dismounted patrols move through opposite sides of the village conducting HUMINT operations and area assessment. One squad is left to provide vehicle security and maintain communications with the troop CP. The platoon leader contacts the troop commander and relays the information he learned from the police chief. The troop commander tells him to verify the obstacle and continue his mission on the new route. The patrols return, FBCB2 data is updated, and the platoon continues its mission.

Note. Refer to the discussion of urban operations in Appendix C of this manual.

3-190. North of checkpoint 4, the platoon identifies the complex natural obstacle and verifies that enemy elements are not overwatching the obstacle. The platoon sketches the obstacle from the road, but based on the troop commander's guidance, it does not search for an immediate bypass. (See Figure 3-18.)

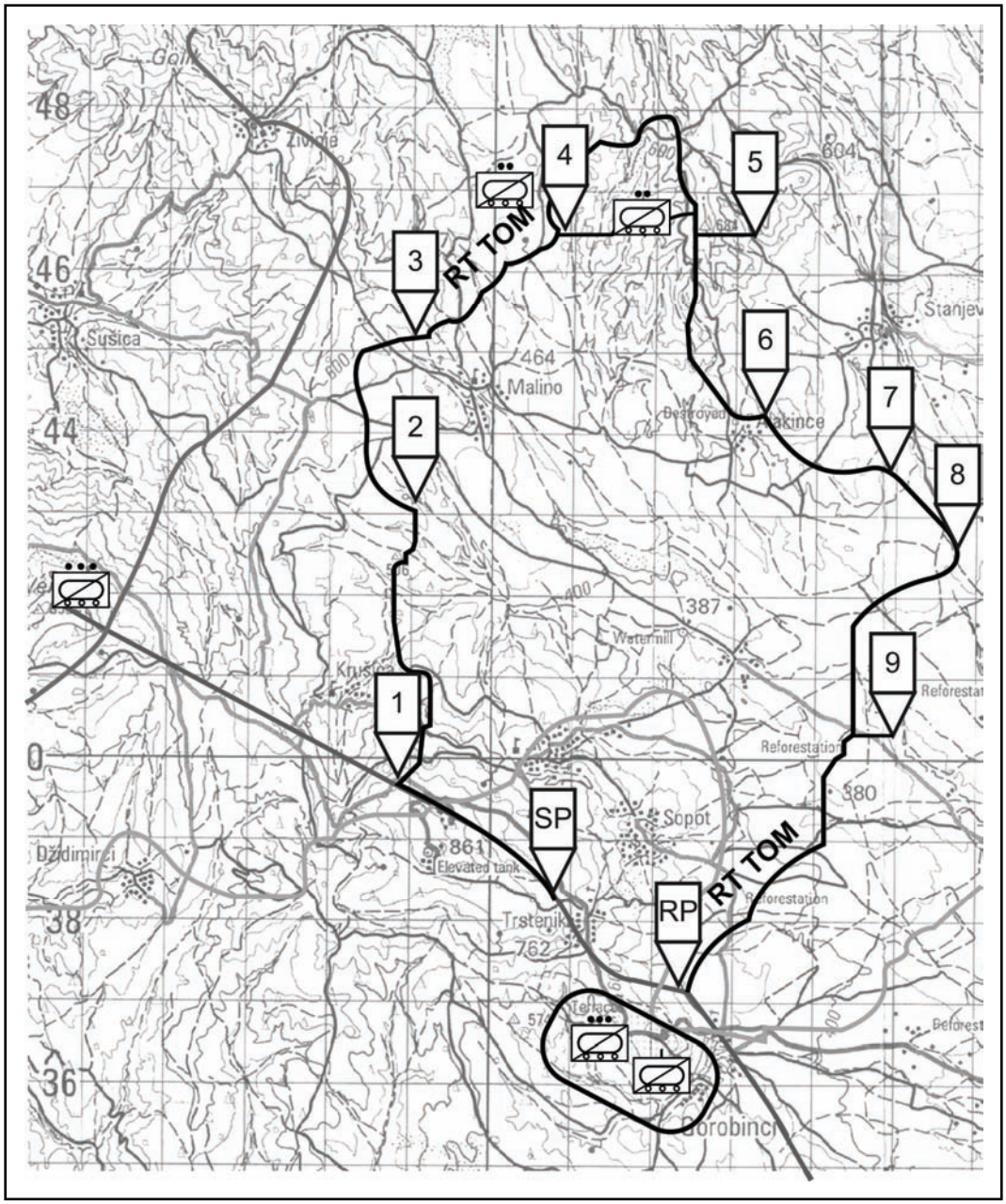

Figure 3-18. SBCT reconnaissance platoon route reconnaissance (part three)

3-191. When the sketch is complete, the platoon moves back along the route to the bypass indicated by the police chief. The platoon continues its mission, stopping one more time to conduct HUMINT operations at the village west of checkpoint 6 before returning to the base camp. Once the platoon has closed on the base camp, the platoon leader submits a reconnaissance overlay and reports to the troop CP to be debriefed by the troop HUMINT NCO.

EXAMPLE OF AN ACR SCOUT PLATOON ROUTE RECONNAISSANCE

3-192. The following example of route reconnaissance is for an ACR scout platoon. Refer to Figures 3-16 and 3-17 for an illustration of this situation.

3-193. The platoon conducts a route reconnaissance and deploys in a vee formation to provide security and maximum reconnaissance forward. Section Alpha is positioned to the left of the route, Section Bravo to the right, and Section Charlie (the platoon leader and PSG) in the center of the zone along ROUTE SABER. The platoon moves into formation before reaching the LD (PL PATTON). The platoon leader reports crossing the LD when the first element crosses it (see Figure 3-19, part A). The platoon leader establishes checkpoints to control the movement and to focus on key terrain or features that may influence movement along the route. The platoon leader updates the FBCB2 data as often as possible to ensure maintaining the unit's SA. The PSG compiles and reports information obtained along the route to the troop while being prepared to conduct CASEVAC and vehicle recovery.

3-194. Section Charlie positions along the route to observe the route, while one element of the section physically drives the entire route. The platoon moves as individual sections and prepares to adjust movement techniques based on METT-TC. As the sections move to the checkpoints, they reconnoiter the entire sector and accomplish all critical tasks of the route reconnaissance. The lead sections on the flanks observe the route and report any restrictions or obstacles that may restrict movement of the unit along the route. Sections Alpha and Bravo visually clear the route to provide increased security, therefore allowing Section Charlie to concentrate on critical reconnaissance tasks. As the lead sections maneuver toward the checkpoints, they maintain visual contact with the route (see Figure 3-19, part B). Simultaneously, UASs conduct observation one terrain feature forward, providing additional information to the platoon regarding the following:

- Dead space around dominant terrain features to warn of possible enemy attacks.
- Avenues of approach beyond terrain features to prevent unannounced enemy approach.
- Area around the route to gain knowledge of obstacles in advance of the platoon.

3-195. After both lead sections report "SET" and are in overwatch positions, Section Charlie begins the route reconnaissance (see Figure 3-19, part C). As Section Charlie's wingman moves along Route SABER, the section leader maneuvers to provide overwatch. During the reconnaissance, the platoon leader/PSG sends a classification of the trafficability of the route at intervals designated by the commander.

Note. The unit conducting the route reconnaissance ensures that the route is timed from the SP to the RP.

3-196. As Section Charlie reconnoiters the route, the other sections move ahead, reconnoitering critical and dominant terrain. The platoon leader controls and coordinates the movement of all three sections. He ensures that the flank sections remain far enough forward of Section Charlie to provide security. The flank sections clear the lateral routes while maintaining overwatch of Section Charlie. Section Alpha clears a lateral route and uses contact point Bravo to tie in with Section Charlie on Route SABER (see Figure 3-19, part D).

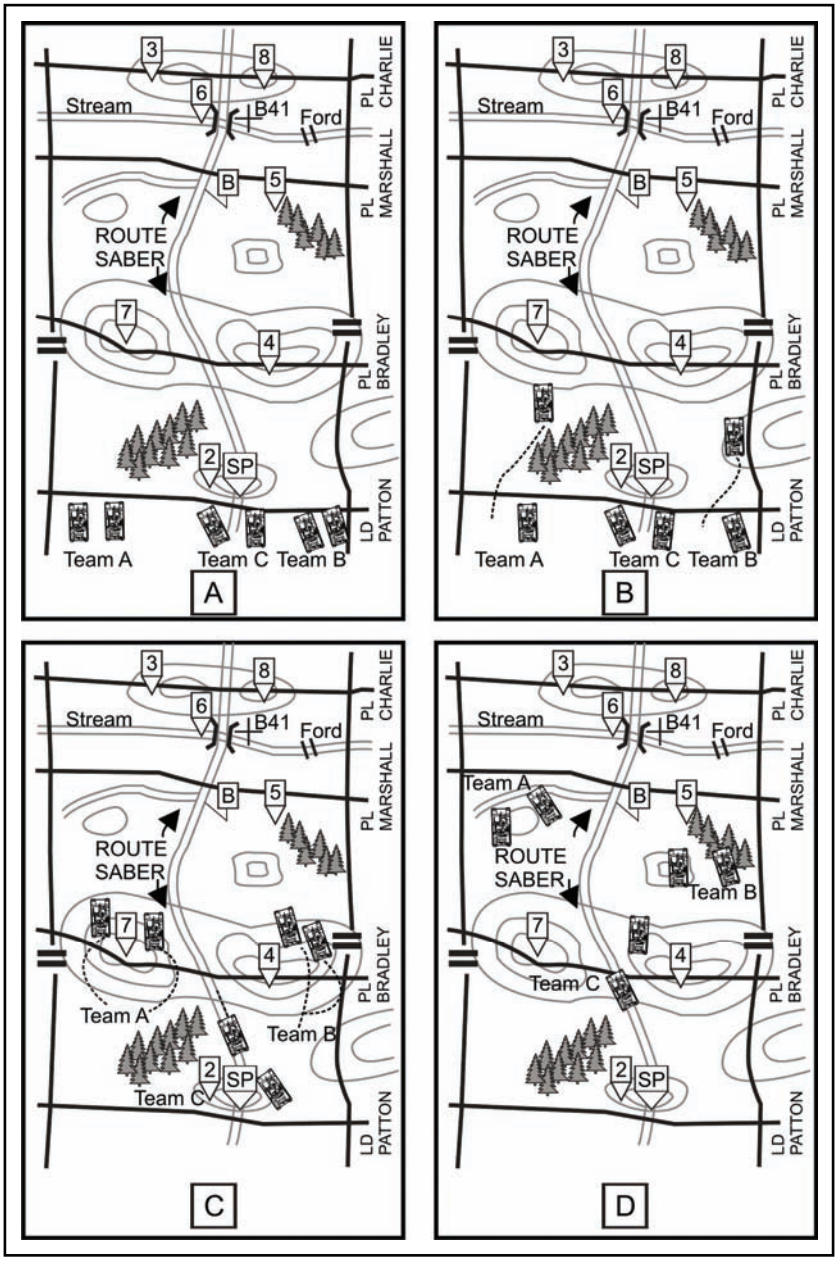

Figure 3-19. ACR scout platoon route reconnaissance (parts A through D)

3-197. Based upon the platoon order, the two flank sections locate bypasses in the form of fords or unmapped bridges across the river. Section Bravo is successful in locating a ford; Section Alpha is not. Section Bravo conducts a ford reconnaissance (following the steps used for obstacle and restriction reconnaissance). It crosses the stream at the ford, sends obstacle and bypass reports forward, and then continues its mission on the far side of the stream (see Figure 3-20, part E).

3-198. Section Charlie continues its route reconnaissance along the route until it approaches the bridge site. It then conducts a bridge reconnaissance to establish trafficability of the bridge. Section Alpha occupies an overwatch position while Section Charlie reconnoiters the bridge. Section Bravo continues its reconnaissance one terrain feature beyond the stream and then occupies a short-duration OP (as shown in Figure 3-20, part F).

3-199. Section Charlie completes its bridge reconnaissance and establishes local security on the far side of the bridge. Once this is complete, Section Alpha passes across the bridge and through Section Charlie, continuing its reconnaissance of the dominant terrain on the left flank of the route (see Figure 3-20, part G). Once Section Alpha is set in overwatch, the platoon resumes its route reconnaissance to the LOA (see Figure 3-20, part H).

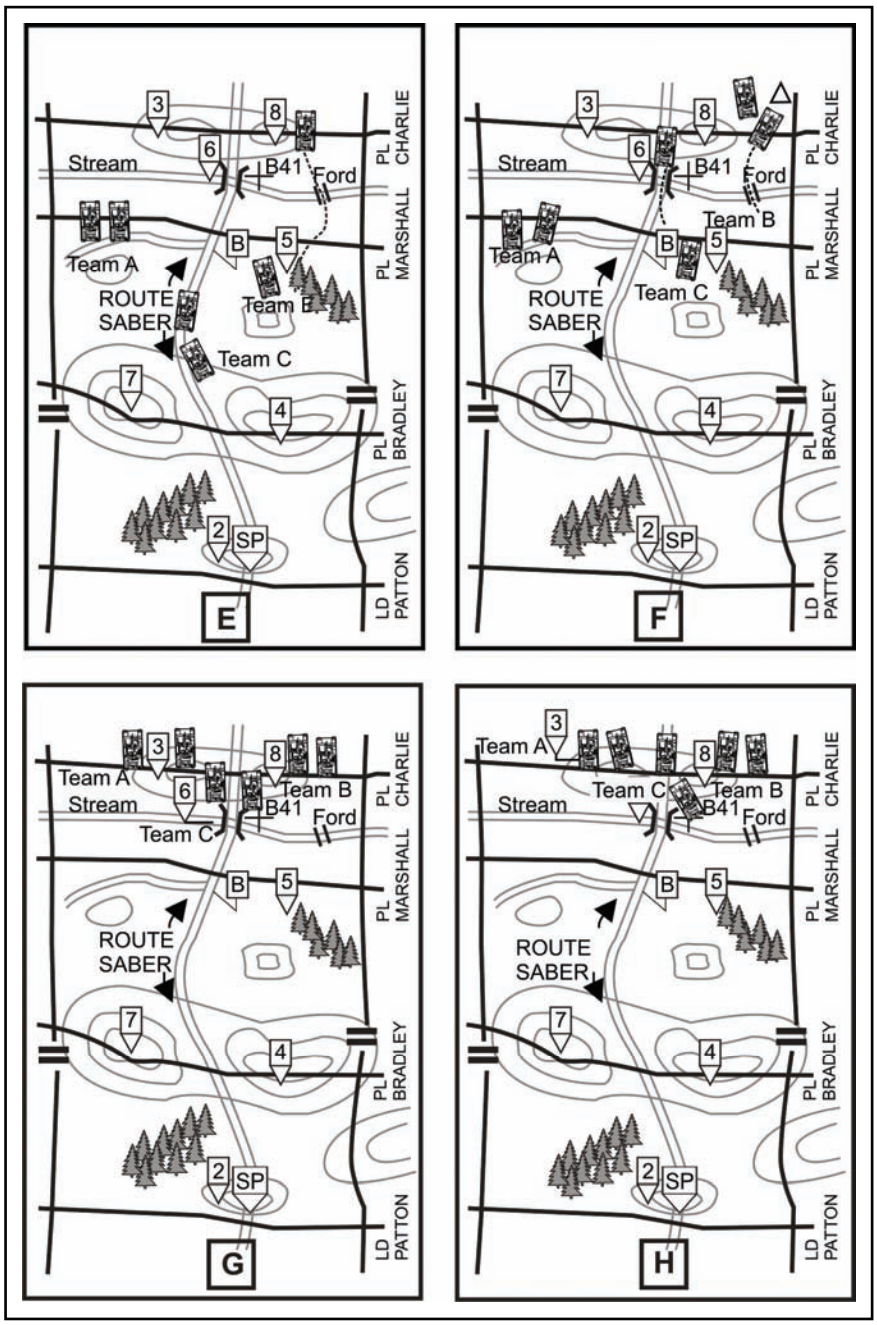

Figure 3-20. ACR scout platoon route reconnaissance (parts E through H)

3-200. Certain conditions may lead a scout platoon to modify the technique in which it conducts a route reconnaissance. Factors such as a narrow sector of operation, likelihood of heavy enemy contact, and the CCIR demanding detailed route information may require a change from a three-team formation to a two-team platoon formation, in depth. The HBCT reconnaissance platoon may also adopt this technique. As

depicted in Figure 3-21, Section Alpha screens forward of Section Bravo while it classifies the route. Section Alpha bounds by phase line and halts forming a screen. Section Bravo moves along the route to gather relevant information for the route classification. Section Alpha bounds forward only after Section Bravo has called "set". As the scout platoon moves forward, the overwatching tank platoon bounds and assumes hasty battle positions to the rear of the scouts (preferably on dominant terrain) no more than half the maximum effective range of their main weapon systems. Tank movement should occur when both scout sections are stationary. The tank section may move as individual sections on the platoon's flanks if the terrain permits.

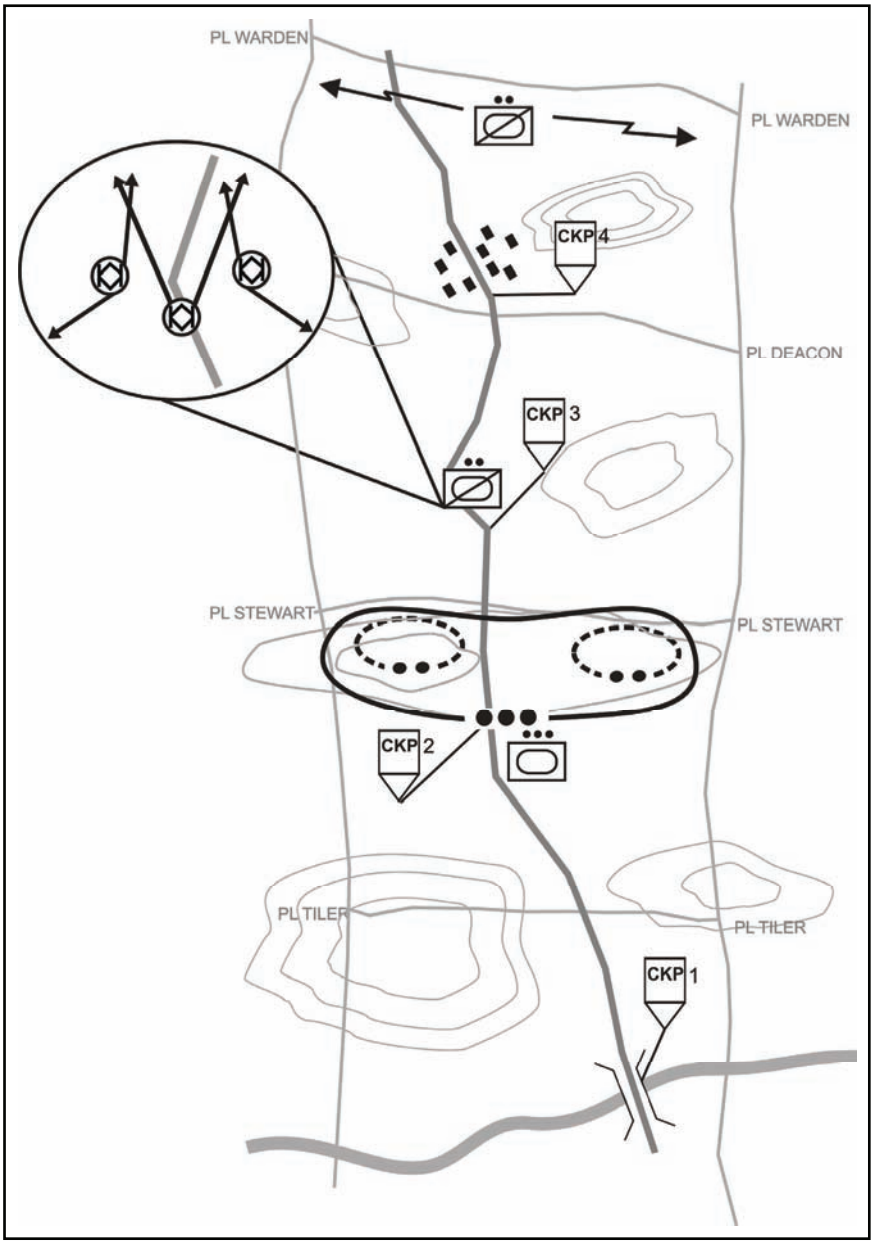

Figure 3-21. Alternate ACR scout platoon route reconnaissance

SECTION V – AREA RECONNAISSANCE

3-201. Before moving forces into or near a specified area, the commander may call on the reconnaissance or scout platoon to conduct an area reconnaissance to avoid being surprised by unsuitable terrain conditions or unexpected enemy forces. The area could be a town, ridgeline, woods, IV line/dead space, or another feature that friendly forces intend to occupy, pass through, or avoid.

3-202. Area reconnaissance is frequently employed to gain information on specified areas, objectives, or danger areas (to confirm IPB templates), as well as to provide detailed information regarding enemy dispositions. Within a zone of operations, area reconnaissance can be used to focus the platoon on a specific area that is critical to the commander. Some examples of area reconnaissance include the following:

- Dismounted reconnaissance patrols move forward of their forward edge of the battle area (FEBA) to locate enemy obstacles that influence the BCT's axis of attack, fighting positions on dominant terrain, and reserve forces hidden prior to a deliberate attack.
- CAB reconnaissance platoons are able to focus on dominant terrain locations that influence the CAB movement after brigade reconnaissance has cleared the area of potential enemy forces.

3-203. Area reconnaissance can be a stand-alone mission or a task to a section or platoon within a zone reconnaissance mission. The employment of UASs can reduce the amount of time ground scouts need to move through the area by confirming or denying PIR or clearing danger area/dead space templated during the IPB process. Area reconnaissance can be terrain-oriented, force-oriented (threat/enemy), society-oriented, infrastructure-oriented, or a combination of any of these factors. The commander analyzes the mission using METT-TC factors to determine whether to conduct one of these factors of reconnaissance separately or to conduct them in conjunction with each other.

3-204. A reconnaissance platoon augmented with the appropriate assets can conduct the multidimensional aspect of area reconnaissance, if directed, to gain detailed information about the civilian populace and infrastructure in a particular area.

CRITICAL TASKS

3-205. The reconnaissance platoon must accomplish numerous critical tasks during the area reconnaissance. The platoon's primary critical tasks include the following (unless the commander directs otherwise):

- Find and report all enemy forces within the area.
- Reconnoiter and determine trafficability of all terrain within the area.
- Inspect and classify all bridges within the area.
- Locate fords or crossing sites near all bridges in the area.
- Inspect and classify all overpasses, underpasses, and culverts in the area.
- Within capability, locate all minefields and other obstacles in the area, reduce or breach them, and clear and mark lanes.
- Locate and identify bypasses around built-up areas, obstacles, and contaminated areas.
- Report information.

3-206. In addition to these tasks, the platoon must be prepared to conduct other tasks deemed critical by the higher commander. Additional tasks for the area reconnaissance may include the following:

- Identify threat activities (which include insurgent and opposition leaders), countermeasures, and probable COAs.
- Determine the size, location, and composition of society/human demographics. Examples include race, sex, age, religion, language, tribe, clan, class, education, history, government, and/or factions.
- Establish and maintain contact with local civilian and military leadership.

- Conduct reconnaissance of the society with HUMINT teams to determine needs of the society; the regional, local, and neighborhood situations; organizations and methods of operation for terrorists, transnational groups, and ethnic centers of gravity; financial and economic systems; and media activities (local, U.S., international).
- Identify key municipal infrastructure that can affect military operations, including sewage, water, electricity, academics, trash, medical, safety, and other considerations (these constitute the memory aid/acronym of SWEAT-MSO).
- Identify the allegiances of the local populace to factions, religious groups, or other organizations.

TECHNIQUES

3-207. To conduct an area reconnaissance mission, the reconnaissance or scout platoon leader first identifies the area to be reconnoitered within a continuous boundary, such as a reconnaissance objective or an NAI. The platoon leader analyzes the mission, threat/enemy, and terrain and completes his troop-leading procedures. He also plans movement to and, if necessary, from the area, following the basic rule of using different routes to and from the area. The routes may be specified for the platoon in the troop WARNO/OPORD/FRAGO. In addition, the platoon leader plans for conducting C2 during the execution phase of the area reconnaissance. Platoon leadership can conduct C2 in one of two ways:

- Accompany the section leaders forward in their assigned sectors with a skeleton crew protecting the vehicles in hide sites. This requires support from the higher command.
- Situate themselves with the vehicles in hide sites where they will receive and forward reports, update the situational picture, and conduct CASEVAC and other support missions for the sections as required. This allows an additional smaller patrol to be deployed if the enemy situation worsens.

3-208. The platoon's primary concern during movement to the proposed area is security rather than reconnaissance. If the platoon leader feels there may be enemy forces along the route to the area, the platoon should employ the principles of tactical movement based on METT-TC factors. The platoon leader must also incorporate information from UAS and ground sensor assets into the operation. During movement to the area, it may be appropriate (depending on the commander's intent) for the platoon to avoid contact. The platoon leader may also choose to orient and focus sections or squads on checkpoints as the platoon moves to the area.

3-209. The platoon leader encloses the given area within a platoon zone if the area size allows; he uses boundaries, an LD, and an LOA. He can divide the area into section zones by placing boundaries on identifiable terrain; this ensures that each section has responsibility for specific pieces of terrain. The platoon leader must ensure cross-talk among the sections to improve SA and target identification. He must carefully control section movement to reduce the risk of fratricide.

3-210. The platoon leader places contact points at the intersections of phase lines and boundaries and at any other location for physical contact and coordination between his sections. He uses GIRS/TIRS as necessary for directions. The platoon leader works with the FSO to plan indirect fires to support the platoon's scheme of maneuver. In addition, section leaders have the ability to request targets in their assigned zone.

3-211. The platoon can conduct area reconnaissance using any of the platoon's section formations. Platoon leaders must consider the location of the PSG during possible contact. The platoon leader organizes the platoon in accordance with METT-TC, while allowing the PSG the flexibility to conduct CASEVAC, resupply, and vehicle recovery during extended operations. The platoon leader deploys his sections across the LD to best accomplish the platoon's reconnaissance tasks. Leaders adjust formations in accordance with the factors of METT-TC and the OE.

EXAMPLE OF AN AREA RECONNAISSANCE

3-212. The following example illustrates area reconnaissance by a CAB reconnaissance platoon; however, the mission may be conducted in similar fashion by any type of reconnaissance or scout platoon.

3-213. The platoon is operating as part of a troop conducting an area reconnaissance in an SSC scenario. Each of the troop's platoons has a different reconnaissance objective. The focus and tempo of the operation allow the troop to move to a dismount point close to its reconnaissance objective. The engagement criteria allow the platoon to use indirect fire on enemy dismounts and vehicles only to break direct fire contact.

3-214. In this example, the platoon has been given the mission of performing an area reconnaissance of OBJ IRON. A UAS overflew the area several hours ago and confirmed the presence of enemy soldiers in OBJ IRON; however, it could not remain on station to determine the direction in which enemy vehicles were moving. The platoon conducts stealthy reconnaissance establishing its OPs. The platoon leader has requested HUMINT resources for potential SE after enemy forces are eliminated.

3-215. The platoon has been assigned a specific infiltration route. It is believed that the enemy has established a traffic control point in the vicinity of checkpoint 13, in OBJ IRON. From this intersection, the enemy is deploying forces east to west into BPs. The platoon leader decides, after analyzing METT-TC factors, to deploy his platoon to maximize security. Based on his analysis of the terrain and his mission requirements, he decides to use the two-section organization. He decides to move with Section Alpha on LANE SABER and assigns Section Bravo, with the PSG, to LANE SPUR. Dismounts rehearse dismounted actions on contact and prepare rucksacks and OP sustainment equipment. The platoon leader will leave vehicle crews with the platoon's vehicles. The crews rehearse actions on contact in the hide site to ensure the vehicles are not compromised. The platoon leader decides to move the platoon using phase lines (rather than checkpoints), allowing the sections more latitude in choosing covered and concealed terrain. CAB UAS assets begin scanning the flanks of the enemy position to confirm or deny hasty obstacle emplacement.

3-216. Using the two-section organization, the platoon crosses PL RAY at the specified time with each section using bounding overwatch (see Figure 3-22).

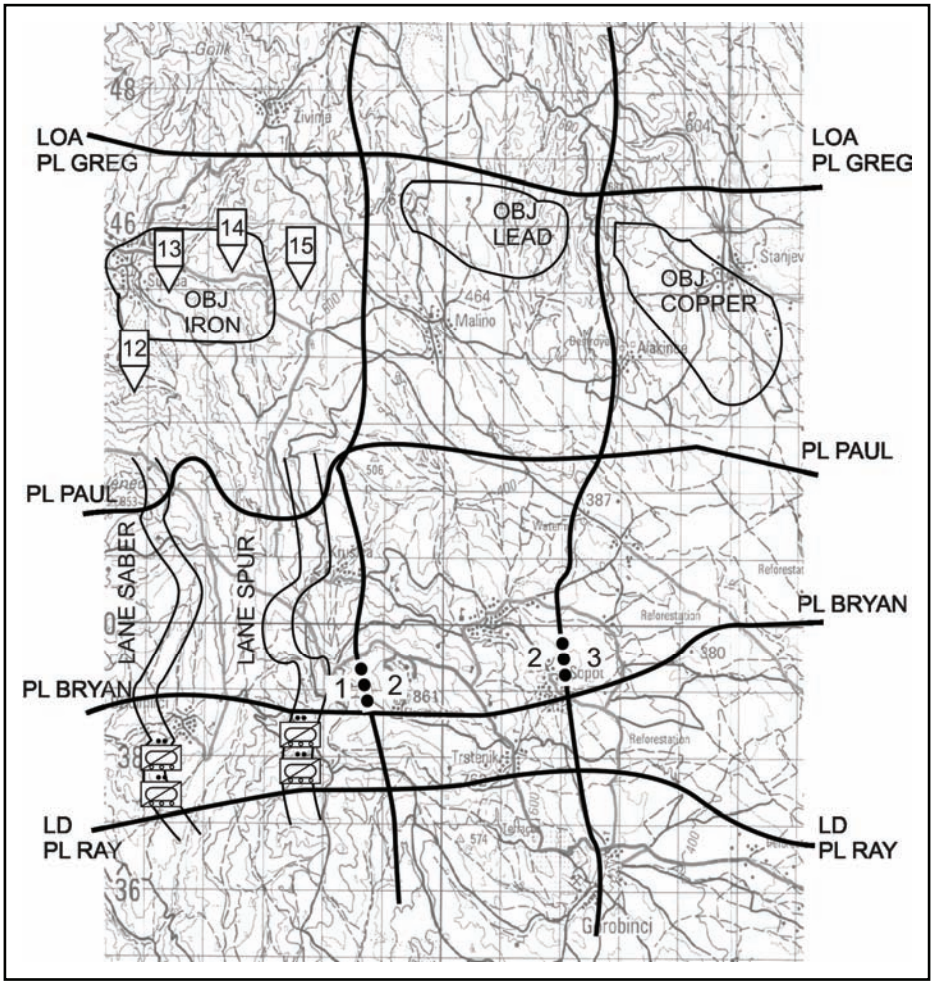

Figure 3-22. Area reconnaissance (part one)

3-217. The platoon's sections continue their move to the designated dismount points. Section Alpha occupies its dismount point, checkpoint 12. Section Bravo occupies its dismount point, checkpoint 15. Each section moves its vehicles into hide positions, readies patrols, and deploys local security. NFAs are coordinated with the company FIST, and any additional supporting fires are planned based on what is observed on the ground.

3-218. The platoon leader notifies the UAS element assigned to his AO that his elements are set in their dismount points. Based on prior coordination, the UAS section sends a UAS to reconnoiter OBJ IRON before the reconnaissance platoon continues its move to establish its OPs. The UAS section leader reports to the reconnaissance platoon leader that his aircraft confirmed Soldiers at the intersection, but detected no vehicle activity or obstacles.

3-219. After evaluating the UAS update, each patrol moves on covered and concealed dismounted routes to OBJ IRON, conducting dismounted reconnaissance. Based on the commander's guidance, each patrol carries equipment to establish a 48-hour OP. Each four-man team conducts stealthy movement, using traveling overwatch. Two of the men focus on moving forward, conducting reconnaissance; the other two provide security (see Figure 3-23).

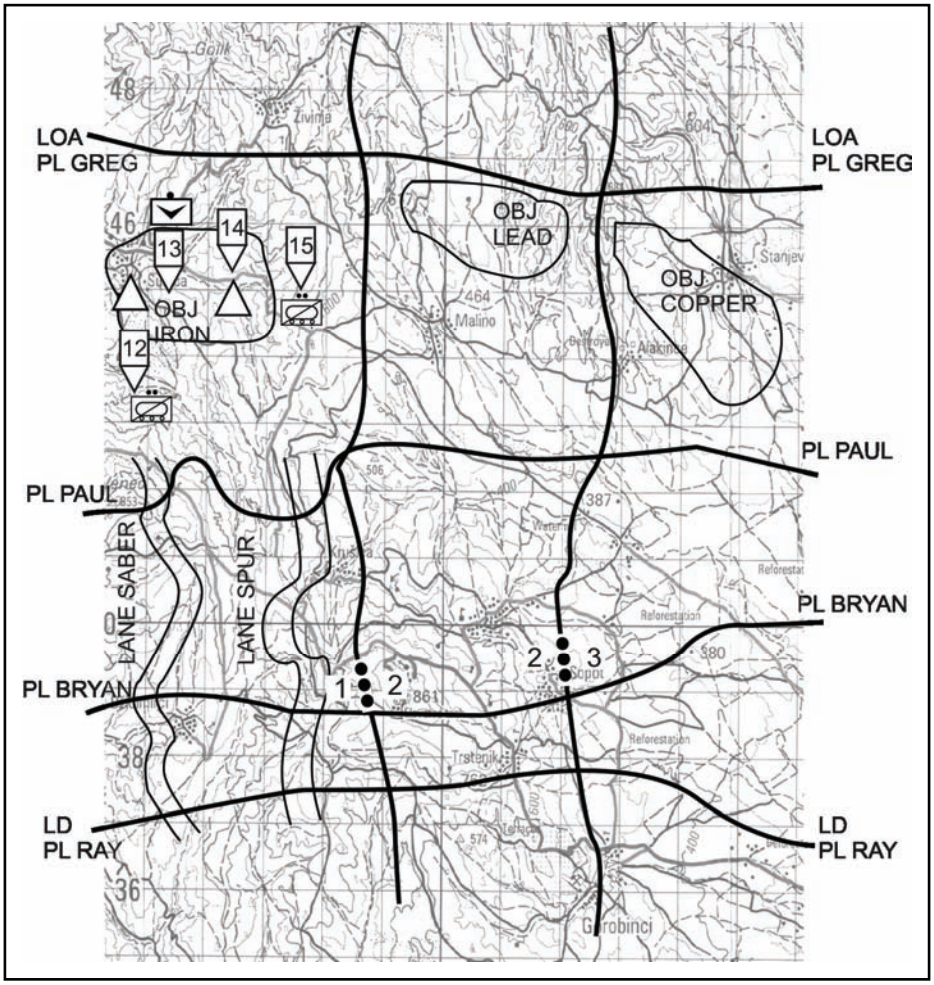

Figure 3-23. Area reconnaissance (part two)

3-220. Each section places its OP where it can best observe the objective area. Section Alpha establishes its OP at checkpoint 13; Section Bravo establishes its OP at checkpoint 14. Each OP establishes communications back to its vehicles in the hide position. Information gathered from the indigenous people indicates the enemy elements have relocated north and may return. The platoon leader sends a SITREP to the commander and confirms there is negative contact at that time.

3-221. The OPs send reports, in terms of content and frequency, as outlined by the troop commander or unit SOP. The Soldiers in the hide position maintain communications with the troop CP and are prepared to act as a QRF for the dismounted OPs. The platoon continues to observe the objective until it is relieved, assigned subsequent tasks, or until the parent unit conducts an attack through the area. In the event of an attack conducted by higher echelon, the platoon leader takes appropriate actions to stay out of the way, to provide support by calling for indirect fires, and to clearly identify the platoon position to friendly elements approaching to the rear.

Note. For a detailed discussion of area reconnaissance in an urban environment, refer to Appendix C of this manual.

RECONNAISSANCE OF OBSTACLES AND RESTRICTIONS

3-222. One of the common tasks associated with reconnaissance missions is the location and reconnaissance of obstacles and restrictions that may affect the trafficability of a particular route or axis. The reconnaissance or scout platoon may perform reconnaissance of an obstacle or restriction as a stand-alone task or as part of a route, zone, or area reconnaissance mission. For more information, refer to FM 3-20.971.

3-223. Obstacles and restrictions can be either natural or man-made. Threat/enemy doctrine emphasizes the use of man-made obstacles to reinforce natural obstacles and of restrictions to slow, impede, and canalize friendly forces. In the current OE, the threat exploits the canalizing nature of the urban environment to employ IEDs and vehicle-borne IEDs (VBIED). Other typical obstacles and restrictions include the following:

- Minefields.
- Bridges.
- Log obstacles such as abatises, log cribs, stumps, and posts.
- AT ditches.
- Wire entanglements.
- Defiles.
- Persistent agent contamination.
- Fills, such as a raised railroad track or canal embankments.

3-224. The reconnaissance or scout platoon's ability to deal with an obstacle or restriction is extensive in certain areas and limited in others. An important platoon task is reconnaissance of deliberate obstacles, including supporting enemy positions and possible breach sites. Another important platoon reconnaissance task is to locate bypasses around obstacles and restrictions.

3-225. The platoon has the capability to reduce or breach small obstacles; however, this is generally limited to point obstacles that are not integrated into the enemy defense and are not covered by enemy fire and observation. When scouts encounter obstacles that support an enemy defense, they have the capability to assist in breaching. Platoon leaders must request and plan for engineer support when they encounter these obstacles. Removal and detonation of IED/VBIEDs require explosive ordinance disposal (EOD) assets with UGVs such as the remote ordnance neutralization system to remove or detonate devices.

Note. An engineer reconnaissance team or squad may be task organized and attached to the platoon to assist in reconnaissance of obstacles/restrictions. The engineer element provides expertise in collecting pertinent obstacle intelligence (OBSTINTEL) about the obstacle/restriction. This small engineer element provides extremely limited breaching capability. Larger engineer organizations are equipped for breaching using explosive charges, plows or blades to reduce or breach an obstacle and rollers to finish clearing and proofing the lane.

STEPS OF RECONNAISSANCE OF OBSTACLES/RESTRICTIONS

3-226. How the platoon approaches reconnaissance of an obstacle or restriction is dependent on METT-TC. The process of conducting this type of reconnaissance can be covered in five steps within the considerations of METT-TC:

- Detection.
- Area security and reconnaissance.
- Reconnaissance of obstacles and restrictions.
- Selection of a COA.
- Recommendation/execution of a COA including bypass.

Detection

3-227. During reconnaissance operations, detection of obstacles and restrictions begins in the planning phase of an operation when the S-2 conducts IPB (the IPB process should be conducted by leaders at all echelons). The platoon combines the IPB with the reconnaissance conducted during the troop-leading process (normally at least map reconnaissance) to identify all possible obstacles and restrictions within the AO. The platoon leader then plans the reconnaissance of the obstacles/restrictions based upon orders, IPB, and map reconnaissance.

3-228. Scouts use visual and physical means to detect mines and obstacles while conducting their mission. They visually inspect terrain for signs of mine emplacement and other reinforcing obstacles. Scouts must be wary of IED/VBIEDs that are easily hidden under debris or as parts of objects that do not look out of place. Scouts must also observe for unexploded ordnance such as bomblets from cluster bomb units (CBU) or dual-purpose improved conventional munitions (DPICM).

3-229. Mines and other types of obstacles can be difficult for moving mounted elements to detect; therefore, scouts must conduct obstacle detection dismounted if possible. They may need to dismount their vehicles several hundred meters short of a suspected obstacle and approach the obstacle on foot to conduct reconnaissance. They look for disturbed earth, unusual or out-of-place features, surface-laid mines, tilt rods, and tripwires. They can incorporate vehicle-mounted thermal sights into the search to help detect surface-laid mines, looking for temperature differences in the soil or wires. Passive NODs can pick up some lasers used by the enemy to designate targets or trigger munitions.

3-230. Physical detection methods include detonating, probing, and using a mine detector. Detection occurs when a vehicle, Soldier, or countermine system physically encounters a mine. This method does not indicate the boundaries of the obstacle. The scouts must probe or conduct additional visual inspection to define the extent of the minefield and report the obstacle.

Security and Initial Reconnaissance

3-231. Enemy forces often cover their obstacles with observation and fire. Whenever scouts encounter an obstacle, they must proceed with their reconnaissance assuming the enemy can observe and engage them. The element that detects the obstacle establishes overwatch before it proceeds with the reconnaissance. The scouts in overwatch look for signs of enemy forces in and around the obstacle or in positions that allow observation of the obstacle. They visually search the dominant terrain on the far side of the obstacle for evidence of enemy positions or ambushes. UASs may be employed to locate the enemy overwatch; however, scouts must not rely on the surveillance systems to develop the situation. They must dismount to accomplish this.

3-232. Once they confirm the enemy situation from the near side, the scouts not in overwatch move mounted and/or dismounted to find bypasses around the obstacle. If they find a bypass, they move around the obstacle and establish OPs on the far side to provide 360-degree security of the obstacle. If the scouts are unable to find a bypass, they must conduct their reconnaissance from the near side under the security of the overwatch elements.

Detailed Reconnaissance

3-233. Once security is established, scouts then move dismounted to the obstacle. They must be cautious when reconnoitering the obstacle. Tripwires or other indicators may indicate the enemy is using booby traps or command-detonated mines to prevent friendly forces from determining and collecting OBSTINTEL. The reconnaissance or scout platoon must collect all information that may be critical to the commander in such functions as planning a breach and verifying the enemy template. Examples of OBSTINTEL include the following:

- Obstacle location.
- Obstacle orientation.
- Soil conditions.
- Presence of wire, gaps, and bypasses.

- Composition of complex obstacles.
- Minefield composition, including types of mines.
- Breaching requirements.
- Gaps between successive obstacle belts.
- Location of enemy direct fire weapons.

Note. Optical devices can be used to detect booby traps. Infrared illuminators and designators can create reflections off trip wires that are visible to NODs or even laser designators. Crew and individual weapon forward looking infrared (FLIR) sights can detect the difference between trip wire temperature and that of the surrounding air.

3-234. The element reconnoitering the obstacle prepares an obstacle report (Blue 9) with this information and forwards the report through the platoon leader or PSG to the commander. Once the information is sent, the platoon leader must ensure the situational picture is updated through FBCB2 to prevent follow-on units from blindly encountering the obstacle.

Note. For information on obstacle report formats, refer to Appendix A of this manual.

Selection of a COA

3-235. The platoon leader analyzes the situation and METT-TC factors to determine which COA to select. He has a choice of four COAs:

- Bypass the obstacle/restriction.
- Conduct obstacle breaching (with or without engineer assets).
- Support a breaching operation.
- Continue the mission.

Bypass

3-236. A bypass is the preferred COA when it offers a quick, easy, and tactically sound means of avoiding the obstacle. To be effective, a bypass must allow the entire force to avoid the primary obstacle without risking further exposure to enemy ambush and without diverting the force from its objective. Bypassing conserves reduction assets and maintains the momentum of the moving unit. If the platoon leader decides to bypass and his commander approves, scouts must mark the bypass and report it to the commander. They may be required to provide guides for the main body if the bypass is difficult to locate or visibility conditions are poor. Notifying the commander of this COA alerts follow-on units to the composition/disposition of the obstacle.

Conduct Obstacle Breaching Operations

3-237. In some cases, bypassing an obstacle may not be feasible. In these cases breaching may be the best COA. Such situations may include the following:

- The obstacle is integrated into a prepared defensive position and the only available bypass canalizes friendly forces into an enemy engagement area or ambush.
- The platoon's mission specifically tasks it to reconnoiter and breach any obstacle or to eliminate any enemy forces located on the original route, allowing follow-on forces to maintain freedom of movement.
- The best available bypass route will not allow follow-on forces to maintain their desired rate of movement.
- Improving the bypass may require more time and assets than breaching the primary obstacle(s).

3-238. Obstacle breaching significantly degrades the platoon's ability to maintain momentum, either for its own reconnaissance effort or for follow-on forces. Obstacles within the platoon's breaching capability include small minefields, simple wire obstacles, small roadblocks, craters, and similar point-type obstacles.

Support a Breaching Operation

3-239. When the platoon locates a large obstacle that cannot be easily bypassed, its primary option is to support a breaching operation. The scouts perform additional reconnaissance and security tasks as necessary; these may include determining the amount of time and resources required to reduce the obstacle and locating the best available reduction site. UAS and HUMINT resources can be employed to gather additional information of enemy activities while engineers move forward. This may lead to further encounters with obstacles. The platoon's reconnaissance effort focuses on the following features:

- Fighting positions for support force weapons on the near side of the obstacle.
- Trafficable routes to the breach site and routes from the far side leading to the objective.
- Dispersed covered and concealed areas near the breach site.
- Work areas on the near side for reduction assets of the breach force.
- Fighting positions on the far side once a passage lane is established.
- Positions on both sides of the obstacle that could facilitate enemy observation of the breach site.
- Trafficability and soil conditions near the breach site. This is especially important for minefield reduction because mine-clearing blades will not work properly in all soil conditions.
- Soil stability of wet and dry gaps.
- Width, depth, and bottom condition of wet and dry gaps.
- Bank height and slope.
- Water velocity of wet gaps.
- Wind direction for obscuration of the obstacle.

Note. If he expects to encounter large obstacles during an operation, the commander may direct engineer reconnaissance teams to move with the scouts to determine much of this information.

3-240. Engineer assistance can make the process of gathering the OBSTINTEL necessary for a breaching operation much easier and more effective for the reconnaissance or scout platoon. If he expects to encounter large obstacles during a mission, the platoon leader should request an attached engineer reconnaissance team or, as a minimum, an engineer NCO to serve as a technical advisor. Scouts who have received sapper training may also enhance the platoon's capabilities. Security for the engineer reconnaissance team must be a priority because they present a valuable target to enemy snipers intent on preventing a breach.

Note. Intelligence confirming a bridge location in a noncombat area and without apparent damage may not justify the tasking or attachment of an engineer squad/section. Scouts or a sapper from the engineer unit can inspect the bridge for tampering or booby traps effectively. If information indicates the bridge has damage, a close inspection is warranted. Scouts can confirm or deny degrees of damage on a structure; however engineer support must be coordinated to accurately determine structural damage and the initial estimate for repairs so the bridge can be restored for use by military units and the local populace. This action supports Army relations with the local populace.

3-241. After the platoon reports the necessary information to the commander, the scouts maintain security of the obstacle and serve as guides, if necessary, for the breach force. The information they provide is used by the commander and his engineers to prepare the suppression, obscuration, security, reduction, and assault (SOSRA) plans for the breach. The platoon maintains security during the breaching operation and

calls for and adjusts fires, as necessary, in support of the breach. The platoon must be in position to move rapidly through the obstacle once a lane is created so it can continue its mission.

Continue the Mission

3-242. When the platoon encounters a restriction, such as a bridge or defile, it may find that the restriction does not impede movement and is not covered by enemy fire or observation. Scouts may also discover dummy minefields or obstacles that are incomplete and easily passed through. Under these conditions, the platoon's COA may be to report the deception, then continue the reconnaissance mission.

Note. Apparent deception minefields or restrictions could be overwatched by enemy personnel with command-detonated devices waiting for specific targets. Vehicle commanders and dismounted patrol leaders must scan for and locate individuals covertly observing the restriction. Dismounts may also locate hasty positions prepared for later occupation by elements that will command-detonate munitions against follow-on forces.

Recommendation/Execution of a COA

3-243. Once the platoon leader has determined the COA best suited to the situation, he either executes it or recommends it to his higher headquarters for approval. Generally, the platoon will execute a particular COA without specific approval if it is within the commander's intent or is covered in the unit SOP. In such a case, the platoon leader will execute the COA and then inform the commander of his actions. If the situation the platoon has discovered is not covered by previous guidance, the platoon leader determines the best COA and recommends it to his commander. He then executes the COA specified by the commander.

EXAMPLES OF RECONNAISSANCE OF OBSTACLES AND RESTRICTIONS

3-244. These examples illustrate reconnaissance of obstacles and restrictions in two tactical situations. They are organized using the five-step process. For additional information, refer to FM 3-20.971.

Reconnaissance of a Restriction (Not Covered by Fire or Observation)

3-245. Figure 3-24 (parts A through D) illustrates this situation.

Detection

3-246. A scout platoon from an ACR cavalry troop detects a bridge, either while on the move or from an overwatch position (see Figure 3-24, part A). The bridge was expected because it was also identified during the scouts' IPB and map reconnaissance. A UAS flight confirms the bridge's location and reports that despite battle damage in the area, the bridge appears to be intact.

Security and Reconnaissance

3-247. Dismounted scouts bring the platoon's vehicles into covered and concealed overwatch positions; the platoon establishes near side security of the bridge. A dismounted patrol is organized to conduct reconnaissance up to the bridge while overwatched by the vehicles. A UAS tasked to the platoon will support in a security and reconnaissance role by scanning and searching the surrounding area for enemy elements (see Figure 3-24, part B). The dismounted element starts its reconnaissance for both mounted and dismounted bypasses. The dismounts must determine quickly if it is possible for the unit's heaviest vehicles to use the bridge or bypass the bridge using a ford in the local area. They must locate a bridging point on the banks where armored vehicle launched bridge (AVLB) assets may emplace a bridge for the vehicles (both wheeled and tracked) that may follow them. The platoon leader monitors the situation and, if necessary, may direct other sections to assume the mission of locating other bridges or fords to serve as bypasses. The patrol leader reports the bridge condition and other bridge information, including load classification for the platoon's reconnaissance report, to the platoon leader.

3-248. If the water obstacle can be forded, the dismounts use the ford to move to the far side. This must be coordinated with the platoon since this is an exposed movement for the dismounts and an opportune moment for the enemy to engage them. Once on the far side, scouts establish far side security and reconnoiter the terrain that dominates the bridge to observe enemy approach routes to the bridge. Once the far side is secure, the platoon is ready to classify the bridge. If engineer support is present, scouts maintain security while the engineer element conducts the inspection of the bridge.

3-249. If the water obstacle cannot be easily forded in the local area, the scouts may have to cross on the bridge itself. Before attempting to cross, the dismounted scouts visually examine the bridge for structural damage and rigged explosives. If the bridge appears intact, the dismounted element then crosses the bridge one scout at a time. This must be coordinated with the platoon leader so all assets can scan for enemy activity in the area. The scouts move quickly to the far side and take up covered and concealed positions where possible to provide local far side security on the bridge. Once the entire dismounted element is secure on the opposite side, it continues beyond the immediate bank area to secure the far side.

Reconnaissance of an Obstacle

3-250. Once the area has been reconnoitered and secured, a dismounted element (which may include engineer personnel) moves to the bridge under the supervision of the senior scout and conducts a detailed examination of the bridge (see Figure 3-24, part C). The dismounted element examines the bridge for the following purposes:

- **Ensure that the bridge is free of demolitions**. This requires examination of underwater pilings and the underside of the bridge for hidden explosives. In addition, the scouts should take a detailed look at the far side to find any electrical cables or wires connecting the bridge to the shore.
- **Find any structural damag**e. Scouts look for obvious signs of enemy destruction efforts and for less obvious signs of structural damage, including cracks or fractures in stringers or supports and twisted or untrue alignment of stringers or supports.
- **Conduct a hasty classification of the bridge**. The scouts determine if it will support the largest vehicle in the unit. For additional information on bridge classification, refer to Appendix G of this manual and to FM 3-34.343.

Selection of a COA

3-251. Based on results of the bridge reconnaissance, the section leader determines the degree of restriction the bridge creates. His assessment is that the bridge is secure, that he can safely move the section across it, and that he can continue his mission.

Recommendation/Execution of a COA

3-252. In accordance with platoon SOP, the platoon leader now moves the rest of his element across the bridge. The lead reconnaissance vehicle moves across the bridge, overwatched by the other vehicles (refer to Figure 3-24, part D). The vehicle should only cross after a complete inspection has determined it to be acceptable. As he observes the crossing, the section leader watches for any signs of damage or stress on the bridge.

3-253. Once the lead vehicle is across, it moves to link up with the dismounted element and assists in providing far side security. At this point, the overwatch vehicles can cross the bridge, and the section can continue its mission. The platoon leader also advises his commander that he is continuing his mission.

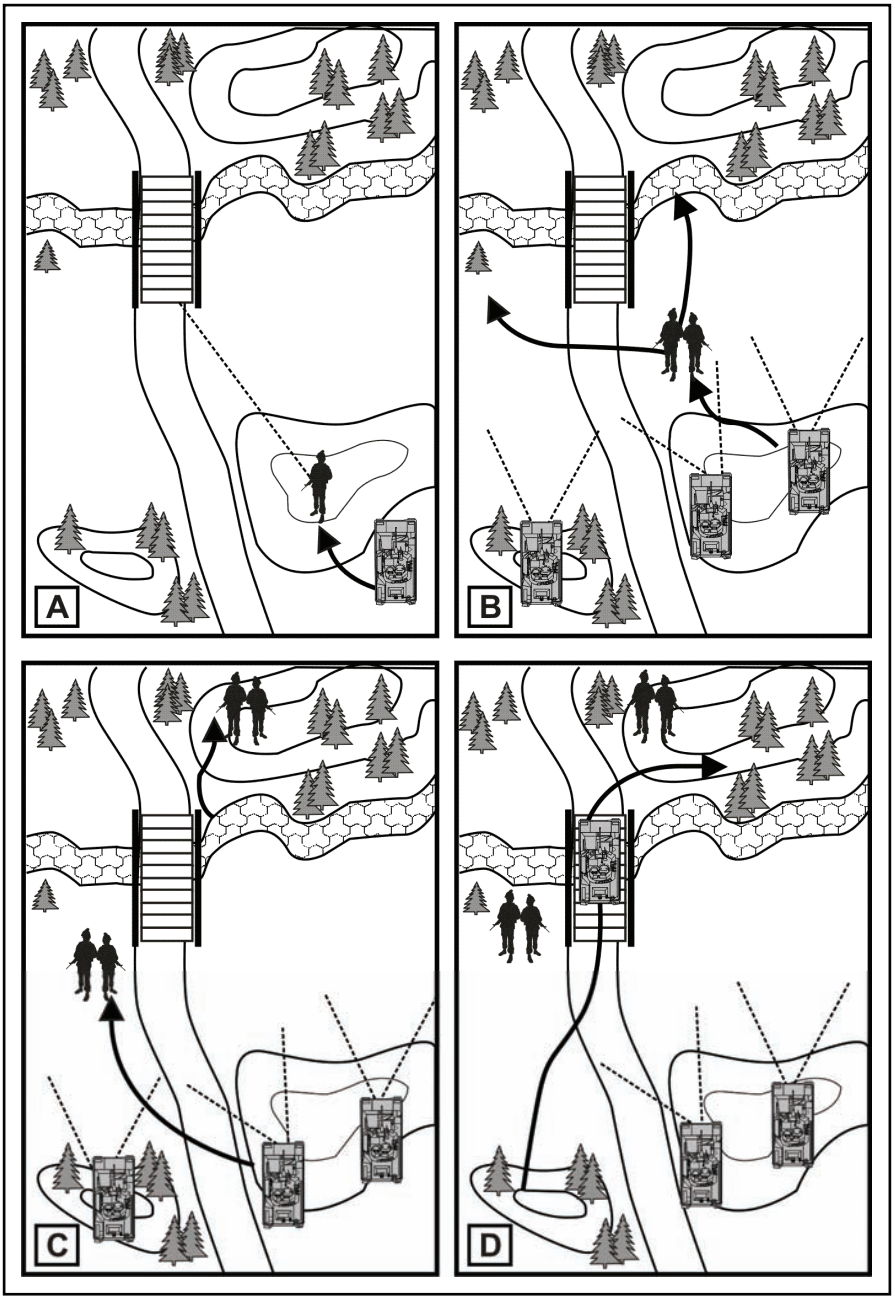

Figure 3-24. Reconnaissance of a restriction (parts A through D)

Reconnaissance of a Deliberate Obstacle (Covered by Fire)

3-254. Figure 3-25 (parts A through D) and Figure 3-26 (parts E and F) illustrate this situation.

Detection

3-255. A UAS detects a possible obstacle deep in the platoon's zone. A mounted reconnaissance element maneuvers into a position that allows observation of the area. Scouts using LRAS3 systems confirm there is an extensive obstacle and report the visible left and right limits. The platoon leader reports confirmation of the obstacle and positions the platoon so dismounted scouts can detect the exact obstacle dimensions

from a covered and concealed position. UAS support is shifted beyond the obstacle to provide warning of an enemy approach. From its vantage point, the reconnaissance element observes and reports obstacle construction (rows of wire, visible types of mines, signs, markers, trip wires, tilt rods, and sensors); however, it will not move closer for further investigation or details. The platoon leader can position a sniper team, if available, to provide overwatch and neutralize any threats, including snipers and surface munitions, with precision fires.

Security and Reconnaissance

3-256. If safe to do so, the section moves its vehicles up to covered and concealed positions to overwatch the obstacle. It organizes a dismounted element to attempt to locate a bypass and secure the far side. If the platoon is augmented with engineer support, the engineers must move with the dismounted element to the obstacle. The platoon leader organizes the platoon to reconnoiter the obstacle from both sides at once, allowing information to be gathered and reported faster. If available, an infantry rifle squad may support the reconnaissance, conducting near and far side security as the reconnaissance develops. In the process of executing the patrol, the section discovers that the left flank of the obstacle is tied in with an impassable swamp obstacle (refer to Figure 3-25, part A).

3-257. The patrol is engaged by enemy machine guns. The overwatch vehicles suppress the machine guns and then are engaged by enemy vehicles in defensive positions. The section reports that it can maintain contact with the enemy but can no longer maneuver (see Figure 3-25, part B). It can also observe the enemy from the rear and reports a company-size element in defensive positions overwatching the obstacle. It also reports that there are no trafficable routes around the enemy's right flank (see Figure 3-25, part C).

3-258. At this point, the platoon leader determines that he does not have the combat power to secure the far side of the objective. He also determines that the only trafficable bypass is covered by enemy direct fires. He must now conduct a detailed reconnaissance of the obstacle before he can recommend a COA to his commander. To continue this reconnaissance, the platoon leader has the option to employ mortars and request armor to move forward for direct fire support.

Reconnaissance of the Obstacle

3-259. The reconnaissance section that originally detected the obstacle is in the best position to reconnoiter it. It organizes a dismounted element to move to the obstacle. Because there is enough light for the enemy to visually cover the obstacle, the platoon leader coordinates indirect fire to support the patrol. As the patrol moves out, artillery lays suppressive fires on the known enemy positions, and mortars fire obscurant munitions into the area between the enemy positions and the obstacle (see Figure 3-25, part D).

3-260. The scouts move by covered and concealed dismounted routes to the obstacle. Through probing and visual observation, they determine that the wire obstacle is reinforced with buried mines. They are able to determine that there is a mix of antitank (AT) and antipersonnel (AP) mines with antihandling devices, emplaced in 30-meter belts on both the near side and the far side of the wire. Once they acquire this information, the scouts move laterally along the obstacle to determine its length and to find out if its composition is uniform. They look for the most favorable breaching location (see Figure 3-26, part E).

Selection of a COA

3-261. The platoon leader evaluates the situation and determines that he cannot bypass the obstacle and does not have the capability to breach it. He decides to recommend that the platoon support a breach by another element.

Recommendation/Execution of a COA

3-262. The platoon leader recommends to his commander that the platoon prepare to support a breach. With higher approval, he orders the platoon to continue the reconnaissance and security tasks necessary to support a breach operation. He also begins coordinating with and passing information to the element to his rear responsible for conducting the breach (see Figure 3-26, part F).

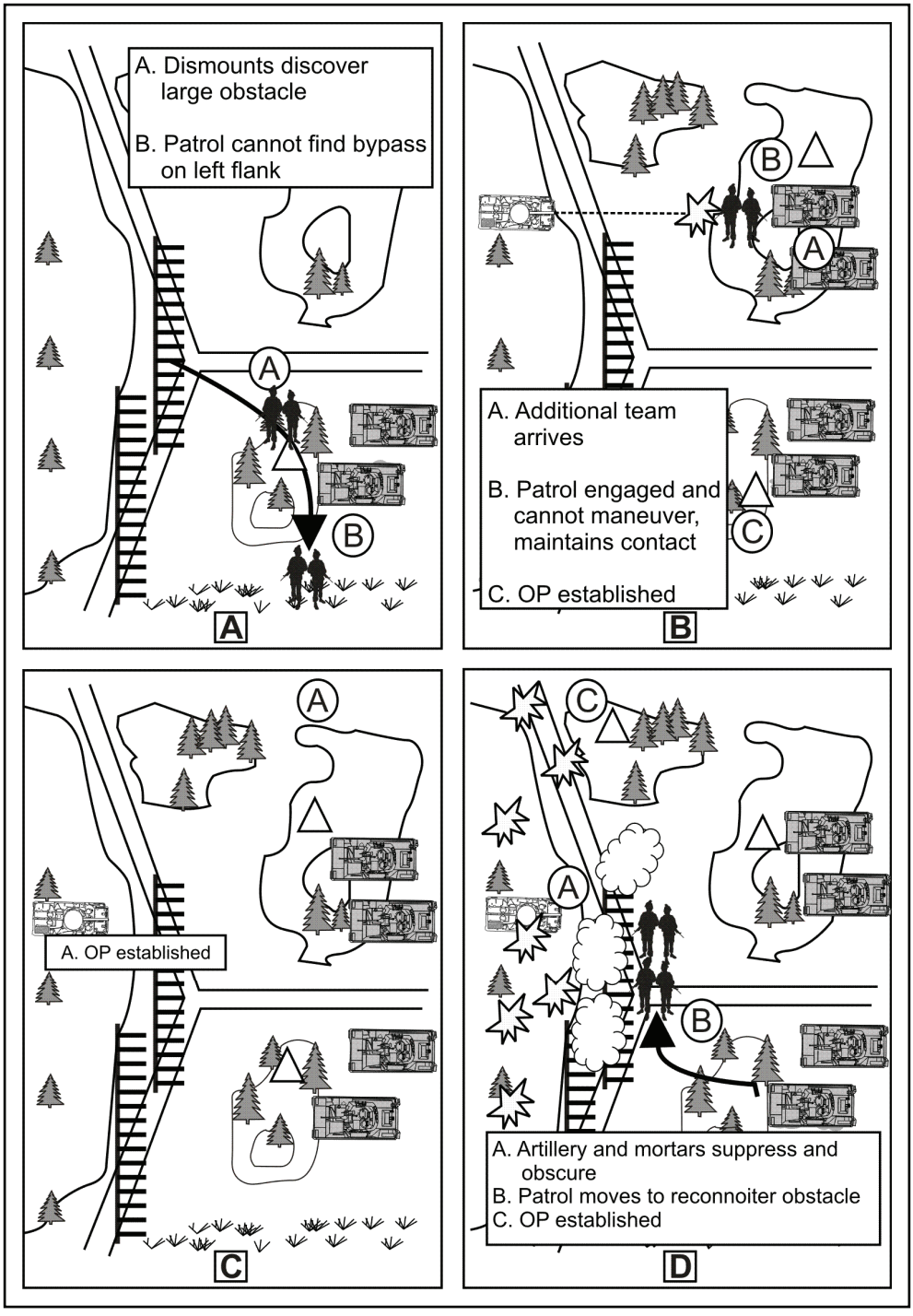

Figure 3-25. Reconnaissance of an obstacle (parts A through D)

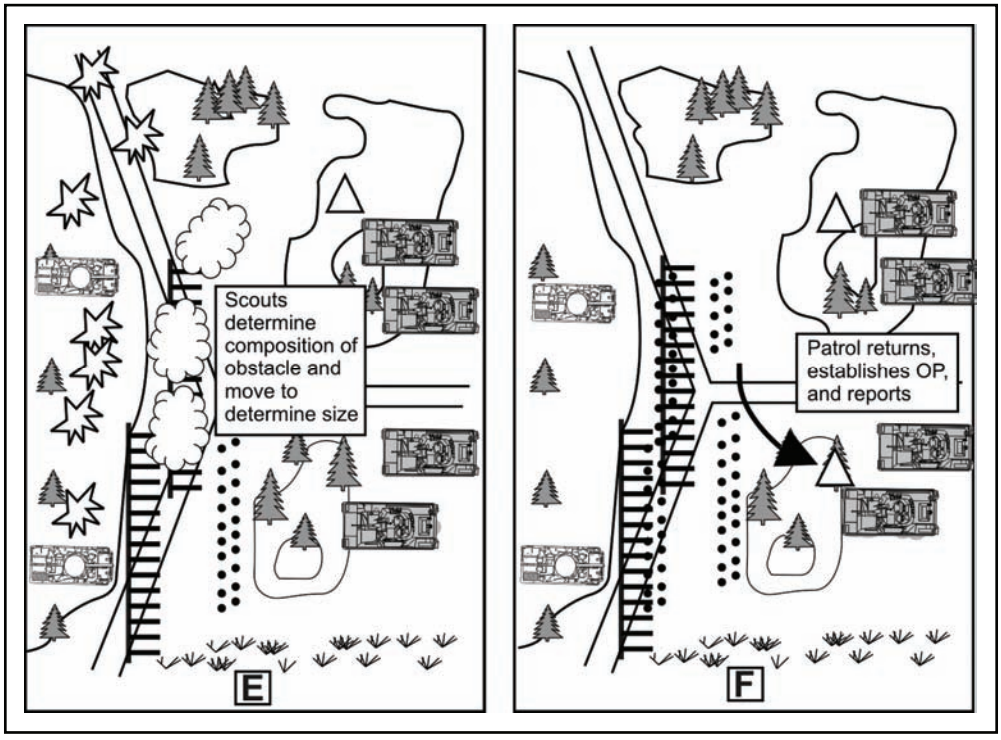

Figure 3-26. Reconnaissance of an obstacle (parts E and F)

SECTION VI – ZONE RECONNAISSANCE

3-263. The commander normally assigns a zone reconnaissance to the reconnaissance or scout platoon when he needs detailed information before maneuvering his forces through the zone. This reconnaissance provides the commander with a detailed picture of how the enemy plans to defend the zone, enabling him to choose the appropriate COA.

Note. The reconnaissance or scout platoon will normally conduct zone reconnaissance as part of a larger force; it will conduct the mission on its own only with sufficient augmentation. Zone reconnaissance is a primary mission of ACR scout and HBCT reconnaissance elements. The scope of a zone reconnaissance may include the execution of route and area tasks.

3-264. As in area reconnaissance, the main types of zone reconnaissance are terrain-oriented, force-oriented (threat/enemy), society-oriented, and infrastructure-oriented. The specific zone reconnaissance mission may be focused on one of these types, or any combination. The techniques and objectives of terrain-oriented and force-oriented zone reconnaissance missions are not mutually exclusive. The commander's intent, his guidance on the focus of the reconnaissance, and METT-TC factors will dictate the priorities and critical tasks for the mission.

3-265. The platoon conducts terrain-oriented zone reconnaissance to gain detailed information about routes, terrain, and resources within the assigned zone. This is the most thorough and complete reconnaissance mission and therefore is very time-consuming. It is common for scouts executing a zone reconnaissance in highly restrictive terrain to advance at only about 1 kilometer per hour; conversely, reconnaissance in open and rolling terrain can cover upwards of 40 kilometers per hour.

3-266. The platoon conducts force-oriented zone reconnaissance to gain detailed information about enemy forces within the zone. HBCT and ACR reconnaissance platoons are more suited to missions

against heavily equipped enemies. As the platoon conducts this type of zone reconnaissance, its emphasis is on determining the enemy's locations, strengths, and weaknesses.

3-267. When augmented with the appropriate assets, a reconnaissance or scout platoon can conduct the multidimensional aspect of zone reconnaissance to gain detailed information about the civilian populace and infrastructure in a particular zone.

CRITICAL TASKS

3-268. The tasks accomplished by the reconnaissance or scout platoon as part of a zone reconnaissance are generally the same as those for an area reconnaissance. The zone reconnaissance is usually conducted over a larger physical space and may also include a route reconnaissance (with the associated critical tasks).

TECHNIQUES

3-269. Zone reconnaissance is very time-consuming. Unless the orders specify which tasks to omit, all critical tasks listed in the previous discussion are implied in the zone reconnaissance mission statement. When speed is the primary concern, commanders must modify the focus, tempo, and engagement criteria to prioritize the critical tasks for the platoon leader. The width of the zone is determined by unit organization and the road network, terrain features, anticipated enemy activity, and time available to accomplish the mission. UAS assets can be used in an economy of force role to observe areas beyond the operational reach of ground reconnaissance elements.

3-270. The parent unit's order will include phase lines and other graphic control measures within the zone to control the maneuver of the units during the zone reconnaissance mission. The platoon leader will add additional control measures to aid in the control of the sections, including the following:

- Platoon boundaries.
- Phase lines.
- SP.
- Contact points.
- LD.
- RP.
- NAIs.
- LOA.
- Reconnaissance objective.

3-271. After issuing a WARNO for the mission, the platoon leader analyzes the mission to determine what must be accomplished. He analyzes the following:

- Commander's guidance on focus (the reconnaissance objective: threat/enemy, terrain, social/human demographics, infrastructure, or a combination).
- Tempo (time allowed for mission accomplishment).
- Engagement criteria. (What situations constitute a platoon fight? In what situation will the platoon defer the fight to a higher element?)
- Information he has received about the threat in the IPB to determine what enemy activity he should expect to encounter.
- Terrain. (He can conduct a map reconnaissance and examine any IMINT, SIGINT, HUMINT, or information from other units to determine what types of terrain the platoon must operate over.)
- Need for requesting and integrating outside assets such as HUMINT, CI, CA, and MPs.

3-272. This analysis is important in identifying areas the enemy could occupy based on observation capability, fields of fire, and natural obstacles. From these factors, the platoon leader determines the manner in which the platoon will accomplish the mission.

3-273. The platoon leader completes troop-leading procedures and develops a COA and contingencies to accomplish his assigned mission. He may add phase lines on easily identifiable terrain through the zone to help control movement. He places checkpoints in specific areas that must be reconnoitered or where they will aid in controlling the operation. If the terrain is mixed, with both extensive dead space and easily identifiable features, he may use boundaries to designate areas of responsibility for each section. The platoon leader will place contact points at critical areas to ensure his sections maintain contact. The platoon leader determines when conditions support the employment of UASs ahead or on the flanks of the platoon to provide early warning or as an additional set of eyes behind the platoon. If UASs are used, he must coordinate air space usage to prevent coverage redundancy or collision with other aircraft.

3-274. The platoon leader works with the FSO to plan and refine indirect fire targets to support the platoon's scheme of maneuver. As a minimum, they should plan targets on known or suspected enemy positions to increase the responsiveness of indirect fires. Enemy detection by UAS that results in the employment of indirect fires may require the UAS to be moved out of the area. Considerations are similar for helicopters when indirect fires are inbound.

3-275. Depending on applicable METT-TC considerations, the platoon can conduct the zone reconnaissance using a two-section, three-section, or single-vehicle organization. It must deploy to cover the entire zone. It usually operates in a zone it knows very little about, so the COA must allow for flexibility, responsiveness, and security as it moves. If attachments are present, planning their location and enforcing formation discipline in the scheme of maneuver are critical factors in preventing navigational errors; searching for lost vehicles or Soldiers; reducing fratricide risk; and preventing elements from bunching up and affecting platoon rate of movement.

3-276. The platoon leader deploys his sections before reaching the LD to maximize reconnaissance assets and to be prepared for chance contact. He requests situational updates from the commander or S-2 to obtain the latest information on enemy activity prior to moving across the LD. He then moves the sections across the LD into section AOs within the zone for which the platoon is responsible. He uses phase lines, checkpoints, contact points, or GIRS/TIRS to direct movement so the platoon can reconnoiter the entire zone. He ensures the sections remain generally on line while maintaining adequate security through overwatch; this prevents development of significant gaps that a moving enemy could exploit. Scouts dismount to gather detailed information, reconnoiter danger areas, or move through areas that are not accessible to the vehicles. The platoon continues to reconnoiter the zone until it reaches the LOA or the final reconnaissance objective. After completing actions on the objective, the platoon will transition to a follow-on mission, which may include moving into a screen mission. This allows the platoon to provide early warning of enemy activities; send Class I, III, and V reports; and conduct consolidation and reorganization while friendly elements move into a defense behind the platoon.

EXAMPLE OF A ZONE RECONNAISSANCE

3-277. The following example illustrates zone reconnaissance by an SBCT reconnaissance platoon. It is conducting a zone reconnaissance until the mission transitions into a screening mission phase. The SBCT will screen until an HBCT has departed the forward operating base (FOB) and moves forward to conduct RHO with the SBCT. Although illustrated here with an SBCT reconnaissance platoon, this mission may be conducted in a similar manner by any type of reconnaissance platoons. See Figures 3-27 through 3-29.

3-278. The SBCT reconnaissance platoon (3rd platoon in this example) is augmented with engineer and infantry vehicles to conduct a zone reconnaissance in an SSC scenario. The focus and tempo of the operation require the platoon to operate mounted, dismounting only to clear danger areas and intervisibility lines. A reconnaissance section from a BFSB reconnaissance troop has already moved through the zone 12 hours earlier and reported a booby-trapped obstacle limiting civilian movement in the zone, but no significant enemy presence. The engagement criteria allow the platoon to use indirect fire on enemy dismounts and vehicles. The troop commander will move an MGS platoon forward to destroy enemy positions or bunkers and use TOWs and Javelins to destroy individual vehicles. A UAS flew over CP 22 an hour ago with negative contact.

3-279. Although the reconnaissance platoon does not use strict formations when maneuvering, the platoon leader must keep sections from getting ahead of each other. This is not easy since the platoon must maneuver using the terrain for protection against direct fire. In this example, the platoon leader starts out with his platoon in concealment and overwatching the phase line. The platoon deploys into formation prior to crossing the LD. It will operate in a two-team concept, with A Section consisting of the platoon leader, his wingman, and the engineer vehicle. B Section will consist of the PSG, his wingman, and the infantry vehicle. In this mission, the platoon leader has chosen to position his section (Alpha) in the left portion of the zone because of the importance of confirming the location of a bridge in that area. He will attempt to maneuver the platoon on line, taking into account that using the terrain for protection where at times the sections will not be mutually supporting.

3-280. The platoon crosses the LD at the time prescribed in the commander's OPORD, using the bounding overwatch technique of movement by sections. The sections maneuver through the zone in a zigzag pattern to ensure that the zone is properly reconnoitered and to accomplish all critical tasks of a zone reconnaissance. Security is maintained within sections because the width and terrain of the zone prevent the sections from providing continuous mutual support.

3-281. Based on the factors of METT-TC, including the enemy situation, the platoon leader chooses the movement technique best suited for C2. He may choose to have the sections secure the area and set at all checkpoints. As an alternative, he may have the sections bound through the checkpoints, report when they have been secured, and then set at the next phase line. If the platoon leader has not assigned sections a particular checkpoint on which to orient, the section leaders must plan their own graphic control measures to control the movement. The sections make contact at contact points to ensure that they meet up with a designated unit to exchange information and receive updates on the current situation in the AO.

3-282. The platoon continues reconnaissance up to the river (PL OHIO). As the platoon approaches the river, scouts move into covered and concealed positions providing overwatch and visually search the dominant terrain on the north side of the river.

3-283. Alpha section identifies the remains of the bridge in its zone. Engineers dismount and set up local security. They determine that the bridge remains are not booby-trapped and that bridging assets can be set up to span this location to the far bank. Bravo section identifies a fording site with a rock bottom just east of the blown bridge at checkpoint 32; the ford will initially support heavy armored traffic (see Figure 3-27). The platoon leader does not allow any element to cross PL OHIO without permission from the troop commander.

3-284. When the troop is set on PL OHIO, the platoon remounts. It is given permission to execute OHIO and move to PL BAMA. The sections immediately begin reconnaissance of natural and man-made obstacles, including the stream to their front. As the platoon continues reconnaissance toward PL BAMA, sensor contact is made with an unknown force. When scouts move to confirm the contact, they discover enemy elements; the platoon reports the contact to the troop, including a FBCB2 update. The platoon leader informs his platoon that they are entering the enemy security zone. B Section uses the rifle squad to determine if the dominant terrain near checkpoint 33 is clear of enemy forces. With negative contact, the platoon continues its reconnaissance and sets at PL BAMA.

3-285. When the troop is set on PL BAMA, the platoon is given permission to execute BAMA and move to PL IDAHO. As the platoon crosses the ridge at PL BAMA, Alpha section receives sporadic machine gun fire from concealed positions south of checkpoint 34. The platoon immediately deploys, reports the contact to the troop commander, and calls for indirect fire to suppress the enemy and enable the platoon to break direct fire contact.

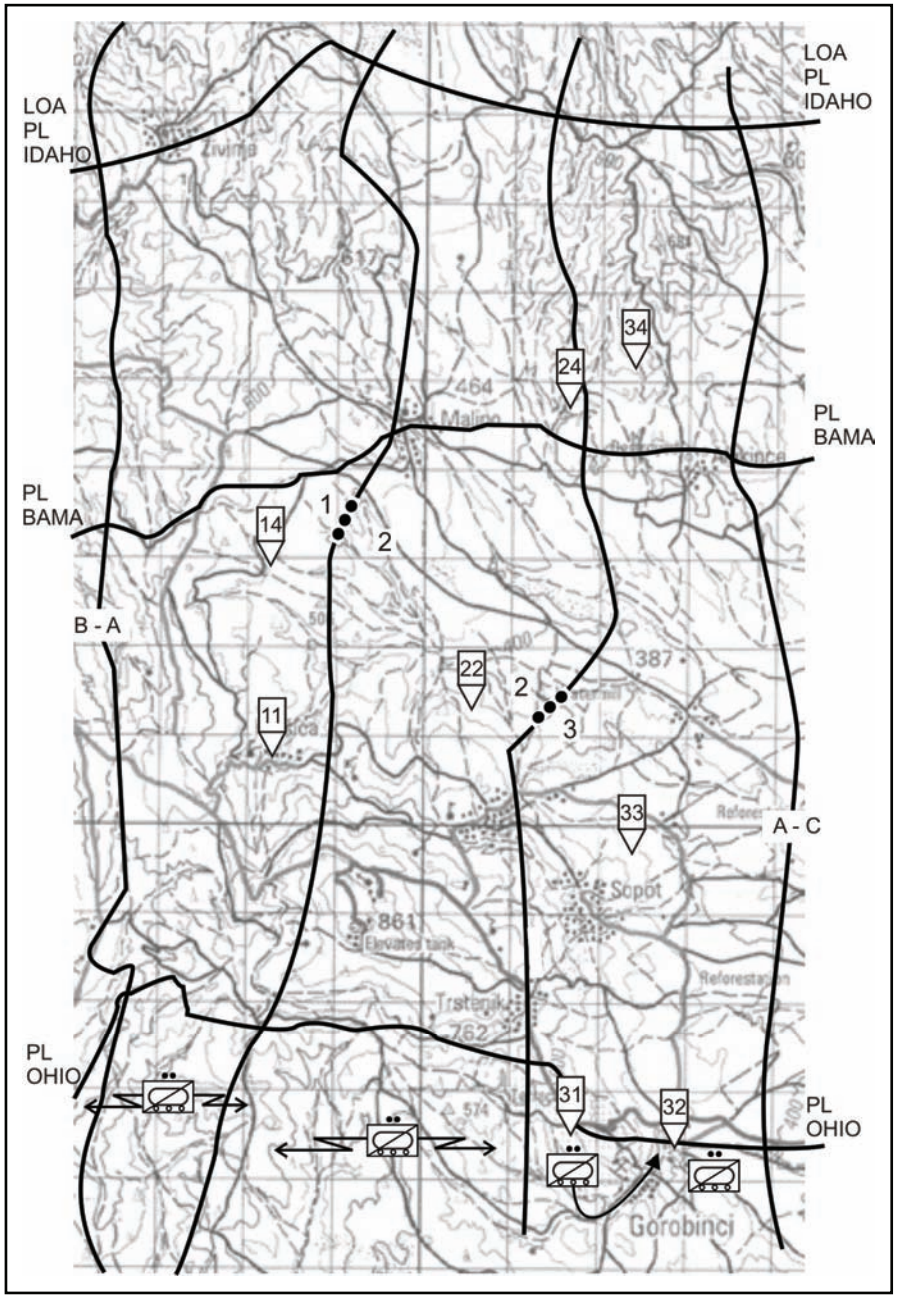

Figure 3-27. Zone reconnaissance (part one)

3-286. Under this protection, the platoon, primarily dismounted, reconnoiters to the flanks and rear to develop the situation. The troop commander acknowledges the contact report and moves immediately to link up with the platoon leader. The troop commander orders the platoon to continue its reconnaissance to locate the enemy's flank. The platoon leader sends Bravo section forward on the enemy's left and his Alpha section on the right flank to determine if the enemy is mutually supported by other forces from the flanks or rear. A four-man dismount team, including the Bravo Section leader, moves in closer (two scouts as a security element and two for reconnaissance). They determine the enemy consists of two BRDM-2 vehicles and six dismounted Soldiers in a wooded area. The scouts from the adjacent 2d Platoon identify the right flank of the enemy and discover the flank is unprotected by obstacles and exposed to direct fires.

3-287. The troop commander directs 2d Platoon to move to a designated position to cut off the enemy element's chance to escape. He then orders an MGS platoon forward and tasks one section to destroy the enemy OP. The infantry augmenting the platoon moves through the position as the scouts move forward and provide early warning of any counterattack. The MGS platoon moves to checkpoint 24 for linkup with the 3d Platoon scouts, who guide them into position to attack the enemy OP. (Refer to Figure 3-28.)

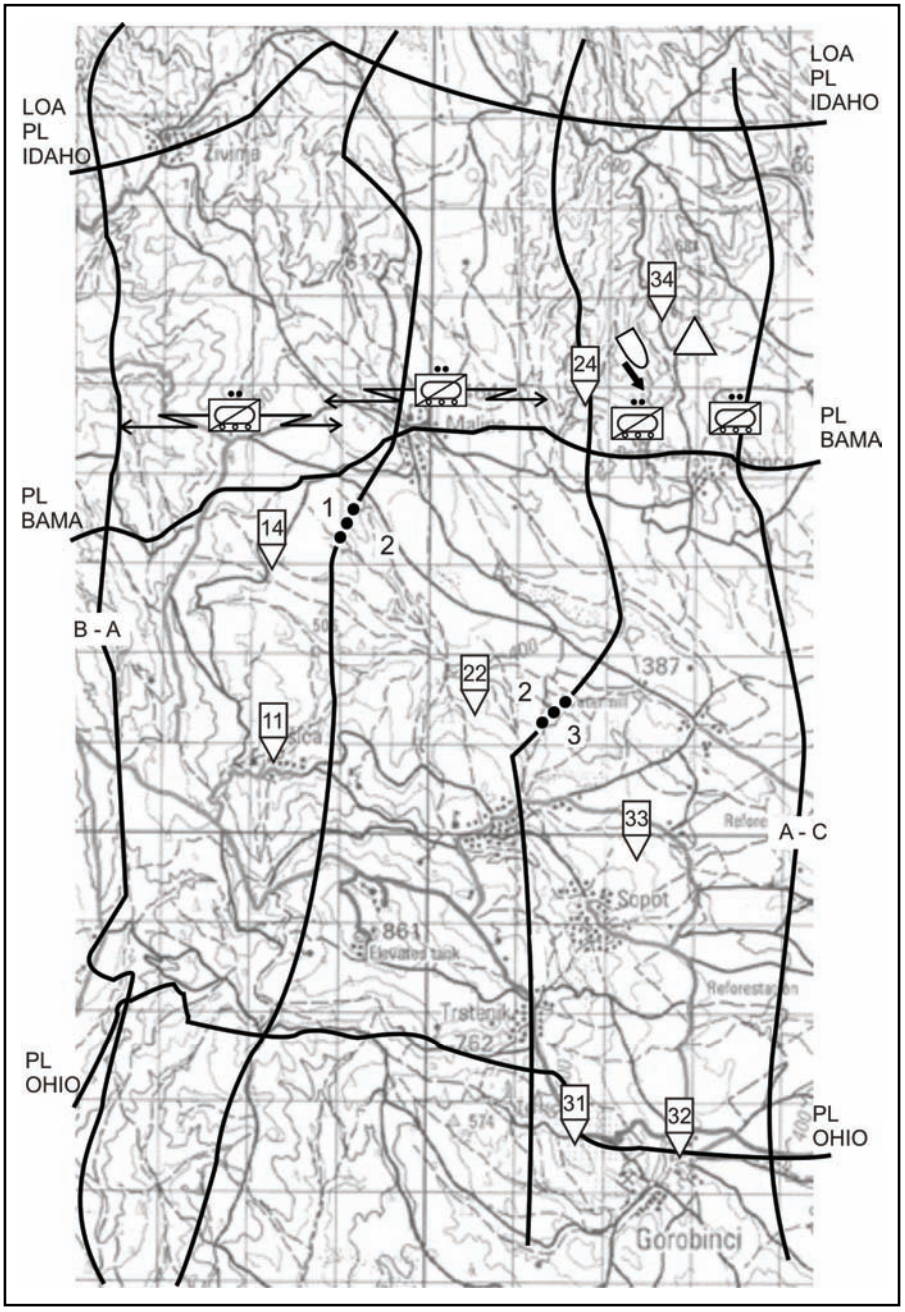

Figure 3-28. Zone reconnaissance (part two)

3-288. The 3d Platoon reports the MGS platoon is set in the attack position. The 2d Platoon dismounts are in position to halt any enemy escape. The platoon leader of 3d Platoon confirms that his dismount teams are out of the target area and set, his Bravo section is providing overwatch and the infantry are ready to sweep through the position, and the MGS section is in position. The platoon leader shifts mortar fires off the enemy and back to the rear of the OP position. The MGS section engages the enemy from the flank to destroy the vehicles. The mortar fire is stopped to allow the infantry rifle squad to move through the position and finish the fight, capturing two wounded prisoners. The MGS section moves north between the scout vehicles on the flanks and establishes a hasty screen. A UAS is launched to gain observation beyond

the next terrain feature for early warning. The rifle squad searches the vehicles and dead personnel to complete destruction of the OP. (See Figure 3-29.)

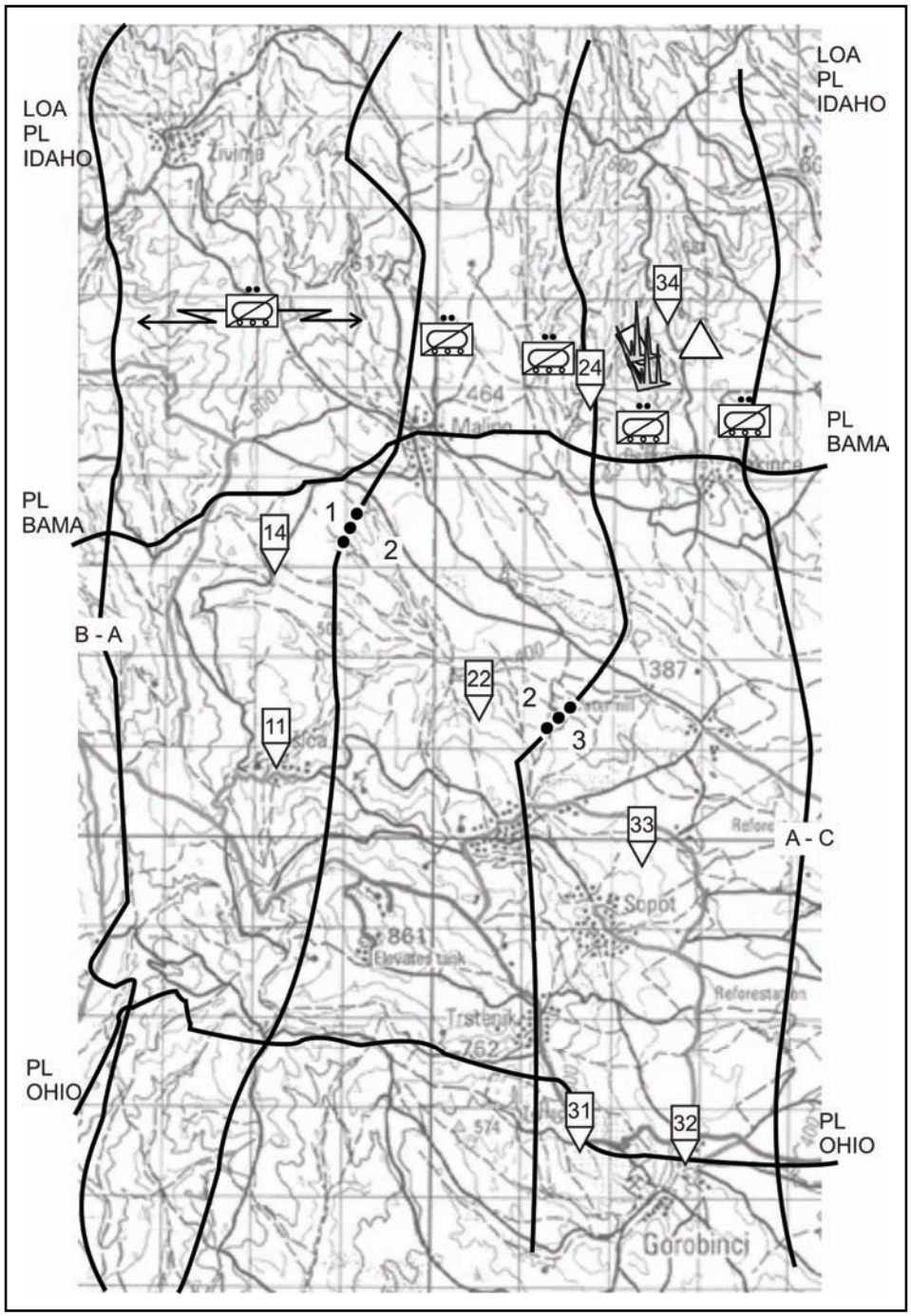

Figure 3-29. Zone reconnaissance (part three)

3-289. A scout team from 3d Platoon moves in quickly with HUMINT collectors, who conduct TQ and SE to determine the proximity and mission of other enemy forces' zones. The 3d Platoon leader orders a fire team to stay and secure the prisoners. The PSG relays his resupply and personnel reports and coordinates evacuation of wounded and prisoners to the predetermined casualty collection point (CCP) with the troop first sergeant. To maintain momentum, the platoon leader quickly reassembles the platoon

on the hasty screen line and returns the MGS section back to the troop commander. The platoon leader requests to continue the zone reconnaissance, and on order, move through the zone and conduct reconnaissance up to the LOA. Upon completion of the zone reconnaissance, the platoon leader collects reports, forwards his reconnaissance report to the troop CP, and updates the FBCB2. The platoon then transitions into a screen and the RHO.

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Chapter 4

Security Operations

In security operations, reconnaissance and scout platoons provide early and accurate warning of enemy operations. Reconnaissance and scout platoons provide the main body with time and maneuver space to react to the enemy and to develop the situation; this in turn allows the commander to deploy his forces effectively to the needed location at the correct time to protect his force. Reconnaissance and scout platoons conduct security operations in conjunction with R&S missions. Security operations are critical to the unit's ability to gather intelligence and maintain freedom of maneuver and operations.

Contents

SECTION I – INTRODUCTION

PURPOSE

4-1. All reconnaissance and scout platoon security operations serve the same general purposes: to protect a specified force from being surprised by the enemy and to reduce unknown factors in the AO. They prevent or hinder the enemy from accomplishing its mission. To accomplish this, the platoon provides early warning to friendly forces within a given area. The reconnaissance or scout platoon may operate at considerable distances from the friendly elements it is screening or protecting, limited only by communications capabilities and the range of direct fire, close air support (CAS), close combat attack (CCA), and indirect fire support. This provides the friendly forces with the time and space to react and to position elements to defeat the enemy.

4-2. The reconnaissance or scout platoon can conduct screening and area security operations independently or as part of a larger force such as a reconnaissance troop or company team. In conducting guard operations, the platoon works as part of a larger unit such as a CAB or squadron. In addition, the platoon may be tasked to conduct screening or reconnaissance operations in support of the larger unit's guard or cover mission.

Note. Mounted infantry platoons can provide security on friendly element's flanks in situations where reconnaissance elements are not available. Leaders can use UGVs as an early warning element in terrain with minimal maneuvering difficulty and maintain position for extended periods.

FORMS OF SECURITY

4-3. Reconnaissance and scout platoons perform or participate in five forms of security operations:

- Screen.
- Guard.
- Cover.
- Local security.
- Area security.
  - Route security.
  - Convoy security.

SCREEN

4-4. A screening force provides early warning to the protected force. Within its capabilities and based on the higher commander's guidance, it may impede and harass the enemy with direct and indirect fires and/or destroy or repel enemy reconnaissance units in coordination with other combat elements.

4-5. Screening operations, which are defensive in nature, provide the protected force with the lowest level of protection of any security operation. Platoons conduct screens to the front, flanks, and rear of a stationary force and to the flanks and rear of a moving force. The reconnaissance or scout platoon generally accomplishes a screening operation by establishing a series of OPs and conducting patrols to ensure adequate reconnaissance and surveillance of the assigned sector. Leaders may integrate direct fire assets (MGS, ATGMs, M1A2s) with the scouts in the screen line to prevent enemy reconnaissance elements from penetrating the screen.

4-6. Situations may require the commander to displace the screening elements to subsequent positions, possibly along a pre-established phase line. This allows the commander to move elements, maintain enemy contact, and prevent penetration of the screen line by the enemy during retrograde movement.

GUARD

4-7. Commanders deploy a guard force to prevent enemy ground observation of and direct fire against the protected element. Units do not execute guard missions below the reconnaissance squadron (with augmentation), armored cavalry squadron, or CAB level. A reconnaissance or scout platoon participating as part of a guard force reconnoiters, screens, attacks, defends, and delays as necessary until the squadron or battalion has accomplished its mission. The reconnaissance platoon operates within the range of direct fire support (MGS, ATGM, and M1A2s) and supporting artillery.

COVER

4-8. A covering force accomplishes all the tasks of screening and guard forces to deceive, disrupt, and destroy enemy forces. The key distinction of the cover operation is that the force operates apart from the main body to allow early development of the situation. Unlike screening or guard forces, a covering force is tactically self-contained; it is normally a reinforced BCT (the CAB is not equipped to conduct a cover on its own) or a cavalry regiment. Leaders organize a covering force with sufficient enabling and sustainment assets to operate independent of the protected force. Because an enemy force can decisively engage the covering force (or a portion of it), it must have sufficient combat power to effectively engage the enemy. A reconnaissance or scout platoon participating as part of a covering force reconnoiters, screens, attacks, defends, and delays as necessary until the BCT or regiment has accomplished its mission.

LOCAL SECURITY

4-9. Local security includes any measure taken by the platoon against possible enemy actions. The requirement for maintaining local security is inherent in all operations. It includes observing for and detecting any enemy forces in the immediate vicinity and knowing as much as possible about enemy intentions. Local security prevents surprise and is important to maintaining the initiative.

AREA SECURITY

4-10. Area security is a security operation conducted to secure a specific area to protect friendly forces, installations, routes and actions within the specified area. Platoons conduct area security to deny the enemy the ability to influence friendly actions in a specific area or to deny that enemy the use of an area for its own purposes such as combat operations, insurgent infiltration, or IO against friendly forces. Area security actions could include area reconnaissance; transitioning to security of designated personnel, equipment, facilities (including point of entry airfields and seaports); and point security for events and locations, such as a platoon meeting with a tribal or government leader, main supply routes (MSR), lines of communications, and critical infrastructure. Route and convoy security fall under area security as additional tasks.

Route Security

4-11. The platoon conducts route security to prevent an enemy from attacking, destroying, seizing, containing, impeding, or harassing traffic along the route. Route security also prevents the enemy from interdicting traffic by emplacing obstacles on or destroying portions of the route. Route security operations are defensive in nature and, unlike screen operations, are terrain-oriented. Route security is best suited for company/troop-size elements, which can task organize platoons to fill various defensive roles. Enemy forces will attempt to interdict supply routes and LOCs by various methods. Lengthy routes may become extremely difficult for a reconnaissance platoon to secure requiring the platoon leader to request additional resources.

Convoy Security

4-12. Reconnaissance and scout platoons conduct convoy security operations when insufficient friendly forces are available to secure LOCs and supplies continuously in an AO. Platoons can conduct convoy security in conjunction with route security operations. A convoy security force operates to the front, flanks, and rear of a convoy element moving along a designated route. The platoon continues to provide security even when the convoy halts for breaks and maintenance.

FUNDAMENTALS OF SECURITY

4-13. The platoon follows five fundamentals, described in the following paragraphs, that are common to all security operations. The platoon leader's plans adhere to these fundamentals as the platoon executes its operation. Leaders ensure their maneuver and actions support the fundamentals to assist the unit in maintaining the initiative and win the fight.

Note. For more information on the fundamentals of security operations, refer to FM 3-20.96 and FM 3-20.971.

4-14. The five fundamentals of security are—

- **Provide early and accurate warning.** Early and accurate warning of enemy approach is essential to successful operations. The main body commander needs this information to shift and concentrate his forces to meet and defeat the enemy. Scouts occupy OPs and use combat patrols and sensors to provide long-range observation, observe enemy movement, and report the enemy's size, location, and activity to the commander. Scouts do not "determine" what they see. Rather, they report the who, what (to include vehicles and equipment), when, where (to include first seen, direction of movement, and last seen), of the enemy as well as any uncertain data.

- **Provide reaction time and maneuver space.** The reconnaissance or scout platoon works at a distance from the protected force that is sufficient to allow the review of rapidly reported information by the commander. This timely review gives the commander reaction time to order indirect fire to slow the enemy's rate of advance and maneuver direct fire elements into place to engage, exploit, and defeat the enemy, thus halting a penetration and preventing observation of the protected force. Typically scouts will operate between the protected element and known or suspected enemy elements.
- **Orient on the force, area, or facility to be protected.** If the protected force moves, scouts must be aware of its movement and must reposition their elements accordingly to maintain their relative position. They must understand the protected force commander's scheme of maneuver, including where he wants his security force in relation to his movement.
- **Perform continuous reconnaissance.** The reconnaissance and scout platoon conducts continuous reconnaissance during security operations to gain as much information as possible about the AO and the enemy. This can begin mounted and transition into dismounted OPs, mounted and dismounted patrols, and UASs deployed to observe dead space.
- **Maintain threat contact.** Scouts gain and maintain contact with the enemy undetected to provide the commander with continuous information. If they lose contact, scouts adjust their sector of observation or reposition under concealment and take steps to regain it. Maintaining contact is critical during counterreconnaissance operations to isolate and destroy the enemy reconnaissance elements. Scouts maintain contact until they are ordered to do otherwise or until they conduct handover of the contact to another unit moving into the area.

PLANNING GUIDANCE

4-15. Critical to the platoon leader's ability to execute his operation is a clear understanding of the focus, tempo, and engagement/displacement criteria of the security operation. Refer to FM 3-20.971.

4-16. Considerations for the planning guidance in security operations include the following:

- **Focus.** The focus of the security operation allows the commander to determine which critical tasks he wants the platoons to accomplish. NAIs provide the platoon leader with a method of focusing the platoon's effort. NAIs link most likely enemy activities to terrain where those activities may occur, such as locations frequented by insurgents. The platoon focus might be oriented on the threat/enemy, terrain, social/human demographics, or infrastructure or on a combination of these factors. For example, in stability operations, the platoon may focus on—
  - Determining local populace sentiment.
  - Identifying local paramilitary leaders.
  - Conducting checkpoint operations to determine the direction of movement of displaced civilians in the AO.
- **Tempo.** The tempo of the security operation allows the troop commander to establish associated time requirements that drive the platoon tasks including dismounted or mounted OPs and patrols, UAS rotation, and enablers necessary to execute the operation. An operation's tempo can relate to depth, especially in screening operations where time is needed to properly deploy assets into position to achieve the required depth. Tempo also dictates whether units use mounted or dismounted OPs or a combination of both. Tempo can equate to the duration of the operation, which affects whether short-, long-, or extended-duration OPs are used based on the following criteria:
  - **Short-duration OPs.** The platoon establishes a screen quickly and maintains these OPs for less than 12 hours. The platoon maximizes the number of observers and ground and airborne systems during that short period.
  - **Long-duration OPs.** The platoon maintains these OPs for more than 12 hours but less than 24 hours. The number of OPs decreases because platoons must manage a deliberate rotation schedule. The number of remote systems used may offset the reduced number of ground scouts employed.

- **Extended-duration OPs.** The platoon maintains these OPs for longer than 24 hours. The platoon must coordinate for improvement of dismounted OPs. The platoon leader must plan for and coordinate operations with a dedicated reaction force from a higher unit, as well as wire communications, engineer support and other resources that allow the OPs to operate for an indefinite period. This type of OP requires the PSG to increase coordination of resources including Class IV materials, engineer support, and obstacles.

Note. Whenever they employ OPs, scouts must be prepared to transition to extended-duration OPs to meet unforeseen events or to maintain contact with an enemy or unknown target.

- **Engagement and displacement criteria.** The engagement and displacement criteria establish what the next higher unit is expected to destroy and when it is expected to hand over an AO. They guide the planning of how to occupy the area and determine when the platoon will execute displacement security drills. The platoon leader uses engagement criteria to develop his direct fire plan. Displacement criteria specify those events that trigger the collapse of the screen.

SECTION II – SCREEN

4-17. The reconnaissance or scout platoon conducts screen operations for its parent unit or other friendly forces to provide early warning of enemy approach and to provide real-time information, reaction time, and maneuver space for the protected force. The commander calls on the platoon to screen for him when he needs advance warning of when and where the enemy is attacking. Operating over an extended area, the platoon fights only in self-defense or to prevent enemy observation of the protected force.

CRITICAL TASKS

4-18. During a screening operation, the platoon must accomplish the following critical tasks:

- Maintain continuous surveillance of the AO, including assigned NAIs and avenues of approach that affect the protected force's mission.
- Provide early warning of enemy approach, including locating and identifying lead elements that indicate the main attack and direction of movement.
- Conduct counterreconnaissance to identify enemy elements and to disrupt, defeat, or destroy them in accordance with the prescribed engagement criteria.
- Maintain enemy contact, report enemy activity, and conduct proper handover as required.
- Disrupt and delay the enemy while displacing to provide the protected force commander with additional time and maneuver space.

4-19. The platoon maintains surveillance from a series of OPs. The platoon leader positions OPs where they can best observe designated NAIs and/or avenues of approach. The screen, normally identified by a phase line on a map, designates the most forward location of the OPs. Commanders must carefully weigh time and distance factors in relation to the supported unit when choosing where to place this line. The platoon observes the space between the screen line and the supported/subsequent unit by establishing positions in depth. The screen line also supports RHO, both within the platoon and with the supported/subsequent unit, by providing knowledge of the area to the gaining unit as it moves forward through the scouts.

4-20. In executing a screen operation, scouts conduct combat patrols to extend their observation range and/or to observe dead space and the area between OPs. While sensors increase the observation range of the platoon's screen and decrease reaction time for detecting and reporting threats in the area, scouts must plan to move to and gain visual contact to confirm what their sensors have detected. The platoon leader can request to place OPs forward of the LOA if they can more effectively observe the NAI/avenue of approach. Unless required, the scouts do not fight with their direct fire weapons. Indirect fire is their primary means

of engaging the enemy. Direct fire is generally limited to preventing observation of friendly elements or penetration of the screen line or to self-defense.

4-21. When planning a screen operation, the platoon leader must address the critical task requirements covered in the following discussion as a guide to prioritizing and sequencing the operation.

CONDUCT SURVEILLANCE OF ASSIGNED AREAS

4-22. The first task for the reconnaissance or scout platoon in the screening operation is to provide surveillance of the assigned AO.

Surveillance Requirements

4-23. Generally, scouts screen along a lateral line (the screen line). This can be misleading, however. The screen is actually set to observe specific avenues of approach or, more specifically, NAIs. The screen line merely indicates the limit of the forward positioning of the scouts. Along with the screen line graphic, the platoon leader must have an event template/matrix; he may also have a decision support template.

4-24. The commander tasks the platoon to observe areas and identifies them either in the reconnaissance and security plan or in the OPORD from higher headquarters. If the platoon does not receive an IPB product, the higher OPORD must specifically state where it must focus the screening operation. If the platoon is assigned multiple requirements, the higher headquarters must prioritize them.

4-25. The scout's understanding of his commander's intent and guidance is the most critical aspect of planning the screen operation. More important than the specifics of where to orient is the focus on what to look for. There are three choices for this focus: the enemy main body, the enemy reconnaissance effort, or both. The intent should specify on which of these alternatives the platoon will focus or, if both are required (as is often the case), which has priority.

4-26. This guidance then determines where the platoon will orient and how it will allocate resources. If the commander's priority is locating the main body, the platoon leader will focus most of his assets on the main avenues of approach and accept risk on the reconnaissance avenues of approach. If the commander's priority is on counterreconnaissance, the platoon leader will put priority on the reconnaissance avenues of approach and accept some risk on the main avenue. If the commander wants both choices, with equal priority, the platoon leader must plan to transition the platoon from the reconnaissance avenues of approach to the main avenue at a designated point in the operation. The commander usually orders this transition based on the enemy situation (which may be pinpointed by confirmation of a specified percentage of CCIR).

Note. Enemy reconnaissance avenues of approaches may mirror or parallel the intended route of an enemy maneuver force. Conversely, the enemy reconnaissance avenues of approach may follow a route that facilitates observation and reporting of key terrain or friendly forces but is unrelated to the enemy scheme of maneuver.

Surveillance Assets

4-27. Once the platoon leader has a thorough understanding of what his surveillance requirements are, he must next determine what assets he has available to execute these requirements. Availability of assets is dependent on how long the screen must remain in place and how the platoon is task organized. Among the assets that can enhance the platoon's surveillance capability are ground surveillance systems, infantry squads, engineer assets, artillery forward observers (FO), and tactical UAS assets. If the screen will be of short duration (less than 12 hours), individual squads can emplace and man separate OPs. If the duration of the screen is unknown or longer than 12 hours, the platoon leader must assign a two-vehicle section (CFV/RV platoons) or three-vehicle section (HMMWV platoons) for each OP to facilitate continuous operations.

Surveillance Techniques

4-28. To ensure that the critical task of surveillance on assigned reconnaissance objectives is accomplished, the platoon leader and his higher headquarters apply a combination of techniques to make the most efficient use of their assets.

Note. Refer to Chapter 5 of this manual for a discussion of surveillance methods, OPs, patrols, and use of electronic and mechanical assets.

Task Organization

4-29. The platoon leader will task organize the platoon and any other assigned assets to achieve the most effective surveillance of an NAI or avenue of approach. His planning may include assets such as engineer or infantry squads, ground surveillance systems, artillery observers, air defense elements, and UAS assets.

Note. The platoon leader ensures that these assets complement—and do not duplicate—other forces in the screen. In addition, he must ensure that all scouts understand where these assets are and what role they are playing.

4-30. The platoon leader may use these surveillance assets in a number of ways. This may include adjusting the number of sections or squads in a particular surveillance team; mixing scouts and other assets such as engineers, artillery, ground surveillance systems, or infantry into the same team; or maintaining elements in pure teams under the platoon leader's control. The platoon leader must consider the characteristics of the NAI or avenue of approach when task organizing for surveillance. These considerations will determine whether the platoon will need to call for fire or conduct dismounted patrols; they will also affect the field of view and applicability of ground surveillance systems and tactical UASs. Figures 4-1 and 4-2 illustrate how the SBCT and IBCT reconnaissance platoons might be task organized for surveillance operations.

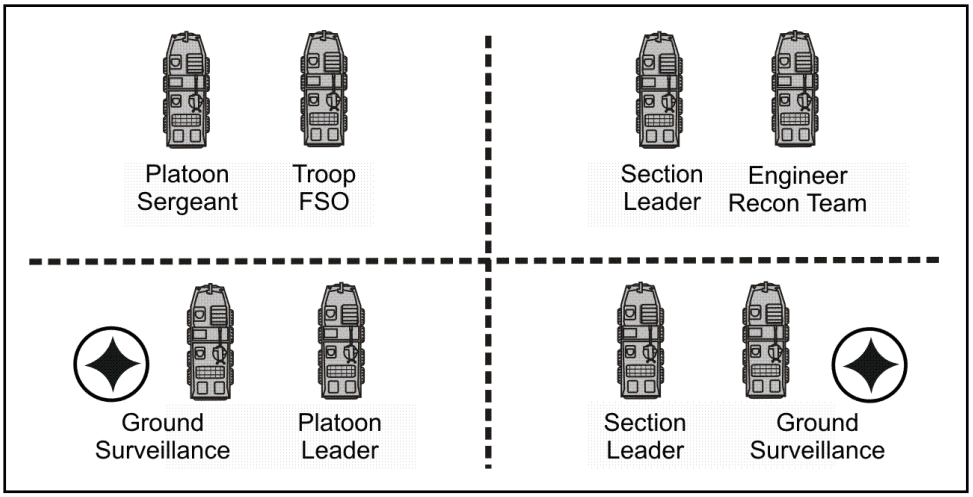


Figure 4-1. Sample SBCT reconnaissance platoon task organization (with FSO, engineer, and ground surveillance assets)

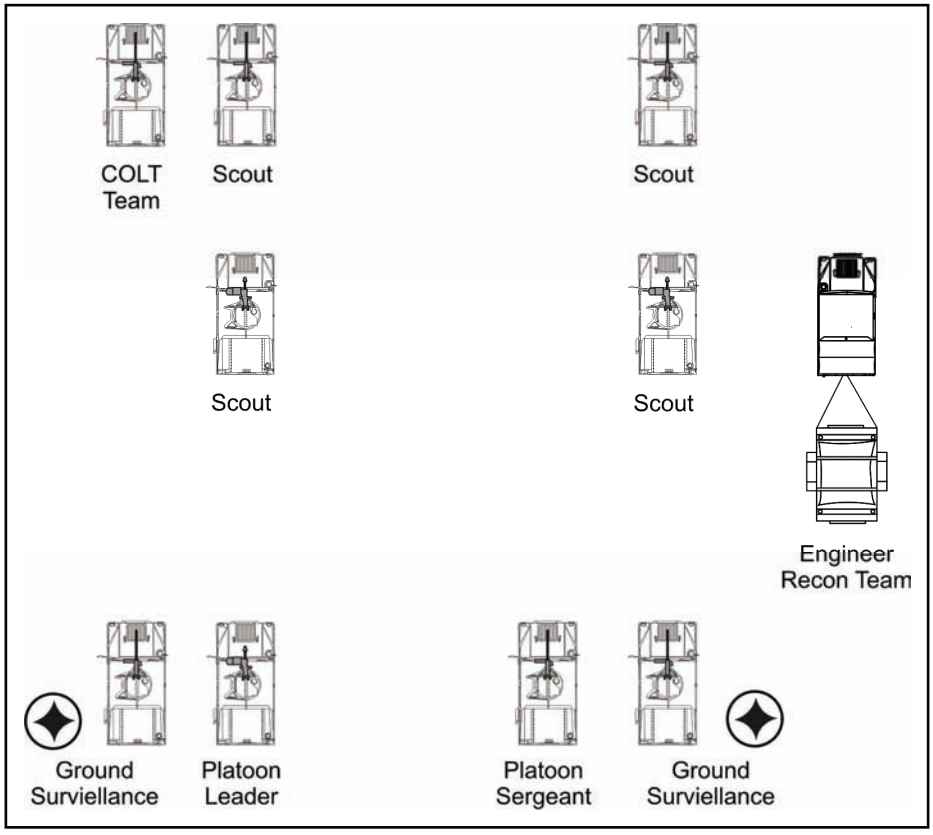


Figure 4-2. Sample IBCT reconnaissance platoon task organization (with COLT, engineer, and ground surveillance assets)

Redundancy

4-31. The platoon leader may task more than one element to observe a particular assigned NAI or avenue of approach. He does this based on the nature of the NAI or avenue in terms of size, terrain, or importance. For example, a very large avenue may require multiple observation assets to ensure all aspects of the avenue are covered. Terrain that is very broken or mixed with areas of thick vegetation may require more than one asset to ensure adequate continuous coverage. Finally, if the commander assigns a particular NAI significant priority, the platoon leader may assign multiple elements to cover it. Redundancy not only ensures adequate observation of an NAI or avenue of approach, but also enables the unit to accomplish the operation even if enemy forces compromise some assets. Figure 4-3 illustrates redundancy of observation assets.

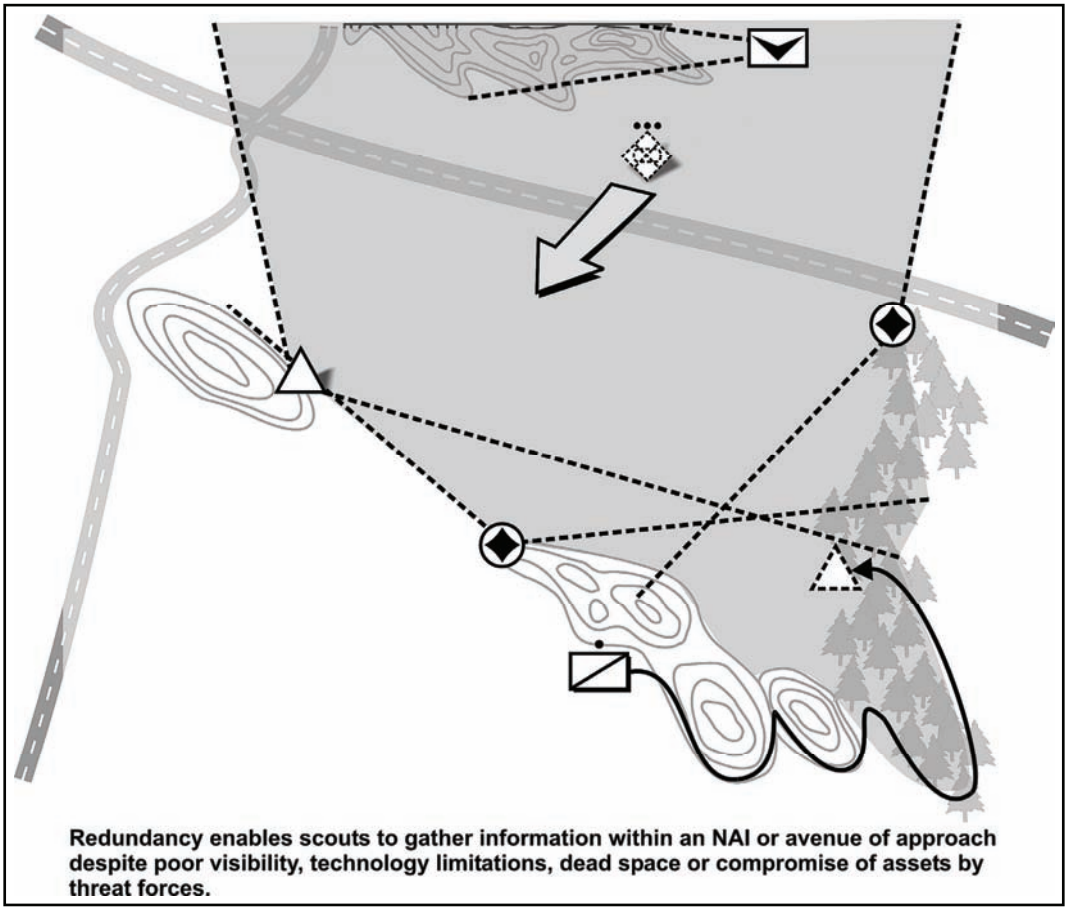


Figure 4-3. Use of redundancy in surveillance operations

Cueing

4-32. Cueing is a technique the platoon leader can use to cover an NAI or avenue of approach when assets are limited and he lacks the capability for redundancy. He plans contingency tasks that will increase surveillance on a particular NAI; his surveillance teams execute the tasks when "cued" by activity at that NAI.

4-33. The reconnaissance or scout platoon initially covers the NAI or avenue of approach either with a single surveillance team or with a remote electronic signaling device such as ground surveillance systems, trip flares, or early warning systems. When scouts detect activity, other teams move into preselected positions to add their capabilities to the surveillance of the NAI or avenue. (Refer to Figure 4-4.)

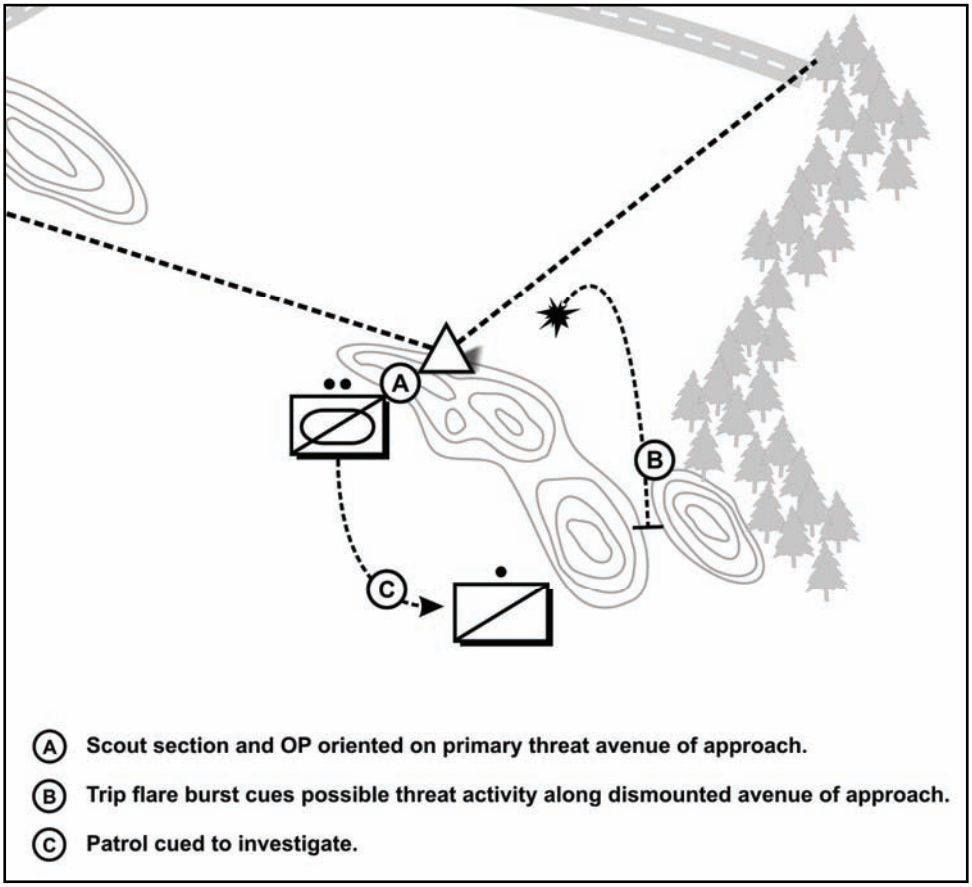


Figure 4-4. Use of cueing in surveillance operations

PROVIDE EARLY WARNING

4-34. The platoon's second critical task is to provide early warning of an enemy approach. Effective early warning requires detailed planning for communications. The platoon leader looks at communications distances and significant terrain features to identify potential communications problems. If he anticipates problems, he can address them by requesting support from higher (in the form of CAB or squadron retrans) or by planning for radio relays and directional antennas. (See Figure 4-5.)

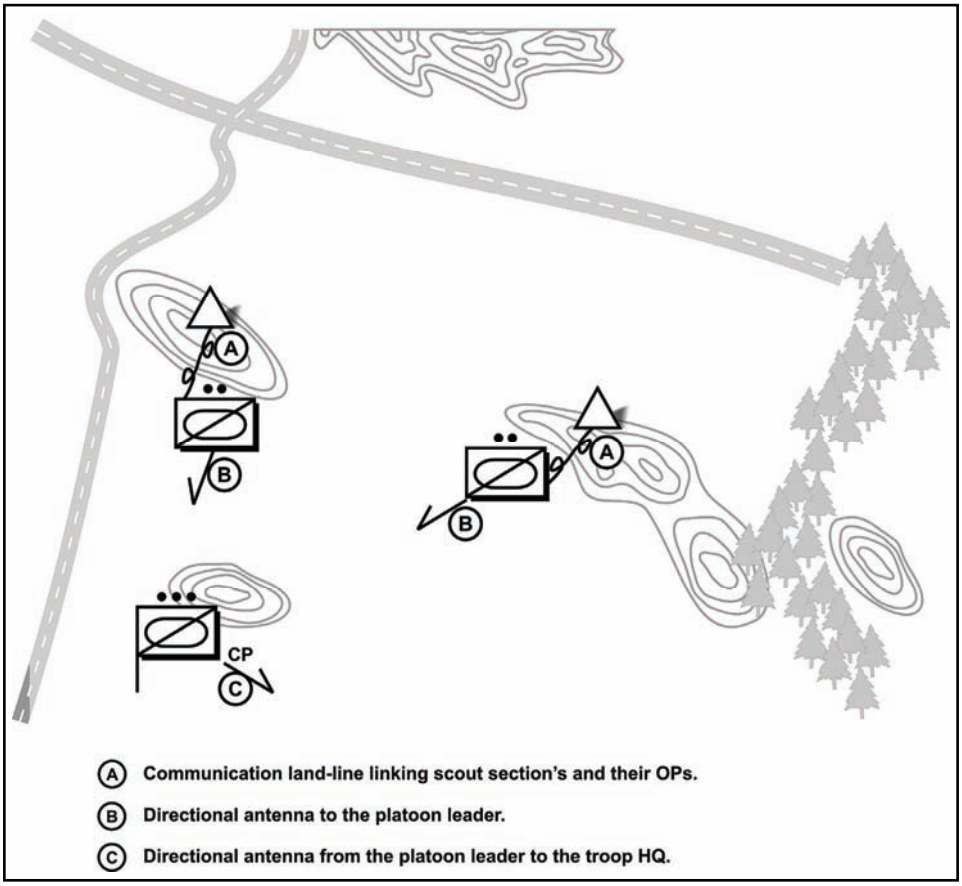


Figure 4-5. Communications scheme to ensure early warning

PERFORM COUNTERRECONNAISSANCE

4-35. Once the platoon leader has planned surveillance of assigned reconnaissance objectives and has ensured that he can provide early warning, he must next evaluate the enemy's reconnaissance effort and the platoon's assigned role in the conduct of counterreconnaissance. These operations consist of two elements: the hunter (who acquires the enemy) and the killer (who engages the enemy). The most appropriate role for the platoon in the counterreconnaissance operation is acquiring enemy reconnaissance assets rather than killing them, although it does have limited killing capability.

4-36. The commander's guidance must specifically define the role of the scouts in counterreconnaissance operations. Once he has a thorough understanding of his commander's intent, the platoon leader must consider four factors when planning to acquire enemy reconnaissance elements:

- Enemy reconnaissance avenues of approach (both mounted and dismounted).
- When and under what conditions the platoon is likely to encounter enemy reconnaissance forces.
- Likely composition of enemy reconnaissance forces in terms of size, organization, and equipment.
- Identity and location of friendly reconnaissance-killing forces.

4-37. Enemy reconnaissance forces are not likely to use primary avenues of approach to execute their operation. To acquire their assigned reconnaissance objectives, the scouts must be oriented on reconnaissance avenues of approach which may include trails, rough terrain, and dead space that allows mounted movement, but only for small teams of vehicles. They must also realize that enemy

reconnaissance is most likely to move during periods of limited visibility. A thorough understanding of the composition of enemy reconnaissance elements allows the scouts to more accurately determine the enemy's likely reconnaissance avenues of approach and how best to acquire them. In other words, scouts war-game how they would move through the area if they were the enemy, and then determine where to find the enemy element.

4-38. Scouts must consider the OE, including the enemy; their knowledge of the terrain (including the enemy's view of the terrain); and available systems' capabilities to quickly destroy the enemy. Once initial acquisition of the enemy occurs (by the hunter element), other assets in the CAB, squadron or, even the brigade are given the specific mission of killing the enemy reconnaissance (the killer element) in or behind the screen line. These assets should have direct communications with the hunter elements and the platoon leader. Rehearsals are critical to making this operation successful. The platoon must rehearse all phases of the operation with the augmenting elements to ensure a single mistake does not allow the enemy to infiltrate the protected force.

4-39. To make the hunter-killer team proficient, all elements need to be present to rehearse the following factors in destroying an enemy reconnaissance element:

- Undetected movement into screen positions.
- NFAs requested through higher headquarters.
- Hunter acquisition and reporting of the enemy.
- Hunter tracking and reporting.
- Killing element movement into engagement position.
- Handover to killer element for engagement.
- Exploitation of destroyed enemy element for intelligence, if possible.
- Repositioning of hunter-killer team for acquisition of follow-on threats.

4-40. The counterreconnaissance task is extremely resource-intensive. It is generally most effective when conducted by an element larger than a single reconnaissance or scout platoon. The platoon by itself does not have sufficient assets to both acquire and kill an enemy. In addition, it may not be able to observe all reconnaissance avenues of approach and still maintain surveillance on the enemy's main avenues of approach. The commander's intent is critical to resolving this dilemma.

Note. The use of phased operations with distinct triggers to denote the beginning and end of each phase greatly enhances the platoon leader's ability to conduct counterreconnaissance and shift forces to answer the commander's CCIR.

4-41. When the platoon must acquire both enemy reconnaissance elements and the main body, the priority in the early stages of the operation will be on the reconnaissance forces, focusing on the reconnaissance avenues of approach. The platoon will then track the echeloned arrival of enemy elements in the AO and shift priority to the main avenues of approach. This technique permits the platoon leader to time-phase priorities based on conditions in the AO. The platoon leader, however, must recognize (often by satisfying the CCIR) when to change priority to the main avenue of approach. (See Figures 4-6 and 4-7.)

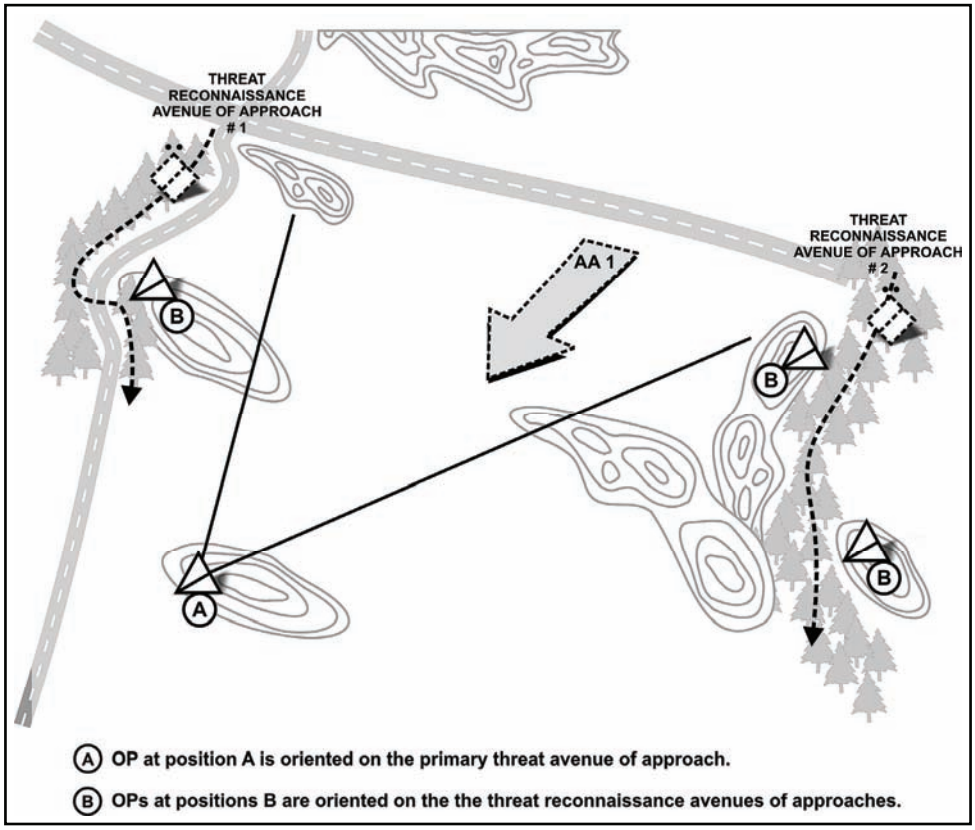


Figure 4-6. Counterreconnaissance operation (part one)

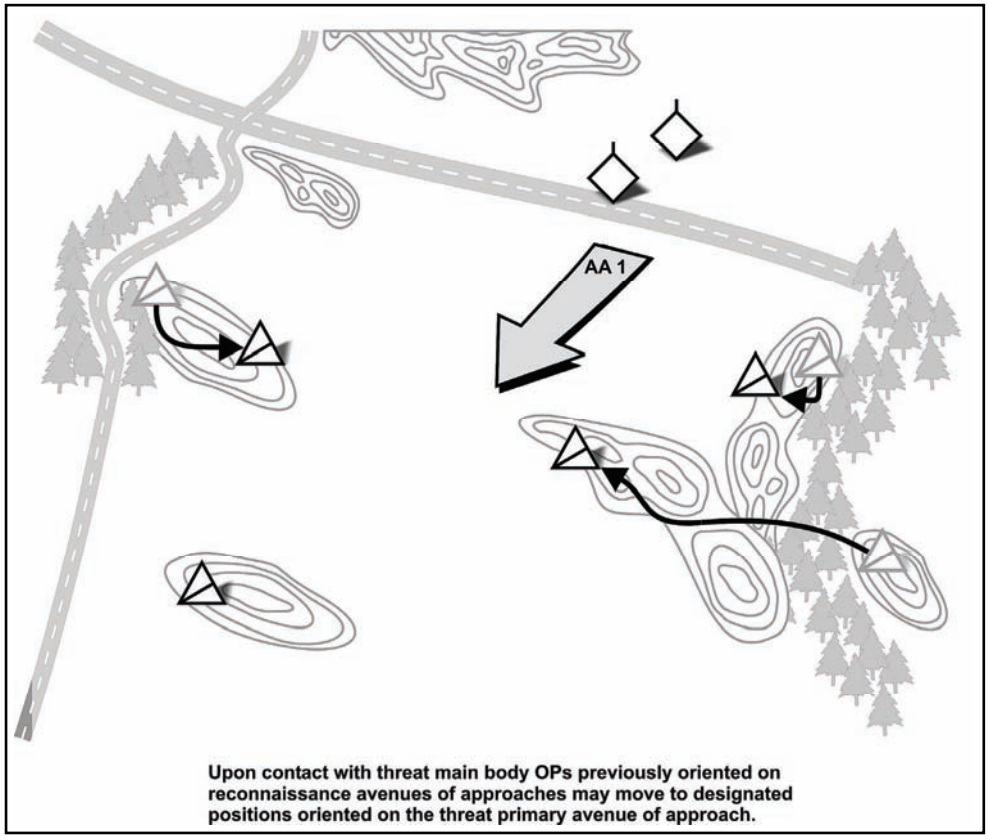


Figure 4-7. Counterreconnaissance operation (part two)

MAINTAIN CONTACT

4-42. After reporting information on enemy reconnaissance elements and locating the enemy main body, the platoon must maintain contact until authorized to hand over contact to another friendly element. This is one of the most difficult tasks for the individual section or squad to accomplish because of the size of the AO and the distance the element can move prior to enemy detection. Therefore, maintaining contact is best accomplished through a platoon effort creating interlocking fields of observation.

4-43. The preferred method of maintaining contact with a moving enemy is to position echeloned OPs in depth along the avenue of approach. This allows one OP to hand over contact to another OP. As the enemy force reaches the edge of their sector, the OP conducts a handover to another OP without the requirement for the OPs to physically displace. This technique requires the platoon to have interlocking visibility and to pre-position OPs in depth. (See Figure 4-8.) OPs must rehearse passing contact of the enemy to another element so that if contact is lost, OPs can take action to regain contact.

Note. OPs must be prepared to execute RHO with adjacent units outside of the platoon organization. This is best done by having a POC from each templated OP present at the combined arms rehearsal and ensuring that the OPs have access to the latest SOI.

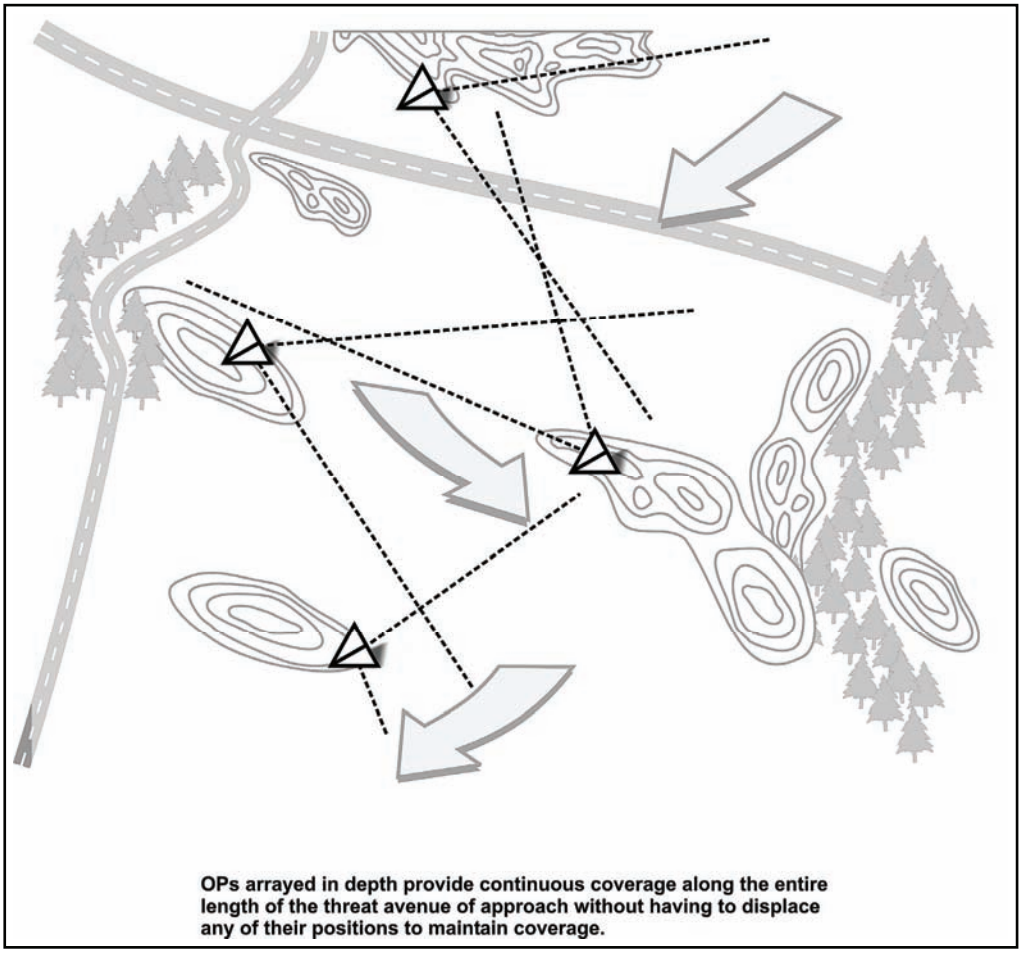


Figure 4-8. OPs maintain contact in depth

4-44. Another technique used to maintain contact is to displace in front of a moving enemy. This technique is very difficult because the scouts must move to the rear faster than the enemy is moving forward. This often exposes the scouts to enemy fire. Additionally, if they attempt to use covered and concealed routes only, they risk moving too slowly, having the enemy bypass them, and losing contact. Figures 4-9 and 4-10 illustrate how scouts can conduct displacement while maintaining contact. To counter potential problems, scouts conduct detailed map reconnaissance and thorough rehearsals to learn the terrain as they reconnoiter their movement to and around the OP locations.

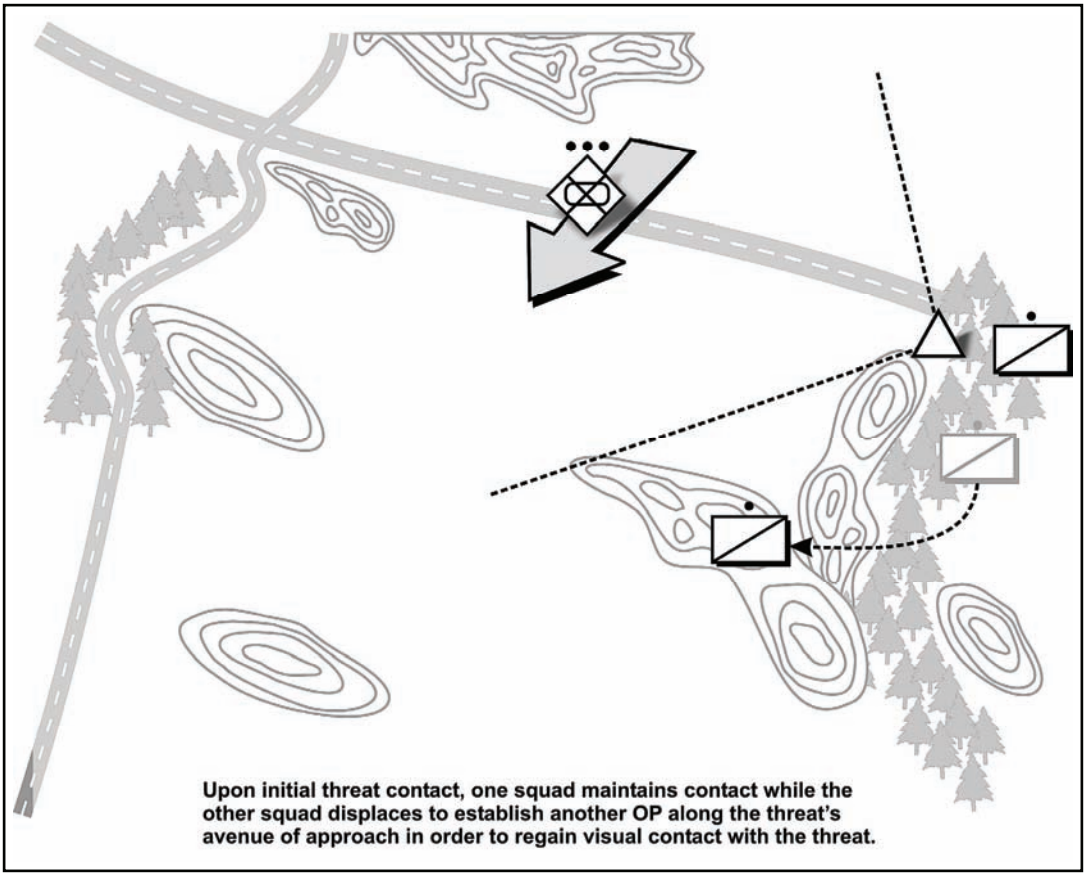
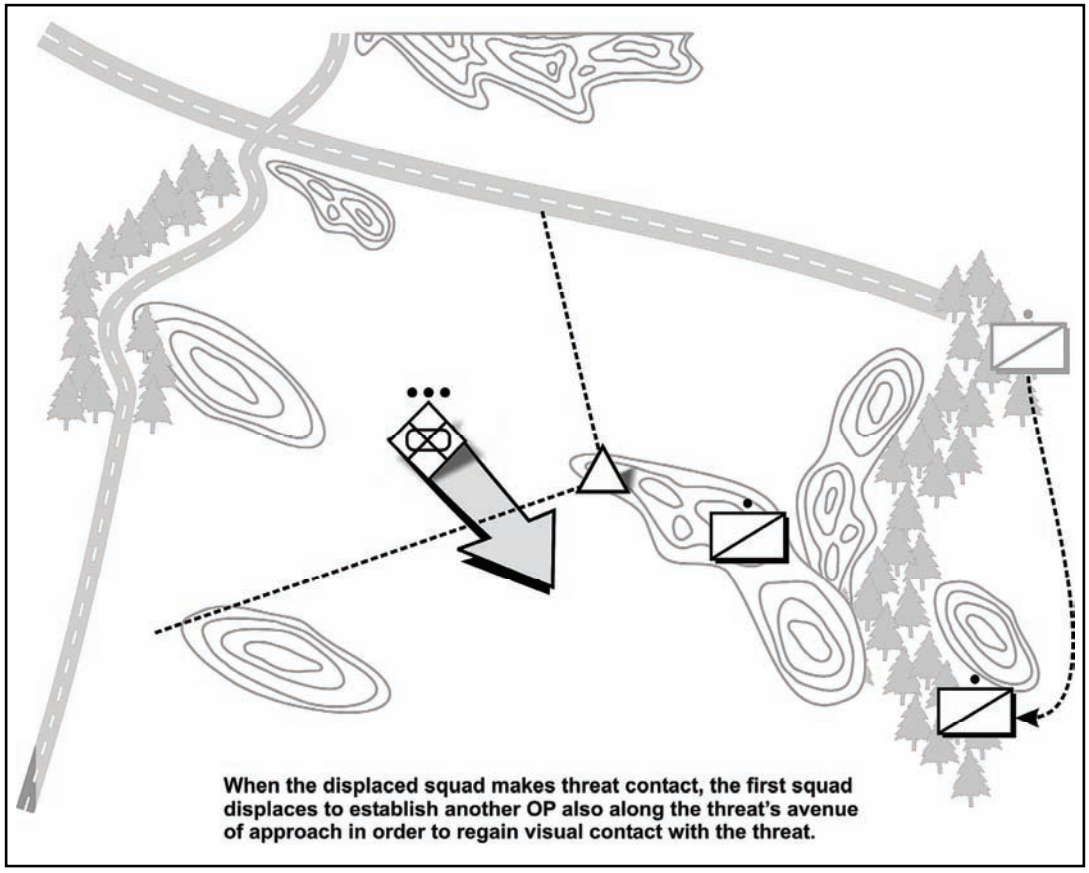


Figure 4-9. OPs displace to maintain contact (part one)



Figurer 4-10. OPs displace to maintain contact (part two)

4-45. A third technique of maintaining contact is a combination of the two discussed earlier. Leaving the original dismounted OP in position (with a vehicle in support, if possible), the platoon leader repositions the remainder of the section in depth as either a mounted or dismounted OP. This OP can be established or reoriented to maintain contact until the element in contact hands over the enemy to a killing element or a maneuver element positioned behind the screen. The platoon must maintain observation of assigned NAIs/avenues of approach. Situations may occur in which the scouts request that other assets maintain the screen while they meet a surveillance coverage requirement such as moving forward for deeper observation. The platoon leader can also request or coordinate handover to maintain the screen. This technique reduces both the time associated with moving OPs and the likelihood of compromising the platoon's reconnaissance elements (see Figures 4-11 and 4-12).

4-46. No matter how the platoon plans to maintain contact, the platoon leader should attempt to rehearse the method, especially if it requires reconnaissance elements to displace or move to alternate positions. This will help the commander and platoon leader to validate the method they have chosen or to choose another one if it becomes necessary.

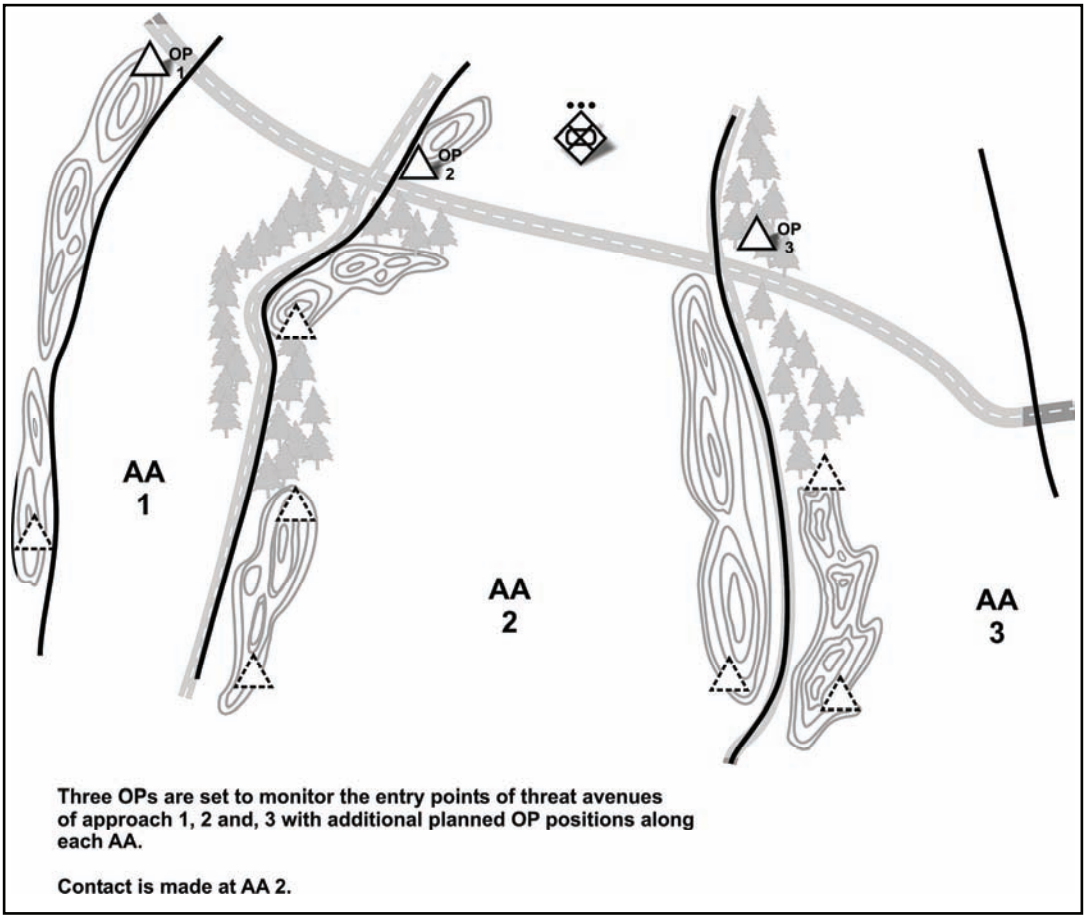


Figure 4-11. OPs maintain contact with combination of depth and displacement (part one)

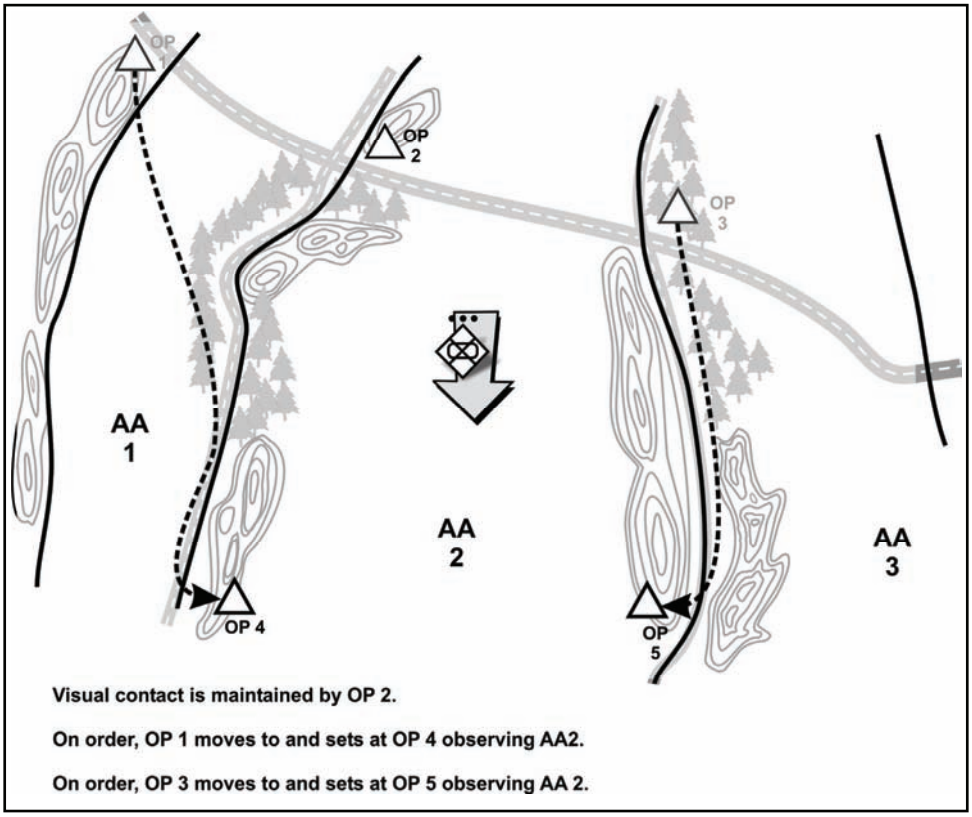


Figure 4-12. OPs maintain contact with combination of depth and displacement (part two)

DISRUPT AND DELAY

4-47. Reconnaissance and scout platoons should attempt to harass and impede the enemy using indirect fire. They should focus on expected avenues of approach, choke points, the enemy rate of march, and artillery time of flight to determine trigger lines (or points) that allow accurate engagement of the enemy (time of flight information from available weapon systems should be made available to scouts and rehearsed). A technique for planning the use of triggers is to have a dismounted OP, sited forward of its supporting vehicle, observe the triggers and initiate fires, with the vehicle OP observing the impact zone and adjusting the fires (on terrain that offers slower movement, the forward OP may be able to observe the impacts). Leaders may also request available CAS assets and CCA aircraft for interdicting fires. Every scout in the reconnaissance platoon must be proficient in planning, coordinating, and calling for indirect fires, such as linear sheaths on main avenues of approach.

4-48. Accurate artillery fire will have an immediate effect on the enemy force. Accurate fires disrupt formations as individual vehicles change speed, button up, or are destroyed or disabled. C2 deteriorates as vision is restricted and antennas are lost. This loss of vision and C2 restricts the enemy's ability to spot displacing friendly forces. The enemy may also compromise his own momentum and combat power if he attempts to locate the element directing the fire. Scouts directing fires from dominant terrain should remain aware that the enemy will target such terrain.

COUNTERRECONNAISSANCE TECHNIQUES

4-49. Counterreconnaissance is a directed effort to prevent friendly forces from observation or infiltration by enemy reconnaissance elements. Countering the enemy's mounted and dismounted reconnaissance elements is the first and possibly most important step in ensuring the protected element can successfully

accomplish its mission. It can be extremely difficult to identify enemy reconnaissance forces, especially dismounted forces. The platoon may lack the resources to deploy effectively and detect infiltration. As a result, scouts execute counterreconnaissance most successfully as part of a combined arms effort at troop, squadron, and CAB levels.

PLANNING CONSIDERATIONS

4-50. The concept of executing counterreconnaissance must address how the unit will accomplish the two aspects of counterreconnaissance: acquiring the enemy and then destroying it. At CAB/squadron level, the S-2 provides key input in this determination. The S-2 identifies—

- Reconnaissance avenues of approach in the unit sector.
- Types of reconnaissance elements the enemy might use in the sector.
- Enemy elements that are most likely to move into the sector.

4-51. It is especially important for the S-2 to note the locations and activities of dismounted enemy elements, which present the greatest danger to the platoon and the supported unit. Information from the S-2 is integrated into the OPORD and is part of the unit's IPB.

4-52. The commander should discuss conduct of counterreconnaissance in the OPORD or FRAGO, indicating how elements will organize and conduct the operation throughout the depth of the AO. This information should include planning considerations for the operation, including the following:

- Direct fire planning and coordination.
- Observation planning and coordination.
- C2.
- Employment of augmenting elements.
- RHO.

4-53. In all counterreconnaissance operations, the goal is to destroy the enemy reconnaissance forces. The reconnaissance or scout platoon's role in these operations will usually be to conduct a screen operation to acquire and identify enemy reconnaissance forces. This requires that the scouts acquiring the target stay well hidden to prevent the enemy from detecting the location and orientation of the screen line. In most cases, the platoon does not have the capability to acquire, identify, and defeat the enemy reconnaissance by itself. Commanders task other combat elements to fight and destroy the enemy reconnaissance elements while the scouts observe for follow-on elements or prepare to have elements track the escaping enemy.

ORGANIZATION

4-54. Organizational options available to the commander to counter the enemy reconnaissance effort include—

- Reconnaissance or scout platoon operating alone.
- Reconnaissance or scout platoon with attached killing force.
- Reconnaissance or scout platoon and company team.

Reconnaissance or Scout Platoon (Operating Alone)

4-55. This technique places the responsibility for counterreconnaissance on the reconnaissance or scout platoon. It requires maximum use of any attached enabling assets to acquire the enemy, freeing the scouts to perform the killing function of counterreconnaissance. CFV-equipped platoons are best able to perform this task. The platoon leader places acquiring assets along the screen line, which should include the use of dismounts forward of the vehicles. Next, the platoon leader positions his designated killing teams in depth. The killing assets of the platoon occupy positions on likely enemy reconnaissance routes. Where engineer support is available, killing vehicles should be in hull or turret down positions to prevent observation as the enemy moves into their vicinity. Positioning of vehicles must be flexible enough to respond to additional enemy elements moving on other routes.

Note. When the platoon operates with units that commonly have strikers or COLTs attached, such as those of the IBCT and BFSB, the platoon leader may have to integrate NAIs to support the TAIs positioned in depth. This will place the scouts in the role of acquiring the enemy, with the strikers/COLTs as the killers in depth employing artillery or CAS.

4-56. This technique requires the platoon's sections or squads to reconnoiter alternate positions and routes that permit quick repositioning once the acquiring elements make contact and to maintain contact under favorable conditions. When it is used, leaders prioritize counterreconnaissance tasks in the early stages of the screen operation.

Reconnaissance or Scout Platoon with Attached Killer Element

4-57. This team technique requires the close integration of a reconnaissance or scout platoon and an element capable of defeating the known level of threat. Platoon leaders must plan for the employment of a MGS or tank platoon to execute counterreconnaissance tasks. Platoon leaders consider using a Bradley section and its associated infantry squads, especially for a dismounted enemy. The reconnaissance platoon acts as the acquiring element, and the attached MGS, tank, or Bradley sections act as the killing element. The reconnaissance platoon leader, whose element makes first contact, commands the counterreconnaissance effort. The platoon leader pairs the killing force with a reconnaissance platoon's section (one scout section supported by a killing element at a minimum). During this operation, the PSG positions himself to conduct CASEVAC operations, resupply operations, and if necessary, guide additional killing elements forward to support the operation.

Note. In a cavalry or reconnaissance troop, the troop commander may control and coordinate the effort. In a CAB, the platoon leader may control and coordinate the effort with guidance from the S-2 because timing is critical as the enemy attempts to move through the screen undetected.

4-58. The scouts may acquire the enemy with surveillance techniques and/or sensors. The killing force should occupy a battle position (BP) overlooking likely reconnaissance avenues and wait for orders to occupy their firing positions. They are prepared to move to previously reconnoitered alternate positions based on reports coming from the scouts. This organization will be most effective when the two platoons establish a habitual relationship. Refer to Figure 4-13 for an illustration of this technique using an SBCT counterreconnaissance team made up of a reconnaissance element (reconnaissance platoon) and a killer element (MGS platoon). The scouts have marked avenues of approach, routes, and lanes to direct the killing force in engaging the enemy.

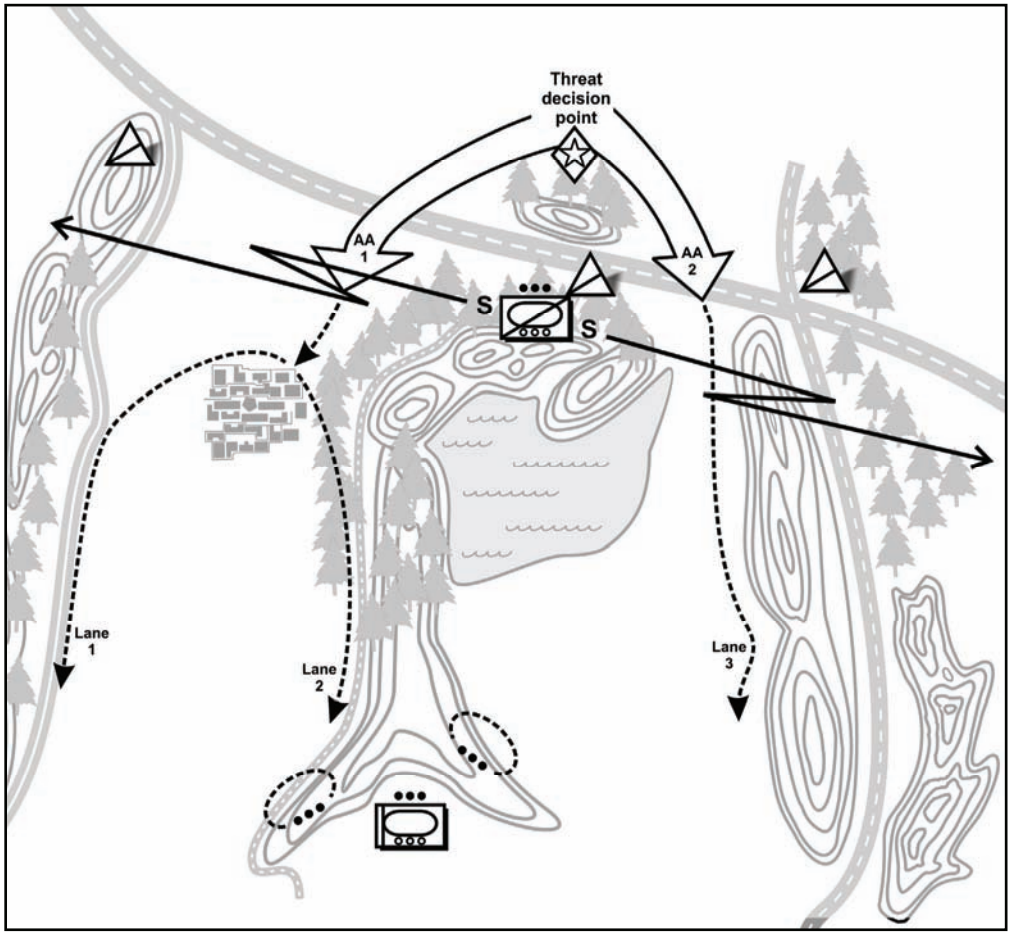


Figure 4-13. Counterreconnaissance team (reconnaissance and MGS platoons)

Note. As reconnaissance or scout platoons move forward into the screening area, they must not leave evidence of their presence while locating the routes and lanes the enemy may use. If the platoon is detected, the enemy reconnaissance elements may withdraw and direct larger units into the screening area for a decisive engagement.

Reconnaissance or Scout Platoon and Company Team

4-59. This technique uses a reconnaissance or scout platoon—either attached or under operational control (OPCON)—and a company team to execute counterreconnaissance and security operations. CAB reconnaissance platoons primarily execute this technique. The company team commander controls the security effort. The reconnaissance or scout platoon is the primary acquiring element, but it can be supplemented with infantry assets from the company team and enabling assets from the battalion. The commander uses all other assets as the killing element.

4-60. This is the most lethal counterreconnaissance technique and has the combat power to be very effective. It also has organic sustainment assets for quicker and more responsive support. Major disadvantages of this technique are the combat power it diverts from the main effort and the execution problems that may result if the scouts and the killing elements have not trained together. See Figure 4-14.

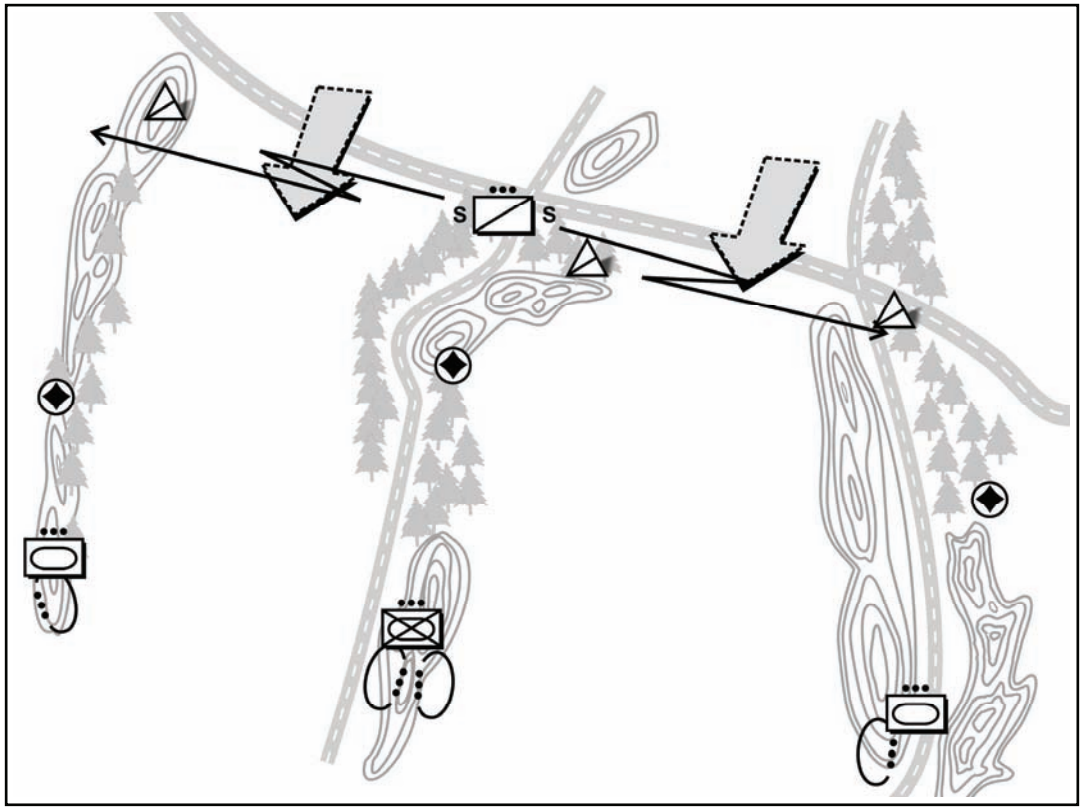


Figure 4-14. Counterreconnaissance team (reconnaissance platoon and company team)

EXAMPLE OF A SCREEN OPERATION

4-61. The following example illustrates a screen operation by an HBCT CAB reconnaissance platoon, conducted in conjunction with a deliberate defense. The screen operation can be conducted in similar fashion by all types of reconnaissance and scout platoons.

4-62. The CAB reconnaissance platoon is operating ahead of the battalion (see Figure 4-15). The CAB has transitioned from a movement to contact to a screen for 24 hours to regain the initiative. The reconnaissance platoon has been assigned the operation to screen in sector between PL BOB and PL SAM. The troop will hand over enemy contact as the enemy crosses PL SAM. The platoon leader decides to screen with three sections on line, with subsequent positions to the rear.

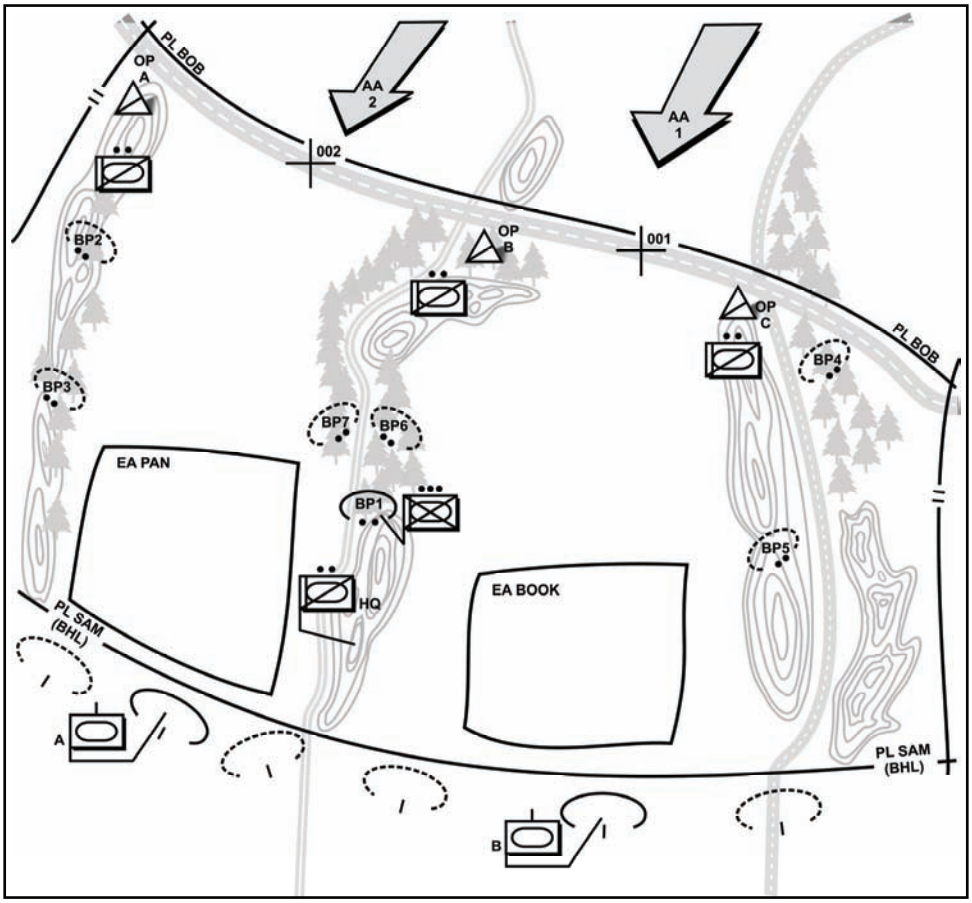


Figure 4-15. Example screening operation (part one)

4-63. The primary focus of the CAB reconnaissance platoon is acquiring all enemy elements moving along avenues of approach 1 (AA1) and 2 (AA2). Because of the width of the sector, the reconnaissance platoon has permission to engage enemy reconnaissance patrols smaller than section size, but only under favorable conditions (under 500 meters and without warning). In this situation, the platoon is supported by a hunter-killer team consisting of two M1A2s and two M2A3s. (Hunter-killer teams are common within the ACR organization; however, they can also be constituted within a CAB in the HBCT.)

Note. CFV-equipped scouts may be tasked to engage enemy elements up to platoon size.

4-64. The hunter-killer team's task is to destroy enemy reconnaissance elements in the screen up to platoon size. The hunter-killer team will start the operation in BP1 and is prepared to move to and occupy additional BPs on order. A UAS section will support the operation from the rear of PL SAM.

4-65. With guidance from his S2, the reconnaissance platoon leader evaluates the resources available to accomplish his tasks. Because the mission length is estimated at 24 hours and includes patrols, he plans for three long-duration OPs. The placement of three OPs prevents infiltration with interlocking observation across the entire sector to include the platoon flanks. He places Section Alpha to observe AA2 from OP A, Section Bravo to observe center sector from OP B, and Section Charlie to observe AA1 from OP C. Positioning of these OPs is critical, especially during inclement weather and degraded conditions. A map reconnaissance indicates that reconnaissance avenues of approach are probably located along the platoon's boundaries (vicinity of checkpoints 3, 9, 1, 8, 10, and 7), as illustrated in Figure 4-16.

4-66. The platoon leader plans to conduct dismounted patrols in the dead space and along reconnaissance avenues of approach. To aid in this, he will emplace sensors for monitoring. In addition to his primary positions, the platoon leader plans alternate and subsequent OPs throughout the depth of his sector. He selects these positions based on his requirements to reposition if an OP is compromised and to maintain contact with the enemy main body throughout the depth of the sector (see Figure 4-16). The platoon leader uses feedback from the OPs to identify actual dead space for the UAS to monitor on the flanks of the sector.

4-67. The platoon leader briefs his plan to the S2 and the CAB commander at the TOC as the platoon conducts PCCs. He plots the tentative OP locations, checkpoints, contact points, and potential hasty obstacles or minefields. He reports these locations to the commander, TOC, and FIST and updates the situational picture in FBCB2. To reduce fratricide risk, the platoon leader coordinates with the hunter-killer team leader and PSG so target handover on the screen can be completed quickly and effectively.

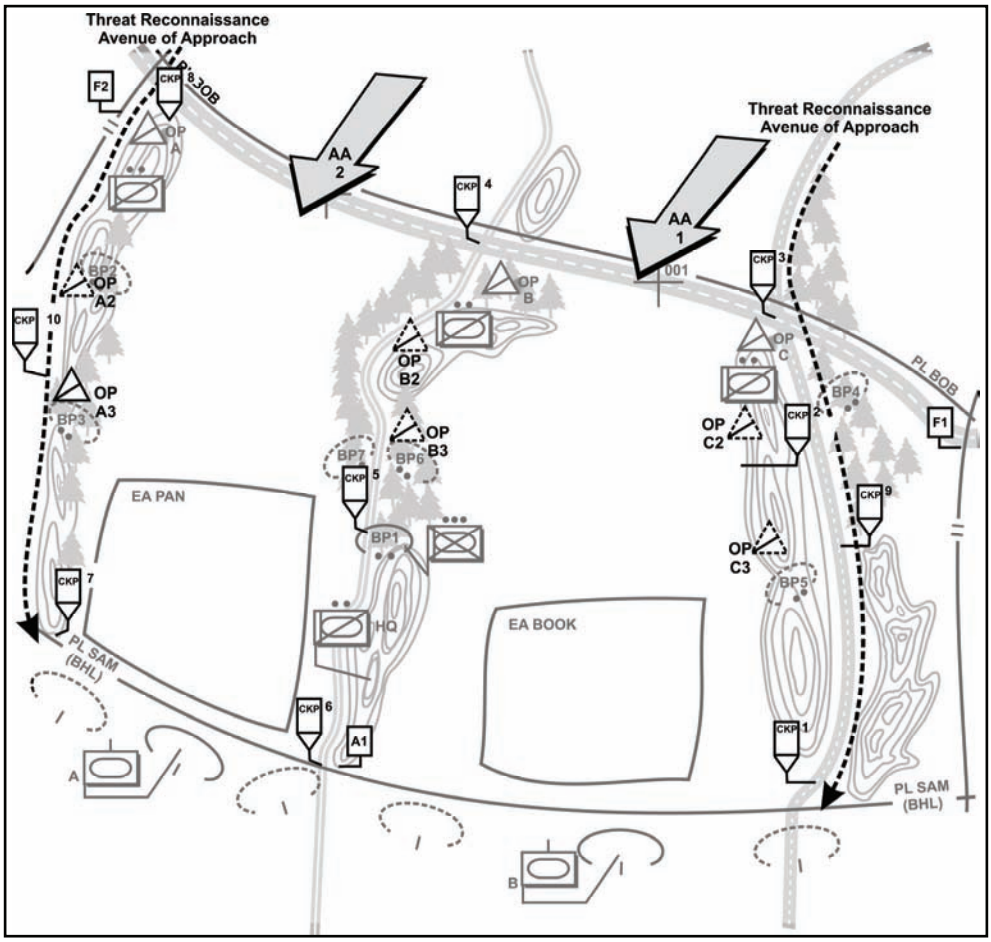


Figure 4-16. Example screening operation (part two)

4-68. As the reconnaissance sections arrive at their assigned positions (OPs A, B, and C), they adjust the OPs to best meet the intent of the platoon leader and report "SET." Radio checks and LOS confirmation with the hunter-killer team ensure that the scouts' locations are confirmed and that possible enemy infiltration routes are identified. After each OP reports "ESTABLISHED" to the platoon leader, the reconnaissance sections execute security patrols in dead space, emplace sensors, and report information in accordance with the platoon's screen plan. Patrols look for signs of recent activity on the ground so they can detect recently used infiltration routes. Hasty obstacles such as modular pack mine systems (MOPMS) may be emplaced at this time, but only after permission is confirmed through the command and disseminated to units in the area. Careful consideration is given to determine if the situation allows for recovery of the MOPMS if the OPs must fall back to subsequent positions.

4-69. After a period of time, the UAS team leader reports heat signatures in a wooded area north of the screen. HMMWVs with LRAS3 soon confirm the enemy presence. About 20 minutes after the contact is reported and the SA updated, OP C reports contact with an enemy reconnaissance patrol consisting of two BRDMs (see Figure 4-17). The reconnaissance patrol exits the reconnaissance avenue of approach and follows AA1. Based on the platoon leader's guidance, the section takes no action, remains hidden, and continues to report details of the enemy presence. The platoon leader forwards the report to the S2, updates the FBCB2, and receives instructions to conduct target handover with the hunter-killer team in BP1. The hunter-killer team is tracking the reports by monitoring radio traffic. Based on his commander's guidance, the reconnaissance platoon leader moves two infantry fighting vehicles (IFV) to BP5 to engage and destroy the enemy. The IFVs return to BP1 once the engagement is finished.

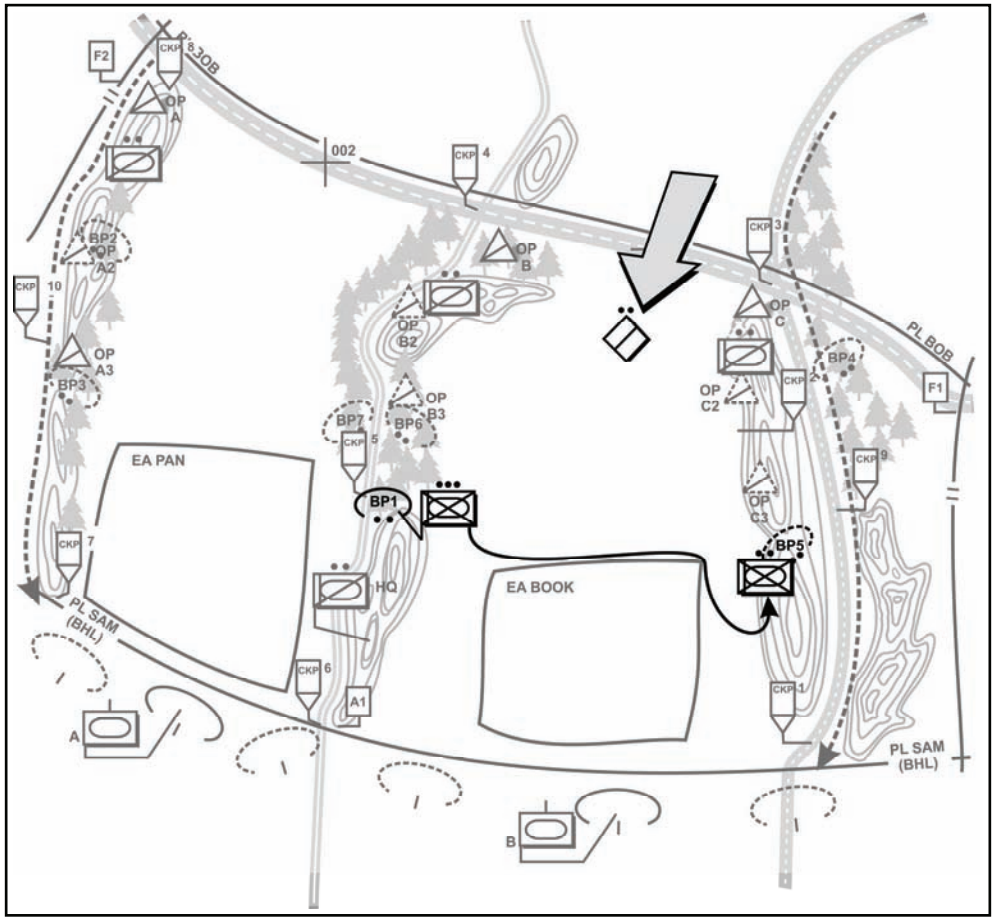


Figure 4-17. Example screening operation (part three)

4-70. A short time later, the scouts in OP A report a mortar strike in the vicinity of OP B and a possible enemy UAS in the air. This is followed by contact with a heavier enemy combat reconnaissance patrol (three BMPs), moving south along AA2. Having monitored the developing enemy situation, the S2 and CAB commander order the hunter-killer team to occupy BP7 and engage the enemy. The hunter-killer team coordinates target handover with the reconnaissance platoon leader, then engages and destroys the enemy element. Since the engagement occurred within 500 meters, the reconnaissance PSG, accompanied by an infantry squad from the hunter-killer team, moves up to the destroyed vehicles and conducts SE to gain any possible information about the enemy. The documents, radios, and other materials are cataloged and rapidly handed off to the HHC first sergeant (1SG) in the vicinity of contact point A1 at PL SAM. Once the handover is complete, all elements return to their locations (see Figure 4-18).

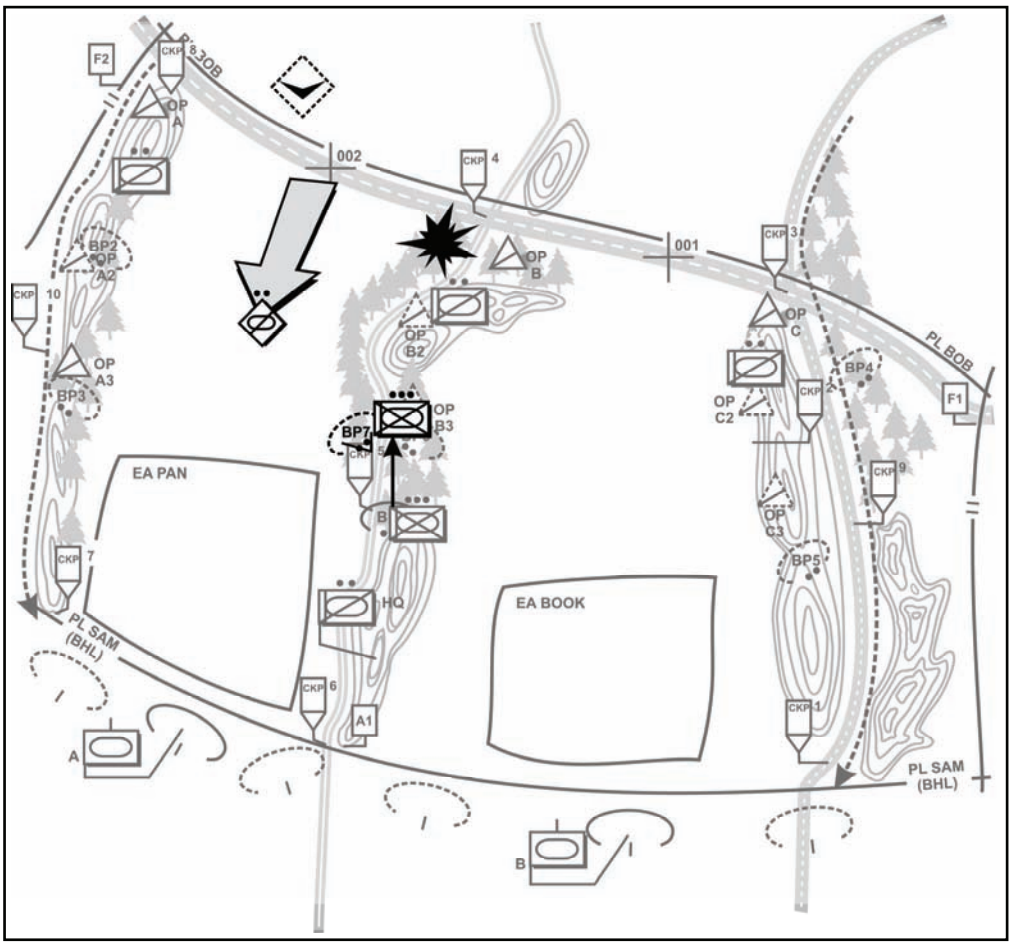


Figure 4-18. Example screening operation (part four)

4-71. Having destroyed enemy elements from BP5 and BP7, the CAB commander orders the hunter-killer team to reposition to contact point A1 to reduce the chance of detection and to support the reconnaissance platoon's movement to PL SAM if necessary. UASs are recovered prior to contact with the enemy main body to prevent their loss to enemy air defense artillery (ADA) systems. As the hunter-killer team reports set, OP B identifies the first element of a company-size enemy moving along AA1. The CAB commander orders MOPMS activated along the reconnaissance avenue of approach for AA1 to prevent the enemy from bypassing EA BOOK. The platoon leader decides to assume risk and maintain contact with the enemy along AA1. He requests to displace the HMMWV from OP A to BP1 to observe and adjust fires for the battalion. This gives him additional depth along AA1 and makes it easier for the platoon to maintain visual contact with the enemy (see Figure 4-19). The platoon leader reports the displacement and updates the situational picture for the battalion to prevent fratricide while elements are moving.

Note. Another method of increasing screen depth is to leave a dismounted OP dug in and concealed so that it can report information.

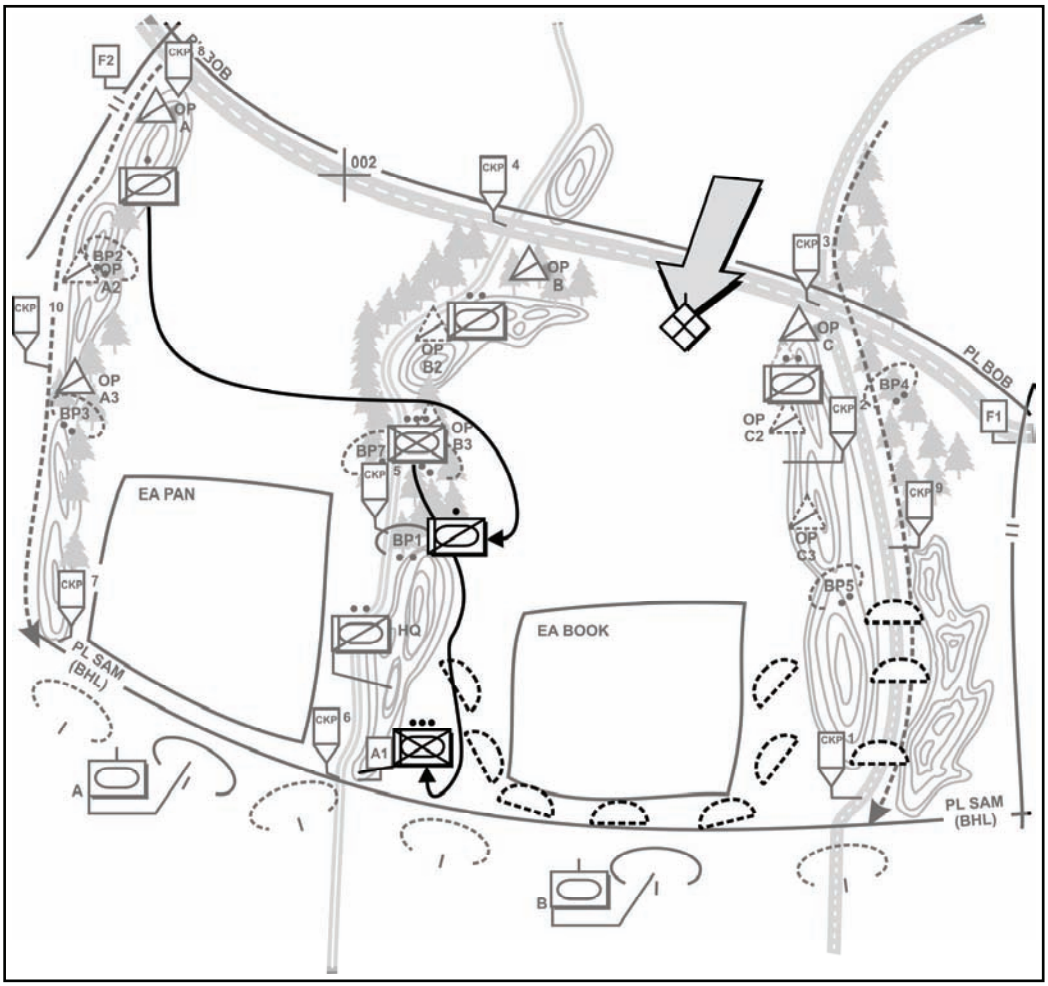


Figure 4-19. Example screening operation (part five)

Note. Unless otherwise indicated, the depictions of MOPMS emplacements in Figures 4-19 through 4-22 are templated locations only. Use of these symbols does not mean that MOPMS will be used in all locations simultaneously.

4-72. The HMMWV scout squad from OP A reports set at BP1. The section at OP C maintains contact with the enemy main body until it can be observed by the section at BP1 (as shown in Figure 4-20). Once that occurs, the OPs confirm target handover. The platoon leader orders the HMMWV scout squad at OP C to displace to OP C3, reestablish visual contact, and continue reporting. Scouts confirm the absence of ADA systems. BP1 begins attrition of the enemy by joint fires. These fires not only disrupt the momentum of the enemy main body, but also help cover the HMMWV displacement from OP C. OP C3 reports observing enemy artillery impact south of OP C, vicinity checkpoint 2. Monitoring the O/I net, the reconnaissance platoon learns that the hunter-killer team is set at contact point A1 and has coordinated movement with the company to the team's rear.

Note. Even though fires are being delivered to disrupt the enemy, scouts must displace without being detected and must minimize their silhouette during movement.

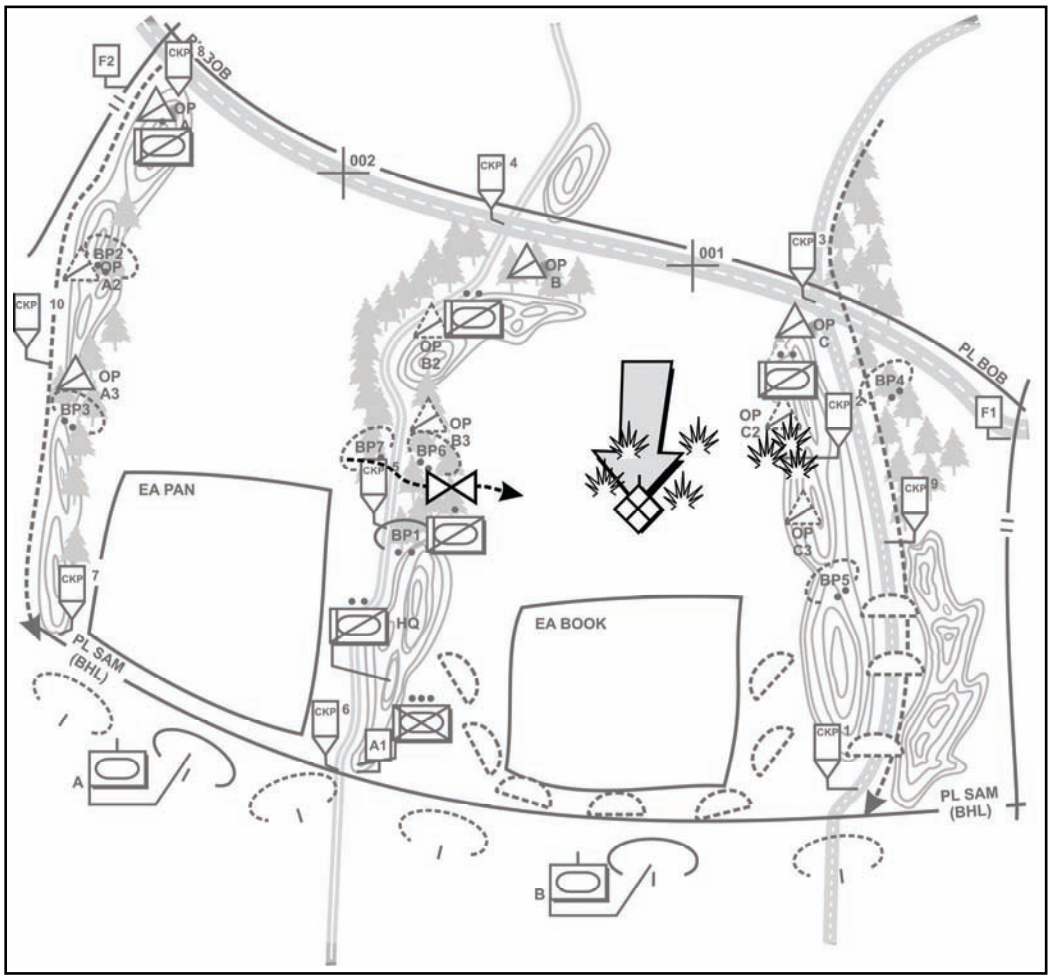


Figure 4-20. Example screening operation (part six)

4-73. BP1 maintains contact with the enemy and continues indirect fire (as illustrated in Figure 4-20). OP B reports a company(+) of armor moving south vicinity TRP 001. As the enemy main body continues to move, scouts report the enemy's entry into EA BOOK (see Figure 4-21). The enemy encounters hasty obstacles and mines in front of the BPs; these cause the enemy vehicles to stop or turn, making lethal flank shots possible. B Company engages the enemy main body with direct fire and destroys it. The reconnaissance squad at BP1 requests CASEVAC, and the PSG moves under hunter-killer team escort on the west side of the ridge line up to BP1. Once his vehicle is loaded, the PSG quickly moves the casualty back to contact point A1 and links up with the A Company 1SG and medics at the CCP. The platoon leader begins coordination of BHO of the enemy force to A Company and B Company in their BPs south of PL SAM.

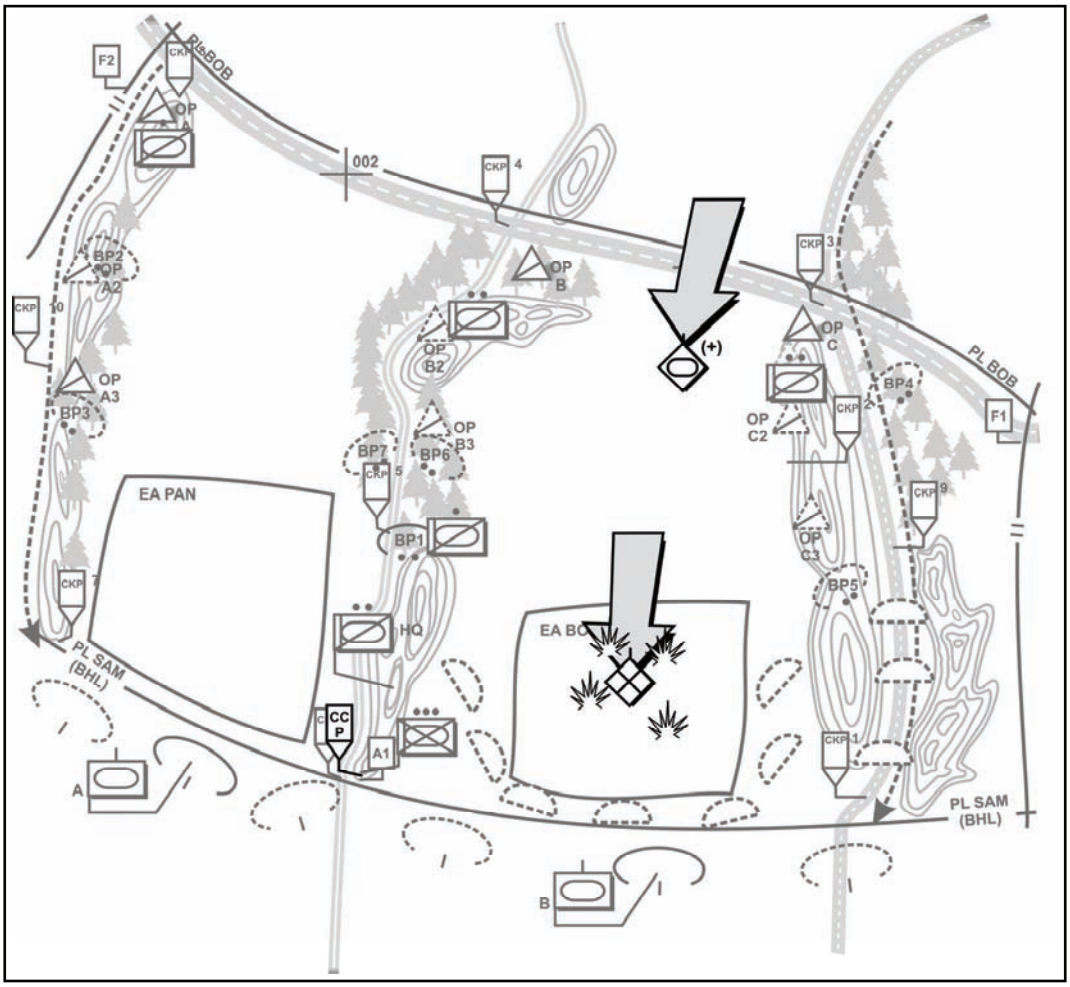


Figure 4-21. Example screening operation (part seven)

4-74. After the initial engagement of the enemy main body, the situational picture is updated. OPs B2 and C3 confirm a follow-on enemy force moving into EA BOOK (see Figure 4-22). BP1 and OP C3 confirm the enemy's front-line trace. The platoon leader requests SITREPs from vehicle commanders and orders the platoon to stay hidden and observe for additional follow-on threats. BP1 directs joint fires against the rear vehicles of the enemy formation. B Company quickly destroys the enemy within the engagement area and returns to turret-down positions. The reconnaissance platoon is ordered to prepare for a relief in place and for a zone reconnaissance north to reestablish visual contact with a possible enemy force. B Company(+) will follow to the rear of the platoon. The platoon leader instructs the hunter-killer team to follow no more than 700 meters or one terrain feature behind B Company.

Note. Hasty obstacles and minefields must be reported to gaining units and annotated in the operational picture so friendly units do not run into them. Handover of devices such as MOPMS must be conducted face to face; otherwise, recovery or confirmation of destruction of the devices is required.

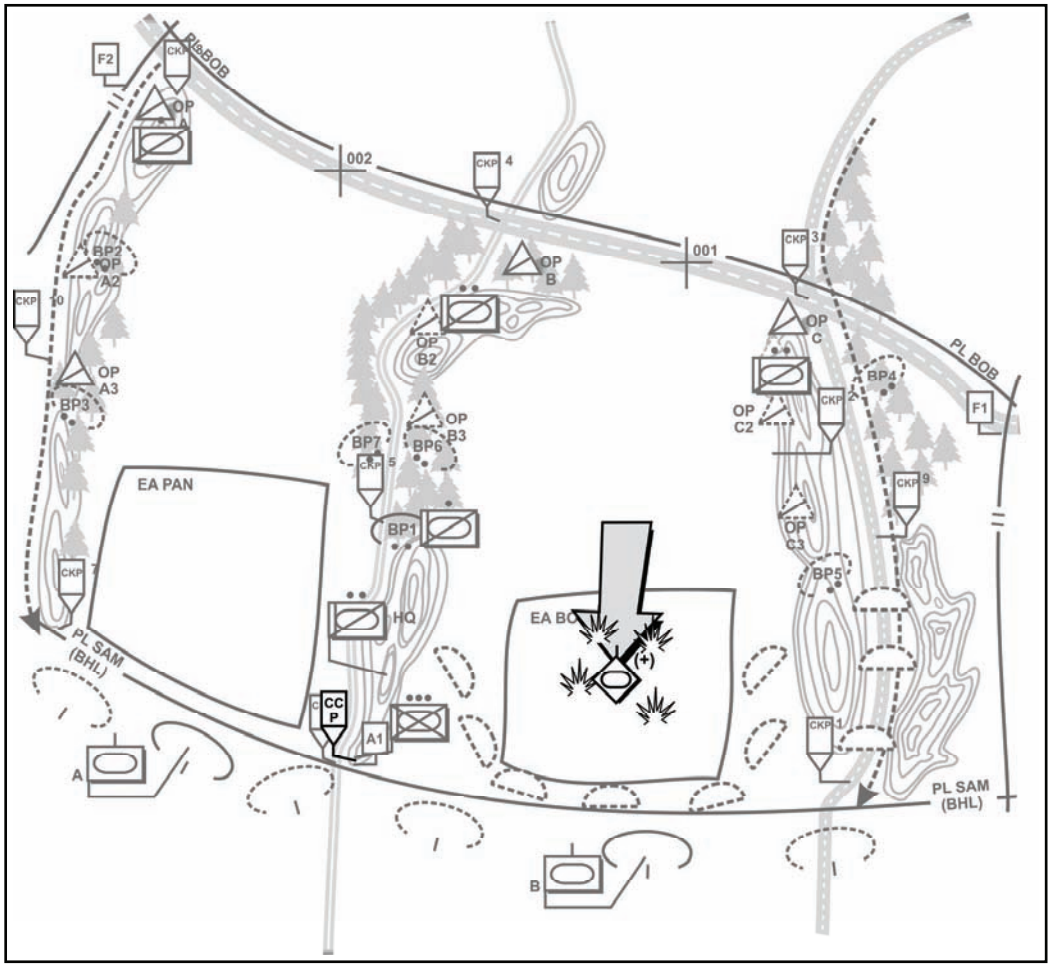


Figure 4-22. Example screening operation (part eight)

4-75. The reconnaissance elements return to the forward OPs, where they consolidate Class I, III, and V supplies and submit resupply requests. With this quickly done, a REDCON-1 status report is sent to the platoon leader. All MOPMS are ordered to be recovered and reported.

SECTION III – LOCAL SECURITY

4-76. Local security is an important part of maintaining the initiative. The requirement for maintaining local security is inherent in all operations. The reconnaissance or scout platoon may support local security as part of a larger unit such as a cavalry troop or maintain local security independently away from friendly elements. In some cases as when the platoon is part of a CAB or BCT, it will maintain its own assembly area and local security within the larger unit's footprint. Local security includes all measures taken to prevent surprise by the enemy, including operations against the platoon's location. It involves avoiding detection by the enemy or deceiving the enemy about friendly positions and intentions.

4-77. Units that come to a halt during operations must dismount to provide local security around their vehicles to prevent surprise and the loss of Soldiers and equipment to dismounted enemy elements. While dismounted, scouts must present as small a target as possible while still observing the area and approaches around their location. They must be ready to engage the enemy under favorable conditions. Units use both active and passive measures to provide local security as shown in the Table 4-1.

Table 4-1. Summary of local security measures

Local Security Measures	***Active***	Employ platoon OPs. Employ patrols to cover perimeter and dead space. Establish threat levels and procedures. Enforce stand-to. Enforce proper communications procedures.
	Passive	Employ camouflage. Enforce noise and light discipline. Employ sensors for surveillance of area around the unit.

SECTION IV – AREA SECURITY

4-78. Units conduct area security operations in MCO and limited intervention to deny the enemy the ability to influence friendly actions in a specific area or to deny the enemy use of an area for its own purposes. This may entail occupying and securing an area without the presence of the enemy or taking actions to destroy enemy forces already present in the area. The area security operation may provide protection of designated personnel, airfields, unit convoys, facilities, MSRs, LOCs, equipment, and critical points.

SUPPORTING TASKS FOR AREA SECURITY

4-79. Area security involves a variety of techniques and may include tasks related to reconnaissance, security, defense, offense, stability, and civil support operations. Reconnaissance and scout organizations, including the platoon, may conduct the following in support of area security:

- Zone, area, and route reconnaissance.
- Screen.
- Offensive and defensive tasks (within capabilities).
- Convoy security.
- Route security.
- High-value asset security.
- Fixed site security.
- Checkpoint security.

- Downed aircraft recovery team security.

4-80. Other platoon missions or tasks in support of troop area security may include the following:

- Screens along zones of separation or other designated areas.
- Route and/or convoy security of critical LOCs.
- Checkpoint operations to monitor or control movement.
- Patrolling between secured perimeters.
- Demonstrations to maintain an observable presence.

4-81. The platoon may conduct or support the following additional tasks in stability operations and civil support operations:

- Liaison.
- Leader engagement.
- Compliance inspections.
- Traffic control points.
- Fixed site security.
- Cordon and search.

OPERATIONAL CONSIDERATIONS

4-82. An area security force neutralizes or defeats enemy operations in a specified area. It operates in an area delineated by the headquarters assigning the area security operation. It screens, reconnoiters, attacks, defends, and delays (within capability) as necessary to accomplish its mission. Area security operations may be offensive or defensive in nature and focus on the threat/enemy, on the force/element being protected, or on a combination of the two. Commanders will balance the level of security measures taken with the type and level of threat posed in the specific area to avoid overtasking resources; however, all-around security is an essential consideration at all times.

4-83. As noted, area security operations are conducted to deny the threat/enemy the ability to influence friendly actions in a specific area or to deny the enemy use of an area for its own purposes. This may entail occupying and establishing a 360-degree perimeter around the area being secured or taking actions to destroy or neutralize enemy forces already present. The area to be secured may include specific points (bridges, defiles), defined areas (terrain features such as ridgelines or hills), or large population centers and adjacent areas.

4-84. Proper IPB is vital in providing adequate security for the assigned area. Along with unit capability and the factors of METT-TC, the following considerations, which are determined during the IPB, will determine specific unit operations during area security operations:

- The natural defensive characteristics of the terrain.
- Existing roads and waterways for military LOCs and civilian commerce.
- Control of land and water areas and avenues of approach surrounding the area to be secured extending to a range beyond that of enemy artillery, rockets, and mortars.
- Control of airspace.
- Proximity to critical sites such as airfields, power generation plants, and civic buildings.

4-85. Because of the possibility of commanders fixing their forces to fixed installations or sites, area security operations may become defensive in nature. This must be carefully balanced with the need for offensive action. Early warning of enemy activity to provide the commander with time to react to any potential threat is a paramount consideration in effective area security operations. It requires thorough reconnaissance and surveillance planning, coupled with employment of dismounted and mounted patrols, aerial reconnaissance, and sensors.

4-86. A perimeter is established when a unit must secure an area where the defense is not tied into an adjacent unit. Perimeters vary in shape depending on METT-TC. If the commander determines the most probable direction of enemy attack, he may perform economy of force to mass combat power along the part

of the perimeter to cover the approach of enemy forces. The perimeter shape conforms to the terrain features that afford the most effective observation and fields of fire.

4-87. Perimeters are divided into troop/platoon sectors with boundaries and contact points. Mutual support and coordination between defensive elements (usually combat elements within the brigade) require careful planning, positioning, and coordination. A screen line is established, integrating OPs, ground sensors, and patrols. Tanks, MGSs, and/or antiarmor weapon systems are placed on high-speed avenues of approach. Likely threat/enemy drop zones (DZ), landing zones (LZ), or bases are identified and kept under observation. Air assets, if available, are integrated into the R&S plan through the commander.

Note. Refer to FM 3-20.971 for further discussion on area security at the troop level.

PLATOON CONSIDERATIONS

4-88. The reconnaissance or scout platoon may deploy to conduct area security operations on its own or as part of a larger force. When the platoon conducts area security on its own, it generally moves into a coil formation around the point, area, or asset to be secured. Vehicle positions are adjusted to orient on likely enemy avenues of approach. If engineer support is available, the vehicle positions are dug in; if not, vehicles occupy hasty fighting positions. Perimeters are established where the platoon cannot tie into the defense of an adjacent unit. Varying terrain conditions affect the vehicle locations:

- Desert terrain, such as that in the Middle East, requires vehicles to spread out more because of large amounts of open space.
- Mountainous terrain offers more IV lines and foliage to hide under but reduced maneuvering room.
- Urban areas often preclude uniform perimeters because of the possibility of infiltration through building windows and rubble.

4-89. To further improve the position, the platoon employs hasty protective minefields, wire, and other obstacles as appropriate and available. Wire obstacles should be emplaced outside grenade range of friendly positions. Once vehicle positions and obstacles are established, the platoon develops a fire plan, including integrated indirect fires, and submits it to higher headquarters.

4-90. In addition to setting up its position around the asset to be secured, the platoon also employs patrols and OPs to enhance security (see Figure 4-23). The platoon leader may plan for outside resources that can assist his operation. Examples include the use of CA personnel to improve relations with the local populace, UAS support to scan the surrounding area, and engineer teams to assist in repairing local infrastructure such as water mains or power lines. This type of positive interaction with locals may create favorable conditions for HUMINT assets to gather information. The reconnaissance or scout platoons employ reconnaissance patrols, presence patrols (as a section), and combat patrols (as a platoon) as needed to become familiar with the AO, to gain information on enemy forces, and to destroy small enemy dismounted reconnaissance elements. OPs and support by fire positions are deployed to observe likely avenues of approach, to provide early warning of enemy activity, to provide direct fire on an enemy so the platoon can displace, and to assist in controlling indirect fires.

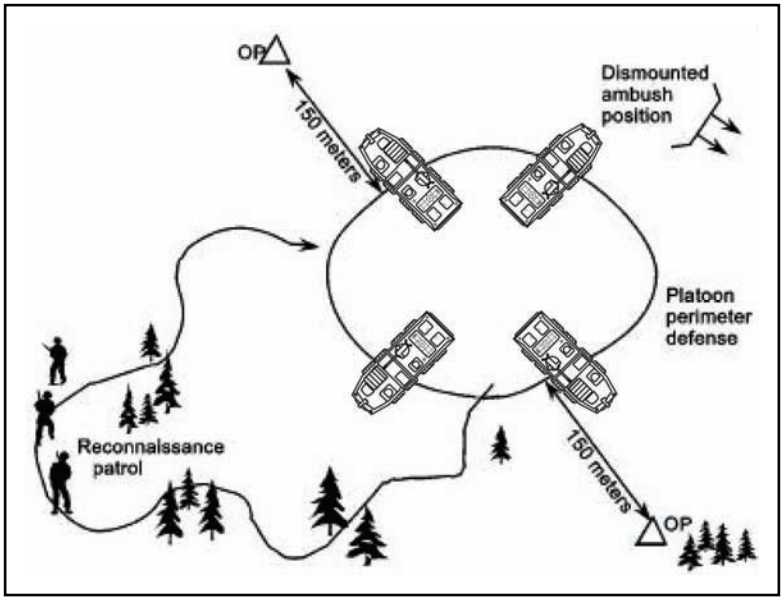


Figure 4-23. Use of patrol, OP, and ambush site to enhance area security

ROUTE SECURITY

4-91. Route security is a modified area security operation whose purpose is to prevent an enemy from attacking, destroying, seizing, containing, impeding, or harassing traffic along a specific route. It also prevents the enemy from emplacing obstacles on or destroying portions of the route. Route security operations are defensive in nature and, unlike screen operations, are terrain-oriented.

4-92. Enemy forces will try to interdict supply routes and LOCs by various methods. Roads, waterways, and railways may be mined or have IEDs emplaced along them. Ambush sites can be located adjacent to the route being secured. Bridges and tunnels can be destroyed by demolitions. Because of the nature of this operation, very long routes may be extremely difficult to secure. Long routes may also have a number of controlling authorities responsible for operations along distinct portions of the route.

SECURITY FORCE TASKS

4-93. Route security forces operate on and to the flanks of a designated route. A reconnaissance or scout platoon may be tasked to fulfill numerous roles to support route security operations, which vary widely in scale. To accomplish the route security operation, the platoon performs some or all of the following functions:

- Conduct mounted and dismounted reconnaissance of the route and key locations along it to ensure the route is trafficable.
- Conduct route clearance (with attached engineers as the main effort) at irregular intervals to prevent emplacement of enemy mines and explosive devices along the route.
- Identify sections of the route to search for suspected enemy locations.
- Establish MEDEVAC LZ locations along the route for air evacuation of wounded.
- Establish roadblocks/checkpoints along the route and on lateral routes. The purpose is to stop and search vehicles and persons on the route and those entering the route. The platoon may require augmentation from other units such as an infantry platoon, engineers, interpreters, and or MP elements.
- Occupy key locations and terrain along or near the route.
- Aggressively conduct ground and aerial reconnaissance/surveillance to maintain route security.
- Establish OPs, ambush sites, and reaction force teams to watch for and handle enemy activity.

ROUTE SECURITY TECHNIQUES

4-94. The following discussion highlights two techniques that the reconnaissance or scout platoon can execute during route security depending on the nature of the enemy, purpose of the security operation, and characteristics of the route.

4-95. In the first technique, the troop is tasked to conduct route security operations with the platoon conducting a route reconnaissance as a part of the operation. The platoon reconnoiters the route at irregular intervals to avoid developing a pattern that the enemy may exploit. This may include conducting reconnaissance to either flank resembling a zone reconnaissance. Organic or attached UAS or supporting aviation assets can reconnoiter in advance of ground troops or assist in screening the flanks. In addition to reconnaissance, sections or squads may—

- Escort engineers conducting route clearance, improvement, or maintenance to clear terrain at potential ambush sites.
- Repair damage caused by enemy actions.
- Deploy and support HUMINT assets along the route.
- Support the FIST by requesting and registering targets along the route.
- Provide recovery and security for UAS surveillance missions along the route.

4-96. The second technique entails using economy of force to protect only critical lengths or locations along the route. The squadron or troop tasks platoons to establish mutually supporting platoon combat outposts. The combat outposts are established at critical choke points to prevent sabotage and to defend against or respond to attacks to interdict the route between outposts. Based on METT-TC, a platoon can establish one combat outpost; depending on the enemy situation, this may require augmentation. The route outside the reach of the combat outposts is not normally secured or patrolled. Patrols are conducted at irregular intervals between the outposts based on enemy trends and recent activities. UAS support may be used to augment the patrols and detect activity along the route. Patrols are organized with sufficient combat power to disrupt or destroy near ambushes and to survive initial enemy contact from far ambushes. Each combat outpost maintains a reaction force to respond to enemy activity or reinforce patrols that come under contact.

ROUTE SECURITY PROCEDURES

4-97. Artillery or mortars may be deployed into firing positions (including collocating with combat outposts) for route security. Indirect fire units and fire support personnel must be tasked to support reconnaissance elements operating along the route. Platoon leaders must coordinate massing of fires at critical positions or into areas of most frequent enemy activity to disrupt the enemy. Platoon and section leaders must ensure that their fire plans include priority targets supporting convoy or patrol movements, checkpoints, or combat outposts and that they register targets.

Note. Augmentation with a FIST allows the platoon to employ supporting indirect fires and CAS sorties.

4-98. Air, mounted, and dismounted patrols are employed to disrupt enemy forces attempting to emplace IEDs, mines, and demolitions; create craters or abatises; or establish ambushes or roadblocks to interdict or destroy traffic. Sniper teams can be valuable in support of patrols because of their ability to observe enemy activities while remaining undetected and to report activities. Patrols are organized with sufficient forces to reconnoiter off-route ambush sites and with enough combat power to survive initial enemy contact. Based on enemy capabilities, reconnaissance patrols should be augmented with engineers, infantry, MP, and other assets to increase the platoon's combat capability.

4-99. Other techniques to defeat enemy attempts to interdict the route or ambush convoys include—

- Deploy deceptive "mock" convoys under escort to determine enemy reactions.
- Conduct ambushes along known or suspected dismounted approaches to the route.

- Follow registered indirect fires triggered by sensor cues—such as ground surveillance systems—with patrols that can perform SE on successful fire missions.
- Conduct reconnaissance by fire at irregular intervals during limited visibility, prior to sunrise, or before critical convoys to detect and destroy ambushes (ROE dependent).

4-100. Ground sensors can be used in an economy of force role to survey key avenues of approach or areas that require continuous surveillance by scouts such as dead space and areas not considered primary enemy avenues. This reduces the manpower and logistical demands on the higher unit's resources during the operation.

CONVOY SECURITY

4-101. Reconnaissance troops, company teams, armored cavalry troops, and larger organizations perform convoy security operations to provide protection for a specific convoy. These operations include numerous tasks for reconnaissance and scout platoons serving as reconnaissance, escort, screen, and reaction forces. While each platoon organization is capable of performing convoy escort missions, certain organizations are particularly well suited for certain roles. HMMWV platoons can use speed and optics to screen flanks and perform route reconnaissance ahead of the convoy. Stryker platoons are well suited for escorting the convoy at highway speeds or performing the role of reaction force within the convoy. CFV platoons may conduct convoy escort; however, they are better suited to be a reaction force positioned in outposts where they will react to enemy actions with overwhelming firepower.

4-102. Depending on the situation, ACR scout platoons may be reconfigured with tanks becoming a hunter-killer team that is used as a reaction force operating from a combat outpost. This greatly increases the firepower of the reaction force. The size of the unit performing the convoy security operation is dependent on a number of factors, including the size of the convoy, the terrain, and the length of the route.

4-103. Refer to Figures 4-24 and 4-25 for illustrations of reconnaissance troop and armored cavalry troop platoons in convoy security operations.

Note. The enemy situation may require the heavier HBCT reconnaissance platoon to conduct convoy security in place of an IBCT reconnaissance platoon. This may require upgrading the reaction forces to MGS or tank platoons for increased firepower.

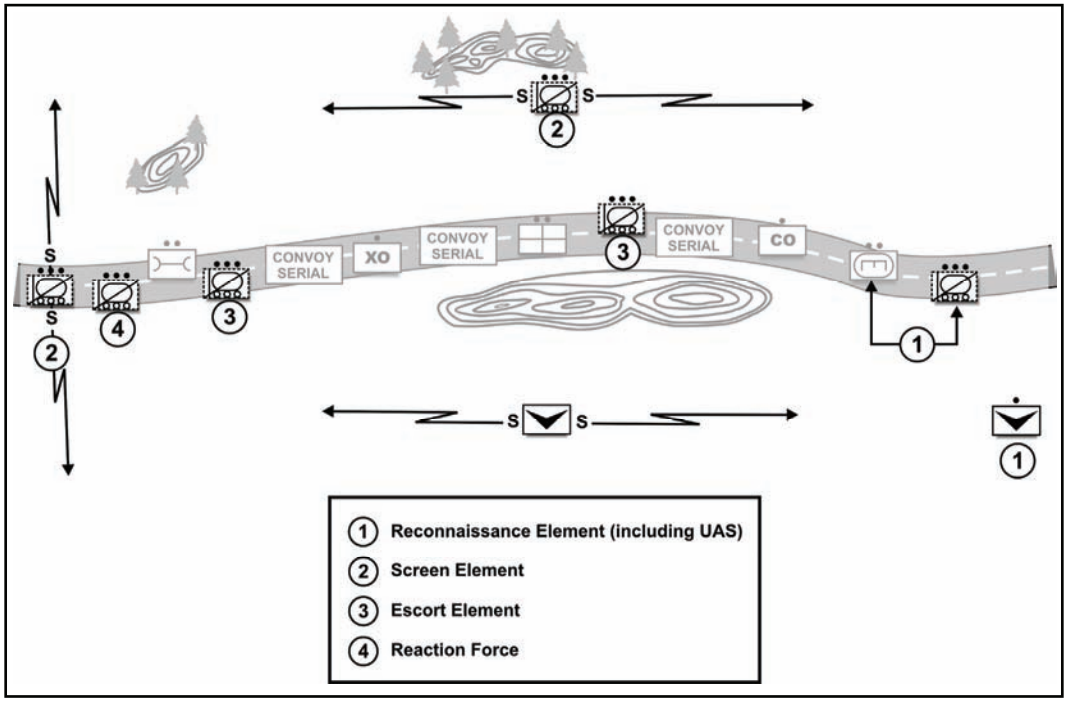


Figure 4-24. Convoy security (possible locations/tasks that can be executed by a reconnaissance platoon within the overall convoy security mission)

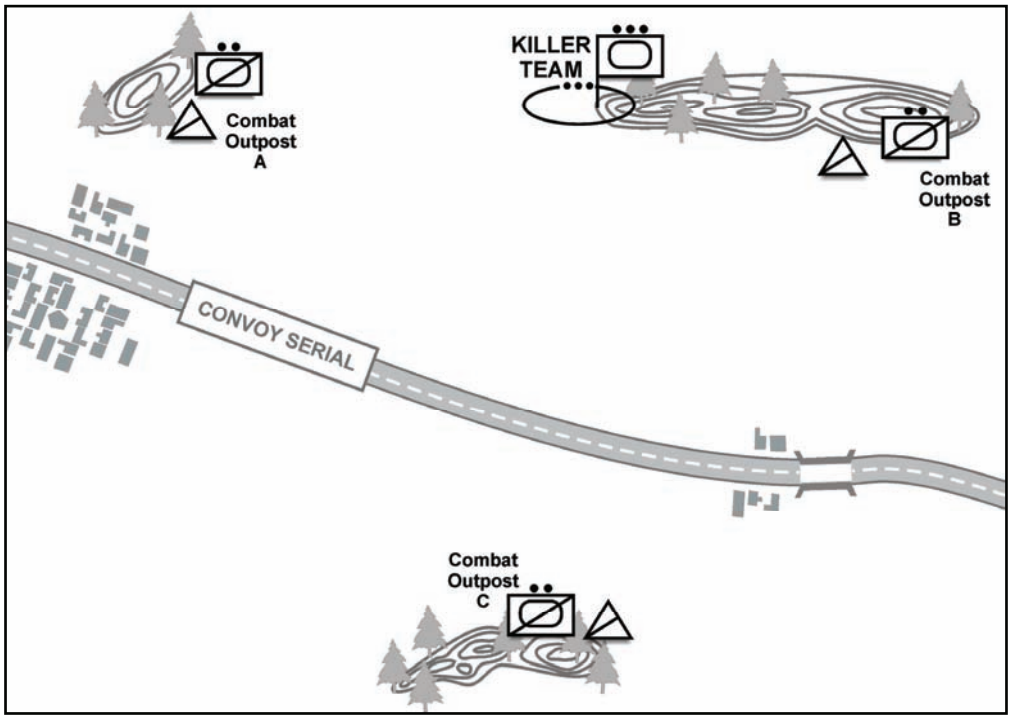


Figure 4-25. Convoy security with combat outposts (armored cavalry troop)

COMBAT OUTPOSTS

4-104. Employment of combat outposts is a technique used during convoy security to screen dangerous areas of the route after it has been reconnoitered. The combat outpost as part of convoy security is generally performed by the entire platoon in static locations on critical parts of the route or key avenues of approach to the route. Outposts provide early warning of enemy elements attempting to interdict convoy movement. The outpost may be manned by a section, platoon, or a platoon with augmentation. The enemy situation and the area to be covered will dictate the size and composition of the combat outpost's force.

4-105. Combat outposts differ from a conventional screen in that they are oriented on the route, specifically NAIs, rather than on the friendly main body. These NAIs may be found in a designated sector for which the outpost element may be responsible. Combat outposts can be established in the following ways (see Figure 4-26):

- The outpost element follows the route reconnaissance element and establishes the combat outpost confirmed to be cleared by the route reconnaissance.
- Move under limited visibility to occupy the outpost unannounced prior to movement on the route.

4-106. Combat outposts have the limited ability to destroy small enemy forces attempting to influence the route. Their primary purpose is to acquire enemy elements and then to direct the employment of reaction forces or indirect fire to destroy the enemy. The use of HUMINT teams within the sector may gain information on enemy activities and prevent attacks on convoys.

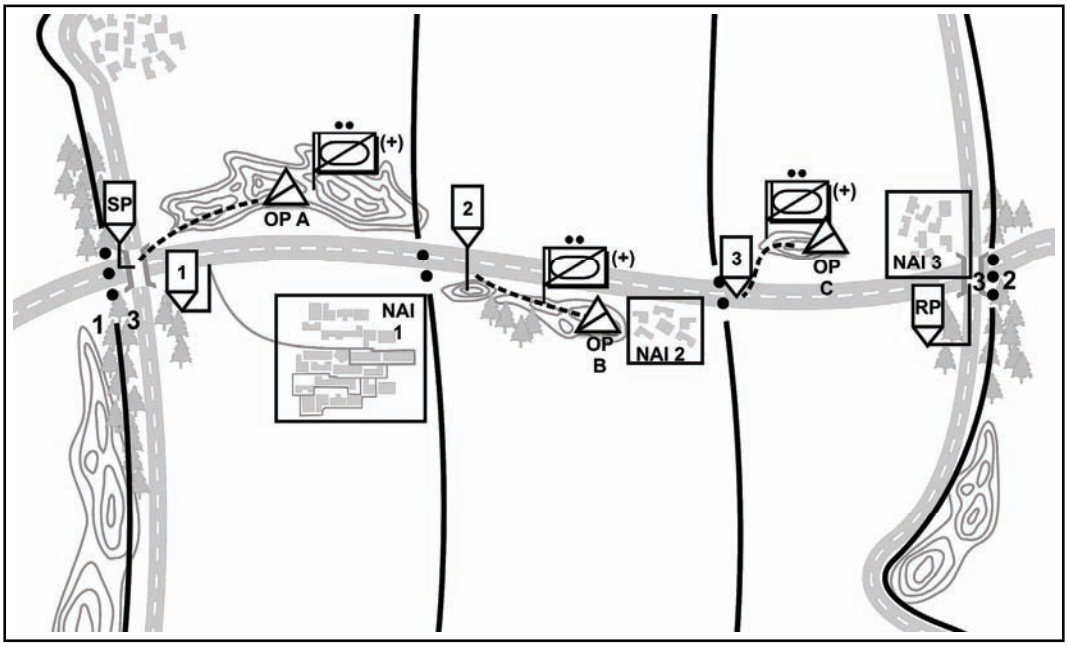


Figure 4-26. Establishing outposts

CONVOY ESCORT

4-107. The platoon may perform a convoy escort operation, either independently or as part of a larger unit's convoy security operation, to provide a convoy with close-in protection from direct fire. Normally a troop would conduct a convoy escort mission for a convoy serial. Escorted vehicles can include military vehicles (sustainment, C2), civilian trucks, or buses. Among reconnaissance and scout platoons, those equipped with CFVs are best suited for this operation because of their vehicles' firepower and the armor protection they provide against direct fires, indirect fires, and IEDs. Leaders must carefully evaluate the enemy before assigning a convoy escort operation to HMMWV or Stryker platoons. The following considerations apply during convoy escort operations.

Command and Control

4-108. C2 is especially critical during convoy escort because of the task organization inherent to the operation. When the reconnaissance or scout platoon is executing the escort operation, it operates under the control of the convoy commander, regardless of the role.

Note. The convoy commander must understand the employment of combat assets while in contact. Convoys can move through several different commanders' jurisdictions, and the convoy commander must be familiar with the weapon systems available in these areas. Platoon leaders must have this same knowledge.

4-109. The platoon leader must ensure that a complete OPORD is issued to all vehicle commanders in the convoy prior to execution of the mission. This is vital because the convoy may be task organized from a variety of units and because many of the vehicles may not have tactical radios. The order should follow the standard five-paragraph OPORD format, with special emphasis on the following subjects:

- Order of march.
- Actions on contact.
- Chain of command.
- Communications and signals.
- Actions on vehicle breakdown.
- Actions at a halt.
- Route of march (this should include a sketch for each vehicle commander).
- CASEVAC.

Tactical Disposition

4-110. Security during convoy escort operations must be in all directions and throughout the length of the convoy. This requires that the elements of the platoon and any maneuver or enabling attachments be dispersed throughout the convoy formation. Engineer assets should be located toward the front to respond to obstacles; the FIST or COLT should be located near the platoon leader. The platoon will normally use the column formation because of its inherent speed and ease of C2. If a HMMWV unit is used as the escort, a tracked, armored engineer vehicle should be attached to the lead elements of the convoy whenever possible because of its superior protection against mines. When engineers are not available, the convoy commander may be able to coordinate use of tanks, Strykers, or armored personnel carriers (APC) with rollers and plows. Figures 4-27 illustrates an example of a convoy escort operation.

Note. Platoon and section rehearsals must be conducted to ensure that all elements are proficient in their role and that subordinate leaders are able to move up one position if necessary. PCCs and PCIs are critical to success. Platoon members must be properly equipped, knowledgeable on their equipment and mission, and able to demonstrate their tasks to the platoon leadership.

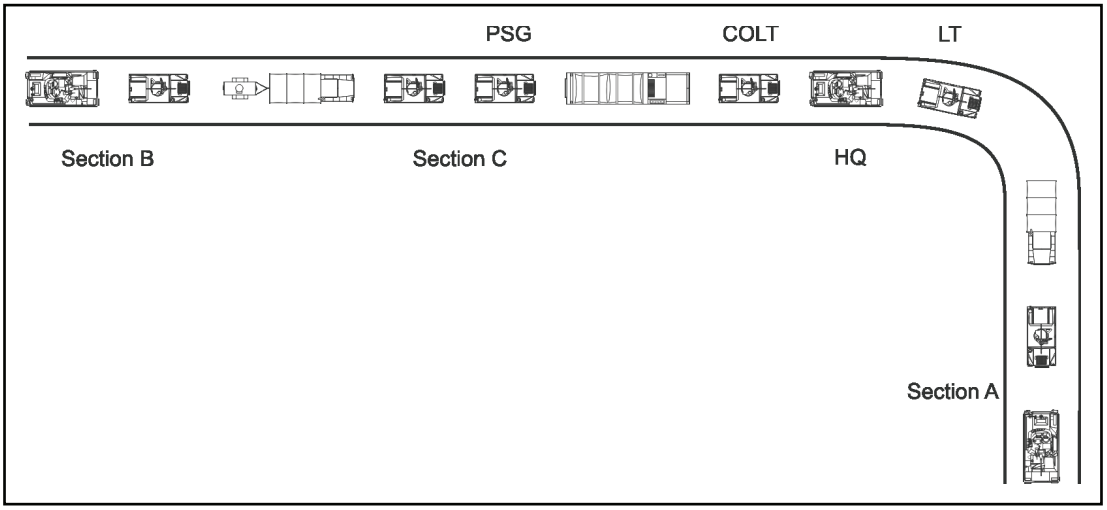


Figure 4-27. HBCT or CAB reconnaissance platoon escorts a convoy

Actions at an Ambush

4-111. Ambush is one of the most effective ways to interdict a convoy. This makes it a priority to conduct ambush reaction training to increase chances of getting the convoy through an ambush with Soldiers and equipment intact. Reaction to an ambush must be quick, overwhelming, and decisive. It must be executed as a drill by all escort and convoy elements, with care taken to avoid fratricide. The following actions should be included in the convoy escort drill:

- Upon detection of an enemy force, escort vehicles seek covered positions between the convoy and the enemy and suppress the enemy with the highest possible volume of fire. They send appropriate contact reports to higher headquarters (as shown in Figure 4-28).
- Engagement techniques must be standardized in the platoon to ensure complete coverage. As an example, flank vehicles would engage outside targets to inside targets, vehicles in the center of sectors would engage center to outside targets; front and rear sections would engage far to near targets; and center section vehicles would engage near to far threats.

Note. In some situations, elements of the escort force will be required to remain with the convoy main body. This is especially true when the convoy comprises mainly nonmilitary elements, such as NGOs or local civilian agencies. In addition to being unarmed in most cases, these elements will usually lack communications capabilities, making it difficult for escort elements to link back up with the main body. The convoy commander retains control of the convoy vehicles and maintains radio contact with the security force while moving the convoy on the route at the highest possible speed.

4-112. Platoon leaders must ensure that the following actions occur during an ambush:

- Convoy vehicles will not return fire when the escort has moved between the convoy and the enemy.
- Elements of the convoy or convoy security, based on the factors of METT-TC, may halt to recover or destroy damaged or disabled vehicles (see Figure 4-29).
- The escort leader (reconnaissance or scout platoon leader) submits SPOTREPs, requests MEDEVAC, requests the reaction force, and calls for and directs indirect fires and CAS if available.

4-113. Once the convoy is clear of the kill zone, the escort leader chooses one of the following COAs based on the composition of the escort and the strength of the enemy force:

- Continue to suppress the enemy force with direct fire while fire support is requested.
- Guide reaction forces into the enemy force if available, and shift fires to interdict the enemy egress route (see Figure 4-30).
- Assault the enemy when a reaction force is not practical (near ambush). See Figure 4-31.
- Break contact and move out of the kill zone (as illustrated in Figure 4-32).
- Update FBCB2 and the COP with enemy locations throughout the operation.

4-114. Generally, CFV-equipped platoons will continue to suppress the enemy or execute an assault because of their vehicles' capabilities. HMMWV and Stryker platoons may move out of the kill zone as soon as the convoy is clear. Contact should be broken only with the approval of the platoon's higher commander.

Note. If physical contact is broken, platoons may regain visual contact by employing UASs to maintain SA.

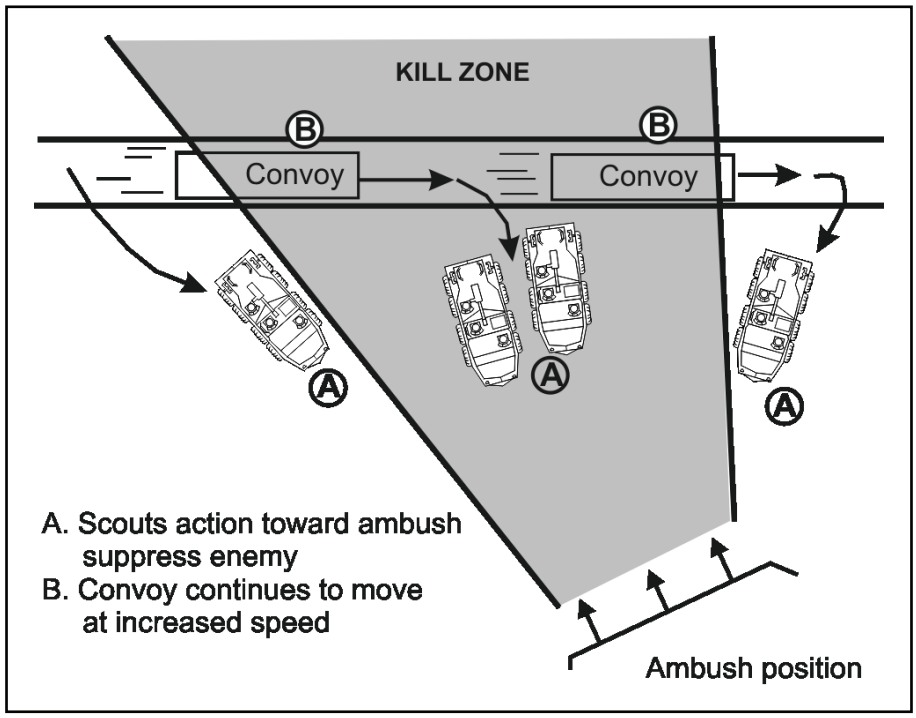


Figure 4-28. Convoy escort takes action toward ambush

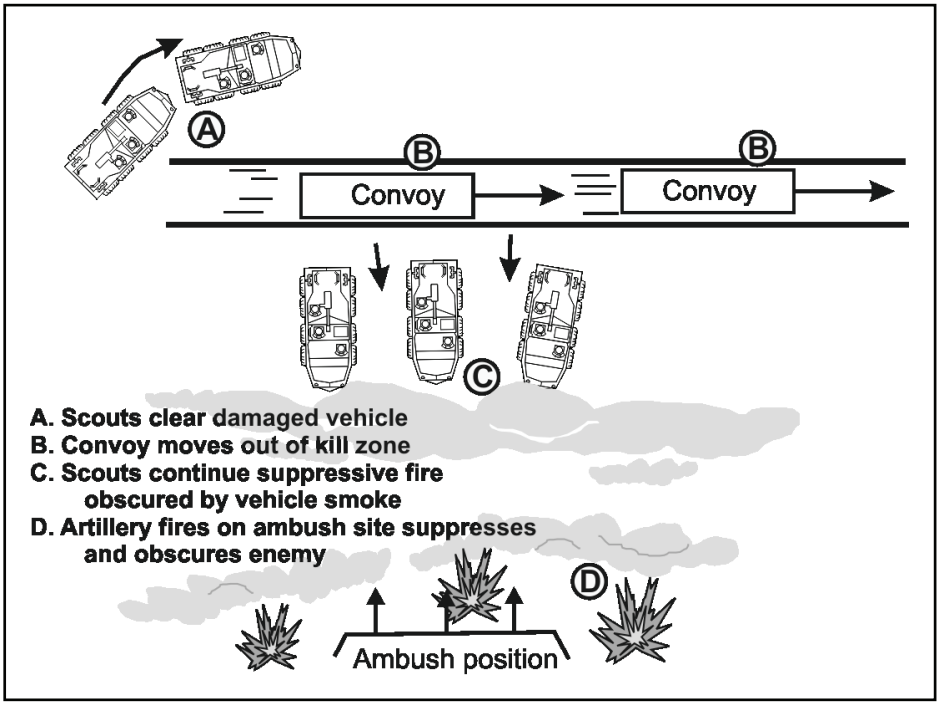


Figure 4-29. Convoy continues to move out of kill zone

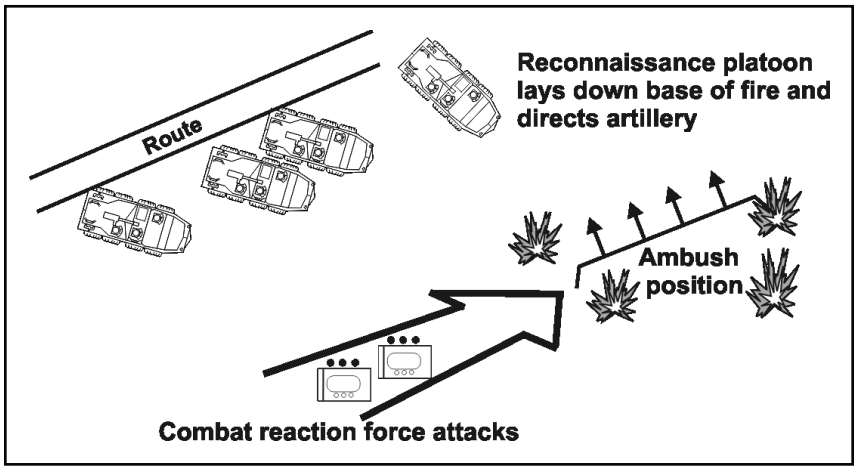


Figure 4-30. Convoy escort suppresses ambush for reaction force

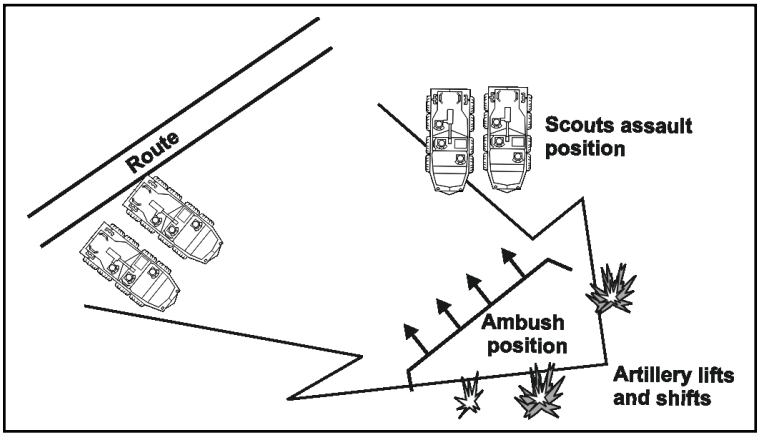


Figure 4-31. Convoy escort vehicles assault ambush position without reaction force

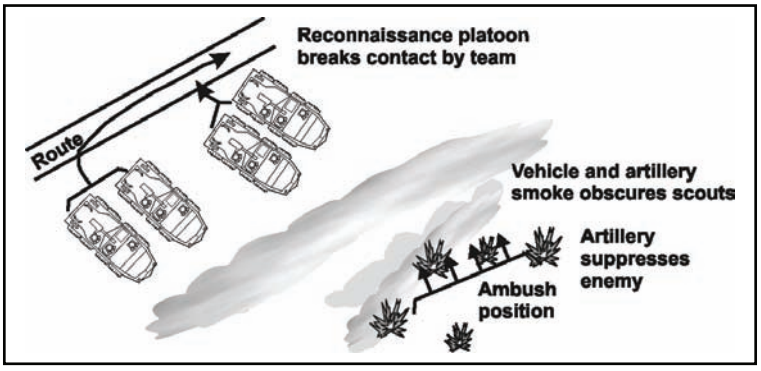


Figure 4-32. Escort vehicles break contact without reaction force

Actions at a Short Halt

4-115. The convoy may be required to make a short halt for a number of reasons. During the short halt, the escorting unit is at REDCON-1 regardless of what actions convoy vehicles are taking. If the halt is for any reason other than an obstacle, these actions should be taken (assuming the reconnaissance or scout platoon is the escorting element):

- The convoy commander signals the short halt and transmits the order via tactical radio.
- The convoy assumes a herringbone formation.
- Escort vehicles move to protective positions forward, to the rear, and to the flanks (up to 100 meters beyond the convoy vehicles, as applicable) and orient their weapon systems outward. They remain at REDCON-1, although they establish dismounted local security (as illustrated in Figure 4-33). The vehicles being escorted pull into the protected area in the center of the herringbone, between the escort vehicles.

Note. Escort vehicles should not leave the roadway if there is a possibility of enemy mines.

- When the order is given to move out, convoy vehicles first reestablish the column formation, leaving space for the escort vehicles (see Figure 4-34). Once the convoy is in column, the escort vehicles join the column, leaving local security dismounted (shown in Figure 4-35).
- Once all elements are in column, local security personnel mount, and the convoy continues to move.

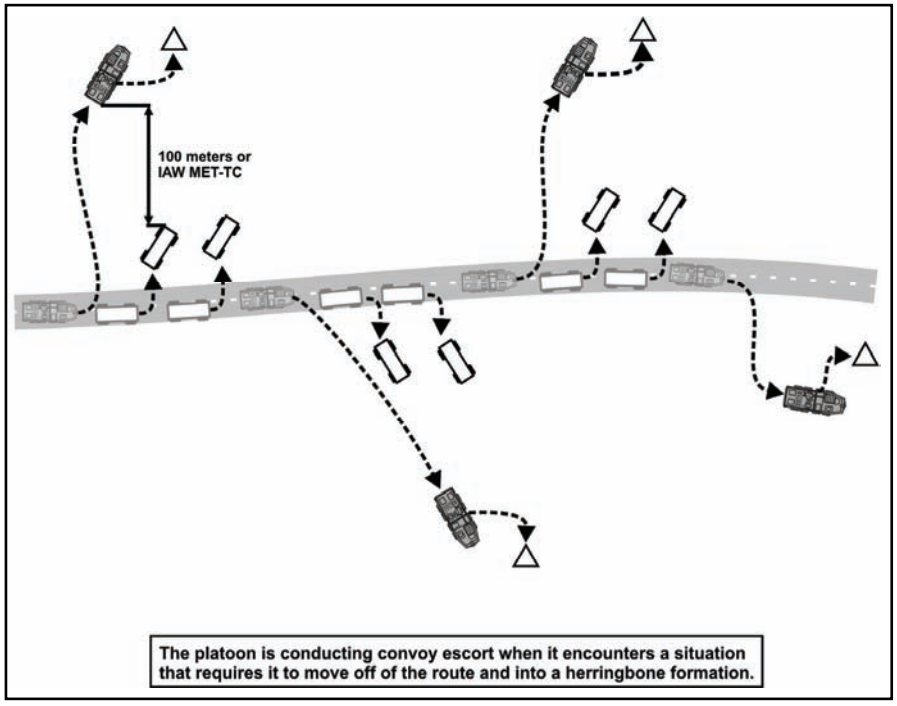


Figure 4-33. Convoy moves to herringbone formation

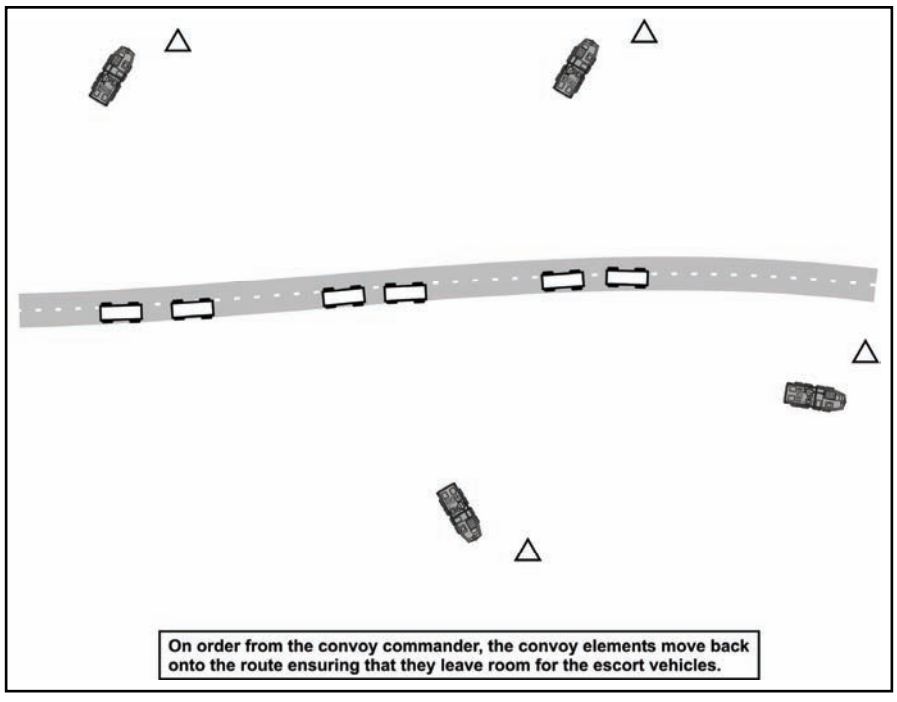


Figure 4-34. Convoy moves back into column formation

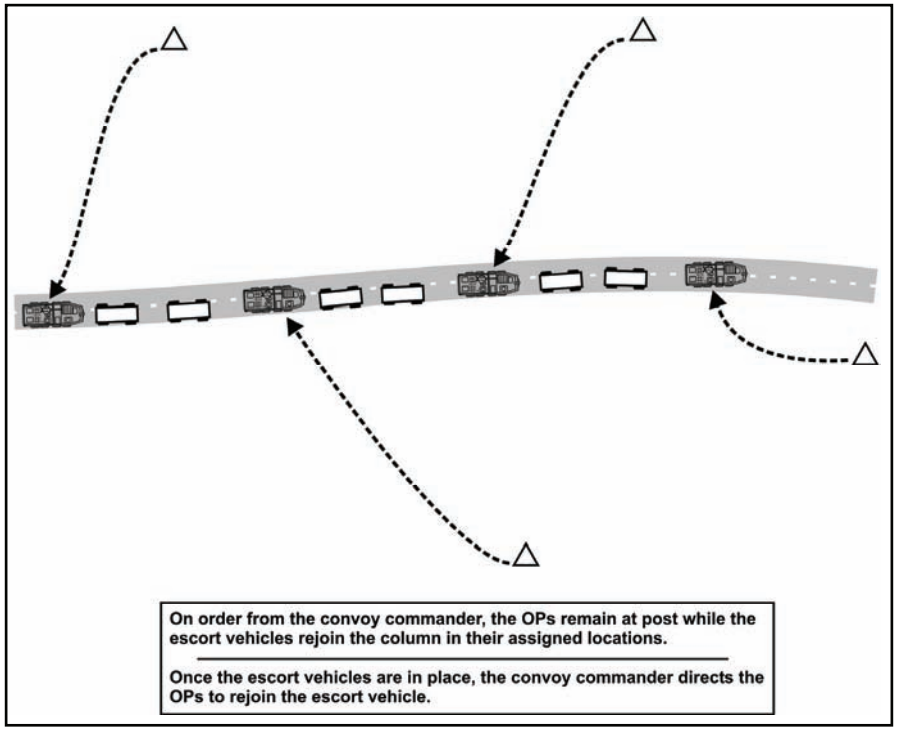


Figure 4-35. Escort vehicles rejoin column

Actions at an Obstacle

4-116. Obstacles are a major threat to convoys. They can be erected in a matter of minutes and used to delay or stop the convoy. In addition, an obstacle or series of obstacles can be used to canalize or fix the convoy within an enemy ambush (this can include well-hidden IEDs in debris). Platoons must treat every obstacle as though the enemy is overwatching it with direct and/or indirect fires. As obstacles or other threats are encountered, the platoon leader or PSG must update the FBCB2 so all units in the AO have knowledge of the threats.

Note. In the current OE, enemy elements employing obstacles use overwatching units to observe the obstacle encounter and then employ direct or indirect fires and command-detonated surface and subsurface munitions. This could position the entire convoy in contact with multiple danger areas simultaneously.

4-117. The purpose of the route reconnaissance ahead of the convoy is to identify obstacles and breach them or find bypasses. In some cases, it is not possible to conduct a route reconnaissance ahead of the convoy; in other cases, the reconnaissance element may fail to detect the enemy or its obstacles. In either situation, the convoy must take actions to reduce or bypass the obstacle.

4-118. When a convoy is dealing with an obstacle, it faces a two-sided problem: it is more vulnerable because it is stopped, and its escort force is occupied with tasks required to overcome or bypass the obstacle. For these reasons, security becomes critical, and actions at the obstacle must be accomplished quickly. Reconnaissance and scout platoons in the role of a convoy escort will take the following actions upon contact with a point-type obstacle:

- When the lead security element identifies the obstacle, the convoy commander directs a short halt. He establishes dismounted local security and overwatch of the obstacle. Convoy vehicles remain on the road, with the escort elements moving to the flanks to provide security.

Note. All convoy vehicles must be aware that the enemy may have buried mines, IEDs, or explosively formed penetrators (EFP) in the area, especially on the side of the road.

- The convoy commander relays a SPOTREP from the reconnaissance or scout platoon to higher headquarters and requests support from combat reaction forces, engineer assets (if they are not already part of the convoy), and aerial reconnaissance elements. In addition, he alerts artillery units to be prepared to provide fire support. Employment of these assets is designed to reduce the time the convoy is halted and thus to reduce its vulnerability. The convoy commander must always assume the obstacle is overwatched by the enemy.
- The platoon leader tasks scouts to begin reconnaissance for a bypass while maintaining 360-degree security of the convoy (see Figure 4-36).
- Simultaneously, an additional reconnaissance team made up of escort elements and/or engineers moves forward to conduct an obstacle reconnaissance. Far side security will always be established unless time and physical constraints prevent it (see Figure 4-36).
- Once all reconnaissance is completed and reported, the convoy commander determines which of the following COAs he will take:
  - Bypass the obstacle.
  - Breach the obstacle with the assets on hand.
  - Breach the obstacle with reinforcing assets.
- The convoy commander executes the best COA and continues the operation.

Note. Direct fire assets can use high explosive (HE), multipurpose antitank, or canister munitions to reduce many obstacles when engineer vehicles are at risk approaching the obstacle.

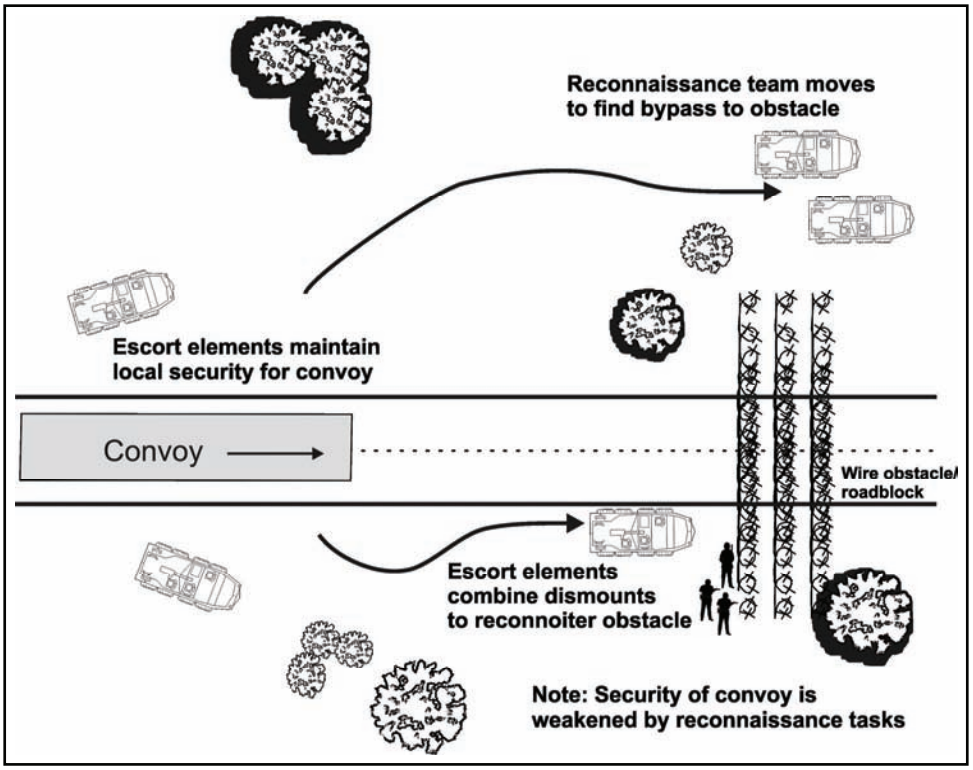


Figure 4-36 Escort teams conduct obstacle reconnaissance and reconnoiter for a bypass

SECTION V – DIRECT FIRE PLANNING

4-119. Reconnaissance and scout platoon leaders plan direct fires in conjunction with development of the estimate of the situation, completion of the plan, and during actions on contact. Determining where and how the platoon can and will mass fires is also an essential step as the platoon leader develops his concept of the operation.

4-120. After identifying probable enemy locations, the platoon leader determines points or areas where he will focus combat power. His visualization of where and how the enemy will attack or defend will assist him in determining the volume of fires he must focus at particular points to have a decisive effect. In addition, if he intends to mass the fires of more than one subordinate element, he must establish the means for distributing fires effectively.

4-121. Additionally, the platoon leader must evaluate the risk of fratricide and establish controls to prevent it; these measures include designation of recognition markings, weapons control status, and weapons safety posture.

4-122. After determining where and how he will mass and distribute fires, the platoon leader then orients elements so they can rapidly and accurately acquire the enemy. During preparation, the platoon leader plans and conducts rehearsals of direct fires (and of the fire control process) based on his estimate of the situation.

4-123. The platoon leader must continue to apply planning procedures and considerations throughout execution. He must be able to adjust direct fires based on a continuously updated estimate of the situation, combining SA with the latest available intelligence. When necessary, he must also apply effective direct fire SOPs, which are covered in the following discussion.

DIRECT FIRE STANDING OPERATING PROCEDURE

4-124. A well-rehearsed direct fire SOP ensures quick, predictable actions by all members of the platoon. The various elements of the SOP are based on the capabilities of the platoon and the anticipated conditions and situations. SOP elements should include means for focusing fires, distributing their effects, orienting forces, and preventing fratricide. The SOP should be adjusted whenever changes to anticipated and actual METT-TC factors become apparent.

4-125. If the engagement was not initiated by higher headquarters, the platoon begins the engagement using this SOP. The platoon leader can subsequently use a fire command to refocus or redistribute fires.

4-126. The following paragraphs discuss specific SOP provisions for focusing fires, distributing fires, orienting forces, and preventing fratricide.

FOCUSING FIRES

4-127. TRPs are a common means of focusing fires. One technique is to establish TRPs in relation to friendly elements and then to consistently number the TRPs, such as from left to right. This allows leaders to quickly determine and communicate the location of the TRPs.

DISTRIBUTING FIRES

4-128. Two useful means of distributing the platoon's fires are engagement priority and target array. One technique is to assign an engagement priority, by type of enemy vehicle or weapon, for each type of friendly weapon system. The target array technique can assist in distribution by assigning specific friendly elements to engage enemy elements of approximately similar capabilities.

ORIENTING FORCES

4-129. A standard means of orienting friendly forces is to assign a primary direction of fire, using a TRP, to orient each element on a probable enemy position or likely avenue of approach. To provide all-around

security, the SOP can supplement the primary direction of fire with sectors using a friendly-based quadrant. The following example SOP elements illustrate the use of these techniques:

- The center (front) element's primary direction of fire is TRP 2 (center) until otherwise specified; the element is responsible for the front two quadrants.
- The left flank element's primary direction of fire is TRP 1 (left) until otherwise specified; the element is responsible for the left two friendly quadrants (overlapping with the center element).
- The right flank element's primary direction of fire is TRP 3 (right) until otherwise specified; the element is responsible for the right two friendly quadrants (overlapping with the center element).

AVOIDING FRATRICIDE

4-130. A primary means of minimizing fratricide risk is to establish a standing weapons control status of WEAPONS TIGHT, which requires positive enemy identification prior to engagement. The SOP must also cover means for identifying friendly elements; techniques include using arm bands, medical heat pads, or an infrared light source or detonating obscurant munitions of a designated color at the appropriate time. A good time for minimizing the risk of fratricide in the platoon is through FBCB2 (if equipped); however, this does not supplant the platoon leader's responsibility to plan for fratricide avoidance.

4-131. The SOP must address the most critical requirement of fratricide prevention—maintaining SU. It must direct subordinate leaders to inform the commander, adjacent elements, and subordinates whenever a friendly force is moving or preparing to move.

ENGAGEMENT AREA DEVELOPMENT

4-132. The engagement area is where the platoon leader intends to destroy an enemy force using the massed fires of all available weapons. The success of any engagement depends on how effectively the platoon leader can integrate the obstacle plan, indirect fire plan, direct fire plan, and the terrain within the engagement area to achieve his tactical purpose. Beginning with evaluation of METT-TC factors, the development process covers these steps:

- Identify all likely enemy avenues of approach.
- Determine likely enemy schemes of maneuver.
- Determine where to kill the enemy.
- Emplace weapon systems.
- Plan and integrate obstacles.
- Plan and integrate indirect fires.
- Rehearse the execution of operations in the engagement area.

IDENTIFY LIKELY ENEMY AVENUES OF APPROACH

4-133. The following procedures and considerations (see Figure 4-37) apply when identifying the enemy's likely avenues of approach:

- Conduct initial reconnaissance. If possible, do this from the enemy's perspective along each avenue of approach into the sector or engagement area.
- Identify key and decisive terrain. This includes locations that afford positions of advantage over the enemy as well as natural obstacles and choke points that restrict forward movement.
- Determine which avenues will provide cover and concealment for the enemy while allowing him to maintain his tempo. Determine what terrain the enemy is likely to use to support each avenue.
- Evaluate lateral routes adjoining each avenue of approach.

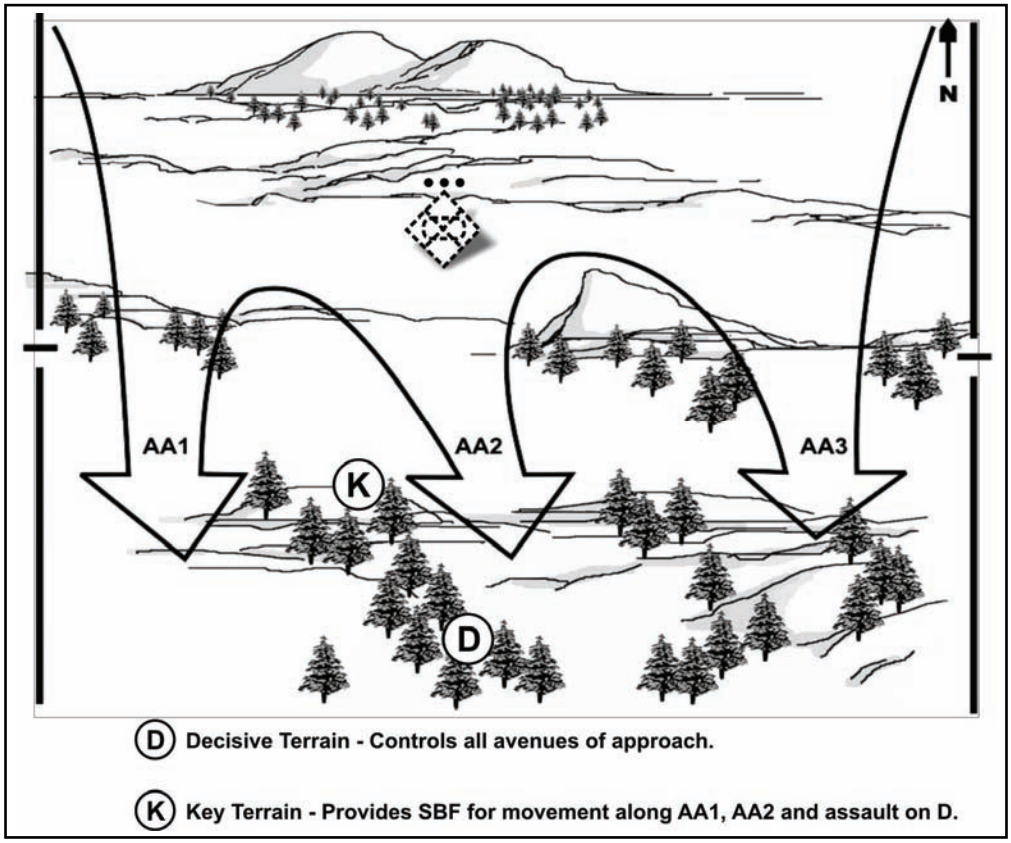


Figure 4-37. Likely enemy avenues of approach

DETERMINE ENEMY SCHEME OF MANEUVER

4-134. The platoon leader can use the following procedures and considerations (Figure 4-38) to determine the enemy's scheme of maneuver:

- Determine how the enemy will structure the attack. In what formation will he attack? How will he sequence his forces?
- Determine how the enemy will use his reconnaissance assets. Will he try to infiltrate friendly positions?
- Determine where and when the enemy will change formations and establish support-by-fire positions.
- Determine where, when, and how the enemy will conduct his assault and breaching operations. Determine likely OPs and what terrain the enemy is likely to employ for supporting fires.
- Determine where and when he will commit follow-on forces.
- Determine the enemy's expected rates of movement.
- Assess the effects of his combat multipliers.
- Determine what reactions the enemy is likely to have in response to projected friendly actions.

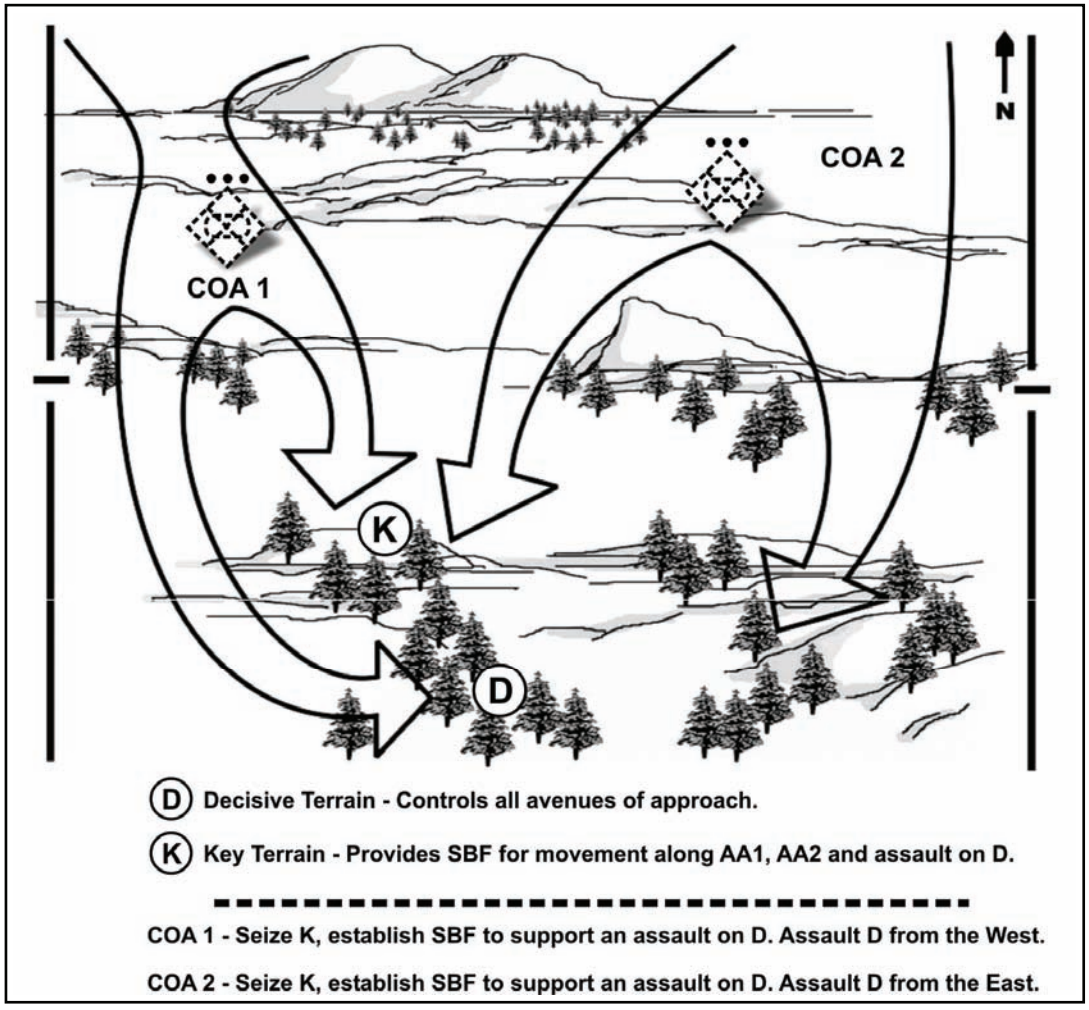


Figure 4-38. Example enemy scheme of maneuver

DETERMINE WHERE TO KILL ENEMY

4-135. Use the following steps to identify and mark where the company and platoon will engage the enemy (see Figure 4-39):

- Identify TRPs that match the enemy's scheme of maneuver, allowing the platoon to identify where it will engage enemy forces through the depth of the sector.
- Identify and record the exact location of each TRP.
- Determine how many weapon systems must focus fires on each TRP to achieve the desired effects.
- Determine which elements will mass fires on each TRP.
- Establish engagement areas around TRPs.
- Develop the direct fire planning measures necessary to focus fires at each TRP.

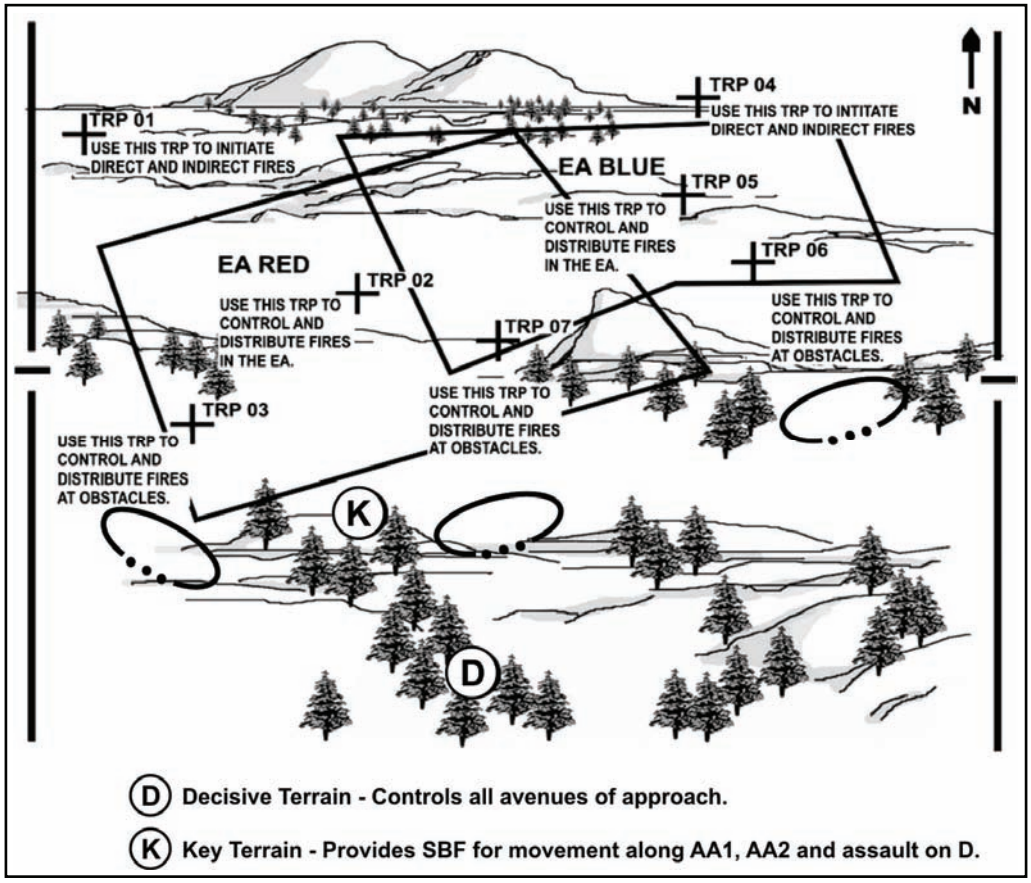


Figure 4-39. Locations to kill the enemy

Note. In marking TRPs, use thermal sights to ensure visibility at the appropriate range under varying conditions, including daylight and limited visibility (darkness, smoke, dust, or other obscurants).

EMPLACE WEAPON SYSTEM

4-136. The following steps apply in selecting and improving BPs and emplacing crew-served weapon systems and vehicle positions (see Figure 4-40 for more information):

- Select tentative platoon BPs. (When possible, select these while moving in the engagement area. Using the enemy's perspective enables the platoon leader to assess the survivability of the positions.)
- Conduct a leader's reconnaissance of the tentative BPs.
- Traverse the engagement area to confirm that selected positions are tactically advantageous.
- Confirm and mark the selected BPs.
- Ensure that BPs do not conflict with those of adjacent units and that they are effectively tied in with adjacent positions.
- Select primary, alternate, supplementary, and subsequent fighting positions to achieve the desired effect for each TRP.
- Ensure that platoon leaders, PSGs, and squad leaders position weapon systems so that the required number of weapons and platoons effectively covers each TRP.

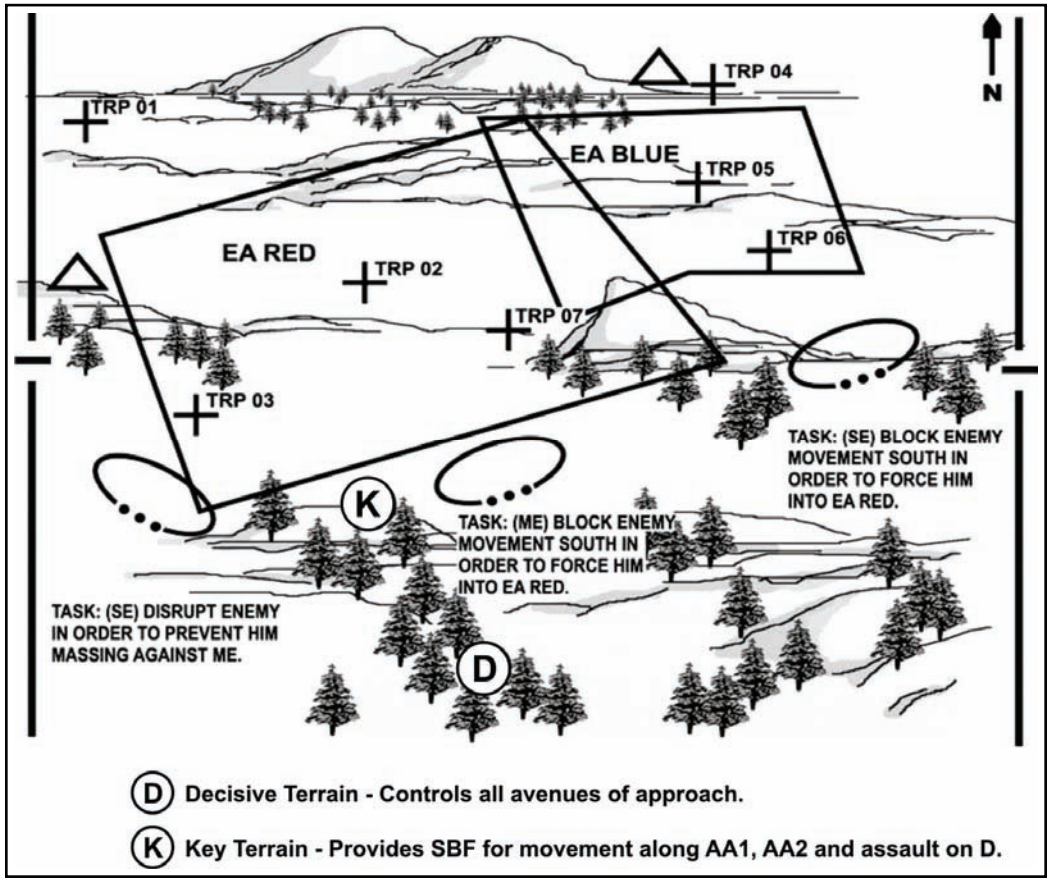


Figure 4-40. Emplacement of weapon systems

PLAN AND INTEGRATE OBSTACLES

4-137. The goal of obstacle planning is to support the higher commander's intent through optimum obstacle emplacement and integration with fires. Obstacles must allow the enemy into the engagement area and then fix him there. The focus at the squadron/CAB level and below is the actual integration of fires and obstacles. At the squadron/CAB level, obstacle planning is very directive and detailed and centers on obstacle groups. At the platoon level, obstacle planning deals with the actual sighting and emplacement of individual obstacles within the obstacle groups. The following steps apply in planning and integrating obstacles in the platoon defense (see Figure 4-41 for more information):

- Understand obstacle group intent.
- Coordinate with the engineers.
- Site and mark individual obstacle locations.
- Employ combat elements to provide security for the engineers as they emplace obstacles.
- The overwatching element team marks fire control measures such as TRPs and artillery targets in the engagement area.
- Engineers enter the engagement area and move to the far side of the proposed trace of the obstacle group.
- The engineer squad/platoon leader and reconnaissance platoon leader collocate in the defensive positions covering the obstacle.
- Elements from the engineers move along the proposed trace of the obstacle group.
- From the defensive position, the leaders follow the movement of the engineers, ensuring that all points of the obstacle trace can be covered with fires.

- They maintain communications with the engineers via radio or FBCB2.
- The platoon leader and engineer squad leader refine the obstacle plan, adjusting the position of individual obstacles as necessary.
- Refine direct and indirect fire control measures.
- Identify lanes and gaps.
- Report obstacle locations and gaps to higher headquarters.

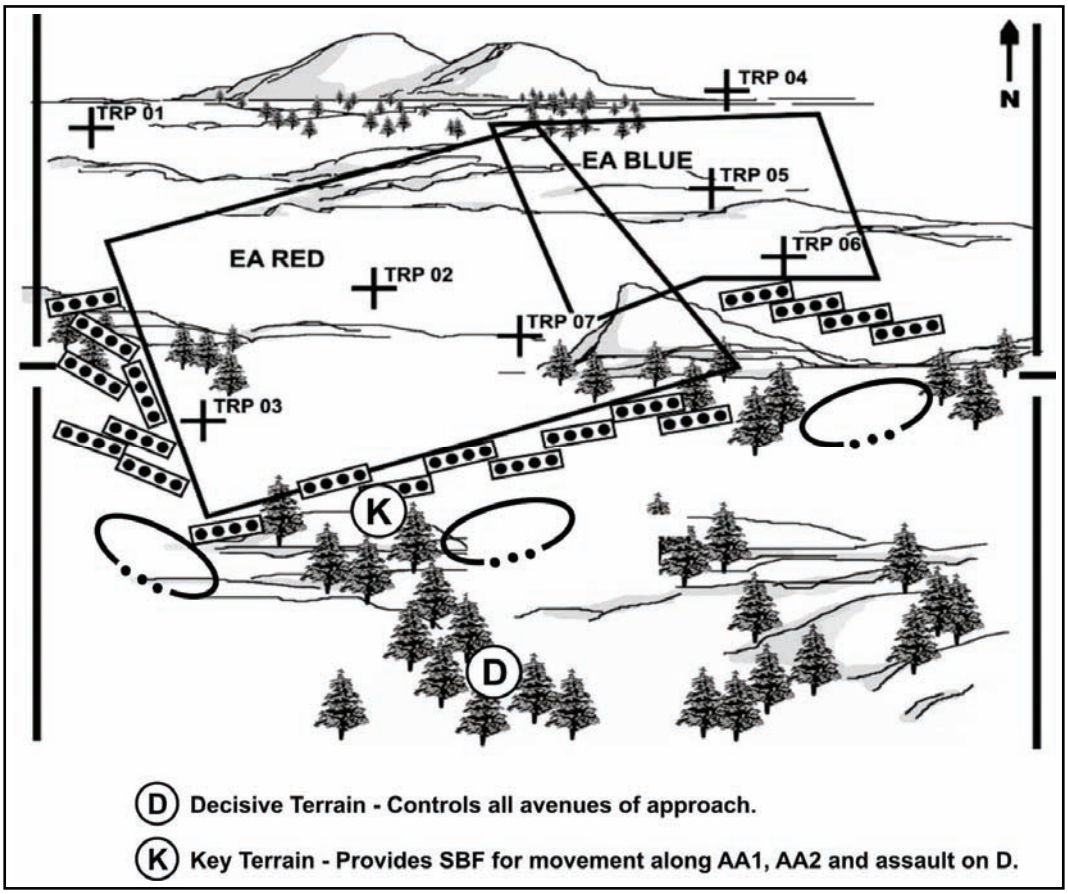


Figure 4-41. Integration of obstacles

PLAN AND INTEGRATE INDIRECT FIRES

4-138. The following steps apply in planning and integrating indirect fires (see Figure 4-42):

- Determine the purpose of fires and the essential fire support task that supports it.
- Determine where the purpose can best be achieved.
- Establish the observation plan, with redundancy for each target. Observers include the FIST, as well as members of maneuver elements with fire support responsibilities such as PSGs.
- Establish triggers.
- Obtain accurate target locations.
- Refine target locations to ensure coverage of obstacles.
- Adjust artillery and mortar targets.
- Plan FPF.
- Request CFZs for protection of maneuver elements and NFAs for protection of OPs and forward positions.

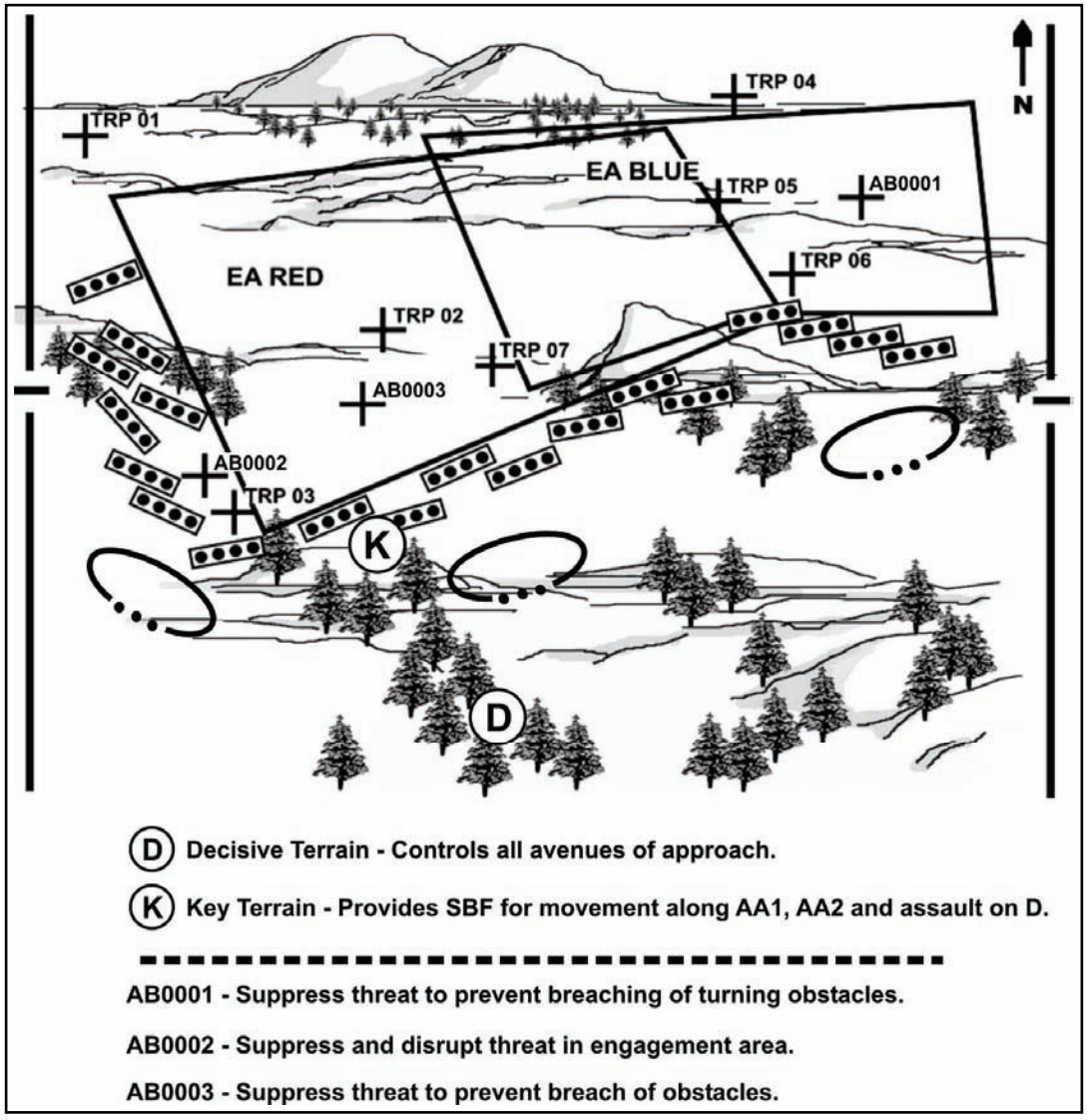


Figure 4-42. Integration of direct and indirect fires

CONDUCT AN ENGAGEMENT AREA REHEARSAL

4-139. The purpose of this rehearsal is to ensure every leader and Soldier understands the plan and all elements are prepared to cover their assigned areas with direct and indirect fires. Although the platoon leader has several options, the most common and most effective type of rehearsal is to replicate the enemy. One technique for the rehearsal in the defense is to have the PSG move through the engagement area portraying the enemy while the platoon leader and section leaders rehearse the engagement from the platoon BP. The rehearsal should cover these actions:

- Rearward passage of security forces (as required).
- Closure of lanes (as required).
- Movement from the hide position to the BP.
- Use of fire commands, triggers, and maximum engagement lines to initiate direct and indirect fires.
- Shifting of fires to refocus and redistribute fire effects.

- Emplacement of scatterable mine systems.
- Preparation and transmission of critical reports.
- Assessment of the effects of enemy weapon systems.
- Displacement to alternate, supplementary, or subsequent BPs.
- Cross-leveling or resupply of Class V.
- Evacuation of casualties (CASEVAC/MEDEVAC).

Note. The platoon leader should coordinate the rehearsal with the higher headquarters to ensure other units' rehearsals are not planned for the same time or location. Coordination leads to more efficient use of planning and preparation time for all units. It also eliminates the danger of misidentification of friendly forces in the rehearsal area, which could result in fratricide.

Chapter 5

Other Tactical Operations

In support of reconnaissance and security operations, reconnaissance and scout platoons conduct a variety of other tactical operations such as movement, assembly areas, linkup, relief in place, passage of lines, cordon and search, and employment of OPs, patrols, patrol bases, and combat outposts. These operations may occur across full spectrum operations in all conditions. They are usually conducted as part of a tactical transition into or out of peacekeeping, peace enforcement, and full combat operations. They are platoon-centered and establish conditions that lead to successful accomplishment of critical tasks associated with reconnaissance and security missions.

Contents

SECTION I – PLATOON TACTICAL MOVEMENT

5-1. To be successful, the reconnaissance or scout platoon must be able to conduct effective tactical movement. The platoon's ability to conduct stealthy movement, undetected by the enemy, is critical to mission accomplishment.

PLANNING AND OPERATIONAL CONSIDERATIONS

5-2. This section focuses on several critical aspects of tactical movement, including the following:

- **Movement fundamentals and formations.** Reconnaissance and scout platoons need a thorough understanding of the fundamentals of movement and proper employment of movement formations. Use of formations must take into account such factors as METT-TC, applicable troop-leading procedures, and additional assets that influence the platoon's movement (such as FBCB2, ground sensors, UASs, and ground surveillance systems). Reconnaissance and scout platoons in heavy units cannot concentrate only on their own tactical movement. ACR and HBCT platoons will operate with adjacent platoons that follow no more than one terrain feature behind or one-half the effective range of their primary weapon systems.

Note. When the platoon rehearses movement on a sand table, supporting platoons and other assets must be present to choreograph how the platoons and sections will operate.

- **Movement techniques.** The platoon must be proficient at using the appropriate movement technique for the specific situation. Effectively employed, movement techniques (traveling, traveling overwatch, and bounding overwatch) allow the platoon to conduct reconnaissance without becoming compromised. They also assist the platoon leader in achieving a number of tactical purposes:
  - Minimize the platoon's exposure to enemy observation and/or fire.
  - Help the platoon maintain freedom of movement by positioning the platoon to make contact with the smallest element possible.
  - Maximize the number of tactical options available to the platoon.
- **Mission considerations.** The platoon applies movement fundamentals, formations, and techniques in support of its primary missions, such as reconnaissance and surveillance. It can use an array of digital tools in the planning, preparation, and execution of these operations. Such resources as UASs, ground surveillance system, LRAS3, and FBCB2 assist the platoon in conducting stealthy movement and in gaining visual contact with enemy forces before they can see the scouts. Section leaders must maintain SA specifically knowing the location of reaction forces, what areas they can observe, what they can engage with their weapon systems, and how they can move to support those in contact?

Note. The advantage of the LRAS3 observation range is limited to stationary observation in open terrain.

- **Chance contact.** The reconnaissance or scout platoon must take steps to minimize chance contact with enemy forces.

Note. The use of detailed IPB (MCOO), proper movement techniques (traveling or bounding overwatch), visual clearing of IV lines and templated danger areas, coupled with higher echelon intelligence sources such as UASs and ground sensors, reduce the possibility of chance contact.

- **Timelines.** The platoon conducts and completes tactical movement in accordance with the timelines and operational phases directed by the higher commander.

FUNDAMENTALS OF MOVEMENT

5-3. Sound tactical movement is the essence of all reconnaissance and scout platoon operations. Effectively employed, the guidelines in this section can help scouts to see the enemy first and observe it undetected. The scouts are then able to achieve a number of tactical goals, including retaining the initiative, confirming or denying the CCIR, and retaining freedom of movement to gain information.

USE TERRAIN FOR COVER AND CONCEALMENT

5-4. Terrain offers concealment from enemy observation and cover from enemy fires. Scouts must make maximum use of this natural protection to survive and accomplish their mission thereby avoiding enemy detection. Cover should be used whenever possible. When no cover is available, however, scouts should use the concealment offered by trees, shadows, brush, and man-made structures (see Figure 5-1). The crest and berm drills illustrated in Figures 5-2 and 5-3 are examples of using the terrain to protect the vehicle from enemy observation during movement.

5-5. During mounted or dismounted movement, individual vehicles and personnel should avoid becoming silhouetted against a skyline. In addition, they should never move directly forward from a defilade position. Direct forward movement may enable the enemy to pinpoint the vehicle and engage it as it moves. Instead, vehicles should back up and move left or right around the previous position to get to the next position.

5-6. Despite its obvious advantage, movement along covered and concealed routes can present disadvantages that should be considered. Movement is often slower, and leaders face more problems with control of the moving vehicles. The traveling distance may be increased, resulting in the platoon taking longer to get through an area as vehicles move slower and have farther to go. The possibility of being ambushed by enemy forces increases. However, such a possibility can be mitigated through proper movement techniques and increased security measures, if time permits (METT-TC). In most situations, such limitations must be accepted because the accuracy and lethality of long-range weapons make unconcealed movement too dangerous. The vehicle commander or dismounted leader must be careful to balance the need for security with his ability to conduct required observation and reconnaissance.

Figure 5-1. Use of natural terrain for concealment

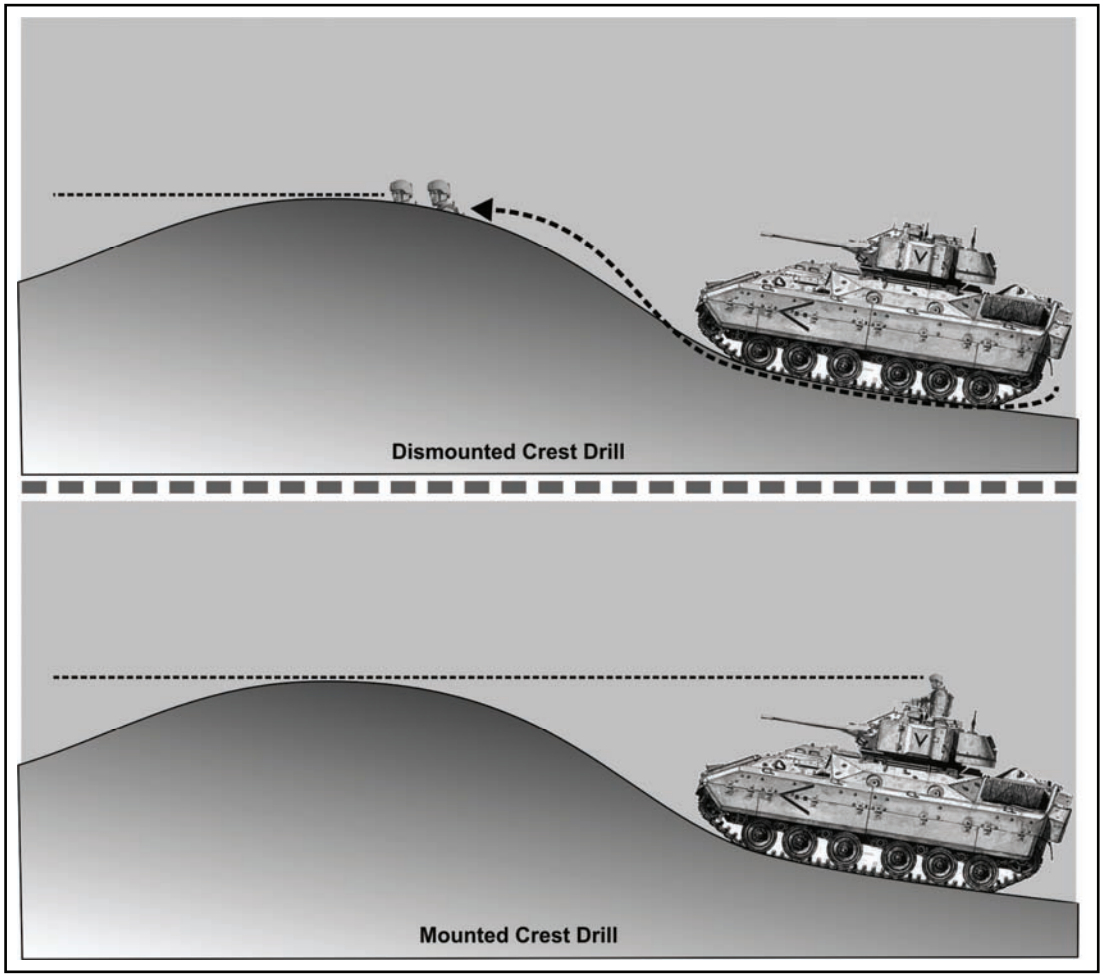


Figure 5-2. Crest drills

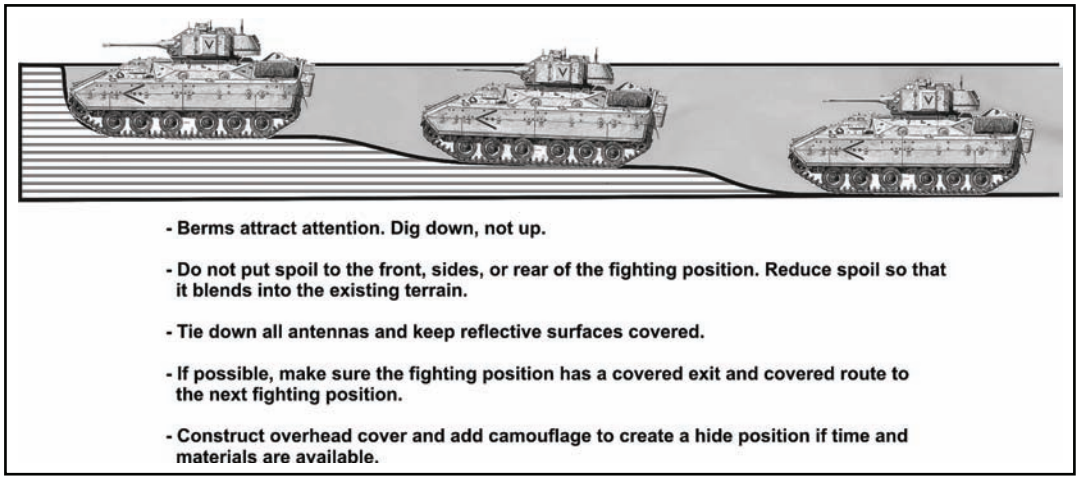


Figure 5-3. Berm drill

USE CAUTION AT DANGER AREAS

5-7. Scouts must be prepared to take necessary precautions when they encounter danger areas. Based on terrain analysis and IPB, the reconnaissance or scout platoon leader considers where enemy reconnaissance assets will be focused and determines their fields of observation. The platoon can then avoid movement through these areas. In addition, scouts should combine proper terrain driving techniques with carefully selected routes to maximize security and reduce the signature of the vehicle.

5-8. The platoon should stop short of danger areas and use dismounted scouts away from the vehicles to reconnoiter ahead of them. For example, when it encounters an open area, the platoon should send dismounts to a concealed position where they can observe the area. From that position, scouts should carefully check the other side of the open area for enemy positions. Vehicles provide overwatch for the dismounts while using combat identification (CID) techniques to mitigate the risk of fratricide. The platoon must then cross the open area quickly.

Note. Refer to the discussion of danger areas later in this chapter.

DISMOUNT VEHICLES

5-9. As a general rule, the platoon sends out dismounts in elements no smaller than two scouts. This enhances mission accomplishment and survivability. Vehicles can be easily identified by their visual, sound, and exhaust signatures; vehicles that can be seen, heard, or otherwise detected can be engaged and destroyed by the enemy. Conversely, dismounted patrols and OPs are very difficult to detect. Scouts should dismount their vehicles and use optical devices to gain information on objectives or areas of interest.

5-10. As an example, during reconnaissance operations, the scouts should dismount beyond the direct fire range of suspected enemy positions and weapon systems. Dismounted scouts can then move in front of their vehicles using the cover and concealment of a dismounted avenue adjacent to the mounted route. Additionally, dismounts can occupy OPs while leaving the vehicles in hide or overwatch positions. These basic actions enable the dismounted scouts to provide critical information while enhancing the unit's survivability and its ability to perform later missions.

Note. Refer to the discussion of dismounted operations later in this chapter.

REDUCE VEHICLE-RELATED SIGNATURES

5-11. The reconnaissance platform's major signatures (audible, thermal, visual) can be reduced by shutting off the vehicle and related systems, such as heaters or older thermal sights, whenever the vehicle is not moving or the system is not needed. Scouts can further reduce visual and thermal signatures using these steps:

- Erect camouflage nets. This will help hide a stationary vehicle both visually and thermally; nets tied to the vehicle can reduce dust and exhaust signatures, as well as reduce the thermal signature while moving.
- Employ camouflage material appropriately on vehicles during movement to break up the color and silhouette.
- Keep hatches closed and locked with safety pins to reduce noise and light signatures. Mask internal lights from outside observation.
- Prevent white light displays at night.
- Leaders conduct external PCIs of vehicles using NODs to spot-check friendly light signatures.
- Reduce vehicle glass reflection from periscopes and windows by removing, covering, or camouflaging them (placing a net over the windshield, for example).

Note. To prevent fratricide situations, ensure combat identification markers are not degraded.

DANGER AREAS

5-12. During the execution of reconnaissance and security missions, scouts will encounter danger areas, which are specific types of terrain features or areas that expose them to enemy fire. These danger areas are likely points of enemy contact due to the reconnaissance platoon's inherent vulnerabilities and enemy cover, concealment, and observation. Danger areas should be identified and highlighted when the platoon leader performs his map reconnaissance and IPB during troop-leading procedures. Once these areas are identified, the platoon leader can plan for specific reconnaissance methods and movement techniques to move through these areas quickly with maximum security. Danger areas should be included in all phases of the maneuver rehearsal by the squads, sections, and the platoon as a whole.

OPEN AREAS

5-13. Open areas frequently allow the reconnaissance or scout platoon to observe the enemy or objectives from long range. Conversely, these areas often expose the platoon to possible enemy observation and fire for long periods of movement. The platoon, therefore, must make maximum use of the terrain and employ its powerful optics and effective observation techniques to avoid exposing itself.

5-14. Before moving across a large open area, the platoon must make a thorough visual scan of the area. This should be done both dismounted and mounted. The platoon leader must use all available optics and other assets, including UASs, LRAS3, and ground surveillance systems to reconnoiter the open area and find a bypass. If a bypass cannot be found, he focuses not only on finding potential enemy positions, but also on locating covered and concealed routes to facilitate movement. If time and terrain permit, dismounted scouts may be used to move to the far side of the open area and secure it. In very large open areas, use of dismounts may not be feasible because of the distances between covered and concealed positions; UASs can perform observation tasks for the dismounts. Many platforms employ integrated sight units that can assist the platoon in scanning for threats at extended ranges and provide accurate fires to protect scouts as they advance.

5-15. Once the area has been reconnoitered using visual, digital, and sensor enablers, the scouts move across it using bounding overwatch because of the possibility of enemy contact. If the open area is very large, the overwatch element should only remain stationary until the bounding element has moved a distance equal to half the effective range of the overwatching element's weapon system. When that point is reached, the overwatch element must move out, even if the bounding element has not yet reached a position of cover and concealment.

5-16. When the platoon must move across large open areas with limited cover and concealment, indirect fire can provide concealment with obscurant munitions. Concealment with obscurants is limited when the enemy is equipped with thermal sights. Reconnaissance by fire is an acceptable method of mitigating risk when crossing the danger area. However, leaders must adhere to the ROE and weapons control status when using this method.

WOODED AREAS

5-17. Wooded areas present security challenges for armored vehicles, creating opportunities for enemy forces on the ground to attack, disable, and even destroy a vehicle from a blind spot. These areas provide a high degree of concealment to forces that occupy them, particularly dismounts. They must be approached and moved through with extreme caution. Visibility within wooded areas is very limited; therefore, reconnaissance is confined primarily to trafficable routes and trails through the forest. In densely wooded areas, mounted scouts are extremely vulnerable to dismounted enemy forces that can close on them undetected.

5-18. Platoon leaders must plan for the increased need for security when operating in the restricted environment of a wooded area. Scouts should use available terrain to scan the wooded area before entering. They should search for movement, reflections, smoke, and any irregular shapes or colors indicating camouflage. Scouts scan the ground to detect signs or patterns indicating enemy movement or activity to prevent chance encounters with obstacles, antitank ambushes, and IEDs. Whenever possible, scouts

reconnoiter the entire wood line with dismounts prior to mounted movement to the wooded area. Foliage in wooded areas can conceal the enemy from UASs.

5-19. The scouts should move mounted to the wooded area using bounding overwatch. Once the vehicles are positioned inside the wood line (approximately 100 to 200 meters), the scouts shut off the engines, establish dismounted security, and conduct a listening/security halt. Crewmen wearing combat vehicle crewman helmets remove them. Radio speakers are turned off. The halt should last approximately one to two minutes, with 360-degree security maintained throughout. Similar halts must be conducted at regular intervals during movement through the wooded area (approximately every kilometer). At the same time, because reconnaissance vehicles are most vulnerable in wooded areas when stopped, halts should be kept to a minimum.

5-20. During movement through a wooded area, scouts should move using traveling overwatch. This technique is appropriate because of the extremely short fields of view and the danger of dismounted ambush. Exposed scouts should maintain a minimum silhouette in their vehicles because of the danger from snipers and ambush. Adjacent elements overwatching the platoon as it moves will be affected by the shorter engagement distances as well.

5-21. Scouts may encounter small clearings, buildings, or hills while moving through a wooded area. Each must be treated as a separate danger area. Small clearings may require crossing in the same manner as a large open area. Isolated buildings must be secured by dismounted scouts; these areas offer invaluable movement lanes for the enemy to move into cleared areas behind scouts and attack without warning. Hills and curves must be approached cautiously; dismounted scouts must clear any dead space.

5-22. Before leaving a wooded area, scouts must clear the open area to the front. They stop inside the wood line (ensuring they are still within the shadow line of the woods). Engines are turned off, and dismounted scouts move to the edge of the wooded area to observe. If the area is determined to be clear, vehicles move forward to establish OPs. As the dismounts remount, the crews use their vehicle optics to visually clear the open area. Once completed, the scouts resume movement using the appropriate movement technique.

URBAN AREAS

5-23. Detailed reconnaissance of urban areas during MCO is extremely difficult for reconnaissance and scout platoons. Urban areas, including towns and villages, pose numerous dangers, especially if the enemy is occupying the urban area in strength. Troops can be garrisoned in villages, snipers can dominate approaches, and buildings and roads can be mined with anti-handling devices. Debris can conceal IEDs against buildings and in the street, creating threats and obstacles to mounted and dismounted movement. Cover and concealment are abundant for both friendly forces and the enemy, creating situations where the enemy remains undetected until scouts close to a very close range. Urban areas are ideal for effective ambush by small numbers of dismounts. Scouts must take steps to counter these dangers and ensure local security.

5-24. Whenever possible, scouts should initially observe urban areas from a distance and from multiple vantage points. The use of UASs in areas forward of the platoon allows observation beyond the platoon's line of sight (LOS).

5-25. The scouts should collect tactical information and HUMINT before they enter the urban area. They look for movement and evidence of enemy occupation, including track marks on pavement; lack of civilian activity; and sandbags, stakes, timber, intentional building damage, or any other sign of prepared fighting positions and obstacles. In some cases, HUMINT, CA and/or MI teams can gather enemy information from the local population before the platoon moves in.

5-26. Scouts move through the area using either traveling or bounding overwatch (based on METT-TC factors), ensuring that vehicles remain in mutual support and maintain 360-degree security. Once in the town, all scouts must be alert to additional signs of enemy activity. Tactical evidence can include—

- Tactical markings or signaling devices.
- Antennas.

- Spent shell casings.
- Pyrotechnics.
- Damage to buildings and streets.

5-27. Nontactical evidence may include—

- Medical supplies.
- Civilian communications equipment such as—
  - Cell phone boxes.
  - Additional batteries.
  - Computers connected to the internet.

5-28. Dismounts can reconnoiter major intersections ahead of vehicles and provide security during halts, such as conducting overwatch from building rooftops or windows. Normally, scouts do not have the manpower or time to clear buildings. They can, however, be employed dismounted for limited search and secure tasks as needed to support the movement of the mounted element or a particular reconnaissance mission. Mounted vehicle crews must reduce their silhouette to a minimum when moving through a town.

5-29. As the platoon approaches the far side of the urban area, scouts are employed to reconnoiter the area for enemy movement. The platoon should stop short and move dismounts to the edge of town. The dismounts with overwatch responsibilities secure the local area and observe the open area beyond the town; the platoon should also use such assets as UASs to observe this area. When this reconnaissance has been completed, the vehicles move forward and continue to observe from covered and concealed positions while the dismounted elements remount. The platoon is then prepared to continue its mission.

LATERAL OR BOUNDARY ROUTES

5-30. As the platoon executes reconnaissance and security missions, it will encounter routes or mobility corridors that provide access into the terrain between the platoon and friendly elements to its flanks and rear. These lateral mobility corridors pose a security threat to both the platoon and the other friendly elements. These corridors allow the enemy and scouts to move into the terrain around the platoon flanks unobserved. Leaders coordinate operations with adjacent units to prevent confusion, fratricide, or possible enemy exploitation. Scouts should not reconnoiter lateral routes beyond one half the distance of the maximum effective range of overwatching weapon systems.

5-31. It is critical that the scouts maintain continuous surveillance of these mobility corridors to protect against infiltrating enemy forces. If necessary, the platoon can use a series of contact points and/or coordination points to enhance security during movement through the area. UASs can monitor areas already cleared by scouts and assist in mitigating enemy infiltration between adjacent elements.

5-32. To maintain surveillance of areas along known or suspected paths of enemy travel, the platoon can establish outposts to maximize the reconnaissance effort forward. This security technique uses short-duration OPs consisting of two Soldiers with equipment. A section or squad should deploy an outpost when it is at risk of losing observation on a possible enemy approach route that no other element can observe. Once deployed, the outpost maintains surveillance of the avenue of approach until the rest of the reconnaissance or scout element returns. In doing so, the outpost can provide security through early warning of enemy activity that the mounted element would not have detected.

PLATOON FORMATIONS

5-33. During either mounted or dismounted movement, the reconnaissance or scout platoon employs combat formations when the terrain and enemy situation supports their use or when the mission or reconnaissance objective is precisely focused, such as in a route reconnaissance.

5-34. The seven mounted reconnaissance platoon formations—line, vee, column, staggered column, coil, herringbone, and wedge—are intended to be flexible. They can be modified to fit the situation, terrain, and

combat losses; however, they do not have exact geometric dimensions and design. Transition into and out of the various formations must be second nature to each squad.

Note. The following formation examples are based on the Stryker reconnaissance platoon. Six-vehicle platoons are shown when the additional vehicles create significant differences. Platoons must include their attachments during rehearsals so these elements understand how they are expected to move during transition between formations.

LINE FORMATION

5-35. This formation (see Figure 5-4) can be used regardless of the platoon organization and is applicable to most reconnaissance or scout platoon missions. It allows maximum reconnaissance forward and covers a wider AO. It also requires the platoon to have some form of overwatch because vehicles can only provide local security.

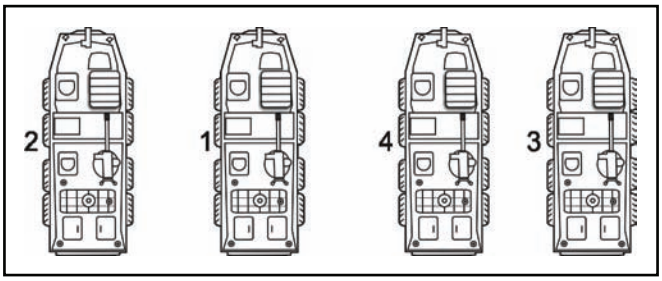


Figure 5-4. Line formation (SBCT reconnaissance platoon)

VEE FORMATION

5-36. The vee formation, illustrated in Figures 5-5 through 5-7, uses the two-section organization. The platoon maintains relative positioning based on terrain and combat losses. The vee lends itself to immediate mutual support and provides depth; it is very flexible. Using any of the techniques of movement, the two forward vehicles perform most of the information gathering and reporting. The rear vehicles provide overwatch and C2 (the reverse applies when scouts conduct route reconnaissance).

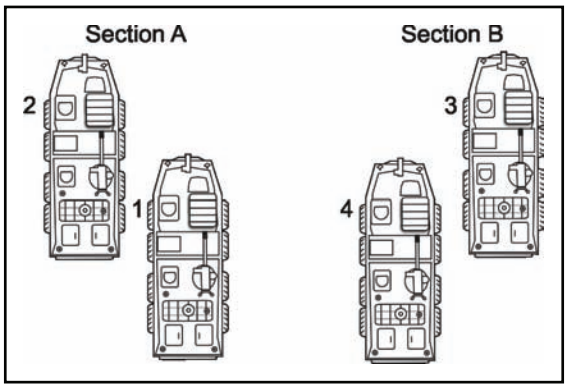


Figure 5-5. Vee formation (SBCT reconnaissance platoon)

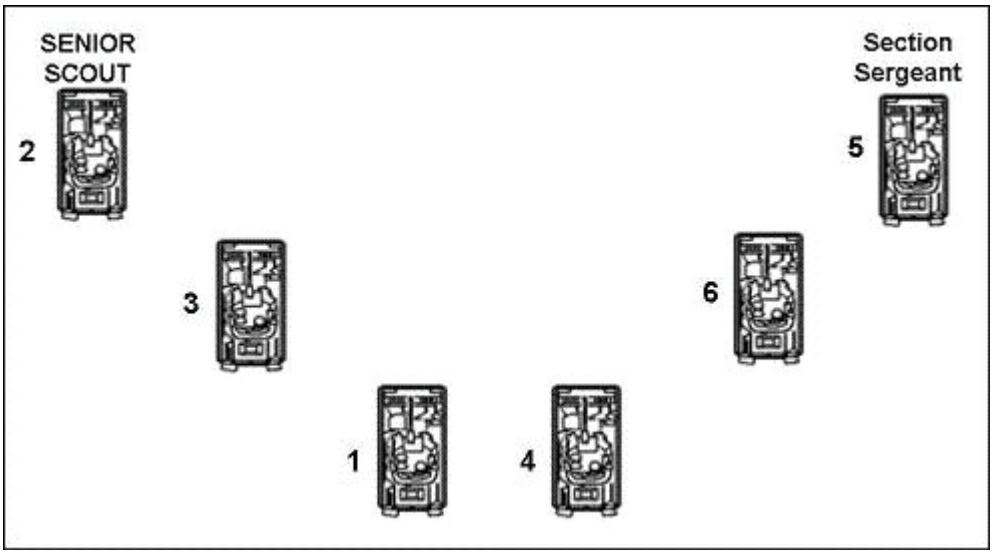


Figure 5-6. Vee formation (ACR scout platoon)

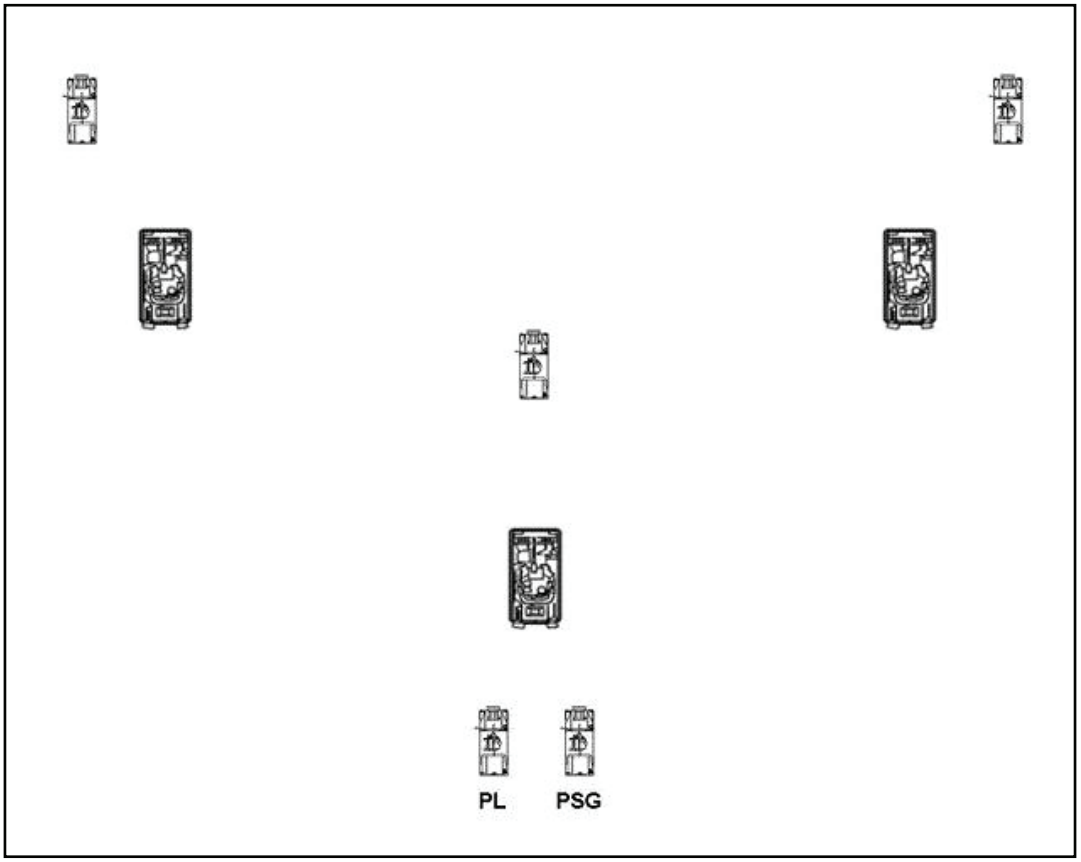


Figure 5-7. Vee formation (HBCT reconnaissance platoon)

Note. In situations where enemy contact is likely with a heavily equipped enemy, the CFVs may be the lead element, followed by the wheeled elements. This alignment provides added security to the wheeled elements and enables them to displace rapidly. It also allows the wheeled elements to provide early warning and to ascertain enemy composition/disposition.

COLUMN FORMATION AND STAGGERED COLUMN FORMATION

5-37. The platoon uses the column formation when speed is essential as it moves on a designated route (see Figures 5-8 through 5-10). The column offers good fields of fire to the flanks, but little to the front and rear. Normally, the platoon leader briefs the section leaders on the route and speed and then allows the lead section to control the column movement. This enables the platoon leader to concentrate on the subsequent mission, enhancing C2. However, the platoon leader still has the responsibility of tracking the movement of the platoon.

5-38. The order of march in the column may depend on which organization the platoon will use at the end of the movement; in addition, the lead section may vary based on METT-TC considerations. When conducting movement in a secure area, it is appropriate to specify the order of march by SOP.

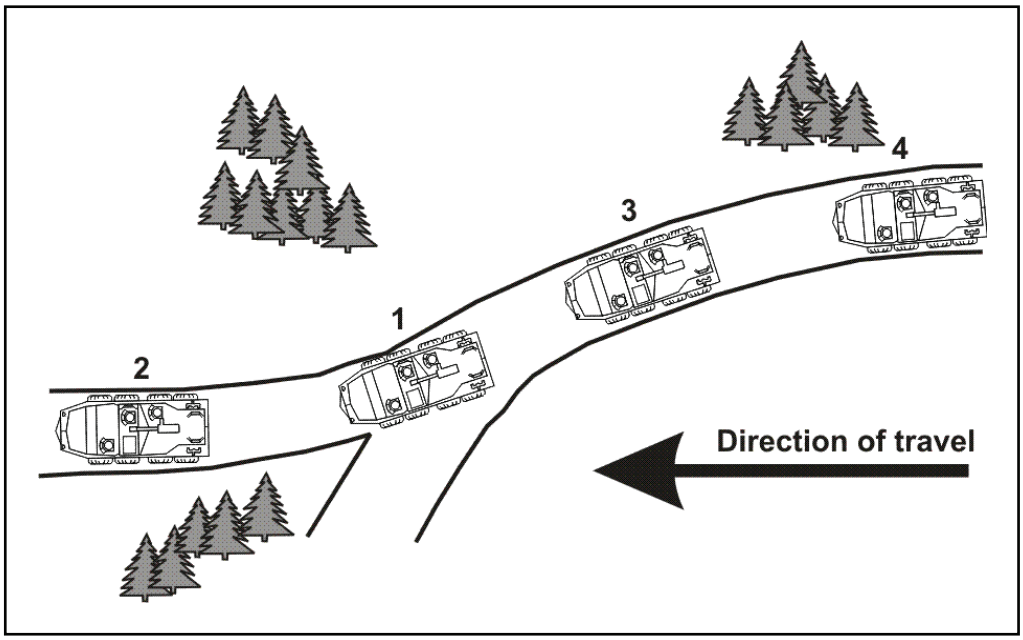


Figure 5-8. Column formation (SBCT reconnaissance platoon)

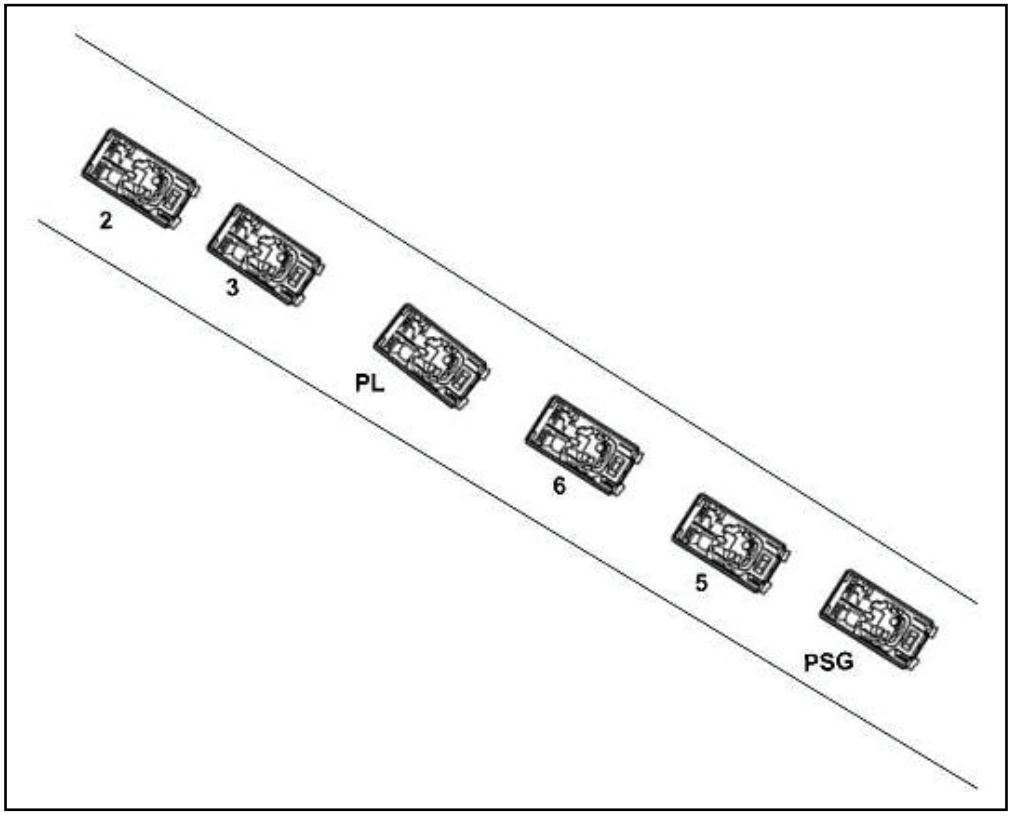


Figure 5-9. Column formation (ACR scout platoon)

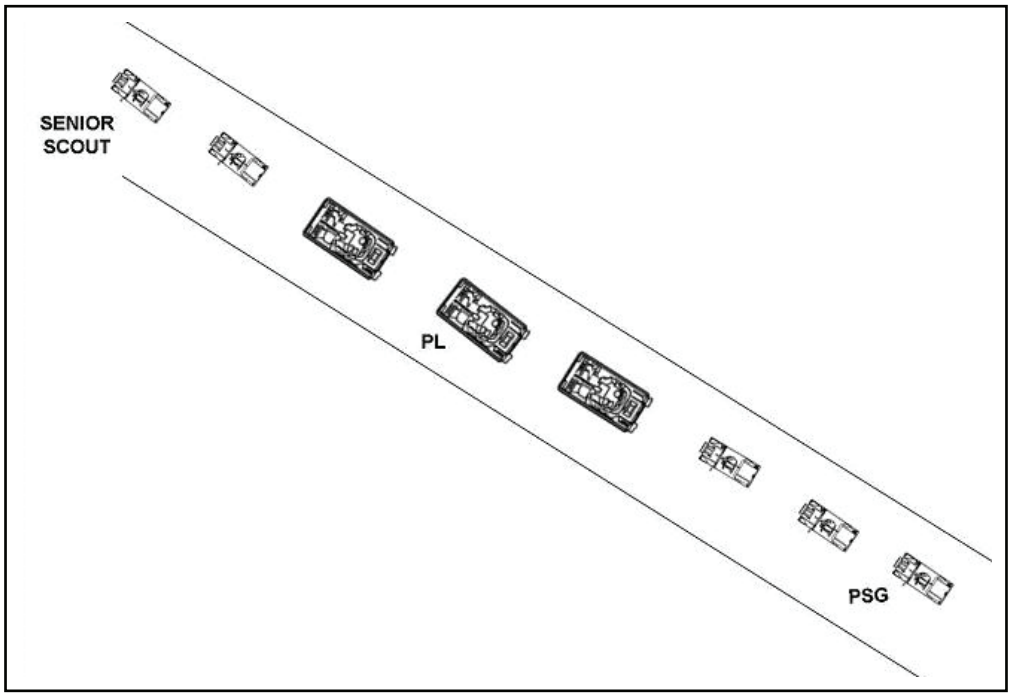


Figure 5-10. Column formation (HBCT reconnaissance platoon)

5-39. The staggered column is used for rapid movement across less restrictive terrain. It affords all-around observation and fields of fire. Figure 5-11 shows the platoon in the staggered column in a two-section organization with Section Alpha leading.

Note. In the current OE, explosive devices and mines are often positioned just off the roadway. Platoons must exercise caution when they use the staggered column to avoid driving on or just beyond the road shoulder.

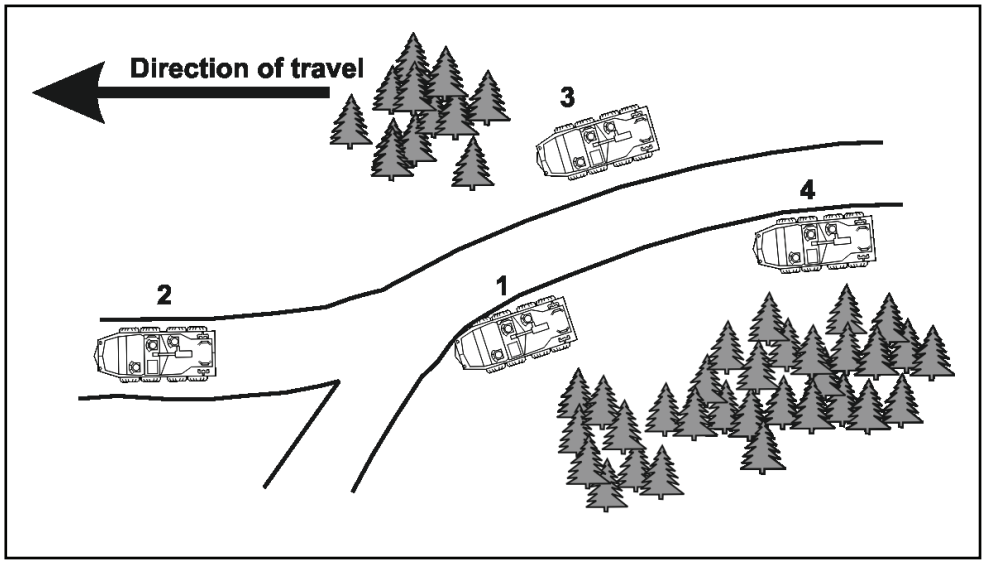


Figure 5-11. Staggered column formation (SBCT reconnaissance platoon)

COIL FORMATION

5-40. The platoon coil is used to provide all-around security during halts. Each vehicle has a particular position to occupy in the coil. The platoon leader designates the orientation of the coil using a cardinal direction; in the absence of orders, the direction of travel becomes 12 o'clock. The platoon must develop a coil SOP based on its mission essential task list, war plans, and most frequently used organizations. It should rehearse the SOP as a drill so that correct execution of the coil becomes automatic.

5-41. The coil is usually executed from the column or staggered column, with the lead vehicle occupying the 12 o'clock position. The other vehicles occupy the clock positions in accordance with the order of march. Vehicles are positioned 100 to 150 meters apart. Examples are illustrated in Figures 5-12 through 5-14.

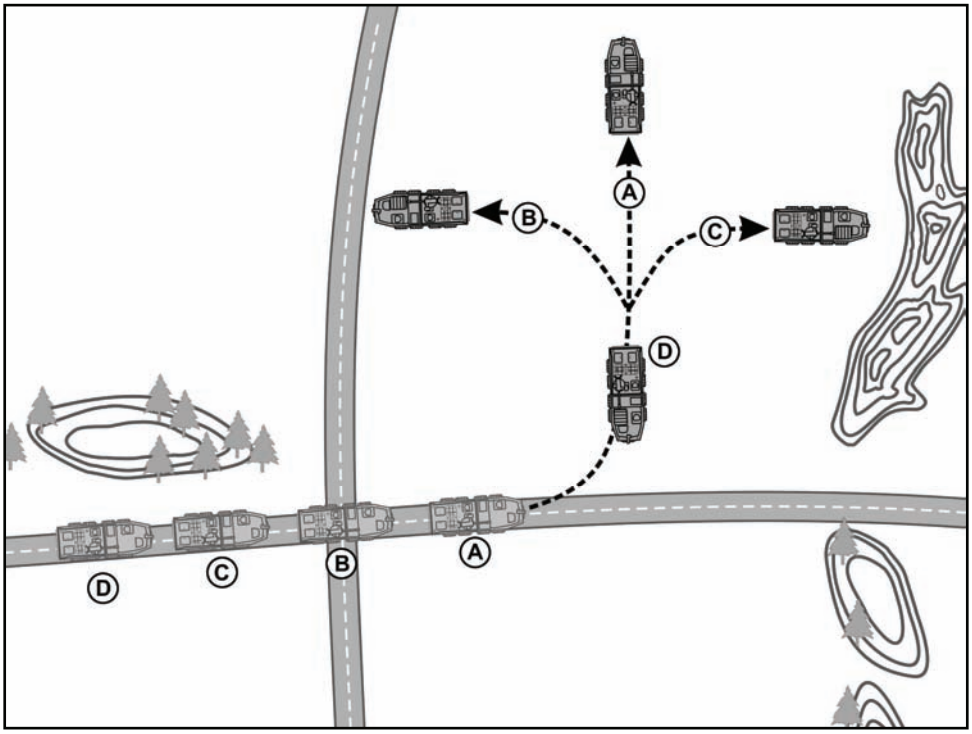


Figure 5-12. Coil formation (SBCT reconnaissance platoon)

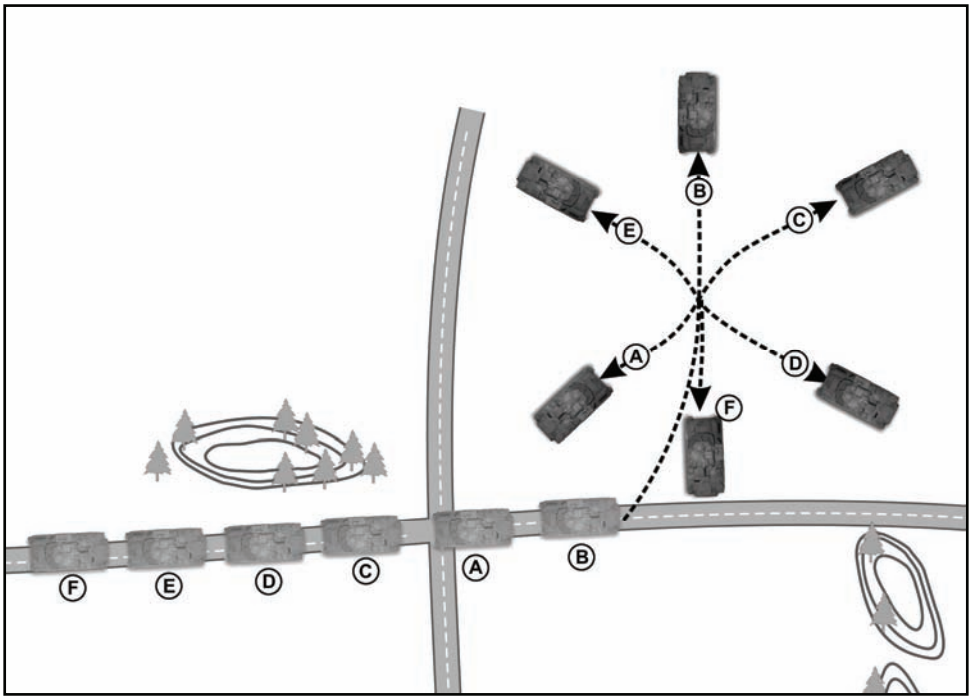


Figure 5-13. Coil formation (ACR scout platoon)

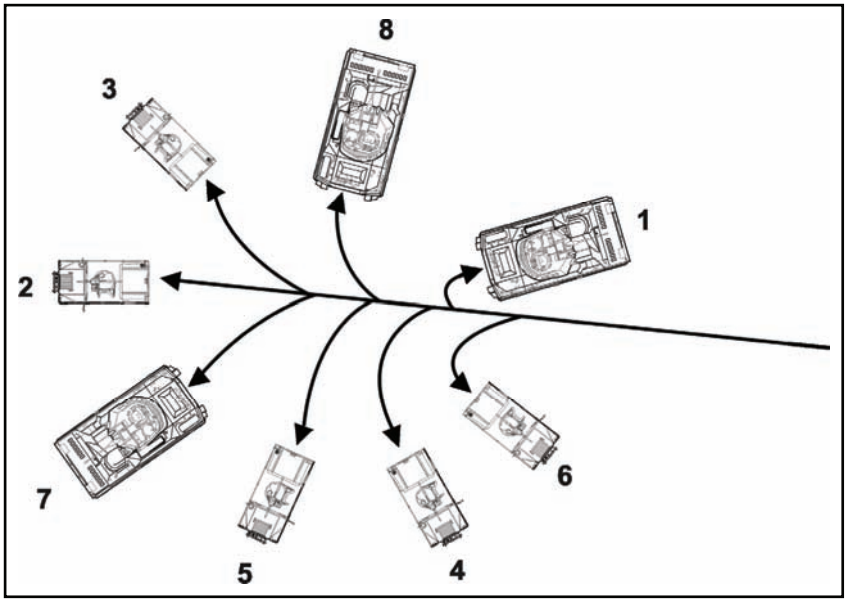


Figure 5-14. Coil formation (HBCT reconnaissance platoon)

Note. Vehicle numbers may vary from unit to unit.

HERRINGBONE FORMATION

5-42. The herringbone is used to provide 360-degree security during a temporary halt from a march column (see Figure 5-15). Scouts should dismount to provide greater security. The formation may be widened to permit passage of vehicles down the center of the column. All vehicles should move completely off the road if terrain allows.

Note. As with the staggered column formation, platoons must exercise caution when they use the herringbone to avoid explosive devices and mines that may be emplaced just off the roadway.

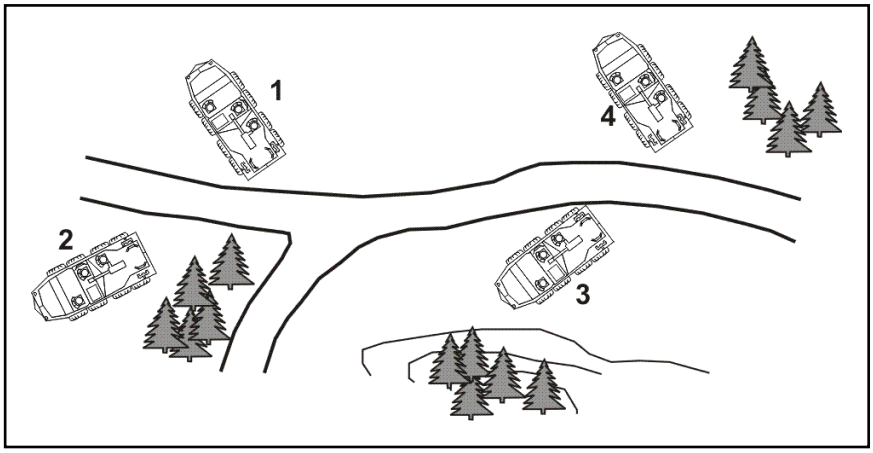


Figure 5-15. Herringbone formation (SBCT reconnaissance platoon)

WEDGE FORMATION

5-43. The wedge formation is primarily used by ACR scout platoons. Though not ordinarily a typical reconnaissance formation, it may be used when enemy contact is likely and the platoon must fight for information. The wedge can be formed with six-, three-, or two-vehicle organizations. This formation allows for firepower to be focused forward or shifted to either flank. In the event the platoon makes enemy contact while moving, the wedge formation permits the platoon to gain contact with the smallest possible maneuver element—the section. The wedge formation also greatly improves the CFV platoon's ability to fight when the platoon is augmented with tanks as hunter-killer teams. Hunter-killer teams are generally organized with a three-CFV vehicle section accompanied by a two-tank section. The enemy situation will dictate whether the CFV or tank section leads the formation. Examples are shown in Figures 5-16 and 5-17.

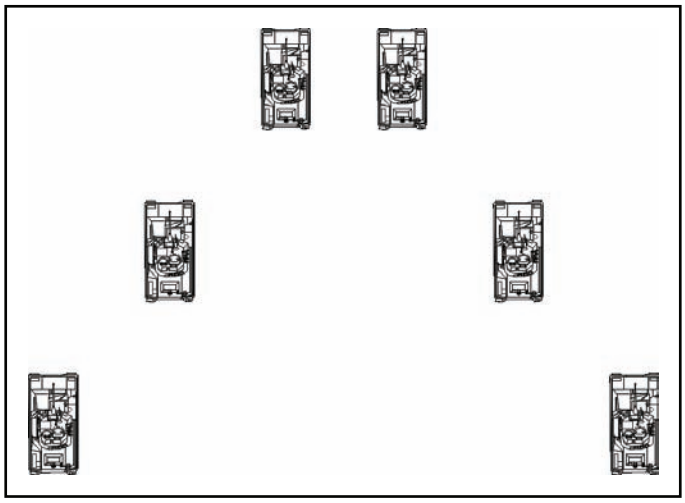


Figure 5-16. Wedge formation (ACR scout platoon)

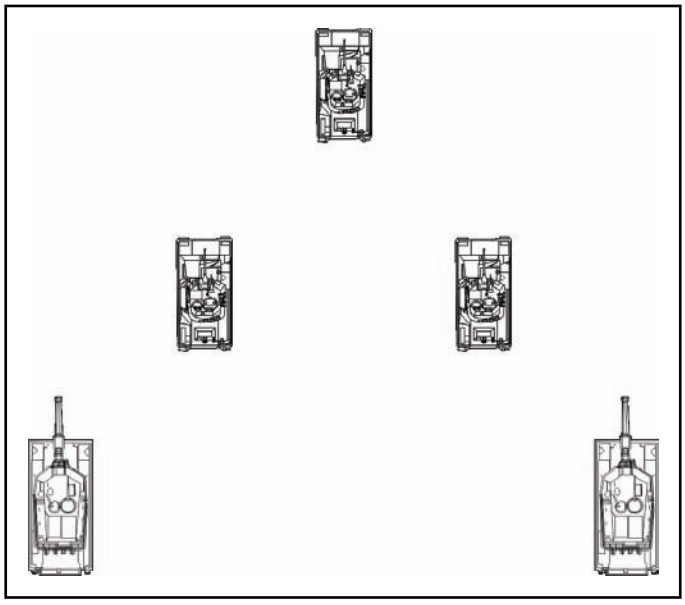


Figure 5-17. Wedge formation (CFVs and tanks task organized in an ACR troop/platoon)

MOVEMENT TECHNIQUES

5-44. As noted earlier in this section, the reconnaissance or scout platoon employs movement techniques for a number of reasons (to minimize exposure, maintain freedom of movement, maximize available tactical options, and react effectively to contact). Effectively employed, movement techniques allow the platoon to find and observe threats without being compromised.

TACTICAL CONSIDERATIONS

5-45. In conducting either mounted or dismounted movement in the AO, the reconnaissance or scout platoon uses three movement techniques: traveling, traveling overwatch, and bounding overwatch. These techniques provide a standard method of movement, but the platoon leader must use common sense in employing them as he performs his missions and encounters different situations. The decision of which technique to use is based in large part on the likelihood of enemy contact; in general, this can be summarized as whether contact is not likely (traveling), possible (traveling overwatch), or expected (bounding overwatch). Terrain considerations may also affect the choice of movement technique.

5-46. In most tactical missions, the platoon will move as separate sections or squads under the C2 of the platoon leader. Leaders, particularly at the section level, should employ a degree of overwatch when enemy contact is possible. Regardless of which technique is used, the section leader gives the section an order explaining what each squad will do. This becomes more critical as the likelihood of enemy contact increases. If possible, the section leader should provide his squads with the following information:

- The enemy situation as he knows or suspects it to be.
- The next overwatch position (the objective for the bounding element).
- The route of the bounding element to that position.
- What he wants the section to do after the bounding element moves to the next position.

Note. It is important that the squad leaders backbrief the section leader during rehearsals to explain what will occur during movement.

EXECUTION OF MOVEMENT TECHNIQUES

Traveling

5-47. Traveling is usually employed in secured areas and when speed is important and enemy contact is not likely. It is the fastest but least secure movement technique. In this technique, the lead and trail elements move together as a unit. Movement is continuous, and interval and dispersion are maintained between squads as terrain and weather permit. The platoon does not intend to engage in combat, but it is dispersed to prevent destruction in case of unexpected air or ground attack. When using this technique, the platoon could be in a column formation or dispersed in its other formations (see Figure 5-18).

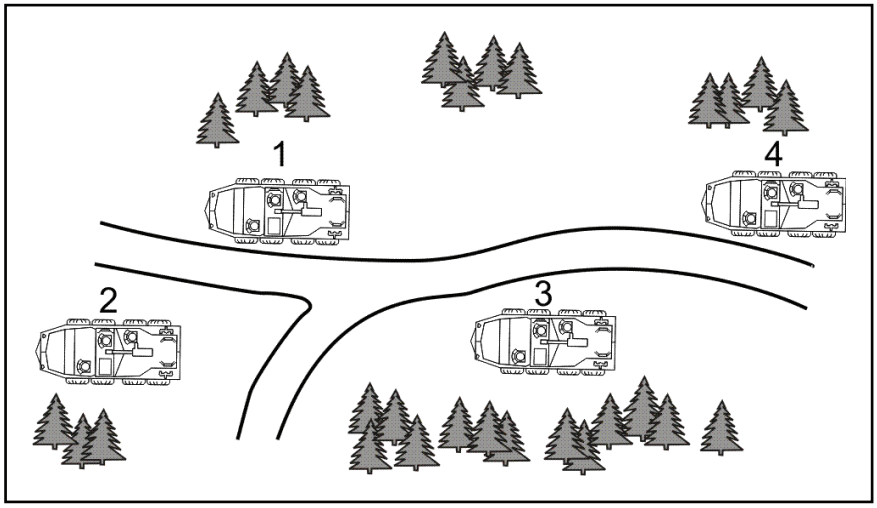


Figure 5-18. Traveling movement technique (SBCT reconnaissance platoon)

Traveling Overwatch

5-48. Traveling overwatch is used when contact is possible but speed is desirable (see Figures 5-19). The lead element moves continuously along covered and concealed routes that afford the best available protection from possible enemy observation and direct fire. The trail element moves at variable speeds, providing continuous overwatch. It normally maintains visual contact with the lead element and may stop periodically for better observation. The trail element remains close enough to provide immediate suppressive fire and to maneuver for support. It must, however, be far enough behind the forward element so as not to be decisively engaged by enemy forces.

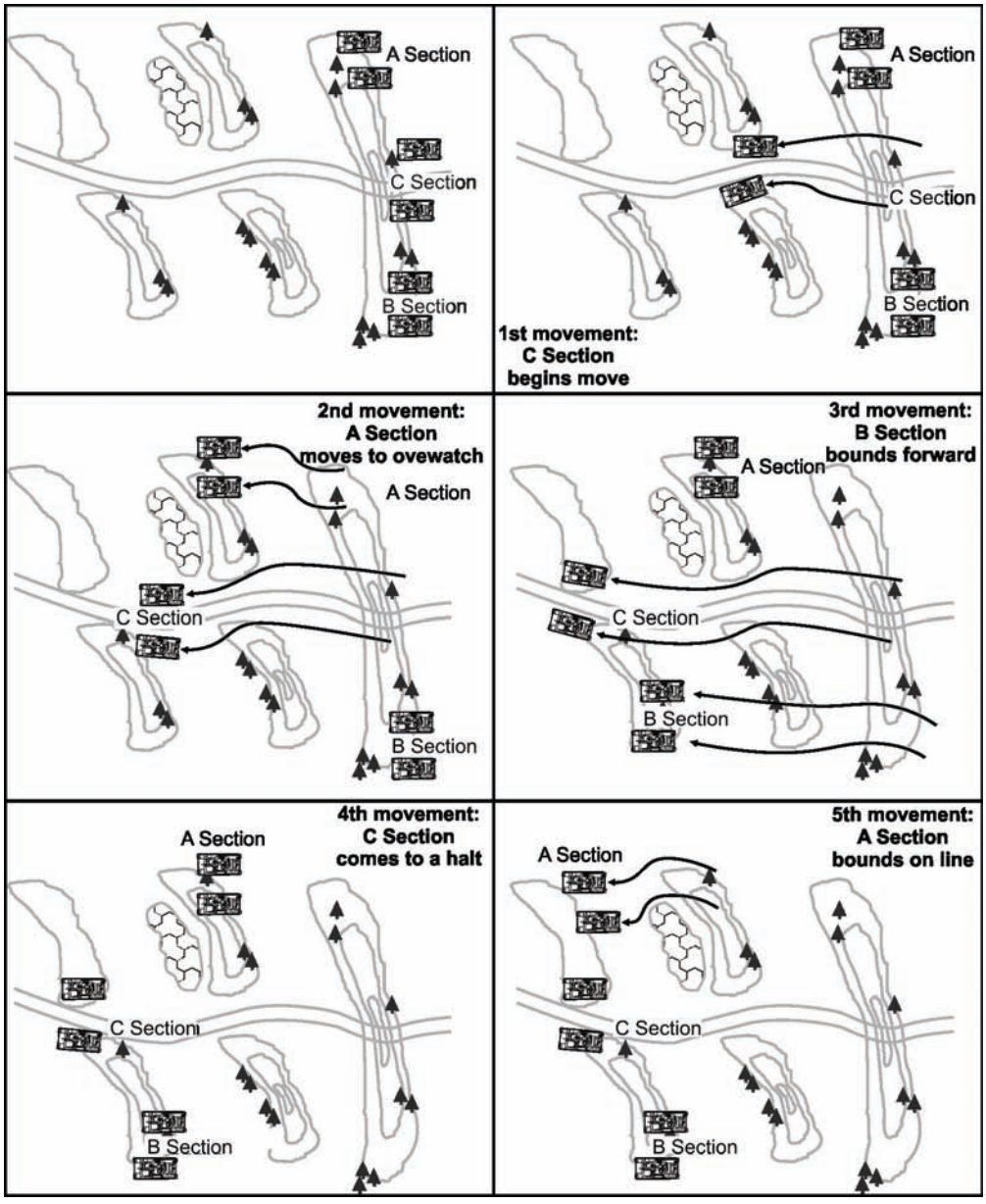


Figure 5-19. Traveling overwatch

Bounding Overwatch

5-49. Employed when enemy contact is expected, bounding overwatch is the most deliberate and secure movement technique. It provides for immediate direct fire suppression on an enemy force that engages the bounding element with direct fire.

Note. A type of overwatch (either traveling or bounding) should always be used when sufficient time is available.

5-50. In bounding overwatch, one element is always stationary to provide overwatch. The trail element first occupies a covered and concealed position from which it can overwatch the lead element. Upon

completing its movement (bound), the lead element then occupies a similar position and provides overwatch as the trail element bounds forward to its next overwatch position. Bounding overwatch can be executed using one of the following bounding methods:

- **Alternate bounds.** In this method, the trail element advances past the lead element to the next overwatch position. This is usually more rapid than successive bounds and creates a more stable fire platform and better position for the overwatching vehicle. Figure 5-20 shows a six-vehicle platoon conducting alternate bounds by section.
- **Successive bounds.** In successive bounding, the trail element moves to an overwatch position that is approximately abreast of the lead element. This method is easier to control and more secure than alternate bounding, but it is slower.

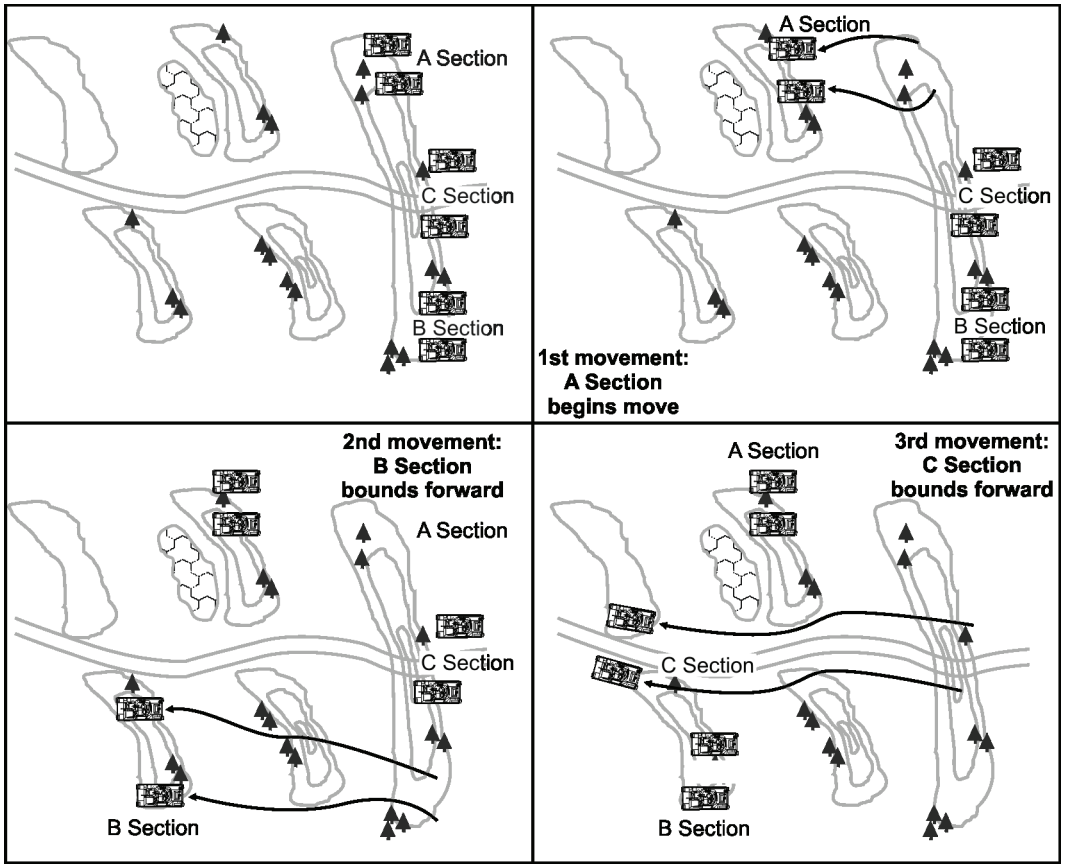


Figure 5-20. Alternate bounds (scout platoon moves by section)

5-51. The HBCT/CAB reconnaissance platoon will be required to execute bounding overwatch in some missions. METT-TC will determine if the platoon uses alternate or successive bounding techniques. CFVs should lead when enemy contact is likely because their increased lethality and survivability enable them to survive chance contact. LRAS3-equipped HMMWVs can enhance security and provide early warning to the CFVs. In situations where enemy contact is unlikely, the HMMWVs may lead the bounding, taking advantage of their stealth, LRAS3, and dismounts to locate the enemy first and direct the CFVs where it is best to engage the enemy.

5-52. As in other platoons, the section completing its movement takes up an overwatch position and reports "SET." The other sections move from their overwatch positions and alert the other elements that they are moving (see Figure 5-21).

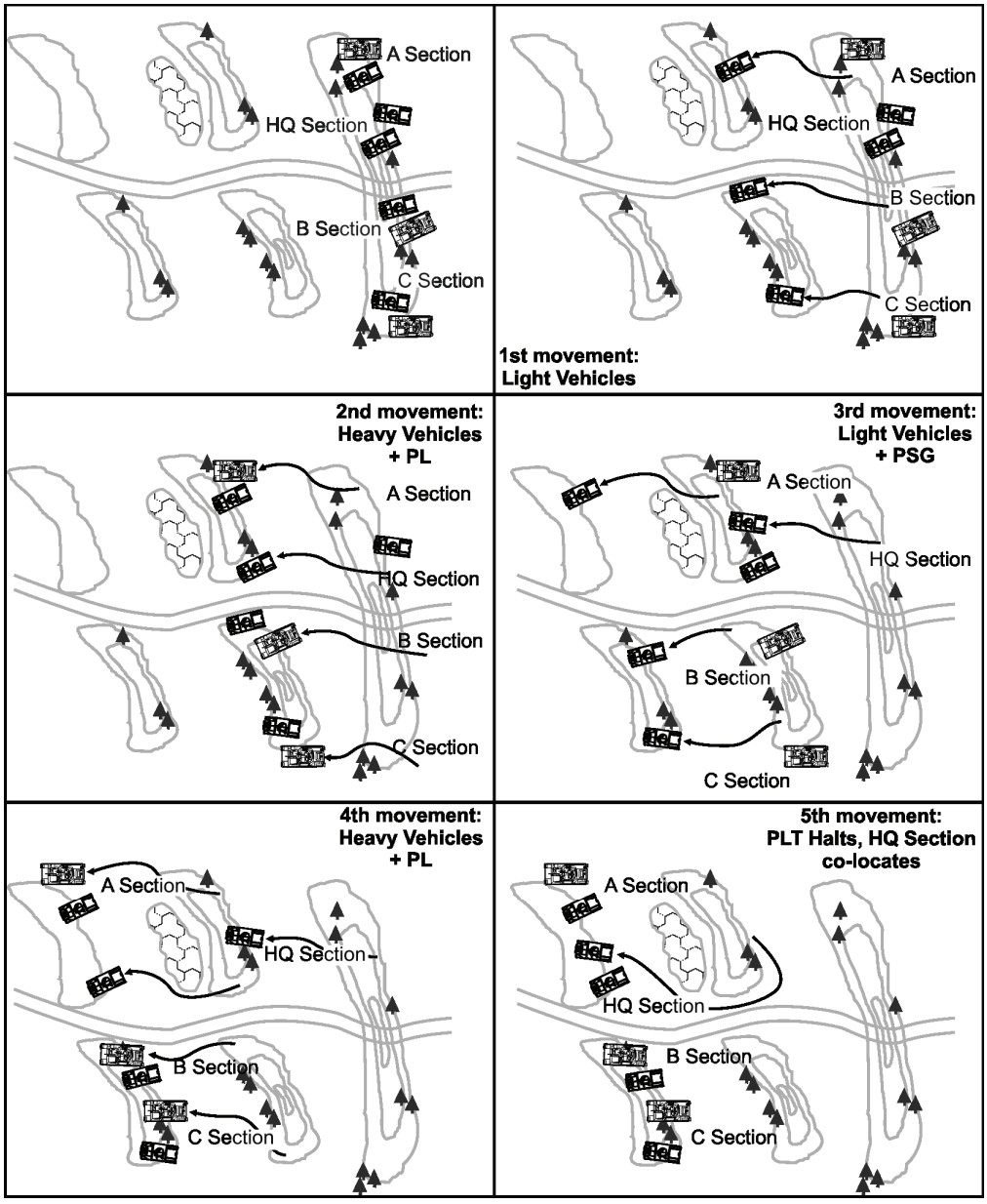


Figure 5-21. Successive bounds (HBCT reconnaissance platoon)

5-53. Reconnaissance patrols can apply the bounding technique by team when enemy contact is likely. Scout sections, if required to move dismounted, may bound by squad. Dismounted scouts should use cover and concealment to remain undetected by enemy elements. If the scouts are bypassed, they can report the contact to the platoon or the overwatching elements. If scouts must engage the enemy while dismounted, they must break direct fire contact quickly. Dismounts must ensure positive target identification to prevent fratricide because close-quarter engagements often occur at a fast pace (see Figure 5-22).

Note. Dismounted reconnaissance patrols are not equipped for decisive engagements; once a weapon is fired, the scout's presence is known and the element of surprise is lost.

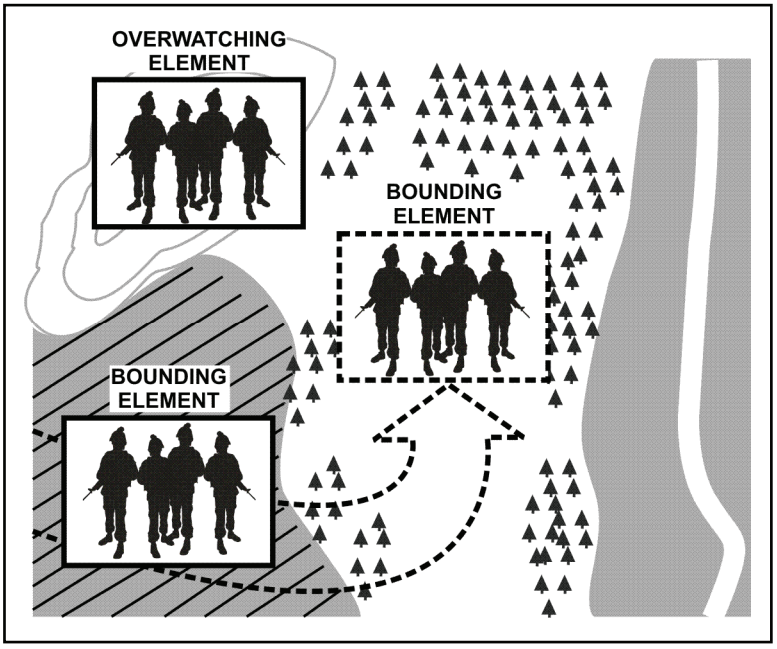


Figure 5-22. Dismounted elements bounding by squad

5-54. "Move-set" is a C2 procedure to control elements when moving using bounding overwatch. "Set" means that the element has arrived at its destination and has occupied a position from which it can observe to its front, which triggers the overwatch element to move. This procedure allows for the use of hand-and-arm signals, verbal or via radio. The move-set procedure can be used at all echelons for successive and alternating bounds.

ACTIONS ON CONTACT

5-55. Prior to any mission, the leadership of the reconnaissance or scout platoon must conduct a detailed IPB (covered in Chapter 1 of this manual) of the AO as part of analyzing the mission during troop-leading procedures. Leaders must determine the probability of contact and identify locations where contact is most likely to occur. To do this, they use information from all available assets, including UASs, ground surveillance system reports on FBCB2, information collected by dismounted patrols, and intelligence from the S-2. The leaders are then able to plan for contact and determine how to employ movement techniques, battle drills, and TTP to avoid chance contact.

CONTACT CONSIDERATIONS

5-56. The platoon leader will direct the platoon's actions based on the commander's intent and guidance he receives from the OPORD/FRAGO. These specific instructions must include focus of the reconnaissance, tempo of the operation, engagement criteria, and the desired COA based on the size and activity of the enemy force encountered. By knowing these details ahead of time, the platoon leader can develop the situation more rapidly and arrive at and execute the desired COA. He strives to make contact with combat multipliers (such as ground surveillance systems assets or UASs) or with the platoon's smallest possible internal element: the dismounted scout. The goal is digital or visual contact in which the enemy is observed but the platoon remains undetected. The ideal way for the platoon to make contact is by means of reports from other ISR assets (such as UASs or ground surveillance systems). This gives the platoon the greatest possible flexibility to maneuver and develop the situation.

5-57. When the platoon deploys and reports, it employs the fundamental techniques of tactical movement (dismounted/mounted) and action drills, using the terrain to ensure effective cover and concealment. As information becomes available, the element in contact sends a contact report, followed by a SPOTREP

(digital/analog). The platoon executes fire and maneuver only in accordance with engagement criteria and the ROE.

5-58. FBCB2 will allow immediate dissemination of this information. The platoon leader can then evaluate and develop the situation out of direct fire contact. Based on this evaluation and further guidance from higher, he can maneuver the platoon out of direct fire contact and refine sensory contact either on his own terms or as directed by the commander.

Note. Making sensory contact prior to direct fire contact is ideal. However, elements at all echelons must be well rehearsed on the execution of actions on direct fire contact.

THE EIGHT FORMS OF CONTACT

5-59. No matter how thoroughly the platoon leader prepares for an operation, direct contact with the enemy is still a possibility, usually as a result of chance contact. In all types of operations, contact occurs when an individual Soldier, squad, or section of the platoon encounters any situation that requires an active or passive response to the enemy. These situations may entail one or more of the following forms of contact:

- Visual contact (friendly elements may or may not be observed by the enemy).
- Physical contact (direct fire) with an enemy force.
- Indirect fire contact.
- Contact with obstacles of enemy or unknown origin.
- Contact with enemy or unknown aircraft.
- Situations involving CBRN conditions.
- Situations involving EW tactics.
- Situations involving nonhostile elements, such as civilians.

Note. An emerging type of visual contact is sensor contact. For example, contact may be detected by UASs or remote equipment covering a dead space or movement route, alerting scouts of a possible enemy in the area.

INITIAL CONTACT AND REACTION

5-60. The platoon must be prepared to execute actions on contact under any of the following conditions:

- Visual contact (the platoon is undetected by the enemy force).
- Direct or indirect fire contact with an unknown or superior force.
- Direct or indirect fire contact with an inferior force.

5-61. Whether the platoon remains undetected or is identified by enemy forces, it must first take actions to protect itself, find out what it is up against, and decide on a COA. To properly execute actions on contact, the platoon must take action consistent with the fundamentals of reconnaissance (refer to Chapter 3 of this manual for a detailed discussion):

- Develop the situation rapidly.
- Report quickly and accurately.
- Maintain contact with the enemy in accordance with the mission.
- Retain the freedom to maneuver.
- Remain focused on the reconnaissance objective.

THE FIVE STEPS OF ACTIONS ON CONTACT

5-62. When contact is made, the reconnaissance or scout platoon executes battle drills, designated by SOP, to maintain freedom of maneuver and avoid becoming decisively engaged. It uses the five steps of actions on contact (covered in detail later in this section) as the foundation for these drills:

- Deploy and report.
- Evaluate and develop the situation.
- Choose a COA.
- Execute the selected COA.
- Recommend a COA to the higher commander

5-63. The steps that make up actions on contact must be thoroughly trained and rehearsed so that the platoon can react instinctively as a team whenever it encounters enemy forces.

Step 1 – Deploy and Report

5-64. When a scout makes contact with the enemy, he reacts according to the circumstances of the contact. The section or squad that makes initial visual contact with the enemy deploys to covered terrain that affords good observation and fields of fire. If the scouts receive fire from the enemy, they return fire, but only with the intent of breaking direct fire contact.

Note. Refer to the eight general categories of contact discussed earlier in this section.

5-65. The scout or element in contact sends a contact report to the platoon leader and follows as soon as possible with a SPOTREP using the SALUTE format (size, activity, location, unit, time, and equipment). If the scout or element in contact is unable to report or cannot report quickly, another squad in the section must report.

5-66. Scouts that are not in contact temporarily halt in covered terrain, monitor the incoming reports, and plot the situation on their maps. Once they determine that they cannot be influenced by the enemy or are not needed to support the element in contact, they continue their mission with the platoon leader's approval. The platoon leader or PSG relays the contact report to the commander, followed as soon as possible by a SPOTREP and updates.

Step 2 – Evaluate and Develop the Situation

5-67. The scouts next concentrate on defining what they are up against. If they have not sent a SPOTREP to this point, they initially focus on getting enough information to send one. If they have not been detected by the enemy and time is available, the scouts reconnoiter the enemy position, emphasizing stealth, dismounted reconnaissance, and use of such assets as ground surveillance systems and UASs.

5-68. If the enemy is aware of their presence, the scouts use a combination of mounted and dismounted reconnaissance. They conduct dismounted reconnaissance to get detailed information on enemy dispositions. Mounted reconnaissance will be used to move additional assets into the area to support the element in contact.

5-69. When direct fire contact occurs, the reconnaissance or scout platoon employs indirect and direct fires to suppress and/or fix the enemy while maneuvering to get information. The scouts attempt to confirm or determine in detail enemy size, composition, activity, orientation, and weapon system locations. They search for AT ditches, minefields, wire, or other obstacles that could force friendly elements into an enemy engagement area. The scouts find the flanks of the enemy position and look for other enemy elements that could provide mutual support to the position. Once the scouts determine what they are up against, the platoon leader updates the SPOTREP.

Step 3 – Choose a COA

5-70. Developing the situation is a critical step in choosing the correct COA and providing an accurate, timely report to the commander. Once the platoon leader has enough information to make a decision, he selects a COA that is within the capabilities of the platoon, that allows the platoon to continue the reconnaissance as quickly as possible, and that supports the commander's concept of the operation. He considers various possible COAs, based on well-developed TTP and battle drills, to react appropriately to the types of contact the platoon may encounter. At a minimum, the platoon must rehearse and be ready to execute these potential COAs:

- Disengage from enemy contact.
- Break contact and bypass.
- Maintain contact and bypass.
- Maintain contact to support an attack on an inferior force.
- Conduct an attack against an inferior force.
- Conduct a hasty defense.
- Conduct RHO.
- Conduct BHO, if applicable.

5-71. Once the element in contact has developed the situation and the platoon leader has enough information to make a decision, he selects a COA. He ensures that the COA is within the capabilities of the platoon, that it allows the scouts to continue the reconnaissance as quickly as possible, and that it supports the commander's concept of the operation and intent. The platoon leader should consider all available COAs, including those outlined in the following discussion.

Disengage from Enemy Direct or Indirect Fire Contact

5-72. The reconnaissance or scout platoon cannot conduct its mission if it becomes decisively engaged. If it is engaged, the platoon must have a plan to break direct or indirect fire contact with the enemy. As a general rule, the platoon, section, or squad should disengage from the enemy as soon as direct or indirect fire contact occurs. This will allow for continuation of the mission and reduce the chance of any loss of combat power.

5-73. At platoon level, OPs or patrols gain contact with the enemy, then report and prepare to displace to successive positions. These platoon members should report the enemy contact to the overwatching vehicles and to the platoon leader.

5-74. When the enemy force triggers the OPs' displacement criteria (the point at which the OPs must displace or risk detection and/or engagement by the enemy), the OPs pass off responsibility for tracking the enemy to other OPs in depth. The platoon then displaces its OPs to successive positions in depth while maintaining contact with the enemy. Patrols request permission to return to the platoon vehicles. When permission has been granted, they use covered and concealed routes back to the vehicle positions and remount the vehicles.

5-75. Once the initial contact has been reported to higher headquarters and the order to break contact has been given, disengagement should be executed with one section or squad acting as overwatch for the displacing section/squad as it moves. The section or squad that moves first will keep its weapon systems oriented on the enemy as it uses covered and concealed routes to move to a designated rally point that precludes enemy observation and provides cover and concealment. This element may also use on-board smoke generators or obscurant munitions (such as grenades) to cover its movement. The overwatching section/squad provides suppressive fires, both indirect and direct (if necessary), to cover the movement of the displacing section/squad. Mortars can also provide effective and responsive support when elements must break contact. The overwatching section must also employ its dismounts with the Javelin missile system.

5-76. Once the displacing section/squad has arrived at the rally point, it takes up defensive positions and reports its arrival to the overwatch section/squad. The overwatching element then calls for protective fires

and uses an alternate covered and concealed route to move to the rally point. When the entire platoon or section has moved back to the rally point, it consolidates and reorganizes, reports its status to the higher headquarters, and continues the mission. Figure 5-23 illustrates a situation in which a reconnaissance or scout platoon breaks contact by sections.

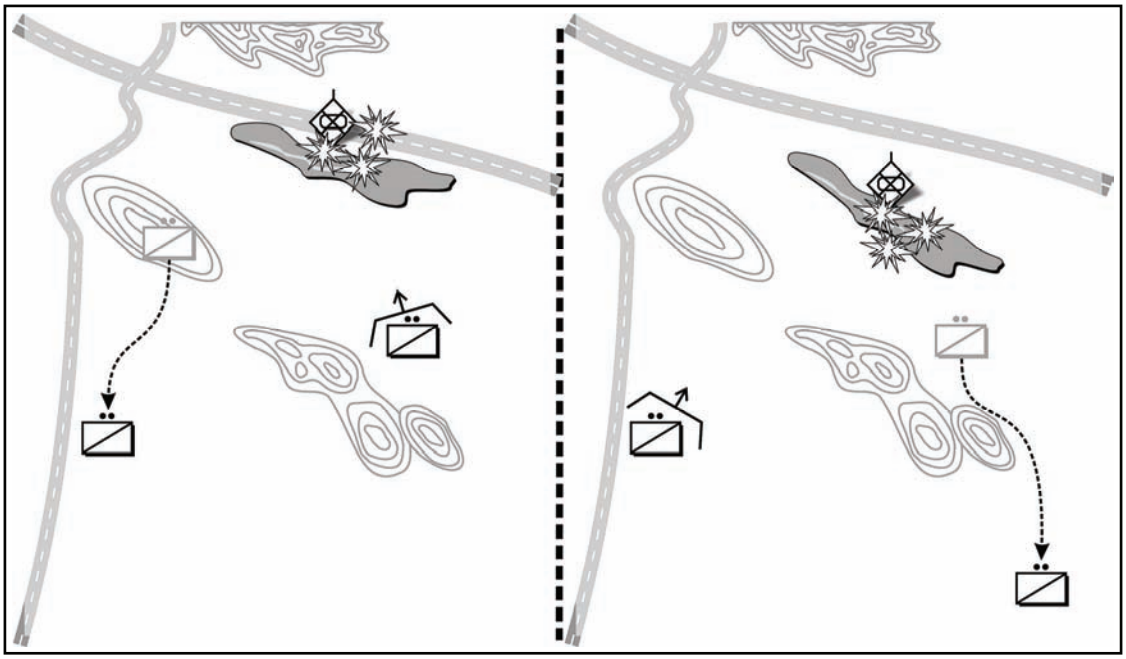


Figure 5-23. HBCT reconnaissance platoon disengages from contact

Break Contact and Bypass

5-77. This COA may be selected when the platoon does not have the resources to leave an element in contact and still continue to accomplish its priority reconnaissance tasks. It may also be selected when the platoon has made contact with an enemy force that cannot adversely affect the mission of the platoon's higher headquarters. Because breaking contact is a violation of reconnaissance fundamentals, the platoon leader must be sure that his higher headquarters is informed of and approves this COA (refer to Figure 5-24 and Figure 5-25).

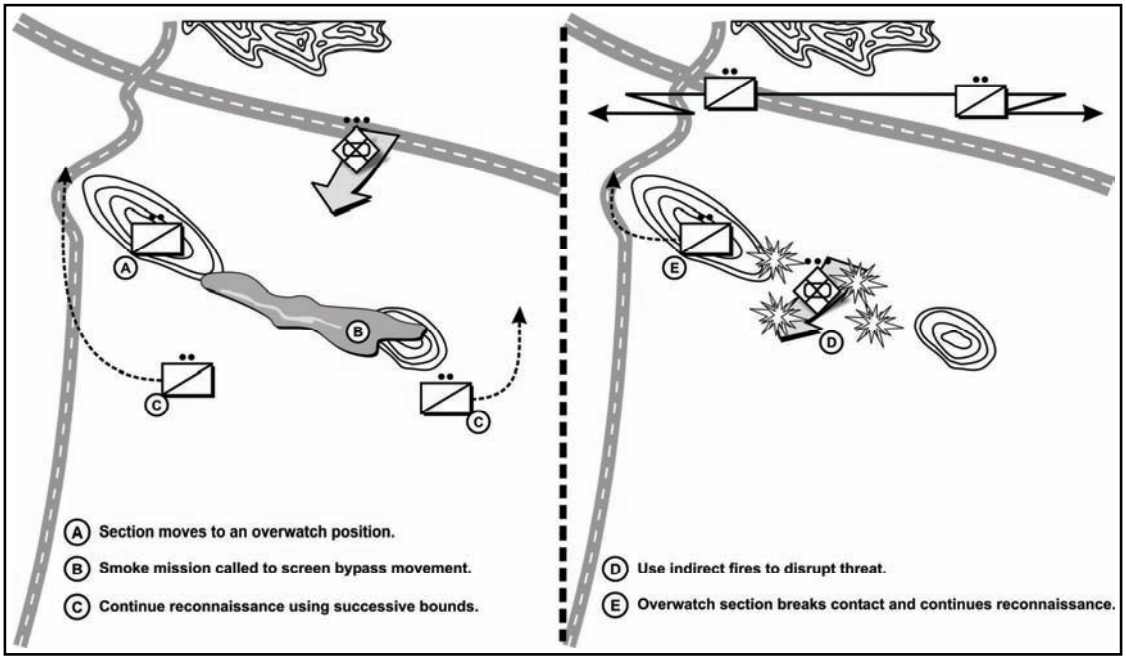


Figure 5-24. HBCT reconnaissance platoon breaks contact and conducts bypass

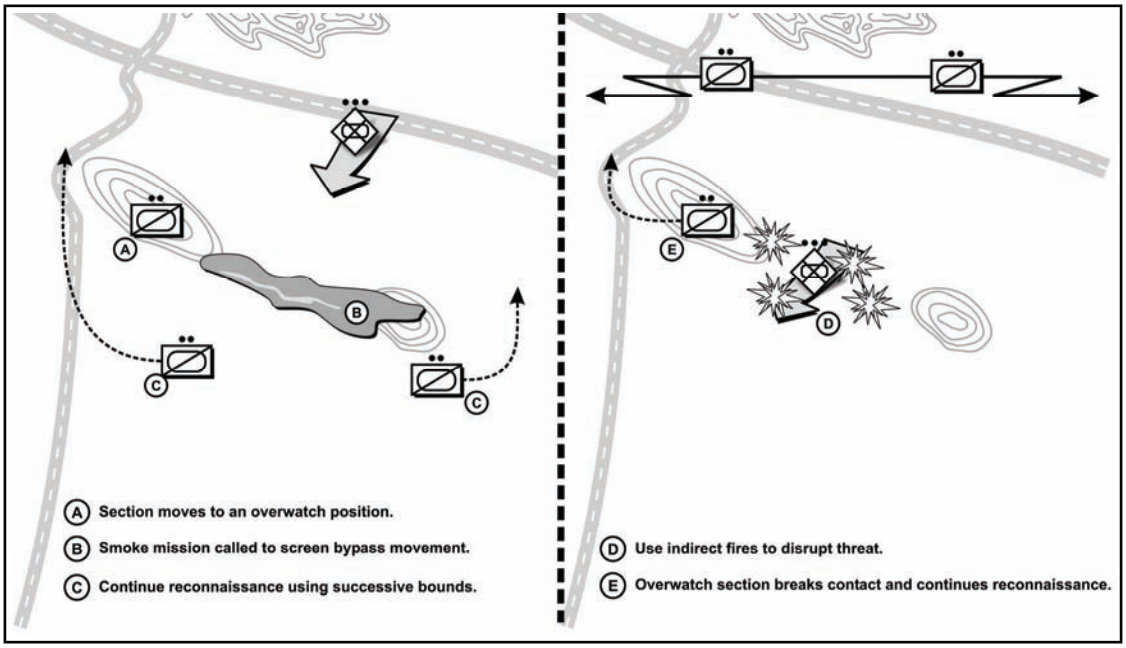


Figure 5-25. ACR scout platoon breaks contact and conducts bypass

Maintain Contact and Bypass

5-78. This COA is appropriate when an enemy force, based on its current disposition, is not in a position to influence the platoon's higher commander. An element (normally a section or squad) will be left to maintain contact while the rest of the platoon continues the reconnaissance mission. The element that remains in contact will maintain visual contact with the enemy and report if the enemy situation changes. The platoon must keep scouts in contact with the enemy unless specifically authorized to do otherwise.

Depending on the applicable task organization, the platoon leader must carefully assess METT-TC before selecting this COA. Mission constraints may force the platoon leader to leave one vehicle in contact. If this is the case, he must ensure that the vehicle is AT-heavy (Javelin/TOW). To regain the use of all his assets, the platoon leader continues coordination to execute reconnaissance or to conduct BHO of the contact with a follow-on element (refer to Figures 5-26 through 5-28).

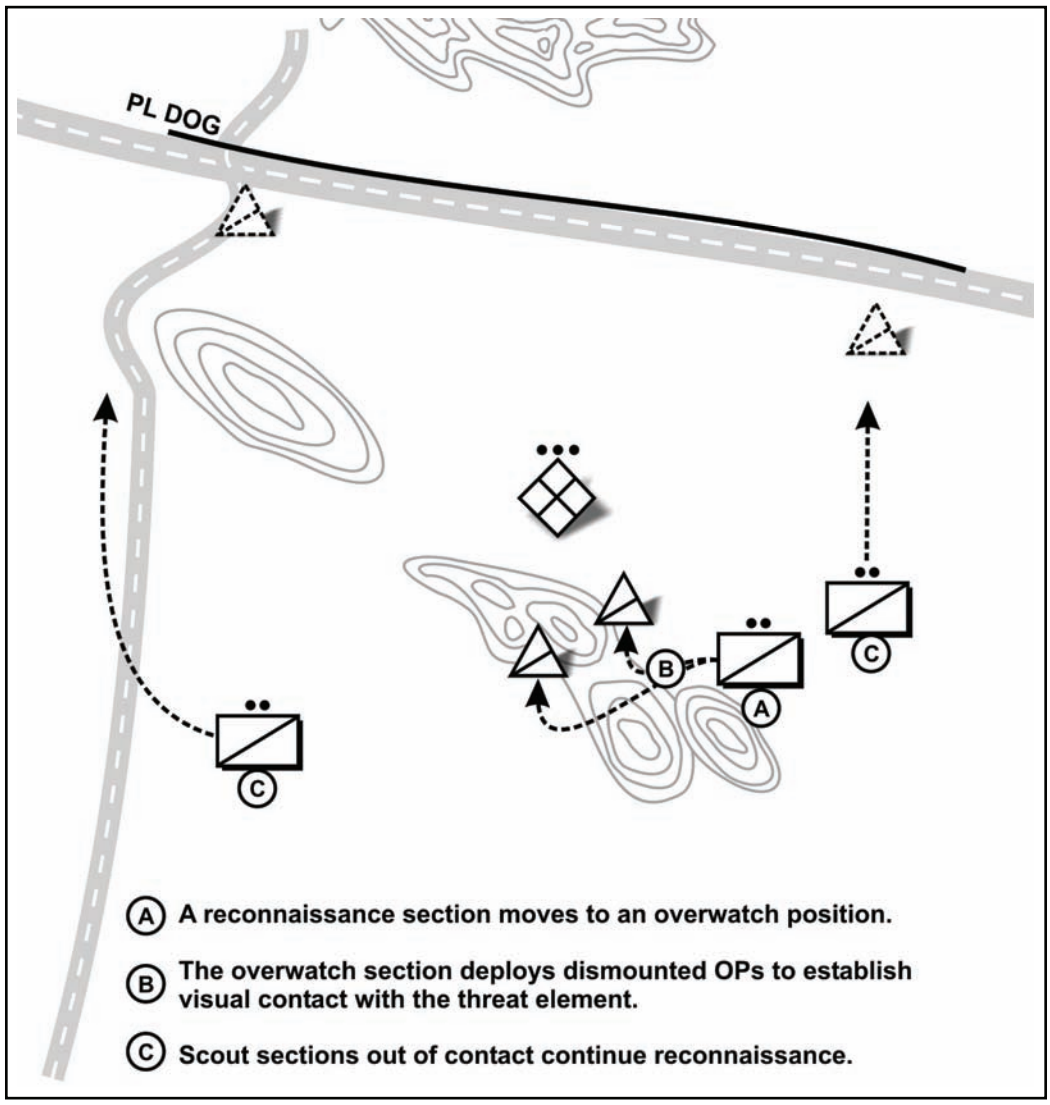


Figure 5-26. HBCT reconnaissance platoon maintains contact and conducts bypass (phase one)

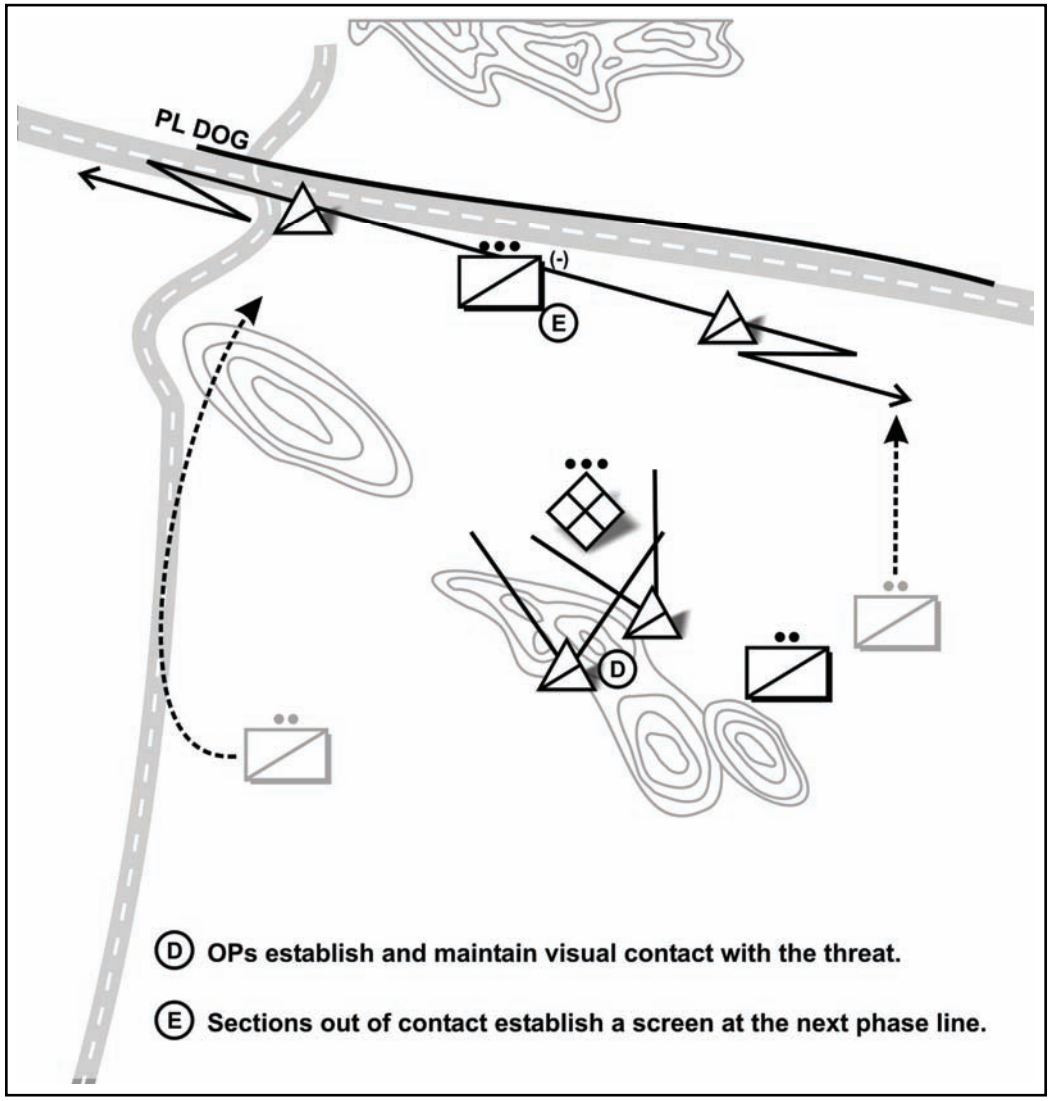


Figure 5-27. HBCT reconnaissance platoon maintains contact and conducts bypass (phase two)

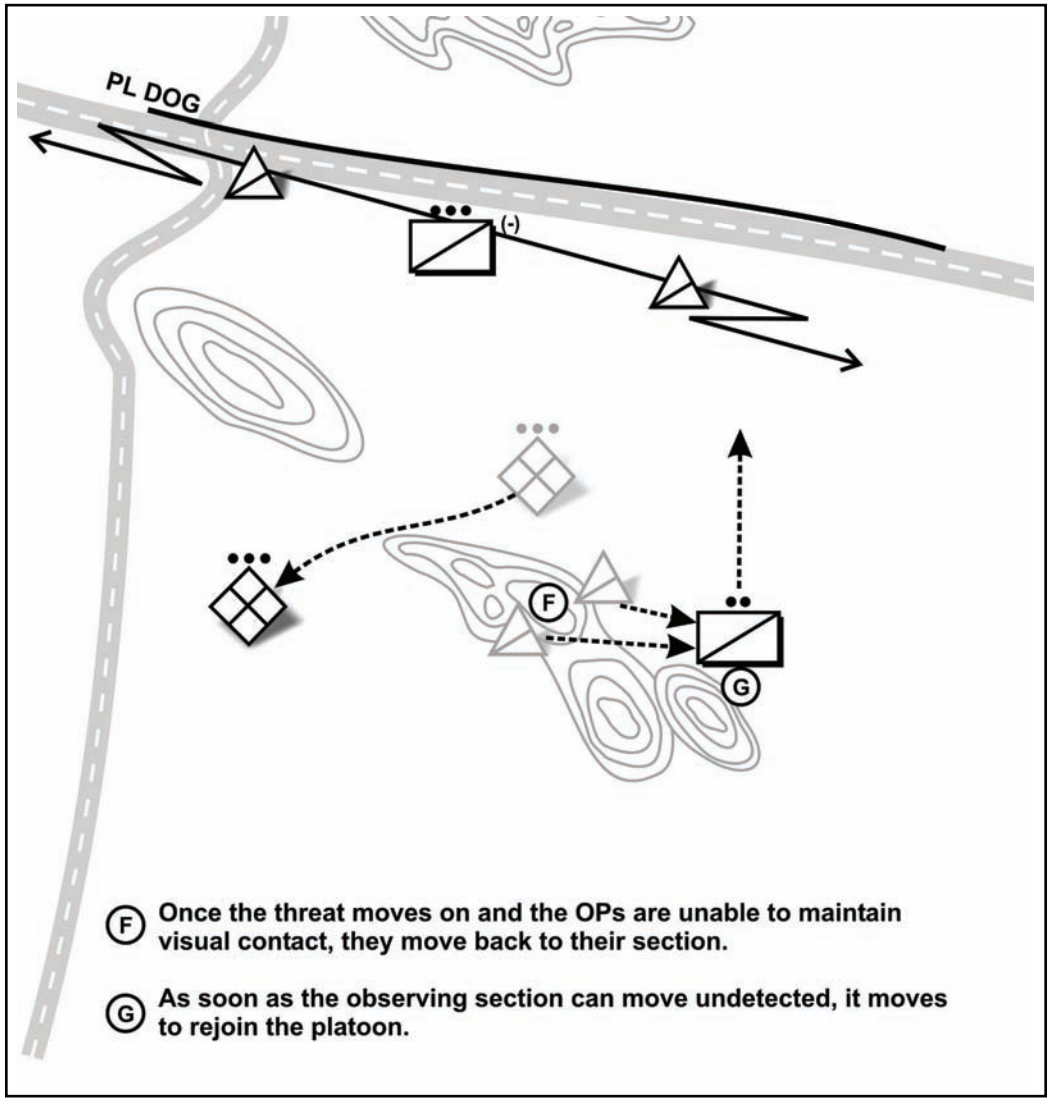


Figure 5-28. HBCT reconnaissance platoon maintains contact and conducts bypass (phase three)

Maintain Contact to Support a Hasty Attack

5-79. This COA is appropriate when the platoon discovers enemy elements the higher commander wants to destroy, but which the scouts cannot destroy, either because they lack sufficient combat power or because they have other tasks to perform. In this situation, the platoon maintains contact by leaving a section or squad in contact. The rest of the platoon continues on to establish far-side security, monitor any changes in the enemy situation, and support the hasty attack by a friendly unit.

5-80. The platoon focuses on requirements for supporting a successful friendly attack, including the following:

- Locating covered and concealed movement routes for friendly attacking units.
- Locating attack positions.
- Locating enemy positions (within capability).
- Locating enemy weak points.
- Locating enemy LOCs. Many times this will be the enemy egress route from friendly forces.

- Establishing a contact point to link up with, brief, and guide the friendly unit as necessary.
- Designating a phase line to use as a handover line for the attacking unit.
- Preparing and coordinating fire support for the friendly attack.
- Locating and preparing to occupy base of fire positions, if required.

5-81. It is essential that the section or squad left in contact understand what needs to be accomplished, who will be executing the attack, and when the unit responsible for the attack anticipates being in position to receive handover of the enemy. As the unit moves into position, the scouts in contact may rejoin the platoon or be placed OPCON to the attacking unit to ease command, control, and coordination (see Figures 5-29 through 5-34).

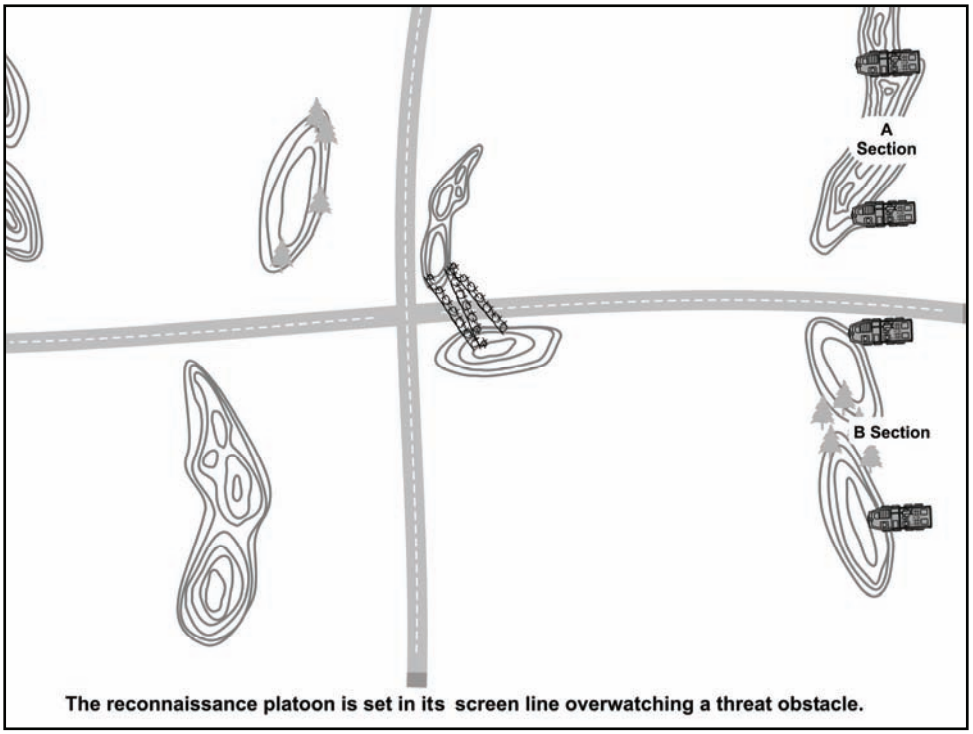


Figure 5-29. Platoon maintains contact to support a hasty attack (phase one)

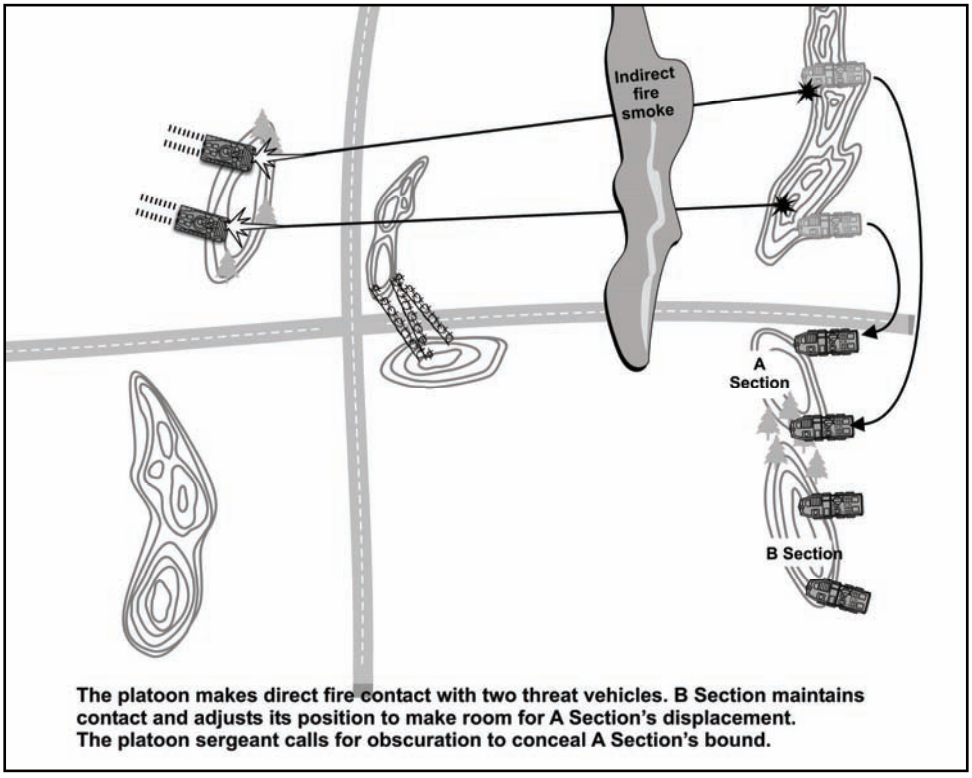


Figure 5-30. Platoon maintains contact to support a hasty attack (phase two)

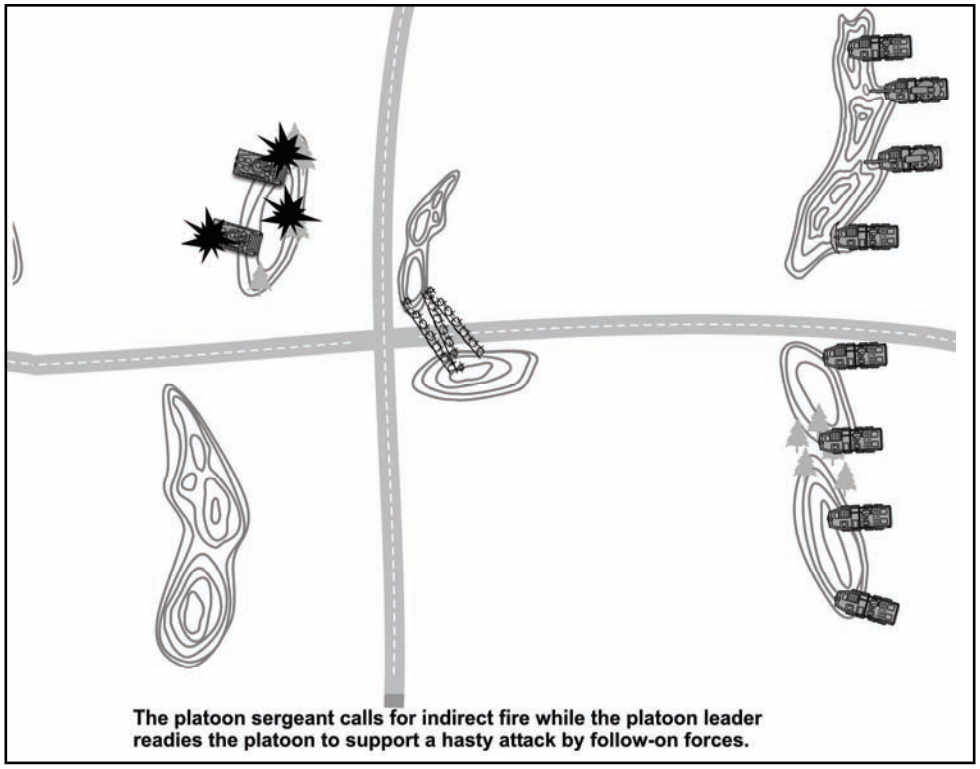


Figure 5-31. Platoon maintains contact to support a hasty attack (phase three)

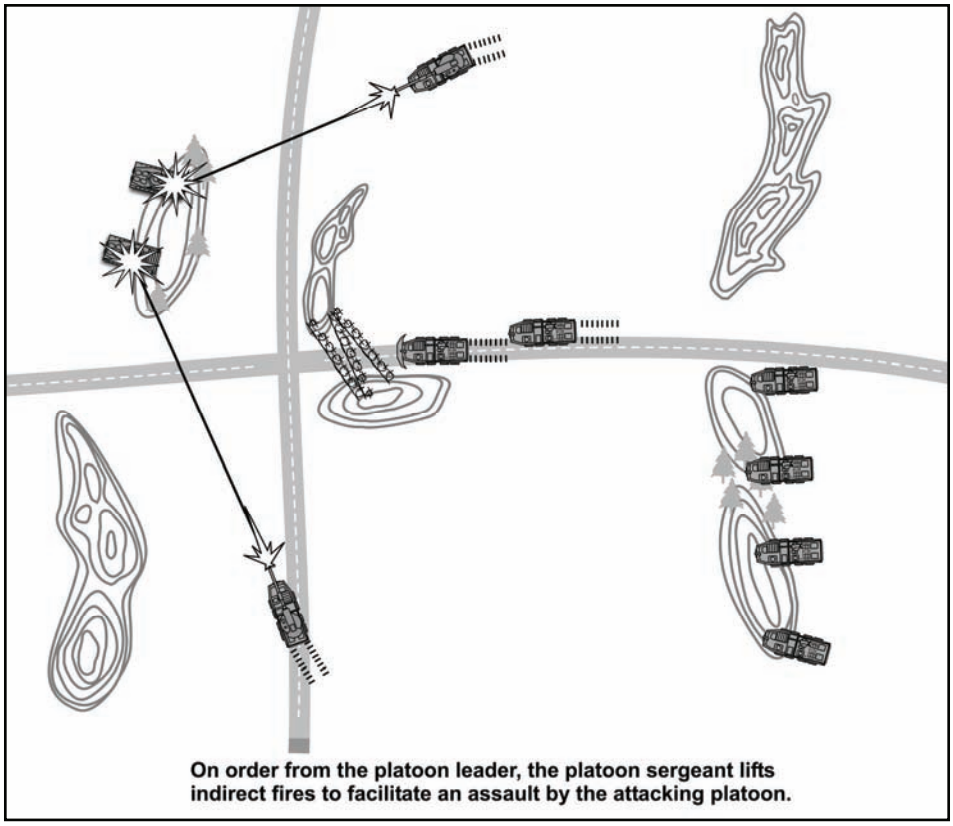


Figure 5-32. Platoon maintains contact to support a hasty attack (phase four)

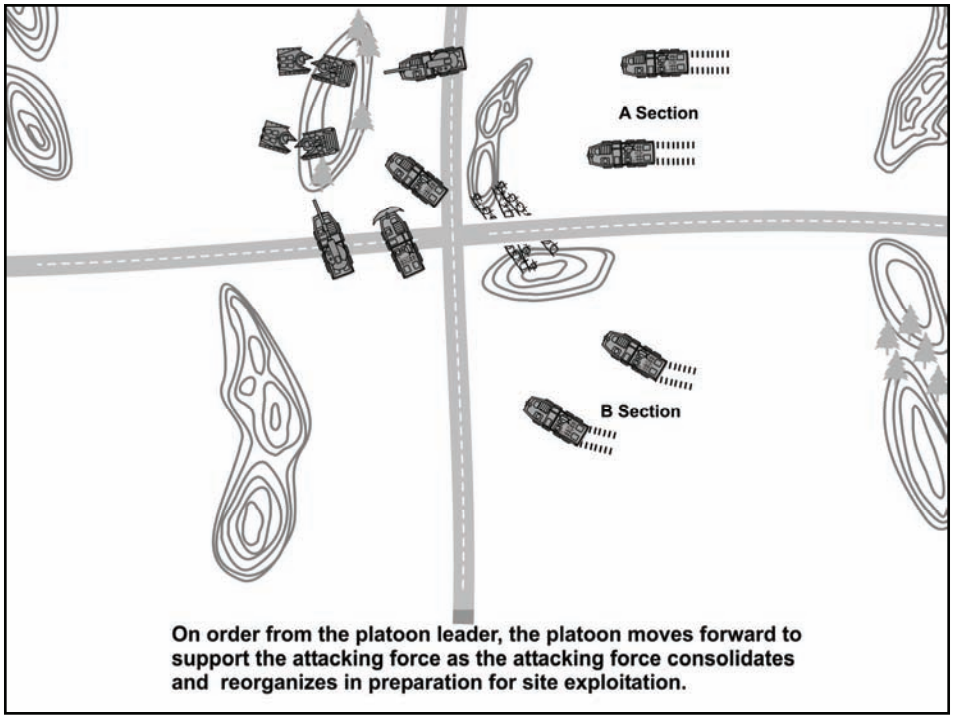


Figure 5-33. Platoon maintains contact to support a hasty attack (phase five)

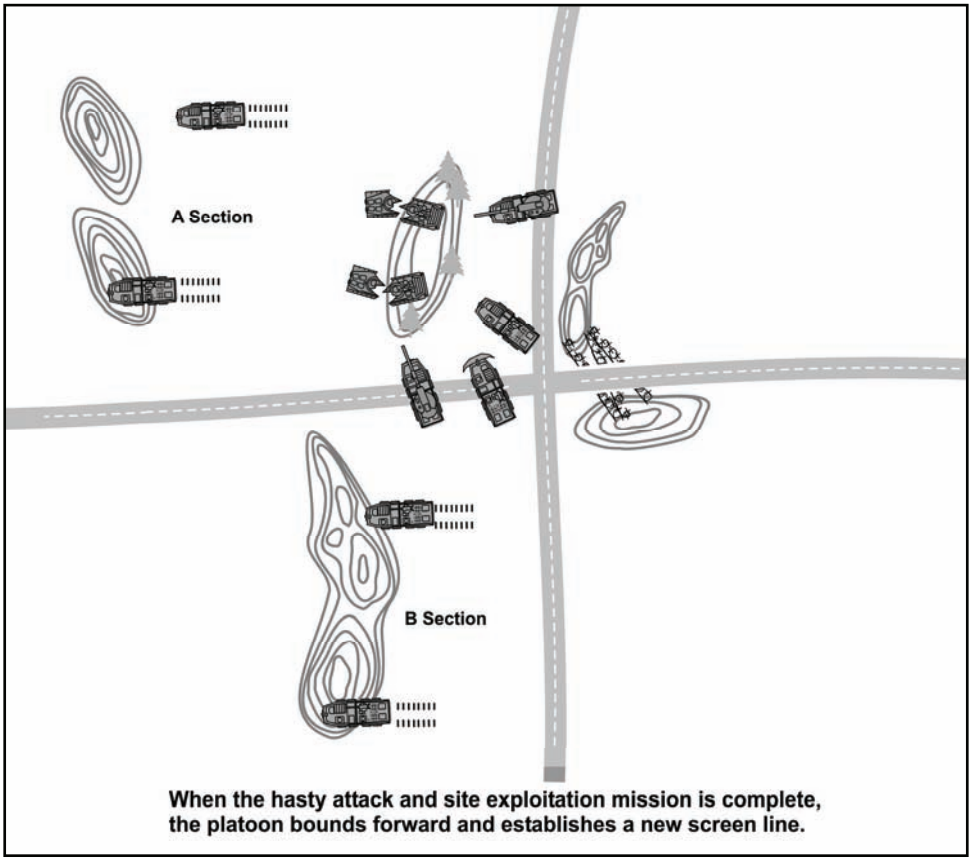


Figure 5-34. Platoon maintains contact to support a hasty attack (phase six)

Attack an Inferior Force

5-82. In most cases, the reconnaissance platoon cannot, or should not, mass its combat power to defeat an enemy force. If the scouts mass, they risk losing the capability to complete their mission as well as jeopardizing their ability to conduct subsequent missions. If the scouts are permitted to engage the enemy, they should only attack lightly armored or unarmored reconnaissance vehicles, such as motorcycles or Soviet-style BRDMs and BTRs. They should not engage more heavily armored vehicles except in self-defense (see Figures 5-35 through 5-38).

Note. Maneuver of elements used to isolate the enemy should always be coordinated through the use of detailed fire control measures, which are in turn rehearsed by all maneuver elements (radio rehearsal/backbrief at a minimum).

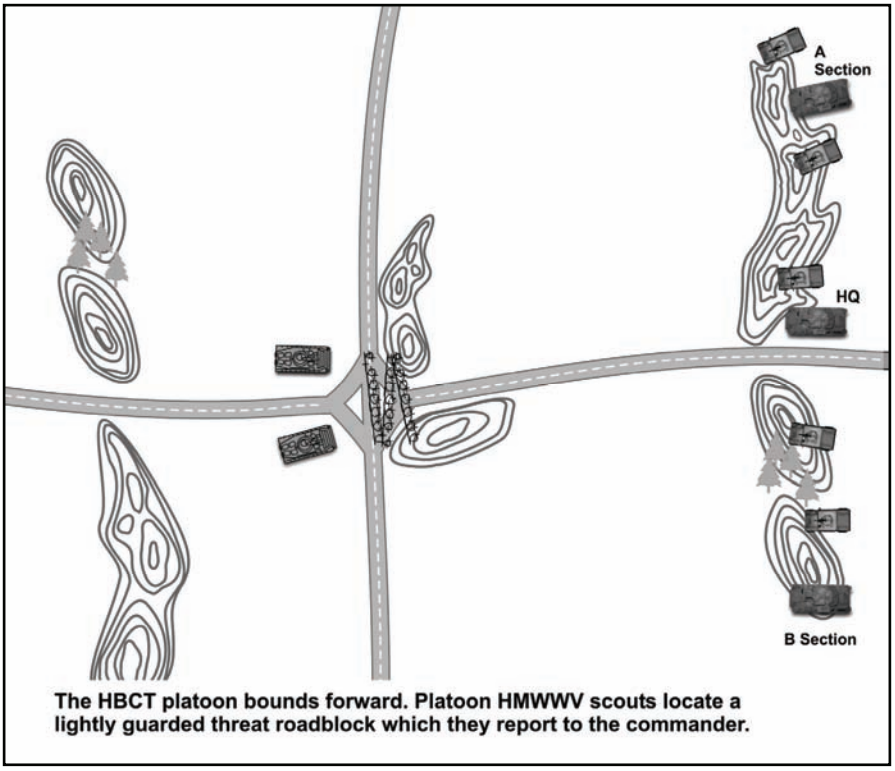


Figure 5-35. Platoon attacks an inferior force (phase one)

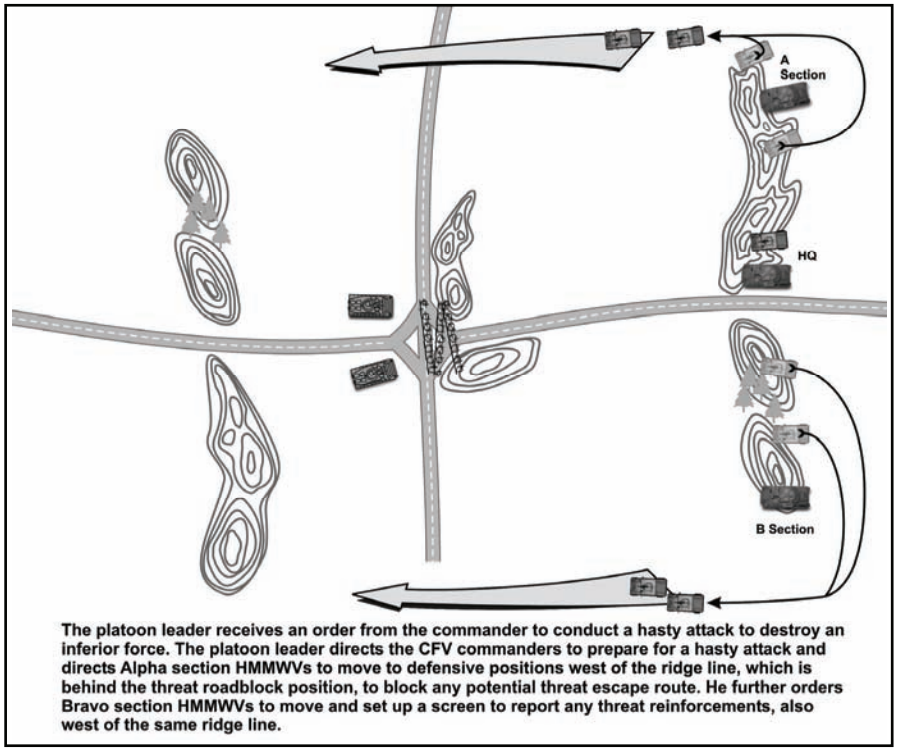
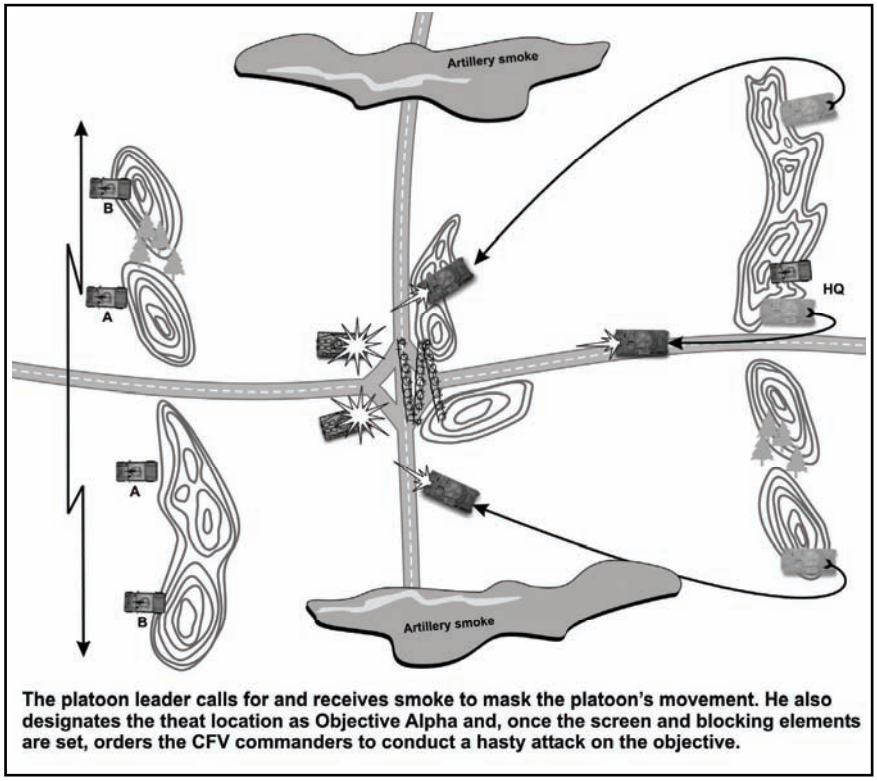
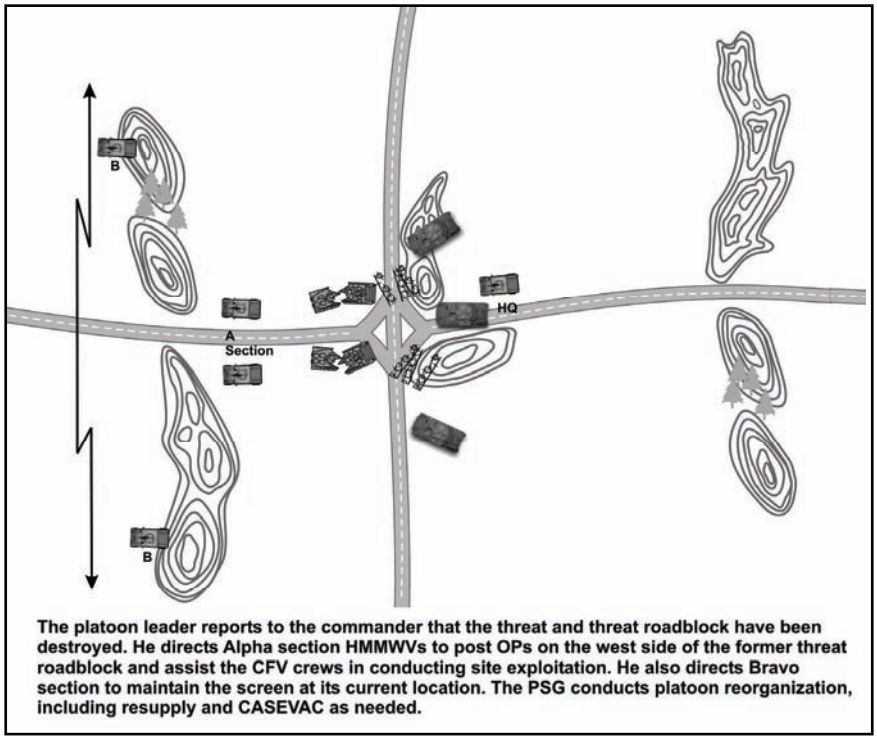


Figure 5-36. Platoon attacks an inferior force (phase two)



The platoon leader calls for and receives smoke to mask the platoon's movement. He also designates the theat location as Objective Alpha and, once the screen and blocking elements are set, orders the CFV commanders to conduct a hasty attack on the objective.

Figure 5-37. Platoon attacks an inferior force (phase three)



The platoon leader reports to the commander that the threat and threat roadblock have been destroyed. He directs Alpha section HMMWVs to post OPs on the west side of the former threat roadblock and assist the CFV crews in conducting site exploitation. He also directs Bravo section to maintain the screen at its current location. The PSG conducts platoon reorganization, including resupply and CASEVAC as needed.

Figure 5-38. Platoon attacks an inferior force (phase four)

Establish a Hasty Defense

5-83. The platoon will establish a hasty defense if it cannot bypass the enemy, all the sections and/or squads are fixed or suppressed, and the platoon no longer has the ability to move forward. A hasty defense will also be used when the enemy executes a hasty attack. The platoon maintains contact or fixes the enemy in place until additional combat power arrives or the platoon is ordered to move (see Figures 5-39 through 5-41). If the platoon is required to conduct a hasty defense, the commander then becomes responsible for continuing to develop the situation.

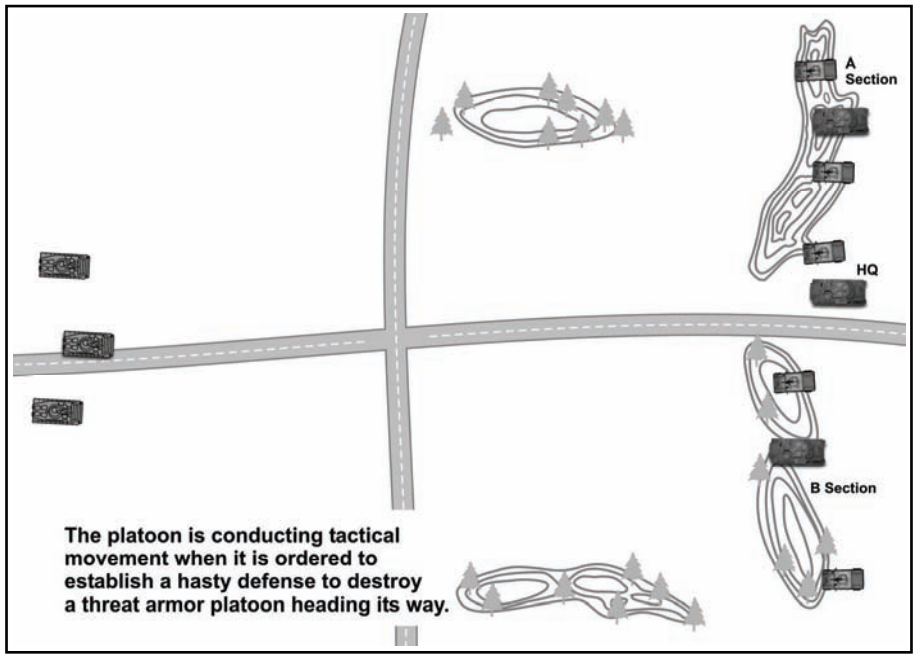


Figure 5-39. Platoon establishes a hasty defense (phase one)

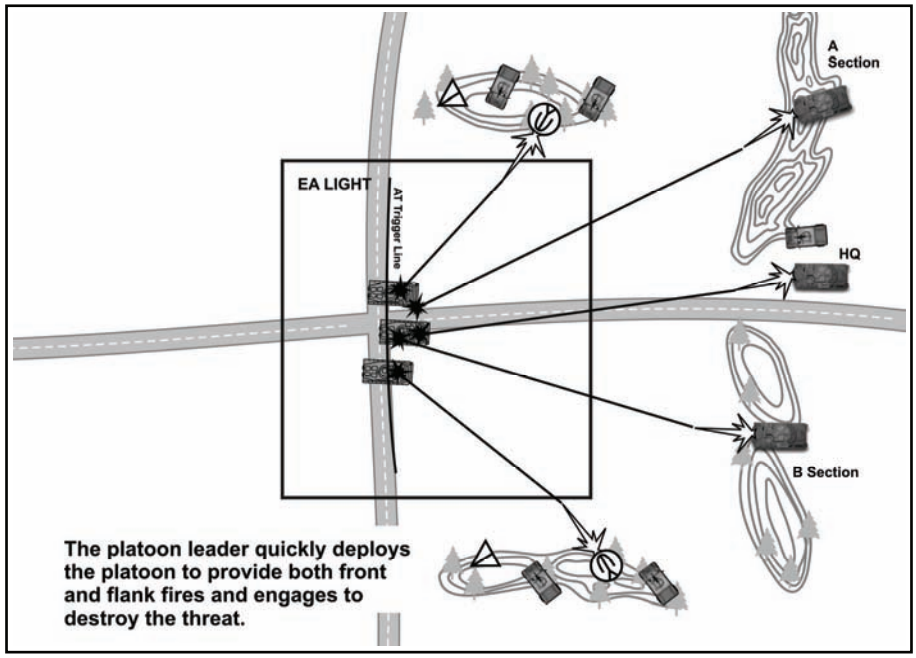


Figure 5-40. Platoon establishes a hasty defense (phase two)

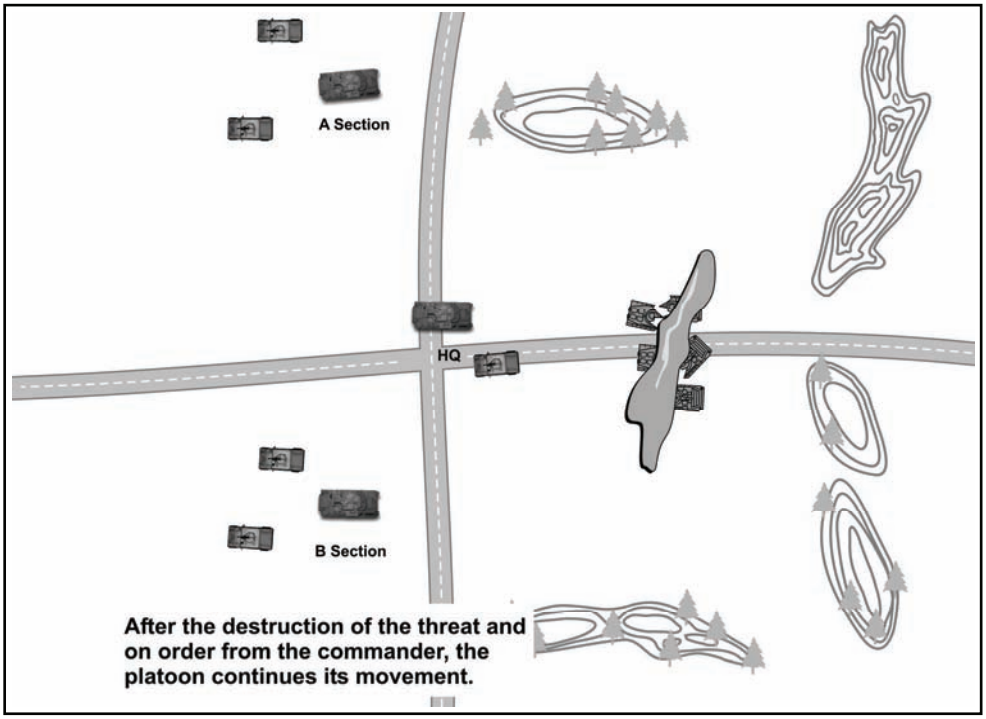


Figure 5-41. Platoon establishes a hasty defense (phase three)

Conduct Reconnaissance Handover

5-84. The platoon leader will attempt to conduct RHO. He does this for several tactical reasons: to continue operations as directed, to regain use of all his elements, or to pass reconnaissance responsibility for the enemy element to another friendly element. An example of this is a BCT platoon handing over an enemy element to a task force reconnaissance platoon to maintain contact. Refer to the discussion of RHO in Chapter 3 of this manual.

Conduct Battle Handover

5-85. This COA is applicable for reasons similar to those for RHO: to continue operations, to regain use of all elements, or to hand over contact to an element that usually will then engage and destroy the enemy force. An example of BHO is a task force reconnaissance platoon handing over an enemy element to a tank company team for destruction.

Step 4 – Execute the Selected COA

5-86. The platoon leader updates his SPOTREP to the commander with any new information and then recommends a COA to the commander. The commander approves or disapproves the recommended COA based on how it will affect the parent unit's mission.

5-87. If the commander and the S-2 have anticipated the enemy situation the platoon is reporting, they will already have addressed the contingency in the OPORD and given guidance to their subordinates on what COA the platoon should execute. In such a case, the platoon leader can evaluate the situation, choose a COA consistent with his higher commander's intent or concept, and execute it without further guidance. He keeps the commander informed of what he is doing as he executes the COA.

Step 5 – Recommend a COA to the Higher Commander

5-88. The platoon leader develops a COA to recommend to the higher commander in accordance with that commander's intent and the enemy situation. The recommended COA will be relayed to the commander as quickly as possible, followed by a confirmation brief to ensure mutual understanding of the concept of the COA.

EXAMPLES OF ACTIONS ON CONTACT

5-89. The following examples illustrate actions on contact in a variety of tactical situations. They are organized using the five-step process.

Visual Contact (Undetected by the Enemy)

Deploy and Report

5-90. A reconnaissance section or squad makes contact when its dismounted element identifies an enemy force. It immediately sends a contact report informing the platoon leader that it has made visual contact with the enemy but is not being engaged. This report is quickly followed by an initial SPOTREP.

Evaluate and Develop the Situation

5-91. Based on the initial SPOTREP of the section or squad in contact, the platoon leader determines that he has located his primary reconnaissance objective; he orders additional sections or squads to maneuver into the area. These reconnaissance elements move to dismount points, set their vehicles in hide positions, and send dismounted patrols from different directions into the area of contact.

5-92. The patrols move to multiple vantage points using dismounted reconnaissance techniques, with the emphasis on avoiding detection. As they develop new information, they send SPOTREPs to the platoon leader. The platoon leader moves his element to a covered and concealed hide position where he can maintain effective communications with both subordinate elements and higher headquarters. From this position, he establishes local security (a hasty OP) and monitors and controls the efforts of his sections or squads.

Choose a COA

5-93. When the platoon leader receives sufficient reports to have a clear picture of the situation, he chooses to prepare to support a hasty attack. This choice is made because the platoon leader determines that the force he has located is the objective of his commander; therefore, this COA is in accordance with his commander's intent. After determining that the commander's intent has not changed, the platoon leader recommends the COA to the commander and requests that the platoon execute it. He ensures that he receives clear guidance from the commander before moving on to the execution step.

Execute the Selected COA

5-94. The platoon leader issues a FRAGO directing his subordinates to prepare to support the hasty attack. He continues to inform his commander of the enemy situation and the platoon's actions.

Recommend a COA to the Higher Commander

5-95. The platoon leader develops and recommends a COA to the higher commander based on an opportunity he identifies during the developing actions on contact. The opportunity—and resulting COA—is based on the platoon leader's understanding of the commander's intent. Once he identifies the opportunity, the platoon leader relays the recommended COA to the commander as quickly as possible. The platoon leader uses a confirmation brief to ensure mutual understanding of the concept of the COA (opportunity).

Contact with an Unknown or Superior Force

Deploy and Report

5-96. The scouts make direct fire contact as the lead platoon vehicle is engaged. The lead scout and the overwatch see the signature of the enemy weapon system; since they do not have a clear idea of the size of the enemy, they react as if it were a superior force. Simultaneously, the lead element returns fire, sends a contact report, employs obscurant munitions, and moves to the nearest hide position. The overwatch vehicle engages the source of enemy fire by calling for mortar support and monitors to ensure the contact report is sent. As soon as the lead vehicle is in a covered and concealed position, the overwatch vehicle moves to an alternate firing position and occupies a hide position while trying to maintain visual contact with the smallest element, if possible.

5-97. The section or squad leader follows up on the contact report with an initial SPOTREP. This initial report may not be very detailed, but it includes a description of what happened and the enemy's approximate location.

Evaluate and Develop the Situation

5-98. Once the section or squad is set in cover and concealment and has submitted its initial reports, it must develop the situation. The objective is to determine exactly what the enemy situation is by dismounted reconnaissance or use of ground surveillance systems /UASs. This can best be done by moving to the enemy's flank or rear. The section/squad leader organizes a hasty reconnaissance patrol that will attempt to move to the flank or rear of the enemy and observe the enemy position. Simultaneously, the section or squad maintains at least one hasty OP in visual contact with the enemy. As the dismounted element maneuvers, it is supported by direct fire from the vehicles, by indirect fire called for by the OP, or by both. These fires serve to suppress the enemy, reducing its ability to observe the scouts; they also fix the enemy's attention on the last known location of the mounted element.

Note. Leaders must coordinate strict fire control measures to reduce the risk of fratricide whenever friendly elements maneuver to the flank or rear of an enemy force. Leaders must ensure that the intent of the fire control measures is understood using confirmation briefs (verbal, radio, or digital) by subordinates prior to movement. All leaders who leave potential support by fire (SBF) positions or OPs must ensure clear understanding of a five-point contingency plan.

5-99. In the course of attempting to develop the situation, the section or squad may determine that it is unable to determine the exact enemy situation for a number of possible reasons: suppressive fires by the enemy; obstacles; combat losses; or the size and extent of the enemy position. This information is sent to the platoon leader as soon as possible in the form of updates to the original SPOTREP.

5-100. If this occurs, the platoon leader must decide whether to commit additional platoon assets to the enemy contact to develop it further or whether to seize the initiative and implement a COA based on the information available within the guidelines of the commander's intent. If the platoon leader determines he needs more information, he may commit additional assets to develop the situation further. He must also use available combat multipliers such as ground surveillance systems or UASs. The platoon leader makes this decision as soon as possible after contact; however, he must not commit unneeded resources to an action that will detract from other reconnaissance tasks.

5-101. If he decides additional assets are required, the platoon leader then orders other sections or squads not in contact to move to specific locations and assist in developing the situation. As more than one section or squad becomes involved in the situation, the platoon leader or PSG (whoever is in the best location to do so) takes control of coordinating their efforts. The elements conduct mounted movement to designated dismount points, where they organize dismounted patrols to develop the situation from a new direction. As these patrols discover the enemy and add additional information to the platoon leader's picture, the platoon leader may determine he has sufficient information to choose and execute a COA based on the commander's engagement criteria or to recommend a COA to the commander.

Choose a COA

5-102. Based on the available information and his commander's intent and guidance, the platoon leader decides to leave one section in contact to support a hasty attack by a supporting element. His other sections continue their reconnaissance mission.

Execute the Selected COA

5-103. In this example, the commander had specifically addressed the contingency the platoon has developed, so the platoon leader neither makes a recommendation to his commander nor asks his permission to execute the COA. Instead, the platoon leader immediately issues orders to his sections and contacts the supporting element's leader to initiate coordination for handover of the enemy and support of the element's hasty attack. He keeps the commander informed of his actions.

Contact with an Inferior Force

Deploy and Report

5-104. A UAS supporting the lead element (section or squad) identifies an enemy element, which consists of one reconnaissance vehicle. In the commander's order, the engagement criteria tasked the section or squad to engage when the enemy force consists of one wheeled vehicle or less (dismounted troops), giving the section/squad the initiative to execute immediate actions on contact. The section/squad leader sends a contact report and quickly engages and destroys the enemy vehicle. After the engagement is complete, he sends an initial SPOTREP.

Evaluate and Develop the Situation

5-105. The lead vehicle and the overwatch element occupy positions that allow them to observe the destroyed vehicle while the UAS provides area security overhead. They look for any other signs of enemy activity or any enemy response to the destruction of the vehicle. The lead vehicle then bounds past the destroyed vehicle and establishes far-side security. Once far-side security is established, a dismounted element moves to the destroyed vehicle and conducts a thorough search for prisoners, items of intelligence value, and any other information that can be gained from a close examination of the enemy. When this reconnaissance is complete, the section or squad sends an updated report to higher headquarters.

Choose a COA

5-106. When engagement is complete and the enemy is destroyed, the COA is obvious: the section or squad will continue its mission.

Execute the Selected COA

5-107. Since the destruction of the enemy is in accordance with the commander's order, the section/squad leader simply informs higher headquarters that he is continuing the mission.

SECTION II – ASSEMBLY AREAS

5-108. An assembly area is a site where a parent unit regroups into a complete unit or prepares for future operations. Normally, a reconnaissance or scout platoon occupies a location within an assembly area as part of its parent unit; however, it may occupy its own assembly area independently. Once in the assembly area, the platoon prepares and issues orders, conducts resupply operations, repairs and maintains vehicles and equipment, and feeds and rests its Soldiers. A platoon deployed in training or in an OE may refer to that area as a tactical assembly area. See FM 3-20.96 and FM 3-20.971 for additional information.

CHARACTERISTICS

5-109. The platoon or a part of it operating within a quartering party is often directed to find, secure, and occupy an assembly area. There are certain characteristics the scouts must look for when selecting the assembly area:

- Concealment from observation.
- Cover from direct fire.
- Good drainage and a ground surface that will support the platoon's and/or the parent unit's vehicles.
- Adequate entrances, exits, and internal roads.
- Enough space for adequate dispersion of vehicles, personnel, and equipment.
- Adequate defensibility and fields of fire.

QUARTERING PARTY RESPONSIBILITIES

5-110. Whether the platoon is operating as a part of its parent unit or on its own, scouts may have to assume quartering party duties. Understanding these duties makes occupying the assembly area much easier. The quartering party's mission is to reconnoiter the area for enemy presence and booby traps, designate vehicle locations, prepare the area for occupation, and assist incoming units during the occupation. Site selection must take into account activities that will occur in the assembly area, including allowing a smaller unit or detachment such as CA or MI or civilians evacuated by the unit to move out of the assembly area on short notice.

5-111. The entire platoon may also serve as the troop quartering party; however, it is better to draw on elements from each platoon so they are able to lead their own unit into designated vehicle positions. The quartering party for a CAB may require the entire reconnaissance or scout platoon and include some attachments. If the platoon is part of a troop, the quartering party moves to the new assembly area under the control of the troop XO or troop 1SG. The following discussion outlines the primary responsibilities of the quartering party.

RECONNOITER THE AREA

5-112. The first task of the quartering party is to conduct an area reconnaissance of the assembly area to find enemy forces, obstacles, and CBRN contamination. This is a time-consuming process that must be planned for by the parent unit. Once enemy forces are eliminated, the area must be secured to prevent enemy infiltration. To do this, the quartering party establishes OPs and/or conducts security patrols. UASs may be employed for covering dead space and avenues of approach beyond line of sight that afford access to the assembly area for the enemy.

DETERMINE ASSEMBLY AREA SUITABILITY

5-113. Once the area is secure, the OIC or noncommissioned officer in charge (NCOIC) must conduct a reconnaissance to verify the area's suitability and to position guides and markings. This task can be conducted in conjunction with the initial area reconnaissance. When checking the position for suitability, the quartering party analyzes cover and concealment, drainage, routes into and out of the area, internal routes, defensibility, and fields of fire. It designates positions on the ground for the various elements within the assembly area. If the area is unsatisfactory, the scouts should immediately begin looking for an alternate site to recommend to the commander.

MARK OR REMOVE OBSTACLES AND MINES

5-114. If there is a possibility of mines or CBUs in the assembly area, additional scouts or combat engineers with mine-detection equipment should be requested before the quartering party departs. Obstacle and mine clearance requires prior planning for the proper equipment, including pioneer tools, demolitions, or engineer vehicles. The use of demolitions to neutralize or reduce obstacles or mines must be avoided

since they will alert enemy sensors that there is activity in your area. Sufficient time must also be allocated to allow the quartering party to accomplish this mission before the main body arrives.

ORGANIZE THE AREA

5-115. Once the organization of the assembly area is complete, the quartering party marks the positions. It also reconnoiters and marks routes from the RP to the assembly area. The actual entrance and exit for the assembly area must be well marked to facilitate easy movement. The quartering party designates and marks internal routes to prevent excessive movement with materials such as infrared chem lights, engineer tape, unit tactical signs, flashlights, VS-17 panels, and thermal tape.

PERFORM GUIDE DUTIES

5-116. The quartering party prepares the assembly area to make the occupation of the new positions swift and efficient. Because the quartering party is familiar with the area and the vehicle positions, the vehicle commanders rely, at least initially, on the guides to reach their designated positions; therefore, guides must be thoroughly briefed so they know the proper route from the RP to the new positions. Guides must avoid the unnecessary movement of vehicles while moving them into position to reduce their sound signature, which is most notable at dusk and dawn.

5-117. The guides are positioned between the RP and the assembly area entrance so that each guide can meet his unit as it crosses the RP. The guides quickly move their units through the RP and into the assembly area. Once in the new area, the guides direct the vehicles to their tentative positions. Once present, all personnel account for their sensitive items and report through the platoon leader and PSG. Immediately afterward, the platoon leader briefs the vehicle commanders on refining vehicle positions, sectors of fire, location of the CP, adjacent units, alternate assembly area, and any other essential information.

ACCOMPLISH ADDITIONAL ASSIGNED TASKS

5-118. The platoon leader must designate a priority of tasks that allows for the most important to be accomplished first. These tasks may include providing security for the command group, test-firing weapons, and assisting in traffic control.

OCCUPATION

5-119. When a unit arrives at an assembly area, all elements move off the route of march without slowing or halting. The platoon leader should keep this in mind as he posts guides, selects routes, and allocates space in the assembly area. After a march serial has cleared the route, it can adjust vehicle positions without holding up traffic.

ACTIONS IN THE ASSEMBLY AREA

5-120. As soon as the platoon occupies its area, it must automatically execute its priority of tasks. Initial tasks include the following:

- Position vehicles.
- Establish local security.
- Establish contact with adjacent elements.
- Develop range cards or sector sketches and submit them to the platoon leader for inclusion in the platoon fire plan. Scouts may have to adjust their positions accordingly.
- Camouflage positions.
- Perform PMCS.
- Initiate and maintain OPSEC.

5-121. Security is a constant concern in assembly areas. Noise and light discipline are especially important, as is limiting the number of vehicles that enter and exit the assembly area. The local security

that is initially established will be replaced by OPs once the platoon is established in position; these OPs are deployed in accordance with procedures outlined later in this chapter. The platoon leader or higher commander may also require patrols along the perimeter and within the assembly area, especially during periods of limited visibility. Wire and messengers are the primary means of communications. Radio is used only in emergencies when no other means of communications is available. The platoon conducts sensitive item checks prior to departure and requests permission to depart or reenter the assembly area.

DEPARTING THE ASSEMBLY AREA

5-122. Departing an assembly area is a critical and often overlooked task. A well-organized departure sets up the platoon for its next mission. A poorly organized departure can cause delays and other problems that may adversely affect the platoon's mission before it begins. Thorough planning and preparation ensure evidence of the unit's occupation is removed to deny the enemy any equipment, supplies, or other items (including trash) of tactical or intelligence value.

SECTION III – LINKUP OPERATIONS

5-123. A linkup is a meeting of friendly ground forces. A reconnaissance or scout platoon may conduct linkup in the following situations:

- The platoon conducts linkup to conduct RHO or BHO.
- The platoon reaches an objective that has been previously seized.
- An encircled element breaks out to rejoin friendly forces.
- Converging forces meet.

5-124. Linkup can be as simple as a section leader meeting another section leader from a unit on the other side of a lateral boundary or as complex as a platoon leading a company or CAB to the rear of a unit that requires support and supplies (See FM 3-20.96 and FM 3-20.971 for additional information.)

FORMS OF LINKUP

5-125. There are two forms of linkup operations—a linkup of moving and stationary forces or a linkup of two moving forces.

LINKUP OF A MOVING FORCE WITH A STATIONARY FORCE

5-126. To ensure forces achieve linkup without committing fratricide, linkup points are selected at locations where the advance of the moving force intersects elements of the stationary force. These points will be recognizable to both forces and depend on the terrain and number of routes used by the moving force. Personnel in moving and stationary forces will be familiar with near/far recognition signals, SOPs, and CID procedures. Both units will have a linkup point and other requirements stated in their OPORD and annotated on their graphics. This information can also be posted in the FBCB2 system. The stationary force supports the linkup by breaching or removing selected obstacles, furnishing guides, and designating assembly areas.

LINKUP OF TWO MOVING UNITS

5-127. Linkup between two moving units is conducted to complete the encirclement of an enemy force. Primary and alternate linkup points for two moving forces are established on boundaries where the two forces are expected to converge. Both units will have the linkup point and other requirements stated in their OPORD and annotated on their graphics. This information can also be posted in the FBCB2 system. As linkup units move closer, they must use fire control measures to prevent fratricide and interdict the enemy to prevent his escape.

PLANNING CONSIDERATIONS

5-128. The headquarters directing the linkup establishes the command relationship between the platoon and the other force, specifies responsibilities of each force, and directs the linkup. If this headquarters cannot adequately control the operation, responsibility is delegated to one of the forces involved. Often the moving force is placed under control of the stationary force, or the force out of contact is placed under OPCON of the force in contact.

5-129. If the enemy is between the forces conducting a linkup, coordination is then accomplished by radio or through digital systems. During the operation, the two forces attempt to maintain continuous radio contact with each other. Before initiating a linkup operation, the headquarters elements of the stationary force and the linkup force must share SA data, including the following:

- Digital graphic overlays with linkup graphic control measures, obstacles, and fire support coordination measures (FSCM).
- Manual/digital identification procedures.
- Manual/digital recognition signals.
- Enemy and friendly situation.
- Communications.
- Contingency plans.

5-130. The communications plan includes radio frequencies, digital communications, SOI, and COMSEC variables for communication between the two forces. The plan must establish recognition signals (day, night, limited visibility) to prevent fratricide.

5-131. Linkup operations may require the platoon to resupply the other unit. If sustainment requirements exceed the haul capability of the platoon, the platoon leader may have to request additional vehicles or resupply by air. It is typically the PSG's responsibility to coordinate and manage these assets.

5-132. Evacuation of equipment and EPWs or detainees can create problems for reconnaissance and scout platoons. Typically, the 1SG will move forward to a CCP to take on wounded and EPWs, recover inoperable vehicles or equipment, and transfer supplies. When ground routes are not secure, helicopters may be used for evacuation of the wounded, while damaged equipment may be moved forward with the linkup forces until a suitable opportunity for evacuation is available.

5-133. Additional planning considerations for linkup operations include—

- Distance to the linkup.
- Time the objective area is to be held.
- Planned operations or movement out of the objective area.
- Resupply of the linkup force.
- Movement of fire support and sustainment assets involved in the linkup.
- Whether follow-on forces will secure LOCs.

PREPARATION

5-134. Due to the time-sensitive nature of the operation, the platoon leader, at a minimum, issues his order and attempts to rehearse the critical events of the operation with his subordinate leaders. He conducts a rehearsal with vehicle commanders present. Areas of particular emphasis include movement along the route, reaction to contact, protection of escorted vehicles, contingency planning up to the linkup point, and actions to ensure that linkup coordination is executed without confusion.

5-135. The platoon leader ensures linkup units (moving and/or stationary) have the higher unit's fire support plan, current enemy situation, and FBCB2 updates. If any control measures are changed during the operation, he announces updates to both elements.

5-136. Sustainment elements moving with the platoon organize and stay close to combat forces for security. Due to their location, CAB scouts may receive resupply from a company within the CAB when HHC is not able to move forward to support their sections.

EXECUTION

5-137. The initial conduct of the linkup is similar to a zone reconnaissance, depending on the enemy situation. Through the use of FBCB2, reports of enemy forces can be monitored throughout the mission to allow the platoon leader to react to the changes in the enemy situation. As the platoon begins its maneuver, it attempts to establish and maintain contact with the other friendly force.

5-138. For example, a reconnaissance platoon from an IBCT is tasked to lead and escort resupply to an SBCT infantry company in heavy contact and isolated in an urban area. The platoon leader issues the FRAGO to his platoon, plans his rehearsal, and requests additional resources—such as cargo and fuel trucks from the support platoon and a field ambulance—to complete the mission. At the rehearsal, vehicle commanders will rehearse actions at the linkup point. Each element is made aware of the restrictive fire line (RFL) and the NFA. Fire control measures are coordinated and rehearsed to prevent fratricide between the converging forces, and the mission graphics are posted in FBCB2.

5-139. At the SP, the platoon leader establishes long-range communications, stating that movement has started, and then establishes short-range communications prior to the near recognition point. As the two forces draw closer, the tempo of the operation slows to help prevent fratricide. The tradeoff may be that some enemy forces escape between the two converging forces. Each force uses coordinated signals to identify itself as it approaches the linkup point. The forces should be able to monitor each other's location via digital systems (FBCB2 and radio) and take the appropriate actions to control the physical linkup. FSCMs are changed based on the progress of the forces and the enemy situation. The linkup point can be moved in accordance with the stated timeline, if necessary.

5-140. Once the scouts have moved into the urban area undetected, the gaining unit will guide the vehicles into a secure position to unload the supplies and to begin loading wounded, EPWs, and items gathered during SE. Once all requirements for the linkup have been met, the scouts will act as a security escort for the returning vehicles. They establish long-range communications with the TOC and report when the SP has been crossed. FSCMs can also be moved as necessary.

SECTION IV – RELIEF IN PLACE

5-141. Relief in place is an operation in which one unit replaces another unit in full spectrum operations. Its primary purpose is to sustain the combat effectiveness of committed units. A relief may also be conducted to allow a relieved unit to rest, reconstitute, or decontaminate or to change missions. For the reconnaissance or scout platoon, the relief operation may entail such tasks as serving as road guides for the supported unit, performing liaison with the relieved unit, or participating in the relief with its parent unit. (See FM 3-20.96 and FM 3-20.971 for additional information.)

5-142. Relief in place is difficult to plan and conduct because of the nature of the operation and the C2, communications, and coordination required. It is important that the operation not be disclosed to the enemy; security, secrecy, and speed are critical. Though the platoon cannot always wait for optimum conditions, relief in place is best conducted during periods of limited visibility and during lulls in the operation. Limited visibility may be achieved by using obscurant munitions in key locations to obscure the enemy's vision. Using obscuration over a large area can confuse the enemy as to the platoon's actual location.

5-143. The relief must be conducted as quickly and as secretly as possible. Relieving scouts must avoid sustaining casualties, hampering the operation of the scouts being relieved, or allowing the enemy to detect the operation. To reduce confusion and maintain security, the incoming platoon leader must attempt to obtain the following information:

- The time that responsibility for the sector or zone is to pass.
- OPSEC considerations.
- Deception plans.
- The time, method, and sequence of relief.
- Routes and critical control measures.

- Graphics for alternate and successive fighting positions.
- Contingency plans for changes of mission.
- Actions on enemy contact, if required before completion of the relief.
- Handover procedures for artillery and AMD.
- Obstacle locations and procedures covering the transfer of responsibility.
- Procedures for transfer of ammunition; wire lines; petroleum, oils, and lubricants (POL); and other items between outgoing and incoming units, if necessary.

5-144. Radio traffic must be kept to a minimum; light and noise discipline must be strictly enforced. If possible, the relieving platoon leader conducts a reconnaissance of the new positions. This is usually accomplished with the relieved platoon leader.

5-145. Once the reconnaissance is complete and orders are finalized, the platoon executes the relief using one of the following methods:

- **Sequential**. Vehicles move into position one at a time. This is the slowest, but most secure, method.
- **Simultaneously**. All of the relieved unit's vehicles pull out, and then the gaining unit's vehicles move at once. This is the quickest, but least secure, method as it creates a large noise signature.
- **Staggered**. Platoons occupy adjacent or in-depth positions that cover the same area of responsibility with the relieving platoon away from the relieved platoon. Sections are relieved one at a time.
- **Exchange of vehicles and equipment**. This is typically used when secrecy is the overriding factor and the unit does not wish to be seen moving around. The relieving platoon moves to the relieved platoon's positions, and assumes responsibility of the relieved platoon's vehicles and equipment, which remains in place. This is the most time-consuming method.

Note. The exchange method is also frequently used when units are in fixed surveillance sites or are taking part in peacekeeping missions where units rotate on a regular basis.

5-146. The actual relief in place can be conducted from a hide position with individual relieving vehicles moving forward to the relieved element's positions. The relieving platoon can also occupy alternate positions within the relieved element's sector or zone. The relieving element must ensure that it covers the same sectors of fire as the relieved element. In some cases, the platoon may move into the primary positions as soon as the relieved vehicles back out. The relieved element may provide guides to ensure that relieving vehicles can locate those they are replacing.

5-147. Four important transmissions must be made by the platoon leader, section leader, and squad leaders during the relief process to prevent fratricide:

- As the relieving platoon approaches from behind, it contacts the relieved platoon.
- When the relieving platoon's section sergeants are in their new positions, they contact the platoon leader or PSG with an established update. This is forwarded to the higher command.
- When the relieving element's priorities of work and coordinating instructions are met, it will report again and announce that it is set (including the time).
- The platoon leader or PSG contacts the commander when the incoming platoon is in position and is prepared to conduct its next operation.

SECTION V – PASSAGE OF LINES DURING BATTLE HANDOVER

5-148. A passage of lines is the controlled movement of one unit through the positions of a stationary unit, conducted so that neither unit interferes with the other's scheme of maneuver. A passage of lines often becomes necessary because the combat situation does not permit one unit to bypass another unit's position (See FM 3-20.96 and FM 3-20.971 for additional information).

5-149. A unit may conduct either a rearward or forward passage of lines. When a unit moves toward the enemy through a stationary unit, it is considered a forward passage. In a rearward passage, the unit moves away from the enemy through friendly units.

5-150. A passage of lines may be conducted for the following purposes:

- Continue an attack or counterattack.
- Envelop an enemy force.
- Pursue a fleeing enemy.
- Withdraw reconnaissance, security, or maneuver forces.
- Facilitate route, zone, or area reconnaissance.
- Execute a defense or a delay.
- Execute a screen or guard operation.

5-151. The reconnaissance or scout platoon may perform some of these operations independently (screen and reconnaissance); otherwise, it usually will take part in a passage of lines as part of a BHO.

Note. BHO is an operation generally associated with a passage of lines in which a stationary unit and a passing unit transfer responsibility for fighting an enemy force from one unit to another. Its purpose is to sustain continuity of the combined arms fight and to prevent the enemy from moving unopposed in the AO as one force picks up the fight from another. It also preserves the fighting capabilities of both friendly units.

CRITICAL TASKS

5-152. There are three key elements in passage of lines: the stationary unit, the passing unit, and the common commander.

5-153. The reconnaissance or scout platoon, acting independently or as part of a larger element, may be either the stationary or the passing unit. The platoon will normally assist in some portion of the passage of lines and may be required to coordinate the passage. In many cases, the platoon will be required to conduct a passage separate from its higher headquarters.

5-154. The commander exercising command authority over both the stationary unit and the passing unit must designate the battle handover line (BHL); this is a phase line forward of the stationary unit that is recognizable on the ground. He normally does this in coordination with the stationary unit commander, who will recommend the position of the BHL. The line is drawn where elements of the passing unit can be effectively protected by direct fires of the forward combat elements of the stationary unit until the passage of lines is complete. The area between the BHL and the stationary force is the responsibility of the stationary unit commander. The common commander will provide graphic control measures to the platoon, depicting the BHL and contact points, on an overlay issued to subordinate units with the OPORD or FRAGO (see Figure 5-42).

5-155. BHO begins on order of the common commander. Defensive handover is complete when the passing unit is clear and the stationary unit is ready to engage the enemy. Offensive handover is complete when the passing unit has deployed and crossed the BHL. The common commander prescribes the specific criteria that mark completion of handover; he ensures that both subordinate commanders understand these criteria.

Note. Refer to FM 3-20.971 for a discussion of applicable graphic control measures during the passage.

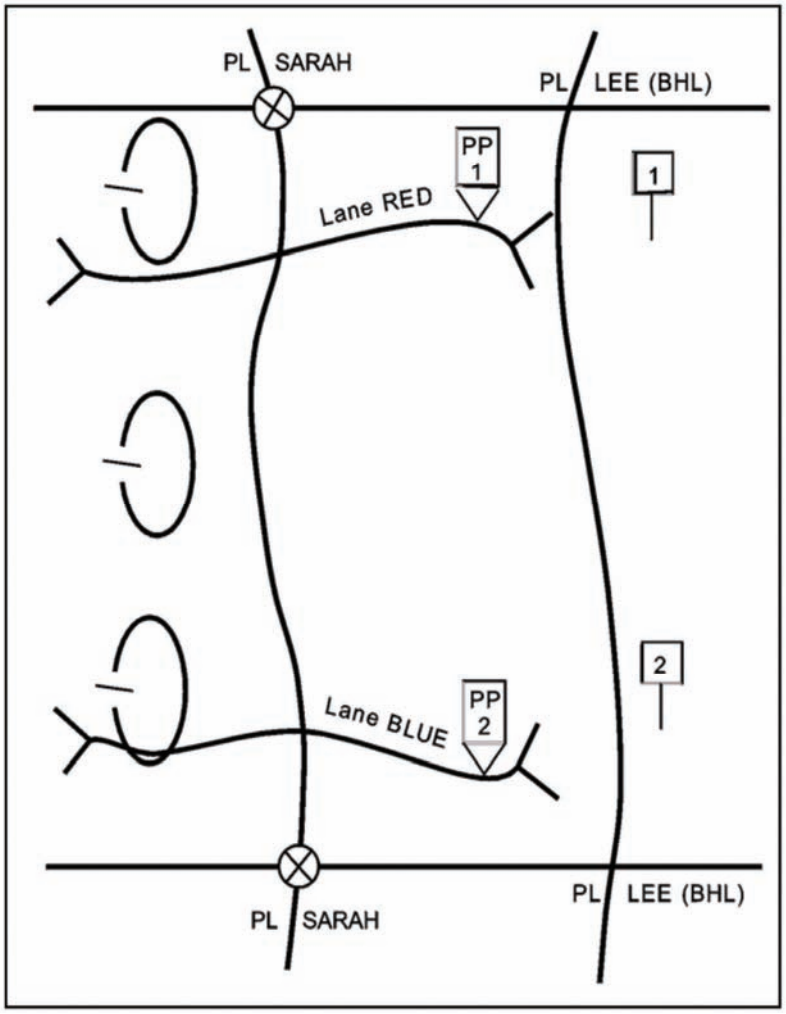


Figure 5-42. Battle handover and passage of lines graphic control measures

PASSING UNIT CRITICAL TASKS

5-156. The passing unit must accomplish several critical tasks during passage of lines in BHO, including the following:

- Immediately establish communications by entering the command, intelligence, and fire support nets of the stationary unit.
- Collocate a section or vehicle (usually the platoon leader's, PSG's, or section leader's vehicle) with the tactical command post (TAC CP) or main CP of the stationary unit as soon as possible to enhance communications and unity of effort.
- In a rearward passage, continuously report to the stationary unit the location, size, and composition of all enemy forces, as well as the enemy's current activity. If the enemy is attacking, the passing unit reports the direction of movement, movement formation, and estimated rate of advance of enemy elements. If the enemy is defending, passing unit reports include enemy locations, orientation, composition, engagement areas, reserves (if known), obstacle systems, and flanks.
- Continuously report to the stationary unit the location, size, and activity of all parent unit elements, including enablers, sustainment, and C2 assets.

- Based on the current dispositions of the parent unit and elements of the platoon, coordinate with the stationary unit to determine contact points at which subordinate elements (such as reconnaissance sections) will meet to coordinate handover and passage of lines with representatives of the stationary unit. Once contact points are determined, the passing unit leader sends a FRAGO to all elements specifying where they will coordinate the passage with the stationary unit. In addition, the passing unit confirms recognition signals used during passage.
- Ensure that each subordinate element acknowledges where it must coordinate the passage and that it dispatches representatives to the assigned contact points to coordinate passage for the element. At the contact points, the representatives confirm recognition signals and exchange required information with their counterparts from the stationary unit.
- In a rearward passage, maintain visual contact with all enemy units and conduct movement back to the BHL, avoiding decisive engagement.
- During the passage, display correct recognition signals and use correct challenge and password as specified in the SOI.
- Maintain proper weapons orientation.

STATIONARY UNIT CRITICAL TASKS

5-157. The stationary unit must accomplish a variety of critical tasks when ordered to conduct passage of lines during BHO. These tasks include the following:

- Establish communications with the passing unit, coordinate necessary contact points, and direct the passing unit to the contact points based on current dispositions of the designated units.
- Ensure that contact points are manned and secured and that passing elements have established personal communications with their representatives.
- Ensure that representatives at the contact points assign each passing element a passage point into the AO and a route that extends from the passage points to the rear boundary or assembly area (in a rearward passage) or to the attack position (in a forward passage).
- Ensure that representatives at the contact points exchange required information, including FBCB2, with the passing unit as outlined in their unit SOP.
- Position elements along the BHL where they have the best possible observation of enemy avenues of approach, adjusting as necessary during limited visibility.
- If obstacles are emplaced between the FEBA and the BHL, ensure that routes through the obstacle system are clearly marked and physically controlled by guides or that escorts are provided to the passing unit.
- Ensure that all routes of withdrawal obligated to the passing unit are unobstructed and facilitate rapid movement to the RP (rearward passage).
- Ensure that obligated routes of advance, attack positions, and routes to the BHL are clear and facilitate rapid movement (forward passage).

PREPARATION

5-158. Units are particularly vulnerable during a passage of lines. Effective preparation is critical because subordinate elements may be concentrated, stationary unit fires may be masked temporarily, and the passing unit may not be disposed properly to react to enemy action. The commander may task the reconnaissance or scout platoon with a number of missions, including detailed reconnaissance and coordination, to assist him in preparing for the passage.

COORDINATION

5-159. Coordination occurs at a preplanned contact point where critical information is exchanged and coordinated. Coordination for BHO normally flows from the commander out of contact to the commander in contact. Coordination for the passage of lines and the handover should be conducted simultaneously.

5-160. The reconnaissance or scout platoon leader plays a major role in coordination for passage of lines and handover. He is responsible for conducting reconnaissance to obtain information for use by both the platoon and its parent unit.

5-161. During his reconnaissance, the platoon leader must confirm the following factors and information related to the AO:

- The disposition of the stationary force through which the platoon and/or its parent unit must pass.
- The location of contact points where both units are required to make physical contact at a predetermined time.
- The location of passage lanes that provide a clear route through the stationary unit's position to facilitate a smooth and continuous passage. The areas selected for the passage should be unoccupied or on the flanks of units in position. If possible, the platoon leader should reconnoiter multiple routes that can reduce vulnerability during the operation.
- The rear boundary or assembly area (in a rearward passage) or the attack position (in a forward passage). This position should provide cover and concealment and be located where the passing unit will not interfere with the stationary unit.
- The initial locations for enablers and sustainment elements of the platoon's parent unit.

5-162. Based on his reconnaissance, the platoon leader coordinates the following information:

- Contact points (primary and alternate).
- Applicable passage points.
- Passage lanes, including the SP, RP, and critical points.
- The LD.
- Location and number of guides and guide vehicles.
- Routes through obstacles.
- Alternate routes.
- Sustainment plans, including resupply (Classes III and V), maintenance, MEDEVAC and/or CASEVAC, and disposition of EPWs.
- Traffic control factors, such as number of vehicles by type.
- Time of the passage.
- Rally points, the rear boundary or assembly area (rearward passage), and/or the attack position (forward passage).
- Actions on contact if required during the passage.
- Times for transfer of responsibility for control of the sector and for handover of the enemy and BHL.
- Exchange of enemy and friendly information.
- Direct and indirect fire plans and obstacle plans.

Note. The parent unit commander may provide some of this information in his order to the platoon.

ASSISTANCE TO THE COMMANDER

5-163. Commanders may require the platoon to assist other units in the passage of lines. Primarily, the platoon enhances the C2 function for the commander. The platoon may be required to conduct one or more of the critical tasks of a stationary or passing unit or may assist its parent unit in the following ways:

- Elements of the platoon may assist in securing contact and passage points where units will meet and pass.
- The platoon may reconnoiter possible passage lanes (primary and alternate), clearing them of obstacles (within capability) and marking their locations.

- The platoon may guide units from contact points to or through passage lanes. The platoon may also control traffic at the passage point and in the lane.
- The platoon may conduct area reconnaissance of attack positions (forward passage) and assembly area locations (rearward passage). This may include a requirement to check for CBRN contamination.
- Platoon elements may be positioned in the passage area to act as a communications link in case units involved in the passage have trouble communicating with each other.
- The platoon may assist the commander by occupying OPs or conducting patrols to provide a continuous flow of information about the enemy situation.

CONDUCT OF THE PASSAGE

5-164. In a forward passage of lines, the platoon leader or unit commander normally performs the coordination. For a rearward passage of lines, the PSG or the commander's liaison officer normally performs the coordination. The stationary unit is responsible for designating passage points and passage lanes and for providing guides. If contact points have not been designated by higher headquarters, the stationary unit should coordinate their locations with the passing unit. For ease of control, the passing unit's command group (TAC CP or main CP) temporarily collocates with the stationary unit's command group (TAC CP or main CP).

5-165. After coordination is made and the passage begins, guides meet the passing unit at the contact point or passage point. Guides exchange recognition signals with the passing unit and move it along the route(s) without pausing, with the stationary unit overwatching the movement. Guides leave the passing unit either at the RP or after it has passed the last stationary unit position.

5-166. Their parent unit typically recovers disabled vehicles. The stationary unit provides the required medical assistance, maintenance, and POL as far forward as possible. As a minimum, the stationary unit should provide emergency medical support.

CBRN CONSIDERATIONS

5-167. Because of potential congestion of units at passage points and along routes, stationary and passing units must take protective measures against CBRN attack. Techniques to reduce vulnerability include the following:

- To minimize exposure time, passing units move as rapidly as possible through passage points and along passage routes to their RPs.
- Passing and stationary units conduct radiological and chemical monitoring.
- Stationary units disperse by posting one or two vehicles in primary firing positions, with other vehicles in hide positions. Elements in hide positions prepare for CBRN attack.
- Passing and stationary units put on chemical-protective clothing as prescribed by the commander.
- If required, the stationary unit requests assistance through channels for decontamination of the passing unit. Units normally conduct operational decontamination and then move to a rear assembly area for thorough decontamination. A reconnaissance or scout platoon does not have the internal assets for thorough decontamination of personnel or equipment; it requires assistance from a chemical company.

FRATRICIDE AVOIDANCE

5-168. Since passage of lines during BHO is usually conducted in contact with the enemy, extreme care must be taken to avoid fratricide. All units involved must know the correct recognition signals as well as the exact number of vehicles and time of passage. There will be times when some elements fail to receive necessary information or when stragglers are unaware of the current operation. Planning and coordination must cover the following considerations:

- Fratricide assessment.
- Vehicle marking systems.

- Navigational aids such as GPS.
- Enemy situation and composition.
- Obscuration (limited visibility).
- IFF techniques for ground forces.
- Effective SOPs.
- Direct fire plans for both units.
- Indirect fire considerations, including specific procedures for requesting and clearing indirect fires.
- Communications procedures and potential problems.

5-169. For more detailed information concerning fratricide and risk reduction measures, refer to Appendix D (covering combat identification and fratricide prevention) and Appendix E (covering CRM and environment protection).

SECTION VI – CORDON AND SEARCH

5-170. Cordon and search operations involve isolating the target area, searching the area, and capturing or destroying possible insurgents and/or contraband. A cordon and search may be a task during a movement to contact, raid, deliberate attack, or area reconnaissance. See FM 3-20.96 and FM 3-20.971 for additional information.

5-171. Once intelligence gathering elements identify and locate important enemy elements or enemy information, a cordon and search operation may be conducted to collect more detailed information or to neutralize the enemy. Platoon leaders and commanders must develop knowledge of enemy organizations. The continuous and effective employment of these intelligence gathering assets before and during the cordon and search may provide updates to the enemy situation that may cause changes to the mission and increase the probability of mission success. This discussion covers procedures for the reconnaissance or scout platoon in support of the company/troop or battalion/squadron conducting cordon and search operations.

5-172. In some situations, the targeted individuals may escape, leaving behind caches of weapons, equipment, or other materials. Accurate documentation and cataloging of information and material of intelligence value at the cordon and search site is vital. Once evidence has been moved it becomes more difficult to connect it to the suspect house, incident, or individual. Therefore, leaders must accurately account for all identified materials gained during SE.

Note. Leaders should assess the evidence they discover and then coordinate resources needed to handle these materials. Examples may include such situations as transporting and safeguarding a radio or a map, confiscation of wooden boxes containing a transitional cache for IEDs, or discovery of a hidden tunnel storing a long-term cache for an insurgent offensive.

TASK ORGANIZATION

5-173. Commanders task organize the reconnaissance and scout platoon as a security force (inner or outer cordon), search force, or reserve force during a cordon and search. The reconnaissance or scout platoon will typically operate as part of the security force or the reserve force. If required, however, it can operate either by itself as the search force or as part of a larger search force. HUMINT resources may expedite identification of threats, reduce the chances for exposure to IEDs, and assist in the return of the platoon to its base. Platoon leaders may need to plan for augmentation to include—

- Infantry or tank sections from a maneuver battalion or squadron.
- ISR assets such as UAS support.
- Mine detection and/or demolition support from engineer units.
- Interrogation, translator, and/or HUMINT support from the MICO.
- PSYOP teams.

- EW support (such as radio intercept) from the MICO.
- LNOs to assist with HN interaction.

Note. The PSG must be prepared to coordinate resupply and support of these attachments operating with the platoon if their parent unit is unable to support them while they augment the platoon.

CONDUCT OF THE OPERATION

5-174. Search zones are designated and a search party is assigned to each zone. Each search party has its own search force, security force, and reserve force. Misuse of search authority can adversely affect the outcome of the platoon's mission. Conduct of all personnel must be within the bounds of the unit's standing ROI. Proper use of authority during searches gains the respect and support of the local residents. Under normal search conditions, minimum essential force is used to eliminate any active resistance encountered. The use of force is justified when a hostile act occurs or when an enemy element demonstrates the intent to commit a hostile act. Use of force in self-defense may continue if the enemy element continues to commit hostile acts or exhibits hostile intent. The use of force must be proportional, and reasonable in intensity, duration, and magnitude, based on the perceived enemy.

5-175. The security element is responsible for isolating the objective and specific target areas within an objective. This element is normally divided into two separate groups: the outer cordon and the inner cordon. The outer cordon element prevents possible outside influence affecting the mission of the search/assault force by blocking access to the target and interdicting elements trying to reinforce the isolated enemy. An inner cordon is established to isolate the specific area in which the target of the operation is located. An inner cordon prevents enemy movement within the specific area preventing enemy entry or escape from the target area. Tasks that scouts may typically perform in the course of the operation are fix, isolate, block, interdict, and neutralize. Checkpoints may be used in monitoring the population and blocking access to the inner cordon.

5-176. An effective cordon is critical to the success of the search effort. Deployment to the search area is rapid and is synchronized so it does not provide early warning to the local population. First, the security force surrounds the area as an inner or outer cordon; the search force then moves into the area (see Figure 5-43). If the platoon's surprise action is successful and the target individuals are taken into custody, the detainees must be moved immediately to the CAB or squadron S-2 to ensure the unit has sufficient time to process and conduct TQ of detainees.

5-177. Checkpoints and roadblocks are established along roads entering and exiting the area. OPs are established, and security patrols are executed in the surrounding area. The security force orients mainly on people or vehicles attempting to escape or evade the search in the populated area; however, the security force can also cut off elements or individuals trying to reinforce enemy forces in the search area. Platoon leaders may plan the use of sniper teams or UASs for additional security and overwatch while scouts conduct checkpoints or roadblocks. Snipers may detect and engage IED emplacement, enemy sniper teams, or other ambush preparations targeting the cordon and search force as it departs the area (see Figure 5-44).

5-178. A mobile reserve force is located near the search zone. Its specific mission is to reinforce OPs, patrols, or the search force and to assist the other elements, as required by the mission. Figure 5-45 shows the reconnaissance platoon operating as the reserve.

CAUTION

It is critical that scouts use EOF procedures and kits effectively and consistently at the section and squad level to protect friendly forces while adhering to the ROE. To ensure effectiveness in EOF situations, leaders must institute regular training plans and constantly update the unit's EOF SOPs and kits.

Note. For additional information on cordon and search procedures—including controlling the populace, searching a house, conducting roadblock/checkpoint operations, and employing ROE (including EOF)—refer to FM 3-20.971.

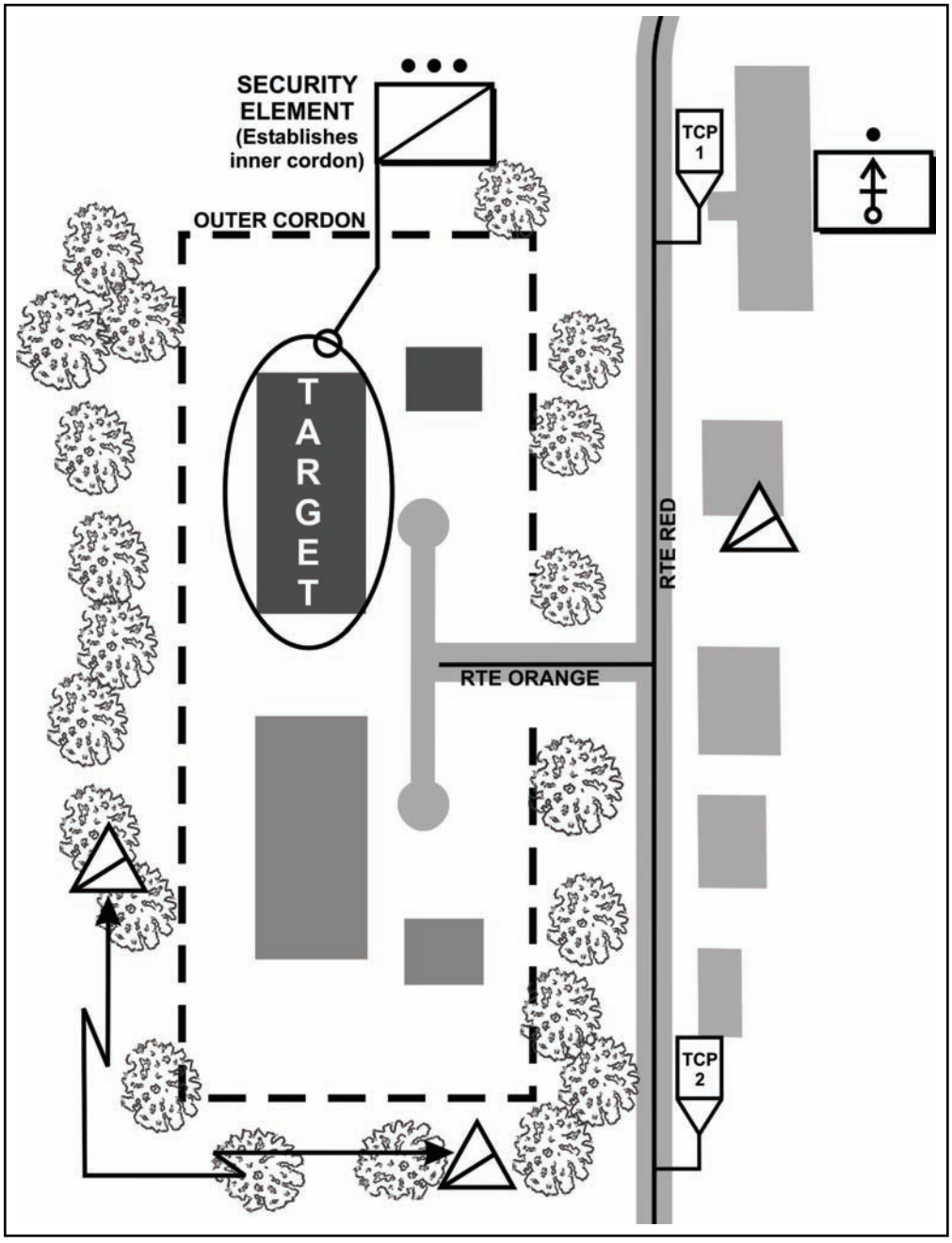


Figure 5-43. Security force establishes cordon

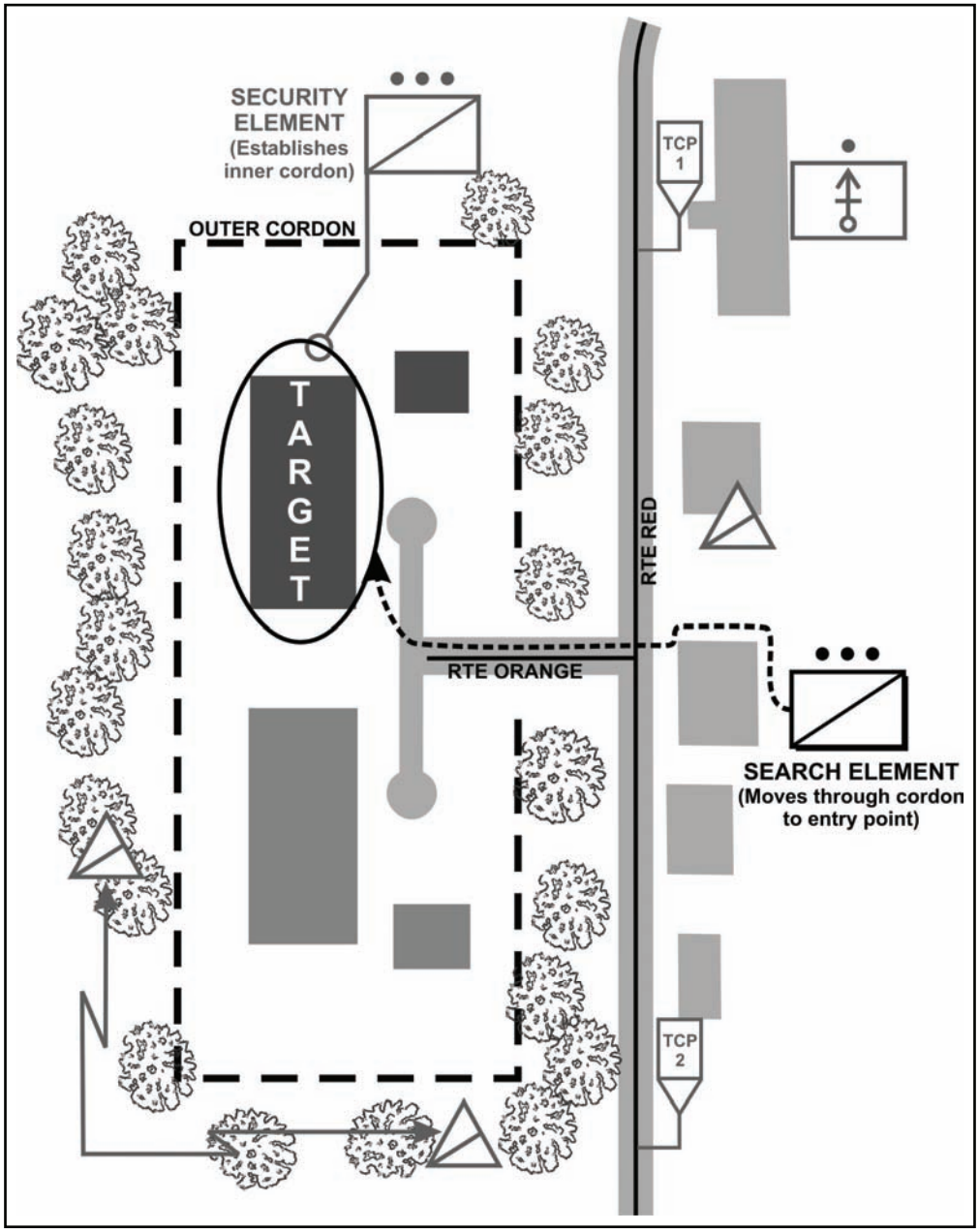


Figure 5-44. Security measures during cordon and search

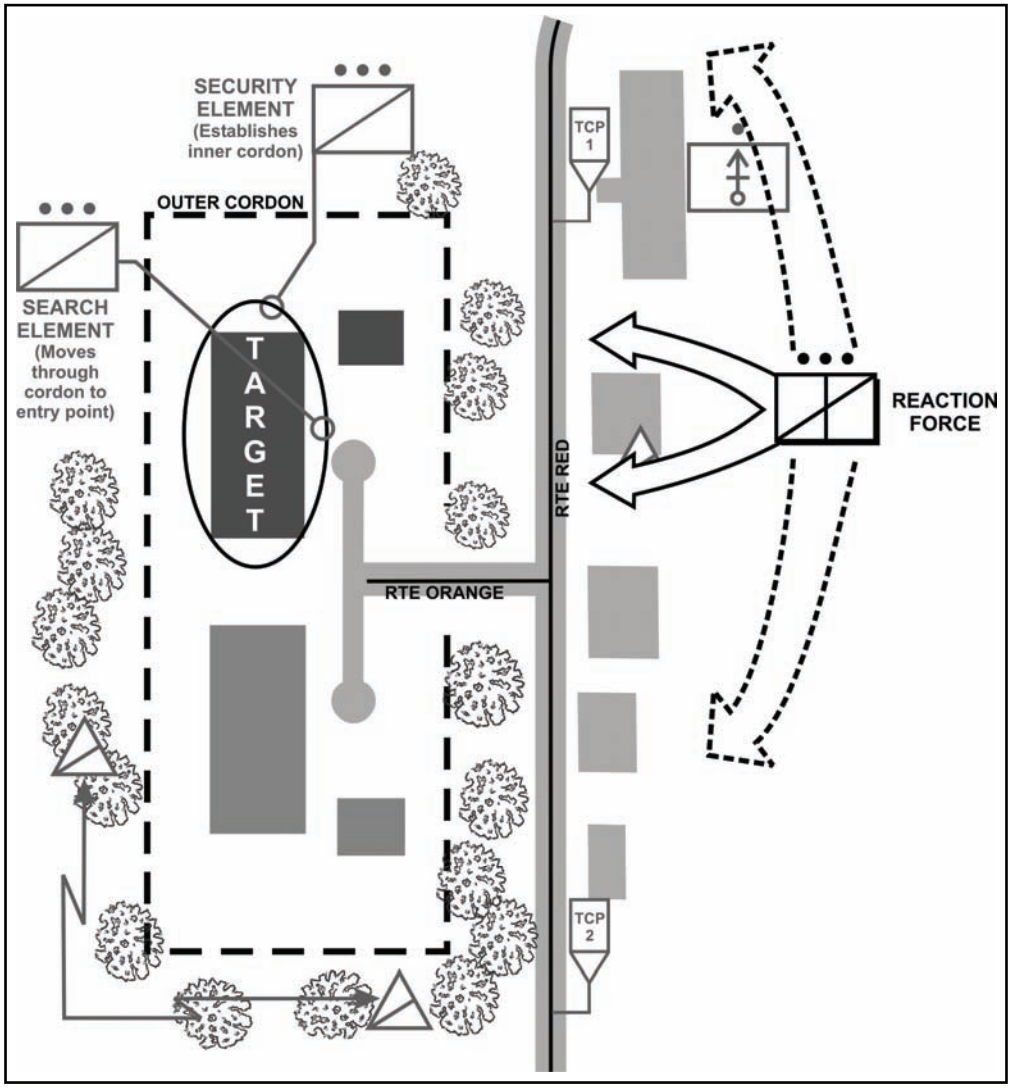


Figure 5-45. Platoon serves as reaction force

SECTION VII – OBSERVATION POSTS

5-179. Surveillance is the systematic observation of a specific area. Scouts may watch, listen, and smell, as well as employ electronic sensors to observe assigned sectors. The OP is the preferred means of maintaining surveillance of an avenue of approach or NAI. From OPs, scouts observe enemy movement and direct killer teams and/or adjust indirect fires against the enemy. From the OP, the scouts send SALUTE reports to their commander to provide early warning of enemy activity. (See FM 3-20.971, FM 3-20.96, and FM 3-21.8 for additional information.)

5-180. The reconnaissance and scout platoon can occupy multiple OPs based on the mission's time requirement (less than or greater than 12 hours), availability of vehicles, and squad strength. Additional taskings may further reduce the platoon's ability to operate OPs as shown in Table 5-1.

Table 5-1. Scout OP organization and manning capabilities

Organization	*Number of Sections*	*Scouts per Section*	*Possible Platoon OPs (up to 12 hours)*	*Possible Platoon OPs (12+ hours)*	*Possible OPs (with patrols)*
IBCT/BFSB	2 maneuver + HQ	6	3	2	2
SBCT	2 maneuver	10	4	2	2
HBCT	3 maneuver + HQ	8	4	4	3
ACR	2 maneuver + HQ	10	6	3	3

Note. This table includes platoon OPs that do not rotate security patrols through dead space.

5-181. The platoon can array OPs either in linear positions or in depth. Depth is preferred for maintaining contact with a moving enemy. OPs in depth can be configured as all vehicle-mounted; dismounted scouts forward of vehicle; or a combination of dismounted scouts and wheeled and tracked vehicles. Linear placement is effective when the enemy is not moving; it provides optimum observation of the enemy.

CRITICAL TASKS

5-182. Critical tasks for the platoon in employing OPs include the following:

- Determine the type of OP (mounted, dismounted, or a combination), depending on requirements for either maximum stealth or rapid movement.
- Position the OPs either in linear positions or in depth to allow for observation of the assigned sector. The following factors will affect proper positioning of the OP:
  - The need for observation from several OPs to reduce the chance of the enemy entering the sector undetected.
  - A requirement for the platoon to observe the entire sector by placing OPs along the enemy's most likely avenues of approach.
- Select a position for each OP that affords the best possible force protection. Selection criteria include the following:
  - Covered and concealed routes to and from the OP.
  - Unobstructed observation of the assigned area.
  - Effective cover and concealment.
  - Sites that avoid natural lines of drift, that do not call attention to themselves, and that do not skyline observers.
- Occupy the OP. The platoon should employ the most secure method of moving into position; dismounted occupation is the preferred method. Occupation steps include the following:
  - Establish overwatch.
  - Reconnoiter the position.
  - Establish security.
  - Clear the site and ensure sector visibility.
  - Establish vehicle hide positions.
  - Develop sector sketches.
- Man the OP. The platoon leader must ensure that each OP has the necessary personnel and equipment to perform the following tasks:
  - Observe the assigned area.
  - Provide local security (including planning and preparation for contact and actions on contact).
  - Report information.
  - Call for and adjust fires.

- Conduct local reconnaissance patrols when necessary to cover dead space, provide local security, and observe avenues of approach and/or NAIs from different vantage points.
- Employ active and passive protective measures. Scouts are extremely vulnerable in the OP. Their best self-defense is not to be seen, heard, or otherwise detected by the enemy.
- Improve the position. The platoon can enhance OP protection using the following steps:
  - Dig in the OP position.
  - Camouflage the position.
  - Install communications equipment.
  - Emplace hasty obstacles.

TYPES OF OBSERVATION POSTS

5-183. OPs can be executed dismounted or mounted, or as a combination of these two types, as outlined in the following discussion.

DISMOUNTED OPS

5-184. The dismounted OP provides maximum stealth and thus has the greatest likelihood of remaining undetected by the enemy. The disadvantages of the dismounted OP are the time it takes to remount and move, and the potential lack of ground-mounted thermal devices or other all-weather optics. If rapid movement or displacement is anticipated, the OP should mount or remain mounted.

MOUNTED OPS

5-185. These offer the advantages of rapid movement, vehicle optics, and protection. Because the enemy can more easily detect them, however, they are potentially much less effective than dismounted OPs.

COMBINATION OPS

5-186. The platoon can employ an OP that combines the advantages of both the dismounted and mounted types. For example, the vehicle could be used to monitor a particular NAI while other crewmen dismount to observe an enemy dismounted avenue of approach. The combination OP can offset the advantages of the other types as well as some of their weaknesses, including lack of mobility and ease of enemy detection.

Note. The use of UASs to cover dead space and avenues of approach beyond line-of-sight enables the platoon to extend its areas of observation and to report contact in sector much sooner to the commander, providing additional time for fires and maneuver against the enemy. It is important to remember some sensor contacts may require confirmation with more detailed reconnaissance.

POSITIONING THE OP

5-187. As noted, OPs may be positioned in the AO either in a linear configuration or in depth. Linear placement (illustrated in Figure 5-46) allows the platoon to observe the assigned sector from several OP sites, reducing the chance of the enemy entering the sector without being observed. This method works well when the platoon has been assigned a large sector with few avenues of approach or is in open terrain. In-depth OP placement (refer to Figure 5-47) allows the platoon to observe the entire sector by placing OP sites where the platoon can observe the most likely avenues of approach in the sector as well as along the sector flanks. This method works well when the platoon is assigned a sector with several avenues of approach or is in heavily vegetated terrain. In-depth placement allows for redundancy in observation and better interlocking coverage of the sector. The HBCT reconnaissance platoon may place CFVs forward when heavy contact is likely or HMMWVs forward when stealth is required.

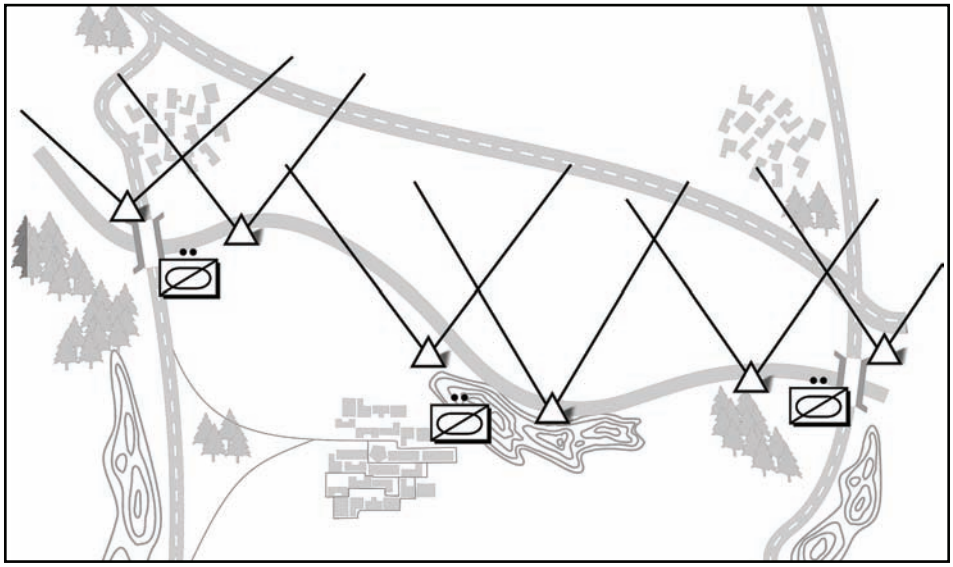


Figure 5-46. Linear positioning of OPs

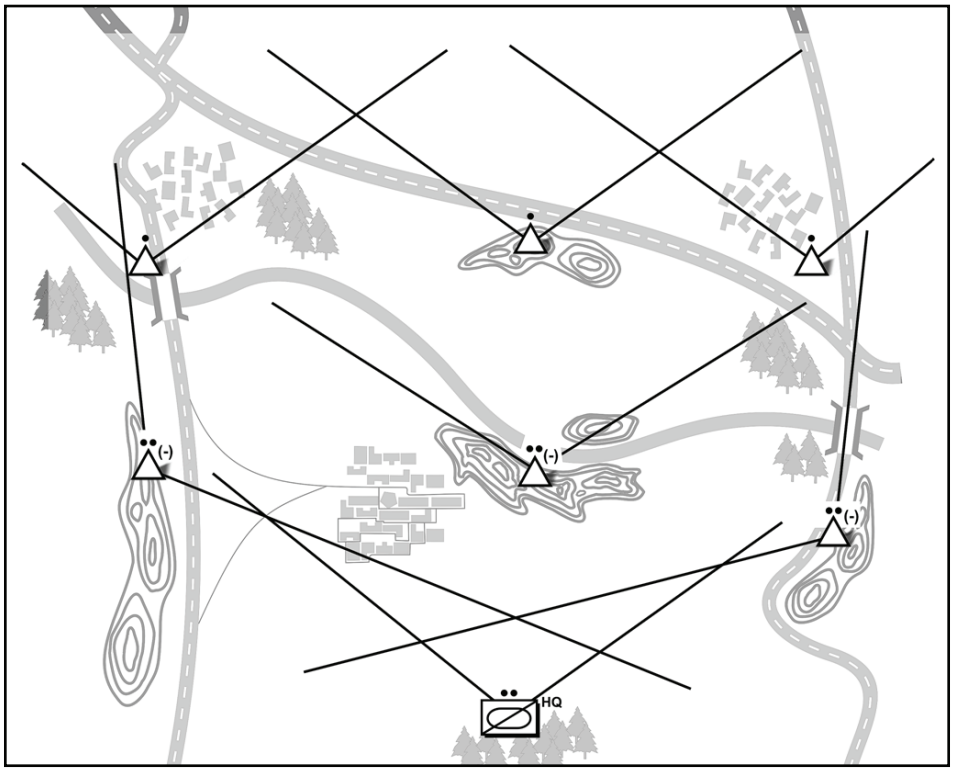


Figure 5-47. In-depth positioning of OPs

SELECTING AN OP SITE

5-188. Based on the commander's guidance, the platoon leader selects the general location for the platoon's OPs after analyzing METT-TC factors. From his analysis, he determines how many OPs he must establish; he also decides where they must be positioned to allow long-range observation along the avenues of approach and provide depth through the sector. Digital terrain products may assist commanders and

platoon leaders in making the site selection with the line of sight tool in these programs. Section and squad leaders then select the exact position for each OP once they are at the planned location. OPs should have the following characteristics:

- **Covered and concealed routes to and from the OP.** Scouts must be able to enter and leave the OP without being seen by the enemy.
- **Unobstructed observation of the assigned area or sector.** Ideally, the fields of observation of adjacent OPs overlap to ensure full coverage of the sector.
- **Effective cover and concealment.** Scouts should select positions with cover and concealment to reduce their vulnerability. They may need to pass up a position with favorable observation capability but with no cover and concealment in favor of a position that affords better survivability.
- **A location that will not attract attention.** OPs should not be established in such locations as a water tower, an isolated grove of trees, or a lone building or tree; these positions draw enemy attention and may be used as enemy artillery target reference points (TRP). The OPs should also be located away from natural lines of drift along which a moving enemy force can be expected to travel. These locations might include a route on the floor of a valley or a site near a major highway.
- **A location that does not skyline the observers.** Avoid hilltops. Position OPs farther down the slope of the hill or on the side, provided there are covered and concealed routes into and out of the position.

Note. Scouts may operate from highly visible and permanent OP structures when deployed on peacekeeping missions. While this does not appear tactically sound, it still supports the purpose of that mission.

OCCUPYING THE OP

5-189. The reconnaissance or scout platoon leader selects a technique to move to the screen line based on his analysis of METT-TC. Unless the area has already been cleared, the platoon should conduct a zone reconnaissance to the screen line. This is the most secure method of moving to the screen line, but also the most time-consuming. The following steps provide an example of how a section might occupy an OP:

- The section stops short of its OP site. The section leader directs the drivers into positions to overwatch the general OP site and any terrain the enemy could use to interfere with movement into or out of the position. (See Figure 5-48.)
- The section leader dismounts with scouts from each vehicle and moves forward to reconnoiter the OP (using the OP site selection characteristics). Drivers and gunners remain on their vehicles to overwatch the dismounted personnel.
- The section leader moves the dismounted scouts to the OP site, establishes security overwatching the far side of the site, and checks the site for mines, booby traps, and enemy personnel. He verifies that he can observe his sector or area of responsibility from this site and determines which position is best for the OP. The section leader issues a five-point contingency plan and displacement criteria to the OPs before returning to the vehicles.
- The section leader selects hide positions and fighting positions for his vehicles.
- The driver and a dismounted scout from each vehicle mark their vehicle position with a ground stake. The stake, which enables a vehicle to reoccupy the fighting position at a later time, is centered on the driver's station. It must be tall enough for the driver to see as he drives into position. The driver uses engineer tape or luminous tape on the stake so he can see it during limited visibility operations. Once the area around the OP is cleared and secure, the section leader signals the vehicles forward to move into their fighting positions.
- The gunner and vehicle commander for each vehicle complete and check their sector sketch. Each vehicle then moves back out of its fighting position into a hide position. The section leader checks the sketches to ensure they provide complete coverage of the sector. Sector sketches or range cards are a valuable reference if the vehicle is ordered to fight.

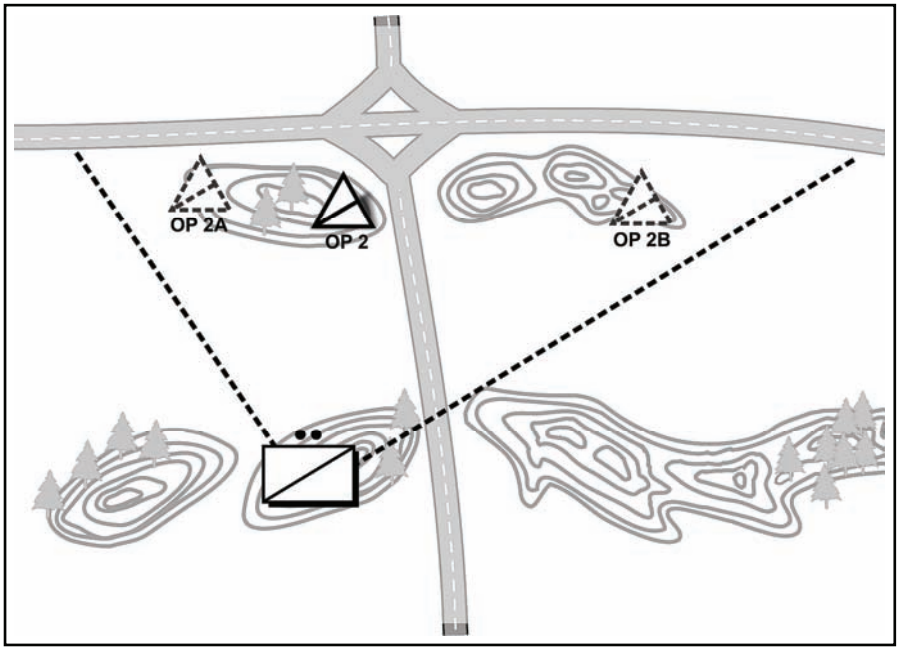


Figure 5-48. Vehicles overwatching a potential OP site

MANNING THE OP

5-190. A minimum of two scouts man each OP. They must be equipped to observe the area, report information, protect themselves, and call for and adjust fire. One scout observes the area while the other provides local security, records information, and sends reports to the section/squad leader or platoon leader. The two scouts should switch jobs every 20 to 30 minutes because the observer's effectiveness decreases quickly after that time. Essential equipment for the OP includes the following:

- Map of the area with graphics.
- Compass.
- Communications equipment (wire and/or radio).
- Observation devices (binoculars, observation telescope, and/or NODs).
- SOI extract.
- Report formats.
- Weapons, such as personal and crew-served. This includes AT-4s and appropriate mines.
- CBRN equipment and individual protective equipment to achieve MOPP 4.

IMPROVING THE POSITION

5-191. Once the section leader has established the OP and assigned the scouts their sectors of observation, the section improves the position. The section leader prepares a sector sketch, an example of which is illustrated in Figure 5-49. This sketch is similar to a fighting position sketch but with some important differences. At a minimum, the sketch will include the following:

- A sketch of key and significant terrain, including NAIs and avenues of approach.
- Location of the OP.
- Location of the hide position.
- Locations of vehicle fighting and observation positions.
- Alternate positions (hide, fighting, and observation).
- Routes to and from the OP and fighting positions.

- Sectors of observation, with dead space identified.
- Preplanned artillery targets.
- TRPs for direct fire.
- Prepared SPOTREPs and calls for fire, based on trigger lines and projected locations where the enemy will first be seen.
- Locations of protective obstacles, such as claymore mines and trip flares.

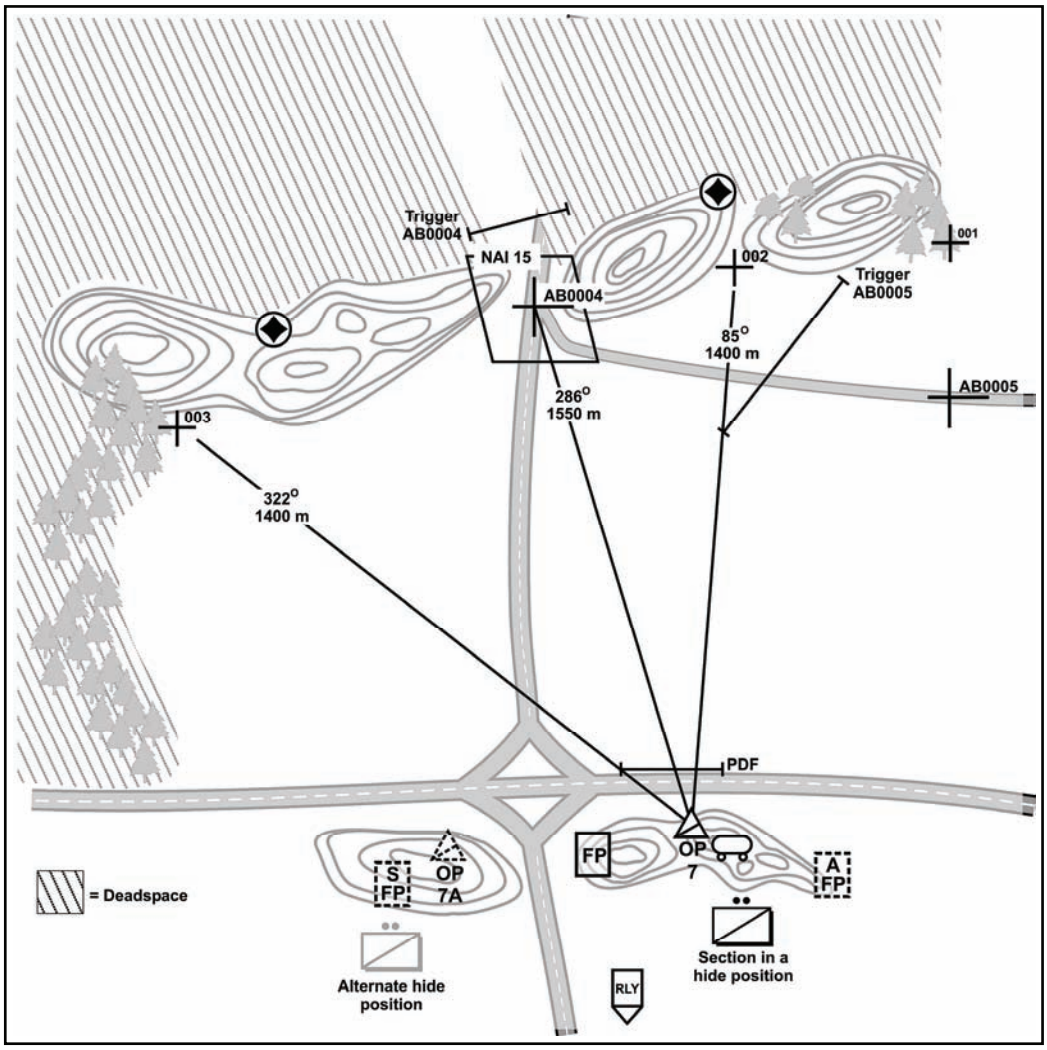


Figure 5-49. Section leader's OP sketch

5-192. Personnel manning the OP site begin digging in to provide protection from indirect and direct fires. They also camouflage the position, install wire communications equipment and directional antennas, and emplace hasty obstacles for local protection. As the OP is improved, soil and other materials that have been moved are not disposed of to the front of the OP site. This can give away the scouts' presence when observed from the front. Vehicle commanders (or gunners) and drivers reconnoiter the routes to their fighting/observation positions and alternate positions, perform maintenance, and camouflage vehicles and positions. The section leader's OP sketch must be accurate; what he can see and obtain an azimuth to in the hide or turret-down position must be the same when the vehicle is in the hull-down position. The same principle applies for dismounted OPs; when the scouts are behind cover, they must have the same fields of fire for their crew-served weapon as when they expose themselves to engage the enemy.

OP COMMUNICATIONS

5-193. The scouts occupying the OP use wire, radio, or both as their primary means of communications. Wire is preferred because it is concealable, secure, and is not vulnerable to enemy direction-finding equipment or jamming. If possible, the scouts in the OP use wire to communicate with their section/squad leader or his representative, who is located with his vehicle in the hide position behind the OP. As a last resort, messengers may be used to report information if the radio is being jammed or the wire is severed. Scouts moving to and from the OP as messengers must ensure their movement is undetected by the enemy.

Note. If found, wire can lead the enemy to the vehicle, the OP, or both.

5-194. The scout in the vehicle relays reports or information to the platoon leader by FBCB2 or wire. The scouts in the OP should carry a radio as a backup means of communications; they can use it to send reports or to talk directly to their FIST or mortar section for indirect fire support.

OP SECURITY

5-195. As noted, scouts are extremely vulnerable in an OP; their best self-defense is not being seen, heard, or otherwise located by the enemy. They employ active and passive measures to protect themselves from enemy detection and direct and indirect fires.

5-196. The first step is to locate the OP in a covered and concealed position to reduce the chance of being seen by the enemy. The scouts add camouflage to the position to enhance natural concealment. Material from around the location itself is recommended as long as it is gathered in a manner that does not indicate the scouts' presence. If they have enough time, the scouts dig in the position and add overhead cover to increase survivability against enemy fires. They enforce strict light and noise discipline and restrict activity in and around the OP to essential movement only. All vehicles remain hidden because the enemy can easily identify their large signatures. Scouts in the OP also must maintain secure communications; refer to the discussion earlier in this section.

5-197. To provide early warning of enemy movement around a screen line or OP position, scouts emplace UGVs in areas that cannot be directly observed or in the dead spaces around or between OPs. Trip flares and claymore mines provide additional early warning and protection from enemy personnel; however, once they are triggered, the enemy will have an indication that there is an overwatching element for that device.

5-198. Active patrolling around and between OPs also enhances security. Patrols give the platoon the ability to observe areas that cannot be observed from the OPs and to clear the area around the OP of enemy elements. A patrol can be executed by a minimum of two dismounted crewmen from the vehicles in the hide position. The platoon executes security patrols as soon as possible after occupation of the position to discover enemy elements that might have observed the occupation. The patrol reconnoiters favorable observation positions that might be occupied by the enemy. Route selection is critical when organizing patrols because scouts must assume that the OP position is under observation.

5-199. OPs cannot always avoid being seen by the enemy, so they must take actions to limit their vulnerability. Covered positions provide protection from enemy fires; vehicle dispersion further reduces the effects of these fires. The vehicles in the fighting positions are used to extract the scouts from the OP when the position has been identified and attacked by the enemy.

EXTENDED OP OPERATIONS

5-200. Extended OPs are fixed surveillance positions that require the scouts to remain at the site for up to 72 hours without relief or rotation of scout teams or support from the element's vehicle. Extended OPs minimize the chance of enemy detection. Infiltration and exfiltration, using aerial or dismounted movement, will be the primary method of occupying and departing the OP. Once the OP is occupied, movement around the OP ceases until mission is complete, evacuation is required, and/or exfiltration begins.

5-201. This discussion addresses the process of selection, construction, and occupation of extended OPs. During this process, the scouts should apply the principles summarized by the acronym BLUES:

- **B** – Blend in with the surrounding area. Does the site look natural? Does it attract unwanted attention?
- **L** – Low-to-the-ground construction techniques must be used. Does the site provide protection against small arms and direct weapons fire?
- **U** – Unexpected sites should be used. Will the enemy forces expect you to look out the window or the small hole in the wall?
- **E** – Evacuation routes must be planned during site selection. Where will you go to link up with friendly forces?
- **S** – Avoid silhouetting of the site by using the sides of hills, not the crests. Can the sniper see you silhouetted against the skyline, wall, or other object?

SITE SELECTION

5-202. In choosing where to position extended OPs, the reconnaissance or scout platoon must ensure that the sites meet the following requirements:

- Afford adequate visual and electronic line-of-sight target observation and security for the observers.
- Have as wide a field of view and as little dead space as possible.
- Are not near natural lines of drift or in terrain that would naturally draw the attention of enemy forces, such as atop a flat rock face on a hill.
- Have covered and concealed exit and entry points.
- Are far enough downwind from the target and inhabited areas to minimize the detection of the odors by dogs or people. Remember that wind direction often changes at various times of day.
- Are positioned at a distance from the target in accordance with METT-TC.
- Afford effective overhead and side cover and concealment.
- Are capable of supporting execution of battle drills if the observers must break enemy contact.
- Support reliable communications between the observers and their main body, security element, and/or communications element.
- Are in a location that is not obvious to enemy forces.

5-203. If no single position affords all these features (for example, daytime versus nighttime requirements), it may become necessary to select separate positions suited to the type of surveillance performed. Multiple positions must be mutually supporting so that if one position is compromised, observers in the other position are able to continue the surveillance mission and/or warn the rest of the platoon. Further, if positions are not used during the day, they should be kept under observation. If the positions cannot be secured by observation, they should not be reused the following night. This practice prevents the scouts from walking into an ambush while trying to reoccupy the position. Another consideration in the use of separate positions is that observers must avoid establishing patterns and trails while moving to and from the different positions.

CONSTRUCTION TECHNIQUES

5-204. Several construction techniques are common to all observation positions. These techniques are included in SOPs and practiced during normal training.

Dirt Removal

5-205. The primary problem in constructing any position is the removal of excess dirt. Excavated soil expands in volume. In dry climates, the subsurface soil contains the most water. This water content causes the soil to be a different color, meaning this soil must be camouflaged. Under these conditions, construct underground positions before the early morning dew develops. Discarding excess soil before the dew sets in aids in the camouflage process. Consider the effect of the sun drying out the excess soil. This dried soil

may need to be camouflaged. The main technique for camouflaging soil, using plastic sheeting or a poncho, entails the following steps:

- Lay out the sheeting alongside the position.
- Place the topsoil to one side of the sheeting. Remember that the topsoil only extends a few centimeters below the surface. Save as much of the vegetation as possible.
- Dig out the remaining soil. Do not mix the topsoil with subsoil from the hole.
- Fill sandbags with loose soil dug from the hole; use them to reinforce the sides of the position.
- Fill surrounding depressions, ruts, or ditches with the remaining excess soil. If this procedure is not possible, spread the soil lightly on the surface in an area away from the position. Avoid putting the excess soil in creeks or streams that may wash the dirt down the waterway and attract unwanted attention.
- After overhead cover is constructed and waterproofed, replace the topsoil. Place vegetation, leaves, deadfall, or other local materials around the area to finish camouflaging the position.
- The final step in the process is to recover the sheeting used to contain the soil. Check the vegetation under the sheeting to ensure that it was not matted down under the weight of the soil. If matting has occurred, take the time to brush it with a branch to return it to its natural state.
- As time passes, continually check the vegetation and soil around the position to ensure that they appear natural. Loose soil often falls through small holes and results in a strange looking, funnel-shaped hole. Check vegetation to ensure that it blends in with the surrounding area. Remove or replace dead vegetation.

Vegetation

5-206. When applying the "B" in the BLUES acronym, remember that vegetation is critical to blending the OP with surrounding terrain. Replanting and watering vegetation during initial position construction can eliminate the need to continually replace wilted plants. The drawback to this is the digging activities may be observed or heard by the enemy.

Grasses

5-207. When removing topsoil, save the grass. Remove the grass in clumps, using an entrenching tool or shovel to cut circle about 5 to 15 centimeters around the section to be saved. Pry the roots and soil up from the bottom. When replacing the grass around the position, pattern the placement after the natural design. Shake the grass slightly to loosen the roots, then replace it at ground level. If water is available, a small amount placed on the grass will lessen the shock of replanting and extend the life of the camouflage. Grass sod may be cut and peeled back to create a subsurface cache for OP personnel, equipment, and supplies.

Plants and Bushes

5-208. Medium-sized plants or bushes will aid the security of the position. Not only will the plants add to the camouflage of the position, they will also discourage vehicle and foot movement over the top of the position. The main disadvantage in using plants on top of the position is that the plants may die or fall over due to the shallow depth of the overhead cover.

Deadfall

5-209. Deadfall can restrict movement in much the same way as the plants and bushes discussed earlier. At the same time, the use of deadfall as part of the overall camouflage effort presents several disadvantages:

- In most regions of the world, deadfall is used for home heating, cooking, and construction. If the position has this fuel near it, the risk of discovery increases. The only options available to OP personnel if a nonhostile civilian discovers them are emergency exfiltration and activation of the escape and evasion plan. Either COA will result in the mission being terminated.
- Deadfall provides very limited cover against small arms fire. Most trees decompose quickly on the ground. Modern small arms fire will easily pass through these rotten trees. If deadfall must be used, it is reinforced with dirt.

Sidewall Support

5-210. Depending on the soil condition in the AO, the sidewall of the position may require some type of shoring or support to prevent cave-ins. A variety of material for support of the walls is available, such as local timber, branches, deadfall, plastic sheeting, and ponchos. The primary means for supporting sidewalls is sandbags. These lightweight bags have a variety of uses and conform to almost any shape required. The exact number of bags required depends on the size and overall design of the position. When cross-bracing sandbagged walls, use freshly cut green timber or a prefabricated support such as PVC pipe, conduit, or similar items. Examples of cross-bracing and revetments can be found in FM 5-34.

OP Kits

5-211. Whenever possible, the unit should assemble kits to aid in the construction of the required positions. Items in these kits include the following:

- PVC pipe (elbows, straight connectors, and three- and four-way connectors) and PVC cement. This strong, lightweight material can be formed into a multitude of shapes and designs. It can be used to build a frame for the overhead cover or to form cross-bracing.
- Parachute suspension line. This has many uses, such as being interwoven to produce a frame for overhead cover.
- Sandbags.
- Assorted tapes, cords, and ropes.
- Plastic bags with press-together or slide-lock "zippers" for closing. These items can be used for general storage.
- Half-meter-square pieces of 1-centimeter plywood. This lightweight material is excellent for constructing overhead cover, platforms for use in trees, and insulation when operating on ice and snow. The squares can be painted to match the terrain in which they are used.
- Plastic sheeting. Heavy-gauge plastic sheeting fills many roles. If plastic sheeting is not available, the heavy-duty plastic bags used to cover pallets work well.
- Hand tools, such as D-handle shovels, hack saws, hammers, and small bow saws.
- Plastic or aluminum tent stakes. These items save time during construction of the position.
- Canvas and camouflage netting.
- Mirrors or periscopes.

EXTENDED OP EMPLOYMENT

Urban Environment

5-212. An urban or built-up area forms the economic and cultural focus for the surrounding area. It is characterized by a concentration of people and man-made structures and facilities. Because of the generally limited fields of vision, urban operations normally require more positions than rural operations. Refer to FM 3-06 and to the discussion of urban operations in Appendix C of this manual. In the urban environment, elements manning OPs have the advantage of concealing movement to and from the OP by moving under, through, or over buildings and other structures.

Position Selection

5-213. As with other observation and surveillance positions, METT-TC factors dictate the selection of urban OPs. Scouts can construct fixed urban positions in occupied and abandoned buildings, on water tanks, behind shrubbery, on factory chimneys, or in the attics of multistory buildings or other tall structures. If the position is to be set up in an undamaged part of the urban area, the scouts should select buildings of solid construction, with serviceable stairs and basements that can be equipped for the rest and shelter of personnel.

5-214. Scouts should avoid wooden buildings and buildings in a significantly deteriorated condition because of the risk of injury from fire and/or structural failure. Fixed positions should not be located in

buildings that will attract the enemy's attention; instead, they should be placed in rubble, yards, and gardens.

5-215. When occupying the position, scouts must look for booby traps and mines. If they detect such devices, they must be prepared to take proper precautions, including the following:

- Disable the devices, if possible.
- Mark the area if the devices cannot be disabled.
- Choose another position if the quantity of booby traps or mines prevents safe operation within the position.

Construction

5-216. Position construction may consist simply of being able to look out of a suitable viewing port, or it can be much more elaborate. Considerations and actions should include the following:

- Construction of the position must be done with particular emphasis on OPSEC.
- Fill windows, doors, and other openings (such as bullet holes not used for observation) with bricks, fragments of building materials, or sand bags if available.
- Remove flammable objects. These may be used for early warning or defensive devices.
- Establish interbuilding communications by hard wire. Fiber optic cables (telephones), if available, offer even better security and support some surveillance devices.
- Identify and construct rapid departure routes.

Avoiding Detection

5-217. Because of the high concentration of people, enemy security elements, lighting sources, and movement, scouts in urban areas must take additional precautions to avoid detection during surveillance activities. Considerations for detection avoidance include the following:

- A minimum of two scouts are required in occupying the OP.
- If operating from an occupied dwelling, do not consume more electric power, water, and heat than the normal occupants.
- Employ OPSEC to negate or evade enemy electronic countermeasures. For example, technological advances make it possible for mobile units operating from the street to electronically survey a building and detect and identify very small sources of energy. Such capabilities are increasingly widespread and are often found in built-up areas of even marginally developed countries.

Mountainous Environment

5-218. Rugged, poorly trafficable terrain, steep slopes, and elevations that allow observation of surrounding terrain characterize mountainous areas. This terrain may require more observers and positions than flat areas because of the relatively limited fields of view. On the other hand, in areas above the tree line or where lower elevations lack vegetation, the number of observers may be decreased. OPs can be detected at any angle by threats above or below them. A careful study of the target area will give a good indication of these requirements. For a general discussion of operations in mountainous areas, see FM 3-97.6. Platoons may employ UASs to cover dead space or extend range; however, windy conditions typical of mountainous areas may hamper deployment or recovery of the UASs.

Position Selection

5-219. Mountain terrain provides many places for cover and concealment. Position selection is not guided by the height of a given mountain but by factors that include the following:

- Irregular fields of observation.
- Dead space.
- Cover and concealment.
- The limits of the observation equipment used by the scouts.

5-220. Scouts may employ a circular, multi-tiered system of observers. To increase daytime viewing capability, positions are placed not only laterally but also with vertical dispersion. This layering of positions also reduces the need for movement when changing from daytime to nighttime operations. Since movement is the main cause of compromise, layering positions also adds to the security of the deployed scouts (see Figure 5-50).

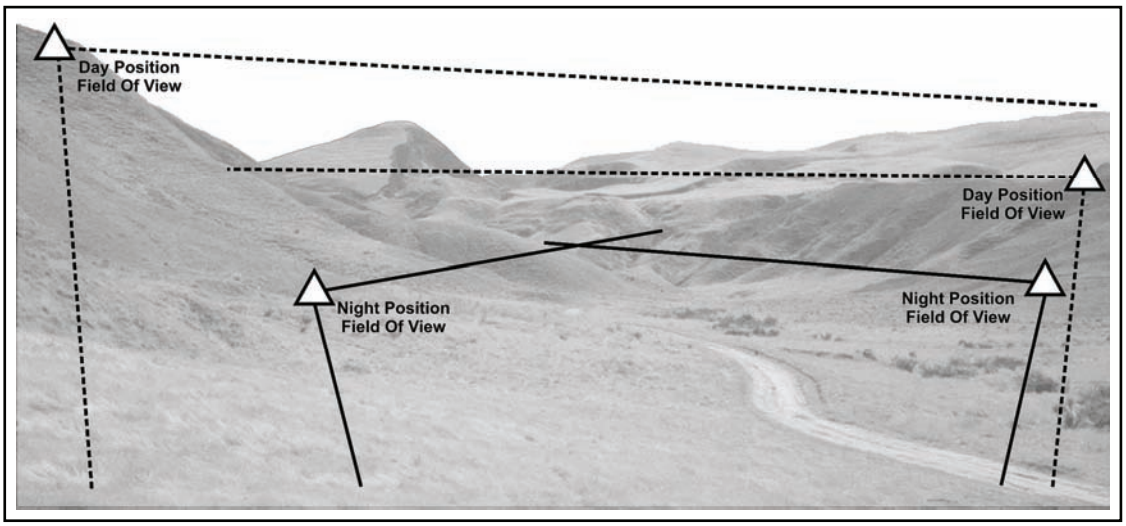


Figure 5-50. Overlapping mountain observation

Construction

5-221. Irregular terrain in mountains often affords natural hiding places for observers. In most mountainous areas, the rocky nature of the ground makes it difficult and often impossible to dig belowground positions. In those cases, boulders and loose rocks can be used in aboveground construction of low-walled positions called "scrapes." The position must blend in with its surroundings and not be detectable from any angle. Fields of view can often be enhanced if the lower branches on the undergrowth are trimmed back with a wire saw, shears, or knife.

Night Observation

5-222. At night, sending out additional observers into valleys enhances observation. Observation from below, facing upward against the background of the sky, often gives better results. In addition, the scouts should supplement night observation by monitoring. Monitoring is more effective in mountainous areas than on flat terrain because sounds are often funneled to the head of a valley and are perceptible at great distances. Sounds in the mountains can be deceptive, however. Various obstructions can reduce their volume and change their direction.

Snow

5-223. In mountainous areas, scouts can use certain tactics to reduce the problems associated with operations where snow is expected or known to be on the ground. Some of these tactics are discussed in the following paragraphs.

5-224. **Melting Conditions.** Observers should choose positions that are in shaded areas, on slopes facing away from the equator (north in the Northern Hemisphere, south in the Southern Hemisphere). In moderate temperatures, the heat generated by the observers' bodies melts the snow on the cover of the position. The result is an unexplainable muddy area in the snow. Such melting is, however, common around trees. The melting snow during the heat of the day often falls to the ground and, in turn, melts the snow on the ground. The shadows found around rock outcropping and trees also aid in hiding the foot trails leading to the work area and position.

5-225. Taking advantage of shade also helps to assure even melting, which can prevent compromise of the position. Walking compresses snow under each footprint. The compressed snow melts at a slower rate than the surrounding snow. This effect is like comparing the difference between crushed ice and cubed ice in a drink. The loose, crushed ice melts faster than the dense cubes. In areas where the snow melts fast, such as the sunny side of a hill, the compressed snow will leave footprints or trails leading to the position.

5-226. **Avalanche Danger.** The constant daytime melting and nighttime refreezing of snow on slopes can contribute to increased avalanche danger. Scouts should use shadowed areas and slopes to reduce the risk of starting or being caught in an avalanche. Most danger areas with heightened avalanche risk are well known; these are often plotted on military and civilian maps and must be considered when selecting an OP site.

TYPES OF EXTENDED OPS

Aboveground Positions

5-227. These are the most common type of fixed observation and surveillance positions. The advantages of selecting an aboveground position are the ease, speed with which the position can be selected and occupied, and the simplicity of construction. The primary disadvantages in these positions are easy detection and little protection from small arms fire compared to belowground positions. The following discussion focuses on the use of trees as OP positions.

Operational Considerations

5-228. Special skills and equipment are required for operations in trees. Equipment requirements and planning considerations, which are different from those of ground positions, are as follows:

- Choose trees that are situated well within the forest.
- They should never stand out in height, shape, or color.
- Observers should be well camouflaged in the crown of a tree.
- Further, the observer in the tree must be covered by fire that permits him to exit his location if detected or engaged by hostile forces.
- Observers must acquire the materials needed to improve the position (such as flat wood pieces on which to stand or sit).

Advantages

5-229. Advantages inherent in positioning extended OPs in trees include the following:

- These positions afford a long-range view in open areas. In heavy-growth areas, however, the view may be nothing more than the tops of trees.
- Most people do not look more than 2 to 3 feet above their heads when walking. When a person is carrying a load on his back, he often bends forward at the waist. As a result, he can do little more than look at the ground at his feet to maintain his footing.
- Trees provide good concealment for the observer even if the enemy is trying to look in the trees for him. The key exception is when the observer is moving about in the position.

Disadvantages

5-230. Disadvantages of using trees for extended OPs include the following:

- Observers face potential problems in getting into and out of the position.
- These positions often lack adequate cover.
- Slight movement in trees can be seen and heard at great distances.
- Indirect fires can cause trees to fall on top of the OP, injuring personnel and damaging equipment.

Monitoring the Target Area

5-231. Monitoring of the target area is critical to accomplishing the mission and providing scouts with OPSEC. Observers positioned in a tree OP can monitor the target in several ways, including the following:

- Observers can sit quietly and listen to sounds with their eyes closed. This works best using two scouts; one watches while the other listens.
- Observers record the sounds of the area on a recorder and play the sounds back at a louder volume into headphones.
- Remote sensors often play a key role in monitoring the target.

Ground Positions

5-232. OPs on the ground are camouflaged to resemble such features as stumps, fallen trees, and bushes. For enhanced surveillance, the scouts locate the position to overwatch the intersection of fire lanes, roads, and footpaths on the edge of sparsely wooded areas and natural clearings. When available, obstacles such as creeks, ditches, or steep slopes should be located between the position and the probable route of enemy security forces. At night, even a small creek will cause the enemy to make noise; it will also disrupt his formations and generally slow his progress.

Spider Hole

5-233. This type of position is similar to a fighting position with overhead cover. The dimensions are normally about 0.75 meters wide by 1.2 meters long by 1 to 1.5 meters deep. The observer can adjust the dimensions to meet his needs. These one-man positions are normally established on a line or ring to provide support and enhance security. If the platoon uses this type of OP, a minimum of two mutually supporting holes must be used (see Figure 5-51).

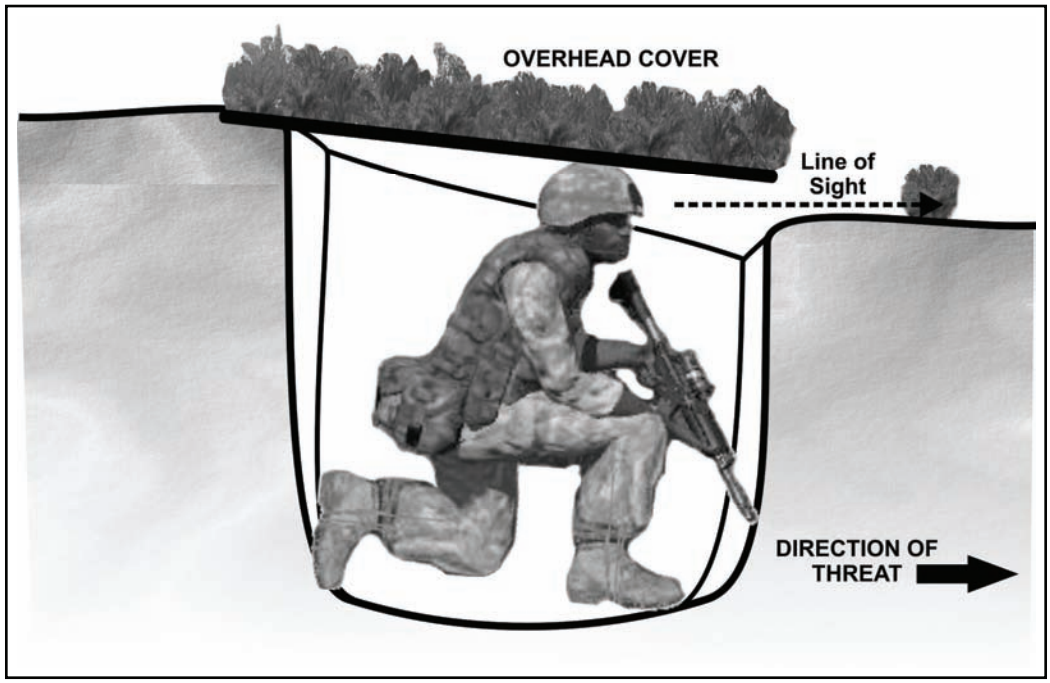


Figure 5-51. Spider hole OP

Scrape

5-234. A scrape is the enlargement of a depression in the ground to allow one man to occupy a position. Scrapes are hasty in nature and require little preparation. Often used during darkness, scrapes provide the

observer with a position from which he can more effectively use his optical devices. The observer removes as much evidence of occupation as possible when he leaves. He obscures the area by brushing matted grasses, displaced dirt, and footprints. Overhead cover such as a poncho provides limited protection from the elements. If the platoon uses this type of OP, a minimum of two mutually supporting scrapes must be used to provide some security for each other; a single scrape must be covered by an overwatching element. (See Figures 5-52 and 5-53.)

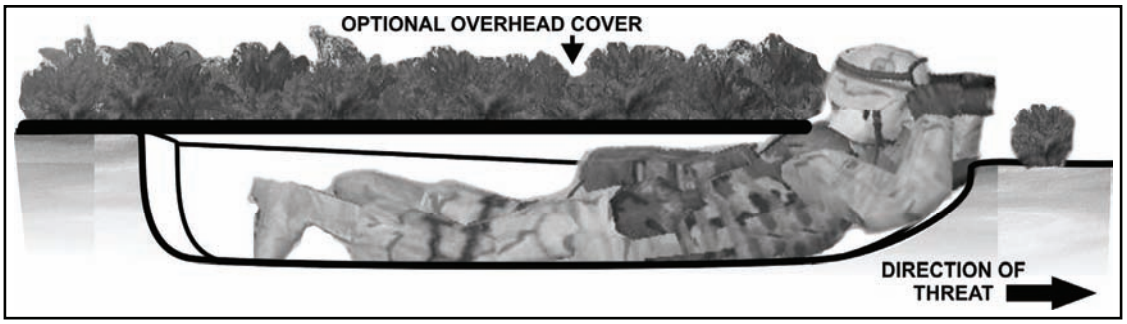


Figure 5-52. Scrape OP

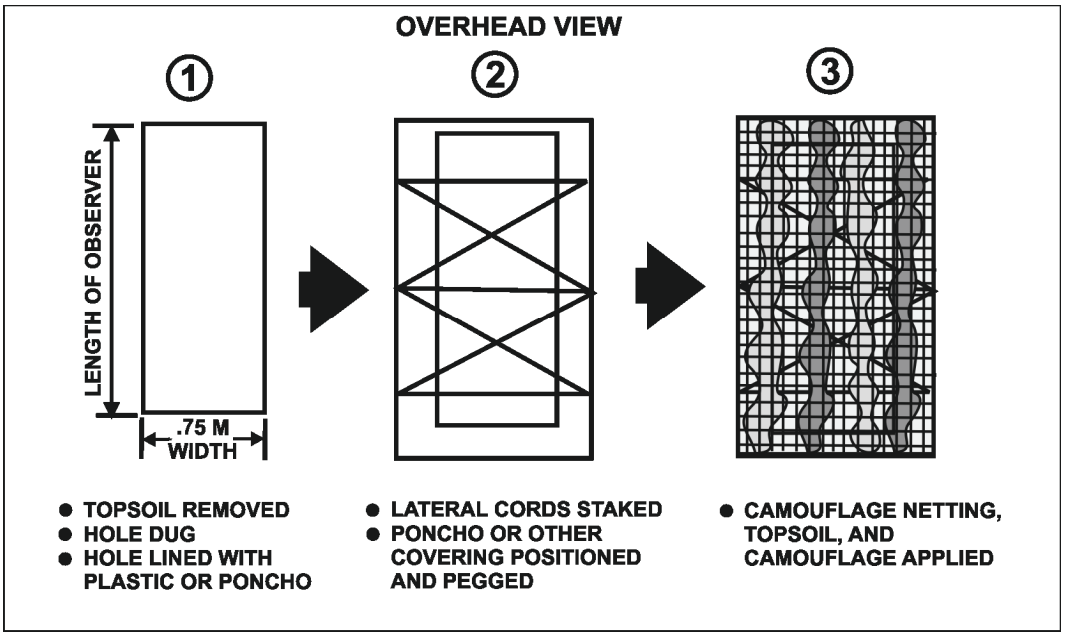


Figure 5-53. Example scrape plan

Tent-Type Position

5-235. Larger than a spider hole, this position is constructed for more than one observer. Supports for the overhead cover are made from a variety of material. Branches, aluminum conduit, parachute suspension line, or fiberglass rods all work well as a frame for the cover. A slight arch in the cover multiplies available space inside the position. The observer avoids grossly breaking the ground plane with the apex of the position. (See Figure 5-54.)

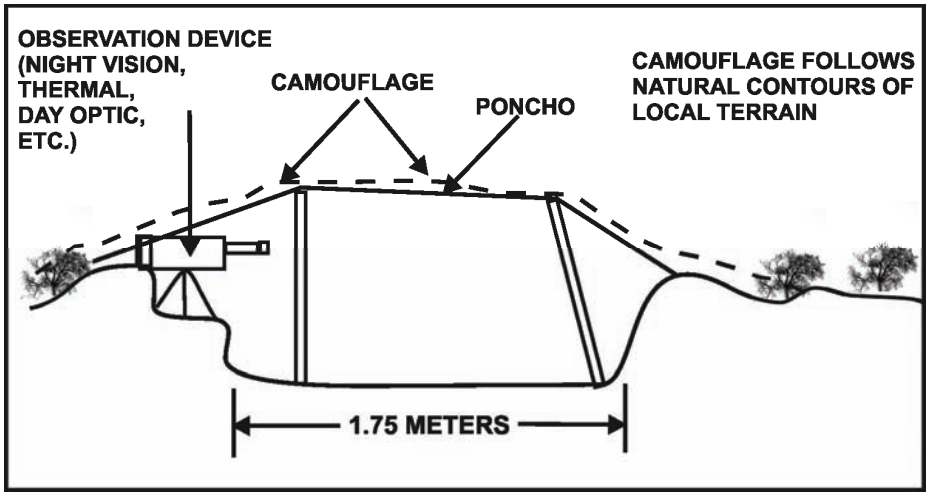


Figure 5-54. Tent-type OP

Underground Positions

5-236. The safest type of OP for the scout is the underground position. The complexity of design and the effort required to construct the position are its primary disadvantages. When the scouts plan to use underground positions, soil type is a critical planning consideration that must not be overlooked during mission preparation. For example, when only light equipment (such as shovels and entrenching tools) is available, underground positions can only be constructed in loose soils.

Bunker-Type Position

5-237. This position requires extensive construction time and material to complete. The observer can construct the underground bunker-type position using a prefabricated kit. That includes the tools needed to excavate and cut local materials such as trees and logs. The kit also contains plastic sheeting for waterproofing the roof, walls, and floor. The sheeting can also be used to reinforce loose soil in the position. Depending on the soil in the area, however, sandbags are often required to shore up the sides of the position; sandbags also lessen the accumulation of condensation produced when plastic sheeting is used. (See Figure 5-55.)

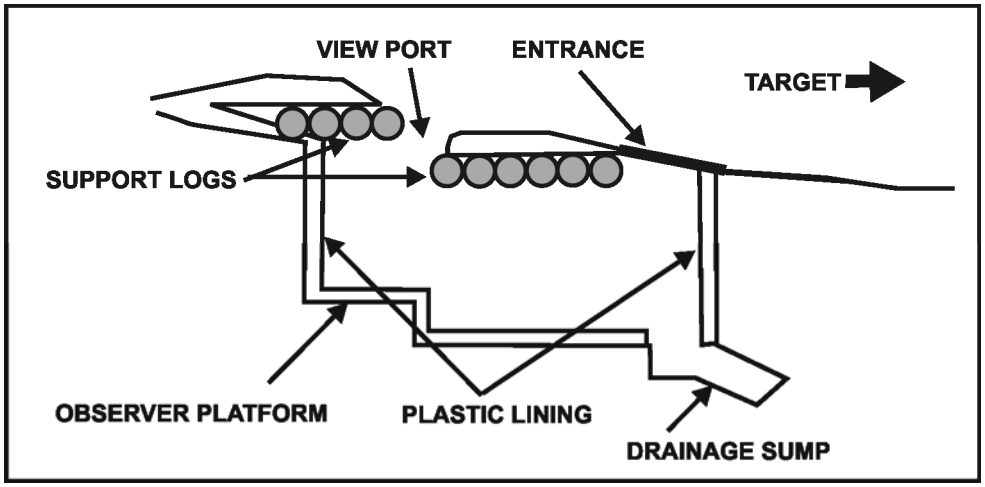


Figure 5-55. Bunker-type underground OP

Caves

5-238. Caves can provide the observer with a ready-made observation position. They present special problems, however, and should be avoided if possible. First, caves attract attention; using them for tactical purposes may increase the chance of discovery. Caves are often shown on maps. They are usually known to local residents who often use caves for shelter and storage. They may have equipped caves with early warning devices that could attract the attention of enemy forces. In addition, caves also attract animals. Bats, birds, snakes, and larger animals use caves for shelter, posing potential dangers and health threats.

REMOTE ELECTRONIC/MECHANICAL SURVEILLANCE

5-239. In some cases, the reconnaissance or scout platoon will not have the resources to observe a particular area that is either tasked to the platoon or important to its internal security. Other times, the terrain will not permit such observation. In these situations, the platoon can use mechanical warning devices such as trip flares or electronic devices to monitor the area.

5-240. As a general consideration, remote surveillance devices allow the platoon to put maximum effort into the commander's or platoon leader's area of interest while still maintaining surveillance on secondary reconnaissance objectives. The platoon will back up these devices with patrols to investigate any alarms. An example of the use of mechanical devices is the use of trip flares in dead space along the avenue of approach. When activated, the trip flare gives early warning of enemy infiltration. A patrol will then be dispatched to verify the warning. (See Figure 5-56.)

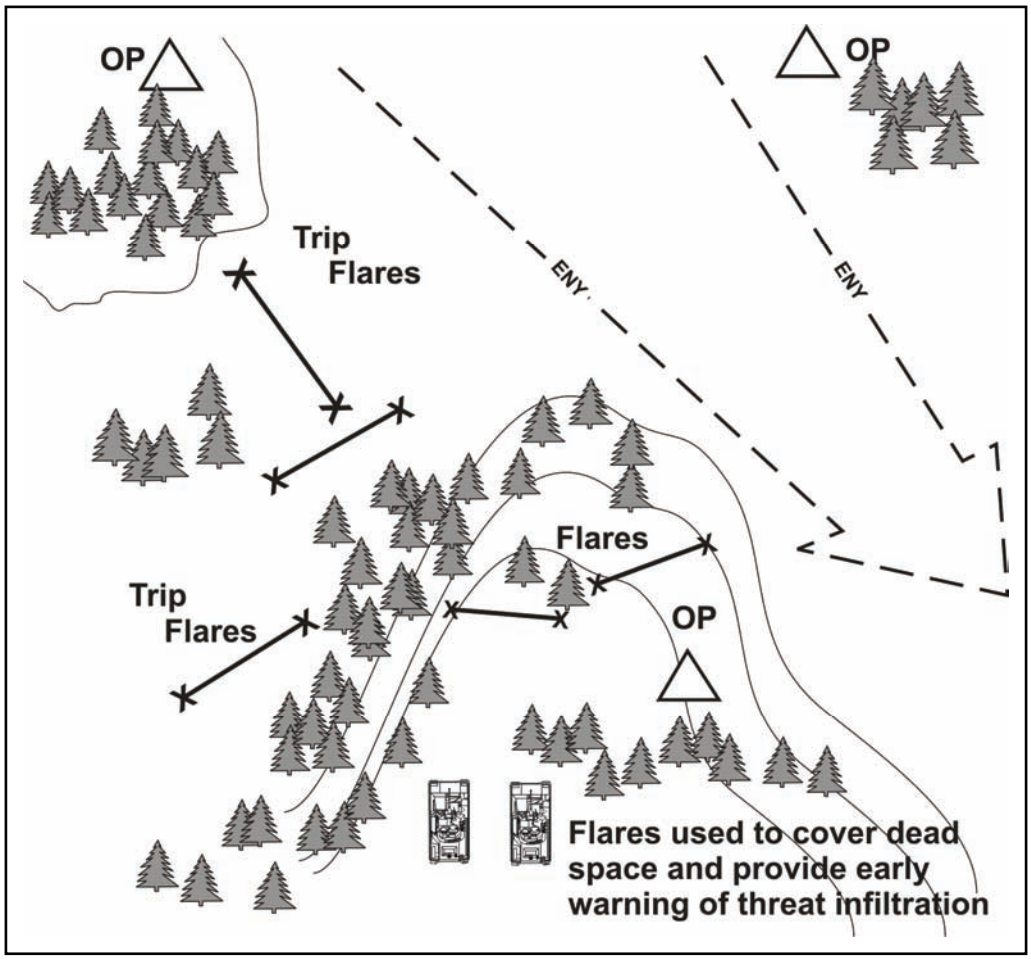


Figure 5-56. Integration of remote devices into a screen

SECTION VIII – DISMOUNTED PATROLS

5-241. Dismounted operations, in some form, are a critical element in virtually every reconnaissance or scout platoon mission. The best scouting is done dismounted. It is critical that all reconnaissance leaders understand how and when to employ dismounted scouts to enhance the platoon's effectiveness in reconnaissance and security tasks.

5-242. Patrols are missions to gather information or to conduct combat operations. The platoon must be proficient at conducting the five types of patrols: reconnaissance, security, combat, presence, and tracking. A mission to conduct a patrol may be given to a team, section, squad, or in some situations, the entire platoon.

OPERATIONAL CONSIDERATIONS

5-243. The following considerations are basic to the platoon's understanding, planning, and execution for every patrol mission:

- The platoon must plan and conduct the reconnaissance patrol in accordance with the fundamentals of reconnaissance outlined in Chapter 3 of this manual.
- Based on the higher commander's guidance and intent, the platoon leader must specify the following aspects of the patrol:
  - The focus of the patrol. In most cases, this is the reconnaissance objective.
  - The tempo. This includes the level of planning and preparation (deliberate or hasty).
  - Engagement criteria, including applicable ROE and ROI.
- The platoon must execute the patrol using the correct movement technique to prevent compromise of any patrol element. It must always maintain local security by using separate reconnaissance and security elements.
- The platoon must take advantage of available resources (including IPB products, UASs, ground surveillance systems, FBCB2, and other enablers) to develop the situation prior to enemy contact.
- Enemy contact is avoided unless specifically directed by the platoon leader. In such a situation, the platoon gains contact with its smallest element. Unexpected contact by reconnaissance elements is absolutely minimized.
- Based on the higher commander's intent and the platoon order, the platoon reports all IR, including CCIR, rapidly and accurately (by radio and/or FBCB2, as applicable).
- The platoon can execute reconnaissance patrols to ensure the security of OPs and integrity of the platoon AO. For example, a section can send out a reconnaissance patrol after establishing an OP to check all locations from which the enemy can observe the OP; this will ensure the OP position was not detected as it was occupied. When executed as part of a screen or other security mission, this type of patrol is referred to as a security patrol.

Note. Platoon leaders must consider the use of dismounted patrols to physically clear high ground or complex terrain that could conceal enemy forces due to the limitations of UASs, LRAS3, or thermal observation. Such terrain is identified through the IPB process.

- The platoon accomplishes the assigned patrol mission within the timeline specified by the higher commander.

PLANNING AND PREPARATION IN DISMOUNTED/PATROL OPERATIONS

5-244. When ordered to lead a patrol, the patrol leader follows the troop-leading procedures discussed in Chapter 2 of this manual. The following discussion focuses on how he can plan and prepare for patrol

operations; in turn, this process helps him to make and carry out tactical decisions quickly and effectively during the patrol. For further discussion of troop-leading procedures, see FM 5-0.

RECEIVE AND ANALYZE THE MISSION

5-245. Once the order is received, the first thing the patrol leader must do is clearly understand what is required to accomplish the mission. First, he looks at the order and writes down the tasks the commander told him to perform, such as conduct reconnaissance of a bridge; these are called specified tasks. Next, he identifies the tasks that must be done even though the commander did not tell him to do them, such as cross a stream and an open area en route to the patrol objective; these are called implied tasks.

5-246. The patrol leader does not list tasks that are part of the SOP. He takes a hard look at the list of specified and implied tasks and puts a check mark by those tasks that must be done for the unit to accomplish its mission. These are called essential tasks. To identify these tasks accurately, the patrol leader must thoroughly understand the commander's intent. He then restates the patrol mission in terms of WHO, WHAT, WHERE, WHEN, and WHY.

ISSUE A WARNING ORDER

5-247. The patrol leader issues the WARNO to all patrol members whenever possible or, at a minimum, to key members of the patrol. It should include the following:

- Elements/personnel to whom the WARNO is issued. This identifies the Soldiers involved in the patrol and allows them to prepare for the operation.
- The time and nature of the operation. This is a brief and clear statement of' what the patrol must accomplish. It may summarize the who, what, when, where, and why of the patrol mission.
- The earliest time of movement. This helps the patrol members prepare, inspect, and organize for movement by a specified time.
- The time and place the OPORD will be issued.

5-248. The patrol leader also gives instructions to special purpose teams and key personnel so they can get ready for the patrol by taking such actions as preparing explosives, checking radios, and making a map study (point and compass men).

MAKE A TENTATIVE PLAN

5-249. Once the warning order is issued, the patrol leader analyzes METT-TC factors and selects a COA that will accomplish the assigned mission(s). The plan should take into account how each aspect of METT-TC will influence the others regarding mission accomplishment. The patrol leader should give special consideration to the terrain the patrol must traverse, the enemy forces it will pass near or through en route to its objective, the effects of extensive dismounted work on the scouts, and the amount of time available to conduct the mission.

Patrol Time Schedule

5-250. The method the patrol leader uses to organize his time is reverse or backward planning from mission completion to the present time. This aids in mission planning and provides a schedule of events for all patrol members. An example of backward planning a time schedule is illustrated in Table 5-2.

Table 5-2. Example patrol time schedule (backward planning)

PATROL TIME SCHEDULE	
0200	Return Friendly Area
2330 – 0200	Movement En Route
2300 – 2330	Accomplish Mission, Reorganize
2230 – 2300	Reconnaissance of Objective Area
2000 – 2230	Movement En Route
2000	Depart Friendly Area
1945 – 2000	Movement to Departure Area
1930 – 1945	Final Inspection
1845 – 1930	Night Rehearsals
1800 – 1845	Day Rehearsals
1745 – 1800	Inspection
1700 – 1745	Supper Meal
1515 – 1700	Subunit Planning and Preparation
1445 – 1515	Issue Operation Order
1400 – 1445	Complete Detailed Plans
1315 – 1400	Conduct Reconnaissance
1300 – 1315	Issue Warning Order

Coordination

5-251. Patrols may act independently, move beyond the direct fire support of the parent unit, and/or operate forward of friendly units. As a consequence, their coordination effort must be thorough, detailed, and continuous throughout the planning and preparation phases. The patrol leader may perform coordination personally, or his superior may do it for him. Because the entire platoon may be tasked to patrol, the necessary coordination may be extensive. A checklist is a common tool used to ensure that all items of vital importance are covered. Rehearsals from the team level through the platoon level are the best method for mission understanding and success.

Times of Departure and Return

5-252. Times of departure and return are based on the amount of time needed to accomplish the following:

- Reach the objective. This is determined by considering the distance, terrain, anticipated speed of movement, friendly and enemy situation, and (if applicable) the time at or by which the mission must be accomplished.
- Accomplish essential tasks in the objective area. This includes the leader's reconnaissance and movement of elements and teams into position, as well as the accomplishment of the patrol's mission.
- Return to a friendly area. This may be difficult to determine because casualties, EPWs, or captured equipment may slow the patrol.

Note. Whenever possible, patrols/operations should be executed and synchronized based on triggers (events), such as confirmation of PIR or an element reaching a specific terrain feature. This method provides more tactical flexibility than the use of a rigid preplanned timeline.

Primary and Alternate Routes

5-253. The patrol leader selects a primary route to and from the objective. The return route should be different from the route to the objective. The patrol leader also selects an alternate route that may be used either to or from the objective. The alternate route is used if the patrol makes contact with the enemy on the primary route. It may also be used when the patrol leader knows or suspects that the patrol has been detected (see Figure 5-57).

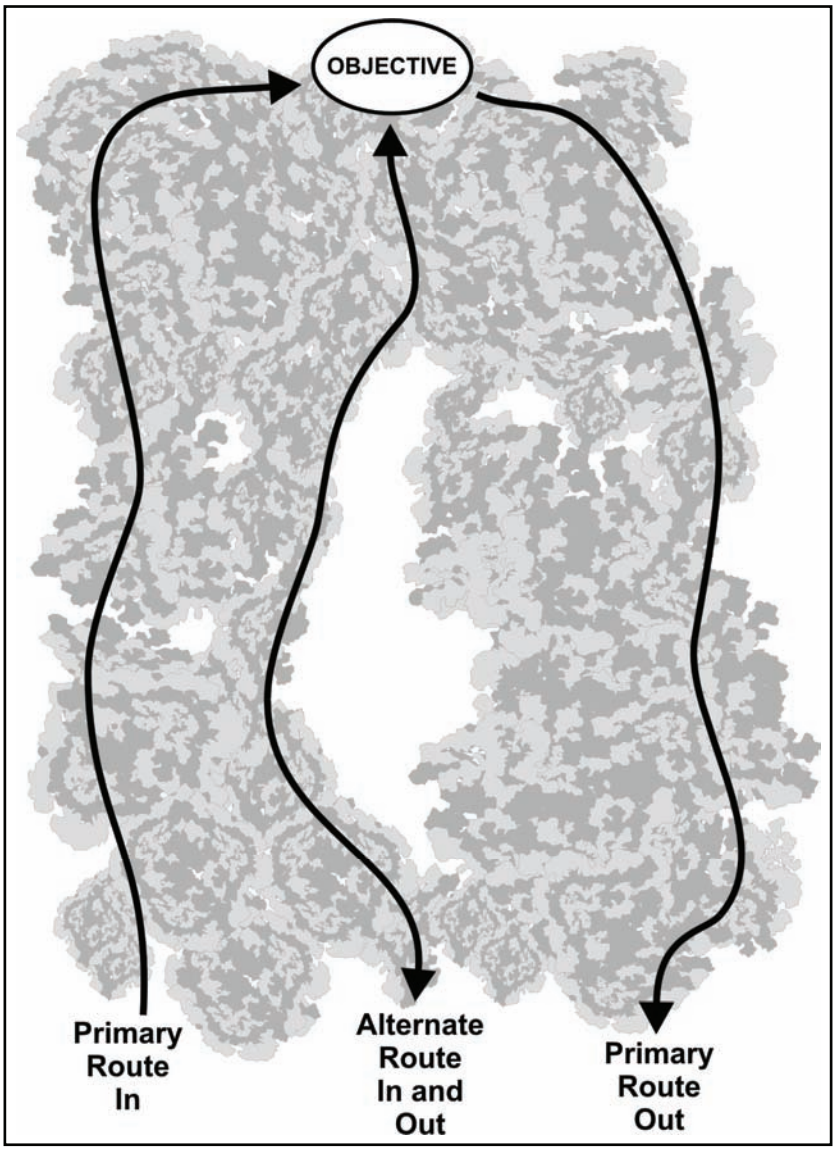


Figure 5-57. Primary and alternate routes

Routes Divided into Legs

5-254. Routes are divided into legs with each leg starting, if possible, at a point that can be recognized on the ground (see Figure 5-58). When it is not possible to start and stop legs at recognizable points, a continuous pace count and azimuth may be used to stay oriented on the route. If the patrol leader has requested the use of a sniper for overwatch on the legs, careful planning of the sniper coverage in relation to the patrol route will improve opportunities for clear engagements. Overflights of the legs by UASs can

provide current information about the terrain and enemy presence before the patrol moves through it. Alternate routes require the same consideration as the primary ones.

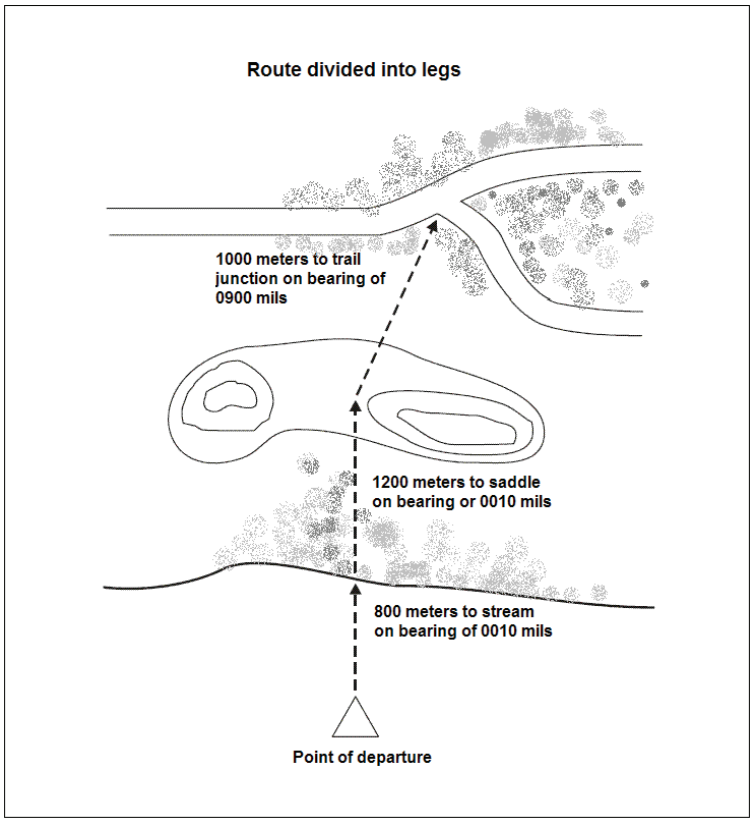


Figure 5-58. Route divided into legs

Rally Points

5-255. A rally point is a place where a patrol can conduct these actions:

- Temporarily halt to prepare to depart from friendly lines.
- Reassemble and reorganize if dispersed during movement.
- Temporarily halt to reorganize and prepare for actions at an objective.
- Temporarily halt to prepare to reenter friendly lines.

Types of Rally Points

5-256. The most common types are initial, en route, objective, reentry, and near side and far side rally points. Soldiers must know the rally point to which they are moving at each phase of the patrol mission. They should know what actions are required there and how long they are to wait at each rally point before moving to another. Rally point considerations include the following:

- **Initial rally point.** An initial rally point is where a patrol may assemble and reorganize if it is dispersed or makes enemy contact before departing friendly lines or before reaching the first en route rally point. Located within friendly lines, the initial rally point is normally selected by the commander of the friendly unit.
- **En route rally point.** An en route rally point is where a patrol rallies if dispersed en route to or from its objective. There may be several en route rally points along the patrol's route between friendly lines and the objective. They are either planned or designated by the patrol leader en route every 100 to 400 meters (based on the terrain, vegetation, and visibility). When the leader

designates a new en route rally point, the previously designated rally point goes into effect. This precludes uncertainty over which one Soldiers should move to if contact is made immediately after the leader designates a new rally point. There are three ways to designate an en route rally point:

- Physically occupy the rally point for a short period. This is the preferred method.
- Pass by the rally point at a distance and designate it using hand-and-arm signals.
- Walk through the rally point and designate it using hand-and-arm signals.

- **Objective rally point.** An ORP is where the patrol halts to prepare for actions on its objective. The ORP must be located near the objective. At the same time, it must be out of sight and sound range of the objective area so that the patrol's activities at the ORP will not be detected by the enemy (normally at least one terrain feature from the objective). It must also be out of small arms range of enemy forces and far enough from the objective that it will not be overrun if the patrol is forced off the objective. The ORP is tentative until the objective is pinpointed. The patrol uses the ORP as a base for conducting the following actions:
  - A base from which to reconnoiter the objective.
  - Issue a FRAGO.
  - Disseminate information from reconnaissance if contact was not made.
  - Make final preparations before continuing operations. These may include applying or replenishing camouflage; preparing demolitions; caching rucksacks for quick recovery; preparing EPW bindings, first aid kits, and litters; and inspecting weapons.
  - Account for Soldiers and equipment after actions on the objective are complete.
  - Reestablish the chain of command after actions on the objective are complete.
- **Reentry rally point.** A reentry rally point is where a patrol halts to prepare to reenter friendly lines. It is located just short of friendly lines and out of sight, sound, and small arms range of friendly OPs. This also means that the reentry rally point should be outside the limit of FPF of the friendly unit. The patrol occupies the rally point as a security perimeter while it awaits reentry.
- **Near side and far side rally points.** These rally points are established on the near and far side of danger areas. If the patrol makes contact while crossing the danger area and control is lost, Soldiers on either side move to the rally point nearest them. They establish security, reestablish the chain of command, and determine their personnel and equipment status. They can then continue the patrol mission, link up at the ORP, or complete their last instructions.

Rally Point Selection

5-257. The patrol leader should pick rally points either during the patrol or by a map study before the patrol. Those selected before the patrol begins are tentative and will remain so until confirmed on the ground. In selecting rally points, the patrol leader should look for locations with the following characteristics:

- Large enough for the patrol to assemble.
- Easily recognizable.
- Affording adequate cover and concealment.
- Defensible for a short time.
- Away from normal routes of troop movement and natural lines of drift (streams, ridges).

INITIATE MOVEMENT

5-258. The patrol leader directs the patrol to move once he issues his warning order and makes his plan. This movement may involve securing a passage point or moving to the SP.

CONDUCT RECONNAISSANCE

5-259. The patrol leader must make a map, ground, or aerial reconnaissance before completing his plan. This allows him to proof his tentative plan and get an idea of the ground he will initially traverse. He must keep an open mind during the reconnaissance; not everything he sees will match his tentative plan.

COMPLETE THE PLAN

5-260. After the warning order has been issued, reconnaissance has been made, and patrol members are preparing themselves and their equipment, the patrol leader completes his plan. He first assigns essential tasks to be performed in the objective area. After this, he plans and assigns tasks that will help the patrol reach the objective and return, such as navigation, security during movement and halts, actions at danger areas, actions on enemy contact, and stream crossings. The following discussion focuses on additional planning considerations.

Weapons and Ammunition

5-261. This consideration applies if the patrol needs to bring additional Class V in addition to its basic load, such as significant amounts of demolitions or squad weapons requiring additional ammunition to be carried by the patrol.

Signals

5-262. The signals to be used on the patrol must be planned and rehearsed. Signals may be needed to lift or shift supporting fires, to order withdrawal from the objective, to signal "ALL CLEAR," to stop and start movement of the patrol, and to direct linkup of elements. Visual and audible signals may be used, such as hand-and-arm signals, flares, radio voice, whistles, radios, and infrared equipment. All patrol members must know the signals.

Communications with Higher Headquarters

5-263. The plan must include retrans sites, the correct FBCB2 programming, radio call signs, primary and alternate frequencies, times to report, and codes.

Challenge and Password

5-264. The challenge and password from the SOI should not be used by a patrol beyond the FEBA. The patrol leader may devise his own challenge and password system. The platoon can use the odd-number system. For example, if the patrol leader specifies 11 as the odd number, the challenge could be any number between 1 and 10. The password would be the number which, when added to the challenge, equals 11 (such as challenge 8, password 3).

5-265. The platoon leader can also designate a running password. This code alerts a unit that friendly Soldiers are approaching in a hasty manner and may be under enemy pressure. This technique may be used to get Soldiers quickly through a compromised passage of lines. The running password is followed by the number of Soldiers approaching (Dogwood, 6); this prevents enemy soldiers from joining the group in an attempt to penetrate friendly lines.

Location of Leaders

5-266. The locations of the patrol leader and assistant patrol leader are planned for all phases of the patrol during movement, at danger areas, and at the objective. The following considerations apply:

- The patrol leader plans to be present at the pre-designated decisive point for each phase of the operation.
- The assistant patrol leader may have a specific job for each phase of the patrol. He may help the patrol leader control the patrol by being where he can best take charge, if required.
- Everyone on the patrol must understand where he fits into the patrol or his element of the patrol.
- Duties and responsibilities for the assistant patrol leader during actions on the objective area include these:
  - Area reconnaissance in the ORP.
  - Zone reconnaissance with a reconnaissance element that has been directed to move to and establish the point at which all elements are to link up after completing the operation.
  - Combat patrol (raid or ambush). The assistant patrol leader normally controls the support element.

Patrol Organization

5-267. To accomplish the patrolling mission, a platoon or squad must perform specific tasks. Examples include providing security for itself or at danger area crossings or rally points; reconnoitering the patrol objective; and conducting breach, support, or assault operations. As with other missions, the leader tasks elements of his platoon in accordance with his estimate of the situation. He identifies those tasks the platoon must perform and decides which elements will perform them. If possible, the patrol leader should maintain squad and fire team integrity in assigning tasks.

5-268. The basic patrol configuration includes a reconnaissance element and a security element. In turn, these elements are made of individual Soldiers with specific roles, as well as subordinate and supporting groups known by the terms "element" and "team." These refer to the squads, fire teams, or buddy teams that perform the common and specific tasks for each type of patrol. Some squads and fire teams may perform more than one task in an assigned sequence. The leader must plan carefully to ensure that he has identified and assigned all required tasks in the most efficient way. The following elements are common to all patrols:

- **Headquarters element.** The headquarters consists of the patrol leader, assistant patrol leader, and radio-telephone operator (RTO). It may consist of any attachments that the patrol leader decides that he or the assistant patrol leader must control directly, such as an FO.
- **Aid and litter team.** Aid and litter teams treat and evacuate casualties.
- **EPW team.** EPW teams are responsible for controlling prisoners in accordance with the "five-S" principles and the leader's guidance. This team may also be the search team. If contact results in wounded and/or killed enemy soldiers, this team searches those individuals for information and material they may have been carrying while the rest of the patrol provides security.
- **Surveillance team.** The surveillance team keeps watch on the objective from the time the leader's reconnaissance ends until the unit deploys for actions on the objective. The members of the team then join their elements.
- **Point man.** He provides security to the front of the patrol. In addition, he is guided by the compass man or patrol leader.
- **En route recorder.** The recorder writes down/collects all information gathered by the patrol.
- **Compass man.** The compass man assists in navigation by ensuring that the point man remains on course at all times. Instructions to the compass man must include an initial azimuth, with subsequent azimuths provided as necessary. The compass man should preset his compass on the initial azimuth before moving out, especially if the move will be during limited visibility conditions. The patrol leader should also designate an alternate compass man.
- **Pace man.** The pace man maintains an accurate pace at all times. The patrol leader should designate how often the pace man is to report the pace to him. The pace man should also report the pace at the end of each leg. The leader should designate an alternate pace man.

ISSUE THE ORDER

5-269. The order is issued in standard five-paragraph OPORD format. Terrain models or sketches are used to illustrate the plan. Sketches to show planned actions can be drawn in the sand, dirt, or snow. The patrol leader considers specific details in planning the patrol using the OPORD format.

Task Organization

5-270. Explain how the patrol is organized for the operation and confirm the composition of each element. Identify time(s) of attachment and detachment. If there is no change to the previous task organization, the patrol leader indicates that there is no change.

Situation

5-271. Considerations include—

- Weather and light data for illumination effecting concealment.
- Terrain. OAKOC and how it will affect the patrol and enemy forces.

- Enemy situation, including the following:
  - Composition.
  - Disposition.
  - Capabilities when dismounted.
  - Recent activities such as security patrols.
  - Last known location for planning movement.
  - Their avenues of approach.
- Friendly situation, including the following:
  - Mission, location, and routes of adjacent units.
  - Where friendly units can see the patrol.
- Civilian population, including factional allegiances which may be friendly and restrictions and curfews that may affect movement.

Mission

5-272. Mission considerations are the who, what, when, where, and why (task and purpose) of the mission.

Execution

5-273. Considerations include—

- Concept of the operation.
- Tasks to maneuver units, including–
  - How the patrol will accomplish the mission with the number of dismounts available.
  - Duration of the patrol and what equipment will be required.
  - Assign tasks to teams and key personnel.
- Coordinate the use of fires, including–
  - Selection of targets for protection.
  - Obscurants.
  - CCA/CAS.
- Coordinating instructions include—
  - Movement techniques.
  - Actions at the objective.
  - Routes.
  - Departure from and reentry to friendly lines.
  - Linkup time and location.
  - Departure point.
  - Reentry point.
  - Dismounted actions on contact, danger areas, and halts.
  - ROE and weapons control status.

Sustainment (Service Support)

5-274. Considerations include—

- Issue and distribution of Classes I, III, and V.
- Transportation needs for insertion or extraction.
- MEDEVAC/CASEVAC.
- Pre-positioning of supplies.

Command and Signal

5-275. Considerations include—

- Chain of command.
- Key hand-and-arm signals.
- MEDEVAC frequencies.
- Code words and reports.
- Challenge and password.
- Times when radio listening silence is in effect.
- Visual and pyrotechnic signals while dismounted.

Annexes

5-276. Annexes used to plan patrols at all levels include—

- Air movement.
- Aerial resupply.
- Patrol base (teams, occupation plan, operations plan, and priorities of work).
- Small boat operations.
- Stream crossing.
- Vehicle movement.
- Evasion and escape.
- Linkup and passage of lines.
- Surveillance/OP site.
- Cache site.

SUPERVISE AND REFINE

5-277. Rehearsals and inspections are vital to proper preparation. They must be well planned and conducted at all times. Coordination is made with the commander or S-3 for use of a rehearsal area resembling the objective area. Inspections before rehearsals ensure uniforms and equipment are complete and correct. Each Soldier is questioned to ensure that he knows the following:

- The plan (concept and intent).
- What he is to do and when he is to do it (task and purpose).
- What others are to do (adjacent elements).
- Challenges and passwords, signals, codes, radio call signs, frequencies, and reporting times.

5-278. Rehearsals help to ensure the proficiency of the patrol. They let the patrol leader check plans, make any needed changes, and verify the suitability of equipment. It is through well-directed rehearsals that Soldiers become familiar with their actions and responsibilities during the patrol.

5-279. If the patrol is to be at night, it is advisable to have both day and night rehearsals. Terrain similar to that over which the patrol will operate should be used. All actions are rehearsed when time permits. When time is short, only the most critical actions are rehearsed. Actions on the objective and actions on contact are the most critical and should always be rehearsed.

5-280. A good way to rehearse is to have the patrol leader walk and talk the whole patrol through each action. He describes the actions of elements, teams, and individuals and has them perform these actions. In this "dry run," patrol members take their positions in formations at reduced distances. This can all be done with little or no distance separation so the Soldiers get the "feel" of the patrol. When the different actions are clear to the patrol members, a complete rehearsal, at full speed, is conducted with the whole patrol. This is a "wet run." As many "dry runs" and "wet runs" are conducted as are necessary to ensure mission proficiency. Element and team leaders rehearse battle drills, actions on contact, and actions at danger areas during troop-leading procedures prior to the final rehearsal. Supervision is continuous by all leaders.

5-281. An inspection (PCI) after the final rehearsal and just before departure ensures that all equipment is still working, that nothing is left behind, and that each member of the patrol is ready.

MOVEMENT

5-282. The selection of a movement technique is based on METT-TC. Factors to consider for each technique are control, dispersion, speed, and security. Movement techniques are not fixed formations. They refer to the distances between Soldiers, teams, and squads that vary based on mission, enemy, terrain, visibility, and any other factor that affects control. Soldiers must be able to see their patrol leaders, and the patrol leader should be able to see his leaders. Leaders should control movement with hand-and-arm signals, using radios only when needed. For more information on discounted movement fundamentals and procedures, refer to FM 3-21.8.

FACTORS IN DISMOUNTED MOVEMENT

Ensure that Patrol Members Can Navigate

5-283. Preparations are worthless if the patrol cannot find the objective in time or if the patrol is compromised by enemy contact during movement. Always plan to use a compass and pace man on a patrol.

Note. The element point man must not be tasked to perform compass or pace duties. The point man's sole responsibility is forward security for the element.

Avoid Detection

5-284. Patrols must use stealth and the cover and concealment of the terrain to its maximum advantage. Whenever possible—

- Move during limited visibility.
- Use concealment of foliage and IV lines.
- Exploit the enemy's weaknesses.
- Synchronize movements through the use of triggers to coincide with other operations.

Maintain Constant Security

5-285. Always maintain 360-degree security. The patrol must constantly use both active and passive security measures—

- En route.
- At danger areas.
- At patrol bases.
- In the objective area.

Plan for Use of Support Fires

5-286. Patrol leaders must plan for fire support:

- TRPs and pre-planned targets. FSCM must be coordinated with the FO and the TOC prior to movement.
- Artillery.
- Mortars.
- CCA/CAS.
- Naval gunfire (NGF).
- NFAs.

Use Appropriate Movement Techniques

5-287. The enemy situation determines which of the three movement techniques will be used: traveling (when contact is not likely), traveling overwatch (when contact is possible), or bounding overwatch (when contact is expected). Using overwatch is preferred, METT-TC dependent. Vary movement techniques to meet changing situations.

Maintain Dispersion in Open Terrain

5-288. When enemy contact is possible and manpower permits, have one team well forward and overwatch it with a security team. Assign duties for the patrol's movement. Security teams maintain visual contact, but the distance between them should be such that the entire patrol does not become engaged if contact is made. Patrols should distribute their formations as necessary to gain better observation to the flanks. Although widely spaced, Soldiers must retain their positions relative to one another when in a wedge formation. Only in extreme situations should the file formation be used in the open.

Assign Responsibilities and Positions

5-289. The lead elements must secure the front along with assuming responsibility for navigation. For a long movement, the patrol leader may rotate the responsibilities of the lead elements. The elements in the rear conduct rear security. Leaders should move inside the formation where they can best maintain control of the patrol.

Use Control Measures

5-290. During movement, leaders use control measures (such as head counts, rally points, or phase lines) to maintain the patrol's effectiveness and security. The platoon's SOP for actions on contact with inferior and superior forces should be practiced so that the patrol's reaction to contact is a reflex action.

Plan for Contact

5-291. Leaders maneuver the patrol to ensure that enemy contact is made with the smallest element possible.

MOVEMENT FORMATIONS

5-292. Figures 5-59 through 5-62 illustrate patrol movement formations.

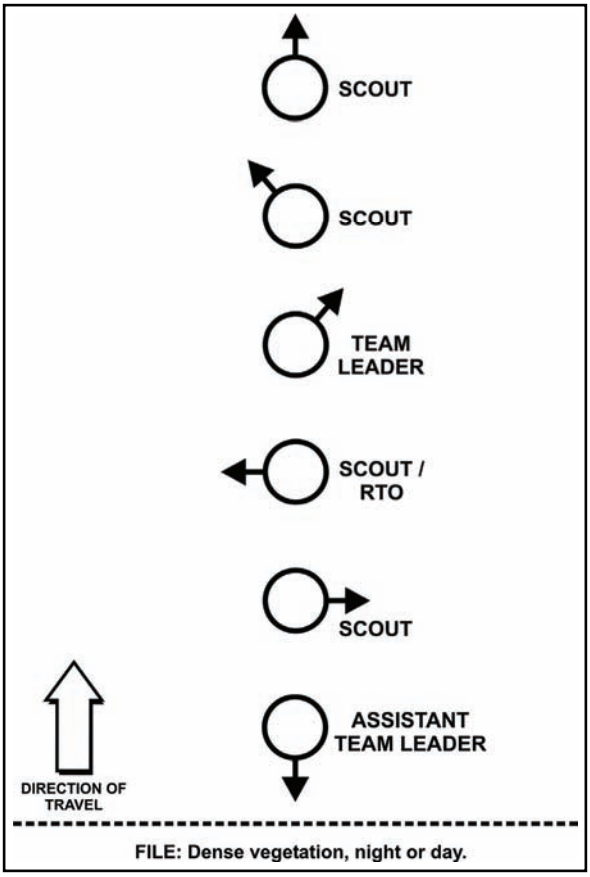


Figure 5-59. File formation

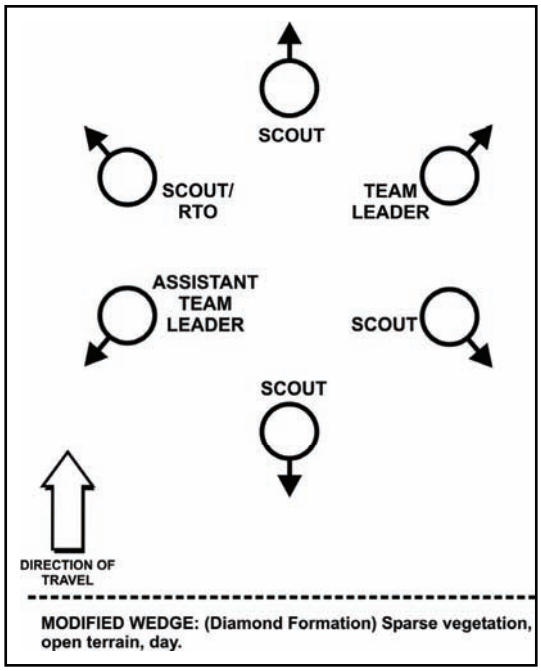


Figure 5-60. Diamond formation

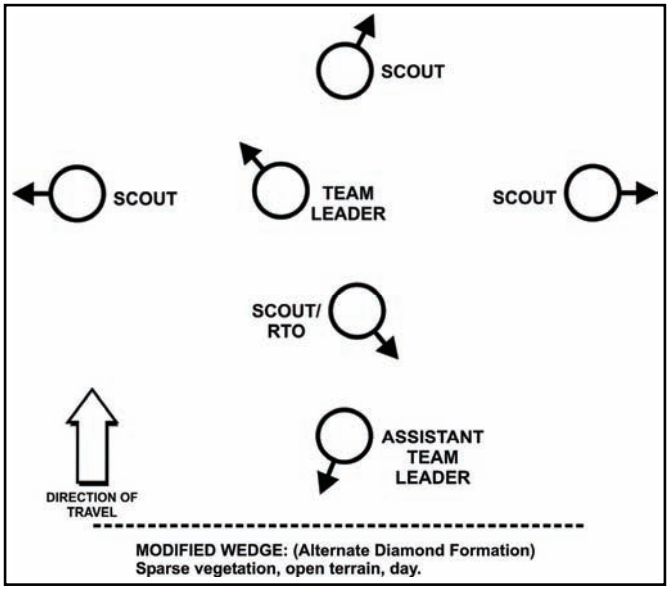


Figure 5-61. Alternate diamond formation

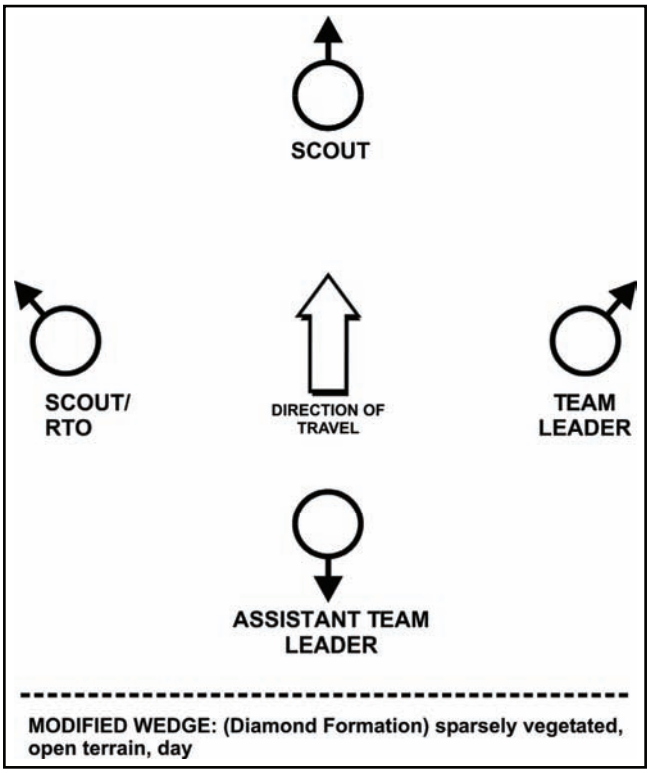


Figure 5-62. Four-scout diamond formation

SECURITY HALTS

5-293. During short halts, team members drop to one knee and face out (see Figure 5-63). The security halt should not exceed five minutes. If the halt exceeds several minutes, the team should move to the prone position, using low points in the ground near them if possible. For extended halts, team members may sit

with their feet facing outward and shoulders touching in a low point offering concealment (see Figure 5-64). This aids quick and quiet communication and guarantees all-around security at all times. This technique offers the smallest signature and is the most difficult to detect. It is best used in dense vegetation.

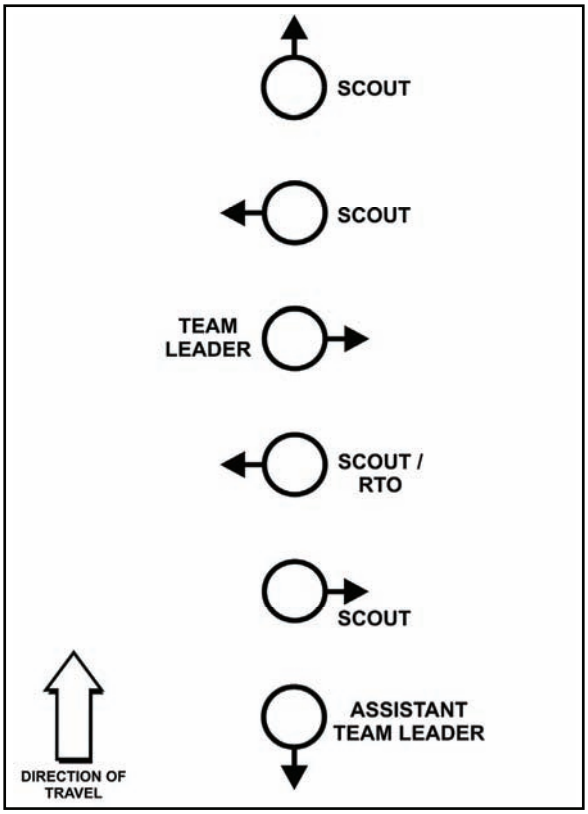


Figure 5-63. Security/short halt

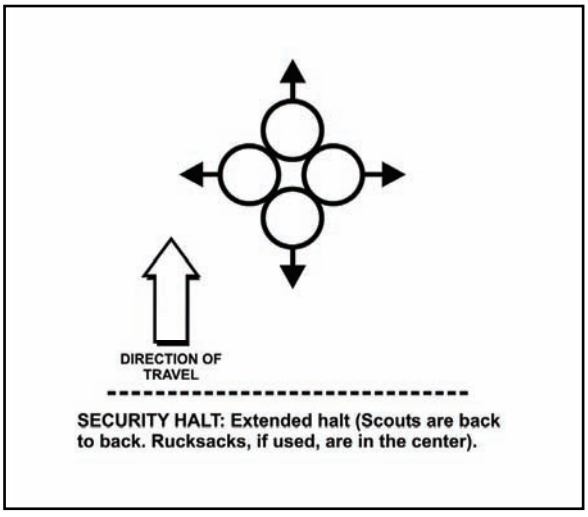


Figure 5-64. Security/extended halt (four-man)

DEPARTURE FROM FRIENDLY LINES

5-294. The departure from friendly lines must be thoroughly planned and coordinated using considerations outlined in the following discussion.

Planning

5-295. In his plan for departure from friendly lines, the leader should consider this sequence of actions:

- Make contact with friendly guides at the contact point.
- Move to the coordinated initial rally point.
- Complete final coordination.
- Move to and through the passage point.
- Establish a location for a security-listening halt beyond the friendly unit's limit of FPF.

Coordination

5-296. The patrol leader must coordinate with the commander of the forward unit and the leaders of other units that will be patrolling in the same or adjacent areas. The coordination includes SOI information, signal plan, fire plan, running password, procedures for departure from and reentry to friendly lines, departure and reentry points, dismount points, initial rally points, and information about the enemy. The following actions take place:

- The patrol leader provides the forward unit leader with unit identification, size of the patrol, departure and return times, and information on the AO.
- The forward unit leader provides the patrol leader with the following:
  - Additional information on terrain.
  - Known or suspected enemy positions.
  - Likely enemy ambush sites.
  - Latest enemy activity.
  - Detailed information on friendly positions and obstacles, including the locations of OPs.
  - Friendly unit fire plan.
  - Support that the unit can provide, such as fire support, litter teams, guides, communications, and reaction force.

Execution

5-297. The patrol should remain in single file. The assistant patrol leader follows directly behind the guide so he can count each Soldier who passes through the passage point. He gives the count to the guide, tells him how long to wait at the passage point (or when to return), and confirms the running password.

Note. If the patrol makes contact after it is past the departure point, it fights through. Soldiers return to the departure point only if they become disorganized. They then reoccupy the initial rally point, and the leader reports to higher headquarters.

ACTIONS AT DANGER AREAS

5-298. A danger area is one that increases the chance of detection or a direct fire engagement. When moving, the patrol tries to avoid danger areas if possible. In many situations, however, the patrol must cross danger areas to continue the mission. Typical danger areas are the following:

- Known enemy positions.
- Roads and trails.
- Streams.
- Open areas.
- Urban environments.

OPERATIONAL CONSIDERATIONS

5-299. Specific plans are made before crossing danger areas. These plans are very similar to actions during mounted operations; however, they require more practice and rehearsal because a dismounted patrol does not have the same mobility, protection, and firepower to extract itself should it encounter a threat. In addition, plans are made for crossing unexpected danger areas; these can be modified quickly to fit the situation.

5-300. The patrol uses bounding overwatch or variations of it to cross a danger area. The leader designates procedures the patrol will use based on the time available, the size of the patrol, the size of the danger area, the fields of fire into the area, and the amount of security he can provide. A small patrol may cross all at once, in pairs, or one man at a time. A large patrol normally crosses its subordinate elements one at a time. As each element crosses, it moves to an overwatch position or to the far side rally point until told to continue movement.

5-301. To cross a danger area, a patrol must take these actions:

- Designate near side and far side rally points.
- Secure the near side.
- Secure the far side.
- Cross the danger area.

5-302. Securing the near side may involve nothing more than observing it. In some places, however, it may involve posting security teams far enough out on both flanks and to the rear of the crossing point to give warning of an approaching enemy element and to overwatch the crossing of the rest of the patrol (as shown in Figure 5-65).

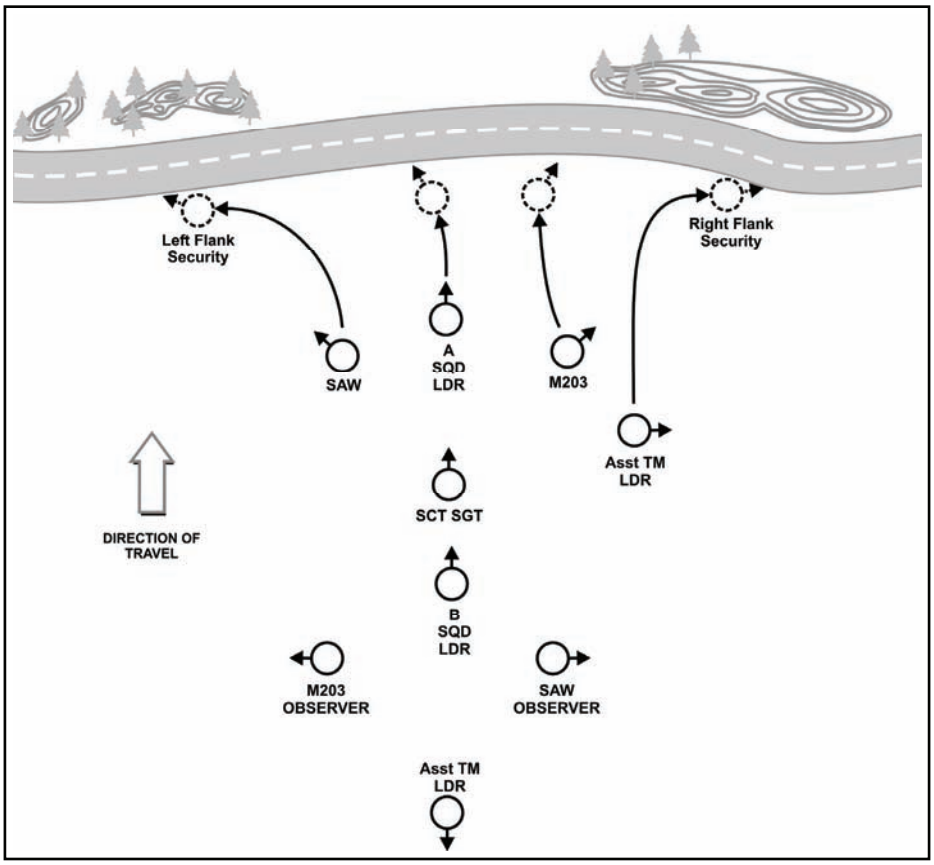


Figure 5-65. Securing the near side of a danger area

5-303. Once flank and rear security elements are positioned, the danger area is quickly crossed by a team that then reconnoiters and secures the far side (see Figure 5-66). Thermal sights, if available, are able to scan and detect threats under moderate concealment due to their heat signatures. The area secured on the far side must be large enough for the entire patrol to occupy. Prior to crossing, the patrol leader will issue a five point contingency plan with detailed engagement criteria to the patrol. When the team leader is sure the far side is secure, he sends two men back to signal the rest of the patrol to cross. As the near side elements begin to cross the danger area, the rest of the patrol is scanning with weapons and ready for possible enemy fire. When the patrol has crossed the danger area, the security teams cross and rejoin the patrol (as shown in Figure 5-67).

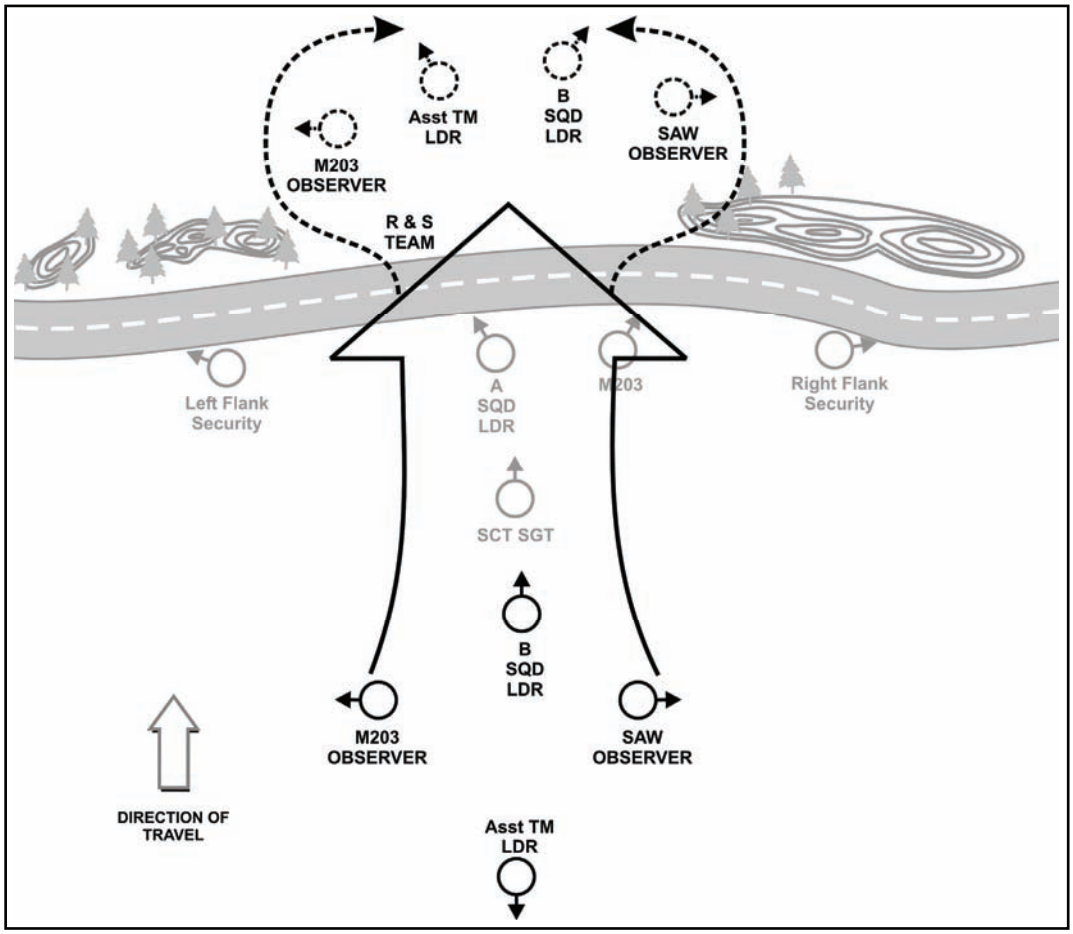


Figure 5-66. Securing the far side of a danger area

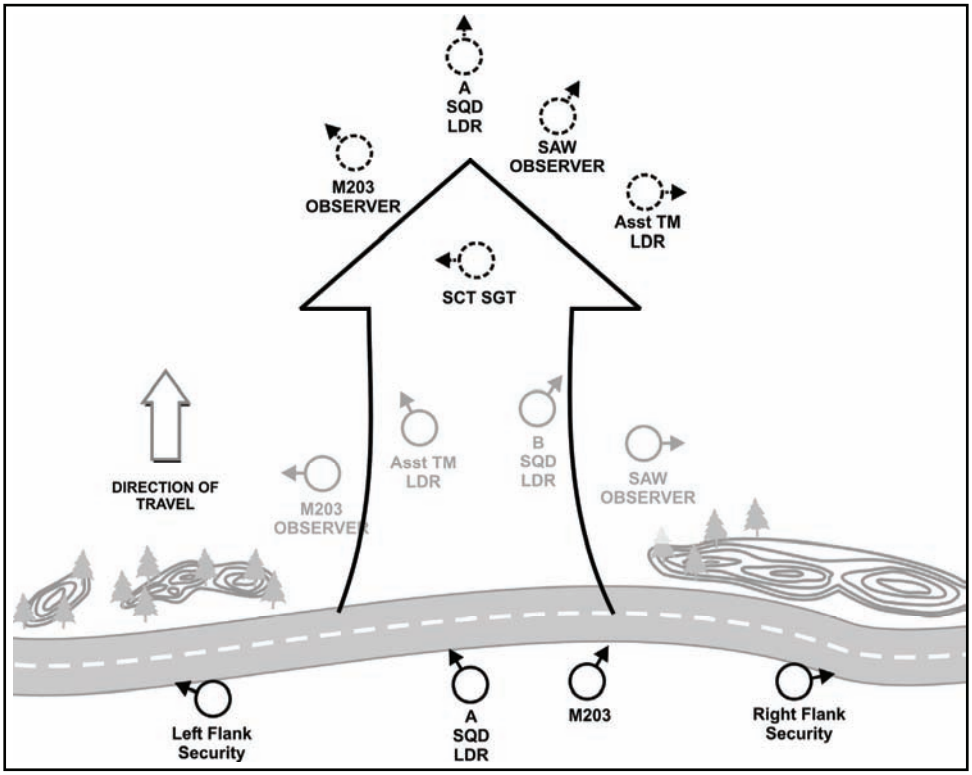


Figure 5-67. Crossing the danger area

SCROLL TO THE ROAD TECHNIQUE

5-304. In this technique, the lead team member identifies the danger area and moves across, placing his left or right shoulder toward the danger area (see Figure 5-68). The second team member faces in the opposite direction from the lead team member. This gives security in both directions. Each member crosses in the same manner.

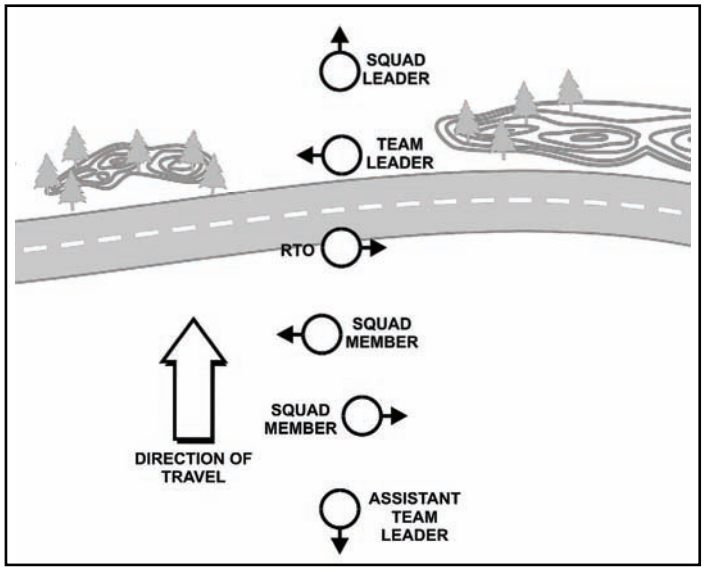


Figure 5-68. Scroll to the road technique

SMALL OPEN AREA TECHNIQUE

5-305. When crossing a small open area, the team uses the contour or detour bypass method (as shown in Figure 5-69). They avoid crossing directly through the open area, if possible.

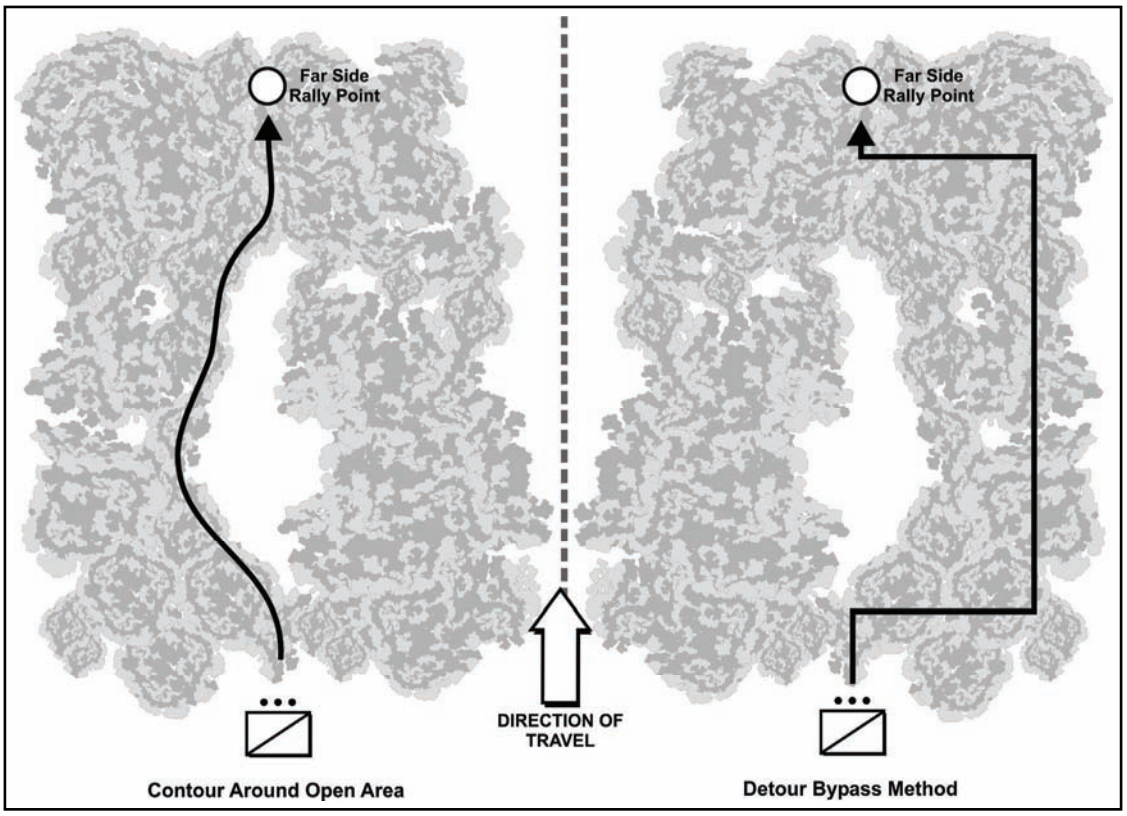


Figure 5-69. Crossing a small open area

OBJECTIVE RALLY POINTS

OCCUPATION OF AN ORP BY A SQUAD

5-306. In planning the occupation of an ORP (see Figure 5-70), the squad leader considers the following sequence:

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

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

OCCUPATION OF AN ORP BY A PLATOON

5-307. In planning the occupation of an ORP, the platoon leader should consider a sequence similar to that outlined for a squad (see Figure 5-73). He brings a Soldier from each squad on his reconnaissance of the ORP and positions them at the 10, 2, and 6 o'clock positions. The first squad in the order of march establishes the base leg (10 to 2 o'clock). The trailing squads occupy from 2 to 6 o'clock and 6 to 10 o'clock.

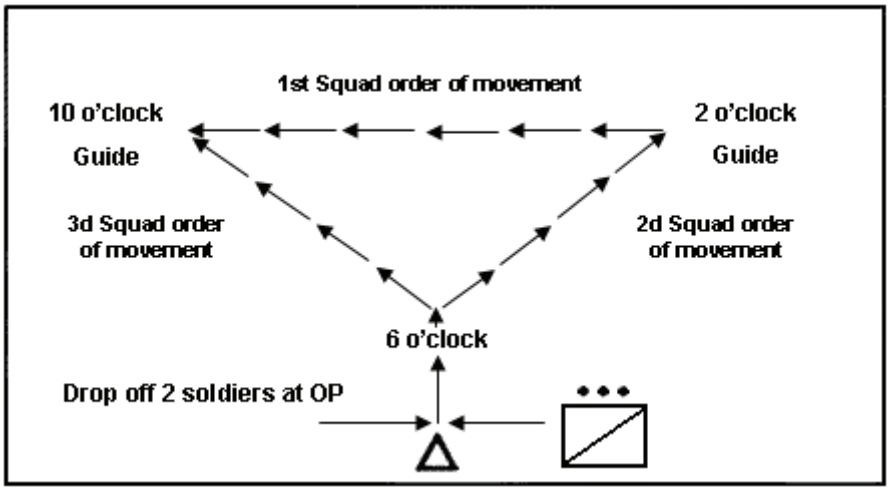


Figure 5-70. Occupation of an objective rally point

CONTINGENCY PLANS

5-308. The patrol leader leaves the main patrol body for many reasons throughout the planning, preparation, and execution of the mission. One of these departures, conducted after the ORP is occupied and secure, is the leader's reconnaissance by the patrol leader, compass man, and element leaders. The assistant patrol leader remains in the ORP. Before the patrol leader departs, he issues a five-point contingency plan.

Note. A leader issues a five-point contingency plan anytime he leaves the element in a non-secured area. Consideration must always be given to the possibility of an element becoming separated from the rest of the patrol.

5-309. The contingency plan covers the WHO, WHAT, WHEN, WHERE, and WHY by detailing the following points:

- Who the leader will be taking with him.
- What actions are taken if the leader fails to return, as well as the actions of the unit and the leader on chance contact while the leader is gone.
- When the leader is leaving and how long he will be gone.
- Where the leader is going (including routes there and back).
- Why the leader is leaving (his mission).

LEADER'S RECONNAISSANCE

5-310. Patrol leaders should conduct a leader's reconnaissance when time or the situation allows. The plan must include a leader's reconnaissance of the objective once the platoon or squad establishes the ORP. During his reconnaissance, the leader pinpoints the objective, selects positions for his squads and teams, and adjusts his plan based on his observation of the objective. Each type of patrol requires different tasks

during the leader's reconnaissance, and the leader will take different elements with him depending on the patrol's mission. The leader must ensure that the objective remains under continuous observation once he decides to return to the ORP. The leader designates an RP and plans for adequate time to return to the ORP, complete his plan, disseminate information, issue orders and instructions, and allow his squads to make any additional preparations.

Note. A leader's reconnaissance may alert the enemy that a patrol is in the area by evidence of movement or noise, even before the patrol begins its mission.

REENTRY TO FRIENDLY LINES

5-311. The patrol leader's initial planning and coordination must include the reentry to friendly lines. He should consider a sequence for this process similar to the one covered in the following discussion. This process must be rehearsed along with other tasks during unit rehearsals.

Note. Reentry to friendly lines at night is dangerous and should be mitigated through detailed planning and rehearsal.

5-312. The patrol halts in the reentry rally point and establishes security. The patrol leader communicates the code word advising the friendly unit of the patrol's location and its readiness to return. The friendly unit must acknowledge the message and confirm that guides are waiting before the platoon moves from the reentry rally point.

5-313. If digital/radio communications are not possible, the patrol leader, RTO, and a two-man security element (buddy team) move forward and attempt to contact an OP using the challenge and password. The OP notifies the friendly unit that the patrol is ready to return and requests a guide.

5-314. If the patrol leader cannot find an OP, he moves with the RTO and security element to locate the coordinated reentry point. He must move straight toward (and away from) friendly lines, never parallel to them. All lateral movement should be outside small-arms weapons range.

Note. The patrol leader should only attempt this procedure during daylight. At night he should use other backup signals to make contact with friendly units. The preferred method is to wait until daylight if contact with the friendly unit cannot be made as planned.

5-315. Once the friendly unit acknowledges the return of the patrol, the patrol leader issues a five-point contingency plan and moves with his RTO and security element on a determined azimuth and pace to the reentry point. The patrol leader uses far and near recognition signals to establish contact with the guide.

5-316. The patrol leader signals the platoon forward (radio) or returns and leads it to the reentry point. He may post the security element with the guide at the enemy side of the reentry point. The assistant patrol leader counts and identifies each Soldier passing through the reentry point. The guide leads the patrol to the assembly area.

5-317. The patrol leader reports to the CP of the friendly unit. He tells the commander everything of tactical value concerning the friendly unit's area of responsibility. The patrol leader rejoins the patrol in the assembly area and leads it to a secure area for debriefing.

DEBRIEFING

5-318. Immediately after the patrol element (platoon or squad) returns, personnel from higher headquarters conduct a thorough debriefing. This may include all members of the patrol or the leaders, RTOs, and any attached personnel. The debriefing is typically conducted orally, although sometimes a written report is required.

SECTION IX – PATROL BASES AND COMBAT OUTPOSTS

5-319. A patrol base is a position with a security perimeter that is set up when a dismounted team conducting a patrol halts for an extended period. Except in an emergency, patrol bases should be occupied no longer than 24 hours. The platoon or squad never uses the same patrol base twice. Platoons and squads use patrol bases to accomplish the following tasks:

- Stop all movement to avoid detection.
- Hide during a long, detailed reconnaissance of an objective area.
- Clean weapons and equipment, perform personal hygiene, eat, and rest.
- Plan and issue orders.
- Reorganize after infiltrating an enemy area.
- Establish a base from which to conduct several consecutive or concurrent operations, such as ambush, raid, reconnaissance, or security.

Note. The longer a patrol spends in an enemy area, the higher the risk of being discovered by the enemy.

PATROL BASES

SITE SELECTION

5-320. The leader selects the tentative site from a map or by aerial reconnaissance. The site's suitability must be confirmed, and the site must be secured before occupation. Plans to establish a patrol base must include selecting an alternate patrol base site. The alternate site is used if the first site is unsuitable or if the patrol must unexpectedly evacuate the first patrol base.

PLANNING CONSIDERATIONS

5-321. Leaders planning for a patrol base must consider the mission and passive and active security measures.

5-322. Security measures involve the following:

- The leader attempts to locate the patrol base on terrain that will enhance its security. Whenever possible, the terrain should meet the following criteria:
  - Terrain that the enemy would probably consider of little tactical value.
  - Terrain that is off main lines of drift and that affords adequate drainage.
  - Difficult terrain that would impede foot movement. An example would be an area of dense vegetation, preferably with bushes and trees that spread close to the ground.
  - Terrain near a source of water.
  - Terrain that can be defended for a short period and that offers good cover and concealment.
- The leader avoids the following locations:
  - Known or suspected enemy positions.
  - Built-up areas.
  - Ridges and hilltops, except as needed for maintaining communications.

- Roads and trails.
- Small valleys.

- The leader plans for the following security considerations:
  - OPs.
  - Communications with OPs.
  - Defense of the patrol base.
  - Withdrawal from the patrol base, including withdrawal routes and a rally point, a rendezvous point, or an alternate patrol base.
  - A security system to ensure that specific Soldiers are awake at all times.
  - Enforcement of camouflage, noise, and light discipline.
  - The conduct of required activities with minimum movement and noise.

PATROL BASE OCCUPATION

5-323. A patrol base is established using the steps covered in the following discussion. The patrol base is reconnoitered and established using the same procedures and considerations as an ORP or reentry rally point. The exception is that the platoon will, when necessary, enter the patrol base at a 90-degree turn.

Note. This 90-degree turn is METT-TC dependent; if there is nothing to be gained by doing this step, then the unit does not do it (for example, in flat desert terrain).

5-324. The patrol leader leaves a two-man OP at the turn. The assistant patrol leader and the last patrol element will obliterate any tracks from the turn into the patrol base. The patrol moves into the patrol base (see Figure 5-71). The patrol leader immediately disseminates the location of the alternate patrol base.

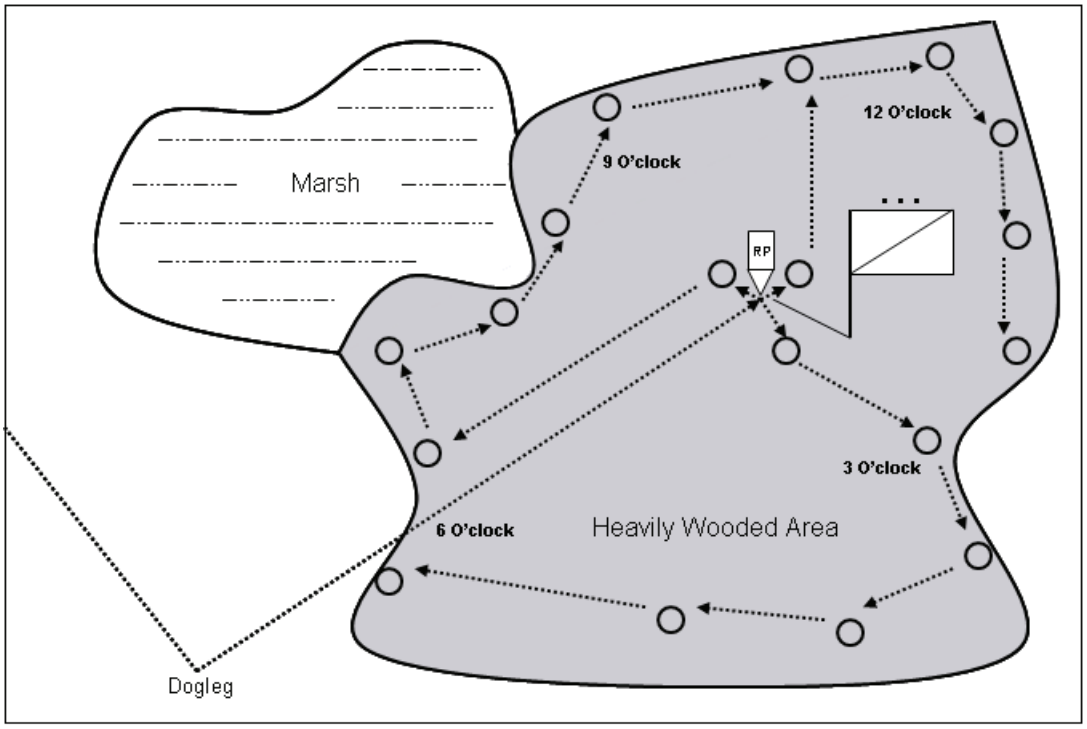


Figure 5-71. Occupation of the patrol base

5-325. The patrol leader and support element start at 6 o'clock and move clockwise to adjust the perimeter (meeting each element leader at his element's left flank). If the patrol leader and support element leader find a better location for one of the machine guns, they reposition it.

5-326. After the patrol leader has checked each element's sector, the element leader and another patrol member report to the CP as an R&S team. The patrol leader issues a five-point contingency plan to the three R&S teams and reminds them that they are looking for the enemy, water, built-up areas or human habitat, roads and trails, and any possible rally points.

5-327. The R&S team departs from the left flank of its element's sector and moves out a given distance, as stated by the patrol leader in his instructions. The team moves in a clockwise direction and reenters the patrol base at the right flank of the element's sector. Whenever possible, the R&S team should prepare a sketch of the squad's front and report to the CP.

Note. If the patrol leader feels the patrol may have been tracked, he may elect to maintain 100 percent security and wait for a time in total silence before sending out the R&S teams. The distance the R&S team moves away from the element's sector will vary depending on the terrain and vegetation (anywhere from 200 to 400 meters). All members of the patrol are on 100 percent alert during this time.

5-328. Once all element leaders (through their R&S teams) have completed their reconnaissance, they report back to the patrol leader at the CP. The patrol leader gathers the information from his three R&S teams and determines if the patrol will be able to use the location as a patrol base.

PATROL BASE ACTIVITIES

5-329. If the patrol leader determines that he will be able to use the location as a patrol base, he informs the assistant patrol leader and squad/section leaders. The patrol leader also disseminates other information such as daily challenge and password, frequencies, and call signs. Leaders return to their elements, give out the information, and begin the priorities of work as stated by the patrol leader. The patrol base must be sterilized upon departure.

Security

5-330. Only one point of entry and exit is used. Noise and light discipline are maintained at all times. Everyone not positively identified as a patrol member is challenged. Leaders supervise the placement of aiming stakes and ensure claymore mines are emplaced. Each element establishes an OP and may quietly dig hasty fighting positions. Element leaders prepare and turn in sector sketches, including range cards and fire plans. A larger patrol may employ UGVs for additional security in dead space to detect a quick approach by enemy elements to the patrol bases perimeter.

Alert Plan

5-331. The patrol leader states the alert posture (for example, 50 percent or 33 percent) and the stand-to time for day and night. He sets up the plan to meet the following conditions:

- Positions are checked periodically.
- OPs are relieved periodically.
- At least one leader is awake at all times.

Withdrawal Plan

5-332. The patrol leader specifies the following information:

- Which signal to use if contact is made (for example, colored star cluster).
- The order of withdrawal if the unit is forced out of the patrol base (for example, elements, squads/sections not in contact will move first).
- The distance and direction of the patrol rendezvous point (if the patrol will not link up at an alternate patrol base).

Maintenance Plan

5-333. The patrol leader must plan to conduct maintenance on weapon systems, communications equipment, vehicles, and other mission essential equipment. He may also plan to redistribute ammunition as necessary.

Sanitation and Personal Hygiene Plan

5-334. The assistant patrol leader ensures that the patrol slit trench is dug and marked at night with a chemical light inside the trench. Leaders designate areas for use as urinals and ensure that scouts accomplish the following activities daily:

- Shave and brush teeth.
- Wash face, hands, armpits, groin, and feet.
- Change out socks and dry out or change boots.
- Pick up trash and other evidence of the patrol's presence.

Mess Plan

5-335. Leaders monitor mess activities to ensure not more than half the patrol eats at one time.

Water Resupply

5-336. The patrol leader organizes a watering party if the patrol must forage for water. They carry canteens in an empty rucksack.

PASSIVE (CLANDESTINE) PATROL BASE

5-337. The purpose of a passive patrol base is to give a smaller-size element time to rest. A claymore mine is emplaced on the route entering the patrol base. Teams sit back-to-back facing outward, ensuring that at least one individual per team is alert and providing security.

COMBAT OUTPOSTS

5-338. A reconnaissance or scout platoon may conduct operations from a combat outpost equipped with automatic and crew-served weapons, communications equipment, and sensors supported by indirect fires. Platoons assigned to combat outposts may be augmented with additional combat elements such as UAS teams, infantry, armor, and engineers to provide assistance in reconnaissance and offensive actions to counter enemy activities. This is a very labor-intensive mission and is used only in response to clearly defined squadron/battalion requirements.

5-339. Combat outposts are also used to protect critical lengths or locations along the route. Due to the length of some convoy routes, a squadron or troop will establish mutually supporting platoon-size combat outposts and provide security between them. Combat outposts are established at critical choke points to prevent sabotage and to defend against or respond to attacks to interdict the route between outposts. Reconnaissance or scout platoons may be augmented to supply reaction forces, engineer route clearance assets, and insurgent intervention elements as well as continuous surveillance along key points of the route. Patrols are organized with sufficient combat power to destroy near ambushes and to survive initial enemy contact from far ambushes. Platoons conduct patrols at irregular intervals between the outposts based on enemy trends and recent activities.

5-340. Each combat outpost maintains a reaction force to respond to enemy activity or reinforce patrols. Based on METT-TC, a troop can establish one or two platoon combat outposts, and a squadron can typically establish up to six platoon-size combat outposts.

Chapter 6

Enablers

Platoon enablers are critical combat capabilities provided by the platoon's higher headquarters or other units in support of the platoon. The commander employs enablers to enhance the effectiveness of his operations. The platoon leader and his subordinate leaders must understand the capabilities and limitations of enablers to ensure that each enabler is assigned a clear task and purpose to support the platoon's mission. The integration of enablers provides the platoon leader with the right assets to accomplish the mission while achieving the higher commander's intent. Enablers should complement, not detract from, the platoon mission. The platoon's integration of these assets begins during troop planning and continues through platoon rehearsals and execution.

Contents

SECTION I – EMPLOY INDIRECT FIRES

6-1. Scouts may receive indirect fire support from mortars, field artillery (FA), and CAS assets. Most of these assets are not organic to the platoon, but they will be available through the platoon's parent unit. To make effective use of them, scouts must understand the capabilities, limitations, and employment of fires assets. For additional discussion of fire support, see FM 3-20.96 and FM 3-20.971, as well as FM 3-09.31, FM 3-22.90, and FM 6-20-40.

6-2. Mortars and FA assets are the primary indirect fire support means available to the reconnaissance or scout platoon, although the platoon may receive fire support from other assets as well, including aircraft and ships. In addition to understanding the capabilities and limitations of these assets, scouts must know what fire request channels to use to request fires. The platoon leader must be prepared to work with both the troop and/or squadron/battalion FSOs to plan and coordinate fire support (see FM 3-09.32).

MORTAR SUPPORT

6-3. Mortars provide indirect fire support that is extremely responsive to the scouts' needs. They can provide a heavy volume of fires and are ideal for attacking targets on reverse slopes, in narrow ravines or trenches, and in forests, towns, and other areas that are difficult to strike with low-angle fires. Each reconnaissance/cavalry troop or supported battalion (except the BFSB reconnaissance troop, which has no organic mortars) has an organic 120-mm mortar section dedicated to providing the responsive fires that the platoon needs. The 120-mm mortar has a maximum range of 7,200 meters and shoots a variety of munitions. Table 6-1 lists capabilities of the various mortar systems and munitions.

TYPES OF MORTAR SUPPORT

Suppression

6-4. Without a direct hit, HE rounds generally will not destroy main battle tanks. Indirect hits with HE, however, can destroy or disable more lightly armored vehicles (APCs, armored fighting vehicles, etc.) or incapacitate the crew. In addition, suppressive fires can greatly disrupt enemy movement. HE rounds can force mounted enemy units to button up or move to less advantageous positions. HE is also very effective against dismounted threats and in urban environments.

Obscuration

6-5. White phosphorus (WP) rounds are used for obscuration and screening. The platoon places obscurants on or just in front of enemy positions to obscure their vision. Leaders employ obscurants to support infiltration and exfiltration. The platoon achieves a smoke screen by placing obscurants between the enemy and the platoon's positions to conceal movement. Leaders use mortar-delivered obscurants to mark enemy positions, which can help to enhance friendly maneuver and orient direct fires or CAS. The platoon employs obscuration effectively in urban environments where structures minimize the impact of winds that normally disperse the obscurant's effects. In any situation, however, scouts must be careful not to allow friendly obscuration to work against them by marking their own positions.

Illumination

6-6. Scouts use illumination rounds to light an area or enemy position during periods of limited visibility. This can increase the effectiveness of image intensification devices and sensors. It also assists the troop in gathering information, adjusting mortars or artillery, or engaging enemy targets with direct fire. Scouts use ground-burst illumination to mark enemy positions and to provide a thermal target reference point (TRP) for control of direct and indirect fires. As with obscurants, however, leaders must take care not to illuminate friendly positions. In addition, because of the effectiveness of U.S. NODs, illumination can be unnecessary or even counterproductive. Whenever they employ illumination, scouts must pay close attention to wind direction and speed to ensure proper deployment of the rounds.

CAPABILITIES AND LIMITATIONS

6-7. Reconnaissance and cavalry troop mortar capabilities include—

- Use in urban areas or mountain terrain.
- Fast response time.
- Effectiveness against low-density targets.

6-8. Reconnaissance and cavalry troop mortar limitations include—

- Short-range capability.
- Limited munitions selection.
- Vulnerability to enemy counterfire radars because of the high angle of fire.
- Limited basic loads of ammunition.

Table 6-1. Fire support capabilities—mortars

Weapon	*Ammunition Model*	*Ammunition Type*	*Danger Close (m)*	*Minimum Range (m)*	*Maximum Range (m)*	*Rates of Fire*
60-mm M224	M720	HE	600	70	3,489[1]	30 rnds/min for 4 min[2], then 20 rnds/min sustained. Diameter of illumination: M721-500m, M83A3-300m
	M888	HE		70	3,489	
	M722	WP		70	3,489	
	M721	ILLUM		200	3,489	
	M302A1	WP		35	1,830	
	M83A3	ILLUM		725	950	
	M49A4	HE		45	1,830	
81-mm M29A1	M374A2	HE	600	70	4,600	25 rnds/min for 2 min, then 8 rnds/min sustained. Diameter of illumination: 360m
	M374A3	HE		73	4,800	
	M375A2	WP		70	4,595	
	M301A3	ILLUM		100	3,150	
81-mm M252	M821	HE	600	80	5,800	18 rnds/min for 2 min, then 8 rnds/min sustained. Diameter of illumination: 650m
	M899	HE		83	5,800	
	M374A3	HE		73	4,800	
	M819	RP		300	4,875	
	M375A2	WP		73	4,595	
	M853A1	ILLUM		300	5,060	
	M301A3	ILLUM		100	3,950	
120-mm M120	M57	HE	600	200	7200	16 rnds/min for 1 min, then 4 rnds/min sustained. Diameter of illumination: 1,500m
	M68	WP		200	7200	
	M91	ILLUM		200	7100	
	M933	HE/PD		200	7200	
	M934	HE/MOF		170	7200	
	M929	WP		170	7200	
	M930	ILLUM		170	7200	

HE—high explosive PD—point detonating ILLUM—illumination
RP—red phosphorus MOF—multi-option fuze WP—white phosphorus
wpn—weapon

[1] Bipod-mounted, charge 4 (maximum handheld is 1,300 meters).

[2] Charge 2 and over. A sustained rate 30 rounds per minute is possible with charge 0 or 1.

FIELD ARTILLERY SUPPORT

6-9. The BCT's organic fires battalion can potentially support the reconnaissance platoon. (The BFSB does not have an organic FA element, although its reconnaissance platoons generally have access to indirect fire support.) The fires battalion has several different munitions available to support the platoon. The scout platoon receives fire support from the cavalry squadron's fires battery. These munitions include HE, dual purpose improved conventional munitions (DPICM), Copperhead, WP, scatterable mines, HE rocket-assisted projectiles (RAPS), Excalibur guide projectiles, obscuration, and illumination. Tables 6-2 and 6-3 lists capabilities of the various cannon FA systems and munitions.

Table 6-2. Field artillery cannon capabilities

Weapon	*Projectile*	*Danger Close*	*Range (Meters)*			*Rates of Fire / Notes*
			MAX	*DPICM*	*RAP*	
105 mm Howitzer, M119-series	HE, WP[1], HC[2], ILLUM, APICM, DPICM	600 m	11,500	14,100	19,500	Sustained rate of fire: 3 rnds/min. Max rate of fire: 10 rnds/min
155 mm M198	HE, WP[1], HC[2], ILLUM, CPHD, APICM, DPICM, M825 Obscurant, SCAT-MINE	600 m	18,300 or 22,000 with M795 HE, M825 Obscurant	18,000 or 28,200 with M864	30,100	Sustained rate of fire: 2 rnds/min. Max rate of fire: 4 rnds/min
155 mm M109A5/A6	HE, WP[1], HC[2], ILLUM, CPHD, APICM, DPICM, M825 Obscurant, SCAT-MINE	600 m 170 m w/ XM982	18,200 to 24,500, depending on ammo	17,900 or 28,100 with M864	30,000	Sustained rate of fire: 1 rnds/min. Max rate of fire: 4 rnds/min
155 mm M777-series	HE, WP[1], HC[2], ILLUM, CPHD, APICM, DPICM, M825 Obscurant, SCAT-MINE	600 m 170 m w/ XM982	22,200 to 24,500, depending on ammo	N/A	30,000	Sustained rate of fire: 2 rnds/min IAW thermal warning device. Max rate of fire: 4 rnds/2mins

[1] Time to build effective obscuration—30 seconds.

[2] Time to build effective obscuration—60 to 90 seconds.

APICM—antipersonnel improved conventional munition, CPHD—Copperhead, DPICM—dual purpose improved conventional munitions, HC—hexachlorethane, HE—high explosive, ILLUM—illumination, RAP—rocket assisted projectile, SCAT-MINE—scatterable mine, WP—white phosphorous.

Table 6-3. Illumination factors

Weapon	*Type*	*Height of Burst (meters)*	*Burn Time (seconds)*	*Rate of Fall (m/sec)*
60 mm	M83A1 M83A2/3	160	25 32	6
70 mm (2.75")	M-257 (Overt)	550	120	4.5
70 mm (2.75")	M-278 (Covert)	800	180	4.5
81 mm	M301A3	600	60	6
105 mm	M314A2; M314A3	750	60-65	12
120 mm	M930	500	50	5
155 mm	M118 M485-series	750 600	60 120	10 5

ARTILLERY CAPABILITIES

6-10. Artillery elements support the reconnaissance or scout platoon with the following capabilities—

- Provide continuous all-weather and all-terrain fire support.
- Rapidly shift and mass fires.
- Support in depth with long-range fires.
- Employ a variety of conventional shell and fuse combinations.
- Can accurately engage stationary point targets with 155-mm Excalibur guided munitions or guided multiple launch rocket system (GMLRS) munitions
- Can accurately engage moving or stationary laser-designated targets with 155-mm Copperhead rounds.

ARTILLERY LIMITATIONS

6-11. Artillery elements supporting the platoon have the following limitations—

- Limited effectiveness on moving targets.
- Limited ability to destroy point targets without considerable ammunition expenditure if guided projectile are unavailable.
- Firing signature increases vulnerability to enemy counterfire.

COMMON USES OF AVAILABLE MUNITIONS

6-12. FA employs a wide variety of munitions that can be tailored for the engagement of different types of targets. These ammunition types include the following:

- HE, for use against personnel, field fortifications, and vehicles.
- Obscurants, for obscuration and screening.
- Illumination.
- WP, for obscuration, marking, screening, and incendiary effects against materiel targets e.g., WP airburst over an easily recognizable feature to assist disoriented personnel.
- GMLRS rockets and 155 mm Excalibur rounds for use against point targets.
- Copperhead 155 mm projectiles against stationary or moving point targets.

- DPICM, for use against personnel and light armored vehicles in the open.
- Scatterable mines.

6-13. Scatterable mines include area denial munitions for use against personnel and remote antiarmor mine systems for use against armored vehicles. When a FA battery is firing a scatterable mines mission, it is not available for other fire missions. Scatterable mines require slightly more lead time than do other FA-delivered munitions.

6-14. In addition to the supporting cannon units, multiple launch rocket system (MLRS)/high mobility artillery rocket system (HIMARS) elements may also provide fires. Unlike cannon artillery, MLRS units fire rocket and missile munitions delivering only HE, DPICM, or anti-personnel and anti-materiel warheads. They provide either rocket or missile fires, but do not offer special munitions, such as obscuration, illumination, or WP. The maximum range of MLRS rockets is 32,000 to 45,000 meters, depending upon the type of munition. The planning range for MLRS missiles in the Army tactical missile system is 100,000 to 300,000 meters, depending upon the type of munition.

NAVAL FIRE SUPPORT

6-15. Destroyers and cruisers are the predominant ships used in NGF roles. Both types of vessels employ 5-inch guns to provide fires. Reconnaissance units will sometimes receive augmentation from the Marines for NGF missions (see FM 3-09.32 for additional information).

FIRE SUPPORT PERSONNEL

6-16. Fire support personnel may accompany or assist Scouts during the course of their mission. These elements include—

- FIST.
- COLT.

FIRE SUPPORT TEAM

6-17. Each troop has an organic FIST specifically designed to assist in the planning, coordination, and integration of fire support during operations. FIST elements may assist the reconnaissance or scout platoon in support of security operations when target designation is required for special munitions engagements.

COMBAT OBSERVATION AND LASING TEAM

6-18. A COLT is a fire support team controlled at the brigade level that is capable of target acquisition under reduced visibility conditions and has both laser rangefinding and laser designating capabilities.

6-19. Scouts may request indirect fire through the COLT, which has a secondary mission of processing these requests for the scouts. The COLT may monitor the reconnaissance or scout platoon net and handle the fire request and subsequent adjustments in the same manner as a normal FIST. It can enter the information gained through its primary mission, lasing targets for precision munitions and CAS, directly into the Advanced Field Artillery Data System (AFATDS).

6-20. When pushed forward with the scouts, the COLT may collocate with one of the platoon OPs for local security and protection. Leaders often link a COLT's observation of a TAI with a scout team's coverage of an NAI. This technique allows the scout team to act as a trigger, with the COLT executing and adjusting fires.

FIRE REQUEST CHANNELS

6-21. Scouts use different channels when requesting fire support depending on the type of unit (reconnaissance/scout platoon or battalion reconnaissance platoon).

RECONNAISSANCE/SCOUT PLATOONS

6-22. The scouts in a reconnaissance or armored cavalry troop normally request all indirect fire support through their troop FIST on the troop fire support net. The FIST selects the best available fire support to engage the target. If the FIST passes the fire mission to the troop mortars, the scouts send all adjustments of the fire mission directly to the mortars (see Figure 6-1). If the FIST passes the fire mission to a supporting artillery unit, the scouts send all adjustments of the fire mission to the FIST, which relays the message to the artillery unit on a digital fire direction net (as shown in Figure 6-2).

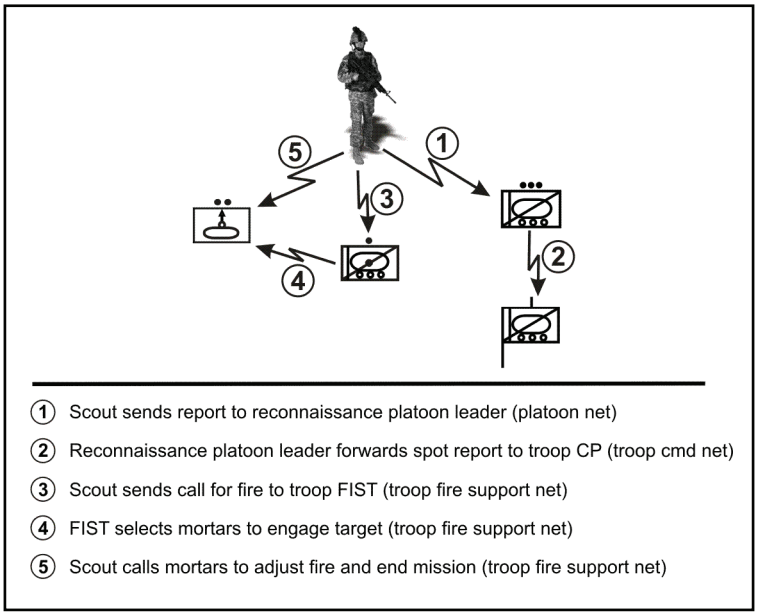


Figure 6-1. Reconnaissance or armored cavalry scouts requesting fire from mortars

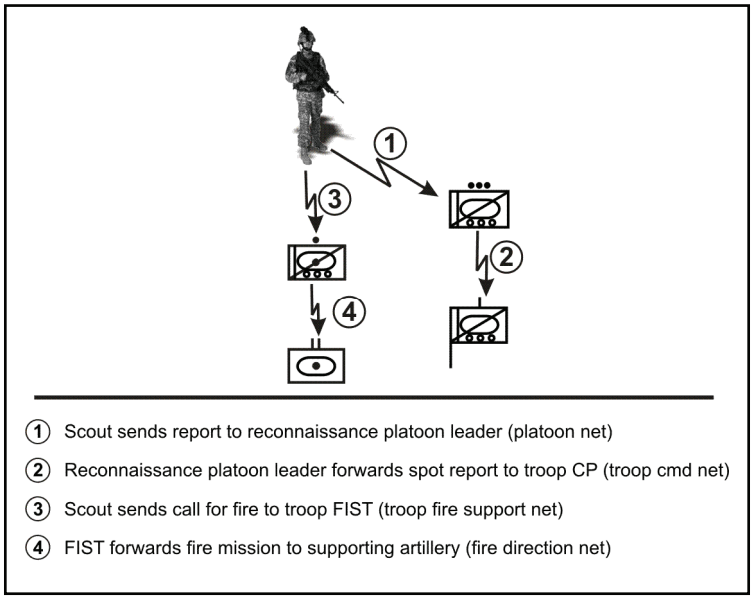


Figure 6-2. Reconnaissance or armored cavalry scouts requesting fire from field artillery

COMBINED ARMS BATTALION (CAB) RECONNAISSANCE PLATOON

6-23. There are several ways the CAB scouts request indirect fire. The CAB SOP specifies which method to use. The scouts employ the various methods described in the following paragraphs, based upon the platoon leader's coordination with the CAB FSO and/or fires cell (FC).

Mortar Requests

6-24. The platoon can send requests for mortar fire directly to the mortars on the battalion mortar net; the FC monitors these requests (see Figure 6-3).

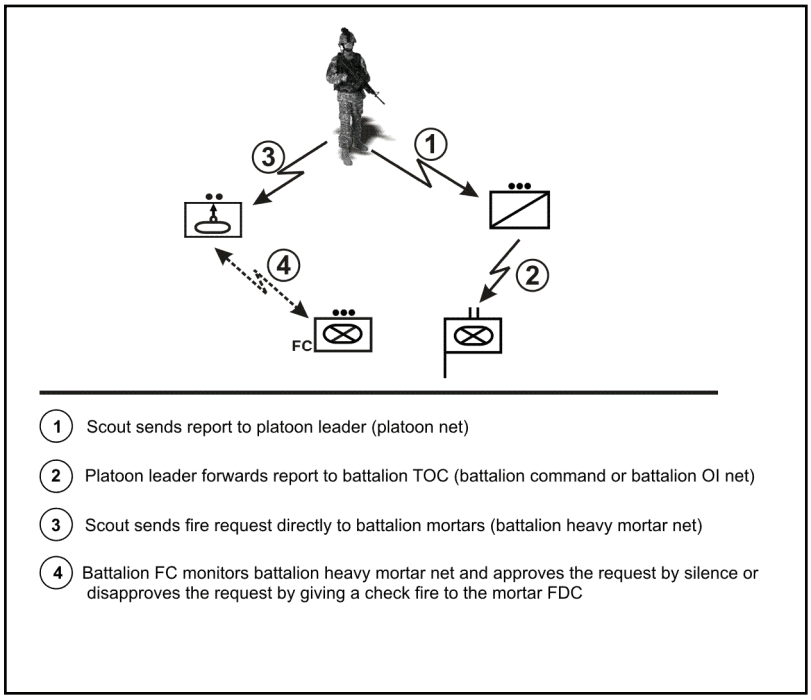


Figure 6-3. Battalion scouts requesting fire from task force mortars

Artillery Requests

6-25. Normally the reconnaissance platoon sends requests for artillery fire to the FC through the squadron or battalion TOC (see Figure 6-4).

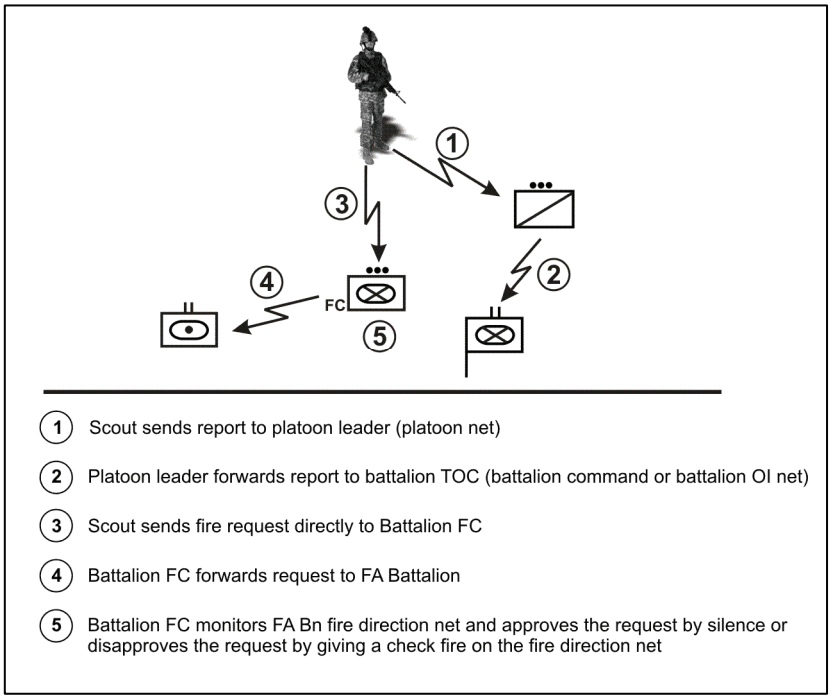


Figure 6-4. Battalion scouts requesting fire from the FA battalion

FIRE PLANNING IN SUPPORT OF RECONNAISSANCE MISSIONS

6-26. The reconnaissance or scout platoon leader must be prepared to use both hasty fire planning and deliberate fire planning in support of the platoon's missions. He should pay particular attention to the identification of priority targets and to the procedures used to shift priority targets whenever necessary. If the section sergeant or squad leader determines there is a need for additional targets in the course of his mission, it is his responsibility to request them through the platoon leader or PSG.

PRIORITY OF FIRES

6-27. Priority of fires is the organization and employment of fire support assets according to the importance of the supported unit's mission. The unit commander or leader determines their priority of fires.

6-28. The platoon leader coordinates priority of fires through normal fire support channels. He should concentrate on placing effective fires in several key locations:

- Short of the line of departure is the line of contact (LD/LC).
- From the LD/LC to the objective.
- On the objective.
- Beyond the objective (in case of enemy counterattack).

6-29. During reconnaissance, the platoon leader uses these doctrinal targeting tasks when the platoon has target responsibilities. The two key areas of concern for the platoon will be short of the LD/LC and from the LD/LC to the objective. The fire support plan must also support the platoon during movement along assigned routes and while it is occupying OPs, employing fires against enemy reconnaissance elements or forward security elements. The platoon leader also coordinates adjacent unit's fires prior to execution of operations. In the defense, the platoon leader must coordinate with the higher commander for planned targets.

6-30. During security operations, it is particularly important for the platoon leader to plan fires in support of point obstacles. The locations of obstacles should be refined and passed to the troop FIST or the

battalion and/or brigade fire support coordinator at the earliest possible time. As much as possible, the platoon leader ensures that the platoon has mortar priority of fires (except in the BFSB).

RADAR ZONES

6-31. In addition to fires planning, the platoon leader must be aware of and consider recommending the use of radar zones. Radar zones are a means of prioritizing radar sectors of search. A zone is a geometric figure placed around an area that prioritizes importance.

6-32. Of the four types of radar zones, the platoon leader concerns himself with only one type, the CFZ. This is an area, usually in the vicinity of a friendly unit, or location that is critical. CFZs protect an asset whose loss would seriously jeopardize the mission. Friendly units fire upon any enemy weapon firing into a CFZ. The radar computer generates an immediate call for fire to a friendly firing unit.

CALL FOR FIRE

6-33. The standard call for fire for artillery and mortars consists of three basic transmissions, consisting of six elements.

- Observer identification and warning order (first transmission).
- Target location (second transmission).
- Target description, method of engagement, and method of fire and control (third transmission).

6-34. The exceptions to using the full call for fire, with all three transmissions, are requests calling for "suppression" or "immediate suppression" missions.

OBSERVER IDENTIFICATION AND WARNING ORDER

6-35. The observer identification tells the fire direction center (FDC) who is calling. It also clears the net for the rest of the call. The warning order tells the FDC the type of fire support mission and the method of locating the target. The types of missions are adjust fire, fire for effect, suppression, and immediate suppression.

Adjust fire

6-36. Observer uses adjust fire when he is uncertain of the exact target location. Example: "G24 - THIS IS G59 - ADJUST FIRE - OVER."

Fire for Effect

6-37. The observer strives for first-round fire for effect if he is sure that his target location is correct. He should also be sure that the rounds of the first volley would have the desired effect on the target so that little or no adjustment will be required. Example: "G24 – THIS IS G59 – FIRE FOR EFFECT – OVER."

Suppression

6-38. The observer uses suppression to bring fire quickly on a preplanned target only. This is a simplified call for fire and sent in one transmission. Example: "G24 – THIS IS G59 – SUPPRESS AF2401 – OVER."

Immediate Suppression

6-39. An observer requests immediate suppression to bring fire quickly on a planned target or a target of opportunity that is firing at a friendly unit or aircraft. As with suppression, this mission uses a simplified call for fire that is sent in one transmission. Examples:

- Preplanned target example: "G24 – THIS IS G59 – SUPPRESS AF2401 – OVER." Observer does not announce the target.
- Target of opportunity example: "G24 – THIS IS G59 – IMMEDIATE SUPPRESSION GRID 123456 – OVER."

TARGET LOCATION

6-40. Following the type of mission, the observer announces the target location. This prepares the FDC to receive the data sent by the observer and apply it to locate the target. The three methods for locating targets are—

- Grid.
- Polar plot.
- Shift from a known point.

6-41. The observer only announces the polar plot and shift methods to the FDC. If the observer does not specify either polar or shift, the FDC knows the grid method is being used. Do not use the word "grid" in the initial transmission. Example: "H24 – THIS IS H67 – FIRE FOR EFFECT POLAR – OVER." (NOTE: The observer announces the word "grid" at the beginning of a subsequent transmission calling for an adjustment of fires. Example: "H24 THIS IS H67 – ADJUST FIRE OVER. H24 THIS IS H67 – GRID PA123456 – OVER.")

Grid Method

6-42. At a minimum, when using the grid method, the observer normally sends the target location in six digits (example: "PA180739"). The observer must give the direction (in mils, if possible) from the observer to the target to the FDC—after the call for fire, but before the first adjusting rounds are shot.

Polar Plot Method

6-43. This method requires that the observer and the FDC know the observer's exact location. The observer determines the direction (to the nearest 10 mils) of the observer-target (OT) line and the distance (to the nearest 100 meters) from his position to the target (see Figure 6-5).

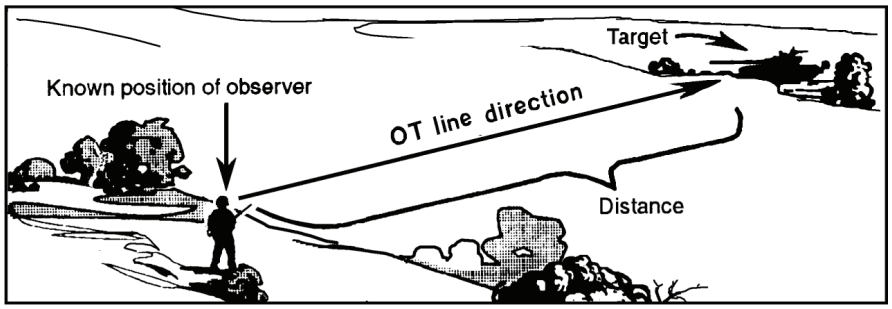


Figure 6-5. Polar plot method of target location

Shift from a Known Point Method

6-44. The observer can use this method if the observer and the FDC have a common known point. To locate the target, the observer must first determine the direction to the nearest 10 mils. If the observer has no compass, he can determine the direction by using a map and protractor or by using his binocular reticle pattern and a known direction to the known point. He should remember to apply the RALS rule (right add, left subtract) in determining direction to the target (see Figure 6-6).

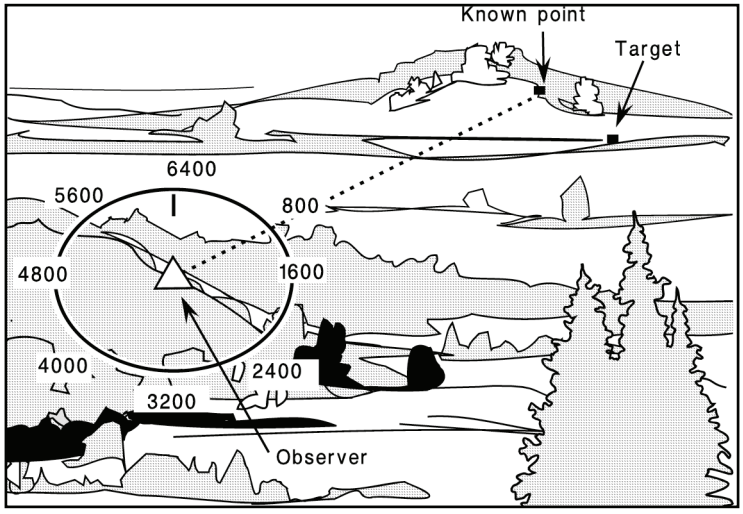


Figure 6-6. Shift from a known point method using direction (in mils)

6-45. The observer determines the lateral and range shifts (see Figure 6-7). The observer then gives lateral shifts left or right from the known point to the OT line to the nearest 10 meters. Observers give range shifts as "ADD" (when the target is beyond the known point) or "DROP" (when the target is closer than the known point). Range shifts are to the nearest 100 meters.

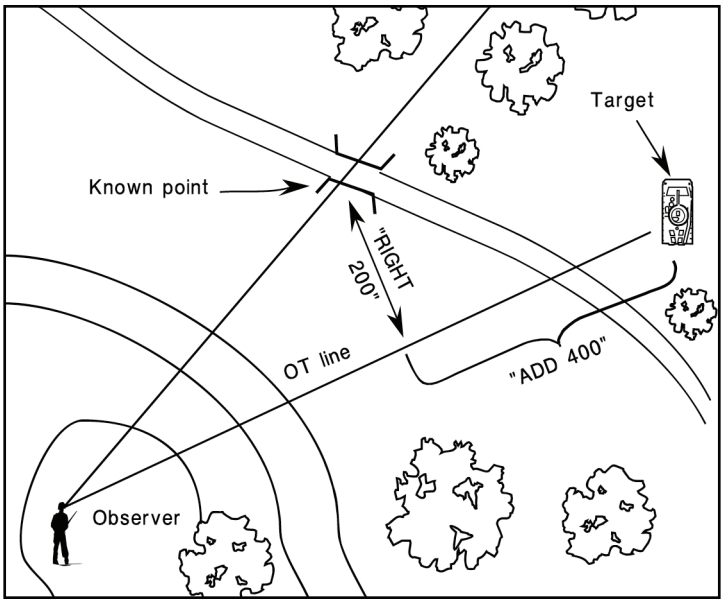


Figure 6-7. Lateral and range shifts from a known point

TARGET DESCRIPTION, METHOD OF ENGAGEMENT, AND METHOD OF FIRE AND CONTROL

6-46. The observer includes these elements in his call for fire using the following guidelines:

- **Description of target.** The observer describes the target to the FDC. The FDC then determines the type and amount of ammunition needed. The target description should be brief yet accurate. This is the last required element in the call for fire.

- **Method of engagement.** The observer specifies how he wants to attack the target (type of ammunition, fuze, and distance from friendly troops). The FDC may change the ammunition type and/or fuze based on ammunition constraints. If the target is within 600 meters of friendly troops, the observer announces "DANGER CLOSE" to supporting mortars and artillery. When the observer calls "DANGER CLOSE," the initial rounds in adjustment should use a delay fuse.
- **Method of fire and control.** The observer determines who gives the command for fire to begin. If the observer wants to control the time of firing, he will say, "AT MY COMMAND." The FDC will tell the observer when the unit is ready to fire. At the proper time, the observer will say, "FIRE." If the observer does not say, "AT MY COMMAND," the FDC will fire as soon as the platoon/battery is ready.

ADJUSTING INDIRECT FIRE

6-47. The goal of every observer is to put rounds on target as quickly as possible. If the observer meets the five requirements for accurate predicted fire, this task is relatively easy. Consequently, the observer requests 'fire for effect" in his initial call for fire. With so many variables affecting the accurate delivery of initial rounds, however, observers must be prepared to adjust subsequent rounds onto the target as quickly as possible.

6-48. The observer must first pick an adjusting point. For a destruction mission (precision fire), the target is the adjusting point. For an area target (area fire), the observer must pick a well-defined adjusting point at the center of the area or close to it. The observer must spot the first adjusting round and each successive round and send range and deviation corrections, as required, back to the FDC until fire hits the target. The observer spots by relating the burst or group of bursts to the adjusting point.

DEVIATION SPOTTING

6-49. As applied to deviation (left or right), spotting involves measuring the horizontal angle (in mils) between the burst and the adjusting point. An angle-measuring device or technique, such as the mil scale on military binoculars (refer to Figure 6-8) or the hand-and-fingers method (see Figure 6-9), is required to determine deviation. The horizontal scale in the binoculars' reticle, divided into 10-mil increments, measures horizontal angles. The vertical scales, in 5-mil increments in the center and on the left side of the reticle, measure vertical angles. The scale on the right, if present, is no longer used.

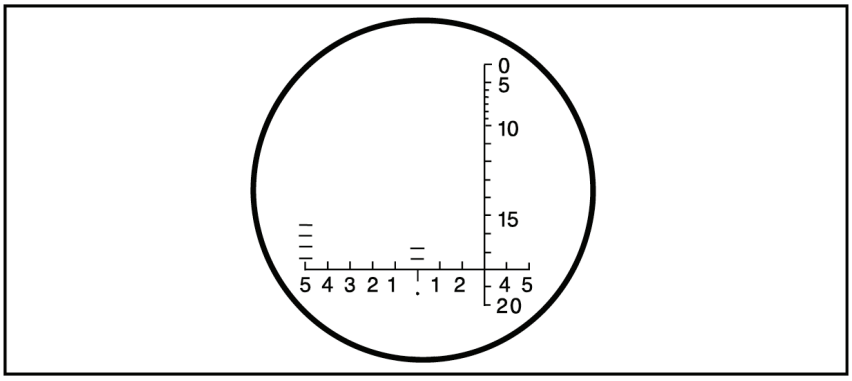


Figure 6-8. Mil scale in binocular reticle

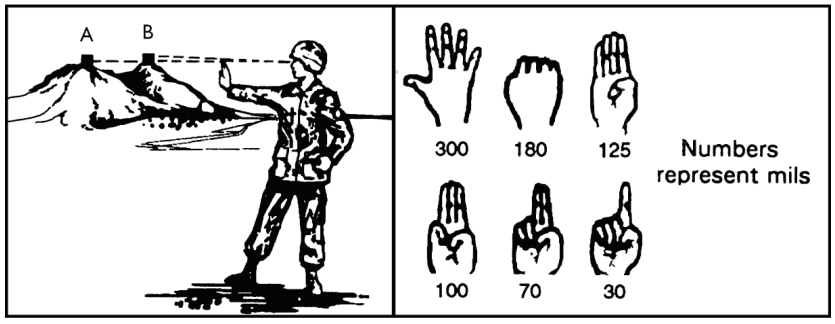


Figure 6-9. Use of hand and fingers method to determine deviation

6-50. The observer spots a burst to the right (or left) of the target as "(number) MILS RIGHT (LEFT)" (as shown in Figures 6-10 and 6-11). He spots a burst on the OT line as "LINE." Observers measure deviation to the left or right of the center of the burst, using the nearest five mils for area targets. The observer estimates deviation for a destruction mission (precision fire) to the nearest mil.

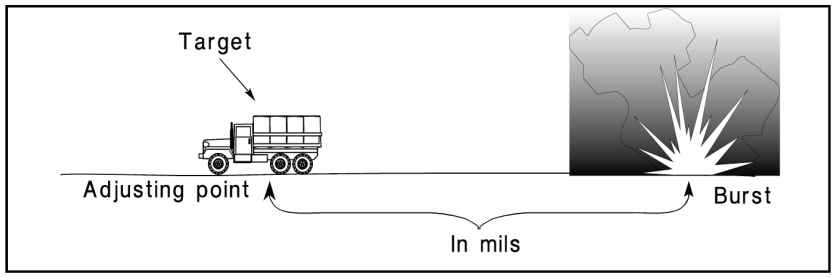


Figure 6-10. Deviation spotting

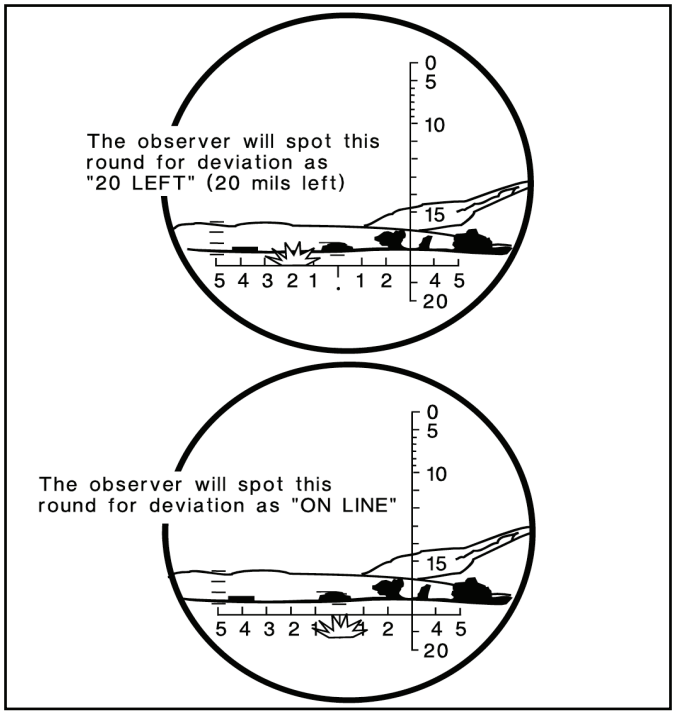


Figure 6-11. Deviation spotting with binoculars

DEVIATION CORRECTION

6-51. Once the mil deviation has been determined, the observer converts it into a deviation correction (in meters). Deviation correction is the distance in meters the burst must move to be on line between observer and target. It is sent, with the range correction, to the FDC for the next adjusting round or when calling for fire for effect.

6-52. The observer determines deviation correction by multiplying the observed deviation, in mils, by the distance from the observer to the target in thousands of meters. The observer expresses this distance as the OT factor (illustrated in Figure 6-12) and uses the result to calculate deviation correction to the nearest 10 meters (see Figure 6-13).

GUIDE FOR DETERMINING THE OT FACTOR	
	OT distance greater than 1,000 meters. Round to the nearest thousand, and express in thousands of meters. EXAMPLES: OT distance, 4,200 meters- OT factor, 4.0 OT distance, 2,700 meters- OT factor, 3.0
	OT distance less than 1,000 meters. Round to the nearest 100 meters and express in thousands of meters. EXAMPLES: OT distance, 800 meters- OT factor, 0.8

Figure 6-12. Determining the OT factor

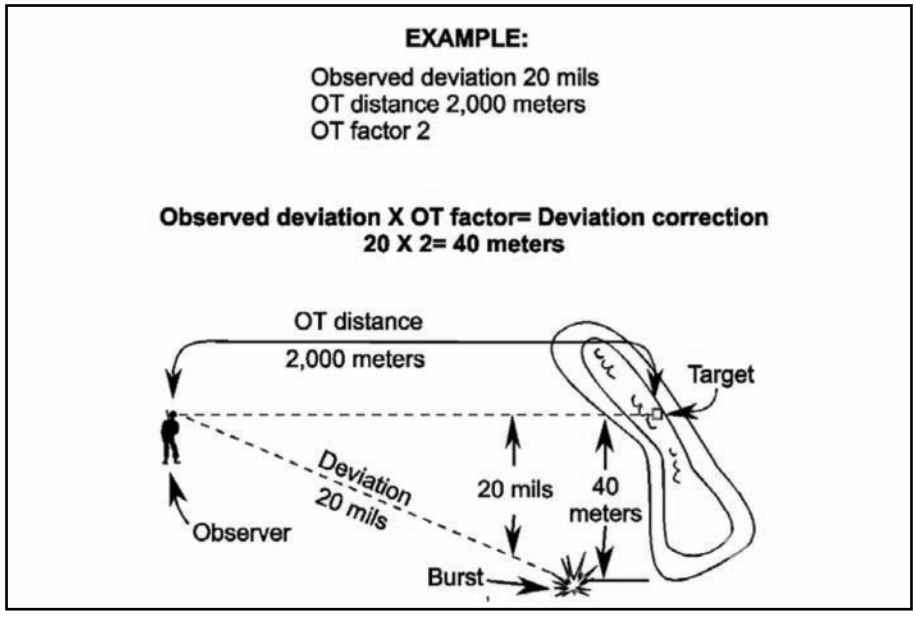


Figure 6-13. Converting mil deviation to deviation correction

6-53. Minor deviation corrections (10 to 20 meters) are necessary to adjust precision fire. In adjustment of area fire, however, observers should ignore deviation corrections of 20 meters or less except when such a small change is necessary to determine a definite range spotting. Throughout the adjustment, the observer should move the adjusting rounds close enough to the OT line to ensure accurate range spotting.

RANGE SPOTTING

6-54. As applied to range (short or over), spotting is required to make adjustments to place fire on the target. Observers use the following terminology in this process:

- **OVER.** This term describes a round that appears to impact beyond the adjusting point.
- **SHORT.** This term describes a round that appears to strike between the observer and the adjusting point.
- **TARGET.** This spotting term describes a round that hits the target. It is used only in precision fire (destruction missions).
- **RANGE CORRECT.** This term describes a round that appears to be at the correct range.
- **DOUBTFUL.** This term describes a round that can be observed but cannot be spotted in one of the previous categories (over, short, target, or range correct).
- **LOST.** This describes a round whose location cannot be determined.
- **LOST OVER** or **LOST SHORT.** These are terms for a round that is not observed but that is definitely known to be beyond or short of the adjusting point.

6-55. Any range spotting other than "DOUBTFUL" or "LOST" is definite. Usually, an adjusting round's burst that is on or near the OT line will give a definite range spotting. The observer can make a definite range spotting even when the burst is not on or near the OT line. He uses his knowledge of the terrain or wind and observes debris scattered by the impact; however, if the observer is not sure ("DOUBTFUL"), the correction he sends to the FDC should be for deviation ("LEFT" or "RIGHT") only. This is done to bring the burst on line to get a definite range spotting ("OVER", "SHORT", or "TARGET").

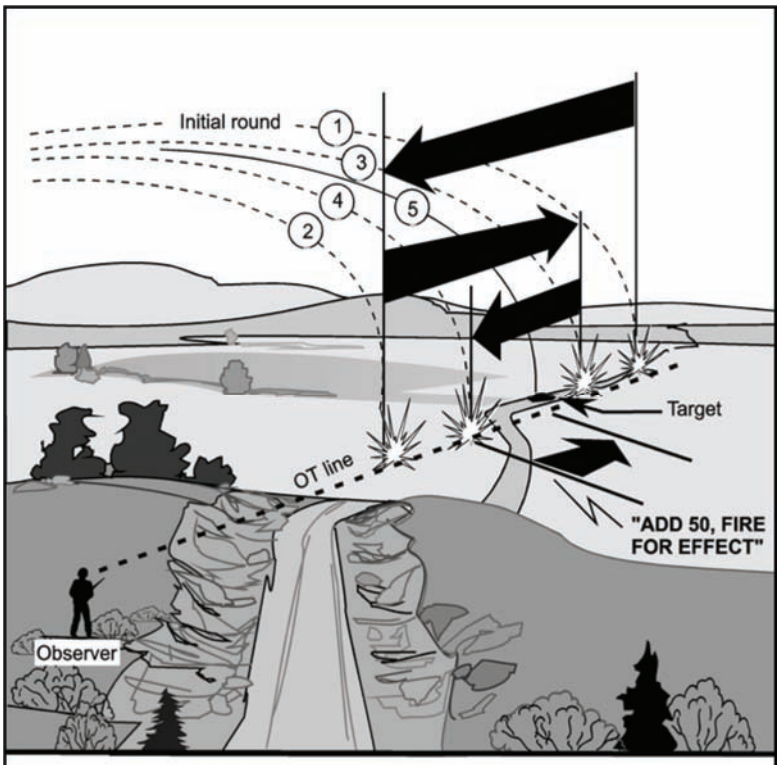
RANGE CORRECTION

6-56. Observers use three methods of adjusting fire on to a target. These include bracketing, hasty bracketing, and creeping.

Bracketing

6-57. In this technique, the observer gives range corrections so that, with each successive correction, the adjusting round intentionally lands over or short of the adjusting point, closing on the target. The observer calls "FIRE FOR EFFECT" when a range correction would bring the next round within 50 meters of the adjusting point (See Figure 6-14).

6-58. Successive bracketing is a safe technique that ensures fire on the target. Time is important, especially when targets are moving or may move to seek cover when they find fire coming their way. Accurate initial location information speeds adjustment and makes the requested fire more effective. To shorten adjustment time, the observer should try to bracket the target quickly (in the first two or three adjusting rounds), then try to adjust on the target with as few subsequent rounds as possible.



When bracketing, the observer should use the following guide to determine the first range correction

If OT range is-	Add or drop a minimum of-
1,000 to 2,000 meters	200 meters
Over 2,000 meters	400 meters

The observer should call for fire for effect when a 100-meter bracket has been split

EXAMPLE:

"DROP 50, FIRE FOR EFFECT"

Figure 6-14. Bracketing

Hasty Bracketing

6-59. Experience has shown that effectiveness on the target decreases as the number of rounds used in adjustment increases. An alternative to successive bracketing is hasty bracketing. While successive bracketing mathematically ensures that the fire-for-effect rounds will strike within 50 meters of the adjusting point, it is a slow and unresponsive technique. Therefore, observers use hasty bracketing if the nature of the target requires faster effective fires than successive bracketing allows. The success of hasty bracketing depends on a thorough terrain analysis that gives the observer an accurate initial target location. The observer obtains a bracket on his first correction in a manner similar to that used for successive bracketing. Once the observer has this initial bracket, he uses it as a yardstick to determine his subsequent correction. He then sends the FDC the correction to move the rounds to the target and fire for effect.

Creeping

6-60. Observers use the creeping method of adjustment in "DANGER CLOSE" situations. Here, the observer directs the initial round beyond the target. He then brings adjusting rounds in 100 meters or less until he engages the target. This method is slow and tends to use more ammunition than other adjustments; therefore, observers should use creeping only when Soldier safety is a major concern.

REFINEMENT AND SURVEILLANCE

6-61. The observer should note the results of the fire for effect and then take whatever action is necessary to complete the mission. It is critical that the observer formally ends the fire mission and gives assessment. Figure 6-15 shows the observer's actions after the fire for effect.

RESULTS OF FIRE FOR EFFECT	OBSERVER'S ACTIONS (Radio transmissions in parenthesis)
Accurate and sufficient	End of mission, surveillance **("END OF MISSION, RPG SILENCED, OVER")**
Accurate, sufficient, target replot desired	Request replot, end of mission, surveillance **("RECORD AS TARGET, END OF MISSION, BMP NEUTRALIZED, OVER")**
Inaccurate and sufficient	Refinement, end of mission, surveillance **("RIGHT 20, ADD 20, END OF MISSION, RPG SILENCED, OVER")**
Inaccurate, sufficient, target replot desired	Refinement, request replot, end of mission, surveillance **("RIGHT 10, RECORD AS TARGET, END OF MISSION, BMP NEUTRALIZED, OVER")**
Inaccurate and insufficient	Refinement, repeat and reenter, adjust fire **("RIGHT 10, ADD 50, REPEAT," or "RIGHT 10, ADD 100, ADJUST FIRE, OVER")**
Accurate and insufficient	Repeat **("REPEAT, OVER")**

Figure 6-15. Observer's actions after fire for effect

FIRE SUPPORT COORDINATION MEASURES

6-62. Once established, units display FSCMs on maps, firing charts, and overlays. Graphic portrayal includes, as a minimum, the visual code, the abbreviation for the measure, the establishing headquarters, and the effective date-time group (DTG).

6-63. With the exception of boundaries, FSCMs are either permissive or restrictive. In essence, the primary purpose of a permissive measure is to facilitate the attack of targets. The establishment of a restrictive measure imposes certain requirements for specific coordination before the engagement of those targets affected by the measure; therefore, the primary purpose of a restrictive measure is to safeguard friendly forces. For additional discussion of fire support and the FSCMs covered in this discussion, see FM 3-20.96 and FM 3-20.971, as well as FM 3-09.31, FM 3-22.90, and FM 6-20-40.

PERMISSIVE MEASURES

6-64. Permissive FSCMs include—

- Coordinated fire line (CFL).
- Fire support coordination line (FSCL).
- Free fire area (FFA).

6-65. For additional details on how to depict these measures, refer to FM 1-02.

Coordinated Fire Line

6-66. The CFL is a line beyond which conventional or improved conventional indirect fire means (mortars, FA, and NGF) may fire at any time within the zone of the establishing headquarters without additional coordination. It covers surface-to-surface fires only. The purpose of the CFL is to expedite the attack of targets beyond it (see Figure 6-16).

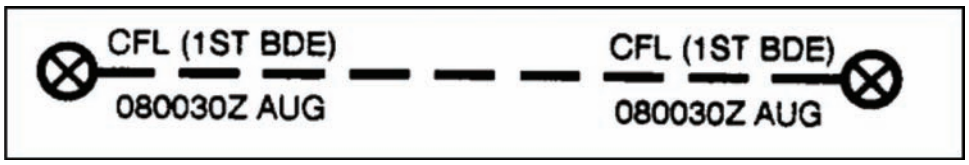


Figure 6-16. Coordinated fire line

Fire Support Coordination Line

6-67. The FSCL facilitates the rapid attack of targets of opportunity beyond the coordination measure. It is a line established and adjusted by the appropriate land or amphibious force commander within his boundaries in consultation with superior, subordinate, supporting, and affected commanders. Forces attacking targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide, both in the air and on the ground. Supporting elements may attack targets beyond the FSCL, provided the attack will not produce adverse effects on, or to the rear of, the line that may affect current tactical operations. Leaders use FSCLs to coordinate all fires of air, ground, or sea weapon systems using any type of ammunition against surface targets (see Figure 6-17).

Note. The FSCL is not a boundary. The synchronization of operations on either side of the FSCL is the responsibility of the establishing commander out to the limits of the land or amphibious force boundary. The FSCL is a term oriented to air-land operations; there is no similar term used at sea.

6-68. An associated benefit of employing an FSCL is the reduction in potential for fratricide. Short of an FSCL, the appropriate land or amphibious force commander controls all air-to-ground and surface-to-surface attack operations.

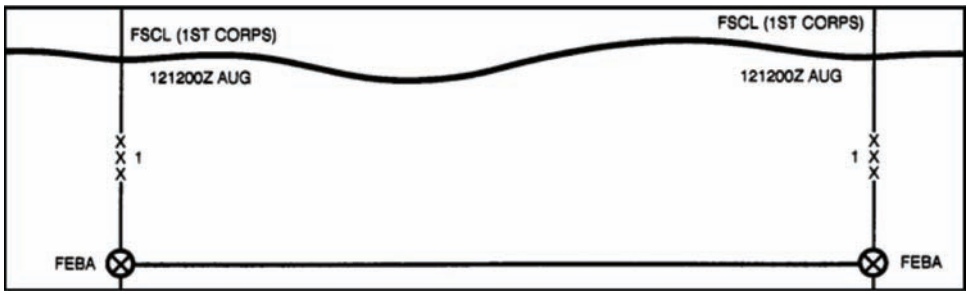


Figure 6-17. Fire support coordination line

Free Fire Area

6-69. The FFA is a specific area into which any weapon system may fire without additional coordination with the establishing headquarters. The FFA expedites fires and facilitates the jettison of munitions when aircraft are unable to drop them on a target area (see Figure 6-18).

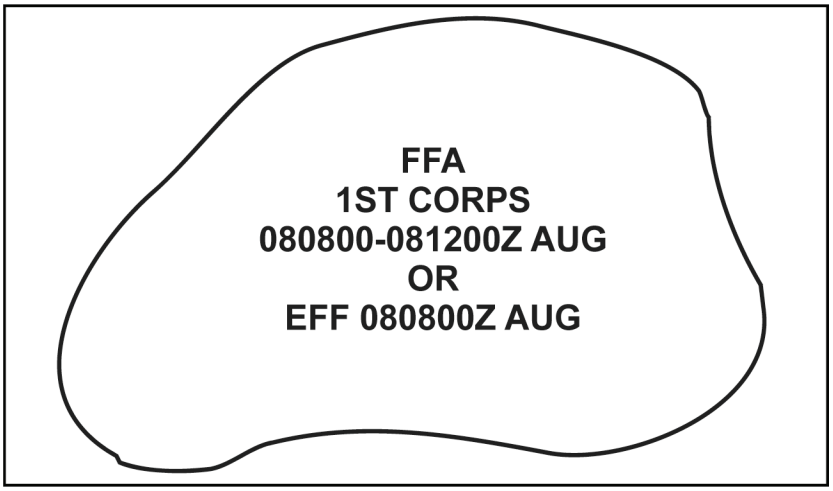


Figure 6-18. Free fire area

RESTRICTIVE MEASURES

6-70. Restrictive fire support coordination measures include—

- NFA.
- Restrictive fire area (RFA).
- RFL.

6-71. For additional details on how to depict these measures, refer to FM 1-02.

No-Fire Area

6-72. The NFA is an area that disallows all fires and effects. There are two exceptions:

- When the establishing headquarters approves fires temporarily within the NFA on a mission-by-mission basis.
- When an enemy force within the NFA engages a friendly force. In this situation, the commander may engage the enemy to defend his force.

6-73. The purpose of the NFA is to prohibit fires or their effects in the area. Usually a division or corps establishes NFAs. NFAs are normally on easily identifiable terrain; however, they may be located by grid or by a radius (in meters) from a center point. Like other FSCMs, units disseminate the location of an NFA through both maneuver and fire support channels to concerned levels (see Figure 6-19).

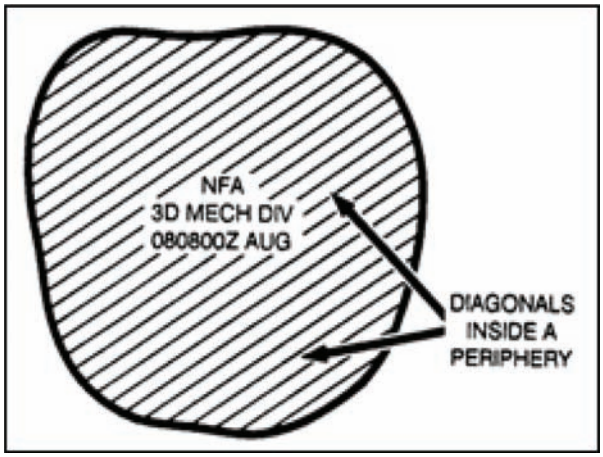


Figure 6-19. No-fire area

Note. The platoon leader should request an NFA over all scout positions at all times

Restrictive Fire Area

6-74. The RFA is an area imposing specific restrictions to deny delivery of fires that exceed those restrictions without coordination with the establishing headquarters. The purpose of the RFA is to regulate fires into an area according to the stated restrictions. Maneuver battalions or higher echelons of command establish the RFA, although on occasion, a company or troop operating independently may establish one (see Figure 6-20).

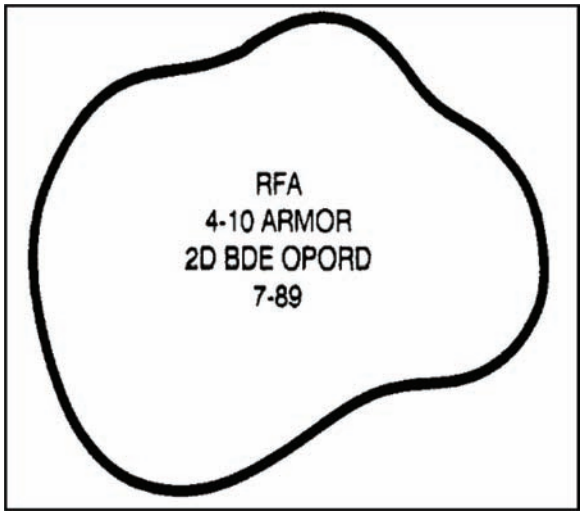


Figure 6-20. Restrictive fire area

Restrictive Fire Line

6-75. The RFL is a line established between converging friendly forces (one or both may be moving) that prohibit fires or the effects of fires across the line without coordination with the affected force. The purpose of the line is to prevent interference between the converging friendly forces. The common commander of the converging forces establishes it. Units disseminate its location in the same manner as that of a CFL (see Figure 6-21).

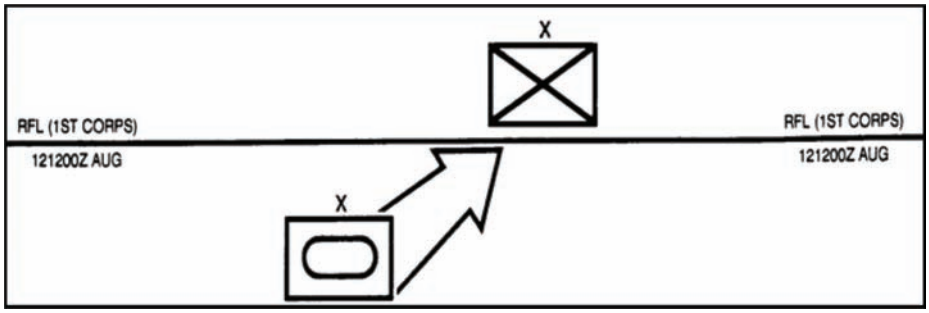


Figure 6-21. Restrictive fire line

Airspace Coordination Area

6-76. The ACA is a block of airspace in the target area in which friendly aircraft are reasonably safe from surface fires. Occasionally, it may be a formal measure (a three-dimensional box in the sky); more commonly, it is an informal space. The purpose of the ACA is to allow the simultaneous attack of targets near each other by multiple fire support means, one of which normally is an airborne asset (see Figure 6-22).

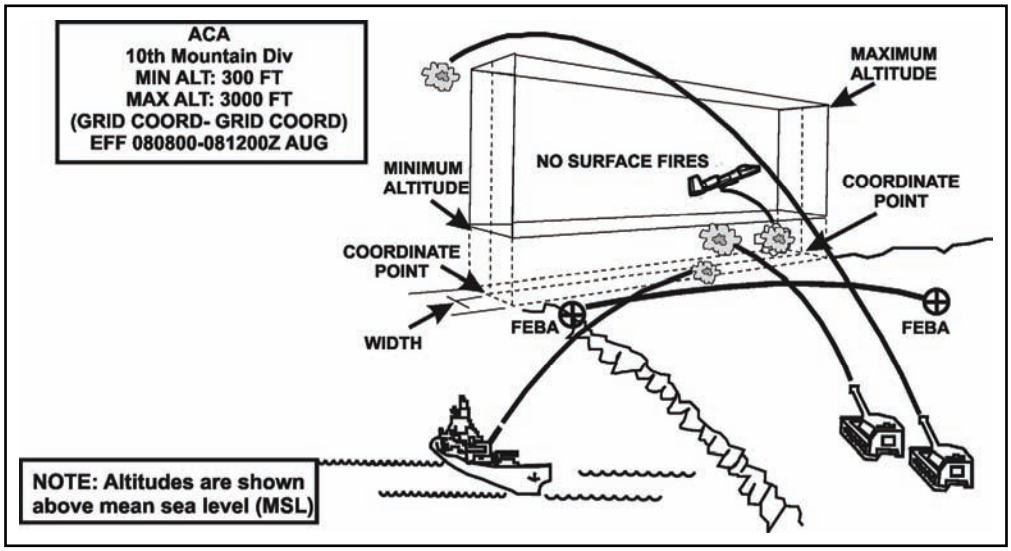


Figure 6-22. Airspace coordination area

CLOSE AIR SUPPORT OPERATIONS

6-77. The reconnaissance or scout platoon primarily needs to understand the terminology and concepts for CAS, which entails air attacks on hostile ground forces that are in close proximity of friendly troops. Scouts employ CAS to blunt an enemy attack, support the momentum of the ground attack, or provide cover for friendly movements. Nomination of CAS targets is the responsibility of the commander, air liaison officer, and S-3 at each level; however, the input received from the platoon leader is very valuable. The platoon may receive CAS from Air Force, Navy, Marine Corps, or multinational assets. Because of its specialized operational considerations, the BFSB platoon often must plan for and request CAS support.

CAS CAPABILITIES AND EMPLOYMENT

6-78. To make a valued recommendation to the commander regarding the use of CAS aircraft, the platoon leader must know the characteristics of the aircraft predominantly used in the CAS role. Table 6-4 outlines characteristics and capabilities of fixed-wing aircraft available for CAS.

Table 6-4. Characteristics and capabilities of fixed-wing aircraft

Aircraft	*Ordnance*	*Marking Capability*	*Beacon*	*Other Systems*	*Frequency Band*	*Frequency Hopping*	*Secure Capable*
AV-8B Harrier II	LGB, AGM-65E, GP bombs, CBU, JDAM, 2.75" rockets, 5" Zuni	Rockets, 25mm, LTM, LUU-2/19 flares	None	CCD TV, NVG, GPS, FLIR, Lightning Pod, SAR[1]	UHF VHF–AM/FM	HQ II SINCGARS	KY-58
A-10 A/C	LGB, AGM-65, GPbombs, CBU, JDAM[2], 2.75" rockets, 30mm cannon	Illum / WP Rockets, LTD, LTM , 30mm, LUU ½/5/6/19 flares	None	NVG, GPS, Lightning Pod	UHF VHF–AM/FM	HQ II	KY-58
AC-130H	105mm howitzer (136 rds), 40mm cannon (512 rds)	105mm, 40mm, IZLID, ATI	PPN-19 SST-181 SMP-1000/ 2000	FLIR, GPS, PLS, LLLTV, Beacon tracking radar	UHFx2 SATCOM HF VHF-AM/FMx3	HQ II NoNo SINCGARS	KY-58/100 KYV-5 KY-58
AC-130U	105mm howitzer (100 rds), either 2x30mm (1004 rds) or 1x40mm (256 rds), 1x25mm cannon (3000 rds)	105mm, 40mm, 25mm, LIA	PPN-19 SST-181 SMP-1000/ 2000	FLIR, GPS, ALLTV, SAR[1]	UHFx2 SATCOM HF VHF-AM/FMx3	HQ II NoNo SINCGARS	KY-58/100 KYV-5 KY-58
B-1B	JDAM, GP bombs, CBU/WCMD	None	PPN-19 SMP-1000	SAR[1], GPS, NVG	UHF or SATCOM VHF/UHF HF	HQ II SINCGARS	KY-58 KY-100
B-2	JDAM, JSOW, GP bombs, CBU	None	X Band KU Band	SAR[1], GPS	VHF/UHF HF SATCOM	HQ II No	KY-58 KY-100
B-52	JDAM, GP bombs, CBU/WCMD, LGB	None	PPN-19, PPN-20, SMP-1000	FLIR, LLLTV, Radar, NVG,GPS	VHF/UHF HF SATCOM	HQ II	KY-58/100 KYV-5
F-15E	JDAM, LGB, CBU/ WCMD, EGBU-28, GP bombs, AGM 130/65, GBU-15/24, JSOW, 20mm	LTD, LTM	None	NVG, FLIR, GPS, SAR[1], Link-16, Sniper, Lightning, Lantern	UHF UHF/VHF/ FM	HQ II HQ II	KY-58
F-16	JDAM,	LTM,LTD,	None	GPS,	UHF VHF-	HQ II No	KY-58

Table 6-4. Characteristics and capabilities of fixed-wing aircraft

Aircraft	*Ordnance*	*Marking Capability*	*Beacon*	*Other Systems*	*Frequency Band*	*Frequency Hopping*	*Secure Capable*
	LGB, GPbombs, CBU/ WCMD, HARM[5] ,AGM-65, JASSM, 2.75" rockets, 20mm cannon	Rockets		SADL[3] IDM/IDT[4,5] , NVG, Link-16[5,6] , Sniper/Litening, HTS[5] , HMCS[5,6]	AM/FM		
F-18 A/C/D/E/ F	JDAM, JSOW, HARM, AGM-65E/F, CBU, GP bombs, SLAM (+ER), LGB, 2.75" rockets, 5 " Zuni, 20mm cannon	LTM, LTD, Rockets, LUU-2/19 flares	None	GPS, SAR[1] Link-16, NVG, Lightning AT, ATFLIR, NIGHT-HAWK	UHF VHF-AM/FM	HQ II SINCGARS	KY-58
F-22A	JDAM	None	None	GPS, NVG, Link-16	UHF VHF-AM	HQ II	KY-58
P-3	SLAM-ER, Various	None	None	SAR[1]	VHF/UHF, HF, SATCOM	HQ II	KY-58 Link 11
MQ-1B Predator	AGM-114[7] (K, M, N, P)	LTD, LTM	None	FLIR, GPS, EO	UHF VHF-AM/FM SATCOM ROVER	No	KY-100
MQ-9 Reaper	AGM-114[7] (K, M, N, P), GBU-12	LTD, LTM	None	FLIR, GPS, EO	UHF VHF-AM/FM SATCOM ROVER	No	KY-100
Pioneer		None	None	FLIR, EO			
RQ-7 Shadow		LTD		FLIR, EO			
RQ-11 Raven		LTM[8]		FLIR, EO			
Tornado GR 4(UK)	EPW (II & III), PW II & III, PW IV (IOC 2009), Mk-83, CBU, ALARM, Stormshadow, Brimstone, 27 mm cannon	LTD, LTM	None	FLIR, LST, NVG, Gnd mapping radar with TFR	UHF VHF-AM	HQ (I&II)	Yes
Harrier GR	EPW II, PW II/III/IV,	LTD, LTM	None	FLIR, LST, NVG, Gyro	UHF VHF-AM	HQ (I&II)	Yes

Table 6-4. Characteristics and capabilities of fixed-wing aircraft

Aircraft	*Ordnance*	*Marking Capability*	*Beacon*	*Other Systems*	*Frequency Band*	*Frequency Hopping*	*Secure Capable*
7/9(UK)	GP 1000-lb and 540-lb, CBU, Brimstone (IOC 2008), CRV7, AGM-65			Binoculars, TIALD, Sniper	Tac VHF		

Notes: **1** – Synthetic aperture radar with ground mapping modes.
2 – A-10C only.
3 – Block-25/30/32.
4 – Block 40/42.
5 – Block 50/52.
6 – Some Block 40/42.
7 – Predator equipped with Hellfire has no SAR capability.
8 – Raven B only.

ALLTV – all light level television ATFLIR – advanced targeting FLIR CCD – charge-coupled device EO – electrooptical FLIR – forward-looking infrared GPS – global positioning system HMCS – helmet mounted cueing system HTS – HARM targeting system IDM – improved data modem IDT – interflight data transfer (also known as interflight datalink) IZLID – infrared zoom laser illuminator designator LIA – laser illuminator assembly LLLTV – low-light level television LST – laser spot tracker	LTD – laser target designator; 1.06 micron PRF [pulse repetition frequency] coded for weapons guidance LTM – laser target marker; 530nm "green beam" or 860nm for visual or NVG and targeting pods (commonly referred to as an infrared pointer or infrared marker) NVG – night vision goggles PLS – personal locator system SADL – situational awareness data link SAR – synthetic aperture radar TFR – terrain following radar TIALD – thermal imaging airborne laser designator TV – television WP – white phosphorous

CAS BRIEFING FORMAT

6-79. Joint terminal attack controller (JTAC) personnel are the primary means for requesting and controlling CAS. Leaders employ joint fires observers (JFO) if no JTAC support is available. However, reconnaissance platoons working forward and independent of the troop must conduct emergency control of CAS missions in the absence of JTAC or JFO personnel. Referred to as, "CAS by a non-qualified controller", non-JTAC controllers must clearly state to attacking aircraft that they are "non-JTAC qualified" during aircraft check-in (Figure 6-23).

6-80. The JTAC is a qualified (certified) service or coalition member who, from a forward position, directs the action of combat aircraft engaged in CAS and other offensive air operations.

6-81. The JFO is a certified and qualified service member who can request, adjust, and control surface-to-surface fires, provide targeting information in support of Type 2 and 3 CAS terminal attack controls and perform terminal guidance operations. See FM 3-09.32 for additional information on the role of JTAC personnel and JFOs.

CAS Briefing Format

Do not transmit line numbers. Units of measure are standard unless briefed. Lines 4, 6, and restrictions are mandatory read-back (*). Controller may request additional read-back.

Controller: "_____, this is _____"
(Aircraft Call Sign) (Controller Call Sign)
"Type_____ (1, 2, or 3) Control"

1. IP/BP: "_____"
2. Heading: "_____"
(Degrees magnetic from IP/BP-to-target)
Offset: "_____"
(Left/Right, when required)
3. Distance: "_____"
(IP-to-target in nautical miles, BP-to-target in meters)
4*. Target Elevation: "_____"
(In feet MSL)
5. Target Description: "_____"
6*. Target Location: "_____"
(Lat/Long or grid to include map datum or offsets or visual)
7. Type Mark: "_____" Code: "_____"
(WP, Laser, IR, Beacon, etc.) (Actual Laser Code)
8. Location of Friendly Forces: "_____"
(From target, cardinal direction and distance in meters)
Position marked by: "_____"
9 Egress: "_____"
REMARKS (as appropriate): "_____"

(**Restrictions***, ordnance delivery, threats, final attack heading, hazards, weather, target information, SEAD, danger close, etc.)

Time on Target: "_____" or
Time to Target: "_____"
"Standby _____ plus _____, ready, ready, HACK"
(minutes) (seconds)

IP—initial point. A well-defined point, easily distinguishable visually and/or electronically, used as a starting point for the bomb run to the target.

BP—battle position. An airspace coordination area containing firing points for attack helicopters (Marine Corps).

MSL—mean sea level. The altitude above the average height of the sea.

Note. When identifying position coordinates for joint operations, include map data. Grid coordinates must include the 100,000-meter grid identification.

Figure 6-23. CAS briefing format

OTHER TYPES OF AIR SUPPORT

6-82. In addition to CAS, the Air Force, Navy, and Marine Corps provide the Army with other types of fixed-wing air support:

- Combat air reconnaissance.
- Tactical airlift.
- Electronic warfare.
- Air interdiction.

SECTION II – ARMY AVIATION SUPPORT

6-83. Army aviation uses maneuver to find, fix, and destroy enemy forces by concentrating and sustaining combat power at critical times and places. Army aviation provides attack reconnaissance support, interdiction attack, and CCA support. It also conducts air infiltration, air movement, and sustainment operations throughout the platoon's AO. Additional information on Army aviation support is available in FM 3-20.96 and FM 3-04.126.

ORGANIZATION

6-84. The aviation organization that the reconnaissance and scout platoon encounters most frequently is the scout weapons team (SWT). The SWTs are normally comprised of two aircraft (lead and wingman) of either OH-58Ds or AH-64s, or a mix of both. Refer to FM 3-20.971 for a detailed discussion of the following areas of Army aviation support:

- Principles of aviation employment.
- Planning considerations.
- Aviation missions.
- Aviation capabilities and limitations.
- Attack reconnaissance support.
- Attack support.

ASSAULT (UTILITY) AND CARGO (LIFT) HELICOPTER SUPPORT

6-85. Army aviation assault and cargo assets provide the reconnaissance or scout platoon with limited aerial resupply, transport for infiltration and air movement operations, MEDEVAC and CASEVAC. See FM 3-04.111 and FM 3-04.113 for additional information.

RESUPPLY OPERATIONS

6-86. Helicopter and fixed wing resupply assets available to the platoon are limited. Scouts, however, may operate in forward locations and even distant hide positions requiring helicopter aerial or airdrop resupply involving various aspects of aerial resupply and sling load operations. Refer to FM 4-20.197 and FM 3-21.38 for discussions of various aspects of aerial resupply, slingload operations, and airdrop resupply.

Planning

6-87. Planning for aerial or airdrop resupply requires close coordination, with elements reviewing the entire mission and resolving all limitations and problem areas. If a resupply item poses a problem that cannot be resolved, leaders should consider another mode of transport. Planning factors include the following:

- Priorities of cargo/unit resupply.
- Integration of the resupply operation into the tactical plan.
- Selection, identification, and marking of the pickup zone (PZ)/LZ/drop zone (DZ).
- Type/amount of cargo.
- Helicopter or fixed wing assets available.

- Requirements for slings, cargo nets, and/or cargo containers.
- Ground crew training requirements, such as those for ground guides, hookup personnel, and DZ personnel.
- PZ/LZ/DZ security.
- Flight routes.

6-88. The selection of a usable PZ/LZ or DZ is extremely important. The platoon analyzes logistical and tactical considerations taking into account that PZ/LZ/DZ positioning is at the right place to support the ground unit. The area must also be accessible to the aircraft or airdrop involved in the resupply operation. The air mission commander (AMC), the pilot in command, aviation LNO, or a Pathfinder-qualified officer or NCO, will make the final decision on PZ/LZ/DZ selection and acceptance.

Platoon Responsibilities

6-89. Organic Army aviation brigade assets at division, corps, and theater, including joint and multinational assets can provide utility/cargo support to reconnaissance and cavalry units. Platoon requests travel through the commander at troop level and through squadron operations.

6-90. The reconnaissance or scout platoon receiving the supplies is responsible for preparing the PZ/LZ/DZ. In addition the platoon performs the following specific tasks for aerial resupply:

- Recover and assemble equipment and supplies.
- Train available ground crews in guiding the aircraft during approach, landing, unloading/loading, departure, and de-rigging the load.
- Train hookup personnel.
- Coordinate with the sending unit for the control and return of that unit's transport equipment, such as slings and A-22 bags.
- Prepare, coordinate, and inspect backloads (such as slings and A-22 bags) and have them ready for hookup or loading when the aircraft arrives.

AIR INFILTRATION AND EXFILTRATION

6-91. Infiltration and exfiltration are forms of maneuver that the scout/reconnaissance platoon uses throughout the OE to accomplish a specific task. Ground reconnaissance assets use helicopter assets to conduct air infiltration or exfiltration. The reconnaissance or scout platoon can infiltrate by squads, by sections, or as a complete platoon. Purposes of infiltration include the following:

- Reconnoiter a specified area and establish OPs.
- Emplace remote sensors.
- Establish communications relay capability for a specific period in support of other operations.
- Determine enemy strengths and weaknesses.
- Locate unobserved routes through enemy positions.
- Determine the location of high-payoff enemy assets.

6-92. The reconnaissance or scout platoon conducts infiltration at any time during full spectrum operations. These operations often occur prior to offensive operations such as air assaults or movements to contact. During stability operations, the platoon may infiltrate to establish OPs that survey suspected insurgency activities.

6-93. Assault and GS helicopter units support the platoon by inserting the reconnaissance element via fast-rope, single-point, or landing in an LZ. These missions may require special mission infiltration/exfiltration system (SPIES) or fast rope insertion/extraction system (FRIES) equipment, rappelling ropes, hoists, auxiliary fuel tanks, and additional training or rehearsals.

6-94. The inserting or extracting aviation element during an infiltration operation commonly consists of UH-60s and AH-64s (or other armed escort). In accordance with unit SOP, UH-60s conduct multiple false

insertions before and after actual insertion. AH-64s, providing security, may conduct feints or demonstrations to help cover the operation.

Planning Considerations

6-95. The reconnaissance/scout platoon plans for an air infiltration or exfiltration as for any other mission. Unit SOPs should outline an abbreviated planning process for these missions. In addition to the normal planning process, specific planning requirements exist for the air infiltration and include—

- Coordinating with the supporting aviation unit(s) of the task force.
- Planning and rehearsing with the supporting aviation unit prior to the mission if possible. If armed escort accompanies the operation, the platoon leader as well as the assault or GS aviation unit should ensure the attack reconnaissance aircrews are included in the planning and rehearsal.
- Gathering as much information as possible, such as enemy situation, in preparation for the mission.
- Ensuring joint suppression of enemy air defense coordination as appropriate.

6-96. The platoon should also plan different ingress/egress routes to include—

- Planned extraction points.
- Emergency extraction rally points.
- Lost communications extraction points.

6-97. Planned extraction points and emergency extraction rally points require communications to verify the preplanned pickup time or coordinate an emergency pickup time window. The lost communications extraction point involves infiltration teams moving to the emergency extraction point after two consecutive missed communication windows and waiting up to 24 hours for pickup (as per unit SOP).

Special Patrol Infiltration/Exfiltration System Operations

6-98. Units use SPIES for use in inserting and extracting reconnaissance personnel where a helicopter landing is impractical. The system provides a means of exfiltrating up to 14 Soldiers over short distances. Since SPIES exposes team members the entire time, the use of SPIES for infiltration carries increased risk. Due to the nature of SPIES operations, a thorough briefing is required for all participants before the operation. Careful coordination is crucial when additional assets (attack reconnaissance helicopters, aerial observers, or artillery support) participate with the extraction helicopter.

6-99. Scouts must have SPIES harnesses as part of their individual equipment. The platoon leader ensures scouts are trained and complete rehearsals prior to conducting SPIES. For detailed information on SPIES, refer to FM 3-05.210 and FM 7-93.

Fast Rope Insertion/Extraction System Operations

6-100. FRIES provides the capability to insert troops and equipment into areas not suitable for helicopter landing. FRIES is also the fastest method of deploying troops from a helicopter unable to land. The UH-60 has provisions for two fast ropes, one on either side of the cargo door area. The CH-47 has provisions for up to three fast ropes, one out the forward right door and two out the ramp.

6-101. Fast rope serves to insert scouts without the aircraft contacting the ground or an obstacle. FRIES is used for scout insertion or extraction in various settings:

- During downed aircraft recovery operations in mountainous terrain.
- Urban settings with no room to land, such as narrow streets.
- Pinnacles and ridgelines.
- Decks of ships.

6-102. The platoon leader ensures scouts are trained, thoroughly briefed, and complete rehearsals prior to conducting FRIES. For detailed information on FRIES, refer to FM 3-05.210 and FM 7-93.

Helicopter Cast And Recovery Operations

6-103. A helicopter cast and recovery (HELOCAST) operation involves inserting/extracting scouts and/or equipment from a helicopter over water. HELOCAST is a very effective means of inserting and/or extracting reconnaissance elements. Units plan and conduct a HELOCAST operation much the same as an air movement operation, except the LZ is in the water. Refer to FM 7-93 for detailed information on HELOCAST operations.

PICKUP ZONE/LANDING ZONE OPERATIONS

6-104. The reconnaissance or scout platoon may be required to establish a PZ or LZ for resupply or for MEDEVAC or CASEVAC operations. In addition, higher headquarters may task the platoon to establish its own PZ to conduct insertion of scouts.

Platoon Responsibilities in the PZ/LZ

6-105. As the receiving unit in aerial resupply or another utility/cargo helicopter operation, the platoon will have the following responsibilities at the PZ/LZ:

- Select and control the PZ/LZ.
- Secure the PZ/LZ.
- Provide limited weather observations, such as wind velocity and direction, cloud cover, visibility, and approximate ceiling.
- Provide terminal guidance with appropriate advisories. This information covers such areas as obstacles, wire hazards, and the enemy situation, including AMD threats.

Conditions in the PZ/LZ

6-106. The following considerations apply in selection and operation of the PZ/LZ:

- **Size of the PZ/LZ.** As a general rule, the PZ/LZ must provide for adequate space to allow aircraft separation, load/passenger avoidance, and obstacle avoidance (refer to the following discussion of helicopter landing sites). Night operations normally require a larger area.
- **Helicopter landing site requirements.** A key consideration in PZ/LZ selection is the number and type of aircraft that will be using the site at one time. Table 6-5 lists recommended minimum distances between landing points within a PZ/LZ. Distances are from center of load to center of load.

Note. The minimum planning distances in Table 6-5 include the distances required between loads during external load (sling load) operations. Refer to FM 3-04.113 for additional information.

Table 6-5. Minimum distances between helicopter landing points

AIRCRAFT/OPERATION TYPE	*MINIMUM LANDING DISTANCE*
DAYTIME OPERATIONS	
UH-60 and like aircraft	50 meters
CH-47 and like (or unknown) aircraft	100 meters
NIGHT OPERATIONS	
UH-60 and like aircraft	75 meters
CH-47 and like (or unknown) aircraft	150 meters
Note. Height of ground/rooftop obstructions must not exceed 18 inches.	

- **Surface conditions.** The surface within the PZ/LZ should be solid enough to prevent the helicopter, its load, and/or vehicles that are picking up the load from sinking into the ground. Selection of the site must also take into account the strong winds produced by the helicopter wash; these can stir up blowing dust, sand, snow, gravel, or loose debris that may injure personnel and cause damage to equipment and/or aircraft. In addition, these conditions can cause "brownout" or "whiteout" conditions that can temporarily blind aircrews and ground support personnel. Helicopters cannot land if the site has a slope of 15 degrees or more. The PZ/LZ must have no obstacles or obstructions (such as trees, stumps, bushes, or man-made objects) that could cause damage to the helicopter rotor systems or the load itself. A general guideline is that ground or rooftop obstructions can be no more than 18 inches tall. Immovable objects must be clearly marked with a secured VS-17 panel, red chem light, or other marking materials.
- **Approach/departure direction.** When carrying external loads, aircrews prefer to use gradual approach and departure angles (not a vertical ascent or descent). The avenues of approach and departure for the PZ/LZ should be over the lowest obstacle in the direction of the prevailing winds. Arrival and departure obstacle clearance and wind direction are especially important during reduced visibility. Table 6-6 depicts a sample radio transmission for terminal guidance as a helicopter approaches the PZ/LZ.

Table 6-6. Example radio transmissions for terminal guidance to landing site

AIRCRAFT	*RECONNAISSANCE PLATOON*
"Hardrock 16, Comanchero 26 is 30 seconds inbound to your location. Request terminal guidance, over."	
	"Comanchero 26, this is Hardrock 16. Signal is displayed, over." (***NOTE***: Use a prearranged signaling method if possible.)
"Roger, Hardrock. Comanchero has green smoke, over."	
	"Comanchero 26, roger green smoke. Be advised there is a large boulder at the far end of the LZ and a suspected ZSU 23-4 located 5 kilometers to the east, over."

Marking of the PZ/LZ

6-107. Considerations for marking the PZ/LZ include the following:

- **Daylight operations.** A ground guide will mark the PZ or LZ for the lead aircraft by holding an M16/M4 rifle over his head, by displaying a folded VS-17 panel chest high, or by other identifiable means.
- **Night operations.** The code letter Y (actually, an inverted Y) is used to mark the landing point of the lead aircraft at night (see Figure 6-24). Scouts use chem lights or "beanbag" lights to maintain light discipline.

Note. Avoid using green or blue chemical lights. They are difficult to see under NVGs.

6-108. When more than one aircraft will be landing in the same PZ or LZ, there will be at least one additional light for each aircraft. For observation, utility, and attack aircraft, each additional aircraft landing point will be marked with a single light, emplaced at the exact point that each aircraft is to land. For cargo aircraft (such as the CH-47, CH-53, or CH-54), each additional landing point will be marked with two lights. The PZ party places two lights 10 meters apart and aligned in the aircraft direction of flight.

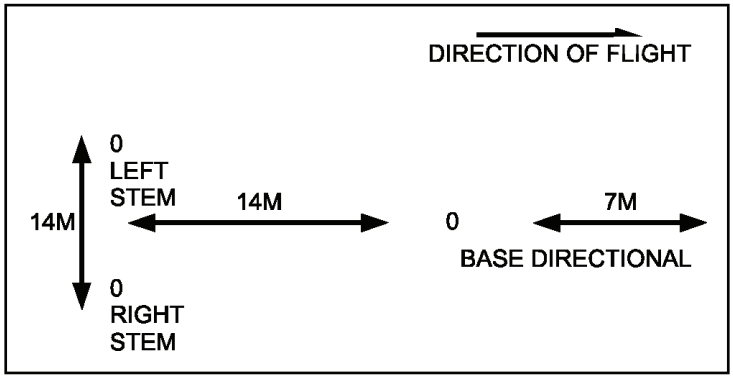


Figure 6-24. Inverted Y marking signal for PZ/LZ

Actions at the PZ

6-109. Prior to arrival of the aircraft involved in an air assault operation, the platoon must secure the PZ, position the PZ control party, and position the troops and equipment in a unit assembly area. Air assault elements then move to and occupy the chalk assembly area, where they load the aircraft for departure to the LZ. The final step in this phase is closure of the PZ.

PZ Organization

6-110. The PZ for the air assault operation may be either one-sided or two-sided. A one-sided PZ has all unit assembly areas and chalk assembly areas on one side of the zone, with security teams usually located on the opposite side beyond where the aircraft will land (see Figure 6-25). In a two-side PZ, unit assembly areas and chalk assembly areas are located on both sides of the aircraft landing site, with security elements interspersed around the site as necessary. Figure 6-26 illustrates a two-sided PZ.

Occupation of the Unit Assembly Area

6-111. Once the unit secures the PZ, the next step in the execution of the air assault is occupation of the unit assembly area. Unit leaders should accomplish the following:

- Maintain all-round security of the assembly area.
- Maintain communications.
- Organize Soldiers and equipment into chalks and loads in accordance with the unit air movement plan.
- Conduct safety briefings and equipment checks for Soldiers.
- Establish priority of loading for each Soldier and identify bump personnel.
- Brief the location of the straggler control points as necessary.

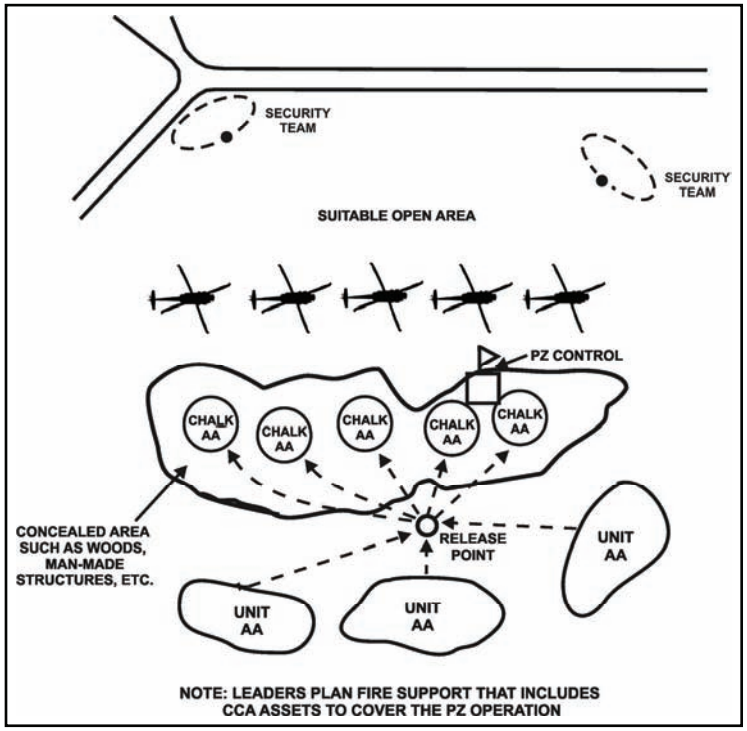


Figure 6-25. One-sided PZ

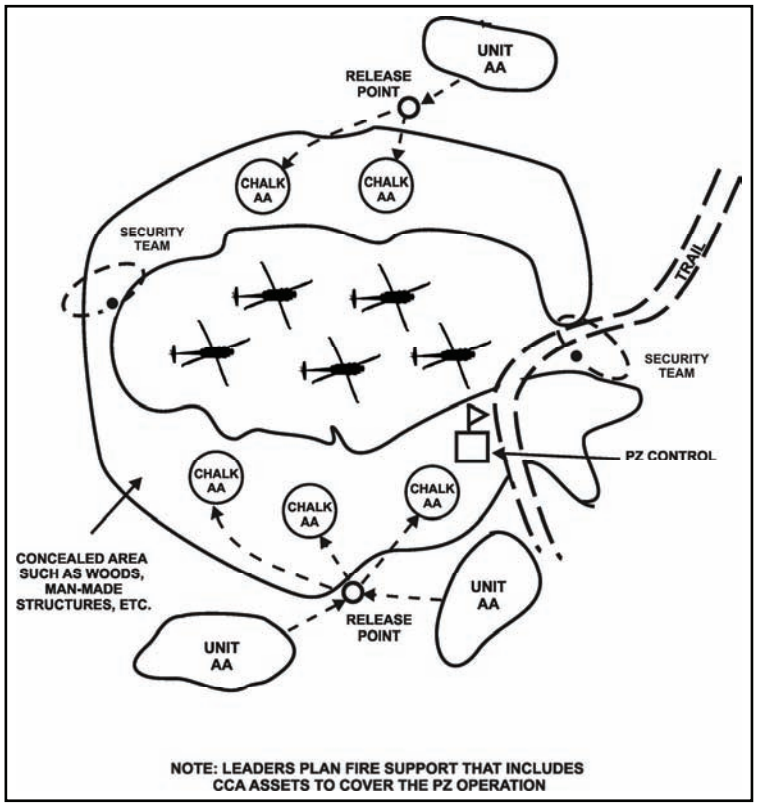


Figure 6-26. Two-sided PZ

Movement to and Occupation of the Chalk Assembly Area

6-112. Linkup guides from the PZ control party will meet with designated units in the unit assembly area and coordinate movement of chalks to an RP. As chalks arrive at the RP, chalk guides will move each chalk to its assigned chalk assembly area. To reduce the number of personnel required, leaders designate the same guide to move the unit from the unit assembly area to the chalk assembly area. If the unit is part of a larger air assault, no more than three chalks should be located in the chalk assembly area at one time. Scouts maintain noise and light discipline throughout movement to maintain the security of the PZ. Additionally, leaders restrict personnel on the PZ unless they are loading the aircraft, rigging vehicles for a slingload, or acting as directed by PZ control. While remaining in chalk order, each Soldier is assigned a security (firing) position by the chalk leader; he assumes a prone position, with weapon at the ready and facing out (away from the PZ) to provide immediate close-in security.

Loading of the Aircraft

6-113. After reaching their chalk assembly areas, units should adhere to the following principles for loading the aircraft:

- Maintain tactical integrity by keeping fire teams and squads intact.
- Maintain self-sufficiency by loading a weapon system and its ammunition on the same aircraft (for example, the Javelin and its individual missiles).
- Ensure that key personnel, weapons, and equipment are cross-loaded among aircraft to prevent the loss of control or loss of all of a particular asset, if an aircraft is lost.
- Prior to loading, ensure scouts tie down and check all troop gear; place short antennas in radios, fold down, and secure.
- Direct squad and team leaders to check their Soldiers' equipment to ensure it is complete and operational.
- Turn radios on and perform communications checks (unless directed otherwise).
- Assign specific aircraft seats to all personnel.

6-114. **UH-60 loading sequence (split chalk).** These considerations and procedures apply (refer to the loading diagram illustrated in Figure 6-27):

- The chalk leader (squad leader) initiates movement once the aircraft has landed.
- The far side and nearside groups move to the aircraft in file, with the chalk leader always leading the near side group.
- The chalk leader should take the following actions:
  - Ensure that all personnel know which aircraft and which position to load.
  - Ensure that all personnel wear or carry rucksacks on the aircraft.
  - Notify the crew chief when all chalk members are on board and are ready for liftoff.
- All personnel buckle up as soon as possible in their assigned seats. The chalk leader always sits in the left front seat unless a platoon leader or company commander is on the same aircraft.
- The chalk leader hands the chalk card to the pilot and answers any questions the pilot has, using the aircraft intercommunications (troop commander's) handset.

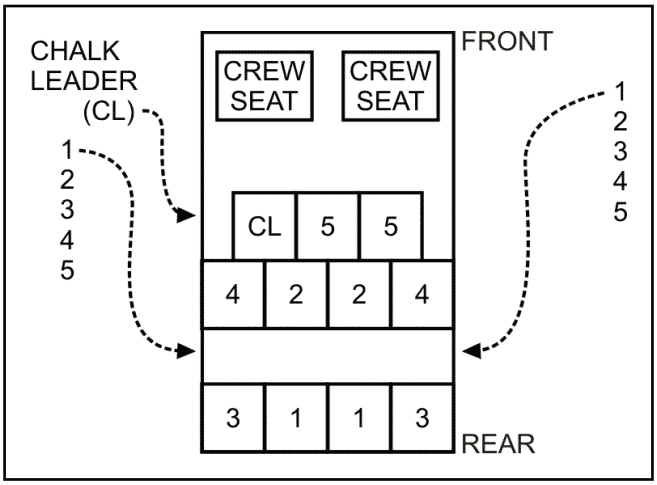


Figure 6-27. UH-60 loading diagram (split chalk)

6-115. **UH-60 loading sequence (whole chalk).** These considerations and procedures apply (refer to the loading diagram illustrated in Figure 6-28):

- The chalk leader (squad leader) initiates movement once the aircraft has landed.
- The far side and nearside groups move to the aircraft in file, with the number 1 man leading the load to the appropriate side.

Note. The far side group will always move around to the front of the aircraft.

- The chalk leader stops at the near side of the aircraft to ensure that the near side group loads properly; then he moves around the front of the aircraft to the far side and checks the other half of the chalk.
- All personnel buckle up as soon as possible in the correct seats.
- The chalk leader hands the chalk card to the pilot and answers any questions the pilot may have, using the aircraft intercommunications (troop commander's) handset.

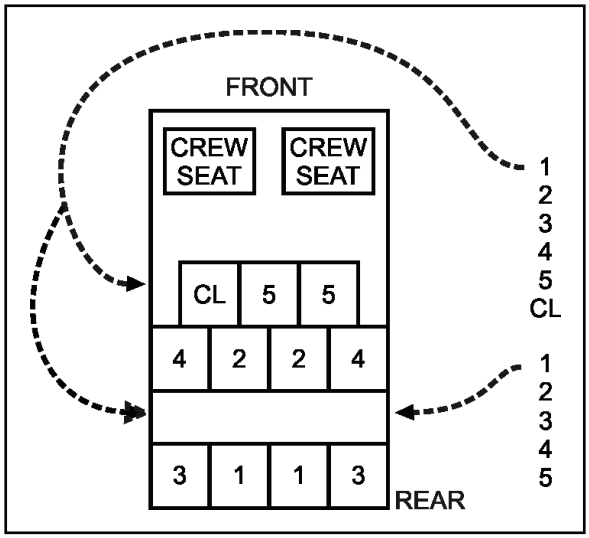


Figure 6-28. UH-60 loading diagram (whole chalk)

PZ Closure

6-116. During air infiltration operations, the PSG is responsible for maintaining security and ensuring that all personnel and equipment are loaded (clearing the PZ). The PSG can use either the single lift or multiple lift technique in completing the closure.

6-117. **Single lift.** The PSG positions himself at the last aircraft and collects "bumped" personnel, if required. He will be the last man to load on the aircraft. Once on the aircraft, the PSG will notify the crew chief and/or AMC that all personnel and equipment are loaded, using the troop commander's radio handset. The aircraft door gunners will provide close-in security.

6-118. **Multiple lift.** The duties of the PSG are the same as for a single lift. In a multiple lift, the security teams will maintain security of the PZ and be the last element to depart with the PSG. Depending on their initial locations, the security teams may have to reposition closer to the PZ. Whenever possible, the aircraft will land as close to the security team positions as possible to enhance security and minimize the movement required by the teams.

Actions at the LZ

6-119. All elements and personnel involved in the air assault operation must strictly adhere to the priority of actions upon landing at the LZ.

Unloading

6-120. Unloading of the aircraft does not begin until directed by the crew chief or pilot. The following actions occur (see Figure 6-29):

- Once an aircraft lands, personnel unbuckle their seatbelts and exit as quickly as possible with all equipment.
- Prior to leaving the aircraft, the chalk leader obtains the landing direction from the pilot (if it was not determined during the approach into the LZ). This will aid in orientation to the LZ, particularly at night.
- Individuals move 10 to 15 meters out from the side of the aircraft and assume the prone position, facing away from the aircraft with weapons at the ready, until the aircraft has departed the LZ.

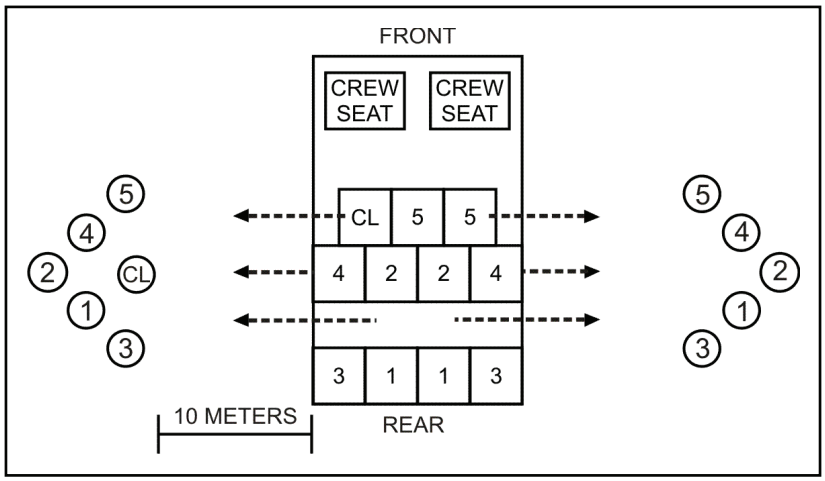


Figure 6-29. UH-60 two-sided offload

Immediate Actions on a Hot LZ

6-121. When leaders decide to use a hot LZ or if the chalk receives contact upon landing, troops quickly dismount and move 15 to 20 meters away from the aircraft. The troops immediately return enemy fire to allow the aircraft to depart. The following actions occur:

- If the contact is similar to a far ambush, troops fire and maneuver off the LZ to the closest location offering cover and concealment.
- If troops receive contact from nearby enemy positions, they treat it as a near ambush by immediately returning fire. Soldiers who consider themselves in the kill zone may assault the enemy positions or attempt to get out of the kill zone based on unit SOP. Soldiers not in the kill zone provide supporting fire to facilitate movement of troops in the kill zone.
- The squad or platoon leader calls for fire support, if available.
- Once friendly elements disengage from the enemy force, the squad or platoon leader moves the unit to a covered and concealed position, accounts for personnel and equipment, and assesses the situation as to whether or not the unit can continue the mission.

Chalk Assembly on a Cold LZ

6-122. After the aircraft is unloaded, the chalk leader (squad leader) moves the chalk to its predetermined locations using the traveling overwatch movement technique. All Soldiers and/or elements move at a fast pace to the nearest concealed position. Once at the concealed assembly point, the chalk leader makes a quick count of personnel and equipment and then proceeds with the mission.

MEDICAL EVACUATION

6-123. The reconnaissance or scout platoon contacts the medical company on the medical company command frequency for all ambulance requests. If the platoon is unable to contact the medical company on that frequency, the platoon should attempt to relay the request on the next higher command frequency. The platoon uses the standard nine-line air evacuation request format (see Figure 6-30). Refer to Table 6-7 for an example of the radio transmission for terminal guidance during evacuation operations.

6-124. The medical company prioritizes the request with others it receives to determine if air evacuation is possible. In conducting the evacuation operation, the reconnaissance platoon must accomplish the following tasks:

- Prepare and secure a suitable PZ/LZ for the aircraft.
- Provide terminal guidance during the aircraft's approach to the PZ/LZ.

NINE-LINE AIR EVACUATION REQUEST FORMAT

Units must use the following nine-line format to provide the necessary information when requesting air evacuation (either MEDEVAC or CASEVAC) for casualties.

LINE 1 – LOCATION. _____

Specify the grid coordinates for the six-digit grid location, preceded by the 100,000-meter grid identification.

LINE 2 – RADIO FREQUENCY/CALL SIGN. _____

The frequency and call sign should be that of the radio at the site of the unit requesting evacuation.

LINE 3 – PATIENT CATEGORY OF PRECEDENCE. _____

Classify the casualties' priority for evacuation using the following terms:

- **Urgent.** Evacuation required within 2 hours to save life or limb.
- **Priority.** Patient's medical condition will deteriorate, becoming urgent within 4 hours.
- **Routine.** Evacuation required, but patient's condition is not expected to deteriorate for several hours.
- **Tactical immediate.** Evacuation required so casualties do not endanger the tactical mission.

LINE 4 – SPECIAL EQUIPMENT/EMERGENCY MEDICAL SUPPLIES. _____

List all requirements.

LINE 5 – NUMBER AND TYPE OF CASUALTIES. _____

Provide a complete, accurate list.

LINE 6 – SECURITY OF PICKUP SITE. _____

Describe conditions for security at the LZ/PZ.

LINE 7 – SIGNALING AND SITE MARKING. _____

Specify the signaling and marking methods.

LINE 8 – PATIENT NATIONALITY AND STATUS. _____

Provide a complete, accurate list.

LINE 9 – CBRN CONTAMINATION AREA. _____

Specify locations of any contaminated areas affecting the evacuation operation.

Figure 6-30. Format for air evacuation requests

Table 6-7. Example radio transmissions for terminal guidance to an air evacuation site

EVACUATION AIRCRAFT	***PLATOON***
"Hardrock 16, Dustoff 26 is 30 seconds inbound to your location. Request terminal guidance, over."	
	"Dustoff 26, this is Hardrock 16. Signal is displayed, over." (***NOTE***: Use the signaling method specified in the nine-line evacuation request.)
"Roger, Hardrock. Dustoff has red smoke, over."	
	"Dustoff 26, roger red smoke, over."

SECTION III – COMBAT ENGINEER SUPPORT

6-125. The basic engineer unit with which the reconnaissance or scout platoon is likely to operate is a sapper squad from a combat engineer platoon. A parallel consideration is that sapper-qualified scouts enhance reconnaissance platoon capabilities and can provide support to attached engineer assets (see FM 3-34.170 for additional information).

ENGINEER SUPPORT IN RECONNAISSANCE OPERATIONS

6-126. In reconnaissance operations, an engineer reconnaissance team usually functions in DS to a reconnaissance or scout platoon. The engineers remain attached to the platoon for the duration of the reconnaissance. The engineer team's primary objective is to collect obstacle intelligence (OBSTINTEL) and report the information back to the BCT/ACR engineer to facilitate breach planning and preparation. The engineer team may perform the following functions:

- Conduct limited reduction of obstacles, such as log cribs, abatis, and minefields. Reduction capabilities of the engineer reconnaissance team are limited to manual and explosive methods.
- Conduct tactical or technical reconnaissance.
- Conduct route and bridge classification.
- Assist in locating and marking bypasses around obstacles.
- Identify the exact composition and dimensions of an obstacle.
- Identify breach points and points of penetration.

6-127. Engineers conduct reconnaissance support in the offense as part of the combined arms team reconnaissance effort. Normally, they support reconnaissance elements to facilitate C2 and logistical support in an attached status.

6-128. Engineers conduct technical reconnaissance to collect specialized information about a designated target, area, or route. Engineers conduct this mission under low-level threat conditions in areas physically controlled by friendly forces. The technical reconnaissance mission is normally a specified task from higher headquarters or derived from mission analysis.

6-129. Whenever possible, the attached engineer elements should have a habitual relationship with the scouts. They should be task organized with the reconnaissance or scout platoon as early as possible in an operation and integrated into the platoon leader's troop-leading procedures, rehearsals, OPORD, and movement plans.

ENGINEER SUPPORT IN SECURITY OPERATIONS

6-130. In security operations, the reconnaissance or scout platoon does not usually have any engineer assets operating under its control. Engineer assets normally work under squadron/battalion or troop control. The platoon leader must have access to the squadron/battalion or troop obstacle plan, including the locations of lanes and gaps.

6-131. The platoon may interact with the engineers in several roles during security operations. The commander may direct the platoon to observe NAIs to trigger scatterable mine missions if required, overwatch obstacles, and call for indirect fires. The platoon may also guard, execute, and overwatch reserve demolition targets that engineers have prepared.

TARGET HANDOVER

6-132. The platoon assumes responsibility for targets and obstacles using the following procedures and considerations:

- Prior face-to-face coordination between the senior member of the emplacing unit (normally an engineer squad leader) and the demolition guard force commander (normally a reconnaissance squad leader) speeds the turnover process. Leaders conduct prior coordination if the tactical situation permits.
- The senior member of the emplacing unit must require positive identification from the demolition guard commander. This may be by means of sign/countersign procedures or by personal recognition.

- Once identification is established, the emplacing unit gives the demolition guard commander a completed target folder for the turned-over target. The folder contains orders to the demolition guard commander and, if separately designated, to the firing party commander. The demolition guard commander reviews the orders to ensure he thoroughly understands them and then signs the orders.
- The senior member of the emplacing unit then describes the obstacle in detail to the demolition guard commander.
- Once the demolition guard commander fully understands his responsibilities and he (or the firing party commander, if applicable) is capable of executing the target, the emplacing unit may depart to conduct further operations.

PRIORITY OF EFFORT IN RECONNAISSANCE AND OFFENSIVE SECURITY OPERATIONS

6-133. During reconnaissance operations, priority of effort is normally mobility, countermobility, and survivability. Priority of mobility effort is the designated route the platoon travels. Considerations for the employment of engineers in support of reconnaissance or offensive security missions include the following:

- Normally move well forward, either with or immediately behind the platoon.
- Supplement route reconnaissance by assessing specific roadway features that are damaged or require more technical engineer analysis.
- Create bypasses around obstacles.
- Reduce obstacles beyond platoon capability that significantly affect the mission.
- Emplace tactical bridging.
- Improve ford sites.
- Improve embankments at vehicle swim sites.
- Emplace protective minefields on exposed flanks.
- Construct combat trails.

PRIORITY OF EFFORT IN DEFENSIVE SECURITY OPERATIONS

6-134. During defensive security operations, priority of effort is normally countermobility, survivability, and mobility. Considerations for employment of engineers in support of defensive security missions include—

- Beginning work as early as possible and operating continuously throughout the mission within tighter constraints imposed by crew rest and equipment maintenance.
- Task specific pieces of engineer equipment to construct survivability positions concurrently with obstacle emplacement.
- Prioritize countermobility effort to specific portions of the obstacle plan.
- Ensure engineers construct improved fighting positions and vehicles are emplaced as time and situation permit.
- Emplace tactical bridging to improve mobility of platoon assets.
- Build combat trails to support the execution of reserve contingencies and platoon displacement.
- Emplace hasty obstacles during the mission to support platoon FRAGOs.
- Create bypasses around obstacles created by battle damage during the mission.

ENGINEER SUPPORT IN STABILITY OPERATIONS

6-135. The reconnaissance platoon uses engineer support during stability and counterinsurgency operations to—

- Construct fighting positions.
- Construct combat outposts.
- Provide barrier material for checkpoints, combat outposts, etc.

SECTION IV – INTELLIGENCE

6-136. Sensor teams may augment reconnaissance platoons to enhance their surveillance capability. The teams detect targets and provide accurate range and azimuth readings to enemy locations during limited visibility conditions. In addition, integration of tactical UASs by the reconnaissance platoon is critical for maximum effectiveness and survivability of dismounted scouts. See FM 3-20.971, FM 3-20.96, FM 2-22.3, and FM 3-04.15 for additional information.

SENSOR TEAMS

6-137. Sensor teams employing ground surveillance systems can enhance the surveillance capability of the reconnaissance platoon. The teams can detect targets and provide accurate range and azimuth readings to enemy locations during limited visibility conditions.

6-138. The teams may be attached or OPCON to troops or platoons for specific missions. The platoon leader plans the employment of a sensor team when attached or OPCON. He should work with the commander to position the sensor assets in conjunction with reconnaissance OPs to provide local security and protection.

CAPABILITIES AND LIMITATIONS

6-139. Sensor teams provide mobile, all-weather surveillance. When employed, they can provide observation from a given vantage point 24 hours a day. Some systems can detect targets through light camouflage, smoke, haze, light snow and rain, and darkness. However, foliage, heavy rain, and snow seriously reduce its capability.

6-140. Other systems do not require a background to detect moving targets while most are generally ineffective against an air target unless the aircraft is flying close to the ground. Sensor systems are vulnerable to enemy direction-finding and jamming equipment. The sensor team is sometimes equipped with a single radio. If employed forward with the scouts, the team usually sends all reports to the platoon leader for passage to higher.

EMPLOYMENT

6-141. The platoon leader assigns the sensor team a specific sector of surveillance and frequency of coverage. Surveillance tasks assigned to sensor teams include these:

- Monitor avenues of approach or possible enemy positions on a scheduled or random basis to determine location, size, and composition of enemy forces and the nature of their activity.
- Monitor point targets such as bridges, defiles, or road junctions, and report quantity, type, and direction of enemy vehicles and personnel moving through the target area.
- Extend the observation capabilities of the scouts by enabling them to survey distant points and areas of special interest.
- Vector patrols to keep them oriented during limited visibility.

GROUND SURVEILLANCE SYSTEMS

6-142. Leaders position surveillance systems in an area that is generally free of ground clutter such as trees, thick vegetation, and buildings and that affords long-range observation and a wide field of view. Normally, the platoon leader assigns the team a general area, and the surveillance team leader selects the specific position. To avoid enemy suppressive fires, the team should be prepared for rapid displacement and have several alternate positions selected and reconnoitered.

6-143. During reconnaissance operations, leaders employ the surveillance equipment to the flanks of the reconnaissance or scout platoon or orient it on potential enemy locations. Since reconnaissance is a moving operation, the surveillance teams will have to move as necessary to support the scouts.

6-144. In security operations, the platoon leader uses surveillance teams to provide redundancy in surveillance of NAIs and to add depth to the screen line by supplementing OPs.

HUMAN INTELLIGENCE (HUMINT) COLLECTION TEAM

6-145. HUMINT collection teams (HCT) are the elements that collect information from human sources. HUMINT collectors deploy in teams of approximately four personnel.

6-146. The HUMINT collector's role is gathering foreign information from people and multiple media sources to identify adversary elements, intentions, composition, strength, dispositions, tactics, equipment, personnel, and capabilities. They use human sources and a variety of collection methods to gather information to satisfy the commander's information requirements and to cross-cue other intelligence disciplines.

6-147. HCTs conduct operations throughout the platoon's AO. They play a crucial role in supporting tactical forces by conducting debriefings, screenings, military source operations, liaison, interrogations, and support to DOMEX. HUMINT activities focus on the threat and assist the platoon leader and troop commander in understanding the threat's decision-making process.

6-148. The HCT maintains constant contact with all reconnaissance units and other assets (scouts, PSYOP, CA, and MPs) to coordinate and deconflict operations and to cross-check collected information.

UNMANNED AIRCRAFT SYSTEMS OPERATIONS

6-149. UAS elements support reconnaissance missions by obtaining information about activities and resources of an enemy or potential enemy, or securing data concerning meteorological, hydrographic, or geographic characteristics of a particular area. A nonlinear, expanded AO will routinely create gaps between friendly units. Reconnaissance of these gaps is an excellent mission for the UAS. UAS units perform reconnaissance before, during, and after combat operations and provide the combat information to applicable tactical leaders and users, who in turn pass it along as SA for higher and adjacent echelons and combatants. UAS-supported reconnaissance missions can provide information on the enemy or reconnaissance target using the SALUTE report categories:

- Size.
- Activity.
- Location.
- Unit.
- Time.
- Equipment.

6-150. Information derived from UAS assets facilitates reconnaissance and surveillance. UASs provide additional information needed by the platoon leader to determine which routes and cross-country terrain best accommodate reconnaissance operations. In addition, the platoon takes information generated by UAS units and immediately sends spot reports to organizations that need combat information. UASs augment ground reconnaissance efforts from as close as seeing over the next hill or around the next block to as far as hundreds of kilometers away, corresponding with the platoon's AO (see FM 3-04.15 for more information).

6-151. The platoon employs UASs organic to the reconnaissance troop, the man-portable RQ-11 Raven, but can also have direct access to real time or near-real time feeds from additional UAS support provided by the squadron, BCT, or higher headquarters such as the RQ-7 Shadow UAS—a BCT asset. Whereas the platoon operates the RQ-11 Raven, the platoon only receives support from higher UAS assets. See Chapter 1 for information on the RQ-11 Raven.

UAS SENSOR CHARACTERISTICS

6-152. Currently two types of imagery sensors are available for use on man-portable and tactical UASs—electro-optical (EO) and IR. Each sensor has unique capabilities, with distinct advantages and disadvantages. Table 6-8 is a matrix of characteristics for the EO and IR sensors currently available.

Note. Additional types of sensors and other tactical UAS payloads are currently under development and may be fielded as their respective technologies mature.

Table 6-8. UAS sensor characteristics

SENSOR TYPE	*ADVANTAGES*	*DISADVANTAGES*
Electro-optical (visible light)	Best tool for detailed analysis during daytime and clear weather. Affords a familiar view of a scene. Offers system resolution that cannot be achieved with other optical systems, thermal images, or radar. Preferred for detailed analysis and mensuration. Offers stereoscopic viewing.	Can be deceived by employment of camouflage and concealment techniques. Restricted by weather conditions; visible light cannot penetrate clouds or fog. Restricted by terrain and vegetation. Limited to daytime use only.
Infrared	Best tool for detailed analysis in darkness with clear weather. Passive sensor that is impossible to jam. Offers camouflage penetration. Provides good resolution. Offers nighttime imaging capability.	Not effective during thermal crossover (1 to 1.5 hours after sunrise or sunset). Tactical UASs can be threatened by enemy air defenses. Bad weather degrades quality of sensor images.

RELATIONSHIP OF THE UAS ELEMENT AND THE RECONNAISSANCE/SCOUT PLATOON

6-153. Tactical UASs are a significant asset in support of the ground commander's requirements for his scouts. When operating with ground scouts, the UAS element is normally OPCON to the squadron or battalion. To be successful, however, the element must communicate and coordinate directly with the most forward ground scouts.

6-154. Complementing ground scouts with the UAS element maximizes the capabilities of both units while minimizing their limitations. When it works with the reconnaissance or scout platoon, the UAS element normally operates the UASs forward of the ground elements (see Figure 6-31). The exact distances are determined through a thorough METT-TC analysis.

6-155. In a complementary relationship, the commander assigns the UASs and reconnaissance/scout platoons different objectives or tasks; they work independently as required to support their common commander. This permits the accomplishment of more tasks or separate missions simultaneously. Often, the UAS element complements ground scouts by performing missions to the flank of or adjacent to the reconnaissance or scout platoon (as illustrated in Figure 6-32). In addition, the UAS element may provide the scouts with valuable reconnaissance information acquired during flights to and from its objective.

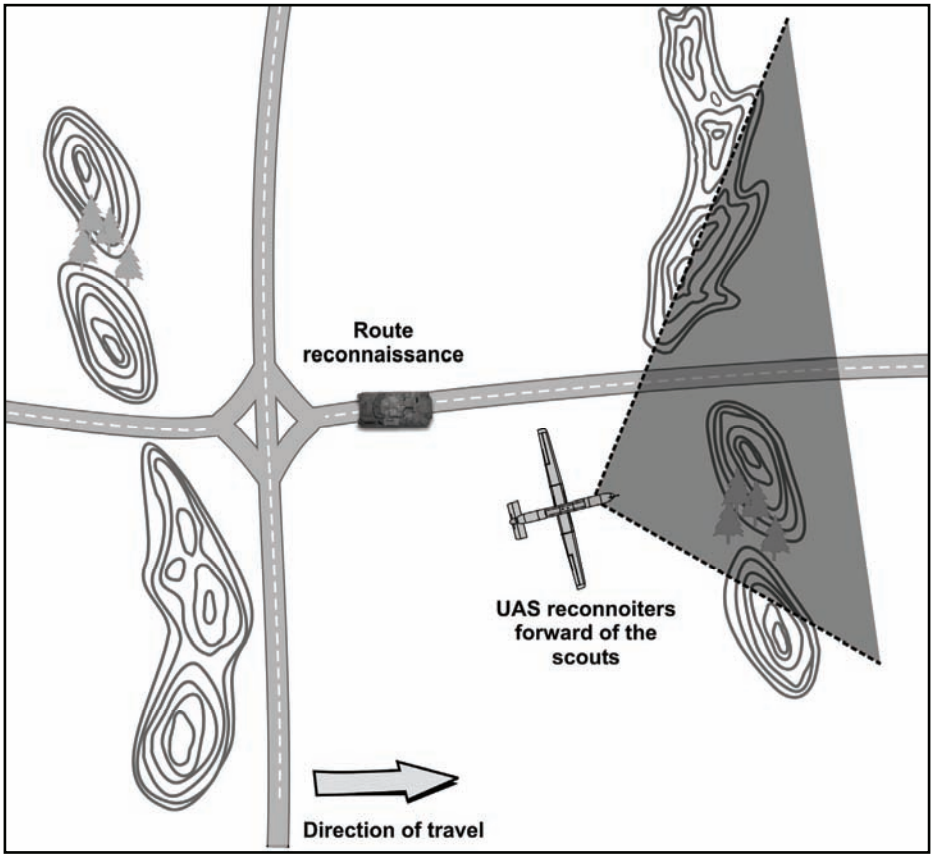


Figure 6-31. UAS operating forward of a reconnaissance platoon

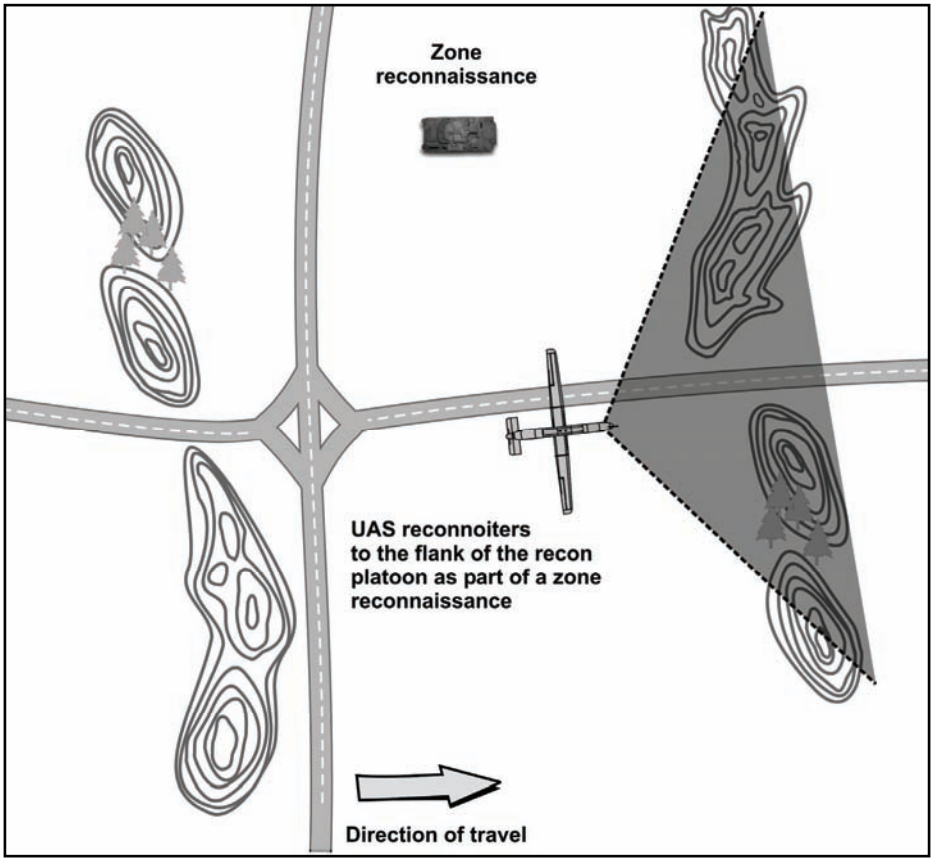


Figure 6-32. UAS operating on the flank of a reconnaissance platoon

Command and Control

6-156. C2 is essential to effective air-ground coordination. The command relationship is particularly critical when air and ground elements are complementing each other's operations. Three different command relationships can be used to coordinate the efforts of the UAS element and the reconnaissance platoon:

- The reconnaissance/scout platoon can be OPCON to the surveillance troop commander (this primarily applies to the SBCT reconnaissance platoon)
- The reconnaissance/scout platoon and the UAS element can work independently for a common higher commander.
- The UAS element is OPCON to the reconnaissance/scout platoon.

6-157. The ground scouts and the UAS element must closely coordinate their actions even when air elements are not OPCON to the reconnaissance or scout platoon. The situation will determine whether the UAS element leader or the surveillance troop commander in the SBCT reconnaissance is the air mission commander (AMC).

Reconnaissance/Scout Platoon OPCON to the Surveillance Troop Commander

6-158. Leaders use the OPCON relationship when the reconnaissance or scout platoon is operating separately from its parent unit with the surveillance troop commander. The platoon has the preponderance of combat power, leadership, and C2 resources in the AO.

Reconnaissance/Scout Platoon and UAS Element Under Control of a Common Commander

6-159. This relationship is the most common and is usually the most effective. The reconnaissance or scout platoon and UAS element operate independently, allowing each to employ its elements freely and quickly to take maximum advantage of their unique capabilities. Further, the next higher common commander ensures that the efforts of both the UAS element and scouts' are coordinated. In this relationship, informal coordination occurs directly between the two platoons over the reconnaissance or scout platoon network.

UAS Element OPCON to the Reconnaissance/Scout Platoon

6-160. This relationship allows the platoon the most flexibility. The platoon leader can integrate the capabilities of the UASs into the reconnaissance plan in a seamless manner. He can then respond quickly to mission/target changes.

Reconnaissance Operations

6-161. When the UAS element complements the reconnaissance or scout platoon during reconnaissance operations, the UAS normally operates 1 to 10 kilometers forward of the scouts (METT-TC dependent). The UAS element can conduct detailed reconnaissance of areas that are particularly dangerous to ground reconnaissance elements, such as open areas and defiles. Upon contact, the UAS provides early warning for the reconnaissance or scout platoon and then maintains contact until the ground platoon moves up for handover.

Security Operations

6-162. The UAS element can complement the reconnaissance or scout platoon during security operations by assisting in identifying enemy reconnaissance and main body elements and providing early warning forward of the scouts. In addition to acquiring enemy elements, the UAS can play a critical role in providing security through the depth of the screen by observing dead space between OPs.

6-163. Because of the range of its sensors, the UAS does not require positions forward of the reconnaissance or scout platoon to acquire enemy elements. The preferred practice, however, is still to position the aerial OPs forward of the ground OPs to provide added depth to the screen, especially during daylight operations. Ultimately, positioning of the UAS will always depend on the specific METT-TC situation (see Figure 6-33).

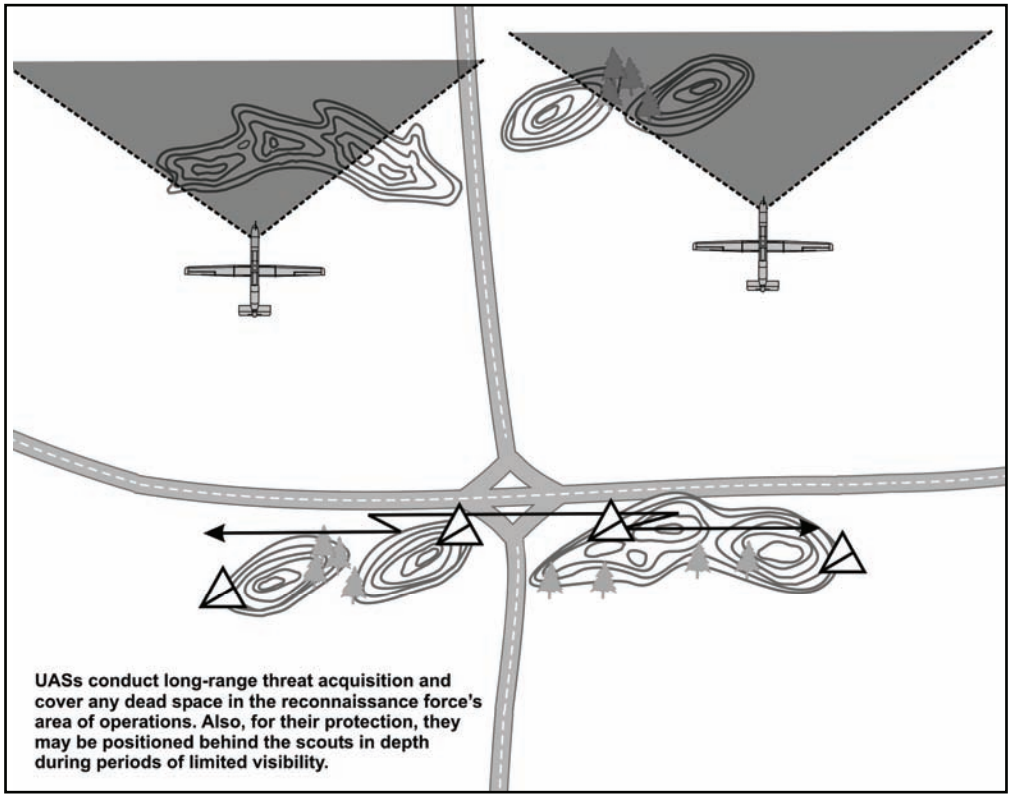


Figure 6-33. UASs complementing a ground screen

Area Security

6-164. The UAS element can complement the reconnaissance or scout platoon during area security missions by screening or conducting reconnaissance. An air screen can provide early warning for a reconnaissance or scout platoon executing a convoy escort mission or securing a critical point (see Figure 6-34). UASs can identify enemy ambush positions forward of the convoy or find bypasses the convoy can use to move around an obstacle (as illustrated in Figure 6-35).

6-165. The UAS supporting the lead reconnaissance elements (section or squad) of the platoon can identify an enemy element before visual or physical contact with the scout. This prevents unwanted detection and direct fires. The lead vehicle and the overwatch element occupy positions that allow them to observe the enemy and, if necessary, destroy the enemy while the UAS provides the platoon with area security overhead. The UAS may also establish and maintain contact with a moving contact while units conduct a handover during a screening mission.

Note. UASs do not conduct tactical tasks such as a screen or route reconnaissance. The unit executing such tasks, such as the platoon or troop, employs the aircraft in support of the mission and in most cases controls the GCS of the UAS element.

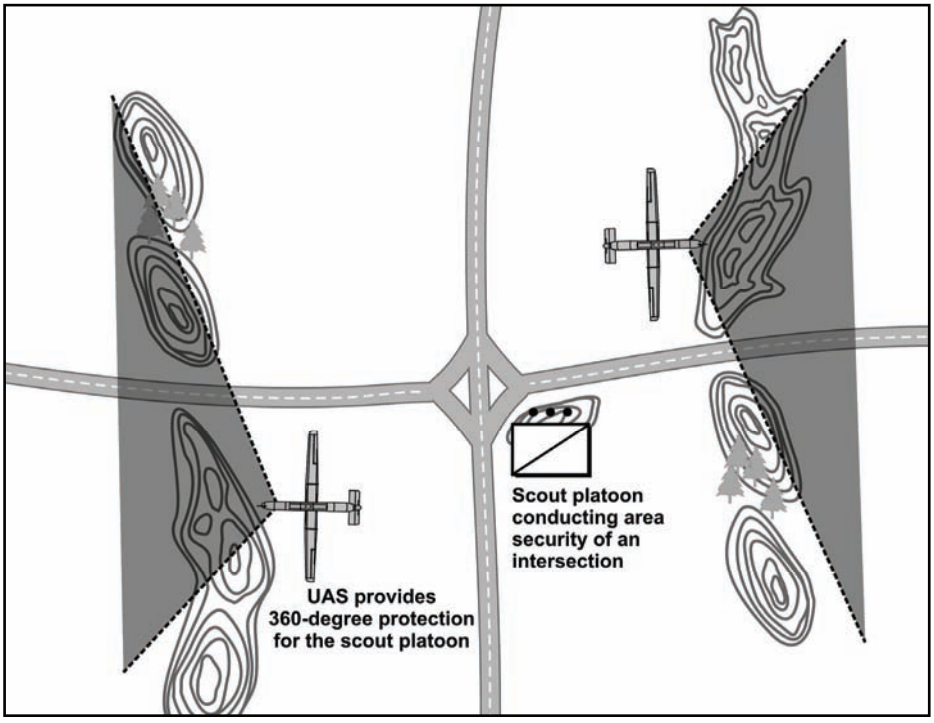


Figure 6-34. UASs screening for a reconnaissance platoon

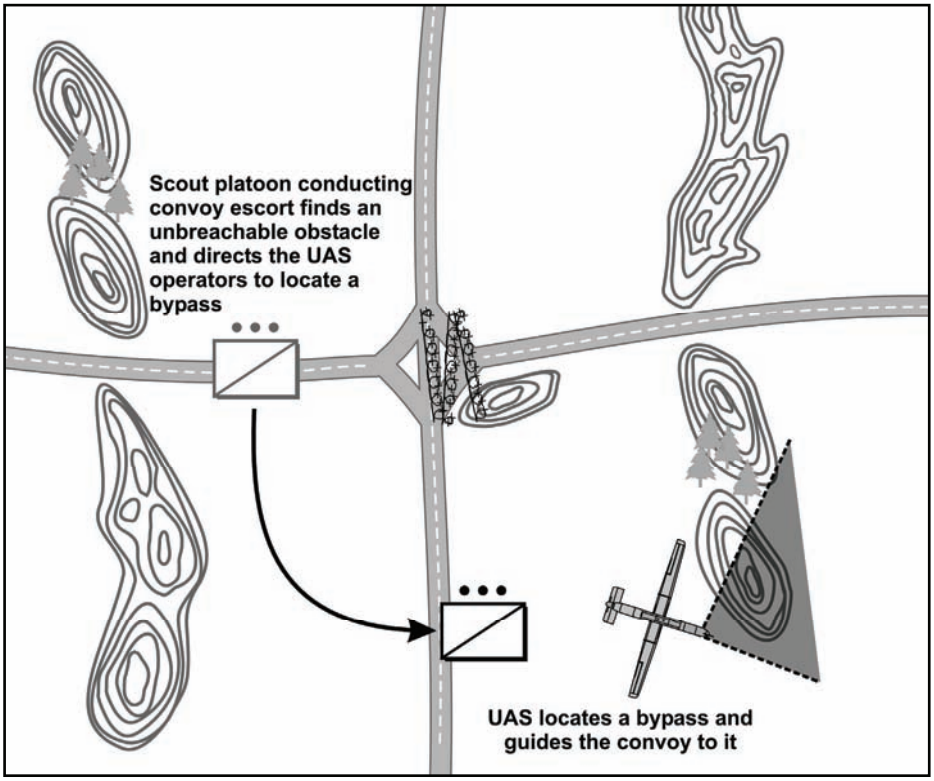


Figure 6-35. UAS reconnoitering for a bypass

UAS-GROUND RECONNAISSANCE HANDOVER

6-166. When the UAS element makes contact, particularly during reconnaissance operations, it will update its FBCB2 and will hand over the contact to the ground scouts as quickly as possible. A speedy handover allows the UASs to avoid enemy air defense weapons and helps to maintain the tempo of the operation.

6-167. During the RHO, the UAS element leader provides recommendations to the platoon leader who will then direct sections/squads to establish contact. The UAS element is responsible for maintaining surveillance of the enemy until the ground unit is in position and has established contact.

6-168. The first action in the handover process is a SPOTREP and a SITREP from the UAS element leader to the reconnaissance platoon leader. Next, the UAS reconnoiters the area for secure positions for the ground scouts. If possible, the UAS identifies hide positions, overwatch positions, OP positions, and mounted and dismounted routes into the area (see Figure 6-36).

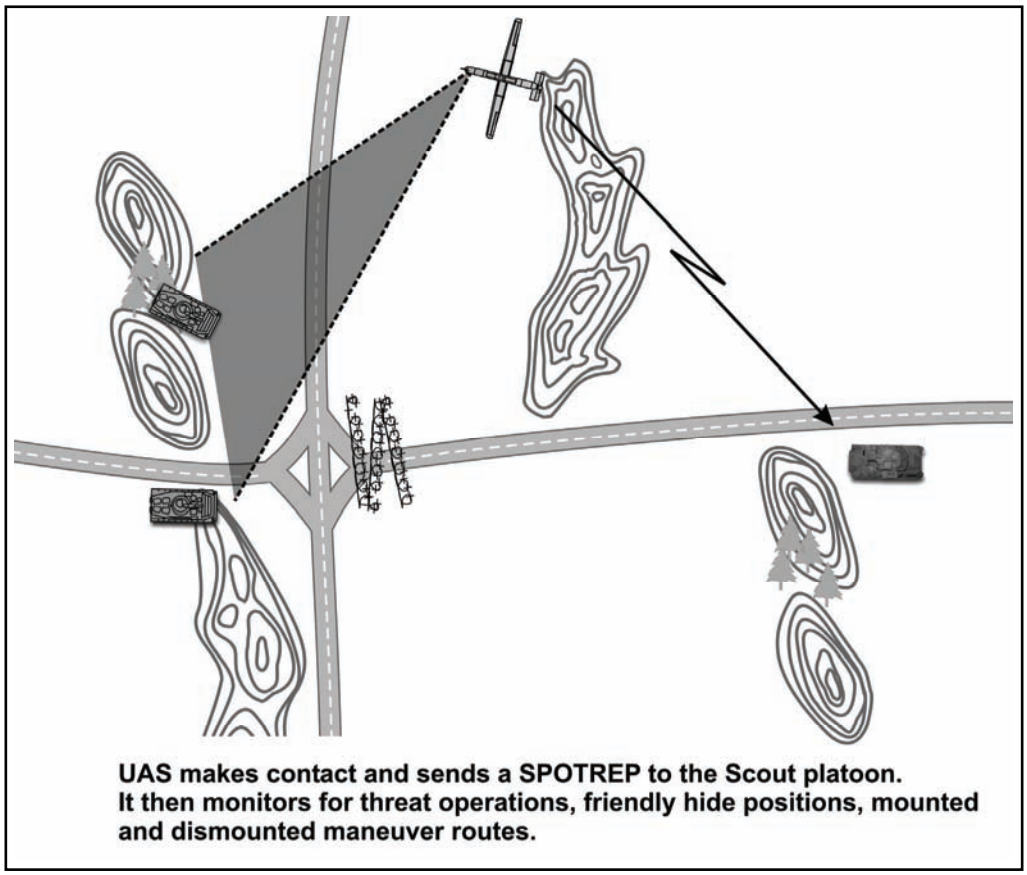


Figure 6-36. UAS-ground reconnaissance handover (part one)

6-169. The ground section or squad moves to its initial hide positions along the route selected by the UAS element. Scouts then move dismounted to make contact with the enemy. Once contact is established, the ground leader sends a SPOTREP to the AMC. When the UAS element leader confirms that the ground scouts can observe all enemy elements and have a clear picture of the situation, he announces that handover is complete; the ground section or squad leader acknowledges the transmission.

6-170. After handover is completed, the UAS element may, if directed, break contact and continue its follow-on missions. As noted previously, leaders may execute the RHO sequence on the reconnaissance or scout platoon's internal frequency (see Figure 6-37).

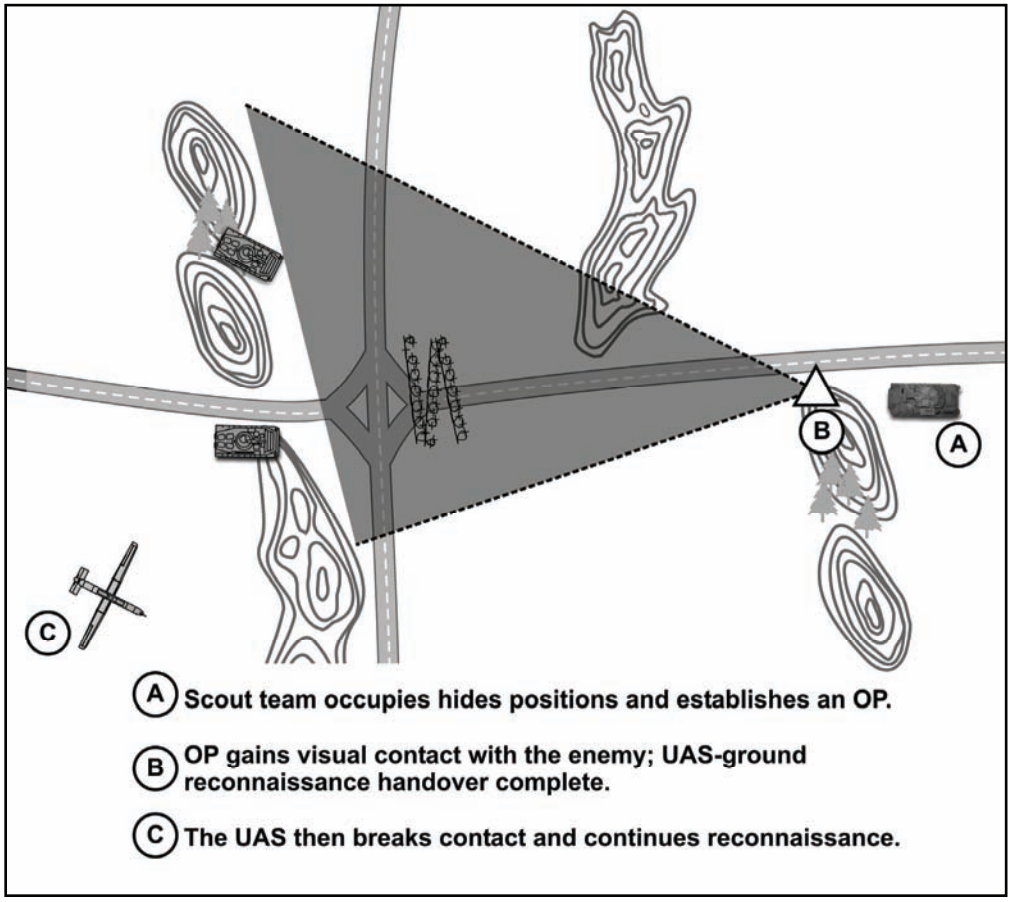


Figure 6-37. UAS-ground reconnaissance handover (part two)

RQ-7 SHADOW

6-171. The Shadow tactical UAS is powered by a single rotary engine and has a nonretractable tricycle landing gear for conventional wheeled takeoff and landing. The UAS operator also can launch it from a catapult; and the Shadow has a tail hook to catch arresting cables for a shorter landing run. An operator launches and recovers the Shadow using a remote control terminal. (See Figure 6-38.)

Figure 6-38. Shadow UAS

6-172. The RQ-7B (see Figure 6-39) has larger wings with a more efficient airfoil and increased fuel capacity, allowing an endurance of 5 hours. Additionally, the vehicle has an enlarged tail, upgraded avionics (including an improved flight controller with an inertial measurement unit and increased computing power), and new payload options. The RQ-7B is also fitted with the Army's tactical common data link.

Figure 6-39. Shadow RQ-7B UAS

6-173. Under normal conditions, the UAS aerial reconnaissance platoon (RQ-7 Shadow) can provide a routine 12 hours on station at a range of 50 kilometers. Under surge operations, the UAS aerial reconnaissance platoon can provide 18 hours for a 72-hour period.

SECTION V – CIVIL AFFAIRS

6-174. The mission of CA forces is to engage and influence the civil populace by planning, executing, and transitioning civil affairs operations (CAO) to support the commander in engaging the civil component of the troop's AO. In turn, effective CAO can enhance the conduct of CMO, which involve the interaction of military forces with the civilian populace to facilitate military operations. A supportive civilian population can provide resources and information that facilitate friendly operations. It can also provide a positive climate for the military. A hostile civilian population threatens the immediate operations of deployed forces and can often undermine public support at home for the policy objectives of the United States and its allies. When executed properly, CMO can reduce friction between the civilian population and the military force.

6-175. The reconnaissance or scout platoon can expect interaction with CA teams during CMO conducted as part of full spectrum operations. The platoon identifies a potential target or issue and forwards up the chain of command. A CA team then evaluates the target or issue. The platoon assists the CA team by providing security. For example, a squad of the reconnaissance platoon makes contact with a potential source that may be able to provide information relevant to the BCT as it moves through the area. The squad reports this contact to the platoon leader, who forwards the reports higher. The commander then tasks a CA team to evaluate and exploit the source if appropriate. The squad provides security for the CA team. See FM 3-20.971, FM 3-20.96, and FM 3-05.40 for additional information.

SECTION VI – TACTICAL PSYCHOLOGICAL OPERATIONS SUPPORT

6-176. U.S. forces conduct PSYOP as an integral part of multinational, joint, and single-Service operations. Army SOF assets conduct the overwhelming majority of tactical PSYOP. PSYOP at the tactical level support the troop commander's ability to shape his OE and set the conditions necessary for success.

6-177. The smallest organizational PSYOP element is the tactical PSYOP team (TPT). A TPT generally consists of a team chief (SSG or SGT), an assistant team chief (SGT or SPC), and an additional Soldier (SPC) who serves as a gunner and operates the speaker system. A TPT is equipped with a vehicle fitted with a loudspeaker and often works with a local translator indigenous to the host or occupied country.

6-178. During stability operations and COIN, the commander can attach TPTs to reconnaissance or scout platoons that make initial contact with the civilian populace. Operating in the platoon AO allows TPTs to

develop rapport with the target audience. This rapport is critical to the accomplishment of the missions of the platoon, the troop, and the TPT. These teams establish communications, discourage interference with coalition operations, and induce cooperation from the local populace. They help units to reduce collateral damage while moving through or into the AO by giving instructions to noncombatants. See FM 3-20.971, FM 3-20.96, FM 3-05.301, and FM 3-05.302 for additional information.

SECTION VII – AIR AND MISSILE DEFENSE (AMD) SUPPORT

6-179. There are no AMD assets organic to squadrons or battalions. Consequently, the reconnaissance or scout platoon must be able to protect itself from enemy air attacks during all combat operations. Passive air defense measures employed by the platoon include actions to avoid detection and air attack and actions to limit the damage if attacked. If necessary, the platoon takes active air defense measures to fight back against the enemy aircraft.

6-180. Armed utility and attack helicopters are the enemy's principal CAS weapon systems. They pose a major threat to the platoon and other friendly forces. The enemy may also employ UASs to accomplish ISR, attack, and deception missions. The UASs' small size and radar cross section and their ability to fly low and slow make them very difficult to detect, track and engage.

PASSIVE AIR DEFENSE

6-181. Passive air defense is the reconnaissance or scout platoon's first line of defense against enemy air attack and UASs. It includes all measures, other than active defense, taken to minimize the effects of hostile air action and prevent observation by enemy UASs. All elements are responsible for these measures, which are continuous in nature. There are two types of passive air defense:

- Attack avoidance.
- Damage-limiting measures.

ATTACK AVOIDANCE

6-182. Scouts use concealment, camouflage, deception, and any other necessary action to prevent the enemy from seeing them. When they are moving, they must also make effective use of air guards to provide early warning of enemy aircraft to allow the platoon to avoid detection.

6-183. Reconnaissance positions must provide effective concealment. One technique is to position vehicles inside wood lines and erase vehicle track marks leading to the woods. When concealment is not available, however, Soldiers camouflage vehicles to blend into the natural surroundings. Scouts cover all shiny objects that could reflect light and attract attention.

DAMAGE-LIMITING MEASURES

6-184. Dispersion is one of the most effective ways to reduce the effects of enemy air attack. It is essential when a unit is occupying static positions, as in an assembly area, or is preparing to cross a water obstacle or a breached obstacle. When the platoon is on the move and air guards identify an enemy air attack, vehicles disperse quickly, move to concealed positions if possible, and stop.

6-185. Another measure is the use of natural or man made cover to reduce the effects of enemy munitions. Folds in the earth, depressions, buildings, and sandbagged positions can provide this protection.

ACTIVE AIR DEFENSE

6-186. Although passive measures are the first line of defense against air attack, the platoon must be prepared to engage enemy aircraft. All platoon members must understand that they can defend against a direct attack but cannot engage aircraft that are not attacking them unless the applicable weapons control status allows it.

6-187. Engaging aircraft with volume fire is the key to effective use of small arms and machine gun fires against an air attack. These fires must be coordinated to be effective. On the platoon leader's command, leaders direct an aim point in front of the target (see Figure 6-40).

6-188. Vehicle commanders should instruct their gunners to fire 20- to 25-round bursts at a high rate to sustain the proper volume of fire when engaging aerial platforms.

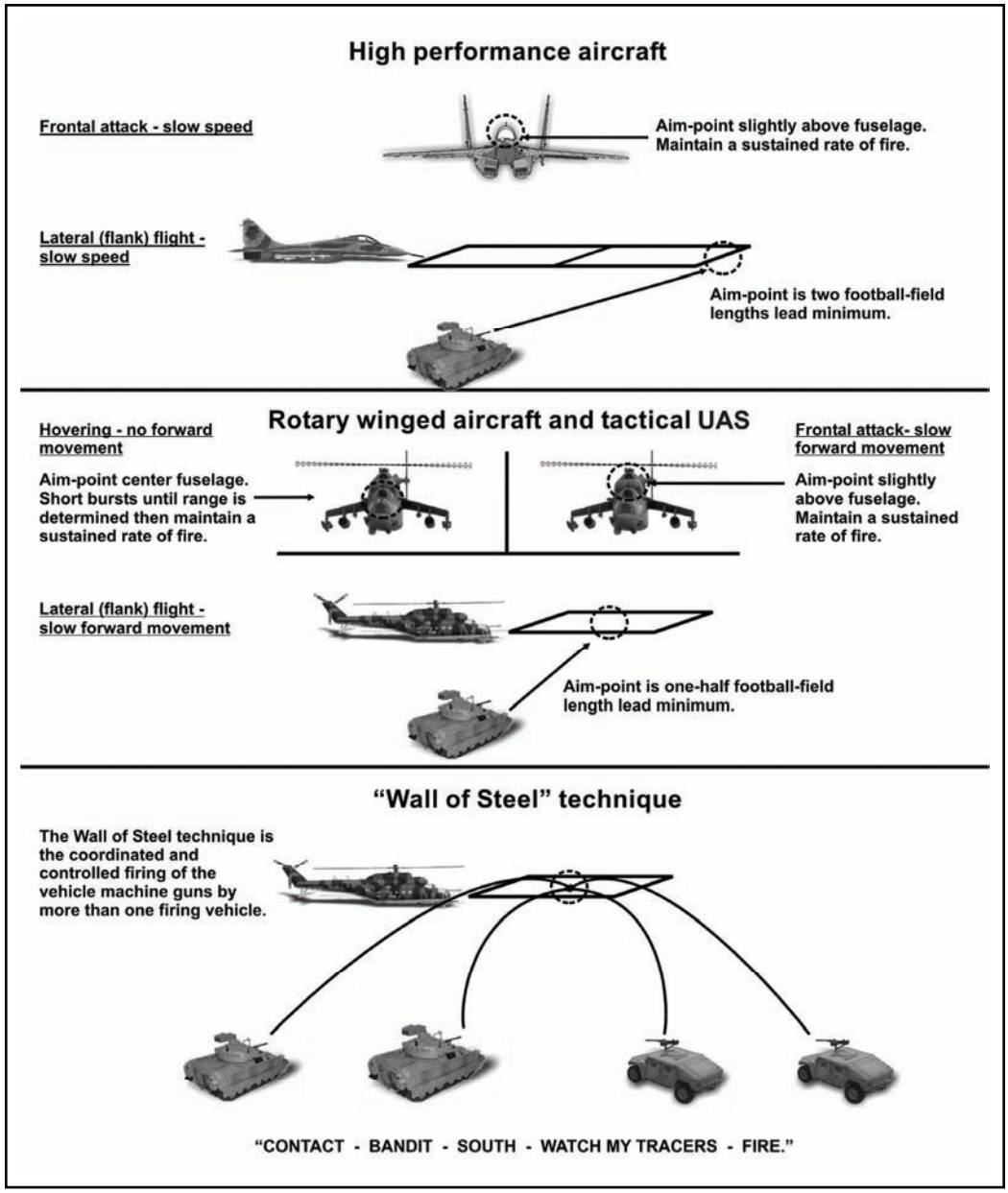


Figure 6-40. Aim points

SHORT-RANGE AIR DEFENSE SYSTEMS

6-189. Reconnaissance or scout platoons may receive support with Stingers or Avengers that counter high-performance, low-level, ground attack aircraft; helicopters; and observation and transport aircraft, including UASs.

6-190. At different times, reconnaissance or scout platoons receive Stinger attachments for protection against airborne threats. In today's OE, these same Stingers become an HVT for insurgents not to destroy, but to acquire. Without modification, the enemy can use these against civilian or coalition aircraft.

AIR DEFENSE COMMAND AND CONTROL

6-191. Air defense warning procedures provide measures to alert or prepare the unit for air attack or to increase unit readiness for an attack. They specify a degree of air attack probability describing the commander's evaluation of the general state of the air threat. Any commander can issue a higher level of warning, but not a lower warning. Actual observation of the enemy or intelligence of enemy activity raises the level of air defense warning. Refer to FM 3-20.971 for details on command and control, including air defense warnings.

SECTION VIII – SUSTAINMENT OPERATIONS

6-192. Sustainment elements arm, fuel, fix, feed, and provide transportation and personnel for the reconnaissance or scout platoon, which has no organic sustainment assets. This creates unique planning and operational challenges, with most of the responsibility falling to the PSG.

6-193. The PSG is the sustainment coordinator for the platoon; in supervising sustainment within the platoon, his role is similar to that of the 1SG in the company and troop. He is responsible for advising the platoon leader of the platoon's logistical requirements during preparation for combat operations as well as its current logistical status once operations are under way. The platoon's NCOs assist the PSG in executing resupply operations and in determining the platoon's logistical needs. In combat operations, the PSG coordinates directly with the 1SG, informing him of requirements and problems. Platoons coordinate for sustainment using this procedure. With prior coordination, elements such as the task force reconnaissance platoon can coordinate support with the 1SG of the troop that is nearest them (see FM 3-20.971 for additional information).

SUPPLY OPERATIONS

6-194. Reconnaissance or scout platoons have a large amount of equipment and require frequent resupply to accomplish their mission. Leaders make required periodic checks to ensure accountability and usability of the platoon's equipment, especially high-use items. Leaders must anticipate expenditures and request supplies before an operation begins.

CLASSES OF SUPPLY

6-195. There are 10 categories—or classes—of supply. Table 6-9 lists the classes, what each class covers, and some of the considerations for the platoon.

Table 6-9. Classes of supply

CLASS	*CONSISTS OF:*	*CONSIDERATIONS*
I	Subsistence such as food and water Health, morale, and welfare items	Vehicles carry as much water as is practical Adjust water and rations for temperature, climate, MOPP, etc
II	Organizational clothing and individual equipment (OCIE), field sanitation items, administrative, housekeeping supplies and equipment, tool sets, and tentage, etc	The troop brings the sanitation, cleaning, and administrative supplies with the LOGPAC Scouts receive replacement OCIE items on an individual, as-needed basis
III	Petroleum, oils, and lubricants (POL): • Fuel • Oil and grease • Hydraulic fluid	Refueling should occur in limited visibility Refueling occurs daily, at the conclusion of major operations, or METT-TC dependent Replenish POL products at each refueling
IV	Construction and barrier materials such as lumber, sandbags, concertina, and pickets	Used to construct OPs and obstacles and to improve fighting positions
V	All types of ammunition including small arms, artillery and tank rounds, mines, demolitions and fuses, missiles, and bombs	Rearming should occur in limited visibility and frequency is METT-TC dependent Distribute ammunition (cross leveling) throughout the platoon—METT-TC dependent
VI	Personal demand items such as tobacco products, confections, and toiletry articles	Normally sold in the exchange (when available) or with Class I as sundry packets
VII	Major end items such as tanks, helicopters, and radios, and major weapon systems This equipment is assembled and ready for use, include combat vehicles, missile launchers	Report the destruction of major end items immediately by means of logistical reports Parent unit replaces these items when losses are reported
VIII	Medical supplies such as refills for first-aid kits, water purification, and individual medical supplies	Provided through the squadron/battalion medical platoon
IX	Repair parts and components for equipment maintenance	Request through the higher unit maintenance Scouts may carry common items to sustain operations and minimize maintenance support
X	Material to support nonmilitary programs such as agriculture and economic development not covered in other supply classes.	Requests are based on requirements from civil-military and/or operations channels at troop level and higher

TROOP AND SQUADRON SUPPORT

6-196. The reconnaissance or scout platoon in a reconnaissance or cavalry squadron receives all of its sustainment through its parent troop. The PSG coordinates with his 1SG for everything the platoon requires. The 1SG is thus the key operator in the sustainment chain. He does most of the coordination with the squadron combat trains command post and controls the logistics package (LOGPAC) and its operation. Based on the tactical situation, the 1SG will also choose the techniques of resupply.

BASIC AND COMBAT LOADS

6-197. Two sets of guidelines, for the basic load and the combat load, prescribe the quantities of supplies required by the reconnaissance or scout platoon during tactical operations. A summary of the techniques of resupply follows this discussion.

Basic Load

6-198. The basic load is the quantity of supplies in Classes I, II, III, IV, V, and VIII that the platoon is required to have on hand to initiate combat operations. The platoon's higher headquarters designates the basic load based on analysis of the platoon's mission and the anticipated threat.

Combat Load

6-199. The combat load is the quantity of supplies, in all classes, that the platoon must have on hand to sustain operations in combat for a prescribed number of days. Like the basic load, higher headquarters designates the platoon's combat load. The platoon's parent unit must be capable of moving the combat load using organic transportation assets, into combat in a single delivery.

METHODS OF RESUPPLY

6-200. The tactical situation is the major factor dictating which method of resupply the reconnaissance or scout platoon will use. The most common methods are those involved in routine resupply using a LOGPAC: tailgate resupply, service station resupply, a variation of one type, or a combination of both types. The platoon may also receive supplies by other methods, such as pre-positioning or aerial resupply.

6-201. The situation will also dictate when resupply takes place. Generally, scouts attempt to avoid resupply during reconnaissance operations; rather, they should conduct resupply during mission transition. Resupply is unavoidable during security missions of long duration. The LOGPAC may include medical support as needed.

Routine Resupply Methods

6-202. In the tailgate method, the PSG, or another responsible individual who is assisting him, brings forward fuel and ammunition to the reconnaissance sections or squads (see Figure 6-41). The platoon uses this method when routes leading to vehicle positions are available (including successful infiltration routes) and the unit is not under direct enemy observation and fire. Tailgate resupply is time-consuming but stealthier in security missions when the scouts are not moving. The platoon further minimizes signatures by hand-carrying supplies to vehicle positions, if necessary.

6-203. In the service station method, vehicles move to a centrally located rearm and refuel point, either by squad or section or as an entire platoon (refer to Figure 6-42). Service station resupply is inherently faster than the tailgate method. Because vehicles must move and concentrate, however, it can create security problems. During screening missions, the platoon must be careful not to compromise the location of OPs. Units commonly use this method during mission transition.

6-204. The platoon leader can vary the specifics of the two basic methods, or he can use them in combination. During a screening mission, for example, he may use the tailgate method for his most forward OPs and the service station method for his OPs in depth (see Figure 6-43).

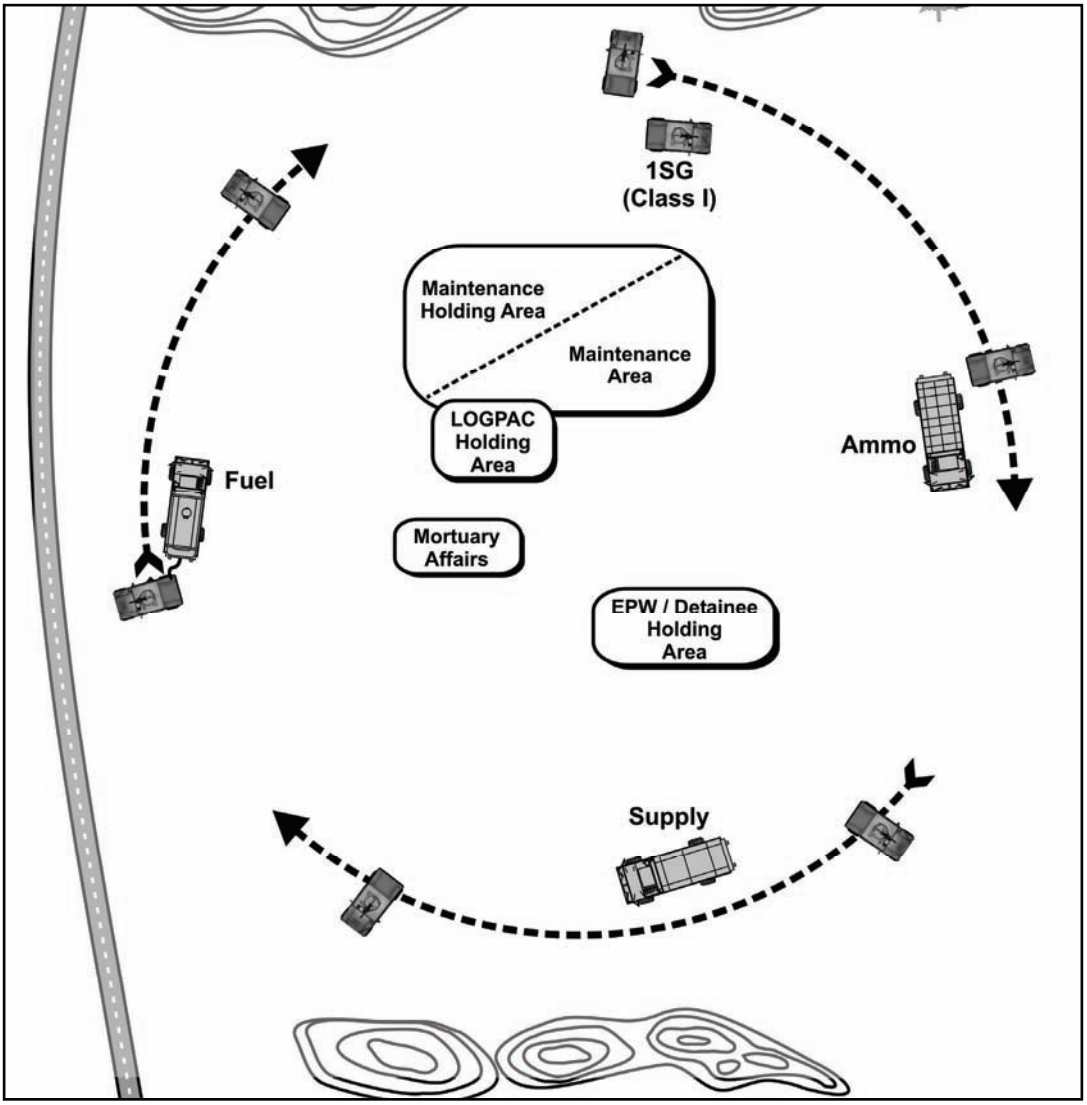


Figure 6-41. Tailgate resupply method

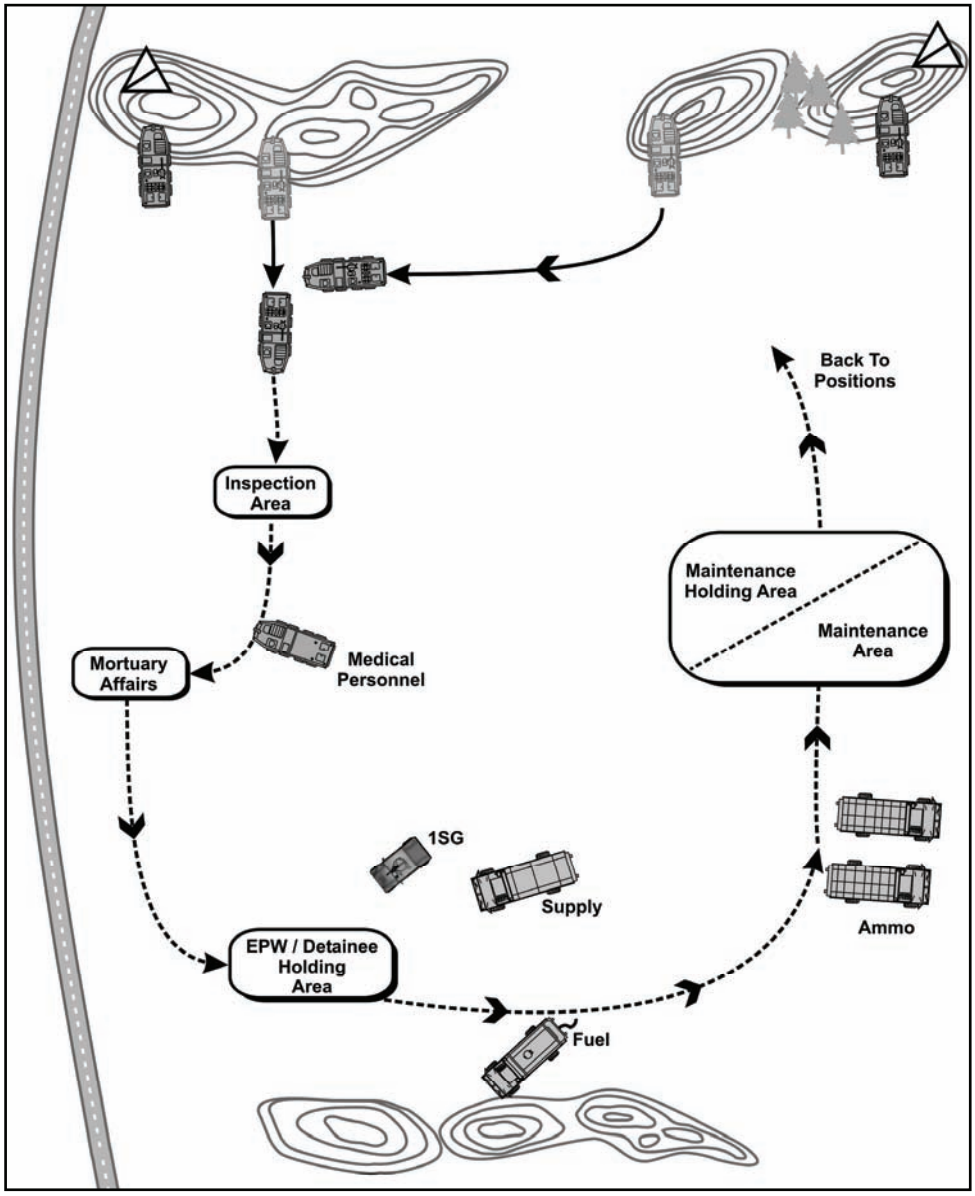


Figure 6-42. Service station resupply method

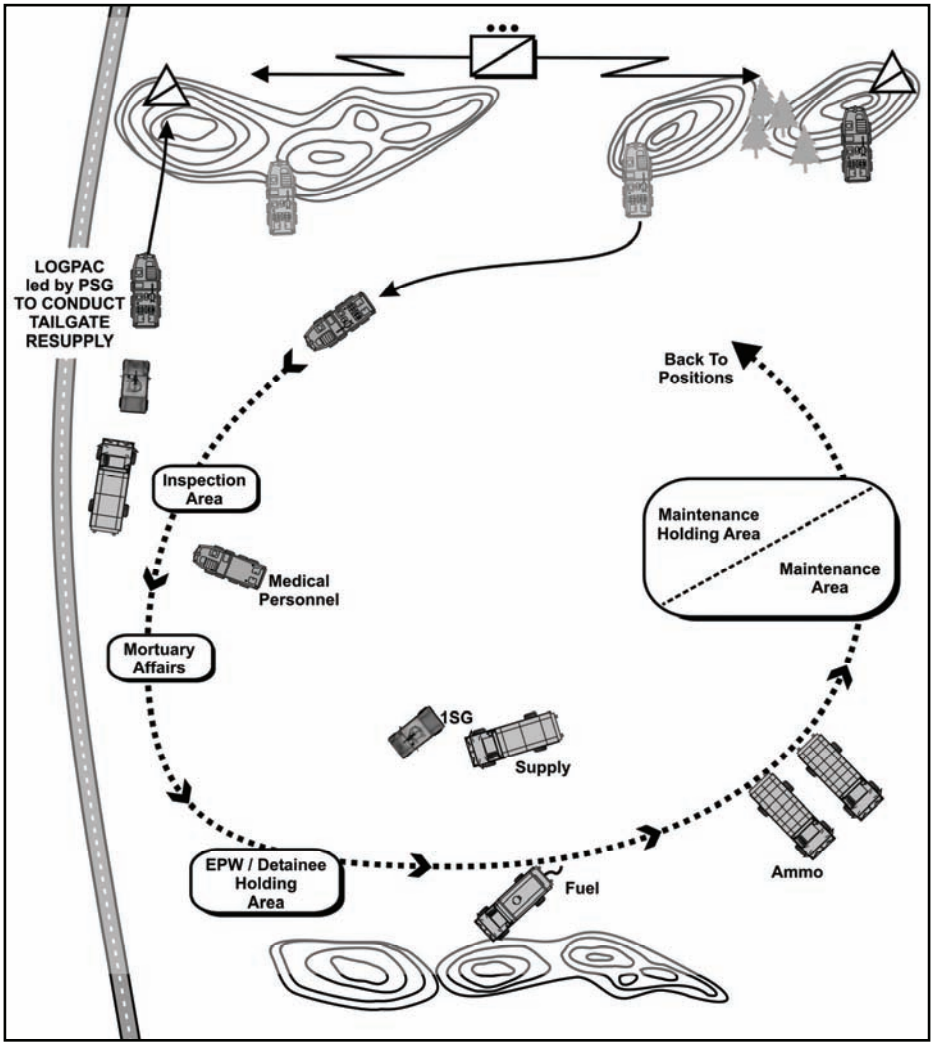


Figure 6-43. Combination of resupply methods

Other Resupply Methods

6-205. In addition to the methods of routine resupply, the reconnaissance or scout platoon can use several other methods of obtaining needed materials.

Aerial and Airdrop Resupply

6-206. Helicopters and fixed wing assets can be a vital lifeline when scouts are forced to operate forward of friendly lines for extended periods; they reduce the risks associated with conducting ground resupply operations under such conditions. Aerial assets are also useful in resupplying dismounted scouts in OPs in restricted terrain. On the other hand, aerial resupply sometimes is not available due to lack of aircraft or degraded weather conditions. In addition, the signature of resupply aircraft can compromise scout positions. Careful choice of resupply routes, LZs, and DZs help to minimize this risk.

Pre-positioning and Cache

6-207. These resupply methods, also called prestock resupply, differ in the level of security provided for the supplies. In pre-positioning, units may leave supplies unattended or provide security as dictated by METT-TC. However, when it resupplies by cache, the platoon should take steps to prevent detection of the location by enemy elements.

6-208. The reconnaissance or scout platoon uses both pre-positioning and cache methods in a variety of operations. During reconnaissance, it uses advance elements to establish prestock positions along the intended route of advance or near the objective. In security operations, the platoon can set up prestock points throughout the AO. These points should be in each alternate or supplementary OP, in addition to other locations throughout the depth of the sector. Scouts can also use prestock to provide resupply for patrols.

6-209. The platoon must carefully plan and execute cache operations at every level. The platoon places cache points where, with simple instructions, someone who has never visited the site can find the point. All leaders, down to squad leader and vehicle commander, must know the exact locations of cache sites. The platoon leader must take steps to ensure security and survivability of the supplies by digging in cache positions, selecting covered and concealed positions, and considering the effects of weather and terrain. He must also have a plan to remove or destroy cache supplies to prevent the enemy from capturing them.

Medical Resupply

6-210. The reconnaissance or scout platoon combat medic is an important conduit for medical resupply. The combat medic works closely with the PSG in ensuring sustainment of Army Health System support. The PSG is responsible for monitoring the platoon's medical supply status (Class VIII) and for ensuring resupply of the combat lifesavers through the LOGPAC.

MAINTENANCE OPERATIONS

6-211. The Army has transitioned to two levels of maintenance: field and sustainment. Field maintenance consists primarily of replacing parts on the user's system. Field maintenance is the product of merging the previous organizational and DS levels of maintenance. Sustainment maintenance consists of repairing components off the user's platform, which then goes back into the supply system. Sustainment maintenance is the product of merging the previous GS and depot levels of maintenance together.

FIELD MAINTENANCE

6-212. Field maintenance is on-system maintenance, and mainly involves preventive maintenance and replacement of defective parts. The goal of field maintenance is to repair and return equipment to the Soldier. It covers tasks previously assigned to operator/crew, organization/unit, and DS maintenance levels. It includes some off-system maintenance critical to mission readiness.

6-213. The reconnaissance or scout platoon leader is concerned primarily with field maintenance. Platoon leaders ensure that vehicle crews and equipment operators perform PMCS. Proper field maintenance keeps equipment and materiel in serviceable condition. It includes PMCS, as well as the functions of inspecting, testing, servicing, repairing, requisitioning, recovering, and evacuating equipment and materiel whenever necessary.

Platoon Leader Responsibilities

6-214. The platoon leader has ultimate responsibility for the condition and performance of the platoon's equipment and materiel. In that role, his duties include the following:

- Coordinate with the XO in planning, directing, and supervising unit maintenance for the platoon.
- Develop and supervise an ongoing maintenance training program.
- Ensure that all platoon vehicles, weapon systems, and equipment such as NODs, mine detectors, CBRN equipment, and communications equipment are combat-ready at all times within the platoon's maintenance capabilities. The platoon leader also ensures reporting of equipment that is not repairable at platoon level to the commander as soon as possible.
- Know the status of equipment, including document numbers, job order numbers, and the stage of maintenance of his vehicles. The platoon leader keeps the parent unit XO informed of the current maintenance status.

- Ensure that crews have the appropriate technical manuals and are trained and supervised to complete the required level of maintenance properly.
- Ensure that operators perform unit-level PMCS on all assigned equipment in accordance with the appropriate operator manuals.
- Ensure the training and licensing of drivers and assistant drivers to operate platoon vehicles and equipment.
- Plan and rehearse a maintenance evacuation plan for every mission.

Platoon Sergeant Responsibilities

6-215. The PSG has primary responsibility for most of the platoon's maintenance activities. His duties include the following:

- Ensure that operators fill out and update DA Forms 5988-E and 2408-18 in accordance with DA Pam 738-750.
- Direct and supervise unit maintenance of platoon equipment, vehicles, and weapon systems.
- Assist the platoon leader in complying with his responsibilities; assume those responsibilities in his absence.
- Coordinate with the maintenance representative to arrange unit repairs or to request intermediate (DS) maintenance.
- Supervise and account for platoon personnel during maintenance periods.
- Ensure the timely use or storage of repair parts.
- Collect and consolidate reports of the platoon's maintenance status in the field and send the appropriate reports to higher maintenance personnel.
- Ensure that operators top off their vehicles with fuel in garrison and that they receive fuel in the field.
- Keep the platoon leader informed of the platoon's maintenance and logistics status.

Vehicle Commander Responsibilities

6-216. Vehicle commanders are the platoon's first-line maintenance supervisors. In large part, the platoon's maintenance status, and thus its combat readiness, depends on their commitment to proper maintenance procedures. The vehicle commander's duties in this area include the following:

- Ensure that operators fill out and update DA Forms 5988-E and 2408-18 in accordance with DA Pam 750-8.
- Train the crew in proper PMCS procedures.
- Ensure the training and licensing of all crewmembers as drivers in preparing for continuous operations. At a minimum, ensure the assigned vehicle driver or equipment operator is licensed.
- Ensure that repair parts are installed upon receipt or are stored in authorized locations.
- Ensure that all tools and basic issue items are properly marked, stored, maintained, and accounted for.
- Ensure that the operator always tops off the vehicle in garrison and that the vehicle receives as much fuel as possible at every opportunity in the field.
- Constantly update the PSG on the maintenance and logistics status of the vehicle.

Operator Responsibilities

6-217. Operator maintenance includes proper care, use, and maintenance of assigned vehicles and crew equipment such as weapons, CBRN equipment, and NODs. The driver and other crewmembers perform daily services on the vehicle and equipment, including inspecting, servicing, tightening, performing minor lubrication, cleaning, preserving, and adjusting. The driver and gunner are required to use DA Form 5988-E to record these checks and services, as well as all equipment faults that they cannot immediately correct. The driver's and gunner's reports are the primary means of reporting equipment faults through the vehicle commander to the PSG, platoon leader, and ultimately to organizational maintenance personnel.

6-218. Checks and services prescribed for the automotive system, weapon systems, and turret are divided into three groups:

- Before-operation checks and services.
- During-operation checks and services.
- After-operation checks and services.

6-219. The operator's manual explains these services. All operators must conduct these services as stated in the manual. Although operators must learn to operate equipment without referring to the manual, they must always perform the maintenance in accordance with the appropriate technical manual.

EVACUATION

6-220. Evacuation is necessary when maintenance crews cannot repair a damaged vehicle on site within several hours or when it is the only means available to prevent capture or destruction by the enemy. Repair times are dependent on METT-TC factors. The two-hour limit is only a guideline for planning purposes and unit SOP determines the actual time. With the exception of an entire vehicle, the platoon can transport most damaged equipment until the troop or squadron/battalion support elements pick it up. The troop or squadron/battalion maintenance personnel or the DS maintenance unit evacuates the equipment.

6-221. When a vehicle requires evacuation, the platoon leader or PSG reports the exact location, vehicle type, and extent of damage, if known, on the proper net to personnel designated in the unit SOP. Two Soldiers should remain with the vehicle to assist in evacuation and repair, provide security, and deliver the repaired vehicle back to the platoon as soon as possible. A recovery vehicle from the higher-level maintenance team evacuates the damaged vehicle. It is vital that crews place the damaged vehicle in a covered position that allows the recovery vehicle to reach it without exposing the recovery crew to enemy fire.

6-222. If a recovery vehicle is not available or if time is critical, self-recovery will be the platoon's primary method of vehicle evacuation. Other platoon vehicles can evacuate the damaged vehicle for short distances. Leaders consider self-evacuation as a last resort only to avoid losing the damaged vehicle to the enemy. The decision to do this rests with the platoon leader. The operator's manual covers procedures for towing. If the damaged vehicle will be lost for an extended period, the platoon can replace other vehicles' damaged equipment (such as weapons and radios) with properly functioning items from the damaged vehicle.

6-223. A wheeled vehicle mechanic can be attached to the PSG's vehicle or support truck with the purpose of handling maintenance issues at the platoon level.

6-224. A sound guideline for reconnaissance and scout platoons is to conduct repairs as far forward as possible. This reduces down time and allows crews to maintain their operational rhythm and return to operations. Leaders preposition habitual replacement parts such as fan belts and tires at a secured maintenance collection point for maintenance support. All vehicle crews must know this location.

DESTRUCTION

6-225. When evacuation of damaged or inoperable equipment is impossible, destruction becomes necessary to prevent it from falling into the enemy's hands. The platoon leader must obtain the commander's permission before destroying any equipment. The platoon must make every reasonable effort to evacuate or secure equipment, classified materials, and all weapons.

SUSTAINMENT MAINTENANCE

6-226. Reconnaissance platoons do not conduct sustainment maintenance. The component repair company of a sustainment brigade usually conducts sustainment-level maintenance.

PERSONNEL SERVICES SUPPORT

6-227. Personnel services are those sustainment functions related to Soldier's welfare, readiness, and quality of life. It includes human resource functions, religious services, financial management, legal assistance, and band support. Higher-level support elements provide many of these services automatically. Nevertheless, the platoon leader is ultimately responsible for coordinating and providing them to the platoon.

HUMAN RESOURCES SUPPORT

6-228. Human resources support functions include personnel readiness, awards and decorations, leaves and passes, command information, mail, morale, welfare and recreation, military pay, and rest and relaxation, among others. Personnel readiness management is a critical function that continuously analyzes the operational preparedness of the platoon. It includes classification, assignment, promotions, reenlistment, and other human resource functions. The platoon leader requests these actions through the troop/company or squadron/battalion staff that normally processes these actions. The platoon leader must submit accurate strength reports to ensure qualified personnel fill critical personnel shortages, such as vehicle commanders and gunners.

ARMY HEALTH SYSTEM SUPPORT

6-229. The Army health system (AHS) is a component of the military health system that is responsible for operational management of the Army's health service support and force health protection missions, including training and predeployment, deployment, and postdeployment operations. It is responsible for all mission support services performed, provided, or arranged by the Army Medical Department for the Army and, as directed, for joint, intergovernmental, coalition, and multinational forces and agencies. Refer to FM 3-20.971 for a detailed discussion of AHS support.

MEDICAL SUPPORT

6-230. The first medical care a Soldier receives is provided at Role 1 (also referred to as unit-level medical care). This role of care includes the following:

- Immediate lifesaving measures.
- Disease and nonoperational injury prevention.
- Combat and operational stress preventive measures.
- Patient location and acquisition (collection).
- MEDEVAC from supported units or locations—including point of injury or wounding, combat outpost, troop aid posts, or CCPs—to supporting medical treatment facilities (MTF).
- Treatment provided by platoon combat medics. Major emphasis is placed on those measures necessary for the patient to return to duty or to stabilize the patient and allow for evacuation to the next role of care. These measures include maintaining the airway, stopping bleeding, preventing shock, protecting wounds, immobilizing fractures, and other emergency measures as indicated.

TREATMENT BY NONMEDICAL PERSONNEL

Self-Aid and Buddy Aid

6-231. Each individual Soldier is trained to be proficient in a variety of specific first-aid procedures. These procedures include aid for chemical casualties with particular emphasis on lifesaving tasks. This training enables the Soldier or a buddy to apply first aid to alleviate a life-threatening situation.

Combat Lifesaver

6-232. The combat lifesaver is a nonmedical Soldier selected by his troop commander for additional training beyond basic first-aid procedures. A minimum of one individual per squad, crew, team, or equivalent-size unit should be trained. The primary duty of this individual does not change. The additional duty of the combat lifesaver is to provide enhanced first aid for injuries before the combat medic arrives. Combat lifesaver training is normally provided by medical personnel assigned, attached, or in sustainment units. The senior medical person designated by the commander manages the training program.

6-233. The combat lifesaver is almost always the first person on the scene to begin the process of providing enhanced first aid to wounded and injured personnel. The combat lifesaver is not intended to take the place of medical personnel, but to slow deterioration of a wounded/injured Soldier's condition until medical personnel arrive. Troops will have at least one Soldier qualified as a combat lifesaver with every vehicle or squad.

TREATMENT BY MEDICAL PERSONNEL

6-234. Following initial first aid and treatment, Role 1 medical treatment is provided by the combat medic or by the physician, the physician assistant, or the health care specialist in the squadron/battalion aid station.

6-235. Emergency medical treatment, known as immediate far forward care, consists of those lifesaving steps that do not require the knowledge and skills of a physician. The combat medic is the first individual in the medical chain that makes decisions based on medical military occupational specialty-specific training.

6-236. Combat medics are allocated on the basis of one combat medic per each platoon in the troop. The platoon combat medic normally locates with, or near, the platoon leader or PSG.

EVACUATION

6-237. Evacuation of injured Soldiers is categorized into two types:

- **MEDEVAC.** This is the use of ground or air ambulances to evacuate from the point of injury to a supporting MTF or from one MTF to another while providing en route care.
- **CASEVAC.** This is the use of nonmedical vehicles or other means for patient transport without the provision for en route care.

6-238. The preferred method of MEDEVAC is by air ambulance, but this is METT-TC dependent. The aviation brigade's general aviation support battalion may position a forward support MEDEVAC team with three UH-60 Blackhawk aircraft in support of a BCT/BFSB/ACR. These aircraft do not provide DS, but provide area support to all units in the AO.

WOUNDED SOLDIERS

6-239. Positioning and dispersion in the AO make treatment and evacuation of wounded personnel two of the most difficult tasks the reconnaissance or scout platoon must execute. Operational planning or SOPs must cover evacuation procedures in detail.

6-240. In the platoon, the combat lifesaver and/or the vehicle commander are usually the first ones on the scene to begin the process of providing first aid for personnel who are wounded in action (WIA). With the help of the vehicle commander, the combat lifesaver provides initial first aid to wounded or injured Soldiers. He prepares them for medical evacuation or returns them to duty status after rendering first aid. There should be at least one combat lifesaver on each platoon vehicle at all times.

6-241. Vehicle commanders and their crews must be prepared to give immediate first aid as necessary and to continue the mission, without stopping, with a limited crew. The vehicle commander informs the PSG of casualties. He coordinates with the PSG for ground or aerial evacuation.

6-242. Evacuation procedures must be part of the platoon plan and rehearsed as part of mission preparation. Regardless of the method of evacuation, all reconnaissance leaders must have the necessary

sustainment graphics available, including the locations of higher headquarters' casualty collection points. When wounded crewmen require evacuation, the platoon leader or PSG can take one of the following steps:

- Coordinate for aerial evacuation through the troop or battalion.
- Conduct self-evacuation with organic platoon assets.
- Request the higher commander to task organize a dedicated ambulance to the platoon for operations forward of the larger element.
- Coordinate with the closest troop/company team for ground evacuation.

6-243. Aerial evacuation, if it is available, is preferred because of its speed. The scouts coordinate with their higher command and then switch to the designated frequency to coordinate directly with the MEDEVAC or CASEVAC aircraft. The platoon provides local security of the LZ until the evacuation is complete (refer to the discussion of PZ/LZ procedures earlier in this chapter).

6-244. A wounded crewman's individual weapon becomes the responsibility of the vehicle commander. The platoon turns in the personal effects, weapons, and equipment of the wounded crewman to the company or troop supply sergeant at the earliest opportunity. The crewman's protective mask stays with him at all times. All sensitive items such as maps, overlays, and SOPs should remain with the vehicle.

6-245. The vehicle commander ensures that both the casualty feeder and witness statement forms are completed and given to the PSG who then turns them over to the 1SG.

6-246. One method used to improve Soldier survivability after injury is the attachment of a combat medic to the platoon. The combat medic is assigned to the PSG's vehicle, which conducts casualty evacuation. This reduces the time needed for triage and initial treatment and improves the chances for Soldiers return to duty.

SOLDIERS KILLED IN ACTION

6-247. The squadron/battalion S-4 designates the location of the collection point for Soldiers who are killed in action (KIA). The reconnaissance or scout platoon leader selects the location of a platoon KIA collection point and reports its eight-digit grid to higher headquarters. The platoon uses this collection point only as a last resort when transport of the KIA Soldiers is impractical. The name of each dead Soldier, the exact location of the body, and the circumstances are reported higher as soon as possible within the limits of the mission.

6-248. The platoon leader designates a primary and alternate vehicle to extract KIAs from the AO to the next scheduled LOGPAC location. Scouts place the remains of these Soldiers in a body bag, sleeping bag, or poncho for evacuation. They remove the lower dog tag for turn-in to the PSG. The PSG then forwards the dog tag to the 1SG during the next resupply operation along with statements from those who witnessed the action. The personal effects of the KIA Soldier remain with the body. The Soldier's weapon, equipment, and issue items become the responsibility of the vehicle commander until he can turn the items over to the supply sergeant or 1SG through the PSG.

6-249. As a rule, leaders make every effort not to place the bodies of KIA Soldiers on the same vehicle as wounded Soldiers. If the platoon leader or 1SG cannot expedite evacuation, transportation of KIAs and WIAs together on a vehicle may be necessary until it reaches its next stop. In the offense, this destination may be the objective. In the defense, it may be the next BP.

FORCE HEALTH PROTECTION

6-250. Maintaining the health and fighting fitness of Soldiers is the responsibility of all leaders. The best way to do this is for the commander to emphasize preventive measures. All leaders will be active participants in the areas of hygiene, sanitation, safety, sleep deprivation, physical fitness, counseling, and the treatment of combat stress and fatigue.

Health and Hygiene

6-251. The platoon leader and PSG must emphasize and enforce high standards of health and hygiene at all times. This "preventive maintenance" approach should cover all aspects of the Soldier's health and well-being, including the following:

- Daily shaving to ensure proper fit of the protective mask.
- Regular bathing and changing of clothes.
- Prevention of weather-related problems. These include cold-weather injuries like frostbite, trench foot, and immersion foot and heat-related injuries such as heat exhaustion and heat stroke. Soldiers must understand the effects of such conditions as sunburn and windchill.
- Combat and operational stress prevention, including strict implementation of the unit sleep plan.

6-252. Combat and operational stress is another medical aspect with which the platoon must cope. The nature of reconnaissance missions subjects Soldier to stress in many ways. These factors include the following:

- Limited visibility.
- Disrupted sleep cycles.
- Mental fatigue.
- Physical fatigue.

6-253. Combat and operational stress control, however, is not solely a medical problem. It is also a command problem in terms of reduced performance and personnel lost from duty.

Combat and Operational Stress Control (COSC)

6-254. COSC focuses on protecting the force through treatment and prevention of combat and operational stress. The brigade support battalion has a COSC team consisting of a behavioral science officer and a mental health specialist. Chaplains can assist with combat stress control by identifying Soldiers who are under extreme stress. Refer to FM 4-02.51, FM 6-22.5, and FM 22-51 for information on COSC.

Preventive Medicine

6-255. Preventive medicine (PVNTMED) encompasses the rules of hygiene and field sanitation that are developed and implemented to prevent the spread of debilitating diseases. These rules must be established in the troop /company SOP and observed and enforced daily.

6-256. Safety is another continuous requirement of PVNTMED. To prevent accidents that could injure Soldiers, leaders continuously enforce proper equipment operating procedures and general safety.

6-257. PVNTMED operational support is provided by PVNTMED personnel who are organic to the BCT brigade support medical company. The BCT PVNTMED section is equipped to conduct PVNTMED surveillance and control. See FM 4-02.17 for definitive information on PVNTMED measures.

Note. The platoon should develop its unit sleep plans based on the following current guidance on sleep—and the effects of sleep deprivation—provided by the Walter Reed Army Institute of Research. Based on extensive research, the information applies to all levels of military operations, including both training and tactical environments.

Sleep Deprivation

6-258. Sleep is a biological need, critical for sustaining the mental abilities needed for success in the AO. Soldiers require 7 to 8 hours of good-quality sleep every 24-hour period to sustain operational readiness. Soldiers who lose sleep will accumulate a sleep debt over time that will seriously impair their performance. The only way to pay off this debt is by obtaining the needed sleep. For additional information pertaining to sleep deprivation, see FM 3-20.971.

PRISONERS AND CAPTURED MATERIAL

6-259. EPWs, detainees, and captured enemy equipment, materiel, and documents are excellent sources of combat intelligence; they must be processed and evacuated to the rear quickly. If enemy soldiers want to surrender, it is the responsibility of the reconnaissance or scout platoon or the individual vehicle crew to take them into custody and control them until evacuation. The platoon leader will employ a HUMINT Soldier, if available, to perform an initial assessment and screening of all EPWs and captured materials to aid in processing and information gathering.

6-260. The platoon leader designates a primary and alternate vehicle responsible for handling EPWs and detainees as well as for transporting them to the collection point designated in paragraph 4 of the troop/battalion OPORD.

HANDLING PRISONERS OF WAR

Note. In most situations, the following information and procedures apply to the handling of detainees as well as to EPWs.

6-261. The "five-S" principles and tagging serve as the basic principles for handling EPWs: search, segregate, silence, speed, and safeguard. In addition to these steps, the reconnaissance or scout platoon leader must ensure that Soldiers tag prisoners with all necessary information before transportation to the rear. The "five-S" procedures are as follows:

- **Search.** Remove and tag all weapons and documents. Return to the EPW those personal items of no military value. The EPW keeps his helmet, protective mask, and any gear that protects him from immediate dangers**.**
- **Segregate.** Break the chain of command; separate EPWs by rank, sex, and other appropriate criteria. Keep the staunch fighters away from those who willingly surrender.
- **Silence.** Prevent EPWs from issuing orders, planning escapes, or developing false "cover stories".
- **Speed.** Expedite movement of EPWs to the appropriate element to obtain and use their information.
- **Safeguard.** Prevent EPWs from escaping. Protect all EPWs from violence, insults, curiosity, and reprisals of any kind.

6-262. The senior officer or NCO on the scene is legally responsible for the care of EPWs. If the unit cannot evacuate a prisoner within a reasonable time, it must provide him with food, water, and medical treatment.

6-263. International law has established the rights of EPWs, and the United States has agreed to obey these laws. Once enemy personnel show they want to surrender, Soldiers must treat them humanely. It is a court-martial offense to physically or mentally harm or mistreat an EPW or needlessly expose him to fire. In addition, mistreated EPWs or those who receive special favors are not good interrogation subjects.

6-264. Scouts should never make the initial approach to an enemy soldier. He may have a weapon hidden nearby, or he may be booby-trapped. To be safe, the scouts should gesture for him to come forward until it is clear that he is honestly surrendering and not trying to lure friendly troops into an ambush. They can use a thermal sight to locate possible ambushes.

6-265. The scout who searches the prisoner should always have another Soldier cover him with a weapon. The searcher must not get between the prisoner and the Soldier covering him. Whenever possible, the platoon uses female Soldiers to search females keeping in mind local practices and courtesies.

6-266. A combat lifesaver will treat and attempt to stabilize wounded EPWs not evacuated through medical channels. Leaders notify the supporting troop/company XO or 1SG of each wounded prisoner's status, and evacuation will be coordinated using other means.

6-267. Before evacuating the EPW, the platoon leader must ensure that a platoon Soldier attaches a tag to the prisoner listing all pertinent information and procedures. The platoon leader forwards a copy of this tag to higher headquarters. The platoon obtains tags through supply channels; it can make tags from materials available if necessary. The tag should contain the following information:

- Date of capture.
- Name of prisoner.
- Prisoner's rank.
- Prisoner's serial number.
- Prisoner's date of birth.
- Prisoner's unit.
- Location of capture.
- Capturing unit.
- Special circumstances of capture.
- List of weapons or documents in the prisoner's possession at the time of capture.

CAPTURED THREAT DOCUMENTS AND EQUIPMENT

6-268. Captured threat documents such as maps, orders, records, photographs, terrain models, and equipment are excellent sources of intelligence. If handled improperly, the information in the captured items may be lost or delayed until it is useless.

6-269. The platoon should tag each captured item. If the item is in an EPW's possession, include the prisoner's name on the tag and give the item to the guard. The guard delivers the item with the EPW to the next higher headquarters. The captured items should be tagged with the following information:

- Type of item (such as document or piece of equipment).
- Date and time of capture.
- Location of capture.
- Capturing unit.
- Special circumstances of capture, including the names of EPWs in possession of the captured items.

CIVILIANS

6-270. Civilians captured as the result of curfew violations, criminal activities, or suspicious actions are treated the same as EPWs. The platoon evacuates them quickly to higher headquarters using the "five-Ss."

Appendix A

Orders and Reports

Orders and reports are the means by which the platoon receives and transmits information, from the earliest warning order notification that an operation will occur through the final phases of execution and change of mission. They are critical to mission success because they communicate the descriptions, directions, and visualizations. In a tactical situation, the platoon leader and PSG lead the platoon and the operation with these tools on a daily basis. Time and experience should hone leaders' knowledge of orders formats enabling them to accurately complete their responsibilities while ensuring that every member of the platoon understands how to receive and respond to orders issued via analog and digital systems.

SECTION I – ORDERS

A-1. The platoon leader must be familiar with the formats of warning orders (WARNO), operations orders (OPORD), and fragmentary orders (FRAGO). He must be able to convert these into concise, yet thorough, orders for the platoon.

OPERATIONAL CONSIDERATIONS

A-2. Before the commander issues the OPORD, the platoon leader may receive one or more WARNOs. He analyzes all information in these orders and transmits important details to the platoon as soon as possible.

A-3. When higher headquarters issues a complete five-paragraph OPORD, analysis of the order is a simple, straightforward process for the platoon leader, who then issues an OPORD to the platoon in OPORD format. He derives much of the content from the higher order he received during execution of troop-leading procedures.

A-4. Once an operation begins, FRAGOs become the normal method of issuing orders. Digital systems allow commanders and leaders to supplement oral orders with overlays and a limited text capability; these items can enhance their subordinates' understanding of the FRAGOs.

A-5. Units may find themselves conducting the same type of operations on a repeat basis, such as route clearance. There may be a tendency for leaders and units in such cases to abandon the combat orders process in favor of expediency. Leaders must not permit this to happen. The combat orders process forces leaders to analyze appropriately all aspects of an operation regardless of how routine it may appear.

WARNING ORDERS

A-6. During the planning phase of an operation, commanders and leaders use WARNOs as a method of alerting their units and individual Soldiers. The troop commander usually sends a series of WARNOs to his platoon leaders. These orders help subordinates to prepare for new missions by providing directions and guidelines for platoon-level planning and preparation. Each platoon leader immediately analyzes the information, and then issues a WARNO of his own to alert the platoon to the upcoming operation. This allows the platoons to conduct parallel planning and preparations. After the WARNO has been issued, the PSG begins his planning for paragraph 4 (service and support), section sergeants begin planning movement routes and conducting PCCs, while the platoon leader completes his operations order. For more information on parallel planning, see FM 3-0 and FM 5-0.

A-7. WARNOs generally follow the five-paragraph OPORD format (see Figure A-1). The key consideration is that they should be as brief as possible while giving units and Soldiers the information they need to begin preparing for the operation. A platoon-level WARNO normally includes these elements:

- Enemy situation.
- Troop mission.
- Commander's intent (if available).
- Earliest time of movement.
- Specific instructions for preliminary actions (including security, reconnaissance, rehearsals, training, maintenance, resupply, rest, movement, and coordination requirements).
- Time and place at which the troop OPORD will be issued.

A-8. Ideally, the platoon leader issues two to three WARNOs to subordinates during troop-leading procedures. WARNOs are issued upon receipt of mission, completion of mission analysis, and when the commander chooses a COA. However, the number of WARNOs is not fixed. WARNOs serve a function in planning similar to that of FRAGOs during execution. Commanders issue a WARNO whenever they need to disseminate additional planning information or initiate necessary preparatory action, such as movement or reconnaissance.

A-9. The first WARNO normally contains minimal information. It alerts subordinates that a new mission is pending. This WARNO normally contains the following information:

- Enemy situation.
- The type of operation.
- The general location of the operation.
- The initial operational time line.
- Initial ISR tasks.
- Any movements to initiate.
- Any collaborative planning sessions directed by the commander.
- Initial IR or CCIR.

A-10. The WARNO issued at the end of mission analysis contains essential information for planning, and directives to initiate movements and reconnaissance. Typically it includes—

- Updated enemy situation.
- The approved unit mission statement.
- The commander's intent.
- Task organization changes.
- Attachments/detachments.
- The unit AO (sketch, overlay, or some other description).
- The CCIR and essential elements of friendly information (EEFI).
- Risk guidance.
- Surveillance and reconnaissance instructions.
- Initial movement instructions.
- Security operations.
- Military deception guidance.
- Mobility, countermobility, and survivability guidance.
- Specific priorities.
- The updated operational time line.
- Guidance on collaborative events and rehearsals.

A-11. The WARNO issued after COA development normally contains—

- Updated enemy situation.
- Mission.

- Commander's intent.
- Updated CCIR and EEFI.
- Concept of operations.
- Principal tasks assigned to subordinate units.
- Preparation and rehearsal instructions not included in standing operating procedures (SOP).
- Final time line for the operations.

A-12. Parallel planning hinges on distributing information as it is received or developed. Subordinates cannot complete their plans until they receive their unit mission. If each successive WARNO contains enough information, the troop and platoon final order will confirm what subordinate leaders have already analyzed and put into their tentative plan.

[Classification]
(Change from verbal orders, if any) (Optional)
[Heading data is the same as for OPLAN/OPORD]

WARNING ORDER [number]
References: Refer to higher headquarters OPLAN/OPORD, and identify map sheets for operation (Optional).
Time Zone Used Throughout the Order: (Optional)
Task Organization: (Optional) (See paragraph 1c.)

A warning order does not authorize execution unless specifically stated.

1. SITUATION.
a. Enemy forces. Include significant changes in enemy composition, dispositions, and COAs. Information not available can be included in subsequent WARNOs.
b. Friendly forces. (Optional) Address only if essential to the WARNO.
(1) Higher commander's mission.
(2) Higher commander's intent.
c. Environment. (Optional) Address only if essential to the WARNO.
(1). Terrain.
(2). Weather.
(3). Civil considerations.
Attachments and detachments. Initial task organization. Address only major unit changes.
2. MISSION. Issuing headquarters' mission. This may be the higher headquarters' restated mission or commander's decisions during the MDMP.
3. EXECUTION.
Intent:
a. Concept of operations. This may be "to be determined" for the initial WARNO.
b. Tasks to maneuver units. Any information on tasks to units for execution, movement to initiate, reconnaissance to initiate, or security to emplace.
c. Tasks to other combat and combat support units. See paragraph 3b.
d. Coordinating instructions. Include any information available at the time of the issuance of the WARNO. It may include the following:
- CCIR.
- Risk guidance.
- Time line.
- Deception guidance.
- Orders group meeting information.
- Specific priorities, in order of completion.
- Earliest movement time and degree of notice.
- Guidance on orders and rehearsals.

4. SERVICE SUPPORT. (Optional) Include any known logistics preparations.
a. Special equipment. Identify requirements and coordinate transfer to using units.
b. Transportation. Identify requirements, and coordinate for pre-position of assets.
5. COMMAND AND SIGNAL. (Optional)
a. Command. State the chain of command if different from unit SOP.
b. Signal. Identify the current SOI. Pre-position signal assets to support operation.
ACKNOWLEDGE:
[Authentication data is the same as for OPLAN/OPORD]
ANNEXES:
DISTRIBUTION:
[Classification]

Figure A-1. WARNO format

OPERATION ORDERS

A-13. As part of troop leading procedures, the platoon issues an OPORD as part of his troop-leading procedures. The OPORD provides section/squad leaders with the essential information required to conduct the operation and to carry out the commander's intent. The platoon leaders should distribute graphics (traditional and digital) before issuing the OPORD.

FIVE-PARAGRAPH OPORD FORMAT

A-14. Leaders issue the OPORD orally and in writing in the five-paragraph format (see example below). This helps to ensure that required information is presented in a predictable and logical manner. Although the five-paragraph format is straightforward, every commander and leader will develop techniques that allow him to make a clearer, concise, yet complete OPORD presentation. The platoon leader should request a copy of his commander's OPORD format to facilitate note taking. See FM 3-20.971 and FM 5-0 for more information concerning platoon OPORDs.

ISSUING THE PLATOON OPORD

A-15. Issuing the OPORD is, in effect, a type of drill, with contents and delivery procedures covered by SOPs and other guidelines. The platoon leader must understand, however, that simply reading off the five paragraphs word for word is usually ineffective. His foremost consideration is effective communication. He must fully understand all aspects of the operation and know how to describe and discuss them. He must integrate the friendly and enemy situations and the effects of terrain and weather into the platoon maneuver plan.

A-16. To make the order even more understandable, the platoon leader should use visual aids to illustrate key points. He can take advantage of a number of pre-made and field-expedient materials, including the following:

- The operation map and accompanying overlays.
- Terrain models.
- Sketches on dry-erase boards; meals, ready to eat (MRE) boxes; butcher paper; or the back of a map.

A-17. As far as possible, the platoon leader must establish optimum physical conditions that will allow effective presentation of the OPORD. For example, the site at which the platoon order will be issued should afford adequate security and minimum distractions. The platoon leader must ensure that the vehicle commanders and dismounted patrol leaders post accurate graphics on their overlays and/or digital displays. Scouts should arrive at the OPORD site early to study maps and post graphics. Units with digital capability should post the graphics on their vehicle displays before the platoon leader issues the order. Figure A-2 provides a sample of the OPORD, organized in the five-paragraph format.

SAMPLE PLATOON OPORD FORMAT

TASK ORGANIZATION (platoon and allocation of forces to support the concept of operations).

1. **SITUATION.**
   a. **Enemy forces.**
      (1) Use SALUTE (size, activity, location, unit, time, and equipment) report format for reporting likely and known location of enemy forces and their composition.
      (2) Other enemy information critical to the upcoming operation, including—:
         (a) Chemical and nuclear capabilities.
         (b) ADA.
         (c) Aviation, including helicopters.
         (d) Electronic warfare.
         (e) Type and condition of enemy vehicles.
         (f) Most probable enemy COA.
         (g) Most dangerous enemy COA.
   b. **Friendly** forces (include the following items as applicable).
      (1) Mission and intent of higher headquarters two levels above), including concept of the operation.
      (2) Identification (ID)/mission of adjacent units (left, right, front, rear).
      (3) ID/mission of reserves in higher headquarters.
      (4) ID/mission of supporting units with a direct support/reinforcing (DS/R) role to higher headquarters (field artillery, engineer, ADA).
      (5) Which higher headquarters element has priority of fires.
      (6) Close air support (CAS) allocated to higher headquarters, including number of sorties available.
   c. **Terrain.**
      (1) Obstacles, hills, valleys, road types and conditions, streams, rivers, bridges, and built-up area.
      (2) Avenues of approach.
         (a) Size unit that can be supported.
         (b) Start and end point.
         (c) Objective.
      (3) Key terrain (discuss how friendly and/or enemy forces may attempt to use it to their advantage).
      (4) Observation and fields of fire.
      (5) Cover and concealment.
      (6) Engagement areas.
      (7) Overall effect of terrain on the operation.
   d. **Weather and light data.**
      (1) Light conditions: (for all the days of the operation).
         BMNT: _____; Sunrise: _____;
         Sunset: _____; EENT: _____;
         Moonrise: _____; Moonset: _____;
         Percent Illumination: _____.
      (2) Weather forecast for the operation.
      (3) Effects of weather and light conditions on the operation.
         (a) Trafficability.
         (b) Visibility.
         (c) Effect on lasers/thermals.
         (d) Effects on air operations.
   e. **Attachments and detachments to the platoon and higher.**

2. **MISSION.** This is the WHO, WHAT, WHEN, WHERE, and WHY. State the essential task(s) to be accomplished by the entire unit, to include on-order missions. Clearly define the troop's objective, task and purpose.

3. **EXECUTION.**

a. **Commander's intent.** Using the troop commander's intent as a guideline, the platoon leader issues the purpose, key tasks, and end state of the operation. The purpose is the WHY of the operation. Key tasks or a description of the most important tasks, in relation to one another, to achieve the end state pulls the mission into perspective, and the end state specifies final disposition of forces and explains how the end state will facilitate future operations.

b. **Concept of the operation.** This paragraph further explains and expands on the troop commander's intent, particularly his vision of HOW he will conduct the operation and WHO he will assign to execute it. The platoon leader uses a concept statement when he feels more detail is necessary to ensure subordinates will take the appropriate actions in the absence of additional communications or further orders. The sequence of subparagraphs is as follows:

(1) Scheme of maneuver. This is how the platoon will maneuver to accomplish its mission. It conforms to the commander's intent. In offensive operations, it specifies the troop's formations, movement techniques, routes or avenues of advance, and plans for direct fire and overwatch. In defensive operations, it specifies the troop engagement plan, platoon positions, orientation of weapons, and the plan for movement to supplementary or successive positions.

(2) Fires.

(a) Purpose for FA and mortar fires (how fires will be used to support the maneuver).

(b) Priority of fires within the platoon and company/troop.

(c) Allocation of final protective fires (FPF).

(d) Preparation starting time and duration of fires.

(e) Triggers (trigger line/point or event).

(f) Description of enemy fires in the area of operations.

(g) Special fire allocation/use (obscuration, illumination, CAS).

(h) Restrictions.

(i) Target overlay annex.

(3) Engineer support (obstacles, mines, and fortifications).

(a) Priority of engineer effort (mobility, countermobility, survivability).

(b) Priority of engineer support.

(c) Obstacle overlay.

(d) Obstacle list.

(e) Logistical constraints.

(f) On-order missions.

c. **Specific instructions.** List the specific missions, in sequence, for each section, including the attached elements. Include movement techniques, flank coordination requirements, other details, and be-prepared missions. Dismount team, detainee team, CBRN team, and obstacle team.

d. **Coordinating instructions.**

(1) Time schedule for critical events.

(a) Rehearsals.

(b) Confirmation briefs and backbriefs.

(c) Precombat checks (PCC) and precombat inspections (PCI).

(d) First movement.

(e) Arrival of any attachments/detachments.

(f) Boresighting.

(2) Movement instructions.
(a) SP/RP times.
(b) Formation and movement technique.
(c) Order of march.
(d) Route of march.
(3) Passage of lines.
(a) Contact points.
(b) Passage points.
(c) Lanes (to include identification/markings).
(4) Actions at danger areas.
(5) Actions on expected contact.
(6) Rally points.
(7) Rules of engagement (ROE)/Rules of interaction (ROI).
(8) Information requirements (IR), including priority intelligence requirements (PIR).
(9) Air defense warning and weapons control status.
(10) Mission-oriented protective posture (MOPP) level and operational exposure guidance (OEG).
(11) Any changes regarding battlesight and battlecarry ranges.
(12) Be-prepared tasks or other general information not provided in concept of the operation or specific instructions.
(13) Actions on the objective.

4. **SUSTAINMENT OPERATIONS.**

a. **Trains.** Location and movement plan of the troop trains (initial and subsequent grids).

b. **Material and services.**
(1) Supply.
(a) Priorities of supply.
(b) Resupply points and prestock sites.
(c) Ration cycle.
(d) Location of squadron trains.
(e) Logistics package (LOGPAC) instructions.
(2) Transportation.
(a) Supply routes.
(b) Logistics release point (LRP).
(c) Priorities established on main supply routes (MSR).
(3) Services.
(a) Location of water points.
(b) Location of deliberate decontamination sites.
(c) Handling of killed in action (KIA) personnel.
(4) Maintenance.
(a) Maintenance procedures.
(b) Vehicle evacuation.
(c) Task force unit maintenance collection point (UMCP) location.

c. **Medical evacuation and treatment.**
(1) Location of troop medics.
(2) Location of squadron aid station.
(3) Procedures for treatment/evacuation of wounded in action (WIA) personnel.
(4) Aero-medical evacuation information.
(5) Location of ambulance exchange points (AXP).
(6) Handling of contaminated WIA personnel.

(7) Location of unit casualty collection points (CCPs).

d. **Personnel.**
   (1) Handling and disposition instructions for detainees.
   (2) Detainee guard instructions.
   (3) Location of detainee collection point.
   (4) Instructions for interaction with local civil populace (ROI).
   (5) Number of expected replacements.
   (6) Cross-leveling procedures.

e. **Miscellaneous.**

5. **COMMAND AND SIGNAL.**
   a. **Command.**
      (1) Location of platoon leader, PSG and section sergeants.
      (2) Succession of command.
   b. **Signal.**
      (1) Signal operating instructions (SOI)/ANCD index and edition in effect.
         (a) Key frequencies.
         (b) Key call signs.
         (c) Current item number identifier.
      (2) KY-57/ANCD fill and changeover data.
      (3) Listening silence instructions.
      (4) Challenge and password.
      (5) Special signals, to include use of pyrotechnics.
      (6) Code words.
      (7) Digital traffic instructions (digital systems only).
      (8) Actions to counteract jamming or "hot mike" situations.

6. **TIME CHECK** (for synchronization).

Figure A-2. OPORD format

FRAGMENTARY ORDERS

A-18. A fragmentary order is an abbreviated form of an operation order (verbal, written, or digital) usually issued on a day-to-day basis that eliminates the need for restating information contained in a basic operation order. Commanders and leaders issue a FRAGO after an operation order to change or modify that order or to execute a branch or sequel to that order.

A-19. FRAGOs differ from OPORDs only in the degree of detail provided. They address only those parts of the original OPORD that have changed. FRAGOs refer to previous orders and provide brief and specific instructions. The higher headquarters issues a new OPORD when there is a complete change of the tactical situation or when many changes make the current order ineffective.

A-20. FRAGOs include all five OPORD paragraph headings (see Figure A-3). After each heading, state the new information or annotate "no change." This ensures that recipients know they have received the entire FRAGO.

[Classification]
(Change from verbal orders, if any)

Copy ## of ## copies
Issuing headquarters
Place of issue
Date-time group of signature
Message reference number

FRAGMENTARY ORDER [number]

References: Refer to the order being modified.

Time Zone Used Throughout the Order:

1. SITUATION. Include any changes to the existing order or state, "No change"; for example, "No change to OPORD 02-XX."

2. MISSION. List the new mission or state, "No change."

3. EXECUTION. Include any changes or state, "No change."

Intent:
a. Concept of operations.
b. Tasks to subordinate units.
c. Coordinating instructions. Include statement, "Current overlay remains in effect" or "See change 1 to annex C, Operations Overlay." Mark changes to control measures on the overlay or issue a new overlay.

4. SERVICE SUPPORT. Include any changes to existing order or state, "No change."

5. COMMAND AND SIGNAL. Include any changes to existing order or state, "No change."

ACKNOWLEDGE:

[Commander's last name]
[Commander's rank]

OFFICIAL:

[Authenticator's Name]
[Authenticator's Position]

ANNEXES:

DISTRIBUTION:

[Classification]

Figure A-3. FRAGO format

SECTION II – REPORTS

A-21. Sending accurate and timely information in complete reports is the scout's primary means of providing information critical to the commander for effective plans and decisions. Procedures for preparing, transmitting, and safeguarding reports will vary from Squadron/CAB due to reporting preferences and requirements of the chain of command, the tactical environment in which the platoon is operating, available equipment, terrain, and the electronic warfare situation. Modernized units have the advantage of the digital FBCB2 which enables the platoon to transmit accurate preformatted reports *over L-Band satellite or* in frequency hopping bursts over EPLRS. This improves clarity of information and reduces the chance of location and jamming.

Note. The following color report formats such as BLUE reports for intelligence, or yellow reports for logistics are used for examples and may not be the same as those used in your unit. Use the formats directed by unit SOP.

A-22. For leaders at all levels, two guidelines remain constant throughout the reporting process: the importance of compiling timely, accurate information and the need to relay that information by the clearest, quickest, and most secure method possible. The reconnaissance platoon leader, along with the PSG, section and squad leaders, can save valuable time by ensuring the completeness of the reports and reducing confusion by using thorough SOPs covering report procedures. These formats should be derived from the squadron/CAB formats to ensure compatibility.

A-23. There are numerous reports that may vary from unit to unit based on mission and the modified table of organization and equipment (MTOE) of the platoons. There are several reports scouts will send in all operations, which do not vary in format regardless of radio voice or digital format. They are:

- Contact report
- Spot report
- Situation report
- Sensitive item report
- Medical evacuation

Note. While radio voice and digital formats change from unit to unit, the information is essentially the same for these basic reports. Scouts may send free text messages when convenient, however these text messages will not be formatted.

RADIO VOICE TRANSMISSIONS

A-24. FM radio remains the primary means of communication after crossing the LD because it is more responsive. Multiple stations can monitor the net, and parties can convey emotion during the transmission—a critical tool in assessing and understanding the situation. Light discipline in night operations may dictate the use of communications; for example, a reconnaissance platoon in a SBCT may go to blackout light operations and send SPOTREPs via FM to a vehicle which is stationary and postured to use the FBCB2 display while maintaining light discipline. The CP can generate and manage FBCB2 SPOTREPs based on FM SPOTREPs and updates.

A-25. Radio voice transmission is recommended as the primary means of communication for—

- Making initial contact report.
- Coordinating operations when in contact or moving.
- Calling for fire on targets of opportunity.
- Making subsequent adjustment of fires on planned and unplanned targets.
- Requesting urgent MEDEVAC support.
- Transmitting enemy air reports.

DIGITAL CAPABILITIES (C2 AND REPORTS)

A-26. Reconnaissance platoons should not rely on digital communications alone. Presently, FBCB2 allows for tracking operations digitally on a screen; however, it does not eliminate the requirement for scouts to use maps and FM communications. The decision of when to use FBCB2 or radio voice depends on the situation, unit SOP, and level of unit training. Typical reports a reconnaissance platoon will process are combat reporting and geo-referenced messages, which translate into graphics updates, directly support tactical operations. Some message traffic should be sent digitally, and then followed by radio voice transmissions directing recipients to check their message queues.

USES OF DIGITAL COMMUNICATIONS

A-27. Digital messaging at the individual, platoon, and company level is recommended as the primary means of communication for the following purposes:

- Transmitting graphics and orders, when the situation allows.
- Sending routine reports, such as personnel and enabler status or requests.
- Sending contact reports (vehicles not in contact).
- Requesting MEDEVAC support.
- Sending enemy SALUTE reports when not in contact (FBCB2 creates an enemy icon).
- Transmitting planned call-for-fire missions which may be done from the SALUTE report.
- Sending digital NBC-1 reports. (This creates a contaminated area icon across the network. Follow up with a report on the company team or battalion task force command net.)

A-28. Some other types of orders and reports that can be sent via FBCB2 include the following:

- **Fragmentary orders.** A digital FRAGO can be used to provide changes to existing OPORDs. It should include all five paragraphs of the OPORD. Each paragraph should state either "no change" or give the new information to ensure that recipients know they have received the entire FRAGO.
- **Free-text messages.** A free-text message can be used to send an unstructured digital message to other FBCB2 or Army battle command systems (ABCS) (like an e-mail message).

C2 MESSAGES

A-29. In addition to its capabilities related to providing situational awareness data, FBCB2 offers a variety of functions that can enhance C2 in the reconnaissance platoon. The system has four categories of C2 messages:

Alerts and Warnings

A-30. Alerts and warnings are sent via reports, free text messages, or geo-referenced messages. They are posted on the flash immediate priority routine (FIPR) message queue and are displayed on the function bar of the main FBCB2 screen and as a symbol on the map screen.

A-31. When the platform penetrates the safety radius of a danger zone, the FBCB2 alarm is triggered, an alert message is displayed on the warnings/alerts marquee, and an entry is made in the warnings tab group. The danger zone tab group will display the type, distance, direction, location and originator of all danger zone information received. Danger zone information is transmitted in specific joint variable message format (JVMF) messages as situational awareness data. FBCB2 receives the message and displays the situational awareness/danger zone information in the danger zone tab group.

Combat Reporting Messages

A-32. These JVMF messages have been modified and grouped together to provide single-button access to the message template, requiring fewer keystrokes to complete and send the message. Combat messages are the following:

- SALUTE (size, activity, location, unit, time, and equipment). This report is listed as SALT on the FBCB2 screen.
- MEDEVAC.
- Fire mission (call for fire).

- Check fire.
- SITREP.

Mission Planning Information

A-33. Mission planning information includes orders and request-type messages that contain JVMF message templates. They include the following:

- WARNOs.
- OPORDs.
- FRAGOs.
- Sustainment orders and requests.
- Free text massages.

Geo-referenced Messages

A-34. These messages, which can be used in the C2 categories discussed earlier, create icons linked to a location on the FBCB2 map. They are also disseminated across the tactical internet as SA data. Geo-referenced messages can be used for the following:

- Obstacle reports.
- NBC-1 reports.
- Bridge reports.
- Supply point status reports.
- Contact reports.
- Engagement reports.

THREADED MESSAGES

A-35. Certain messages require specific routing for them to be effective. These are called "threaded messages." The exception to this is the personnel status report and the task management message. The routing for these is SOP-driven.

Note. Users may add to the threaded message addressee list but should not delete from it. These defaults are dictated by Army doctrine and communication architecture; for example, the size, activity, location, unit, time, and equipment (SALUTE) report feeds into the all-source analysis system (ASAS) intelligence database for correlation into the joint common database for higher situational understanding and analysis.

A-36. Most threaded messages **must** follow specific paths for information to reach intended personnel or communication systems or to feed into the correct databases. For example, the call-for-fire (CFF) message must be threaded properly to interface with the advanced field artillery tactical data system (AFATDS). The CFF message originator may add as many recipients as desired to the addressee list; however, if he alters any of the default recipients, the message may not reach AFATDS, and the fire mission will not be processed. If all addressees are not kept on the thread, "orphan" fire missions will occur. An orphan mission is where a mission task order and target number was not received from AFATDS.

A-37. The following are threaded messages:

- SALUTE reports.
- NBC-1 reports.
- Obstacle reports.
- Fire support messages.

ANALOG AND DIGITAL REPORTS

A-38. Figure A-4 lists the specific analog reports and their formats that can be used by the troop.

Contact and Blue Reports (operations)

Contact report.

Blue 1 – Spot report (SPOTREP)/SALUTE report.

Blue 2 – Situation report (SITREP).

Blue 4 – Report for bridge, overpass, culvert, underpass, or tunnel (BRIDGEREP).

Blue 5 – Report for ford, ferry, or other crossing site (CROSSREP).

Blue 7 – Route reconnaissance report (ROUTEREP).

Blue 9 – Obstacle report.

Blue 10 – Bypass report.

Blue 11 – Stand-to report (STANREP).

Green Reports (intelligence)

Green 2 – Sensitive items report (SENSEREP).

Green 4 – Patrol report.

Green 6 – EPW/captured material report.

Yellow Reports (logistics)

Yellow 1 – Equipment status report (ESTAT).

Yellow 1A – Battle loss spot report.

Yellow 2 – Ammunition status report.

Yellow 2A – Ammunition request.

Yellow 3 – POL status report.

Yellow 3A – POL request.

Red Reports (personnel)

Red 2 – Personnel battle loss report.

Red 3 – Medical evacuation request.

NBC Reports

NBC-1 – Observer's initial report.

NBC-3 – Immediate warning of expected contamination.

NBC-4 – Report of radiation dose-rate measurement.

NBC-5 – Report of areas of contamination.

Figure A-4. Analog reports

CONTACT AND BLUE REPORTS (OPERATIONS)

Contact Report

When Used

A-39. A contact report is issued immediately upon contact with an enemy or unknown force in the area of operations. If this enemy is detected by sensors or UAS, it will require the scouts monitoring these systems to announce contact and will require eyes on the enemy and include a follow up SPOTREP (see Figure A-5). The contact report is a brief alert and takes priority over all other communications traffic.

Format

A-40. State "CONTACT," followed by "WHAT" and "DIRECTION" from the sender. See Figure A-4 for an example of a transmitted contact report.

"BLACK SIX; THIS IS BLUE ONE—CONTACT—TROOPS, EAST—OUT."

Figure A-5. Sample contact report

Blue 1 – Spot Report (SPOTREP)/SALUTE Report

When Used

A-41. The SPOTREP, widely known as a SALUTE report, is used when scouts observe any known or suspected enemy activity, when they observe any characteristic of the AO likely to affect accomplishment of the mission, or when required by the OPORD. A SPOTREP/SALUTE report takes priority over all other routine radio traffic. The initial SPOTREP/SALUTE report should follow as soon as possible after the contact report based on METT-TC. Updates to a SPOTREP/SALUTE report should refer back to the time of a previous report to distinguish which report is being updated. See Figure A-6 for an example of SPOTREP/SALUTE reports.

Note. The digital Blue 1 report (Figure A-7) is sent to the entire troop when contact occurs. The best way to send this report is by using the far target locator. In addition, if approved by the troop commander, a call for fire can be requested simultaneously with the Blue 1. Although the report is listed using the term SALT on the FBCB2 screen (as shown in Figure A-7), it should follow the SALUTE format as closely as possible.

Format

A-42. State "SALUTE REPORT" or "UPDATED SALUTE REPORT (with time of original report)," followed by pertinent information on these lines:

- **Line ALPHA:** Observer or source (omit if it is the calling station; use call signs or description otherwise).
- **Line BRAVO:** SALUTE format:
  - **Size:** The number of sighted personnel, vehicles, or other equipment.
  - **Activity:** What the enemy is doing.
  - **Location:** Grid coordinates.
  - **Unit:** Markings, uniforms, and other indicators of what enemy force has been encountered.
  - **Time:** Time the activity was observed.
  - **Equipment:** Description of vehicles, weapons, and other equipment in the enemy element.
- **Line CHARLIE:** Actions you have taken and your recommendations. Actions usually involve conducting additional reconnaissance, continuing to observe, or recommending and executing a specific course of action.

"BLUE 1, THIS IS BLUE 5. SALUTE REPORT, OVER.
SIZE: ONE BRDM WITH THREE DISMOUNTED TROOPS.
ACTIVITY: STATIONARY, ORIENTED SOUTH.
LOCATION: GRID MS289546.
UNIT: UNABLE TO DETERMINE UNIT.
TIME: 1725 HOURS.
EQUIPMENT: POSSIBLE UNMANNED AIRCRAFT, CONTINUING TO OBSERVE, OVER."

"BLUE 5; THIS IS BLUE 1—ROGER—CONTINUE OBSERVATION—OUT."

Example Update to a SALUTE Report:

"BLUE 1, THIS IS BLUE 5. SALUTE REPORT UPDATE TO REPORT OF 1725 HOUR. THREE DISMOUNTED TROOPS RECOVERED THE UAS AND REMOUNTED IT AND CONTINUE TO SIT STATIONARY, OVER."

"BLUE 5; THIS IS BLUE 1 —ROGER—CONTINUE OBSERVATION—OUT."

Figure A-6. Sample SPOTREP/SALUTE reports

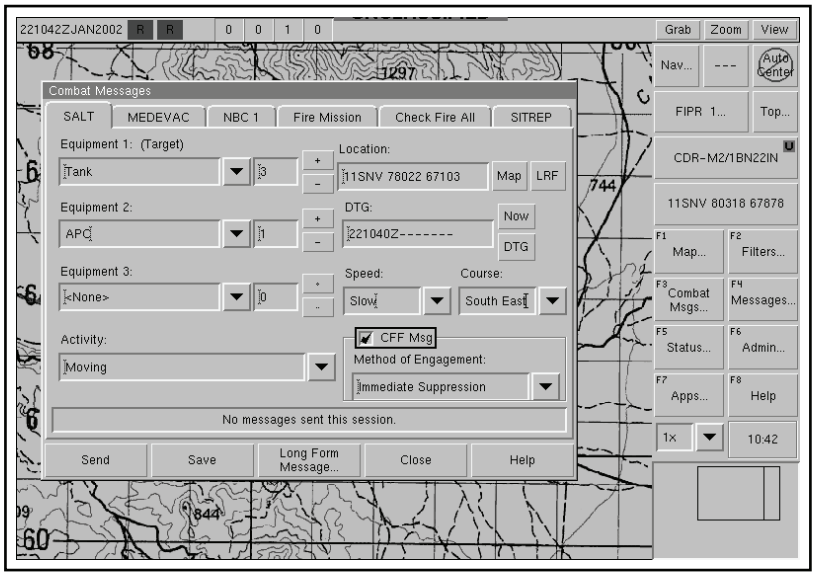


Figure A-7. Digital Blue 1 report (SPOTREP)

Blue 2 – Situation Report (SITREP)

When Used

A-43. The SITREP is submitted by subordinate units to their higher headquarters to report their tactical situation and status. It is submitted daily at times designated in the unit SOP, after significant events, or as otherwise directed by the commander.

Note. The digital SITREP (Figure A-9) is sent twice daily to the squadron or higher headquarters at times designated in the unit SOP or as necessary during operations. The criteria for each category (GREEN, AMBER, RED, and BLACK) are the same as in analog SITREPs. Each vehicle sends the Blue 2 to the platoon leader and PSG for consolidation. The PSG then forwards the consolidated report to the troop commander, XO, and 1SG.

Format (Troop-Level Example)

A-44. State "SITREP," followed by pertinent information on these lines:

- Line 1: The as-of date-time group (DTG).
- Line 2: Brief summary of enemy activity, casualties inflicted, and prisoners captured, or personnel detained.
- Line 3: Friendly locations (encoded using control measures or TIRS points). The following can be listed:
  - CP location.
  - Center mass grids of all elements/assets.
  - Any additional elements as necessary.
  - Major changes in the concept of operations or scheme of maneuver.
- Line 4: Combat vehicles operational. The following types of vehicles can be listed:
  - HMMWVs.
  - CFVs.
  - Strykers.
  - Mortars.
  - C2 assets.
  - Attached vehicles.
- Line 5: Defensive obstacles (encoded using codes, control measures, or TIRS points). The following can be listed:
  - Type and location of obstacles. Abbreviations can include MF (minefield), TD (tank ditch), AB (abatis), RC (road crater), and CW (concertina wire).
  - Type and location of executed demolition targets.
  - Type and location of reserved demolition targets.
- Line 6: Personnel strength, classified using the following status levels:
  - GREEN: full strength; 90% or more fit for duty.
  - AMBER: reduced strength; 80 to 89% fit for duty.
  - RED: reduced strength; 60 to 79% fit for duty; the unit is mission-capable.
  - BLACK: reduced strength; 59% or less fit for duty.
- Line 7: Classes III and V supplies available for combat vehicles. Status levels for ammunition and fuel are the same (GREEN, AMBER, RED, or BLACK) as for personnel strength, with percentages referring to the amount of basic load level available. Refer to Line 6 of this report.

Note. If an item is reported as status level BLACK on lines 6 or 7, the appropriate yellow report (logistics) must follow.

- Line 8: Summary of tactical intentions.

A-45. Figure A-8 shows an example of a transmitted SITREP and Figure A-9 shows an example of a digital transmission.

"BLACK SIX; THIS IS BLUE ONE—SITREP—OVER."
"BLUE ONE; THIS IS BLACK SIX—SEND IT—OVER."
"BLACK SIX, THIS IS BLUE ONE—REPORT FOLLOWS:
LINE 1 (As of DTG): 181217MAY99 ZULU.
LINE 2 (Enemy Activity in Brief): OBSERVING FOUR ENEMY SOLDIERS.
LINE 3 (Friendly Locations): CP 28.
LINE 4 (FMC Vehicles): FOUR.
LINE 5 (Defense Obstacles): NONE.
LINE 6 (Personnel Status): GREEN.
LINE 7: CLASS THREE AMBER—CLASS FIVE GREEN.
LINE 8: CONTINUING MISSION.
OVER."
"BLUE ONE; THIS IS BLACK SIX—ROGER—OUT."

Figure A-8. Sample SITREP

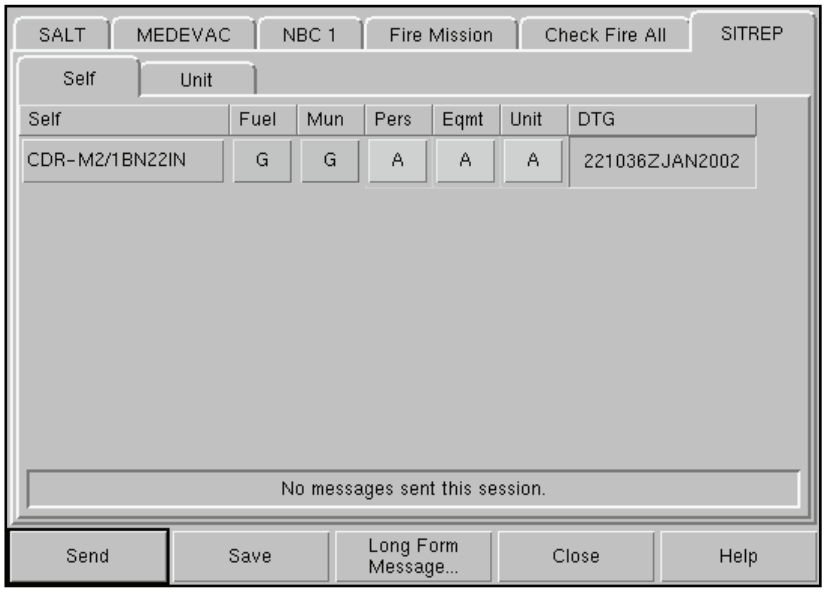


Figure A-9. Digital Blue 2 report (SITREP)

Blue 4 – Report for Bridge, Overpass, Culvert, Underpass, or Tunnel (BRIDGEREP)

A-46. To send this report, state "BRIDGEREP," followed by pertinent information on these lines:

- Line ALPHA: Type and location (for a long tunnel, include both entrance and exit locations). Use either a TIRS point or grid coordinates.
- Line BRAVO: Overall length.
- Line CHARLIE: Width of roadway.
- Line DELTA: Height restrictions.
- Line ECHO: Length and number of spans.
- Line FOXTROT: Computed classification.
- Line GOLF: Bypass locations and conditions. Use a Blue 5 report if necessary.

Blue 5 – Report for Ford, Ferry, or Other Crossing Site (CROSSREP)

A-47. To send this report, state "CROSSREP," followed by pertinent information on these lines:

- Line ALPHA: Type and location, using either a TIRS point or grid coordinates.
- Line BRAVO: Length of crossing in meters.
- Line CHARLIE: Usable width.
- Line DELTA: Current speed in meters per second.
- Line ECHO: Maximum depth in meters.
- Line FOXTROT: Bottom material and condition.
- Line GOLF: Capacity classification of any existing ferry equipment.
- Line HOTEL: Slope of entry bank.
- Line INDIA: Slope of exit bank.
- Line KILO: Other comments as necessary.

Blue 7 – Route Reconnaissance Report (ROUTEREP)

When Used

A-48. To report the results of a route reconnaissance, scouts send an initial report at the start point (SP). At a minimum, the initial report is followed by updates at any obstructions, at each phase line, and whenever a route change becomes necessary. These update reports should include only the line(s) that have changed from the initial ROUTEREP.

Format

A-49. To send this report, state "ROUTEREP," followed by pertinent information on these lines:

- Line ALPHA: "From" location, reported using a control measure or TIRS point.
- Line BRAVO: "To" location, reported using a control measure or TIRS point.
- Line CHARLIE: Type of route, reported using the following designations:
  - Highway, reported using the number "1."
  - Road, number "2."
  - Trail, number "3."
  - Cross-country, number "4."
- Line DELTA: Classification of route. Check for height, width, and weight restrictions to determine the appropriate class, and report what vehicles the route is capable of handling using the following designations:
- Line ECHO: Seasonal limitations of route based on weather-support capability, reported as follows:
  - All-weather (usable year-round), reported using the letter "X."
  - Limited all-weather (use limited during bad weather), letter "Y."
  - Fair weather (may be impassable during bad weather), letter "Z."
- Line FOXTROT: Rate of movement the route will support, reported as follows:
  - Fast, reported using the number "1."
  - Slow, number "2."
- Line GOLF: Location and type of any critical points (send the applicable report). Report the following obstructions in all cases: curves with a radius of 45 meters or less; uphill slopes with grades of 5 percent or greater; width restrictions of 6 meters or less for one-way traffic, 10 meters or less for two-way traffic; and overhead clearance of 4.3 meters or less.

Blue 9 – Obstacle Report

A-50. Report all pertinent information using the following format:

- Line ALPHA: Type of obstacle or obstruction.
- Line BRAVO: Location, using grid coordinates. For large, complex obstacles, send the coordinates of the ends and of all turn points.
- Line CHARLIE: Dimensions and orientation.
- Line DELTA: Composition.
- Line ECHO: Enemy weapons influencing obstacle.
- Line FOXTROT: Observer's actions.

Note. The digital obstacle report (Figure A-10) is sent by the vehicle that can best identify the dimensions and type of the obstacle. The report is sent to the entire troop.

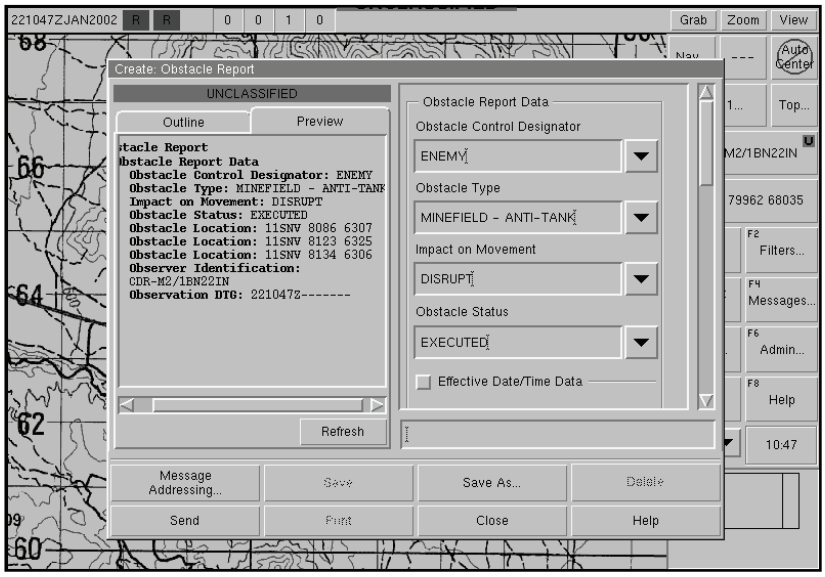


Figure A-10. Digital obstacle report

Blue 10 – Bypass Report

A-51. Report all pertinent information using the following format:

- Line ALPHA: Observer or source.
- Line BRAVO: Length; width; surface type; grade.
- Line CHARLIE: Coordinates of "from" and "to" locations.
- Line DELTA: Seasonal/weather limitations. Use letter designation (X, Y, or Z) as described for the Blue 7 report (ROUTEREP).
- Line ECHO: Bypass markings.
- Line FOXTROT: Observer's actions.

Blue 11 – Stand-To Report (STANREP)

When Used

A-52. The STANREP is sent by the PSG to the troop CP, as applicable, when stand-to is completed.

Format

A-53. To send this report, state "STANREP," followed by pertinent information on these lines:

- Line ALPHA: Time stand-to was completed.
- Line BRAVO: Weapons on hand and functional. Use the term "UP" for functional weapons on hand. Use "EXCEPTION" for weapons either not on hand or not functional.
- Line CHARLIE: Sensitive and accountable items on hand. Use "UP" or "EXCEPTION" as applicable.
- Line DELTA: Vehicles and radios on hand and functional. Use "UP" or "EXCEPTION" as applicable.
- Line ECHO: Report the on-hand/functional status of any other equipment using "UP" or "EXCEPTION."

Note. For lines B, C, D, and E, refer to the Yellow 1 report (ESTAT) for equipment line numbers.

A-54. Figure A-11 shows an example of a STANREP.

"BLACK 6, THIS IS RED 4; BLUE 11. LINE ALPHA: COMPLETE TIME 0600. LINE BRAVO: UP. LINE CHARLIE: ITEM 38, MISSING 1 EACH. LINE DELTA: RED 3 WILL NOT START."

Figure A-11. Sample STANREP

GREEN REPORTS (INTELLIGENCE)

Green 2 – Sensitive Items Report (SENSEREP)

When Used

A-55. This report is sent daily at various times, in accordance with the unit SOP, or at other prescribed times (before and after significant movement, after significant events, and after any consolidation or reorganization). Items covered include crew-served weapons, personal weapons, night vision devices, binoculars, CBRN equipment, COMSEC materials, maps/graphics, and special equipment assigned to platoons for particular operations.

Format

A-56. To send this report, state "SENSEREP," followed by pertinent information on these lines:

- Line ALPHA: Reporting unit (use call sign).
- Line CHARLIE: Results of sensitive items check. Use the term "UP" for on-hand/functional items. For missing items, report the line description and serial number and provide an explanation. Use additional lines from the Yellow 1 report.
- Line ECHO: Initials of person sending report.

A-57. Figure A-12 shows an example of a SENSEREP.

"THIS IS RED 4. SENSEREP. LINE ALPHA: RED. LINE CHARLIE: ALL 'UP.' LINE ECHO: RWS."

Figure A-12. Sample SENSEREP

YELLOW REPORTS (SUSTAINMENT)

Yellow 1 – Equipment Status Report (ESTAT)

When Used

A-58. Each PSG sends this report by courier or radio voice transmission to the troop CP at times designated in the unit SOP.

Note. The digital Yellow report (see Figure A-14) is a combination of the analog Yellow 1, 2, and 3 reports. When sending this report, all classes of supply are reported. Each vehicle sends this report to the platoon leader and PSG. The PSG consolidates this information and forwards a platoon rollup to the XO, 1SG, maintenance team chief, and medics. At a minimum, this report is sent once daily in accordance with the unit SOP.

Format

A-59. Equipment status is recorded using one of these terms: operational, inoperative, or combat loss. Provide all pertinent information using the following categories and lines:

- **Weapons.**
  - Line 1: Bayonet knife, with scabbard, for M16A2.
  - Line 2: Pistol, 9-mm, automatic, M9.
  - Line 3: Rifle, 5.56-mm, with equipment.
  - Line 4: Launcher, grenade, 40-mm, single shot, rifle mounted, detachable, with equipment.
  - Line 5: Machine gun, M2, caliber .50, heavy barrel (HB).
  - Line 6: Machine gun, 7.62-mm, light flexible.
  - Line 7: Squad automatic weapon, M249.
  - Line 8: Grenade launcher, 40-mm, MK19.
  - Line 9: Machine gun, 7.62-mm, fixed M24OC RH feed F/FVS.
  - Line 10: Launcher, grenade, obscurant munitions, screening, RP M250.
  - Line 11: Mortar, 120-mm, on mount.
  - Line 12: Command launch unit, AAWS-M.

Note. Lines 13, 14, 15, and 16 are used as needed for additional weapons assigned to the platoon.

- **Vehicles and vehicle equipment.**
  - Line 17: CFV, M3.
  - Line 18: Carrier, 120-mm mortar, self-propelled (less mortar).
  - Line 19: Carrier, personnel, full-tracked, armored, M113.
  - Line 20: HMMWV, M1114.
  - Line 21: Tank, M1/M1A1/M1A2/MGS.

Note. Lines 22, 23, and 24 are used as needed for additional vehicles and/or vehicle equipment assigned to the platoon.

- **CBRN equipment.**
  - Line 25: Alarm, chemical agent, automatic, portable, for full-tracked APC and armored recovery vehicle.
  - Line 26: Alarm, chemical agent, automatic, portable, with power supply, for track, utility, 1/4-ton.

- Line 27: Charger, radiac detector, PP-1570/PD.
- Line 28: Mask, chemical-biological, multipurpose.
- Line 29: Radiacmeter, IM-185/UD.
- Line 30: Alarm, chemical agent, automatic, portable, manpack.
- Line 31: Radiacmeter, IM-93/UD.
- Line 32: Radiacmeter, IM-174/PD.
- Line 33: Radiacmeter, AN/VDR-2.

Note. Lines 34, 35, and 36 are used as needed for additional CBRN equipment assigned to the platoon.

- **Radios.**
  - Line 37: Radio set, AN/GRC-160.
  - Line 38: Radio set, AN/VRC-46.
  - Line 39: Radio set, AN/VRC-47.
  - Line 40: Radio set, AN/VRC-64.
  - Line 41: Radio set, AN/PRC-77.
  - Line 42: Radio set, AN/VRC-12.
  - Line 43: Secure set, AN/PRC-91.
  - Line 44: Secure set, AN/PRC-126.
  - Line 45: Secure set, KY-57.

Note. Lines 46, 47, and 48 are used as needed for additional radios assigned to the platoon.

- **Miscellaneous equipment.**
  - Line 49: Demolition set, explosive, initiating, non-electric.
  - Line 50: Detecting set, mine, portable, metallic and non-metallic.
  - Line 51: Detecting set, mine, portable, metallic, AN/PSS-14.
  - Line 52: Night vision goggles, AN/PVS-7B.
  - Line 53: Night vision sight, crew-served weapon, AN/TVS-5.
  - Line 54: Night vision sight, individual-served weapon, AN/PVS-4.
  - Line 55: Platoon early warning system, AN/TRS-2(V).
  - Line 56: Binoculars, modular construction, military scale reticle, 7x50-mm, with equipment.
  - Line 57: Telescope, straight, military.
  - Line 58: Detector, radar signal, AN/PSS-10.
  - Line 59: Position locating reporting system, basic user unit.
  - Line 60: Position locating reporting system, surface vehicle installation kit.

Note. Lines 61, 62, and 63 are used as needed for any other equipment assigned to the platoon.

Example

A-60. Figure A-13 shows an example of an ESTAT. Figure A-14 illustrates the FBCB2 screen showing the digital version of the report; as noted, the digital report also includes aspects of the analog Yellow 2 and Yellow 3 reports.

"APACHE X-RAY, THIS IS RED 4. YELLOW 1. LINE 12: ALPHA. LINE 33: BRAVO. LINE 38: CHARLIE. LINE 55: CHARLIE. OVER."

Figure A-13. Sample ESTAT

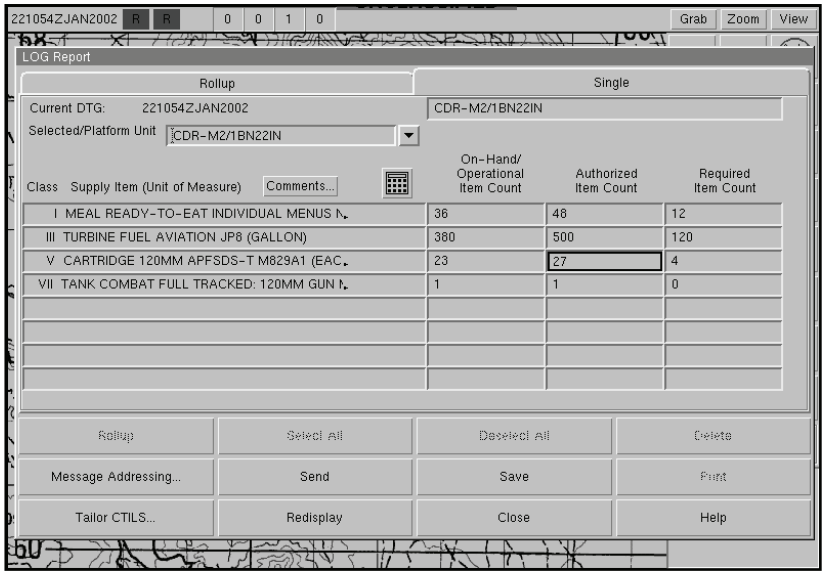


Figure A-14. Digital Yellow report (logistics report)

Yellow 1A – Battle Loss Spot Report

When Used

A-61. The Yellow 1A report is transmitted by the platoon leader or PSG as soon as possible after items are lost or damaged in an operation. Losses are reported using line numbers from the Yellow 1 report.

Format

A-62. Provide pertinent information on the following lines:

- Line 1: Time of loss.
- Line 2: Number of pieces of equipment to be evacuated to troop/battalion or higher for maintenance. Refer to the appropriate line numbers from the Yellow 1 report.
- Line 3: Number of pieces of equipment destroyed and abandoned in pieces. Refer to the appropriate line numbers from the Yellow 1 report.
- Line 4: Location (encoded) of abandoned equipment.

Example

A-63. Figure A-15 shows an example of a battle loss spot report.

"BLACK 6, THIS IS RED 4. YELLOW ONE ALPHA, BREAK. LINE 1: ONE FOUR THREE ZERO HOURS. LINE 2: REFERENCE SIX SLANT ONE; REFERENCE TWO-NINER SLANT THREE. LINE 3: REFERENCE TWO-NINER SLANT ONE. LINE 4: I SET VB, IDVRTG."

Figure A-15. Sample battle loss spot report

Note. Yellow 1A reports are not cumulative. A Yellow 1 report showing total unit status is sent daily not later than 1300 hours. It gives equipment status as of 1200 hours that day.

Yellow 2 – Ammunition Status Report

A-64. This report is transmitted once daily in accordance with SOP or immediately upon completion of enemy contact. The following status codes are used:

- **GREEN:** 90% or more on hand, all ammunition types.
- **AMBER:** 80% to 89% on hand, all ammunition types.
- **RED:** 60% to 79% on hand, all ammunition types.
- **BLACK:** 59% or less on hand, all ammunition types.

Note. BLACK status in a Yellow 2 report requires immediate follow-up with a Yellow 2A report. GREEN, AMBER, or RED status does not require submission of a Yellow 2A.

Yellow 2A – Ammunition Request

Format

A-65. The required quantity of each type of ammunition will be requested using the following line numbers:

- Line 1: Report as-of DTG.
- Line 2: 105-mm/120-mm, HEAT.
- Line 3: 105-mm/120-mm, HEP.
- Line 4: 105-mm/120-mm, APERS.
- Line 5: 105-mm/120-mm, WP.
- Line 6: 105-mm/120-mm, APDS.
- Line 7: 40-mm, HEDP.
- Line 8: Caliber .50 (M85).
- Line 9: Caliber .50 (M2).
- Line 10: 25-mm.
- Line 11: 7.62-mm (coax/M60).
- Line 12: 120-mm HE with fuze.
- Line 13: 120-mm WP with fuze.
- Line 14: 120-mm illumination with fuze.
- Line 15: 81-mm, HE with fuze.
- Line 16: 81-mm, WP with fuze.

- Line 17: 81-mm, illumination with fuze.
- Line 18: Fuze, prox (4.2-inch).
- Line 19: Fuze, PD (4.2-inch).
- Line 20: Fuze, prox (81-mm).
- Line 21: Fuze, PD (8l-mm).
- Line 22: Fuze, blast, time.
- Line 23: Blasting cap, nonelectric.
- Line 24: Fuze, igniter.
- Line 25: 5.56-mm ball.
- Line 26: 5.56-mm tracer.
- Line 28: Grenade, fragmentation.
- Line 29: Grenade, obscurant munitions.
- Line 30: Grenade, thermite.
- Line 31: Grenade, 40-mm, HE.
- Line 32: Grenade, 40-mm, WP.
- Line 33: Grenade, 40-mm, AP.
- Line 34: Javelin.
- Line 35: AT-4.
- Line 36: Dragon.
- Line 37: TOW.
- Line 38: Stinger missile.
- Line 39: Mine, AT.
- Line 40: Mine, AP.
- Line 41: Mine, Claymore.
- Line 42: 25-mm HE.
- Line 43: 25-mm AP.
- Line 44: 165-mm HE (CEV)

Note. All Yellow 2A requests will be for the quantity of ammunition required by the platoon unless otherwise specified.

Note. When sending a Yellow 2A report, use only the lines required for specific requests. Additional lines (beginning with Line 45) are used to request any other types of ammunition required by the platoon. Attached units should coordinate with the S4 for additional line numbers for their ammunition requirements.

Example

A-66. Figure A-16 shows an example of an ammunition request.

"APACHE X-RAY, THIS IS RED 4. YELLOW TWO ALPHA, BREAK. LINE 1: 112000NOV07. LINE 37: 12. LINE 42: 600. OVER."

Figure A-16. Sample ammunition request

Yellow 3 – POL Status Report

When Used

A-67. This report is sent twice daily or as required.

Format

A-68. The following status codes are used:

- **GREEN:** 90% or more of the required quantity on hand.
- **AMBER:** 80% to 89% on hand.
- **RED:** 60% to 79% on hand.
- **BLACK:** 59% or less on hand.

Example

A-69. Figure A-17 shows an example of a POL status report.

"APACHE X-RAY, THIS IS RED 4. YELLOW THREE, AMBER, OVER."

Figure A-17. Sample POL status report

Yellow 3A – POL Request

Format

A-70. The required quantity of each type of POL product will be requested using the following line numbers:

- Line 1: Report as-of DTG.
- Line 2: MOGAS (gal).
- Line 3: Diesel (gal).
- Line 4: Oil, OE-10 (gal).
- Line 5: Oil, OE-30 (gal).
- Line 6: Oil, OE-50 (gal).
- Line 7: Oil, OE-90 (gal).
- Line 8: Antifreeze (gal).
- Line 9: Brake fluid (gal).
- Line 10: Hydraulic fluid, OHA (qt).
- Line 11: Hydraulic fluid, OHT (qt).
- Line 12: Hydraulic fluid, FRH (qt).
- Line 13: Oil, penetrating (qt).
- Line 14: Oil, PL-special (qt).
- Line 15: Oil, PL-medium (qt).
- Line 16: Bore cleaner (gal).
- Line 17: Oil, LSA (qt).
- Line 18: Grease, GAA (lb).
- Line 19: Grease, wheel bearing (lb).
- Line 20: Solvent (gal).

Note. Additional lines (beginning with Line 21) are used to request any other POL products required by the platoon or attached elements.

Example

A-71. Figure A-18 shows an example of a POL request.

> "APACHE X-RAY, THIS IS RED 1. YELLOW THREE ALPHA, BREAK. LINE 1: 112000 NOV. LINE 3: 900. LINE 8: 15."

Figure A-18. Sample POL request

RED REPORTS (PERSONNEL)

Red 2 – Personnel Battle Loss Report

When Used

A-72. A Red 2 report is transmitted to the troop CP as casualties occur. The unit must also complete DA Form 1156 (*Casualty Feeder Card*), with witness statements, and submit them to the 1SG.

Format

A-73. Provide all pertinent information using the following lines:

- Line 1: Unit roster number.
- Line 2: DTG of the incident.
- Line 3: Location of the incident (encoded).
- Line 4: Type of casualties, encoded by letter as follows:
  - ALPHA: KIA, hostile action.
  - BRAVO: KIA, nonhostile action.
  - CHARLIE: Body recovered.
  - DELTA: Body not recovered.
  - ECHO: Body identified.
  - FOXTROT: Body not identified.
  - GOLF: Missing in action.
  - HOTEL: Captured.
  - INDIA: WIA, slight, hostile action.
  - JULIET: WIA, serious, hostile action.
  - KILO: WIA, slight, nonhostile action.
  - LIMA: WIA, serious, nonhostile action.
  - MIKE: Accident.
- Line 5: Location to which casualties are evacuated.

Red 3 – Medical Evacuation Request

When Used

A-74. A Red 3 report is sent to the medical team on the troop command net to request MEDEVAC support. When aerial MEDEVAC is not available, scouts should use a ground MEDEVAC format. Unit may provide this alternate report format in local SOPs. A ground MEDEVAC should contain the listed information.

> ***Note***. The digital Red 3 MEDEVAC request (see Figure A-19) is sent to the PSG, 1SG, medics, and maintenance team.

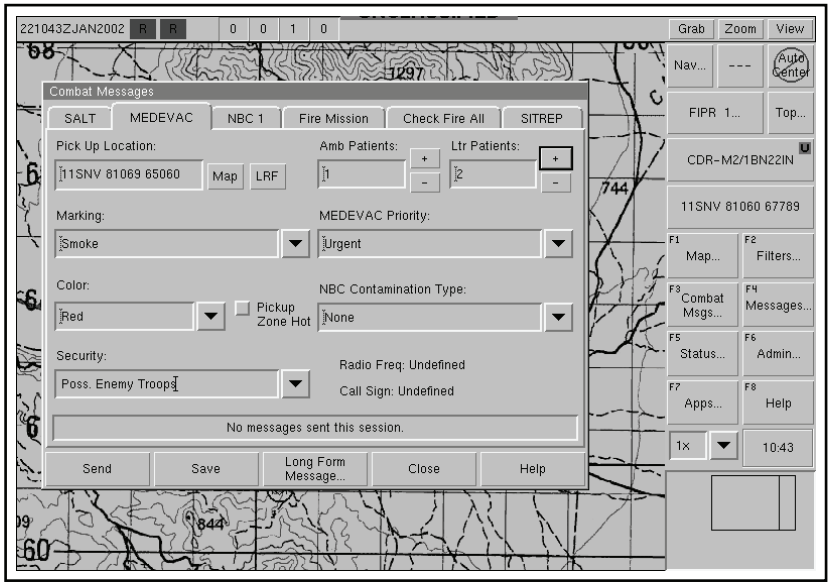


Figure A-19. Digital Red 3 report

Ground Evacuation Format

A-75. Provide pertinent information on the following lines:

- Line 1: State "EVAC."
- Line 2: Location for pickup (encoded).
- Line 3: Number of casualties.
- Line 4: Category of patient condition, encoded by letter designation as follows:
  - ALPHA: Urgent.
  - BRAVO: Priority.
  - CHARLIE: Routine.

Note. Use the letter designation with the number of patients in each category; for example, "TWO ALPHA" indicates that two patients require evacuation on an urgent basis.

Air Evacuation Format

A-76. Use the information format in Figure A-20 for an air evacuation.

Medical Evacuation/Aero-Medical MEDEVAC	
MEDEVAC FREQ:	
Line 1	**Grid**
Line 2	**Unit frequency, Call Sign, Suffix**
Line 3	**Number of Patients by Precedence:** Urgent Urgent/Surgical Priority
Line 4	**Special Equipment:** Aircraft Rescue Hoist Jungle/Forest Penetrator Semirigid Litter Strokes Basic Litter Kendrick Extraction Device Jaws of Life
Line 5	**Number of Patients by Type:** L = Litter A = Ambulatory
Note. Once complete with Lines 1 through 5, the MEDEVAC can fly. Continue with remainder of report when you can.	
Line 6	**If in Wartime:** N = No Enemy in Area P = Possible Enemy in Area E = Enemy in Area X = Enemy in Area, Escort Required **If in Peacetime:** (Type of injury) Gunshot Broken Bones Illness, etc.
Line 7	**Method of Marking Site:** A = VS-17 B = Pyrotechnics C = Obscurant munitions D = None E = Other
Line 8	**Patient Nationality and Status** (Military/Nonmilitary)
Line 9	**CBRN Contamination:** Y = Yes N = No **Description of Terrain at Pick-Up Site**

Figure A-20. Air MEDEVAC request format

NBC REPORTS

A-77. All shelling and NBC reports are forwarded to the troop CP over the command net.

- NBC-1. Used by the observing unit to report initial and subsequent data of a NBC attack.
- NBC-2. Used for passing evaluated data of a CBRN attack. (***Note.*** The format for the NBC-2 report is not included here.)
- NBC-3. Used for immediate warning of expected CBRN contamination.
- NBC-4. Used to report radiation dose rate measurements.
- NBC-5. Used to report locations of CBRN contamination or hazards.

Note. The digital NBC-1 report (see Figure A-22) is sent on confirmation of contact with CBRN weapons. The report is sent to the entire troop

NBC-1 – Observer's Initial Report

Format

A-78. To send this report, state "NBC ONE" and give the type of NBC incident (nuclear, biological, or chemical). Other information that may be sent includes precedence of the report, date and time of the report (ZULU time), and security classification with "from" and "to" times the classification is applicable. Provide all pertinent information on the following lines:

- Line ALPHA: Strike serial number (if known).
- Line BRAVO: Position of observer, using universal transverse Mercator (UTM) coordinates or name of place.
- Line CHARLIE: Grid or magnetic bearing (specify which is used) or azimuth of attack from observer (in degrees or mils; specify which is used).
- Line DELTA: DTG attack started (ZULU).
- Line ECHO: Illumination time in seconds (for nuclear burst); time the attack ended (toxic agent attack only).
- Line FOXTROT: Location of attack (UTM coordinates) and/or vicinity of attack (actual or estimated; specify which is given).
- Line GOLF: Means of delivery (if known).
- Line HOTEL: Type of burst (air, surface, unknown), type of toxic agent, or type of attack.
- Line INDIA: Number of shells; other data (for toxic attack only).
- Line JULIET: Flash-to-bang time (in seconds).
- Line KILO: Crater present or absent; diameter in meters (if known).
- Line LIMA: Cloud width (degrees or mils; specify which) 5 minutes after burst.
- Line MIKE: Cloud height (top or bottom; specify which) 10 minutes after burst (degrees or mils; specify which).
- Line SIERRA: DTG of reading (local or ZULU time).

Note. **DO NOT DELAY REPORTS** in an attempt to provide complete format information. Omit information that is not applicable or available. Items that must always be reported are the type of report; lines D and H; and one of the following lines: B, C, F, or G.

Note. Carefully specify the units of measure used (such as degrees, mils, or grid azimuth).

Examples

A-79. Figure A-21 shows examples of NBC-1 reports for nuclear and chemical incidents. Figure A-22 shows an example of a digital report.

"THIS IS RED 1. NBC-1, NUCLEAR. LINE BRAVO: I SET DX, IMNUWS. LINE DELTA: 020945 ROMEO. LINE HOTEL: AIR. LINE LIMA: 100 MILS, ESTIMATED."

"THIS IS RED 1. NBC-1, CHEMICAL. LINE DELTA: 261003 ROMEO. LINE FOXTROT: NB783089. LINE GOLF: ARTILLERY. LINE HOTEL: VAPOR."

Figure A-21. Sample NBC-1 reports for nuclear and chemical incidents

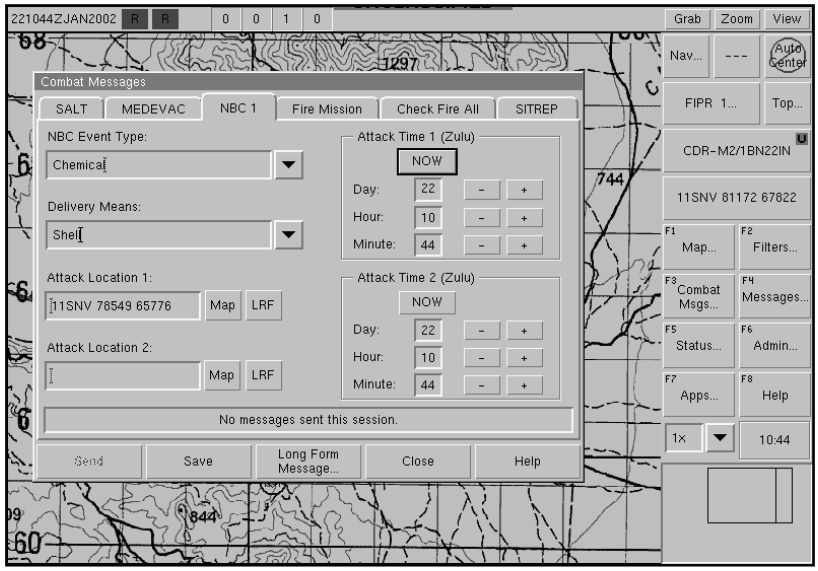


Figure A-22. Digital NBC-1 report (observer's initial report)

NBC-3 – Immediate Warning of Expected Contamination

A-80. This report is sent by radio. State "NBC THREE," followed by pertinent information on these lines:

- Line ALPHA: Strike serial number (if known).
- Line DELTA: DTG when attack started.
- Line FOXTROT: Location of attack (actual or estimated; specify which).
- Line PAPA: Area of expected contamination.
- Line YANKEE: Bearing or azimuth of left, then right radial lines (specify degrees or mils; use 4 digits for each line).
- Line ZULU: Effective downwind speed (in kmph; use 3 digits), downwind effective distance of zone (in km; use 3 digits), and cloud radius (in km; use 2 digits).

NBC-4 – Report of Radiation Dose-Rate Measurement

When Used

A-81. The NBC-4 report, used for nuclear activity only, is submitted immediately after any radiation is detected and thereafter as required by the OPORD.

Format

A-82. To send this report, state "NBC FOUR," followed by pertinent information on these lines:

- Line QUEBEC: Location of reading; use friendly graphics or encryption. Omit this line when transmitting on a wire net.
- Line ROMEO: Dose rate in cGy/hr (average total dose rounded to the nearest 10 cGy). Specify whether the dose rate is "INITIAL," "INCREASING," "PEAK," or "DECREASING"; specify "SHIELDED" if the dose rate was measured inside a vehicle.
- Line SIERRA: DTG of reading. Specify the time zone.

Note. Repeat lines Q, R, and S as often as necessary. Radiation dose rates ideally are measured in the open, one meter above the ground; if the rate must be measured in a shielded location, it is converted (as accurately as possible) to a rate in the open.

Examples

A-83. Figure A-23 shows examples of NBC-4 radiation dose-rate measurement reports.

"THIS IS RED 1. NBC FOUR. LINE QUEBEC: LB 123987. LINE ROMEO: 1, INITIAL. LINE SIERRA: 201735 LOCAL."

"THIS IS RED 1. NBC FOUR. LINE QUEBEC: LB 123987. LINE ROMEO: 60, PEAK. LINE SIERRA: 201805 LOCAL."

Figure A-23. Sample NBC-4 radiation dose-rate measurement reports

Note. Users of NBC-4 reports are not confined solely to the use of the letter items shown in these examples.

NBC-5 – Report of Areas of Contamination

A-84. To send this report, state "NBC FIVE." Other information that may be sent includes precedence of the report, date and time of the report (ZULU), and security classification with "from" and "to" times the classification is applicable. Provide all pertinent information on the following lines:

- Line ALPHA: Strike serial number, if known.
- Line OSCAR: Reference DTG for estimated contours of contaminated areas.
- Line SIERRA: DTG when contamination was initially detected.
- Line TANGO: H+1 DTG or DTG of latest reconnaissance of contamination in the area.
- Line UNIFORM: Coordinates of contour lines marking dose rate of 1,000 cGy/hr.
- Line VICTOR: Coordinates of contour lines marking dose rate of 300 cGy/hr.
- Line WHISKEY: Coordinates of contour lines marking dose rate of 100 cGy/hr.
- Line X-RAY: Coordinates of contour lines marking dose rate of 20 cGy/hr.

Appendix B
Site Exploitation

Site exploitation (SE) is a series of related activities and actions initiated and conducted by Army forces in cooperation with joint, interagency, intergovernmental, multinational agencies and special operations forces (SOF) for the purpose of exploiting personnel, documents, electronic data, and materiel. The platoon conducts SE to ensure that all scouts identify, collect, protect, and evaluate documents, materiel, and personnel to facilitate follow-on actions. The importance of SE goes beyond the concept that every Soldier is a sensor. The scout must understand the significance of the objective area and his role in the potential availability of information for collection and analysis. Whether at a traffic control point (TCP), in a room during a search, or at a suspected factory for IEDs or EFPs, the reconnaissance/scout platoon can expect to conduct SE at some level in every mission it undertakes. One skill that plays an important part in gaining awareness and collecting information about the site is tactical questioning (TQ). Every scout must know how to use TQ to enhance awareness of the current situation. This personal contact and the observations of individual Soldiers are critical elements in the platoon's ability to develop a comprehensive understanding of the OE. For additional information, see FM 3-90.15 and Center for Army Lessons Learned (CALL) Handbook 07-26.

SECTION I – PURPOSE OF SITE EXPLOITATION

B-1. SE is the overarching concept that encompasses technical site exploitation, sensitive site exploitation, explosive ordinance disposal (EOD) site exploitation, evidence and criminal site exploitation, and technical intelligence site exploitation. At the tactical level, the platoon integrates SE in its assigned missions and identifies, evaluates, collects, and protects personnel, documents, electronic data, and other material at a site.

B-2. SE covers the spectrum of exploitation activities, including the following:

- DOMEX.
- Equipment exploitation.
- Hasty analysis of pocket trash.
- Mirror imaging of media and expediting various forms of media to the rear for further exploitation.
- EOD site exploitation, which can include weapons inspection teams (WIT) conducting blast analysis.
- Criminal site exploitation, which may incorporate support from HN, Central Intelligence Agency (CIA), Federal Bureau of Investigation (FBI), and other governmental agencies.

B-3. Regardless of the size, echelon, and composition of the exploitation element, SE fundamentally serves three basic purposes:

- Answer IR.
- Facilitate subsequent operations (through intelligence analysis and targeting).
- Facilitate criminal prosecution by HN authorities.

ANSWER INFORMATION REQUIREMENTS

B-4. SE can be used to answer some commander's critical information requirements (CCIR) through a range of tools, including TQ and DOMEX. Effective planning for patrols, cordon and searches, raids, and other CI operations can yield information that will answer the squadron commander's CCIR. In addition, proper SE can protect valuable information that, when properly collected and analyzed, can answer CCIR or priority intelligence requirements (PIR) for the squadron or higher headquarters. Examples of CCIR/PIR that could be answered by SE include the following:

- Who are the key town council, tribal, or religious leaders in the area of operations (AO)?
- What are the perceptions of these key community leaders?
- How do these key leaders make their decisions, and how can those decisions be influenced?
- What hostile elements are present in the AO? Who determines whether elements are to be considered hostile or noncombatants?
- What political, cultural, and religious sensitivities will have an impact on the noncombatants?
- Who or what are the key information providers in the AO?
- What effort is the enemy making to influence the target audiences?
- What tools are they using (radio, television [TV], leaflets, disinformation, intimidation)?
- Who are the enemy's supporters, and what are their actions?
- What nongovernmental/international organizations are operating in the AO?
- Who are their key personnel?
- Are there any enemy-affiliated religious sites in the AO?
- Where are enemy safe havens/safe houses in the AO?
- Are there enemy weapons caches within the AO?
- Are there any weapons markets in the AO?
- What infrastructure needs to be repaired in the AO?

B-5. Additionally, effective SE can provide information that may answer other IR, such as—

- Where are HN security forces operating in the AO?
- How are HN security forces reacting to enemy activity in the AO?
- How are HN security forces reacting to coalition activity in the AO?
- What are the significant characteristics of enemy units in the AO?
- What enemy cells are operating in the AO?
- Who are the enemy leaders in the AO?
- What are the local priorities for infrastructure repair in the AO?
- What rivalries exist between leadership in the AO?
- Where are all the crossing points (foot and vehicle) for the canals in the AO?
- Is the indigenous police force corrupt?
- How is the HN police force received by the community?
- Can the HN police force be relied upon as an asset to assist U.S. and joint forces?
- If the HN police force is reliable, what equipment, communications, and other capabilities does it have?

FACILITATE SUBSEQUENT OPERATIONS

B-6. Effective SE provides critical data for inclusion in the intelligence process, which in turn supports targeting and other aspects of subsequent operations. This can encompass the collection of information and material within a building or on the terrain, as well as TQ of personnel located on the objective. In conducting SE, the reconnaissance/scout platoon initially identifies material and personnel of interest. It then collects these items and personnel and conducts debriefing with the squadron/battalion S2 after the operation is completed. The collected material is processed and analyzed, and the appropriate agencies further interrogate the personnel.

An example of SE leading to follow-on missions

Situation:
During clearing operations in Adhamiyah, 1-14 Cavalry entered empty apartments and found suspicious items. The unit called for the squadron QRF/SE team to investigate. The SE team arrived and conducted a thorough exploitation of two apartments after EOD confirmed there were no IED/EFP threats. SE resulted in numerous finds indicating the site was used by an advanced IED component maker. Items discovered include IED components, manuals outlining electrical engineering, surveillance instructions, IED-making documents, personal identification documents, modified cell and long-range cordless phones, initiators ready-made to plug into explosive devices, MBITR-type radios, radio control parts, empty cell phone boxes with serial numbers, and oscilloscope and circuit testing kits. The materials were recovered in accordance with SE protocols and were sent to the combined explosives exploitation cell (CEXC) for analysis.

Initial CEXC assessment:
This cache yielded at least one initiator ready for use in an IED, as well as hundreds of components for other radio-controlled IEDs. Extensive bomb-making literature was recovered from the site. The IED-related material and literature indicated an individual with significant knowledge, ability, and resources may still be in the Baghdad area.

Initial actionable information:
According to a quick translation by DOMEX on-site, a paper was found to read—

To: Al-Madi Sadee
For Electronic Manufacturing
Enclosed part numbers 64, 87, 35, & 16
Assemble at 1217 Dandi Street
Near Al-Assad University
Phone 415-1174

The DOMEX translator linked this document with several others from the site and determined the location belonged to the same individual who resided/worked at the site. Subsequently the target was identified based on the SE and a follow-on mission captured the suspect.

FACILITATE CRIMINAL PROSECUTION

B-7. Collection of material associated with criminal/insurgent activity, to be handed over to local government agencies for prosecution, is often critical to the success of operational and strategic Army objectives. This is especially true in stability operations, which frequently support attempts to establish local governance and control.

SECTION II – SITE EXPLOITATION PLANNING AND ORGANIZATION

B-8. SE is associated with all missions, including cordon and search, raids, patrols, traffic control points (TCP), and attacks. All of these missions encompass the requirement to plan and conduct SE at various levels of detail, from individual Soldier actions to multifaceted and specialized task organized teams.

B-9. SE will generally be an "on-order" or a "be prepared" mission associated with the specified/essential task that defines the primary mission. SE can appear as a specified task in the order; however, at a minimum, it will be included as an implied task for planning in all missions. In a counterinsurgency environment, where IEDs/EFPs are a weapon of choice, SE can become an essential task for the commander. The following is an example of how SE relates to another mission:

> *1-14 Cavalry conducts a cordon and search of OBJ BAT NLT 120900ZJAN07 to capture/kill ACF and limit the attacks on coalition forces. On order, conduct site exploitation of OBJ BAT to collect information for the intelligence process.*

PLANNING FACTORS

B-10. Units complete SE planning at the level of detail allowed by time constraints and enemy/threat considerations. In analysis of the higher headquarters order in terms of SE, the tenets of mission analysis remain the same, but special focus on key areas such as tasks, augmentation, equipment, available collection assets, timelines, risk analysis, and the human dimension of the AO will affect the commander's planning effort. Understanding the higher commander's intent is still critical to the process. Additionally, mission analysis should consider the task of collecting biometric data.

AUGMENTATION

B-11. The reconnaissance/scout platoon does not possess the organic assets to complete many of the detailed requirements of complex SE. Attachments from EOD, MI, and MP units, together with specialized assets such as military working dogs (MWD) and WITs, may be required based on the staff's estimate. Internally, the staff must identify subordinate units that can fulfill these roles while understanding their organic capabilities and limitations.

EQUIPMENT

B-12. Figure B-1 provides a recommended supply and equipment list for SE operations.

Megaphone with extra batteries	Metal detectors/wands
Breach equipment (hooligan tools, etc.)	Mine detectors
Bolt cutters	Mirrors
Ladders	Creepers
Signs in applicable languages for checkpoints	Class IV materials (such as concertina wire)
Triage equipment (evidence collection kits)	Zip ties/flex cuffs
Improvised equipment (trash bags, MRE boxes, pillow cases, flour bags)	Video cameras, still cameras, tape recorders
Fingerprint kits	Flashlights with extra batteries
GPS	IO products
3-4 permanent markers	Prepackaged holding area supplies
30 zipper-lock plastic bags	Computer and related materials
20 shoe tags	Gunpowder residue kit
Sim card reader	Dry erase board
Suitcases	Flashlight / head lamp
Blindfolds	Protective rubber gloves
3 extra backpacks	

Figure B-1. SE supplies and equipment

BIOMETRIC COLLECTION ASSETS

B-13. Biometrics refers to the use of a person's physical characteristics or personal traits to identify or verify the claimed identity of, that individual. Fingerprint minutia, iris pigmentation, facial geometry, voice analysis, and handwritten signatures are examples of characteristics used to identify an individual. Electronic, automated biometrics-based systems (biometric systems) provide a means of converting these relatively unique individual attributes from a biometric characteristic—a fingerprint, for example—into digital form. The results can then be compared against a computerized database to establish identity quickly and relatively accurately. See Figures B-2 and B-3.

Figure B-2. Typical biometrics automated toolset

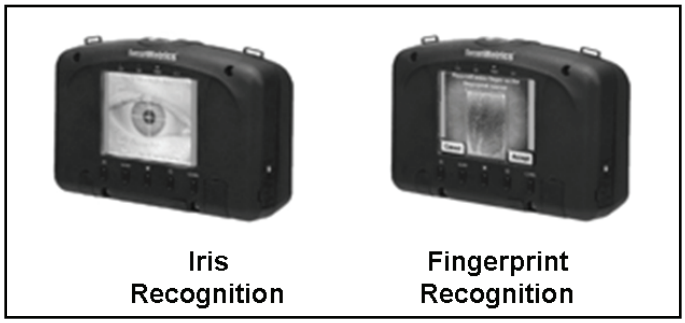


Figure B-3. Typical HIIDE displays

RISK ANALYSIS

B-14. To mitigate risks for the exploitation team, the commander evaluates the risks inherent to the SE environment. This entails such considerations as ensuring the site has been properly secured and evaluating the ability to clear IED/EFP threats prior to exploiting the site.

TIMELINES

B-15. The timeline will affect the platoon when internal forces have multiple tasks that require a transition to SE. Additionally, the timeline will be evaluated to consider the impact of higher headquarters assets that can be requested/directed to assist in SE once the platoon identifies that the level of material, personnel, buildings, or terrain at the site exceeds the assigned or organic collection capabilities.

ADDITIONAL CONSIDERATIONS

B-16. In addition to the ROE, which will guide SE planning and to which the platoon will always adhere, other planning considerations include the following:

- **Tactical call out.** This affects forces clearing the objective, especially those that may have an initial inability to connect called out personnel with their locations on the objective.
- **EOF.** Escalation will require a balance between force protection, protection of noncombatants, and efforts to prevent collateral damage that may have a negative impact on operational and strategic objectives.
- **Language barriers.** Language differences, or a lack of interpreters, can make it difficult for Soldiers to interpret the actions of personnel on the objective/site.
- **Time factors.** The projected time available on the objective to conduct SE must be considered.

ORGANIZATION

B-17. Regardless of the size of the element conducting the exploitation, an SE team leader is responsible for planning, organizing, equipping, and executing the SE. If available or required, an assistant SE team leader will be assigned to support the team leader in completion of SE. Subordinate to the team leader will be a minimum of two elements, one for conducting TQ and another for conducting the search. The size and scope of these elements, along with the establishment of additional elements (such as detainee, documentation, field interview, demolitions, and tunnel reconnaissance teams), will vary with METT-TC considerations.

B-18. SE is not necessarily restricted to large-scale operations. For example, hasty SE can occur at a TCP with the approach of a single vehicle. An initial search may indicate that SE is required for the vehicle and its occupants. Once conditions of the search have transitioned from controlling access and deterring illegal activity to a hasty exploitation of the "site," the principles of SE will apply. Search personnel will initiate exploitation to the level of assets available, and request assistance if the exploitation exceeds capabilities.

B-19. The commander may task the reconnaissance/scout platoon leader to organize to conduct troop-level SE. The platoon can task organize as the TQ element or search element. Figure B-4 summarizes duties and responsibilities for SE personnel. The TQ element typically includes—

- Platoon leader.
- Questioning team.
- MP.
- Category (CAT) II interpreter.

B-20. The search element typically includes—

- Platoon leader.
- Search team.
- MWD.
- EOD.
- WIT.
- CAT I interpreter.

SE Team Leader:
● Command SE team
● Initiate and control SE
● Complete initial sketch of site
● Document all activity
● Deconflict/validate information with each element
● Report and recommend action on immediate intelligence to commander
● Supervise collection of all personnel and material
● Ensure detainees are photographed with evidence of illegal activity
SE Search Element:
● Conduct detailed search of target according to plan
● Ensure IED awareness
● Identify and process evidence
● Recover evidence
● Prepare evidence for transportation
● Document evidence recovery
SE Tactical Questioning Element:
● Identify/prioritize subjects for TQ
● Coordinate security for collected personnel
● Separate personnel as required for questioning
● Conduct TQ
● Identify/prioritize subjects for removal/detention
● Document all TQ

Figure B-4. Summary of duties and responsibilities for SE personnel

SUPPORTING ASSETS

B-21. A number of assets may be attached, OPCON, or in DS of the squadron/troop and platoon when conducting missions that encompass SE. These assets include the following:

- **Joint document and media exploitation center.** The joint DOMEX center serves as the collection point for all enemy documents overtly recovered during the SE. It also performs in-theater screening and exploitation of those documents in support of intelligence agency requirements at the theater, geographical combatant commander, and national/coalition levels. The typical DOMEX section that may support the BCT or division collection effort consists of five linguists, normally CAT II or III, and an additional linguist for forward support. Additionally, a medical exploitation section, with a forensic analyst and one linguist, may be available. (See FM 3-31 for further details.)
- **Linguists (interpreters).** Leaders base assignment of linguists to subordinate elements on availability, as well as the category (CAT) status of available linguists. Linguists are categorized based on background, capability, and security level as follows:
  - **CAT I.** CAT I linguists are locally hired personnel with an understanding of the English language. Sensitivity of the potential exploitation site may limit the use of CAT I linguists.
  - **CAT II.** CAT II linguists are U.S. citizens who have native command of the target language and near-native command of the English language.
  - **CAT III.** CAT III linguists are U.S. citizens who have native command of both the target language and English.
- **Civil affairs team.** CA Soldiers collect information and conduct assessments to help friendly forces target their relief efforts or stabilize the civil environment. CA teams should be incorporated with the information operations (IO) process to meet operational objectives, assess the environment, and evaluate the effect of search operations on the region. CA teams can meet with local leaders to outline the goals and objectives of the operation.
- **Weapons inspection team (WIT).** WITs include personnel with specialized skills to analyze IED sites and material located on the objective that can be tied to IED development. Their capabilities include IED detection, post-blast analysis, and IED defeat capabilities.
- **Combined explosives exploitation cell (CEXC).** The CEXC is a joint agency tasked with the collection and exploitation of IEDs. It provides immediate in-theater technical and operational analysis, including identification of enemy tactics and trends (see FMI 3-34.119 for more details).
- **Military police (MP).** MP support can take various forms in SE:
  - Platoon-size MP element to assist with security, detainee collection, and other support.
  - MP with search dogs.
  - MP investigators to assist with site evaluation and collection of forensic evidence.
- **Military investigators.** Units and investigators from the Army Criminal Investigation Division Command, Naval Criminal Investigative Service, and Air Force Office of Special Investigations can assist in collection and processing of materials. Many of the units are equipped to support collection of forensic evidence and can assist in biometric tasks.
- **Explosive ordnance disposal (EOD).** EOD personnel may clear an identified explosive hazard or assist in the collection of explosive components.
- **Psychological operations (PSYOP).** PSYOP teams can support the platoon during search operations by coordinating public broadcast of information, using loudspeakers or other delivery means, to influence the population on or near the objective. The platoon leader should consider withdrawing from the area when employing PSYOP capabilities. At the tactical level, PSYOP teams seek to influence targets directly through face-to-face contact, limited production of printed products, and use of loudspeakers. Tactical PSYOP can—
  - Influence potential adversaries in the civil population not to interfere with friendly forces.
  - Induce cooperation or reduce active opposition.
  - Reduce collateral damage by giving instructions to noncombatants in the combat zone.

- **Aviation.** Reconnaissance and attack aviation assets, particularly rotary wing assets, can provide additional security en route to and from the objective, assist in isolation of the objective site, and provide overwatch of high-value individuals attempting to flee the objective.
- **Other governmental agencies.** Based on the scope of the operation and the suspected material or personnel on the objective, agencies such as the FBI and CIA may take part in the SE effort.

SECTION III – SITE EXPLOITATION EXECUTION

ACTIONS ON THE OBJECTIVE

B-22. The execution of SE normally occurs after an objective has been seized, cleared, or otherwise controlled to the point at which the exploitation team can conduct the search to the level of detail required with appropriate risk mitigation. In the case of a cordon and search operation, this may mean after the objective location has been isolated and secured and the IED/EFP threat on the objective mitigated by EOD or search dog support, if available. At a minimum, the SE team will understand the level of threat remaining on the site prior to exploitation. The SE team leader will conduct an initial debrief of the assault force (initial entry force) and will then assess the site to make a determination of the scope and breadth of the exploitation required.

B-23. Upon completion of the initial assessment, the team leader updates instructions to the search teams, takes and/or directs initial photographic evidence of the site, completes a sketch of the objective site, and coordinates marking of the objective for documentation purposes. The TQ element(s) will coordinate with the search element to segregate personnel found on the objective in secure areas, noting where personnel were located based on the team leader's site sketch.

B-24. Search teams initiate the search of the site/objective using a defined pattern and collection process according to unit SOPs. The team leader must have the ability to move throughout the site and coordinate with the TQ and search teams. The team leader can focus search efforts based on the information gained by TQ, as well as guide the TQ team based on the items that are uncovered during the search. This is a useful tool in identifying additional information and in determining whether suspected personnel are attempting to deceive the TQ team. METT-TC considerations may facilitate the use of the head of household to accompany the search team, which can alleviate the perception of destruction of property and mitigate the risks of IED/EFP attack. On the other hand, this technique can impose limitations on the search team, such as possibly influencing decisions concerning which items/personnel are valuable to the SE effort and which are not.

B-25. Collection of material will be completed with appropriate marking/tagging in accordance with SOP and theater requirements. During the collection, the SE element will observe any special considerations for handling of material that can be exploited for forensic evidence; it will also watch for evidence that could be associated with detonation devices. Material that can be used as evidence in judiciary proceedings will be photographed with the suspected individual. Maintaining control and custody of collected material is critical for the SE element in maintaining the integrity of the search.

CONSOLIDATION AND REORGANIZATION

B-26. The SE team establishes detainee collection points, casualty collection points (CCP), and captured material collection points and ensures that all collection sites are appropriately marked and secured. The support element in a cordon and search or raid assists in these tasks. PSYOP and CA teams can also assist in crowd control while searching the objective and preparing for withdrawal.

B-27. Once the search is complete, leaders ensure all collected items and personnel are properly documented, photographed, and handled according to SOP to ensure proper accountability and chain of custody.

WITHDRAWAL

B-28. Planning for additional security during retrograde operations may be required based on what the SE has uncovered. Additionally, if the site requires exploitation beyond the platoon's capabilities and time

available, the platoon may have to leave a force behind to maintain security for follow-on exploitation teams. Leaders evacuate detainees with basic subsistence items.

B-29. After the unit conducts retrograde back to the FOB or patrol base, it must conduct an effective debrief with the squadron S2. All collected evidence, material, and personnel will be reviewed with the S2 or processing agency. Detainees will be processed immediately at appropriate detainee collection points (squadron/BCT/division); this includes making database entries into BAT. The squadron judge advocate can assist the S2 in the debriefing and will coordinate and document material for HN prosecution.

INTELLIGENCE SUPPORT

B-30. The squadron and/or higher headquarters will evaluate the collected material and detained personnel for information that can facilitate the planning of future operations. In addition, all material and personnel—the information gained from them— is incorporated into an intelligence database for continued pattern and link analysis. Trained interrogation teams can attempt to exploit detainees for further information at approved holding areas. Exploitation of the information can provide intelligence that will assist in follow-on targeting. The squadron/BCT staff will follow up with supporting agencies for information exploited from tactical operations.

SECTION IV – TACTICAL QUESTIONING

B-31. Small units and individual Soldiers collect information and contribute to overall awareness of the current situation in almost any action that involves observing and reporting elements of the OE and activities of people in the AO. They serve as the commander's "eyes and ears" in a variety of tactical situations:

- Performing traditional offensive or defensive missions.
- Performing a patrol in stability operations, with patrol reporting cueing collection by a tactical human intelligence team.
- Manning a traffic control point (TCP).
- Occupying an OP.
- Handling EPWs and detainees, along with captured enemy documents and captured enemy equipment.
- Passing through areas in convoys.

B-32. TQ is expedient initial questioning conducted to gain information of immediate value. When the term applies to the interaction with the local populace, it does not usually take the form of formal questioning; rather, it refers to personal contact that is more conversational in nature. The task of TQ can be designed to build rapport as much as to collect information and understand the OE.

B-33. Soldiers conduct TQ based on the platoon and troop's SOPs and the order for that mission. Small-unit leaders include specific guidance for TQ in the OPORD for appropriate missions. Information that the Soldier reports as a result of TQ is passed up the chain of command, in many cases to the S-2 at the squadron or BCT, where it can become a vital part of planning and operations.

COLLECTING INFORMATION

B-34. Information collection occurs at all times during operations. Collection of combat information consists of becoming familiar with the surrounding environment, to include the people, infrastructure, and terrain, as well as recognizing change. Like a police officer "walking the beat" in a neighborhood day after day, Soldiers at all ranks and echelons must be able to recognize that something has changed and, if possible, to understand why. Even if the Soldier cannot determine why something changed, simply reporting that there has been a change can help MI personnel. Scouts should train themselves to become constantly aware of conditions such as—

- Armed elements. Location of factional forces, minefields, and potential threat/enemy elements.
- Homes, buildings, and other personal property. Condition of roofs, doors, windows, lights; presence of vehicles, outbuildings, crops, and livestock.

- Infrastructure. Presence of functioning stores, service stations, and open air markets; condition of public areas and resources, such as roads, bridges, and power lines; availability of public utilities (water, electricity, sanitation) through regular delivery means.
- People. Numbers, sex, and age; visible health; clothing; daily activities; leaders; residence or displaced persons, refugees, or evacuees status.
- Contrast. Has anything changed? For example, are there new locks on buildings? Are windows boarded up or are previously boarded-up windows now open, indicating a change of use of a building? Have buildings been defaced with graffiti?

B-35. Because every Soldier is involved in the collection of combat information, everyone must be aware of the current, applicable IR. All Soldiers who have contact with the local populace, who routinely travel within the area, or who frequently attend meetings with local organizations must know the commander's IR and understand their responsibility to observe and report.

KEY CONSIDERATIONS FOR CONVERSATIONS

B-36. Certain vital elements of communication can make a conversation more effective and productive. Every AO will have specific social and regional considerations that can affect communication and in turn have an impact on the conduct of operations. These may include social taboos, desired behaviors, customs, and courtesies. The commander includes this information in predeployment training at all levels to ensure that Soldiers are properly equipped to interact with the local populace. Soldiers must also keep in mind safety considerations and possible dangers associated with their actions.

B-37. Guidelines for Soldiers in establishing effective communication while ensuring personal safety include the following:

- Know the threat level and force protection measures in the AO.
- Know as much as possible about the local culture, including customs and courtesies (for example, male Soldiers not speaking to women or female Soldiers not speaking to men).
- Learn a few phrases in the local language.
- Be careful of body language.
- Approach people in normal surroundings to avoid suspicion.
- Be friendly and polite.
- Remove sunglasses when speaking to locals.
- If security conditions permit, keep weapons in the least intimidating position possible.

THE QUESTIONING PROCESS

B-38. Using questions is the best way to start and maintain a conversation. Try to use open questions that cannot be answered simply "yes" or "no." These are basic questions that normally begin with an interrogative (who, what, where, when, how, or why) and require a narrative answer. They are brief and simply worded to avoid confusion. Example: "When was the last time you saw suspicious activity here?" is more useful than, "Have you seen insurgents in this area?" It is a better question because it requires a narrative response and requests specific elements of information. In addition, locals may have a different interpretation of "insurgent."

QUESTION GUIDELINES

B-39. Well-crafted open questions have the following characteristics:

- They are broad in nature and serve as an invitation to talk. They require an answer other than "yes" or "no."
- They give the individual freedom in answering. Questions do not offer a forced choice such as, "Was the man tall or short?" Not only could the answer to that question be confusing, but it also does not allow for responses such as "average height," "medium," or other descriptions.
- They encourage discussion. Let the person know that you are interested in his opinion or observations.

- They allow the questioner to listen and observe as the individual talks. While the person is answering, carefully watch for signs of nervousness or other nonverbal communication.
- They pose little or no threat to the individual. Not all questioning is targeted at information collection. Asking questions about neutral or "safe" topics can help build rapport.
- They allow people to become involved. People like to think that their opinion is important. Asking what people think allows them to feel that they are involved.
- They elicit answers that reveal what the person thinks is important. In relating their experiences, people will often start with what is most important to them.
- They create a conversational tone. For example, a simple question about family, work, or hobbies allows a person to talk freely since the topic is nonthreatening and one that they know about. Such impertinent questions can serve as a springboard to topics more closely related to the collection requirement, often without the person you are talking to realizing that the topic has changed.

MAINTAINING THE CONVERSATION

B-40. Once a conversation is established, use some common techniques to keep it flowing:

- Avoid use of military jargon, especially with civilians.
- Be prepared to discuss personal interests (hobbies, books, travel).
- Be sensitive of body language, but use it to your advantage whenever possible. Follow these guidelines:
  - Smile as long as it is appropriate.
  - Avoid sitting with arms crossed.
  - Do not show the bottom of feet in an Arabic culture.
  - Keep your hands away from the mouth.
  - Lean forward and nod.
  - Make frequent eye contact (if culturally appropriate).

ADDITIONAL CONVERSATION TIPS

B-41. An important guideline in any conversation that involves TQ is to be subtle. Remember to be sociable, yet reserved at all times. Rattling off a series of questions and writing down the responses will not gain the trust of the individual with whom you are speaking. Other helpful considerations include the following:

- Use the person's name, position title, rank, and/or other verbal expressions of respect.
- Avoid judging the person by age, gender, or appearance.
- Keep body posture relaxed, but alert.
- Remember—a person's favorite topic is himself or herself.
- Use humor carefully. Some cultures consider excessive humor to be offensive or a sign of deceit.
- Understand and take into account the significance of holidays and religious days or times of the day or week.
- Have a second person listen to the conversation and later compare what you heard for accuracy of recall.

EXAMPLE QUESTIONS

B-42. The following basic list of example questions can be tailored to fit requirements for the local populace and/or EPWs/detainees. These questions were originally created for conditions specific to TCPs and roadblocks. Keep in mind that they are only examples; you may need to modify or add to them based on the mission, unit guidance, and the specific situation.

- What is your name? (Require verification with identification papers, and check any applicable lists or rosters, such as "detain," "of interest," or "protect.")
- What is your home address? (Ask for a former residence from displaced persons.)

- What is your occupation?
- Where were you going? (Get specifics.)
- Why are you going there? (Get specifics.)
- What route did you travel to arrive here?
- What obstacles (or hardships) did you encounter on your way here?
- What unusual activity did you notice on your way here?
- What route will you take to get to your final destination?
- Whom do you (personally) know who actively opposes U.S. (or multinational) forces? Follow this up with, "Who else?" If the person knows of anyone in this category, ask the nature of any hostile activities (against U.S. or multinational forces), including when and where such activities have occurred.
- Why do you believe we (U.S. or multinational forces) are here?
- What do you think of our (U.S. or multinational force) presence here?

B-43. Although these questions may seem broad, they are in fact pointed and specific. They do not leave room for misinterpretation or afford the person being questioned the chance to give a vague or misleading answer.

B-44. Always keep questions pertinent to your mission and report the answers promptly according to unit guidance. Information of critical tactical value does no good if it remains in one place or if it arrives *after* the operation or the event.

POTENTIAL PROBLEMS IN QUESTIONING NONCOMBATANTS

B-45. In conducting TQ of noncombatants, it is imperative that all questioners follow the provisions of the Geneva Conventions at all times (see FM 27-10). Do not mistreat noncombatants in any way.

B-46. In questioning noncombatants, **DO NOT—**

- Attempt to force or scare information from them.
- Attempt to recruit or task someone to seek out information.
- Pay money or make other compensation for information.
- Ask questions in an area where the questioning puts the noncombatant in danger. Be discreet, but not so discreet that you attract attention.
- Ask questions that make your unit's mission or IR obvious.
- Take notes in front of the person after asking questions.
- Ask leading questions, which are generally constructed to elicit a "yes" or "no" answer rather than a narrative answer. Leading questions allow the individual to answer with a response he or she thinks you want to hear, not necessarily the facts. Example: "Is Group XYZ responsible?"
- Ask negative questions, which contain a negative word in the question itself. Example: "Didn't you go to the warehouse?"
- Ask compound questions, which consist of two questions asked at the same time. Example: "Where were you going after work, and who were you to meet there?"
- Ask vague questions that do not provide enough information for the person to understand exactly what you are asking. They may be incomplete, general, or otherwise nonspecific and create doubt in the source's mind.

POTENTIAL PROBLEMS IN QUESTIONING EPWS AND DETAINEES

B-47. When conducting TQ of EPWs or detainees, it is imperative that the provisions of the Geneva Conventions be followed at all times. Refer to the discussion in Chapter 6 for additional considerations in handling EPWs/detainees.

B-48. In questioning EPWs or detainees, **DO NOT—**

- Attempt to force or scare information out of them.
- Mention that they may be interrogated later or try any other "scare tactic."
- Give them comfort items. They are not your guests.

- Pay money or make other compensation for information.
- Inform them of their rights; someone else will handle that task.

B-49. In questioning EPWs or detainees, **DO**—

- Ask only basic questions as described earlier in this section.
- Move detainees to a detention facility as quickly as possible.

WORKING WITH INTERPRETERS

B-50. The use of interpreters is an integral part of the information collection effort. Working with an interpreter, however, can be time-consuming and potentially confusing. Proper use and control of an interpreter is a skill that scouts must learn and practice to maximize the effectiveness of the collection.

B-51. Perhaps the most important guideline to remember is that an interpreter is essentially your mouthpiece; he says what you say, but in a different language. This sounds simple, but for those who have never worked with interpreters, problems can quickly develop.

B-52. Upon meeting your interpreter, it is important that you assess his or her proficiency in English. You need an interpreter with a firm grasp of English and the terminology that can be encountered.

Categories of Interpreters

B-53. Interpreters are categorized as to their capability and the clearance they have been granted. The categories below are more fully detailed in *Interpreter Operations, Multiservice Reference Manual for Interpreter Operations*, February 2004. This manual can be obtained from the Air Land Sea Application (ALSA) Center. Linguist categories (CAT I, II, and III) are summarized in the discussion in Section I of this appendix covering supporting assets for SE.

Guidelines for Interpreters

B-54. The following discussion outlines tips that should prove useful when working with an interpreter.

Placement

B-55. Use these guidelines:

- When standing, the interpreter should stand just behind the commander or element leader and to the side.
- When sitting, the interpreter should sit right beside the commander or element leader, but not between him and the individual being questioned.

Body Language and Tone

B-56. Use these guidelines:

- Have the interpreter translate the message using the same tone in which you are speaking.
- Ensure the interpreter avoids making gestures.

Delivery

B-57. Use these guidelines:

- Talk directly to the person with whom you are speaking, not to the interpreter.
- Speak as you would in a normal conversation, not in the third person. For example, do not say, "Tell him that…" Instead, say, "I understand that you…" and instruct the interpreter to translate as such.
- Speak clearly, avoid acronyms or slang, and break sentences uniformly to facilitate translation.
- Some interpreters will begin to translate while you are still speaking. This is frustrating for some people. If so, discuss your preference with the interpreter.

- The most important principle to obey while using an interpreter is to remember that **you control the conversation**, not the interpreter.

Security

B-58. Use these guidelines:

- Work on the premise that the interpreter may at some point be debriefed by a threat intelligence service.
- Always assume the worst.
- Avoid careless talk.
- Avoid giving away operational and personal details.
- Do not become emotionally involved.

Interpreter Checklist for Patrolling

B-59. Use these guidelines when an interpreter takes part in a patrol:

- Tell the interpreter what you expect of him and how you want him to do it.
- Tell the interpreter exactly what you want translated. The interpreter should translate all conversation between you and the individual without adding anything on his own.
- Just as questioning should be conducted in such a way as to disguise the true intent of the questioning from the source, you should not reveal any type of IR—including friendly forces information requirements (FFIR), priority intelligence requirements (PIR), or essential elements of friendly information (EEFI)—to the interpreter.
- Brief the interpreter on actions to take at the halt or in the event of enemy contact.

Appendix C

Urban Operations

Operations in urban terrain challenge leaders with a combination of difficulties rarely found in nonurban environments. The distinct characteristics of an urban environment multiplies the amount of cover and concealment combatants and noncombatants may use. The complexity of urban geography stems from the man-made environment set into varying natural terrain, from villages in wooded countrysides to cities established in the desert. This appendix provides information that is essential for the reconnaissance or scout platoon in adapting to reconnaissance and security missions in an urban area.

SECTION I – INTRODUCTION

C-1. Urban terrain is complex terrain that will affect operations differently in each situation. A tactical technique effective in one area may be effective for only short periods—or not at all—in another area. Similarly, a policy popular with one urban group may cause resentment and hostility in another due to diverse cultural differences. A variety of potential difficulties exist for forces operating in the urban area—from conventional military forces and politically oriented insurgents, from a populace facing disease and starvation, from local leaders and pervasive media complicating the situation. Platoon leaders, PSGs, and their subordinate leaders must make extraordinary efforts to assess and understand their particular urban environment. See FM 3-20.971, FM 3-06, and FM 3-06.11 for additional information.

FUNDAMENTALS OF URBAN OPERATIONS

C-2. When planning and executing urban operations, scouts consider certain fundamentals particular to man-made complex terrain. The eight fundamentals of urban operations include—

- Conduct aggressive ISR operations.
- Understand the human dimension.
- Separate noncombatants from combatants.
- Avoid the attrition approach.
- Control what is essential.
- Maximize effects without unnecessary collateral damage.
- Conduct close combat.
- Conduct transition control.

C-3. See FM 3-20.971 for an explanation of each of the eight fundamentals of urban operations.

URBAN TERRAIN

C-4. Although each OE encountered by the reconnaissance or scout platoon has its own distinct characteristics, urban areas are the most complex. The two primary factors that influence the complexity of urban operations are—

- Man-made terrain and supporting infrastructure.
- The density of noncombatants in close proximity to combat forces.

C-5. Of these two key urban factors, noncombatants and the human dimension are the most important and, potentially, the most confusing to scout units. Furthermore, man-made features significantly affect military systems and units, and thus tactics and operations. Reconnaissance and scout platoons must operate in three physical aspects of the city:

- Airspace over the city.
- Supersurface areas, such as buildings.
- Subsurface and subterranean areas, such as sewers and subways.

PREPARING FOR URBAN OPERATIONS

C-6. To operate effectively in an urban environment, platoons must prepare by developing a thorough understanding of the urban environment through rigorous, realistic training. Platoons cover full spectrum operations, including appropriate TTP (see FM 3-06.11). In addition, preparations should cover—

- Psychological impact of intense, close combat against well-trained, relentless, and adaptive enemies.
- The effects of noncombatants—including governmental and nongovernmental organizations and agencies—in close proximity to Army forces.
- An in-depth understanding of culture and its effects on perceptions.
- An understanding of civil administration and governance.
- The ability to mediate and negotiate with civilians, including effective communication through an interpreter.
- The development and use of flexible, effective, and understandable ROE.
- Employment of a complex intelligence environment requiring lower-echelon units to collect and forward essential information to higher echelons for rapid synthesis into timely and actionable intelligence for all levels of command.
- The communications challenges imposed by the environment as well as the need to transmit large volumes of information and data.
- The sustainment challenges associated with operations in an urban area, including constant enemy operations against LOCs and sustainment bases.

TRAINING SOLDIERS FOR URBAN OPERATIONS

C-7. While reconnaissance and scout platoons need to retain freedom of maneuver and avoid becoming decisively engaged with the enemy, they must be committed and prepared to close with and destroy enemy forces in an urban environment if necessary. The only exceptions are the HBCT and ACR platoons (CFV), which are equipped to decisively engage the enemy (if necessary, until the larger elements arrive to take over the fight). Every scout must also be prepared to effectively interact with the urban area's noncombatant population and assist in his unit's intelligence collection efforts. Each urban operation will be unique, and platoon leaders need to conduct an analysis of the tasks requiring emphasis or modification to match the conditions of the OE. In urban operations, every scout will likely be required to—

- Perform advanced rifle marksmanship, including advanced firing positions, short-range marksmanship, and night firing techniques (unassisted and with the use of optics).
- Operate crew-served weapons.
- Conduct reconnaissance of urban areas and combat patrolling.
- Enter and clear buildings and rooms as part of an urban attack, raid, or cordon and search operation.
- Defend an urban area.
- Act as a member of a convoy (including specific driver training).
- Control civil disturbances.
- Navigate in an urban area.
- Determine if EOF is required.

C-8. Other critical individual and collective urban operations tasks might include but are not limited to—

- Conduct troop-leading procedures.
- React to contact (ambush, snipers, indirect fire, and IEDs).
- Establish an OP, personnel or vehicle checkpoint, or roadblock.
- Support SE and cordon and search.
- Secure a disabled vehicle or downed aircraft (including UAS).
- Call for indirect fire, CAS, and CCA support.
- Create and employ explosive charges.
- Process detainees and EPWs.
- Treat and evacuate casualties.
- Report information accurately.
- Understand the society and culture specific to the AO.
- Use basic commands and phrases in the region's dominant language.
- Conduct TQ.
- Interact with the media.
- Conduct thorough after-action reviews (AAR).

VEHICLE CAPABILITIES AND LIMITATIONS

C-9. Reconnaissance and scout platoons are found in a wide range of parent units (IBCT, SBCT, HBCT, and ACR). Scouts may be assigned in any of these units; reassignments in theater may require them to use unfamiliar platforms. Scouts should have a working knowledge of each platform in terms of conducting effective operations and fighting for information if necessary. Refer to FM 3-20.971 for details on vehicle capabilities and limitations.

COMMUNICATIONS

C-10. The reconnaissance or scout platoon leader must plan for effective communications in the urban environment. The effects of buildings, power lines, and civilian communications systems will create the need for redundant communications in controlling the platoon's freedom of movement.

C-11. Urban terrain affects LOS communications. For example, man-made structures interfere with radios by absorbing or reflecting transmitted signals. Leaders mitigate this effect on LOS communications by—

- Requesting a retransmission (retrans) site on supporting terrain or structures.
- Repositioning C2 vehicles to maintain communications with all elements.
- Requesting UAS retrans.
- Tapping into existing antennas and retransmission stations.

HELICOPTER SUPPORT

C-12. The reconnaissance/scout platoon may request attack reconnaissance helicopter support, utility helicopter support, and UAS support. See FM 3-20.971 for information on missions, weapons limitations, and command and support relationships.

FIRE SUPPORT

C-13. The reconnaissance/scout platoon leader and at times the PSG will plan for employment of fires in the urban AO. Mortar fires are best suited for urban environments because of their availability to the platoon, the short time required to re-lay the weapons from mission to mission, their high-angle trajectory, and the short time of flight to target. The mortar's high-angle fire characteristics reduce the amount of dead space along the gun-target line behind tall buildings and other structures on scout-requested fire missions. Light and medium mortars typically produce less collateral damage than higher-caliber weapon systems.

C-14. Leaders may employ GPS-enhanced artillery munitions such as Excalibur and GMLRS unitary warhead rounds against well-located targets. The near-vertical attack trajectories of these munitions make them suitable for employment in constricted terrain.

C-15. The reconnaissance/scout platoon leader should be knowledgeable on the employment of precision-guided munitions (PGM). This may entail either use of laser or infrared designator equipment or special augmentation. Scout sections must ensure that they request NFAs on all surveillance positions and that CFZs are coordinated along reconnaissance routes through the platoon leader. In addition to the use of conventional munitions, PGMs will also be carefully considered if available. The most important consideration in using PGMs is that some type of laser or IR designator equipment must be available. If these assets are not available to the platoon, the platoon leader must coordinate for a FIST or COLT. Advances in air-delivered ordnance provide scout leaders with bombs of smaller diameter and weight that are guided by GPS and LTDs. This improvement enables scouts to destroy threats with maximum accuracy while minimizing possible collateral damage.

SECTION II – PLANNING FOR RECONNAISSANCE IN URBAN ENVIRONMENTS

C-16. The platoon conducts reconnaissance in urban environments to gain critical information on the enemy and other aspects of the OE. The reconnaissance or scout platoon must have clear and detailed reconnaissance guidance from the higher commander to begin planning for reconnaissance in support of urban operations.

C-17. A successful reconnaissance effort must be exceptionally comprehensive and synchronized. Success begins with a detailed plan that requires a comprehensive ISR effort. The ISR plan must be flexible, must be responsive to the changing IR of the commander, and must support all phases of urban operations. Figure C-1 depicts a sample planning checklist for reconnaissance in urban operations.

Planning Checklist for Urban Reconnaissance	
☑	Develop human intelligence collection plan.
☑	Determine reconnaissance and surveillance objectives.
☑	Plan infiltration and exfiltration.
☑	Synchronize aerial and ground reconnaissance plans.
☑	Coordinate for fire support.
☑	Develop communications and sustainment plan.
☑	Continue improving urban operations sketch.

Figure C-1. Planning checklist for reconnaissance in urban environments

C-18. The platoon leader is responsible for the following essential aspects of the ISR effort in an urban operations plan:

- Understand the reconnaissance objectives.
- Conduct urban mapping using these steps:
  - Identify and pinpoint key locations.
  - Continuously improve the urban operations sketch.

C-19. The platoon leader must consider the following as he develops his urban operations plan:

- IPB, including the following:
  - The enemy situation.
  - Civil considerations.
  - Initial map and aerial photograph reconnaissance (if available).
  - Hazardous areas.
  - Major terrain features.
  - Avenues of approach.
  - Terrain and weather considerations.
  - Friendly force considerations.
- Commander's intent and concept of the urban operation, including the following:
  - Key reconnaissance tasks to be accomplished by the platoon.
  - Purpose of platoon reconnaissance in relation to the higher headquarters reconnaissance objective.
  - Endstate for the reconnaissance.
  - Focus and tempo for the reconnaissance.
  - HUMINT collection plan.
  - Reconnaissance of the designated areas to answer the IR.
  - Synchronization of aerial and ground reconnaissance assets.
  - Synchronization of target acquisition assignments with reconnaissance tasks.
  - Integration of other elements or assets into the reconnaissance effort.
  - Locations and criteria for RHO and target handover.
- Fires, including the following:
  - Determine who controls each fire support asset.
  - Exchange fire plan and observer plan with adjacent units.
  - Develop an observer plan.
  - Identify location of hazardous sites.
  - Identify the general construction or composition of the buildings and road surfaces.
  - Determine where buildings, overhead power lines, or towers degrade GPS or compass function.
  - Determine beneficial and detrimental effects in using obscurants and illumination.
- Additional considerations, such as the following:
  - Bypass and engagement criteria.
  - Commitment criteria and actions of the reaction force or reserve.
  - Graphic control measures that support the concept of the operation.
  - Sustainment considerations.
  - Communications considerations.
  - Continuous updating of the urban operations sketch.

C-20. See FM 3-20.971 for additional details on planning for urban operations.

SECTION III – EXECUTION OF URBAN OPERATIONS

C-21. This section focuses on a possible sequence the platoon should consider in executing urban operations (see Figure C-2).

Sequence of Urban Operations Execution
Approaching and entering the urban AO
Employing surveillance teams (mounted/dismounted)
Conducting reconnaissance
Assessing the AO
Conducting sustainment operations
Endstate

Figure C-2. Recommended sequence of urban operations execution

APPROACHING AND ENTERING THE URBAN AO

C-22. The reconnaissance/scout platoon conducts reconnaissance and HUMINT collection outside the urban area to gain information on the objective. Depending on the time available, the platoon develops the urban situation progressively from the surrounding area toward the city. Using data obtained from one or more sensor cues, such as Prophet, platoon or higher-echelons UASs or aerial reconnaissance assets may be employed to conduct aerial reconnaissance of routes and objective areas ahead of or flanking the platoon. UASs are focused on unit entry points to determine the enemy situation, such as obstacles in the urban area, ambush positions on rooftops, or movement of personnel and vehicles as units approach. As discussed earlier, the aerial and ground reconnaissance plans must be synchronized to be effective.

C-23. The commander manages resources during ISR operations to avoid undertasking or overtasking collection systems. In some situations, unit taskings may exceed the platoon's capabilities. Units constantly reevaluate each collection asset for unused capability; they then assign or redirect unused assets/capacity to cover the most important unfulfilled requirements.

C-24. The platoon leader may plan with redundancy by assigning several assets to cover the same NAI or target from different directions. While this does not allow maximum coverage of the AO, it does help to compensate for the loss of a patrol or other asset observing a critical area of interest. Redundant tasking increases the chances for mission accomplishment when the probability of success by one asset is low.

C-25. The platoon orients on the objective by occupying and/or observing key terrain and enemy avenues of approach. Platoons can use their sensors and optics to conduct long-range surveillance and to locate enemy positions and/or vehicles before forces enter the urban area. Once in the urban area, scouts must work to maintain contact with the enemy (whether or not they are in physical contact with the enemy). In addition to surveillance, the platoon may conduct security tasks, which include the following:

- Call for and adjust indirect fires.
- Conduct combat patrols.
- Conduct overwatch of other surveillance elements.
- Identify and prevent enemy forces from escaping (within unit's capability).
- Identify and provide early warning of enemy reinforcement of the urban area.
- Identify and provide early warning of enemy attack.

EMPLOYING SURVEILLANCE TEAMS (MOUNTED/DISMOUNTED)

Note. The platoon will use OPs to observe and report threats. When in contact, the OP will transition into a BP and fight as necessary. A surveillance team position is meant for short-term observation; when it is detected, the element exfiltrates to the safety of friendly elements.

INFILTRATION

C-26. Depending on the mission and the information gained initially, the platoon may have to conduct infiltration using surveillance teams to observe areas of interest or conduct target acquisition. Plans for infiltration are based on the requirement for conducting movement to the AO with the least risk of detection. Infiltration considerations include the following:

- Concealed primary or alternate routes are selected based on detailed map reconnaissance and aerial photographs, ground reconnaissance, and threat information from other sources.
- Infiltrating elements must avoid obstacles, silhouetting locations, threat positions, main avenues of approach, and movement on heavily populated routes and trails.
- Infiltration should be conducted during periods of reduced visibility and reduced threat alertness. The time is especially important during critical phases such as movement through populated areas.
- Scouts must know their routes, rally points (primary and alternate), time schedules, danger areas, and the threat situation. These are critical to an optimum balance of speed and stealth.
- Use of string or markers along infiltration routes can help scouts to retrace the route under degraded conditions.
- Centralized coordination helps to ensure that all scouts are acting in accordance with cover and deception plans. Infiltration by land is characterized by centralized planning and decentralized execution.

URBAN SURVEILLANCE SITE

C-27. The primary method of employing surveillance teams is in a surveillance OP. The terrain, mission, and location of the site may require that the teams establish multiple OPs so the platoon can effectively observe the NAI. At least two Soldiers must man the OP to conduct effective surveillance. One scout observes while the other provides security and records information in the surveillance log. Because observer efficiency decreases rapidly after 30 minutes, the observer and the recorder switch duties about every 30 minutes. When using NODs, the observer's initial period of viewing is 10 minutes, followed by a 15-minute rest period. After several viewing periods, the rest period is extended to 20 minutes. Hide site personnel should be rotated every 24 hours.

Note. Surveillance sites may require the use of an overwatching element to support personnel rotation and to protect teams during exfiltration to friendly or safe areas. These supporting elements may be mounted or dismounted and must not be detected by the enemy; they must adhere to the same stealth techniques as the surveillance site. Sniper teams may be employed as an overwatching element because of their stealthy nature, superior optics, and overall understanding of platoon evasion routes.

C-28. The team uses hasty sites for short periods (generally less than six hours). This most often occurs during target acquisition missions. The team makes the best use of natural cover and concealment. It uses man-made camouflage materials to improve concealment as required and keeps movement to a minimum. These surveillance sites are similar to an OP; however, they are not intended for same amount of time.

C-29. Generally, two or three members are positioned forward in an OP to observe the target area and record information. The hasty hide site is positioned far enough to the rear of the OP to be out of the direct line of enemy observation. The distance normally depends on terrain and vegetation. It must be far enough away from the surveillance OP so that if an enemy force discovers one of the two positions, the other position may go undiscovered. This will allow scouts to escape or place direct fire on the enemy and, if necessary, enable one or both elements to break contact. The team members in the hasty hide site maintain rear and flank security. Communication is normally conducted after the team moves away from the area. In an emergency, the surveillance team may need to request direct fire support from the overwatching element on the move.

C-30. Surveillance teams can construct fixed urban hide sites in occupied and abandoned buildings or shrubbery, on water tanks or warehouse rooftops, or in attics of multistory buildings or other tall structures. If possible, teams avoid wooden buildings and buildings in a significantly deteriorated condition because

of the risk of injury from fire and structural failure. Fixed sites should not be in buildings that attract enemy attention, but they can be in rubble, yards, and gardens. If the site is set up in an undamaged part of the urban area, teams should select buildings of solid construction with serviceable stairs and basements that can be equipped for the rest and shelter of personnel during artillery bombardments.

C-31. Site construction may consist simply of taking a position at a suitable viewing port, or it can be much more elaborate, time being a crucial factor. Windows, doors and other openings (such as bullet holes not used for observation) are filled with bricks, fragments of building materials, or sandbags if available. Flammable objects are removed from the premises. Supplies of water and sand are assembled for fighting fires. If the enemy has previously occupied the building, the team takes precautions against booby traps and mines. If the enemy is near, several places in the building are prepared for observation and departure.

Note. Enemy elements that have been in the area may return to the buildings they were originally in. If scouts enter these same buildings and move objects the enemy had contact with, they may alert the enemy and raise suspicion of another presence in the building. Surveillance teams may become trapped in the building.

C-32. In limited visibility, two to three (normally three) members may be required to set up a new OP. The OP site will be near the target area so that information can be collected through close-in observation and sound detection. The remainder of the team stays in the hide site. The surveillance site and the route to and from it are selected during good visibility. Members enter and exit the surveillance site during limited visibility. One member observes, one records, and one maintains security to the rear and flanks. Only passive NODs are used to help prevent detection. Observation of the NAI may be conducted with weapons-mounted FLIR.

Note. During hours of limited visibility, overwatch elements for surveillance sites may require use of FLIR. These devices provide optimum observation capability and allow overwatch elements to provide maximum warning time to OP personnel.

C-33. The hide site may not be a suitable location for transmitting reports. The location may be situated where the cover or concealment prevents communications equipment from transmitting or receiving due to antenna interference. When this is the case, a separate communication site is needed. A minimum of two personnel is required at the communication site: one to send the message and erect an antenna, if necessary, and one to provide security. The communication site is occupied long enough to transmit the message and conceal any signs of the team's presence. In some situations, the hide site may send information to the overwatch element for relay to the platoon leader or commander.

EXFILTRATION

C-34. The principles of route selection, movement formations, and movement security are observed during movement to the extraction site. Exfiltration considerations are the following:

- The amount of time that teams remain in the urban AO depends on their mission, composition, and equipment. Exfiltration is critical from a standpoint of maintaining combat power and morale while ensuring future mission accomplishment. Plans for extraction are made before the operation, along with alternate plans for contingencies such as the evacuation of sick or injured personnel, resupply while in contact, and reinforcement by a reaction force to break contact. During the mission, the team leaders may be faced with unforeseen situations that demand the utmost flexibility, discipline, and leadership. The reconnaissance/scout platoon must rehearse the contingencies so the squad and section leaders can execute them under the pressure of physical contact. Rehearsals should cover conducting linkup and directing the reaction force once it is dispatched.

- Each team is given code words in the OPORD for use during exfiltration. For example, one code word may mean that a team is at its extraction point. Another may mean that both the primary and alternate extraction points are compromised and to abort the extraction.
- When a team has missed required transmissions (either a specified number or within a period of time), the command assumes that the team has a communications problem, is in trouble, or both. At that time, a no-communication resupply and exfiltration plan is used. In deciding whether to deploy the reaction force to assist in extracting the team, the platoon leader should consider the current enemy situation and the likelihood that exfiltrating elements may come under enemy fire.
- Exfiltration of the teams may be by means other than linkup with the teams' vehicles. The OPORD may specify dismounted exfiltration or linkup with friendly forces during an offensive operation. This allows the surveillance team to be recovered under the protection of friendly forces moving forward. Any of these means may also be planned as alternatives in the event the teams cannot be extracted by their vehicles or must take action to avoid capture.
- Teams will be trained in exfiltration techniques so they can exfiltrate singly or in groups (see Chapter 3 for further discussion).

CONDUCTING RECONNAISSANCE

URBAN PATROLLING

C-35. Although reconnaissance platoons typically will not perform building-to-building clearing operations in urban areas, they can perform urban patrolling to accomplish reconnaissance missions. As discussed previously, detailed planning is accomplished prior to execution of a patrol. Using maps, aerial photography, and any known intelligence, leaders will determine the following:

- Preliminary route reconnaissance.
- Insertion and extraction routes.
- Choke points along the routes.
- Escape and evasion directions or corridors.

C-36. Urban patrols may be conducted mounted or dismounted with vehicles in support. Patrols should never be conducted lower than section level. They should be planned using the considerations of a combat patrol because physical contact with the enemy can be unexpected and violent.

Mounted Patrolling

C-37. Mounted patrols capitalize on the mobility of the reconnaissance/scout platoon's vehicles. Mounted urban patrolling principles include the following:

- Ensure mutual support and depth by maintaining constant observation among vehicles.
- Coordinate a supporting fire plan with any dismounted units in the area.
- Maintain all-around security.
- Develop a reliable communications plan for mounted and dismounted elements.
- Develop vehicle recovery and CASEVAC plans.
- Adjust patrol routes and speed to promote deception and avoid repetitive patterns.
- Maintain SA.

C-38. Mounted patrols never enter an area via the route they will use to exit it. Vehicles should travel at moderate speeds, with the lead vehicle stopping only to investigate areas that pose a potential threat or that support essential tasks of the patrol. Use a vehicle speed of 15 to 20 miles per hour to allow for adequate observation and quick reaction. Slower speeds may allow noncombatants or the enemy to impede movement. On the other hand, vehicles should move at high speeds only when responding to an incident or contact. Equipment stored externally on vehicles should be secured high enough to prevent locals from snatching equipment and weapons.

C-39. When vehicles must stop, designated personnel dismount to provide security. The vehicle gunner is at the ready, and the driver remains in his seat with the engine running. It is imperative that units maintain SA during patrols; this includes orientation on other patrols in the urban area. If an element takes fire, it should be capable of communicating with other patrols to obtain assistance and support.

Dismounted Patrolling

C-40. During reconnaissance with a multidimensional focus, dismounted patrolling is used in HUMINT collection. At a minimum, patrols are organized at section level. Section-size patrols (six Soldiers) are required for security purposes; a section-size patrol can maintain both an information-gathering team and a security team. Patrols may be augmented by HUMINT, interpreters, interrogators, CA, and female Soldiers for interaction with the populace.

C-41. Leaders of dismounted patrols maintain communications with vehicles and the platoon leader or headquarters element throughout the mission. In the reconnaissance/scout platoon, vehicles operating as a reaction force are prepared to react to any situation the dismounted element may encounter. Patrols should avoid areas with large masses of civilians, who could quickly turn against the presence of U.S. Soldiers. As with mounted patrols, dismounted patrol leaders must be ready to contact other patrols or supporting elements for assistance in unfavorable or dangerous situations. A UAS deployed ahead of the patrol can provide information to the controlling authority and patrol leader, enabling the patrol to avoid threat/enemy elements without making visual contact.

ACTIONS ON CONTACT

C-42. The platoon always attempts to avoid becoming decisively engaged. Rehearsed actions on contact are essential to the survivability of the unit and the success of the mission. All Soldiers require clear understanding of the ROE and the unit's EOF policy to avoid creating situations where physical contact with the enemy draws in combatants. Soldiers should also understand that the ROE do not prevent them from protecting themselves or their unit. Actions on contact entail the following:

- Upon contact, make positive confirmation of the position or direction from which the fire came.
- Move the vehicles quickly out of the line of direct fire while returning fire if the enemy position can be identified.
- Use other vehicles to envelop or cut off a sniper/antiarmor gunner's avenue of escape.
- If vehicles are caught in an area where they become decisively engaged, the vehicles must suppress the enemy while moving out of the potential kill zone as quickly as possible.

C-43. If they encounter obstacles, patrols will move rapidly to an alternate route and report the obstacles to higher headquarters. Patrols do not attempt to clear an obstacle, which are usually covered by enemy fire, mined, or booby-trapped. Patrols should look for telltale signs that obstacles have been emplaced in a sequence. Such a series of obstacles can cause turning and funneling and may ultimately lead the patrol into a deliberate kill sack where it will face an unseen enemy.

ASSESSING THE AO

C-44. The platoon leader will receive reports on the urban AO through surveillance teams, HUMINT and CA sources, and UAS flights. This information is sent by radio voice or digital means so the commander can assess the AO according to the mission and intent of the higher headquarters. The information provided by the platoon will include, but is not limited to, the following:

- Enemy composition and activity.
- Areas of vulnerability to friendly forces.
- Key terrain.
- Approach routes for mounted and dismounted forces.
- Entry points or points of penetration.
- Support positions for direct and indirect systems.
- Civilian disposition (including religious makeup, if available).
- Density and composition of the urban area.

- Hazard areas (fuel storage, natural gas lines, and chemical production sites).
- Communication facilities.
- Retransmission sites.
- Intent of the civilian populace (stay or flee).

CONDUCTING SUSTAINMENT OPERATIONS

C-45. Additional medical support is requested as needed. When possible, MEDEVAC of team members is delayed until the whole team is evacuated from the AO. Combat lifesavers within each squad improve the scouts' chances of survival until they must be evacuated. Unnecessary movement may alert the enemy to the presence of scouts. Wounded team members are sent directly to the nearest medical facility that can provide definitive care and treatment. If a surveillance position is occupied for a longer period than originally planned, the PSG must begin supporting the surveillance position as an OP with items such as fresh personnel, water, rations, and batteries. The resupply may be moved in a stealthy manner to the overwatch position (similar to the service station method) or to the communication position as a cache. When the PSG must provide support to the surveillance team and threat or enemy contact is not expected, a UAS may be employed to cover the required NAI while the resupply operation is executed.

C-46. Recovery operations in the urban environment may be resource-intensive. If the platoon is operating in MCO, it may have to provide security as troop or battalion assets attempt to recover the platoon's vehicles under the PSG's supervision. If the platoon is in contact while conducting recovery, the PSG may need to request support from the 1SG to expedite both recovery and CASEVAC (if required). Low-intensity environments may allow the PSG to conduct self-recovery with like vehicles (as well as CASEVAC, if needed) to the secure maintenance collection point.

ENDSTATE

C-47. The endstate of the reconnaissance/scout platoon's effort in the urban area is to provide the needed information that allows the commander to answer the two critical questions for the squadron: Is it essential to conduct operations in the urban environment? If so, how can the squadron employ combat power in the most efficient manner?

C-48. The platoon conducts RHO to provide the higher commander with the required information as discussed in Chapter 3. This will include specific considerations for urban operations, such as—

- Production of urban operations sketches.
- Recommendation of entry points and routes.
- Surveillance of key objectives.
- Target acquisition.
- Assistance in isolating the AO by screening (or checkpoints) on the perimeter.
- Continuous HUMINT collection during the operation.

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Appendix D

Fratricide Prevention and Combat Identification

Future conflicts may be fought with joint and/or coalition forces operating in an operational environment (OE) against enemies without clearly defined national or social boundaries. As the spread of combat systems across the world increases, the likelihood of encountering friendly and enemy systems made by the same country also increases. Reconnaissance and scout platoons must be prepared to perform their missions while dealing with a wide range of threats and other influences. The OE requires the platoon to be ready to counter all possible threats and, at the same time, to work with various friendly or neutral elements present in the OE, such as international humanitarian relief agencies, news media, refugees, and civilians.

These situations directly contribute to the increase of fratricide situations where the unintentional death or injury of friendly personnel or damage to equipment by friendly forces occurs. Fratricide prevention is the commander's responsibility. He is assisted by all leaders across all warfighting functions in accomplishing this task. In any tactical situation, the situational awareness (SA) of leaders and Soldiers is critical not only to mission success but also to survival. Leaders must know where other friendly elements are operating, anticipate dangerous conditions, and take steps to either avoid or mitigate possible fratricide. The platoon leader and commander must be vigilant for changes and developments in their OE that may place elements in danger. When a potential fratricide situation is identified, the platoon leader must personally coordinate with all friendly elements involved. Scouts on the ground who observe a fratricide situation unfolding must report the situation immediately up their chain of command.

Note. Prior to all missions, commanders must ensure that their units conduct detailed planning and rehearsals emphasizing SA, communication, and fratricide prevention.

SECTION I – DEFINITIONS

D-1. Combat identification (CID) is the process of attaining an accurate characterization of detected objects as friendly, enemy, neutral, or unknown within the OE to ensure timely engagement with appropriate systems can occur.

D-2. Target identification (TI) is the accurate and timely characterization of a detected object in the area of operations (AO) as friend, neutral, or enemy. This aspect of CID is time sensitive and directly supports a combatant's shoot or don't-shoot decision for the detected objects. TI is shooter-focused with friendly systems, like the joint combat identification marking system (JCIMS).

D-3. Detect, identify, decide, engage, and assess (DIDEA) is a standardized and systematic five-step approach used by individual Soldiers through weapon crews to apply CID and ROE to target engagements. This is performed at point of engagement speed.

D-4. SA is the immediate knowledge and understanding of the current situation, which promotes timely, relevant, and accurate assessment of friendly and enemy operations, and other conditions within the AO.

SECTION II – THE ROLE OF TRAINING

D-5. The underlying principle of fratricide prevention is simple: Leaders who know where their Soldiers are and where they want them to fire can keep those Soldiers alive to kill the enemy. At the same time, leaders must avoid reluctance to employ, integrate, and synchronize all required warfighting functions at the critical time and place. Scouts must avoid becoming overly cautious out of fear of fratricide; rather, they must strive to eliminate fratricide risk through tough, realistic, combined arms training in which each Soldier and unit achieves the established standard.

D-6. Training allows units and Soldiers to make mistakes, with the goal of reducing or eliminating the risk of errors occurring in combat. A key role of the reconnaissance and scout platoon training program is to teach scouts which targets to engage and when to engage them. Just as important, Soldiers must learn and practice restraint in what and when to engage; for example, every vehicle commander must know that he must confirm the identity of the target as hostile, before issuing and executing any fire command.

D-7. Eliminating the risk of fratricide is no less critical as a training standard than are other mission requirements. All leaders must know all aspects of the applicable training standard, including fratricide prevention, and then make sure their Soldiers train to that standard.

SECTION III – EFFECTS OF FRATRICIDE

D-8. Fratricide results in unacceptable loss of life, equipment, weapon systems, and vehicles. This loss of life and resources affects the unit's ability to survive and function and this degraded capability to fight increases the risk of mission failure. Fratricide in reconnaissance and scout platoons has these effects:

- Degraded unit readiness.
- Loss of combat effectiveness.
- Loss of confidence in the unit's leadership.
- Increasing self-doubt among leaders.
- Hesitation to employ supporting combat systems.
- Leaders over-supervising units.
- Hesitation to execute orders in the conduct of night operations.
- Loss of aggressiveness during fire and maneuver.
- Loss of initiative (both personal and regaining the tactical aspect).
- Disrupted platoon operations affecting the higher command.
- Overall degraded unit cohesiveness and morale.
- Higher command suffers overall loss of combat power.

SECTION IV – CAUSES OF FRATRICIDE

D-9. The reconnaissance or scout platoon typically operates ahead of combat formations scanning for threats. The following discussion covers the primary causes of fratricide. Leaders must identify any of the factors that may affect their units and then strive to eliminate them. For more discussion, see FM 3-20.971.

FAILURES IN THE DIRECT FIRE CONTROL PLAN

D-10. These occur when units do not develop effective fire control plans, particularly in the offense. Units may fail to designate target engagement areas or adhere to target priorities, or they may position their weapons incorrectly. Under such conditions, fire discipline often breaks down upon contact.

D-11. The reconnaissance or scout platoons can use a number of techniques and procedures to help prevent such incidents. An example is "staking in" vehicle and individual positions in the defense, using pickets to indicate the left and right limits of each position. An area of particular concern is the additional planning that must go into operations requiring close coordination between mounted elements and infantry squads. For example, because of the danger posed by discarding petals, sabot rounds should be fired over friendly scout elements only in extreme emergencies.

LAND NAVIGATION FAILURES

D-12. Units often stray out of assigned sectors, report wrong locations, and become disoriented. Continuous operations in all weather conditions coupled with a high operational tempo, present constant challenges to dismounted scouts. These conditions effect mounted scouts in a similar manner; however, the addition of moving in a vehicle increases the difficulty of navigation because distant terrain is not visible for association. Navigational errors can place the platoon in a position where they employ fire support weapons from or into the wrong location. In either type of situation, units placed in an unexpected chance meeting engagement with an errant unit may fire their weapons at that friendly force.

FAILURES IN COMBAT IDENTIFICATION

D-13. Vehicle commanders and gunners cannot accurately identify thermal or optical signatures near the maximum range of their systems. In limited visibility, units within that range may mistake one another for a threat target. Reconnaissance vehicles equipped with LRAS3 have the ability to detect and begin tracking targets out to 30 kilometers. While the scout may detect an entity, extended range may not allow them to determine exactly what it is. The purchase of U.S. equipment by a large number of foreign armies makes identifying friend from foe at extended distances nearly impossible. Every effort must be made to determine the nature of a target once it is detected to prevent fratricide situations.

INADEQUATE CONTROL MEASURES

D-14. Units must disseminate the minimum necessary maneuver fire control measures and fire support coordination measures; they must also tie control measures to recognizable terrain or events in a matrix. In some situations, attention to detail was not enforced during graphics reproduction, allowing control measures to be hundreds of meters off. As the operation develops, the plan then cannot address obvious branches and sequels as they occur. When this happens, synchronization fails. When in doubt, leaders should revert to their platoon SOP while attempting to reestablish communications with the platoon leader to clarify the platoons control measures.

FAILURES IN REPORTING AND COMMUNICATIONS

D-15. Units at all levels may fail to generate timely, accurate, and complete reports as locations and tactical situations change. Reports that are found to be in error must be updated with the platoon leader and the commander, to ensure the operational picture and FBCB2 is corrected.

WEAPONS ERRORS

D-16. Lapses in individual discipline can result in fratricide. These incidents include charge errors, negligent discharges, mistakes with explosives and hand grenades, and use of incorrect gun data.

HAZARDS IN THE AO

D-17. A variety of explosive devices and materiel may create danger in the AO: unexploded ordnance, unmarked or unrecorded minefields (including scatterable mines), and booby traps. All of these hazards need to be marked and recorded,

D-18. A unit that relies too heavily on systems such the FBCB2 and GPS devices will find its capabilities severely degraded if these systems fail. The unit will be unable to maintain situational awareness. To prevent potential dangers when system failure occurs, the platoon must ensure it can use a balance of technology and traditional basic Soldier skills in observation, navigation, and other critical activities. Scouts should practice human oriented skills due to technology failure as one of their contingencies to keep momentum during the mission; Bradley commanders track on the map with a finger while navigating, gunners practice range estimation in case of laser failure, and dismounted scouts practice engaging targets with out weapon aiming sites.

SECTION V – FRATRICIDE PREVENTION PRINCIPLES AND PROCEDURES

D-19. In many situations, the primary cause of fratricide is the lack of positive target identification. To prevent fratricide incidents, commanders and leaders at all levels must ensure positive target identification before they issue commands to fire. In addition, all units must accurately report their locations during combat operations, and all TOCs and CPs must carefully track the location of all subordinate elements in relation to all friendly forces. The measures outlined in this section, provide the platoon with a guide to actions it can take to reduce and/or prevent fratricide risk. These guidelines are not directive in nature, nor are they intended to restrict initiative. Commanders and leaders must learn to apply them as appropriate based on the specific situation and METT-TC factors.

PRINCIPLES OF FRATRICIDE PREVENTION

D-20. At the heart of fratricide reduction and prevention are the key principles covered in the following discussion. When considering these principles, all leaders should consider the formula SA+TI=CID, as shown in Figure D-1.

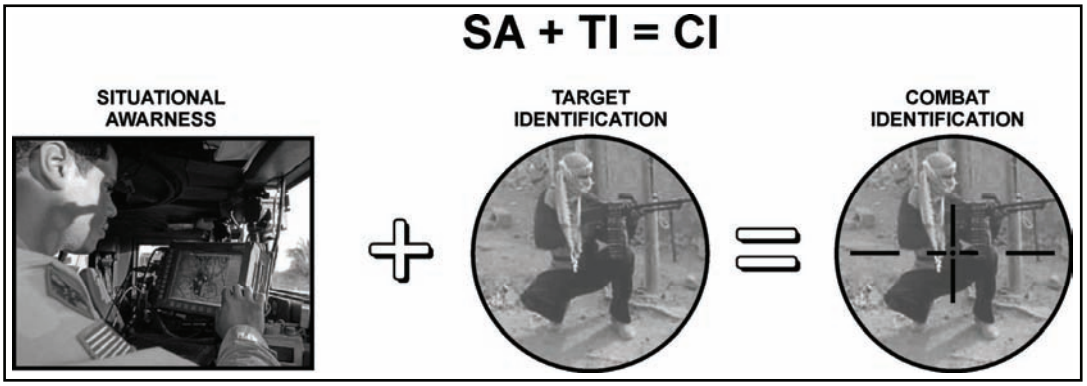


Figure D-1. Formula for fratricide prevention

MAINTAIN SITUATIONAL AWARENESS

D-21. Focus on such areas as current intelligence; unit locations and/or dispositions; denial areas (minefields/scatterable mines); contaminated areas, such as improved conventional munitions and CBRN; SITREPs; and METT-TC factors. FBCB2 will provide the reconnaissance platoon with a distinct advantage in situational awareness.

MAINTAIN EFFECTIVE FIRE CONTROL

D-22. Ensure fire commands are accurate, concise, and clearly stated. Make it mandatory for crewmen to ask for clarification of any portion of the fire command they do not completely understand. Ensure crewmen get in the habit of obtaining target confirmation and permission to fire from their leaders, before engaging targets they assume are threat elements. Know not only who will be in and around the area of operations, but what is in your area of operations, such as minefields, industrial contaminated areas, religious sites, and CBRN areas.

ESTABLISH AN EFFECTIVE COMMAND CLIMATE EMPHASIZING FRATRICIDE PREVENTION

D-23. Enforce fratricide prevention measures, placing special emphasis on the use of doctrinally sound TTP. Risks that create situations where fratricide may occur should be expressed in OPORDs and applicable FRAGOs. Leaders must ensure rehearsals address these risks as they occur in the course of the operation.

FRATRICIDE PREVENTION MEASURES

D-24. Commanders, leaders, and vehicle crewmen should adhere to the following guidelines, considerations, and procedures in ensuring fratricide reduction and prevention:

- Recognize the signs of stress. Maintain unit cohesion by taking quick, effective action to alleviate stress.
- Conduct individual, leader, and collective (unit) training covering fratricide awareness, target identification and recognition, and fire discipline.
- Develop a simple, decisive plan.
- Give complete and concise mission orders.
- To simplify mission orders, use SOPs that are consistent with doctrine. Periodically review and update SOPs as needed.
- Strive to provide maximum planning time for leaders and subordinates.
- Use common language/vocabulary and doctrinally correct standard terminology and control measures, such as CFL, zone of engagement, and RFL.
- Ensure that thorough coordination is conducted at all levels.
- Plan for and establish effective communications.
- Plan for collocation of CPs whenever it is appropriate to the mission, such as during a passage of lines.
- Designate and employ liaison officers (LNO) as appropriate.
- Make sure ROE and ROI are clear and understood.
- Conduct rehearsals whenever the situation allows the troop adequate time to do so. Rehearse and war-game potential fratricide scenarios with emphasis on unit recognition devices and signals.
- Be in the right place at the right time. Use position location/navigation devices, such as global positioning systems (GPS) and position navigation (POSNAV). Know your location and the locations of adjacent units (left, right, leading, and follow-on), and synchronize tactical movement. If the troop or any element becomes lost or disoriented, leaders must know how to contact higher headquarters immediately for instructions and assistance.
- Include a discussion of fratricide incidents in all AARs.
- Maintain situational awareness and understanding so circumstances of fratricide can be anticipated, and be planned for minimization.

FRATRICIDE RISK ASSESSMENT

D-25. The guidelines shown in Figure D-2 illustrate a technique which platoons can use for evaluating fratricide risks in the context of mission requirements. This technique includes a list of six mission accomplishment factors that affect the risk of fratricide, along with related considerations for each factor. Leaders should assess the potential risk in each area (low, medium, or high) and assign a point value to each (one point for low risk, two for medium risk, three for high risk). They then add the point values to calculate the overall fratricide assessment score.

D-26. The resulting score is used only as a guide, however. The leader's final assessment must be based both on observable risk factors, such as those listed on the worksheet, and on his "feel" for the intangible factors affecting the operation. Note that descriptive terms are listed only in the low- and high-risk columns. The assessment of each factor will determine whether the risk matches one of these extremes or lies somewhere between them as a medium risk.

Factors affecting fratricide	Potential risk categories (with variable conditions and point values)		
	Low risk (1 point)	**Medium risk (2 points)**	**High risk (3 points)**
UNDERSTANDING OF THE PLAN			
Commander's intent	Clear		Vague
Complexity	Simple		Complex
Threat situation	Known		Unknown
Friendly situation	Clear		Unclear
ROE/ROI	Clear		Unclear
ENVIRONMENTAL FACTORS			
Intervisibility	Favorable		Unfavorable
Obscuration	Clear		Obscured
Battle tempo	Slow		Fast
Positive target ID	100 %		None (0 %)
CONTROL MEASURES			
Command relationships	Organic		Joint/combined
Audio communications	Loud / clear		Jammed
Visual communications	Easily seen		Obscured
Graphics	Standard		Not understood
SOPs	Standard		Not used
Liaison personnel	Proficient		Untrained
Location/navigation	Sure		Unsure
EQUIPMENT (compared to US equipment)			
Friendly	Similar		Different
Threat	Different		Similar
TRAINING			
Individual proficiency	MOS-qualified		Untrained
Unit proficiency	Trained		Untrained
Rehearsals	Realistic		None
Habitual relationships	Yes		No
Endurance	Alert		Fatigued
PLANNING TIME (based on 1/3 - 2/3 rule)			
Higher headquarters	Adequate		Inadequate
Own unit	Adequate		Inadequate
Subordinate elements	Adequate		Inadequate
Overall risk assessment (by total point value)	**Low risk 26 - 46 points**	**Medium risk 42 - 62 points**	**High risk 58 - 78 points**
NOTE: Point values alone may not accurately reflect fratricide risk. The commander must tailor his assessment to the unit's requirements.			

Figure D-2. Example fratricide risk guidelines

PRINCIPLES OF FIRE CONTROL

D-27. Fire control ensures that critical targets are engaged first and with the correct weapon system. When employed properly, weapon systems avoid target overkill, conserve ammunition, create standoff, and prevent fratricide. The principles of fire control assist in defining the area of operations and empowering the personnel to make decisions with minimum supervision.

MASS THE EFFECTS OF FIRE

D-28. Massing fires entails focusing fires at critical points and distributing the effects. For example, sections concentrating a weapon system on a single target may ensure its destruction or suppression. However, that fire control technique will probably not achieve a decisive effect on the enemy formation or position permitting the enemy to escape and report your presence.

DESTROY THE GREATEST THREAT FIRST

D-29. The danger posed by the enemy depends on enemy weapons, range, and positioning. Presented with multiple targets, a unit will, in almost all situations, initially concentrate fires to destroy the greatest threat, and then distribute fires over the remainder of the enemy force (tanks, APCs, trucks, rocket-propelled grenade [RPG] teams, and finally troops in the open).

AVOID TARGET OVERKILL

D-30. Target overkill wastes ammunition and ties up weapons that are better employed acquiring and engaging other targets and can compromise the cover and concealed positions of potentially critical reconnaissance platforms. On the other hand, the idea of having every weapon engage a different target must be tempered by the requirement to destroy the greatest threats first.

EMPLOY THE BEST WEAPON FOR THE TARGET

D-31. Using the appropriate weapon for the target increases the probability of rapid threat destruction or suppression; at the same time, it saves ammunition. Target type, range, and exposure are key factors in determining the weapon and ammunition that should be employed, as are weapons and ammunition availability and desired effects. Additionally, leaders should consider individual and crew capabilities when deciding on the employment of weapons. The troop commander task organizes and arrays his assets based on the terrain, threat/enemy, and desired effects of fires (such as TOW missiles for tanks, 25-mm chain gun for APCs and trucks, and machine guns for troops and RPG teams).

Note. New TOW ammunition has been made available for platoons to use against aerial targets and reinforced structures.

MINIMIZE FRIENDLY EXPOSURE

D-32. Units increase their survivability by using cover and concealment and exposing themselves to the enemy only to the extent necessary to engage the enemy (hull or turret down positions) effectively. Crews and squads minimize their exposure by constantly seeking effective available cover, attempting to engage the enemy from the flank, remaining dispersed, firing from multiple positions, and limiting engagement times.

PREVENT FRATRICIDE

D-33. Leaders must be proactive in reducing the risk of fratricide and noncombatant casualties. Knowledge and employment of applicable ROE are the primary means preventing noncombatant casualties. There are additional tools to assist in this effort; identification training for combat vehicles and aircraft; the units weapons safety posture; the weapons control status; recognition markings; and knowledge of the common

operational picture (COP). Scout positions which have a visual contact but cannot clearly identify that contact may make a net call to see if any other element has a visual on that contact. Details may be visible to anther scout in a different location.

PLAN FOR EXTREME LIMITED VISIBILITY CONDITIONS

D-34. At night, limited visibility fire control equipment enables the engagement of threat forces from nearly the same ranges that are applicable during the day. Obscurants such as dense fog, obscurant munitions, and blowing sand, however, can reduce the capabilities of thermal and infrared equipment. Although decreased acquisition capabilities have minimal effect on area fire, point target engagements will likely occur at decreased ranges. Another alternative is the use of visual or IR illumination when there is insufficient ambient light for passive light intensification devises.

DEVELOP CONTINGENCIES FOR DIMINISHED CAPABILITIES

D-35. Leaders initially develop plans based on their unit's maximum capabilities; they make backup plans for implementation in the event of casualties or weapon damage or failure. Leaders should develop plans for what they view as the most probable occurrences. Platoon leaders should build redundancy into these plans, such as having two systems observe the same NAI, is an invaluable asset when the situation (and the number of available systems) permits.

SECTORS OF FIRE

D-36. Sectors of fire are areas that are covered by observation and fire, starting at the weapon system and extending to its maximum effective range. Platoon leaders must ensure that each scout section's field of fire overlaps with adjacent section's sectors of fire. The platoon's fire plan must cover dead space within and between sections to maintain coverage. Considerations include the following:

- The primary sector of fire is the main area on which the leader wishes the weapon system to concentrate its firepower, usually overlooking a main engagement area. The primary sector of fire is covered by the primary and alternate positions.
- The secondary sector of fire is assigned to engage a secondary avenue of approach or cover another vehicle's sector, if it is required. The secondary sector of fire is covered by the supplementary position.

SCANNING TECHNIQUES

D-37. When scanning in open terrain, scouts will scan left to right and near to far. Urban terrain offers more cover and concealment to possible threats. A third scanning dimension is added to target detection, scanning up and down as shown. Figures D-3 through D-6 illustrate scanning techniques in various environments.

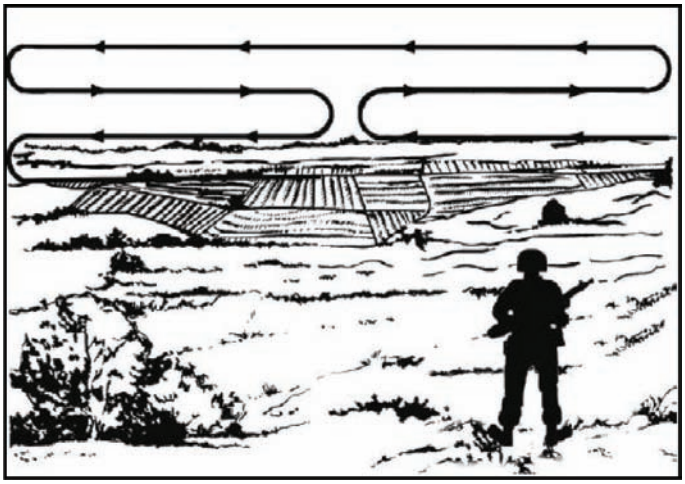


Figure D-3. Scanning techniques (part one)

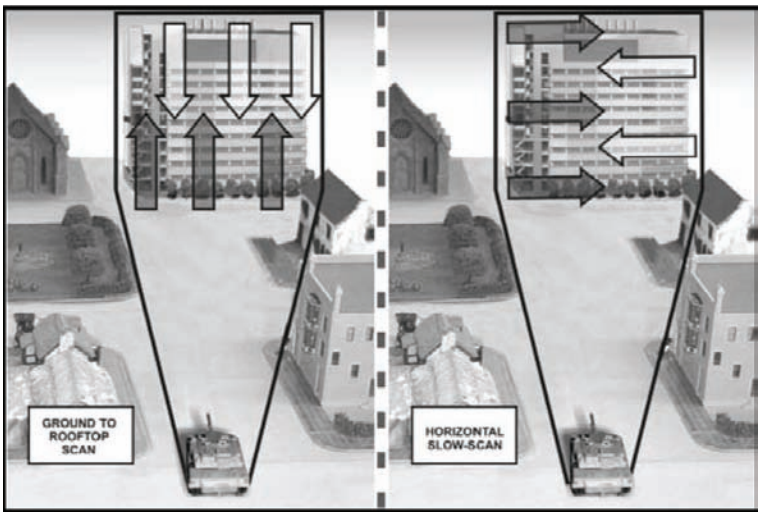


Figure D-4. Scanning techniques (part two)

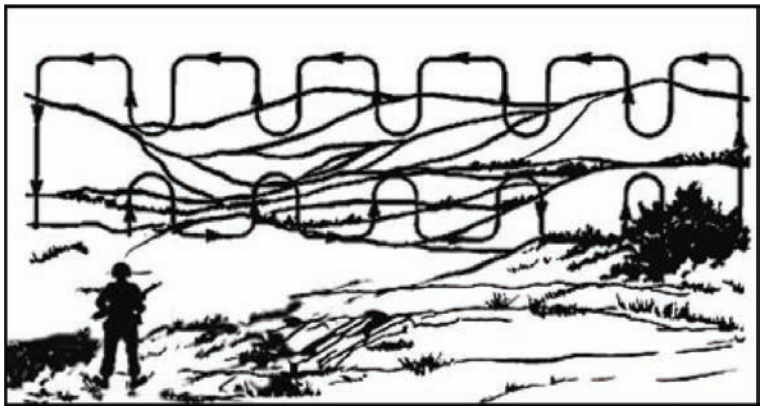


Figure D-5. Scanning techniques (part three)

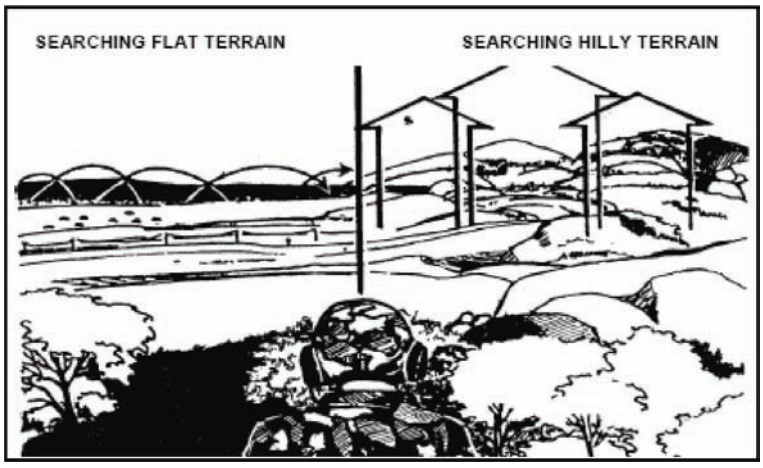


Figure D-6. Scanning techniques (part four)

ENGAGEMENT AREAS

D-38. The platoon leader must plan to use the massed effects of direct fires, CCA, CAS, and indirect fires at the appropriate times or simultaneously. Obstacles should be used in the engagement area to turn, fix, and contain the enemy in the engagement area for accurate fires.

TARGET REFERENCE POINTS (TRP)

D-39. A TRP is an easily recognizable point on the ground (natural or man-made) used for identifying enemy targets or controlling direct fires. TRPs are used to designate targets of opportunity, shift fires, or assign sectors of fire.

D-40. In the defense, TRPs are assigned for vehicles along mounted avenues of approach. In the offense, TRPs are assigned on likely enemy locations or on prominent terrain features. To avoid confusion, the number of TRPs should be limited to the number required to effectively control and distribute fires. When using a TRP to hand off targets, compass directions (north, east, south, and west) are used rather than right or left, because each vehicle may be viewing the TRP from a different direction. The FIST will assign each TRP a target identification number. The target identification number consists of two letters and four numbers (for example, AB5010). These identification numbers are recorded on range cards in the data section for easy reference and control. To simplify fire commands, TRPs may be referred to by the last three digits (for example, TRP AB5010 may be referred to as TRP 010).

Note. A TRP and indirect fire target may be designated in the same location with a common name for clarity.

PHASE LINES

D-41. A phase line is a simple and effective linear control measure normally used to control movement; it can also be used to control and distribute the fire of several widely separated vehicles. Leaders use phase lines to indicate to crews when to fire and when to displace to an alternate position. The phase line may also be designated as a disengagement line. Any prominent (natural or man-made) linear terrain feature (ridgeline, river or stream, road, or railroad track) can be used as a phase line. In either offensive or defensive operations, phase lines can be used to start or stop firing simultaneously, shift fire to another sector, or indicate when vehicles are to move to alternate or supplementary positions. Platoon leaders and PSGs must control movement of sections with established phase lines or with the addition of platoon internal phase lines to prevent sections from moving in front of each other, thus creating a fratricide situation.

SECTION VI – STOPPING A FRIENDLY FIRE INCIDENT

D-42. The reconnaissance platoon may become involved in a friendly fire incident in one of several ways: as the victim of the fire; as the firing element; or as an observer intervening in an attack of one friendly element on another. This section covers actions that leaders and crewmen must be prepared to take when they encounter such situations. For more information see FM 3-20.971.

ACTIONS AS VICTIM OF FRIENDLY FIRE

D-43. The following are recommended actions at crew and leader level in the event the crew falls victim to friendly fires:

- React to contact until you recognize friendly fire.
- Cease-fire.
- Take immediate actions to protect Soldiers and vehicles.
- Use a visual recognition signal directing the firing unit to cease fire.
- Report the following on the next higher unit net:
  - Announce that you are receiving friendly fire.
  - Request medical assistance as needed.
  - Give the location and direction of the firing vehicles.
  - Warn the higher unit not to return fire if you identify the firing unit as friendly.

ACTIONS AS FIRING ELEMENT

D-44. The following are recommended actions at crew and leader level when the crew has engaged friendly forces:

- Cease-fire.
- Report the following on the next higher net:
- Identification of the engaged friendly force (if the unit is unidentified, report number and type of vehicles).
- The location of the incident.
- Direction and distance to the engaged force.
- The type of fire.
- The target effects.

ACTIONS AS OBSERVER OF FRIENDLY FIRE

D-45. The following are recommended actions at crew and leader level in the event the crew observes a friendly fire incident:

- Seek cover and protect yourself.
- Use a visual recognition signal directing the firing unit to cease-fire.
- Report the following on the next higher net:
  - Identification of the engaged friendly force (if the unit is unidentified, report number and type of vehicles).
  - The location of the incident.
  - Direction and distance to the victim and the firing unit.
  - The type of fire.
  - The target effects.
- Provide assistance as needed (when it is safe to do so).

LEADER RESPONSIBILITIES

D-46. In all situations involving the risk of fratricide and friendly fire, leaders must be prepared to take immediate actions to prevent casualties as well as equipment damage or destruction. Recommended actions in fratricide situations include the following:

- Identify the incident and order the parties involved to cease fire.
- Conduct an in-stride risk assessment.
- Identify and implement controls to prevent the incident from recurring.

SECTION VII – COMBAT IDENTIFICATION (CID)

D-47. It is highly unlikely that Army forces will operate independently of other U.S. ground, air, or naval forces in future combat operations. Combat operations within joint task force structures will invariably place Army units in close proximity to other U.S. and multinational units with different equipment and uniforms. Effective combat identification measures and tactics, techniques, and procedures (TTP) will be even more important within this context.

CID MEASURES

D-48. CID measures must be established early in all operational orders and planning cycles to ensure subordinates fully understand and have opportunity to implement all established measures prior to combat operations.

D-49. Combat identification measures must be consistent with ROE and not interfere unduly with unit and individual rights and responsibilities to engage enemy forces.

D-50. No perfect combat identification system exists, but by analyzing combat identification requirements from planning to execution, friendly forces can be more effective in combat and reduce the potential for fratricide and undesired collateral damage. Soldiers make the Shoot/No Shoot decision at the point of engagement and must be fully proficient in all aspects of CID. This includes situational awareness and understanding of doctrine, TTP, ROE and technology to directly address fratricide avoidance and expedite force sorting for improved combat effectiveness. While technology aids the Soldier, it has limitations because not all entities are equipped with a blue force tracker (BFT) or similar device. BFT does not automatically report enemy or neutral entities.

Note. None of the cooperative technologies currently in use or being developed truly identifies friend or foe; they can only identify friend or unknown.

SAFETY CONSIDERATIONS

D-51. Leaders at all levels must be aware of the safety considerations involved in full-spectrum operations. All personnel in both the light and heavy units must be aware of these considerations to prevent unnecessary casualties.

D-52. Armored vehicle crewmen occupied with maneuvering or controlling their vehicle are often unable to see dismounted Soldiers operating close to their vehicle. In these conditions, the crew is focused on the enemy or on potential enemy locations rather than any nearby dismounts. The use of JCIMS CID marking system capabilities like the dismounted Soldier combat identification marking system (DCIMS) and Phoenix infrared lights can help identify and illuminate other friendly vehicles and dismounted Soldiers at night. Employment of JCIMS will assist vehicle commanders and gunners and allow the driver to assist in positive identification of friendly platforms and Soldiers reducing fratricide across the Army.

D-53. JCIMS marking devices are used in conjunction with forward looking infrared (FLIR) optics and image intensification devices (such as NVGs) to assist in identifying friendly vehicles and Soldiers at the point of engagement. The markings must be installed, turned on, and visible on friendly vehicles and

dismounted Soldiers to be effective; in addition, operational status in accordance with the unit SOP and specifics contained in the OPORD must be included in PCI procedures to ensure compliance. JCIMS components for vehicle and personnel include the following:

- Combat identification panels (CIP).
- Thermal identification panel.
- Phoenix beacons (infrared lights).
- Dismounted combat identification marking system (DCIMS).
- Automated target recognition devices.

D-54. The potential for fratricide will continue to be a problem because new technologies allow target engagements by vehicle-mounted weapons beyond the visual identification range. Two systems in use to eliminate fratricide are the following:

- The battlefield combat identification system (BCIS) allows the platform gunner or commander to rapidly aim at their weapon system at and identify other friendly BCIS equipped platforms at the point of engagement. The BCIS incorporates a secure digital data link (DDL) which provides local SA updates (friend identification, GPS location, and unit identification) to vehicles within one kilometer of each other at 5 to 6 second intervals. This DDL also enables SA information exchange between vehicles when interrogated. Dismounted elements may use similar technologies to prevent identification as an enemy.
- The combat identification system dismounted Soldier (CIDDS) system, is a lightweight, laser-based, question and answer type system, used by the individual Soldiers to positively identify friendly Soldiers. The system includes a compact, eye safe laser interrogator; a laser detector assembly; an electronic processor unit. The CIDDS will also be directly interoperable with the combat ID functions embedded in the Land Warrior equipment suite.

APPLYING DIDEA

D-55. As the scout detects entities and must determine if they need engagement, the scout will use all available means to sort the entities in his OE into friendly, enemy, or neutral elements. This enables the scout to employ the weapons at his disposal efficiently against the enemy, without firing on friendly or neutral elements. The acquisition and location of an object in the OE may be achieved by visual, radar, electronic signals measurement, or other means. The DIDEA process is a standardized and systematic approach to apply CID and ROE to target engagements. DIDEA is applied at the individual Soldier level through crew level for a firing platform. The engagement process begins with the application of each step in DIDEA.

SITUATIONAL AWARENESS (SA)

D-56. SA is immediate knowledge of the conditions of the AO surrounding the Soldier. Scouts begin developing their SA once they receive WARNOs and FRAGOs for missions.

D-57. The key attributes of SA are gaining, maintaining, and updating information through—

- Accuracy and timeliness of reporting.
- An adequate density of friendly position, location, and information generating systems.
- Interoperability of friendly force C2/SA systems in the OE.

D-58. SA is achieved by having—

- A constantly updated picture of the AO.
- An accurate assessment of friendly, enemy, neutral, and other operations within the unit's OE.
- The ability to quickly determine the context and relevance of unfolding events.

D-59. Other sources of information and knowledge that provide SA are OPORDs/FRAGOs and combat reports. The platoon leader down to the squad leader is responsible for keeping subordinates aware of changes in the situation (friendly, enemy, and neutral). SA can be displayed on FBCB2 or manually posted on a map showing the position and tracking of friendly units and the reported locations of enemy, neutral,

and unknown entities. The automated position reporting capability of these systems relieves radio voice network traffic and enables leaders to focus more of their time on finding and killing the enemy and less time on determining friendly dispositions. Scouts may post the original time of a SPOTREP allowing the scout to track updates of an entity without confusing new reports as additional enemy elements in the operational space.

Note. Attaining and maintaining SA of the OE is every Soldier's responsibility.

TARGET IDENTIFICATION (TI)

D-60. TI is the accurate and timely characterization of a detected object in the AO as friend, enemy, or neutral. This is time sensitive and is the basis of a Soldier's "engage/don't engage" decision. In direct fire situations, regardless of the system used to identify a target, the Soldier must achieve visual positive identification prior to executing the engagement. Reconnaissance and scout platoons may detect entities on the ground through remote sensors, however a friendly element must gain a visual on the entity to determine it is an enemy. Scouts must remember that not all elements in the AO have technology assisting with target identification. There are two types of TI systems.

Cooperative TI

D-61. Cooperative TI entails systems in which a query is sent out and a response is given that "I am a friend" with cooperative equipped systems. Cooperative systems may consist of high-tech query systems that electronically identify friendly elements, or may be as low-tech as a sentry issuing a challenge and waiting for a password. Cooperative TI directly addresses fratricide avoidance by positively identifying friendly elements. However, the lack of a friendly response does NOT identify the target as enemy. The Soldier must still use the DIDEA process to identify entities; Cooperative TI technologies should never be used as the sole criteria to engage. Mechanical issues or enemy action may render the Cooperative TI technology inoperative, or friendly units/allies in the OE may not be equipped with compatible Cooperative TI technologies. Soldiers with or without Cooperative TI technology cannot engage unknown entities in the AO prior to positive visual identification. Current cooperative TI technologies include identification friend or foe (IFF), OE TI devices, and radio based combat identification systems.

Noncooperative TI

D-62. Noncooperative TI exploits physical characteristics of the object and requires no cooperative action or response on the part of the object. These devices may be active or passive and employ an array of technologies including those permitting detection and analysis of signal emissions, noise emissions, and radiation emissions; determination and analyses of physical dimensions and characteristics; and other factors. Noncooperative TI systems include—

- Optics such as forward looking infrared (FLIR)
- Night vision goggles (NVG).
- Binoculars.

RULES OF ENGAGEMENT (ROE)

D-63. ROE are Department of Defense (DOD) directives issued by competent military authority that delineate the circumstances and limitations under which Soldiers will initiate and/or continue combat engagement with other forces encountered. The ROE reflect the law of land warfare and operational considerations and are primarily concerned with the restraints on the use of force. The ROE are the primary means by which leaders convey legal, political, diplomatic, and military guidance to Soldiers. The platoon leaders and PSGs must train scouts thoroughly concerning the ROE, and laws that govern armed conflict before deployment. During the conduct of operations, leaders ensure Soldiers properly apply the ROE to preclude inappropriate engagements. Unintentional discharge and even injuries from the discharge may degrade relations with the local population and host country if deployed.

D-64. ROE requirements and TTP will depend on the OE. Before a force deploys, the judge advocate general corps will review and approve through the chain of command the rules by which a target can be engaged. These rules will address the appropriate EOF.

D-65. The ROI provide guidance for interacting with people encountered in the OE. ROI, when applied with good interpersonal communication skills, improve the Soldier's ability to accomplish the mission, while reducing possible hostile confrontations. ROI founded on firm ROE provide the Soldier with the tools to address non-traditional threats, such as political friction, ideologies, cultural idiosyncrasies, religious beliefs, and rituals. ROI must be regionally and culturally specific.

D-66. Platoon leaders and PSGs should integrate ROE and ROI into all platoon and section training where appropriate. The platoon should employ situations where the EOF is played out to prepare the platoon for real world situations where incidents aggravate the training situation.

TARGET IDENTIFICATION AND FRIENDLY POSITION MARKING IN AVIATION SUPPORT OPERATIONS

D-67. To maximize the effects of their weapon systems and reduce the incidence of fratricide, aircraft crews require positive identification of targets and friendly positions before firing their weapons. Aircrews must easily observe and effectively identify the ground signals marking targets and friendly positions. This capability is a critical factor in reducing fratricide and maximizing the responsiveness and accuracy of aerial fires.

D-68. The proximity of friendly forces to targets in the modern OE makes positive marking and identification especially critical. This discussion addresses several factors that operators should consider when marking targets and friendly positions; the equipment covered includes target-marking devices, NVGs, FLIR, thermal imaging system, TV and EO systems, electronic beacons, and laser designators.

PLANNING CONSIDERATIONS

D-69. As noted, aircrews must work closely with the ground forces to accomplish positive marking and identification of targets and friendly positions. This coordination requires the ground and air commanders to determine all required marking/identification procedures based on several tactical factors:

- The signal or combination of signals used must be items commonly carried by ground maneuver units.
- Aircrews must be able to acquire signals using available resources on the aircraft, including normal vision, NODs, and TISs.
- Signals must be recognizable by the aircrews.

D-70. All participants, ground and airborne, must clearly understand the marking and identification procedures. Accurate and detailed maps, charts, or other types of imagery will assist the aircrews in learning the friendly ground scheme of maneuver.

MARKING/IDENTIFICATION TECHNIQUES

D-71. Only the creativity of the ground forces and aircrews limit the methods used to identify and mark targets and friendly positions. Table D-1 outlines a variety of marking techniques. Ground and air commanders should use the table as a reference. In any situation, marking methods must be adapted to the conditions prevalent at the time. Positive air-to-ground communications are also essential in coordinating and authenticating marking procedures.

D-72. Often, the simplest methods are the best. Traditional signaling devices such as flares, strobes, and signaling mirrors may be quite effective in marking friendly positions. Scouts use common signaling techniques such as obscurant munitions, laser pointers, and tracers in marking targets or orienting aircrews on enemy positions.

D-73. Other devices are available to aid in the recognition of friendly forces and equipment where the fluid tactical situation or the intermingling of friendly and enemy forces in the close fight makes identification difficult. For example, the use of glint tape, combat identification panels (CIP), and infrared beacons can assist in the clear identification of friendly ground forces. Such factors as ground lighting, thermal contrast, and intermediate obstructions can influence the effectiveness of these devices.

D-74. All aerial crewmembers and ground maneuver leaders should understand the strengths and weaknesses of available aviation sensors when employed in conjunction with a variety of target-marking equipment and methods. Time permitting, attack aircraft may input a target grid into the aircraft GPS/inertial navigation system to provide fire control cues to the target (such as range, heading, and time); these cues can result in quicker target acquisition and help to distinguish friendly positions from targets and enemy positions. Because CCA missions may be "danger close" with short firing ranges, both aircrews and ground forces should expect to have minimum tracking time and thus minimum time to optimize the aircraft sensors.

Table D-1. Target and friendly position marking methods

Method	*Day/Night*	*Assets*	*Friendly Marks*	*Target Marks*	*Remarks*
SMOKE, obscurant	Day/night	All	Good	Good	Easily identifiable. May compromise friendly position, obscure target, or warn of fire support employment. Structures may make placement difficult.
SMOKE, obscurant (IR)	Day/night	All/NOD at night	Good	Good	Easily identifiable. May compromise friendly position, obscure target, or warn of fire support employment. Structures may make placement difficult. Night marking is greatly enhanced using IR reflective obscurant.
GROUND BURST ILLUMINATION	Day/night	All	N/A	Good	Easily identified. May wash out NODs.
SIGNAL MIRROR	Day	All	Good	N/A	Avoids compromise of friendly location. Dependent on weather and available light and may be lost in reflections from other reflective surfaces (such as windshields, windows, or water).
SPOTLIGHT	Night	All	Good	Marginal	Highly visible to all. Compromises friendly position and warns of fire support employment. Effectiveness dependent on degree of urban lighting.
IR SPOTLIGHT	Night	All NODs	Good	Marginal	Visible to all with NODs. Less likely to compromise than overt light. Effectiveness dependent on degree of urban lighting.
IR LASER POINTER (BELOW .4 WATTS)	Night	All NODs	Good	Marginal	Effectiveness dependent on degree of urban lighting.
IR LASER POINTER (ABOVE .4 WATTS)	Night	All NODs	Good	Good	Less affected by ambient light and weather conditions. Highly effective under all but the most highly lit or worst weather conditions. IZLID-2 is the current example.
VISUAL LASER	Night	All	Good	Marginal	Highly visible to all. Risk of compromise is high. Effectiveness dependent on degree of urban lighting.
LASER DESIGNATOR	Day/Night	PGM or LST equipped	N/A	Good	Highly effective with PGM. Because of very restrictive laser acquisition cone, requires line of sight to target. May require pre-coordination of laser codes.
TRACER	Day/Night	All	N/A	Marginal	May compromise position. May be difficult to distinguish marking rounds from other gunfire. During daytime use, may be more effective when used to kick up dust surrounding target.

Table D-1. Target and friendly position marking methods

Method	*Day/Night*	*Assets*	*Friendly Marks*	*Target Marks*	*Remarks*
CHEMICAL HEAT SOURCES	Day/Night	All FLIR	Poor	N/A	Easily masked by urban structures and lost in thermal clutter. Difficult to acquire, but can be effective when used to contrast cold background or when ACFT indicates general location.
STROBE (OVERT)	Day/Night	All	Marginal	N/A	Visible by all. Effectiveness dependent on degree of urban lighting.
STROBE (IR)	Night	All NODs	Good	N/A	Visible to all NODs. Effectiveness dependent up degree of urban lighting. Coded strobes aid in acquisition.
ELECTRONIC BEACON	Day/Night	See Remarks	Excellent	Good	Ideal friendly marking device for AC-130 and some USAF fixed-wing aircraft (not compatible with Navy or Marine aircraft). Least impeded by urban terrain. Can be used as a TRP for target identification. Coordination with aircrews essential to ensure equipment and training compatibility.
FLARE (OVERT)	Day/Night	All	Good	N/A	Visible by all. Easily identified by aircrews.
FLARE (IR)	Night	All NODs	Good	N/A	Visible to all NODs. Easily identified by aircrews.
GLINT/IR PANEL	Night	All NODs	Good	N/A	Not readily detectable by threat. Very effective except in highly lit areas.
COMBAT IDENTIFICATION PANEL	Day/night	All FLIR	Good	N/A	Provides temperature contrast on vehicles or building. May be obscured by urban terrain.
VS-17 PANEL	Day	All	Marginal	N/A	Only visible during daylight. Easily obscured by structures.
SPINNING CHEM LIGHT (OVERT)	Night	All	Marginal	N/A	Provides unique signature. May be obscured by structures. Provides a distinct signature easily recognized. Effectiveness dependent on degree of urban lighting.
SPINNING CHEM LIGHT (IR)	Night	All NODs	Marginal	N/A	Provides unique signature. May be obscured by structures. Effectiveness dependent on degree of urban lighting.

Appendix E

Composite Risk Management and Environmental Protection

Risk is the chance of injury or death for individuals and damage to or loss of vehicles and equipment. These risks and the potential for risks are always present in every combat and training situation to include damaging the environment. Composite risk management (CRM) must take place at all levels of the chain of command during each phase of every operation to protect Soldiers, the Army, and environmental resources. The reconnaissance or scout platoon leader, his NCOs, and all other platoon Soldiers must know how to use CRM, coupled with fratricide reduction measures, to ensure that they execute the mission in the safest possible manner, within mission constraints. This appendix outlines the process that leaders can use to identify hazards and implement a plan to address each identified hazard. It includes a detailed discussion of the responsibilities of the troop's leaders and Soldiers in implementing a sound CRM program. It also covers the parallel process of assessing, managing, and alleviating environmental risks and hazards. For additional information, refer to FM 5-19 and FM 3-20.971.

SECTION I – COMPOSITE RISK MANAGEMENT PROCEDURES

E-1. CRM is the Army's primary decision-making process for identifying hazards and controlling risks across the full spectrum of Army missions, functions, operations, and activities that have the potential to injure or kill personnel, damage or destroy equipment, or otherwise impact mission effectiveness. The Army used to separated risk into two categories:

- **Accident risk.** This covers any type of risk involving friendly forces, such as vehicle collisions, operational mistakes, and equipment and communications failures. It includes hazards imposed on the troop because of terrain, weather, or mission requirements (such as traveling an unimproved road at night in a snow storm).
- **Threat risk.** This covers all types of risk posed by contact with threat/enemy forces, as well as risk that may arise in gaining or breaking threat contact. Tactical hazards are those imposed on friendly forces by the enemy, such as ATGM positions or untemplated enemy positions on the flanks.

E-2. While these two areas of concern remain, the primary premise of CRM is that it does not matter where or how the loss occurs. The result is the same: decreased combat power or mission effectiveness. The guiding principles of CRM are the following:

- Integrate CRM into all phases of missions and operations.
- Make risk decisions at the appropriate level. CRM is only effective when the information is passed to the appropriate level of command for decision.
- Accept no unnecessary risk unless the potential gain or benefit outweighs the potential loss.
- Apply the process cyclically and continuously. CRM is a continuous process applied across the full spectrum of Army training and operations, individual and collective day-to-day activities and events, and base operations functions.
- Do not be risk averse. Identify and control the hazards; then complete the mission.

E-3. The primary objective of CRM is to help units protect their combat power, enabling them to achieve success quickly and decisively, with minimum losses. Leaders of the reconnaissance or scout platoon must always remember that the effectiveness of the process depends on SA. They should never approach CRM with a "one size fits all" solution mentality. Rather, in performing the five steps of CRM, they must keep in mind the essential tactical and operational factors that make each situation unique.

STEP 1 – IDENTIFY HAZARDS

E-4. A hazard is a source of danger. It is any existing or potential condition that could entail injury, illness, or death of personnel; damage to or loss of equipment and property; or other sorts of mission degradation.

E-5. The reconnaissance/scout platoon leader must identify the hazards associated with all aspects and phases of the platoon's mission, paying particular attention to the factors of METT-TC. CRM must never be an afterthought. The platoon leader must begin the process during his troop-leading procedures and continue it throughout the operation. Figure E-1 lists possible sources of risk that the reconnaissance/scout platoon might face during a typical tactical operation.

SOURCES OF OPERATIONAL RISK

MISSION

- Duration of the operation and size/range of the AO.
- Complexity/clarity of the plan. (Is the plan well developed and easily understood?)
- Proximity and number of maneuvering units.

ENEMY

- Inadequate knowledge of the enemy situation to include enemy capabilities.
- Limited availability of time and resources to conduct reconnaissance.

TERRAIN AND WEATHER

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

TROOPS AND SUPPORT AVAILABLE

- Platoon organization, including number of vehicles and type of weapons/equipment.
- Soldier/leader inexperience, limited proficiency, and low equipment readiness.
- Lack of experience the units conducting the operation have working together.
- Danger areas associated with the troop's weapon systems.
- Lack of Soldier/leader rest.
- Non-acclimatization to environment.
- Impact of new leaders and/or Soldiers.

TIME AVAILABLE

- Limited time available for TRPs and rehearsals by subordinates.
- Limited time available for PCCs/PCIs.

CIVIL CONSIDERATIONS

- Restrictive applicable ROE and/or ROI.
- Contact with civilians (such as NEOs, refugee or disaster assistance, or counterterrorism) during stability and/or civil support operations.
- Media contact/inquiries.

Figure E-1. Sources of risk in tactical operations

STEP 2 – ASSESS HAZARDS TO DETERMINE RISKS

E-6. Hazard assessment is the process of determining the direct impact of each hazard on an operation (in the form of hazardous incidents). Use the following steps:

- Determine which hazards can be eliminated, minimized, or avoided.
- Assess each hazard that cannot be eliminated, minimized, or avoided to determine the probability that the hazard can occur.
- Assess the severity of hazards that cannot be eliminated, minimized, or avoided. Severity, defined as the result or outcome of a hazardous incident, is expressed by the degree of injury or illness (including death), loss of or damage to equipment or property, environmental damage, or other mission-impairing factors (such as unfavorable publicity or loss of combat power).
- Taking into account both the probability and severity of a hazard, determine the associated risk level (extremely high, high, moderate, and low). Figure E-2 summarizes the four risk levels. Table E-1 provides an outline of the risk assessment matrix used to determine the level of risk.

- Based on the factors of hazard assessment (probability, severity, and risk level, as well as the operational factors unique to the situation), complete the DA Form 7566 (*Composite Risk Management Worksheet*).

Note. DA Form 7566 is available on the Army Knowledge Online (AKO) website. Click on—in order—the Self Service tab, the DA Pubs & Forms tab, and the Army Forms link. Users can quickly open/download the DA Form 7566 by going here, http://www.apd.army.mil. When it is completed, the worksheet can serve as a guide for platoon CRM training, which should cover how to execute battle drills for actions on contact as well as how to develop and refine SOPs for actions on contact. Refer to FM 5-19 for detailed guidance and instructions on how to use DA Form 7566.

LEVELS OF RISK

EXTREMELY HIGH
Someone will die or suffer permanent disability.

HIGH
More often than not, someone will suffer an injury that requires less than 3 months to heal.

MODERATE
More often than not, someone will require first aid or minor medical treatment.

LOW (WORST CASE)
Someone is likely to need first aid or minor medical treatment.

Figure E-2. Risk levels and impact on mission execution

Table E-1. Risk assessment matrix

	Probability				
Severity	***Frequent***	***Likely***	***Occasional***	***Seldom***	***Unlikely***
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

E – Extremely High Risk
H – High Risk
M – Moderate Risk
L – Low Risk

STEP 3 – DEVELOP CONTROLS AND MAKE RISK DECISIONS

E-7. After assessing each hazard, develop one or more controls that will either eliminate the hazard or reduce the risk (probability and/or severity) of potential hazardous incidents. When developing controls, leaders consider the reason for the hazard, not just the hazard by itself. Platoon leaders may create interventions for non military hazards which can defuse the reason for the mission risks.

E-8. A key element in the process of making a risk decision is determining whether accepting the risk is justified or, conversely, is unnecessary. The decision-maker (the reconnaissance/scout platoon leader, if applicable) must compare and balance the risk against mission expectations. He alone decides if the controls are sufficient and acceptable and whether to accept the resulting residual risk. If he determines the risk is unnecessary, he directs the development of additional controls or alternative controls; as another option, he can modify, change, or reject the selected COA for the operation. The decision-maker must

always keep in mind that an important step in reducing or eliminating risk factors is to keep the next higher level of command involved in and informed of the CRM process.

Note. Risk decisions and controls are especially critical for the BFSB reconnaissance platoon because of its unique operational requirements and organizational capabilities and limitations. The platoon leader must be prepared to evaluate the potential risks, make effective risk decisions, and implement the appropriate controls to mitigate the risks.

STEP 4 – IMPLEMENT CONTROLS

E-9. Controls are the procedures and considerations the unit uses to eliminate hazards or reduce their risk. Implementing controls is the most important part of the CRM process; this is the chain of command's contribution to the safety of the unit. Implementing controls includes coordination and communication with appropriate superior, adjacent, and subordinate units and with individuals executing the mission. The reconnaissance/scout platoon leader must ensure that specific controls are integrated into OPLANs, OPORDs, SOPs, and rehearsals. The critical check for this step is to ensure that controls are converted into clear, simple execution orders understood by all levels.

E-10. When the leaders conduct a thoughtful risk assessment, the controls will be easy to implement, enforce, and follow. Examples of CRM controls include the following:

- Thoroughly brief all aspects of the mission, including related hazards and controls.
- Conduct thorough PCCs and PCIs.
- Allow adequate time for rehearsals at all levels.
- Drink plenty of water, eat well, and get as much sleep as possible (at least 4 hours in any 24-hour period).
- Use buddy teams.
- Enforce speed limits, use of seat belts, and driver safety.
- Establish recognizable visual signals and markers to distinguish maneuvering units.
- Enforce the use of ground guides in assembly areas and on dangerous terrain.
- Establish marked and protected sleeping areas in assembly areas.
- Limit single-vehicle movement.
- Establish SOPs for the integration of new personnel.
- Ensure that all Soldiers are in the proper uniform and/or at the correct MOPP level.
- Ensure that leaders maintain SA and stay alert to prevent complacency among their Soldiers.

STEP 5 – SUPERVISE AND EVALUATE

E-11. During mission execution, it is imperative for leaders to ensure that CRM controls are properly understood and executed. Leaders must continuously evaluate the unit's effectiveness in managing risks to gain insight into areas that need improvement.

SUPERVISION

E-12. Leadership and unit discipline are the keys to ensuring that effective CRM controls are implemented. In general, a constant concern for Soldier health and welfare is the key to fostering an environment for successful, risk-free operations. All leaders are responsible for supervising their mission rehearsals and execution to ensure standards and controls are enforced. In particular, NCOs must enforce established safety policies as well as controls developed for a specific operation or task. Techniques include spot checks, inspections, SITREPs, confirmation briefs, buddy checks, and close supervision.

E-13. During mission execution, leaders must continuously monitor CRM controls, both to determine whether they are effective and to modify them as necessary. Leaders must also anticipate, identify, and assess new hazards. They ensure that imminent danger issues are addressed on the spot and that ongoing planning and execution reflect changes in hazard conditions.

EVALUATION

E-14. Whenever possible, the CRM process should also include an after-action review (AAR) to assess unit performance in identifying risks and preventing hazardous situations. Leaders should then incorporate lessons learned from the process into unit SOPs and plans for future missions.

SECTION II – IMPLEMENTATION RESPONSIBILITIES

E-15. Leaders and individuals at all levels are responsible and accountable for managing risk. They must ensure that hazards and associated risks are identified and controlled during planning, preparation, and execution of operations. The reconnaissance/scout platoon leader and his senior NCOs must look at both tactical risks and accident risks. The same CRM process is used to manage both types. The platoon leader alone determines how and where he is willing to take tactical risks. With the assistance of his PSG, NCOs, and individual Soldiers, the platoon leader manages accident risks.

E-16. Sometimes, despite the need to advise higher headquarters of a risk taken or about to be assumed, the CRM process may break down. Such a failure can be the result of several factors; most often, it can be attributed to the following:

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

E-17. The platoon leader gives the platoon direction, sets priorities, and establishes the command climate (values, attitudes, and beliefs). Successful preservation of combat power requires him to embed CRM into individual behavior. To fulfill this commitment, the platoon leader must exercise creative leadership, innovative planning, and careful management. Most important, he must demonstrate support for the CRM process. The platoon leader, PSG, section, and squad leaders can establish a command climate favorable to CRM integration by taking the following actions:

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

E-18. For the platoon leader, his subordinate leaders, and individual Soldiers alike, responsibilities in managing risk include the following:

- Make informed risk decisions; establish and then clearly communicate risk decision criteria and guidance.
- Establish clear, feasible CRM policies and goals.
- Train the CRM process. Ensure that subordinates understand the who, what, when, where, and why of managing risk and how these factors apply to their situation and assigned responsibilities.

- Accurately evaluate the platoon's effectiveness, as well as subordinates' execution of risk controls during the mission.
- Inform higher headquarters when risk levels exceed established limits.

SECTION III – ENVIRONMENTAL RISK MANAGEMENT PROCESS

E-19. Environmental risk management is similar to CRM and is based on the same philosophy and principles. Refer to FM 3-20.971 for a detailed description of environmental risk management.

Note. Refer to the discussion of CRM. The environmental risk assessment and management process consists of the five steps outlined in the following paragraphs.

STEP 1 – IDENTIFY ENVIRONMENTAL HAZARDS

E-20. The platoon leader must identify potential sources of environmental degradation during his analysis of METT-TC factors. These environmental hazards are conditions with the potential for polluting air, soil, or water and/or destroying cultural or historical structures, sites, or artifacts. Figure E-3 lists procedures and considerations for identifying possible sources of environmental risks that the platoon may face during a typical tactical operation.

STEP 2 – ASSESS ENVIRONMENTAL HAZARDS

E-21. Leaders of the reconnaissance or scout platoon can use the CRM worksheet (DA Form 7566) to analyze the potential severity of environmental degradation for each training activity. The worksheet allows them to quantify the risk to the environment as extremely high, high, moderate, or low. Refer to FM 5-19.

STEP 3 – DEVELOP CONTROLS AND MAKE DECISIONS

E-22. Based on the results of the risk assessment, the reconnaissance/scout platoon leader makes decisions and develops measures to reduce significant environmental risks. Risk decisions are made at a level of command that corresponds to the degree of risk. Leaders should brief all responsible individuals and agencies (to include the installation environmental office, if applicable) on the proposed operational and training plans and on pertinent high-risk environmental factors.

STEP 4 – IMPLEMENT CONTROLS

E-23. The reconnaissance/scout platoon leader and subordinate leaders implement environmental protection measures at all stages of operational planning, preparation, and execution. They integrate these measures into plans, orders, SOPs, training performance standards, and rehearsals.

STEP 5 – SUPERVISE AND EVALUATE

E-24. The reconnaissance/scout platoon leader must enforce environmental protection standards during supervision of all training activities.

IDENTIFYING SOURCES OF ENVIRONMENTAL RISK (BY METT-TC)
MISSION • Identify and assess known environmental risks during planning. • Determine environmental impact on mission execution. • Specify areas of risk and/or concern to minimize the impact on the unit's scheme of maneuver. • Select alternate training methods or goals as necessary. • Develop maps and/or sketches with detailed areas of environmental concern. • Emphasize the importance of every soldier playing an active role in the identification and timely reporting of new environmental risk elements. • Rapidly and effectively respond to all petroleum, oil, and lubricants, and/or hazardous waste accidents.
ENEMY (THREAT FORCES) • Identify probable areas of environmental contamination that could affect friendly force movement. • Evaluate intelligence reports of how the threat will employ his equipment and/or capabilities to overcome or take advantage of environmental factors. • Develop threat target options to minimize environmental effects. • Maneuver friendly forces in such a way as to direct threat action away from environmentally sensitive areas, when feasible.
TERRAIN AND WEATHER • Provide recommended paths of movement to avoid environmentally sensitive areas. • Identify well-defined terrain features to assist in navigation accuracy. • Obtain and analyze weather data to diminish possible environmental risks, focusing on predominant and developing weather patterns.
TROOPS AND SUPPORT AVAILABLE • Brief all Soldiers thoroughly on environmental risks, concerns, and/or points of interest. • Develop a detailed and accurate SOP that identifies guidelines for avoiding risk areas with inhibiting mission accomplishment. • Brief troops on how to prevent environmental damage based on anticipated areas of probable risk. • Employ practice scenarios that test Soldier response to changing environmental risks and that promote use of the decision-making process in dealing with risks. • Require accurate and timely reporting pertaining to all environmental issues (friendly or threat).
TIME AVAILABLE • Maximize planning time. (**NOTE:** One key step is to minimize the complexity and length of the mission briefing as much as possible.) • Practice and develop various mission profiles that emphasize adjusting for changing environmental factors, while maintaining the desired momentum.
CIVIL CONSIDERATIONS • Identify and emphasize rules of engagement and/or rules of interaction that minimize environmental damage. • Expect media coverage and analysis of troop actions that affect the environment. • Anticipate and limit collateral damage to civil infrastructure (such as agriculture and other food production, delivery and supply systems, and hazardous chemical storage facilities). • Identify environmental targets of value that the threat might attack.

Figure E-3. Example procedures for identifying environmental risks

Appendix F

Chemical, Biological, Radiological, and Nuclear (CBRN) Operations

Because many potential adversaries have the capability to employ CBRN weapons, the reconnaissance platoon must prepare to fight in a CBRN environment. To survive and remain effective in its area of operations (AO), the reconnaissance and scout platoon must be proficient in contamination avoidance and movement in a CBRN environment.

SECTION I – CONTAMINATION AVOIDANCE

F-1. Contamination avoidance is defined as taking actions to avoid or reduce the effects of a CBRN attack and to minimize the effects of CBRN or toxic industrial materials contamination hazards. There are active and passive measures that can be taken to avoid contamination. These measures include planning ahead, avoiding detection, providing warning, seeking protection, dispersing assets, remaining mobile, and covering supplies and equipment. Avoiding contaminated areas minimizes the risk of additional casualties; it also prevents the degradation of combat power that results when a unit must operate in MOPP level 3 or 4 for extended periods of time. In addition to degrading combat power, the unit is not required to spend the time and resources needed for decontamination which would keep it from being available for action. For more information on contamination avoidance, see FM 3-11.3.

GENERAL AVOIDANCE MEASURES

F-2. Contamination avoidance measures include the following:

- Using passive avoidance techniques.
- Locating contaminated areas.
- Identifying CBRN agents.
- Warning other members of the platoon as well as other units.
- Reporting CBRN threats to higher headquarters.

F-3. Passive avoidance measures can decrease the possibility of CBRN attack or reduce the effects of an attack already under way. Effective use of concealment, dispersion, prepared positions, OPSEC, and signal security reduces the chances of being acquired as a target. The platoon should continually analyze its vulnerability to chemical or nuclear attack and take appropriate protective measures.

F-4. CBRN attacks and contamination must be detected quickly and reported across the AO. Typically, an initial warning is issued by radio, audible signals, or hand-and-arm signals once a CBRN danger has been detected in a close proximity (as close as 200 meters) to some element. During the course of maneuver, scouts using LRAS3 or other observation systems will not detect a chemical agent (see Figure F-1). They will however allow scouts to see effects of a CBRN presence. It is preferable for scouts to gain this visual contact on these areas at a safe distance to avoid contamination. Gunners scanning with the scout platform's primary weapon system can pick out details which indicate CBRN danger. Structural damage is not a typical indicator of a chemical agent; however, people scattered on the ground in a village without signs of shooting is an indication that something life-threatening has happened, requiring caution and reporting. Employing scouts to observe a CBRN environment at a distance allows the platoon to retain freedom of maneuver, report the visual contact, upgrade its MOPP posture, locate overwatch positions, and request Fox CBRN vehicles for reconnaissance.

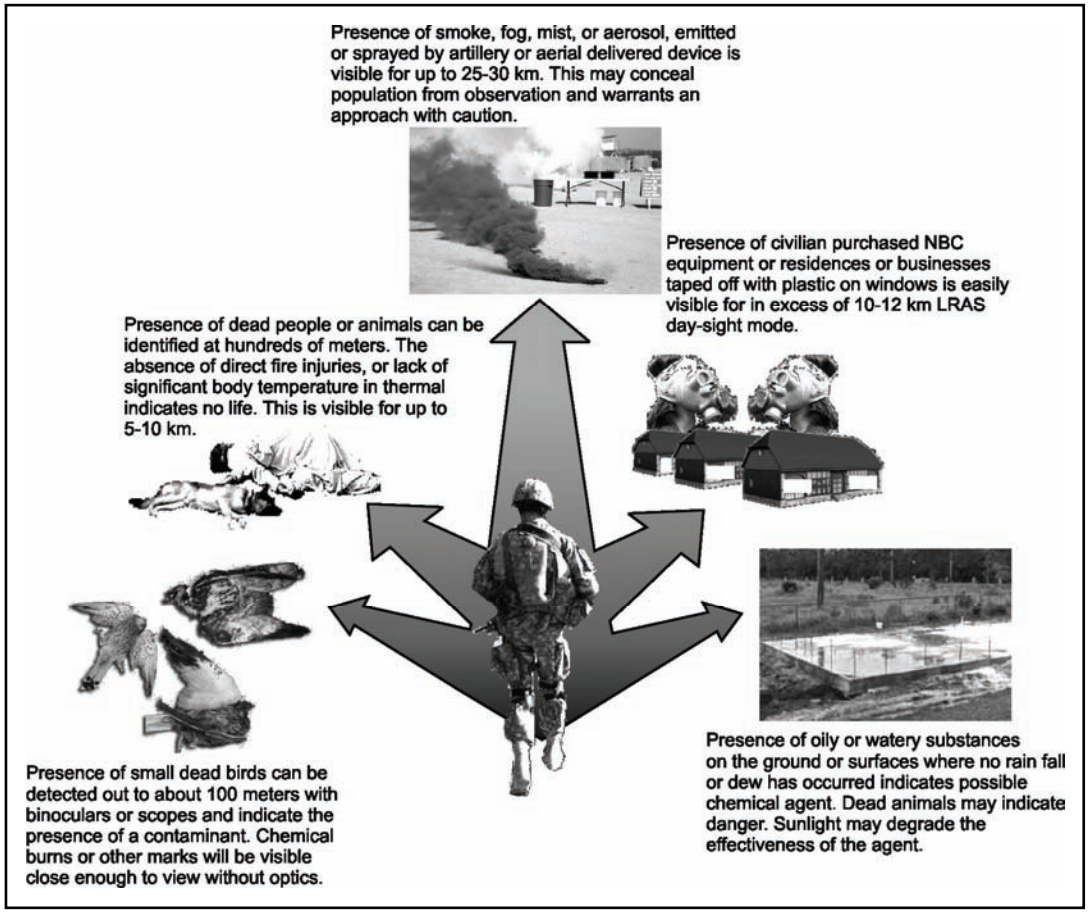


Figure F-1. Locating contaminants ahead of movement.

F-5. The scout section which identifies the contaminated area outside of physical contact must effectively and quickly alert the platoon. If a CBRN encounter is deemed possible, the platoon leader should request and plan for the use of CBRN and medical support in the platoon's contingencies. The PSG should similarly plan evacuation and resupply needs around a possible contaminated area. The unit SOP should specify criteria and automatic procedures for employing detection teams and submitting the required NBC reports following a CBRN attack or when contamination is encountered. Whenever possible, all movement routes and future positions should be reconnoitered for CBRN contamination. Quartering party personnel should be prepared to conduct monitoring operations; if they detect contaminated areas, they identify, report, and mark them. The quartering party can then evaluate the location and type of hazard (nuclear radiation or chemical/biological agent) to determine the best plan for bypassing, crossing, or operating in the contaminated area. Based on the situation, the platoon leader and company/troop commander must be able to implement protective measures specified in the SOP to minimize personnel losses and limit the spread of contamination.

DEFENSIVE ACTIONS BEFORE AN ATTACK

BIOLOGICAL DEFENSE

F-6. The key protective measure against a biological attack is maintaining a high order of health, personal hygiene, and sanitation discipline. Biological attacks are difficult to detect. If an attack occurs, the chances of survival are better if crew members are healthy and physically fit and maintain good personal hygiene. Keeping the body clean helps to prevent ingestion of biological agents. Small cuts or scratches should be

covered and kept germ-free by means of soap, water, and first-aid measures. Since insects may carry biological agents, Soldiers should prevent insect bites by keeping clothes buttoned and skin covered. The platoon will only consume water and food that has come through approved sources. Leadership must ensure all Soldiers understand the risk from getting food or water from local sources.

NUCLEAR DEFENSE

F-7. The best defense against a nuclear attack is to dig in. Unit defensive positions, which range from individual foxholes to full-scale improved fighting positions, should be prepared whenever the tactical situation permits. Personnel should keep their individual weapons, equipment, clothing, and other issue items in their vehicles. Inside the vehicle, equipment and any loose items must be secured because the blast wave can turn unsecured objects into lethal missiles. Supplies, explosives, and flammable materials should be dispersed and protected.

F-8. Reverse slopes of hills and mountains give some nuclear protection. The initial radiation and the heat and light from the fireball of a nuclear blast tend to be absorbed by hills and mountains. The use of gullies, ravines, ditches, natural depressions, fallen trees, and caves can also reduce nuclear casualties.

F-9. Equipment that would be damaged in the explosion must be safe guarded. One technique is not using all night-vision goggles at the same time, if not required by the mission, to prevent damage to the image enhancing mechanism by the flash.

CHEMICAL DEFENSE

General Guidelines

F-10. Make sure all personnel have their protective masks available, and make sure each mask fits and functions properly. All personnel should wear the proper protective clothing in accordance with the MOPP level designated by the commander. Inform everyone to remain alert and to be constantly aware of the chemical threat. Protect all equipment and supplies from liquid chemical contamination by keeping them organized and covered with a tarp. Exposed gear will not be decontaminated and will be destroyed and deprive the platoon of its equipment. The platoon must have a standardized plan for placing M9 tape on the vehicles as part of the early warning process.

Automatic Alarm System

F-11. The automatic alarm system is the primary means of detecting an upwind chemical attack. The system provides two essential elements of survival: detection of a toxic agent cloud and early warning to troops in the monitored position.

F-12. The platoon leader decides where to place the chemical alarm. In stationary operations, he first determines the wind direction, and then places available detector units upwind of the nearest position to be protected. The detector unit should be no more than 400 meters upwind from the alarm unit. The optimum distance is 150 meters. Operation of the alarm can be affected by blowing sand or dust, rain, sleet, snow, tropical conditions, and temperatures below 40 degrees Fahrenheit (4.5 degrees Celsius).

F-13. Space the available detector units approximately 300 meters apart, and make sure each detector unit is connected to each alarm unit by telephone cable (WD-1). Position the alarm units near radiotelephone communications; this makes it easy to alert the unit to an attack. Platoons must remember that although the M8A1 could be installed in the platoon hot loop the new M22 cannot. Attempt to do so will cause the M43 alarm not to sound in the event of an attack.

F-14. During movement operations, the platoon should place the alarm on the exterior of the CBRN vehicle to give the platoon as much early warning as possible.

F-15. The PSG and CBRN vehicle commander must ensure the platoon has sufficient batteries to support continuous operation of the chemical agent alarm. The PSG also needs to ensure that normal PMCS is being conducted on the platoons CBRN equipment and corrective action is taken when deficiencies are identified.

SECTION II – MOVEMENT IN A CBRN ENVIRONMENT

F-16. As with other combat elements, one of the basic tactical requirements for the reconnaissance/scout platoon is to be able to move through and operate in a contaminated area. To do so safely, the platoon should follow the procedures outlined in this section.

CROSSING A CHEMICALLY OR BIOLOGICALLY CONTAMINATED AREA

F-17. Upon identifying a contaminated area, each vehicle makes preparations to cross. While one section provides security, the other section, positioned in a covered and concealed location, removes all externally stowed equipment. Crews mount and test M8A1/M22 alarms and M9 paper. They adopt MOPP level 4 and prepare the vehicle's overpressurization system (if it is available and METT-TC factors permit). Once the section's preparations are complete, it moves into an overwatch position; the other section moves to a covered and concealed position and follows the same procedures.

F-18. When both sections have been prepared, they use standard tactical movement techniques (such as bounding overwatch) to cross the contaminated area. During this movement, the crews continuously monitor the M8A1/M22 and the M9 paper.

F-19. Drivers and vehicle commanders take precautions to avoid low ground, overhanging branches, and brushy areas as much as possible. While the platoon is in the contaminated area, all personnel observe each other for signs of chemical poisoning.

F-20. Once the platoon has successfully crossed the contaminated area, it makes a temporary halt. During the halt, detection teams monitor for the presence of chemical agents. Each crew in turn executes operational decontamination of its vehicle and, with higher headquarters' approval, initiates unmasking procedures. Once these procedures are complete, the platoon continues its mission.

CROSSING A RADIOLOGICALLY CONTAMINATED AREA

F-21. The procedures involved in crossing a radiologically contaminated area are similar to those for a chemically or biologically contaminated area, with the following additional considerations:

- **Vehicle preparation.** Crews may store external equipment in the turret or cover it with a tarp. This prevents contaminated dust particles from accumulating on the equipment. Place wet sandbags or other materials on the turret floor to increase the amount of radiation shielding. When available, turn on the turret overpressurization system to protect the crew compartment from contaminated dust.
- **Movement.** Vehicles should limit their speed to minimize dust. In addition, they must maintain the correct dust interval.
- **Monitoring.** Ensure IM-93/UDR-13 and VDR-2 dosimeters are zeroed (if not zeroed, follow instructions that are included with the equipment to zero). Conduct continuous monitoring and report the results of dosimeter and radiacmeter surveys to higher headquarters and adjacent units.
- **Decontamination.** During decontamination, each crewman should cover his nose and mouth with a handkerchief or cloth to avoid breathing contaminated dust particles.

Appendix G
Essential Field Data

This appendix provides information that will be useful to the reconnaissance or scout platoon's leaders and Soldiers during execution of platoon missions. It covers tactics, techniques, and procedures (TTP) the platoon will need to conduct an effective route reconnaissance operation, including the tasks involved in route classification and the inspection and classification of bridges. Also included are conversion tables to assist in the basic computations for changing common English/American measurements to their metric equivalents.

SECTION I – ROUTE RECONNAISSANCE SYMBOLS

G-1. Figure G-1 outlines a variety of symbols that the platoon can use to illustrate reconnaissance data on its overlays. Figure G-2 shows symbols for various materials, facilities, equipment, and services. An example of how these graphics are used in classification overlays is illustrated in Figure G-3, which shows a route classification overlay. See FM 3-34.170 for additional information.

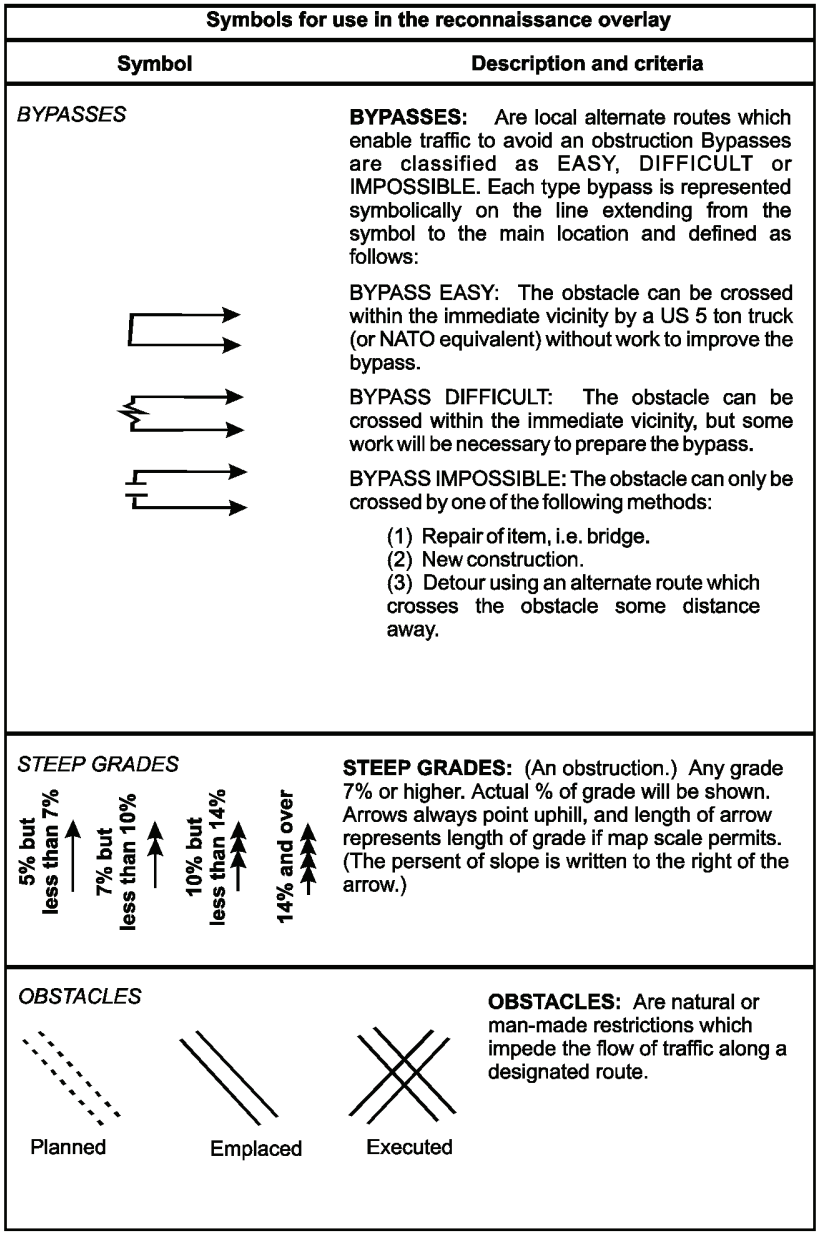


Figure G-1. Reconnaissance overlay symbols

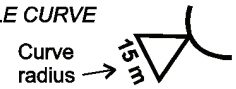
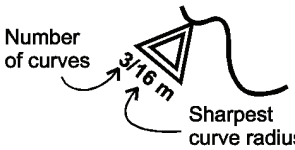
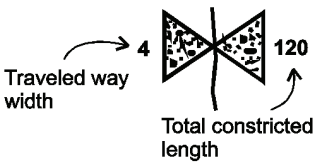
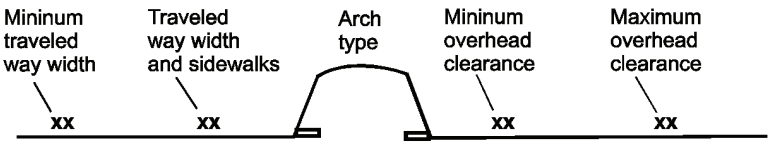
Symbols for use in the reconnaissance overlay	
Symbol	**Description and criteria**
SINGLE CURVE 	**SHARP CURVE:** Any curve with a radius of 25 meters or less is an obstruction. All curves with a radius less than 45 meters are reportable.
MULTIPLE CURVES 	**SERIES OF SHARP CURVES:** The figure to the left indicates the number of curves; that to the right, the minimum radius of curvature in meters.
CRITICAL POINT  Number critical points in order and describe them on DA Form 1711-R.	**CRITICAL POINT:** A key geographic point or position important to the success of an operation; a point in time, a crisis or turning point, or any point along a route of march where interference with troop movement may occur.
CONSTRICTION 	**CONSTRICTION:** (An obstruction.) Any reduction in the traveled way below the minimum required. The figure to the left indicates the width of the constriction; that to the right, the total constricted length, both in meters.
UNDERPASS  **UNDERPASSES:** Show shape of structure (obstruction) when overhead clearance is less than 4.3 meters.	
ROUTE DESIGNATION **(495)**	**ROUTE DESIGNATION:** Civil or military route designation. Written in parentheses along route.

Figure G-1. Reconnaissance overlay symbols (continued)

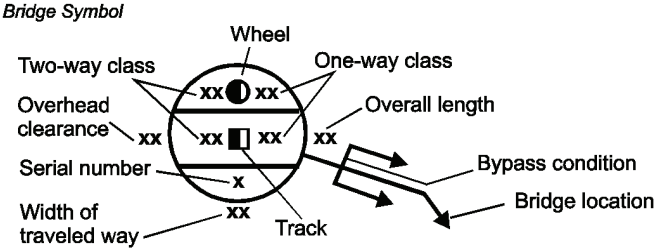
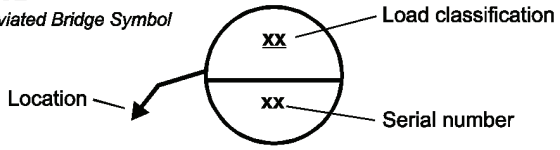
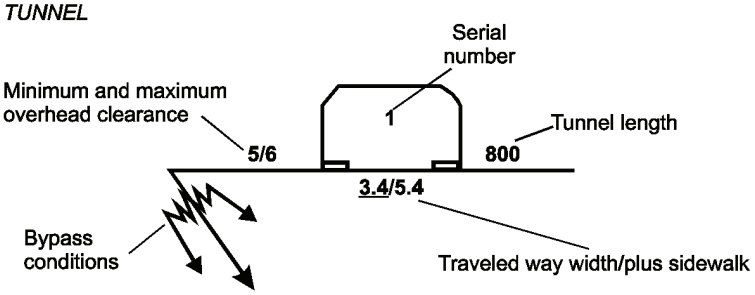
Symbols for use in the reconnaissance overlay	
Symbol	**Description and criteria**
BRIDGE *Full NATO Bridge Symbol*	 When full NATO bridge symbol is used on an overlay, the additional information column on the DA Form 1249 will not contain bypass length, traveled way width, or overhead clearance.
BRIDGE *Abbreviated Bridge Symbol*	 When abbreviated symbol is used, DA Form 1249 must be attached.
TUNNEL	 **TUNNEL:** (Includes man-made snow sheds.) Show the shape of structure or obstruction when overhead clearance is less than 4.3 m.

Figure G-1. Reconnaissance overlay symbols (continued)

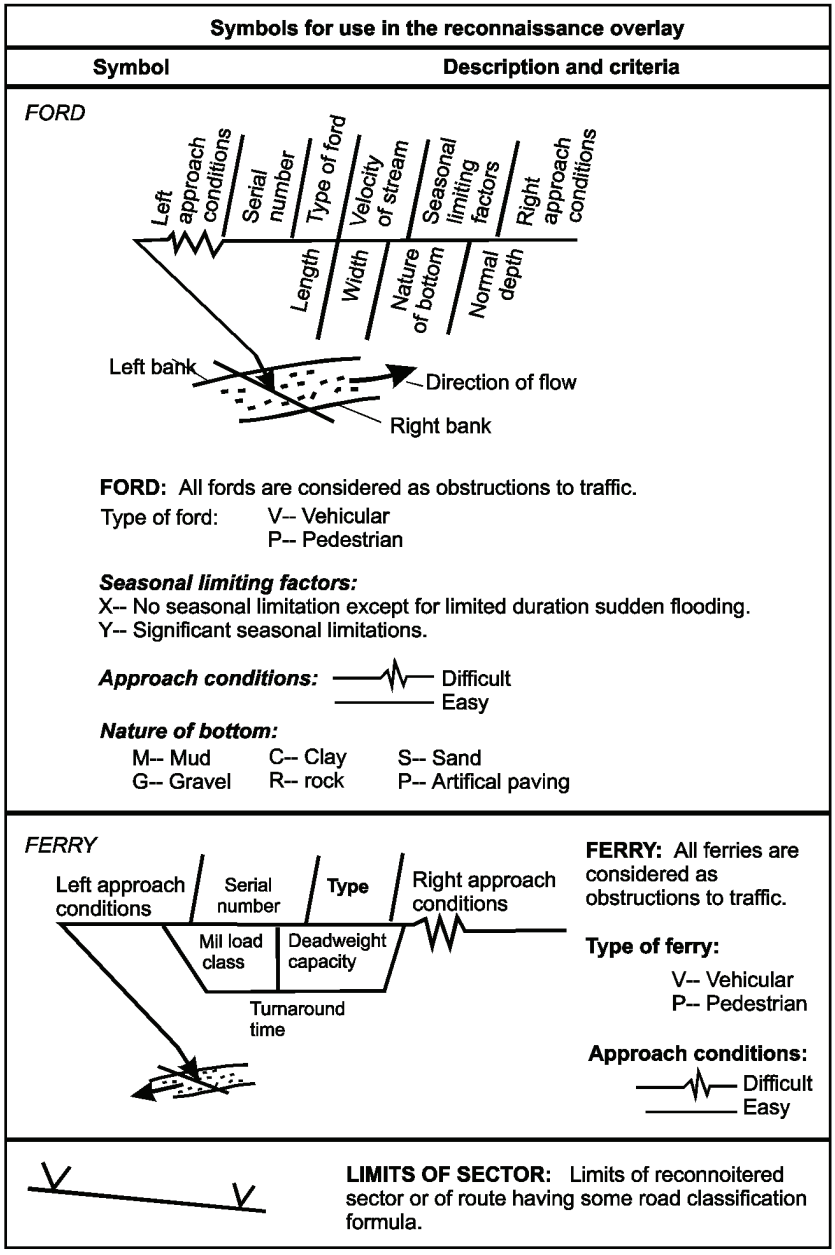


Figure G-1. Reconnaissance overlay symbols (continued)

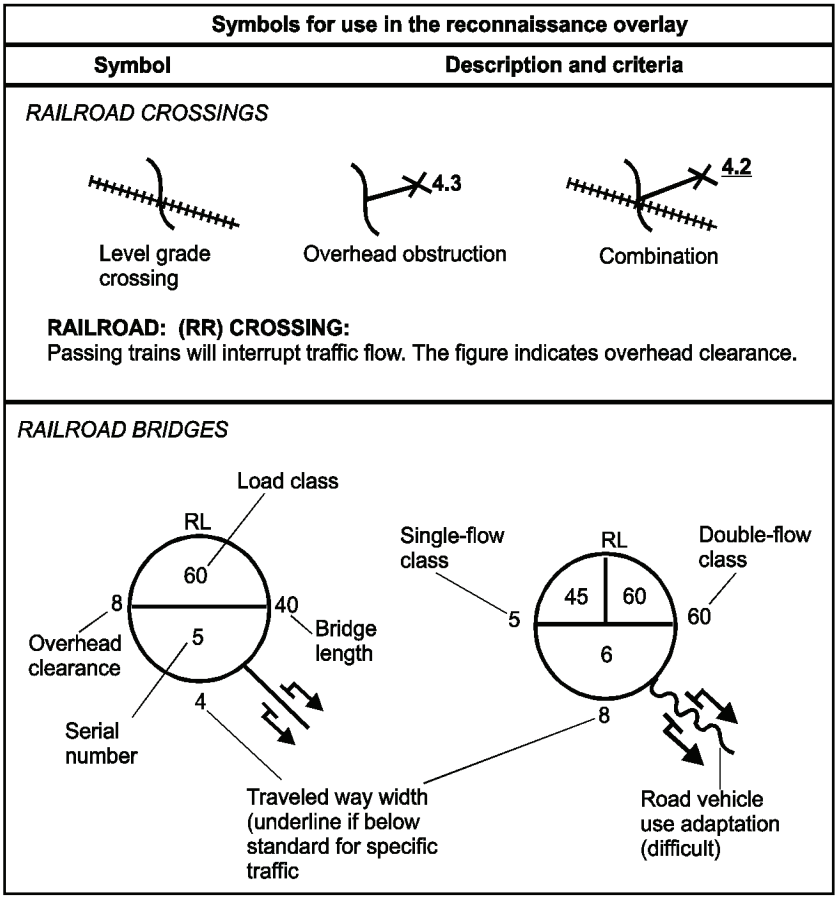


Figure G-1. Reconnaissance overlay symbols (continued)

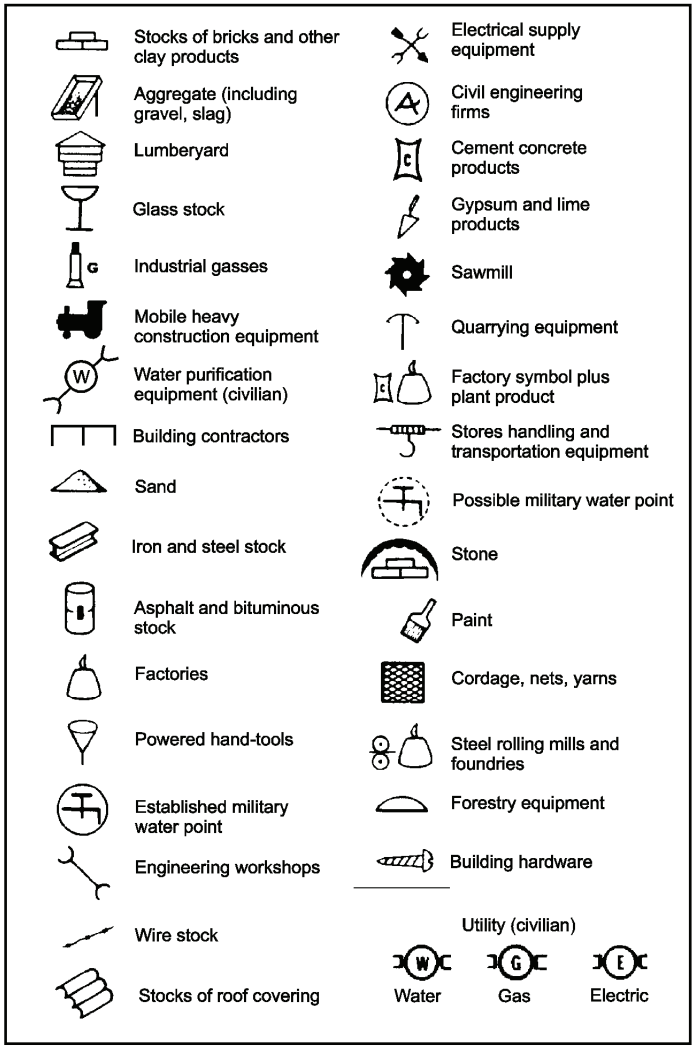


Figure G-2. Material, facility, equipment, and service symbols

SECTION II – ROUTE CLASSIFICATION

G-2. This section describes how to perform the technical classification of a route reconnaissance. Route classification is a tool that helps a unit determine what vehicles can travel on a particular road network and how fast they can travel. The results of route reconnaissance are displayed on map overlays. METT-TC conditions may dictate that only the necessary and essential facts about a route are gathered. The goal is to assemble this information as quickly and safely as possible.

Note. This information is recorded on a route classification overlay and supplemented by additional reports. During peacetime operations, detailed route classification missions are performed to obtain in-depth information for future use.

ROUTE CLASSIFICATION OVERLAY

G-3. The first step in understanding the technical portions of a route reconnaissance is understanding what information is needed to complete a route classification overlay. This overlay graphically depicts a route's entire network of roads, bridge sites, and other key locations and terrain features. (***Note.*** These items are reconnoitered, with the data recorded as support documentation for the complete route.) A route classification gives specific details on what obstructions will slow down a convoy or maneuver force along the route. As a minimum, the following information will be included on the route classification overlay (see Figure G-3 for an illustration of how the information is recorded on the overlay):

- The route classification formula.
- The name, rank, and social security number of the person in charge of performing the classification.
- The unit conducting the classification.
- The DTG showing when the classification was conducted.
- The map name, edition, and scale.
- Any remarks necessary to ensure complete understanding of the information on the overlay.

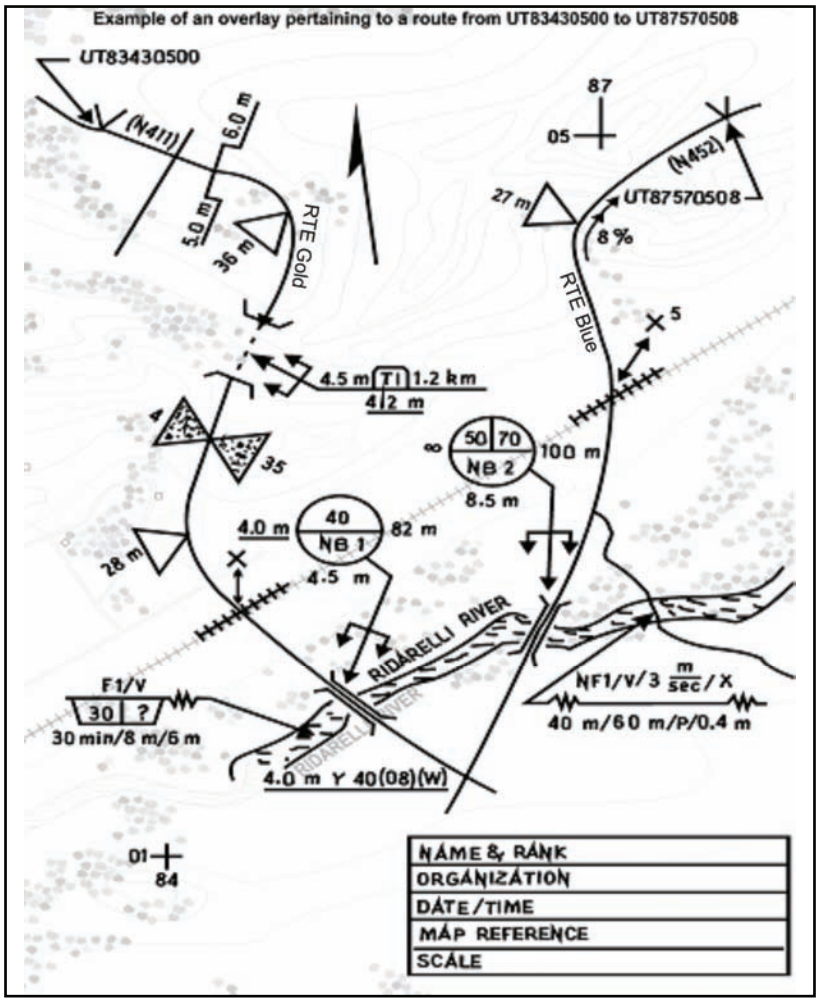


Figure G-3. Route classification overlay

ROUTE CLASSIFICATION FORMULA

G-4. A route classification must cover the primary route (such as a road, highway, street, or trail), as well as every alternate route on which movement can be made, to determine what type of vehicles and traffic load each specific portion of the route can handle. Routes are classified by obtaining, through the route reconnaissance, all pertinent information concerning trafficability and applying it to the route classification formula. The formula, which is recorded on the route classification overlay (see Figure G-3), consists of the following elements (an example of these items follows this listing):

- (1) Route width, in meters.
- (2) Route type (based on ability to withstand various types of weather conditions).
- (3) Lowest military load classification (MLC).
- (4) Lowest overhead clearance, in meters.
- (5) Obstructions to traffic flow (OB), if applicable.
- (6) Special conditions, such as snow blockage (T) or flooding (W).

Example:	(1)	(2)	(3)	(4)	(5)	(6)
	5.5/	Y/	30/	4.6	(OB)	(T or W)

ROUTE WIDTH

G-5. The route width is the narrowest width of traveled way on a route (see Figure G-4). This narrow width may be the width of a bridge, a tunnel, a road, an underpass, or other constriction that limits the traveled way. The number of lanes is determined by the traveled-way width. The lane width normally required for wheeled vehicles is 3.5 meters; for tracked vehicles, this width is 4 meters.

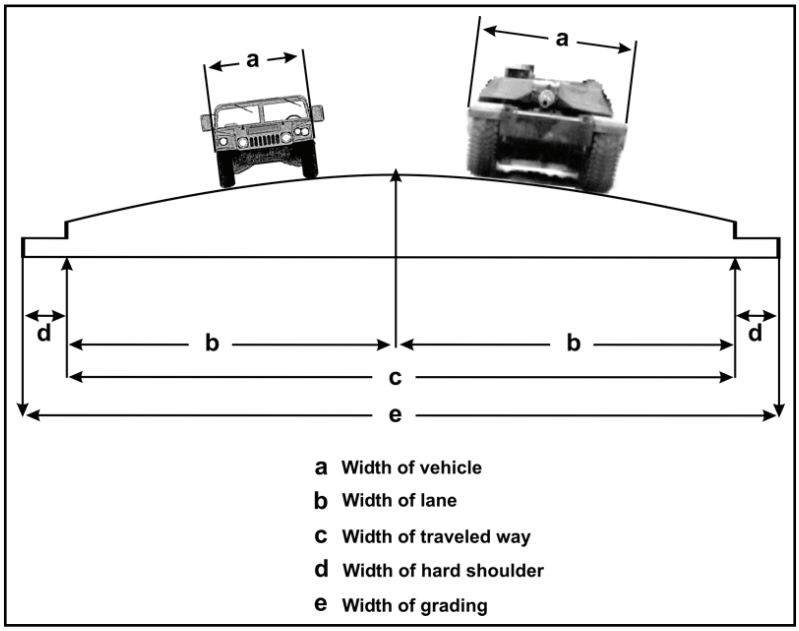


Figure G-4. Route width

G-6. Based on the number of lanes, route width is classified as follows:

- **Limited access.** This type of route permits passage of isolated vehicles of appropriate width in one direction only.
- **Single lane.** A single-lane route permits use in only one direction at any one time. Passing or movement in the opposite direction is impossible.

- **Single flow.** This route permits the passage of a column of vehicles and allows isolated vehicles to pass or travel in the opposite direction at predetermined points. It is preferable that such a route be at least 1.5 lanes wide.
- **Double flow.** This route permits two columns of vehicles to proceed simultaneously. It must be at least two lanes wide.

ROUTE TYPE

G-7. The route type defines the ability of the route surface to withstand various types of weather. It is determined for the worst section of road on the entire route and is categorized as follows:

- **Type X.** This is an all-weather route that, with reasonable maintenance, is passable throughout the year to a volume of traffic never appreciably less than its maximum capacity. This type of route is normally formed of roads having waterproof surfaces that are only slightly affected by rain, frost, thaw, or heat. This route is never closed because of weather effects other than snow or flood blockage.
- **Type Y.** This is a limited, all-weather route that, with reasonable maintenance, is passable throughout the year but at times is limited to a volume of traffic considerably less than maximum capacity. This type of route is normally formed of roads that do not have waterproof surfaces and that are considerably affected by rain, frost, thaw, or heat. A type Y route is likely to be closed for short periods (up to one day at a time) by adverse weather conditions, during which heavy use of the road would probably lead to complete collapse.
- **Type Z.** This type of route is passable only in fair weather. It is so seriously affected by adverse weather conditions that it may remain closed for long periods. Improvement of a type Z route is possible only through construction or realignment.

MILITARY LOAD CLASSIFICATION

G-8. A route's MLC number represents its safe load-carrying capacity and indicating the maximum vehicle class that the route can accept under normal conditions. Usually, the lowest bridge MLC (regardless of the vehicle type or conditions of traffic flow) determines the route's MLC. If there is no bridge on the route, the worst section of road will determine the route's overall classification. These are the broad MLC categories:

- **Class 50.** This is an average-traffic route.
- **Class 80.** This is a heavy-traffic route.
- **Class 120.** This is a very heavy-traffic route.

G-9. When a unit's vehicles have a higher MLC than the route, its first alternative may be to seek an alternate route. On the other hand, the unit may conduct additional reconnaissance of the roads within the original route to determine whether a change in traffic flow (such as single-flow crossing of a weak point) will permit heavier vehicles on the route. Whenever possible, the unit should ensure that the route network includes a number of heavy-traffic roads as well as average-traffic roads. This helps staff planners to manage heavy-traffic loads and to decrease the bottleneck effect.

OVERHEAD CLEARANCE

G-10. The lowest overhead clearance is the vertical distance between the road surface and any overhead obstacle (power lines, overpasses, tunnels, and so forth) that denies the use of the road to some vehicles. Use the infinity symbol (∞) for unlimited clearance in the route classification formula. (NOTE: Any point along the route where the minimum overhead clearance is less than 4.3 meters is considered to be an obstruction.)

Note. Platoons may deploy into regions where overhead restrictions are already calculated and posted for civilian traffic.

ROUTE OBSTRUCTIONS

G-11. Route obstructions restrict the type, amount, or speed of traffic flow. They are indicated in the route classification formula by the abbreviation "OB." The platoon must depict the exact nature of each obstruction it encounters on the route classification overlay.

G-12. Specific types of obstructions that the platoon may face on a route include the following:

- Overhead obstructions with a clearance of less than 4.3 meters. Examples include tunnels, underpasses, overhead wires, and overhanging buildings.
- Reductions in traveled-way widths that are below the standard minimums prescribed for the type of traffic flow (see Table G-1 for examples). This category includes reductions caused by bridges, tunnels, craters, lanes through mined areas, projecting buildings, or rubble.
- Slopes (gradients) of 7 percent or greater.
- Curves with a radius of 25 meters or less. Curves with a radius between 25.1 and 45 meters are not considered obstructions, but they must be recorded on the route reconnaissance overlay.
- Ferries.
- Fords.

Table G-1. Traffic-flow capability based on route width

	Limited Access	***Single Lane***	***Single Flow***	***Double Flow***
Wheeled vehicles	At least 3.5 m	3.5 to 5.5 m	5.5 to 7.3 m	Over 7.3 m
Tracked and combination vehicles	At least 4.0 m	4.0 to 6.0 m	6.0 to 8.0 m	Over 8 m

SNOW BLOCKAGE AND FLOODING

G-13. In cases where snow blockage is serious and is blocking traffic on a regular and recurrent basis, the symbol used in the route classification formula is "T." When flooding is serious and is blocking traffic on a regular and recurrent basis, the symbol in the route classification formula is "W."

EXAMPLES OF ROUTE CLASSIFICATION FORMULA

G-14. The following are examples illustrating the use of the route classification formula:

- **6.1m/Z/40/∞.** This is a fair-weather route (type Z) with a minimum traveled way of 6.1 meters, and an MLC of 40. Overhead clearance is unlimited (∞). There are no obstructions to traffic flow. Based on its minimum traveled-way width, this route accommodates both wheeled and tracked, single-flow traffic without obstruction.
- **6.1m/Z/40/∞(OB).** This formula indicates a fair-weather route (type Z) similar to the previous example, except that there is an obstruction. This obstruction could consist of overhead clearances of less than 4.3 meters, grades of 7 percent or greater, curves with a radius of 25 meters and less, or fords and ferries. A traveled way of 6.1 meters limits this route to one-way traffic if there is no width obstruction. If the route is used for double-flow traffic, 6.1 meters of traveled way is considered an obstruction and is indicated in the formula as an obstruction.
- **7m/Y/50/4.6(OB).** This limited, all-weather route (type Y) has a minimum traveled way of 7 meters, an MLC of 50, an overhead clearance of 4.6 meters, and an obstruction. This route width is not suitable for double-flow traffic (wheeled or tracked). This width constriction is indicated as OB in the route classification formula if the route is intended to be used for double-flow traffic.
- **10.5m/X/120/∞(OB)(W).** This formula shows an all-weather route (type X) with a minimum traveled-way width of 10.5 meters, which is suitable for two-way traffic of both wheeled and tracked vehicles. The route has an MLC of 120, unlimited overhead clearance, an obstruction, and regular, recurrent flooding.

SECTION III – CURVE CALCULATIONS

G-15. The speed at which vehicles move along a route is affected by sharp curves. Curves with a radius of 25 meters and less are obstructions to traffic and are indicated by the abbreviation "OB" in the route classification formula. Curves with a radius between 25.1 and 45 meters are recorded on the overlay but are not considered obstructions.

MEASURING METHODS

G-16. The platoon can use several methods to measure curves:

- Tape measure.
- Triangulation.
- Formula.

TAPE MEASURE METHOD

G-17. A quick way to estimate the radius of a sharp curve is by using a tape measure to find the radius (see Figure G-5). Imagine the outer edge of the curve as the outer edge of a circle. Find (estimate) the center of this imaginary circle; then measure the radius using a tape measure. Start from the center of the circle and measure to the outside edge of the curve. The length of the tape measure from the center of the imaginary circle to its outer edge is the curve's radius. This method is practical for curves located on relatively flat ground and having a radius of up to 15 meters.

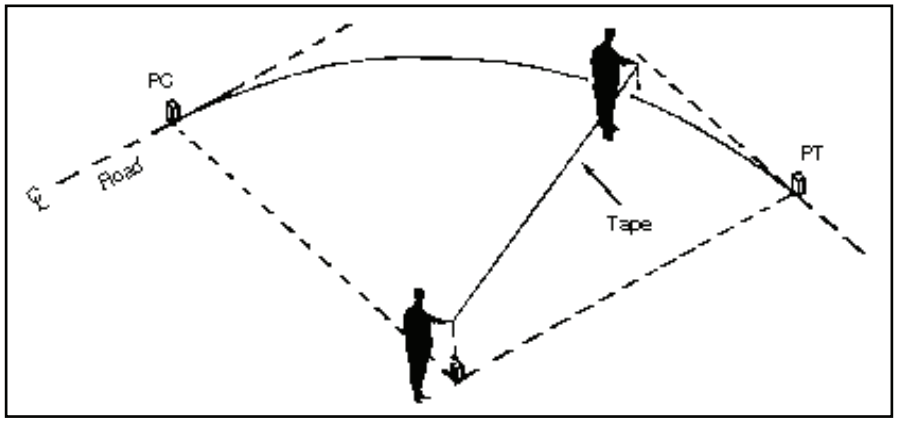


Figure G-5. Tape measure method

TRIANGULATION METHOD

G-18. Determine a curve's approximate radius by "laying out" right triangles (3:4:5 proportion) at the point of curvature (PC) and point of tangency (PT) locations (see Figure G-6). The intersection (o), which is formed by extending the legs of each triangle, represents the center of the circle. The distance (R) from point o to either point PC or PT represents the curve's radius.

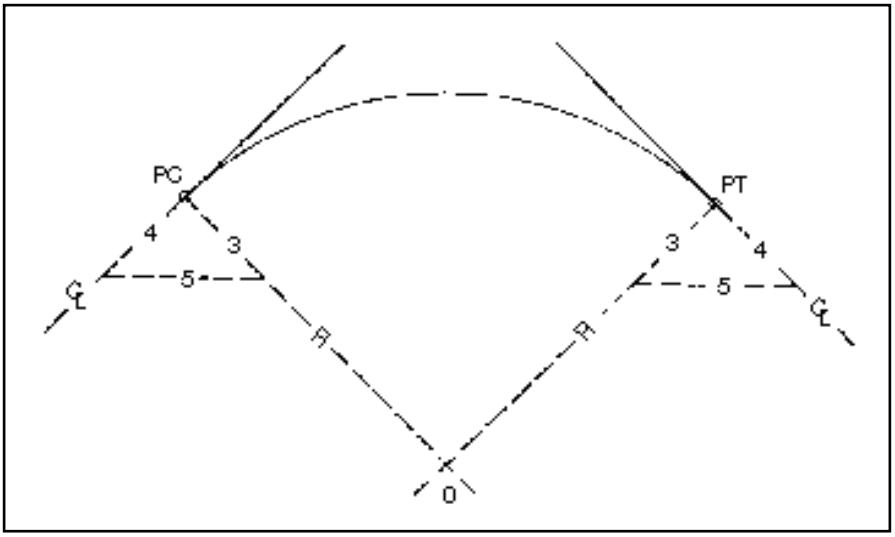


Figure G-6. Triangulation method

FORMULA METHOD

G-19. This method of determining the curve's radius (illustrated in Figure G-7) is based on the following formula (all measurements are in meters):

R = (C2/8M) + (M/2)

R = radius of the curve.

C = the distance from the centerline of the road to the centerline of the road at the outer extremities of the curve.

M = the perpendicular distance from the center of the tape to the centerline of the road.

G-20. Example: If C is 15 meters and M is fixed at 2 meters, the formula becomes the following:

R = (152/16) + 2/2 = 15.0625

G-21. The result of this calculation (a radius of slightly more than 15 meters) would be an obstruction to traffic flow, and "OB" would be entered in the route classification formula.

Note: When conditions warrant, set M at 2 meters from the centerline, then measure C 2 meters from the centerline. Use this method when there is a time limitation or when natural or man-made restrictions prevent proper measurements.

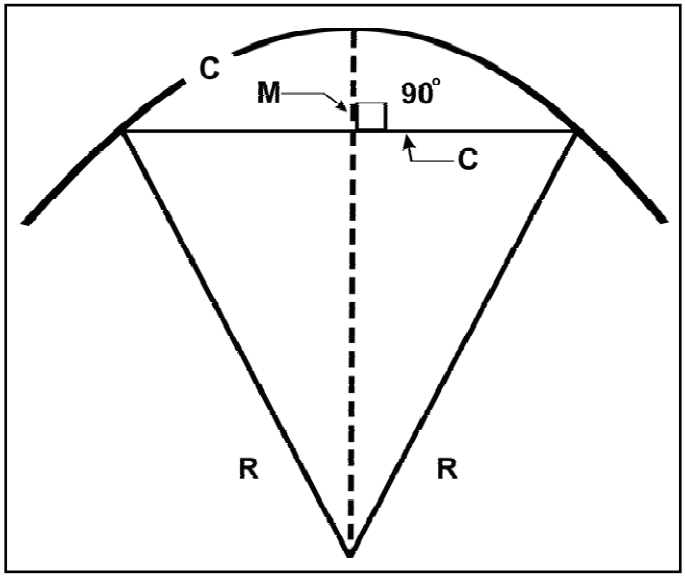


Figure G-7. Formula method

CURVE SYMBOL

G-22. Sharp curves with a radius of 45 meters or less are symbolically represented on maps or overlays by a triangle that points to the curve's exact map location. In addition, the measured value (in meters) for the radius of curvature is written outside the triangle (as shown in the top drawing in Figure G-8). All curves with a radius of 45 meters or less are reportable.

SERIES OF SHARP CURVES

G-23. A series of sharp curves is represented by two triangles, one drawn inside the other. The outer triangle points to the location of the first curve. The number of curves and the radius of curvature for the sharpest curve in the series are written to the outside of the triangle (bottom drawing in Figure G-8).

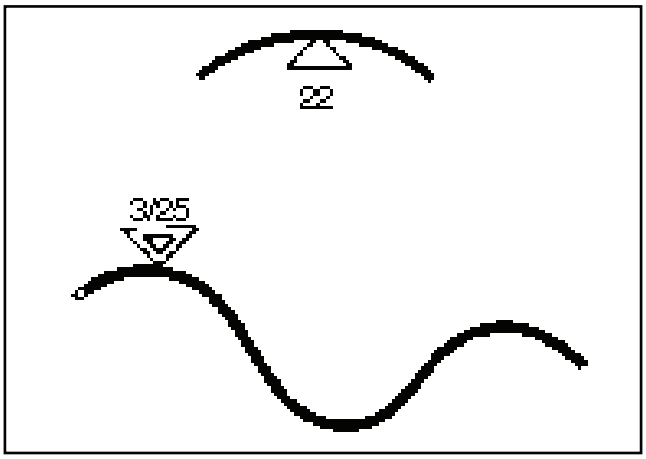


Figure G-8. Curve symbols

SECTION IV – SLOPE ESTIMATION

G-24. The rise and fall of the ground is known as the slope or gradient (grade). The percentage of the slope is used to describe the effect that inclines have on movement rates. It is the ratio of the change in elevation (the vertical distance divided by the horizontal ground distance) multiplied by 100 (see Figure G-9). It is important to express the vertical distance and the horizontal distance in the same unit of measure. Slopes of 7 percent or greater affect the platoon's movement speed along a route and are considered an obstruction. Record all slopes greater than 5 percent on the route classification overlay.

Note. Platoons may deploy into regions where percent of slope on major roads and routes is already calculated and posted.

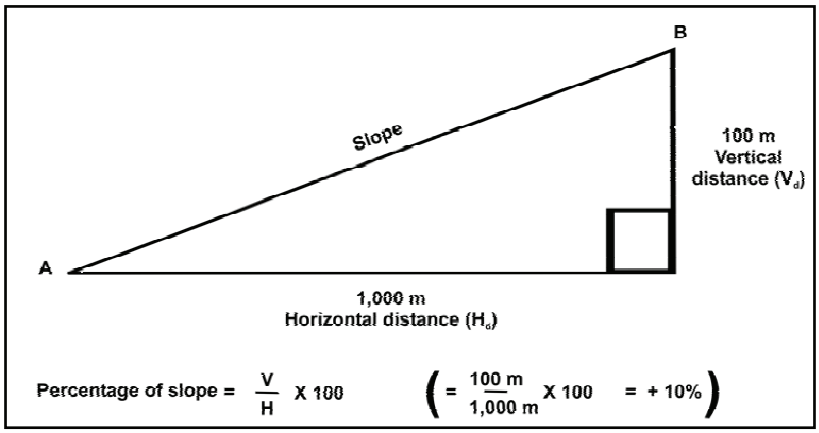


Figure G-9. Formula for slope percentage

SLOPE PERCENTAGE

G-25. The following discussion focuses on four methods for determining the percent of slope.

CLINOMETER METHOD

G-26. A clinometer is an instrument that directly measures percent of slope. Typically, the clinometer is found in engineer survey units as part of an artillery compass and as part of an engineer platoon sketch set. Follow the instructions included with the instrument. Scouts in CFV equipped platoons are equipped with a vehicle slope indicator in the turret which will provide a rough percent of slope. This instrument also provides clear to fire information to crew during TOW missile engagements.

PACE METHOD

G-27. The pace method is a quick way to estimate percent of slope. The first step in using this method is to accurately determine the height and pace of each Soldier of a reconnaissance team. As a rule of thumb, the eye level of the average Soldier is 1.75 meters above the ground. The pace of the average Soldier is 0.75 meter. Determine the percent of slope using these steps:

- Stand at the bottom of the slope with head and eyes level.
- Sight a spot on the slope. This spot should be easily identifiable. If it is not, another member of the team should go forward to mark the location.
- Walk forward and stand on the marked spot. Record the number of paces. Repeat this procedure until you reach the top of the slope (estimate fractions of an eye level).

- Compute the vertical distance by multiplying the number of sightings by the eye-level height (1.75 meters). Compute the horizontal distance by totaling the number of paces and converting them to meters by multiplying by 0.75 (or the known pace-to-meter conversion factor).
- Calculate the percent of slope by substituting the values into the percent-of-slope formula (see Figure G-10). Because this method considers horizontal ground distance and incline distance as equal, you can obtain reasonable accuracy only for slopes of less than 30 percent. This method requires practice to achieve acceptable accuracy. A line level and string can be used to train this method.

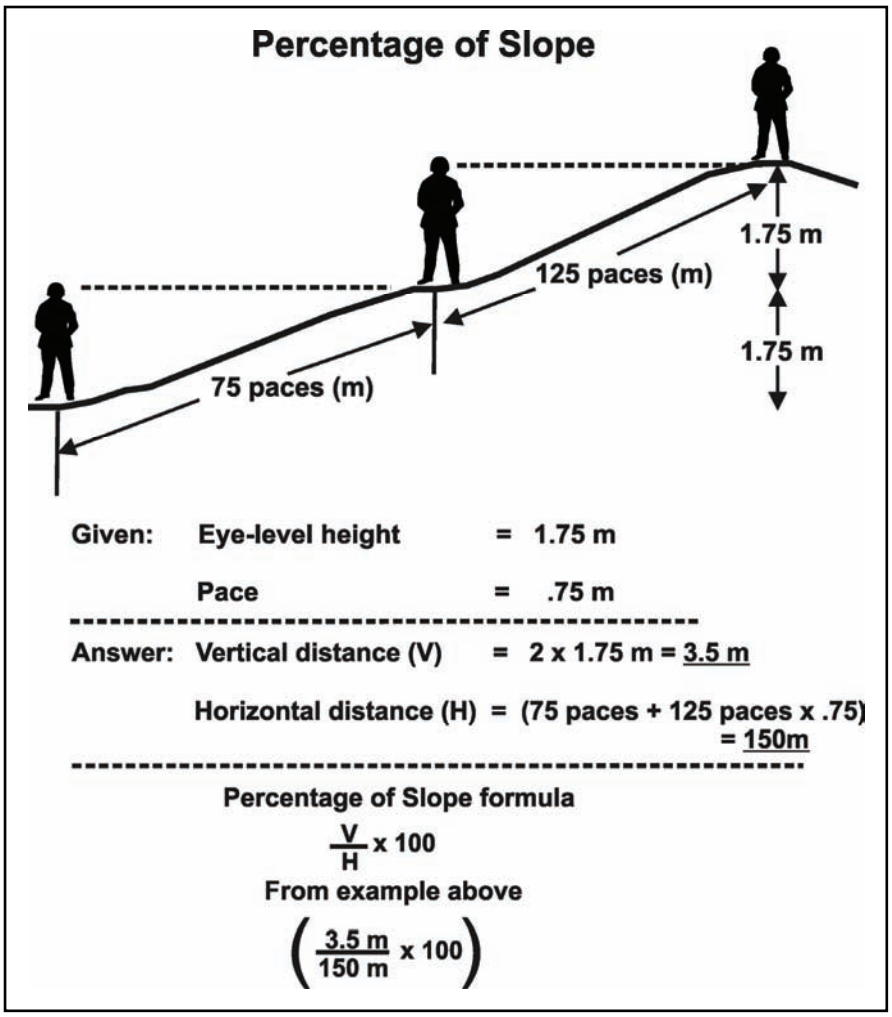


Figure G-10. Pace method for percent of slope

MAP METHOD

G-28. The platoon can use a large-scale map (such as 1:50,000) to estimate the percent of slope quickly. After identifying the slope on the map, find the difference in elevations between the top and bottom of the slope by reading the elevation contours or spot elevation; then measure and convert the horizontal distance (usually road distance) to the same unit of measurement as the elevation difference. Substitute the vertical and horizontal distances in the percent-of-slope formula as shown in Figure G-11.

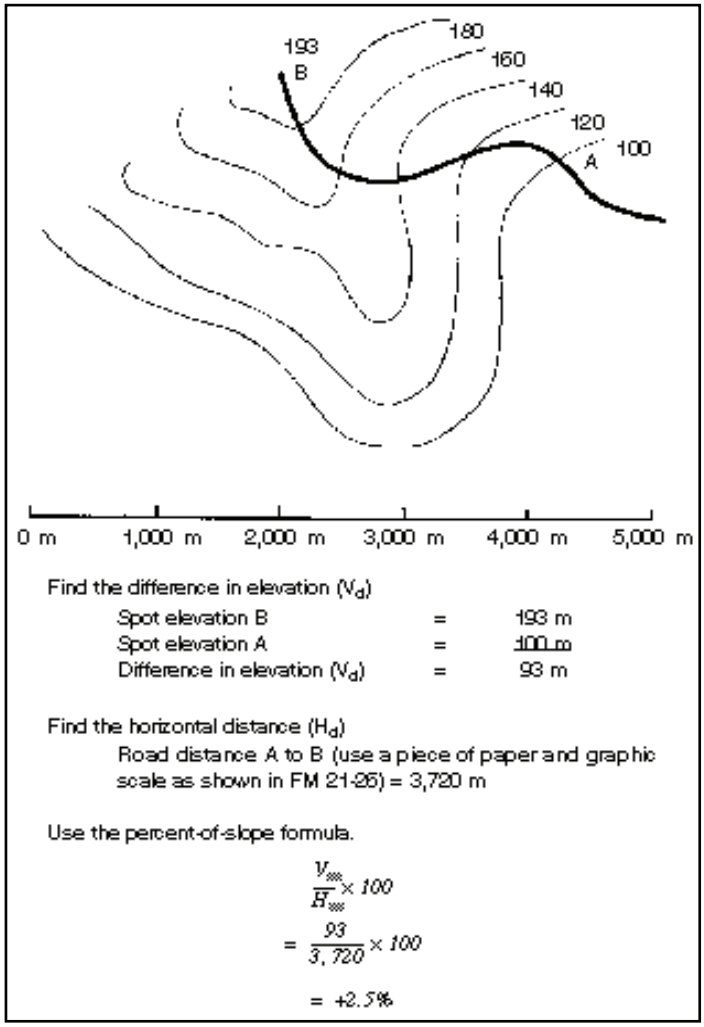


Figure G-11. Map method for percent of slope

ANGLE OF SLOPE METHOD

G-29. The angle of slope method is a quick way to estimate the percent of slope. The angle of slope is first measured by using an elevation quadrant, aiming circle, M2 compass, or binoculars with a standard reticle. If the instrument used to take the angle of measurement is mounted above ground level, the sighting must be taken a corresponding, and equal, distance higher on the slope to compensate for the height difference.

Note. This corresponding distance is the height of the instrument above the ground. You must take the angle of measurement at the base of the slope. Once you obtain the angle of measurement, consult Table G-2 and enter the column corresponding to the measured angle of slope. You can then read the percent of slope directly from the table. Figure G-12 illustrates this method.

Table G-2. Conversion of degrees and mils to percent of slope

DEGREES OF SLOPE	*MILS OF SLOPE*	*PERCENT OF SLOPE*
1	18	1.7
2	36	3.5
3	53	5.2
4	71	7.0
5	89	8.7
10	175	17.6
15	267	26.7
20	356	36.4
25	444	46.6
30	533	57.7
35	622	70.0
40	711	83.9
45	800	100.0
50	889	108.7
55	978	117.6
60	1,067	126.7

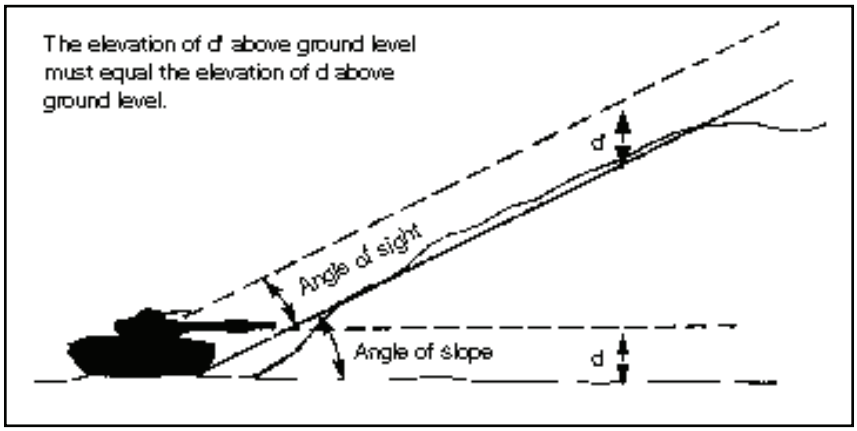


Figure G-12. Angle of slope method for percent of slope

SLOPE SYMBOL

G-30. Most vehicles will be slowed when they must negotiate slopes of 7 percent or greater for a significant distance. Such slope characteristics must be accurately reported. The symbols illustrated in Figure G-13 are used to represent various slope percentages.

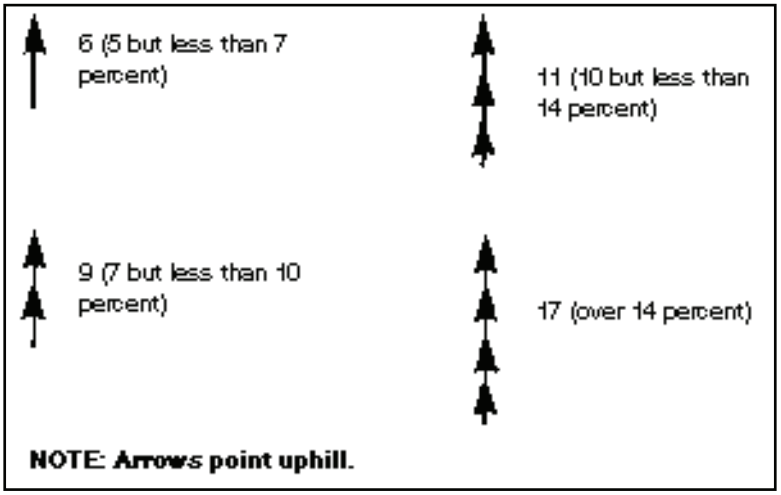


Figure G-13. Percent-of-slope symbols

G-31. A single arrowhead along the trace of a route pointing in the uphill direction indicates a grade of at least 5 percent but less than 7 percent. Two arrowheads represent a grade of at least 7 percent but less than 10 percent. Three arrowheads represent a grade of at least 10 percent but less than 14 percent. Four arrowheads represent a grade of 14 percent or more. As noted previously, no symbol is required for slopes of less than 5 percent.

G-32. The percent of slope is written to the right of the arrow. When the map scale permits, the length of the arrow shaft will be drawn to map scale to represent the approximate length of the grade.

Note. Slopes of 7 percent or greater are obstructions to traffic flow and are indicated by the abbreviation "OB" in the route classification formula.

SECTION V – CONSTRICTIONS

G-33. Reductions in the traveled-way width, known as constrictions, include narrow streets in built-up areas, drainage ditches, embankments, and war damage. Constrictions may limit vehicle movement; therefore, the physical dimensions of the vehicles that will be using the route must be known and considered when conducting the route classification. Reconnaissance or scout platoons should know dimensions of the vehicles with in their brigade elements.

Note. Platoons may deploy into regions where constrictions on most roads and routes is already calculated and posted for civilian traffic.

CONSTRICTION SYMBOL

G-34. Constrictions that reduce the traveled-way width to below minimum requirements are depicted on maps and overlays by two opposing shaded triangles. The width of the usable traveled way (in meters) is written next to the left triangle. The length of the constriction (in meters) is written next to the right triangle (see Figure G-14).

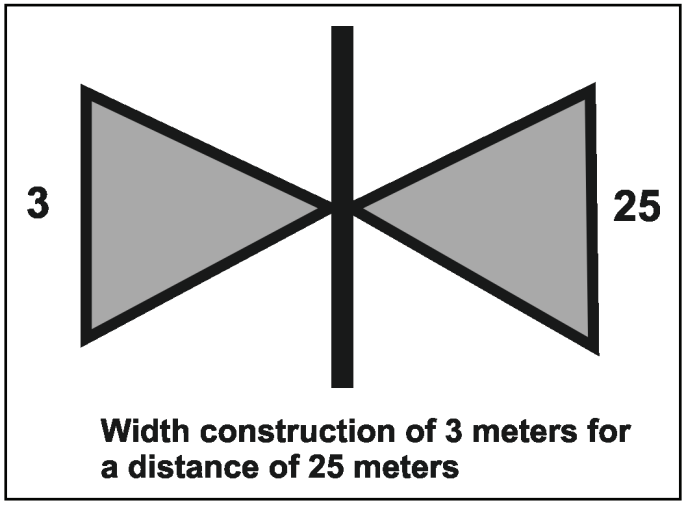


Figure G-14. Route constriction symbol

Note. Constrictions of traveled-way widths below the minimum standard for the type and flow of traffic are obstructions; they are indicated by the symbol "OB" in the route classification formula.

UNDERPASSES

G-35. An underpass is depicted on a map or overlay by a symbol that depicts the structure's ceiling. The symbol is drawn over the route at the map location of the underpass. The width (in meters) is written to the left of the underpass symbol, and the overhead clearance (in meters) is written to the right of the underpass symbol (see Figure G-15).

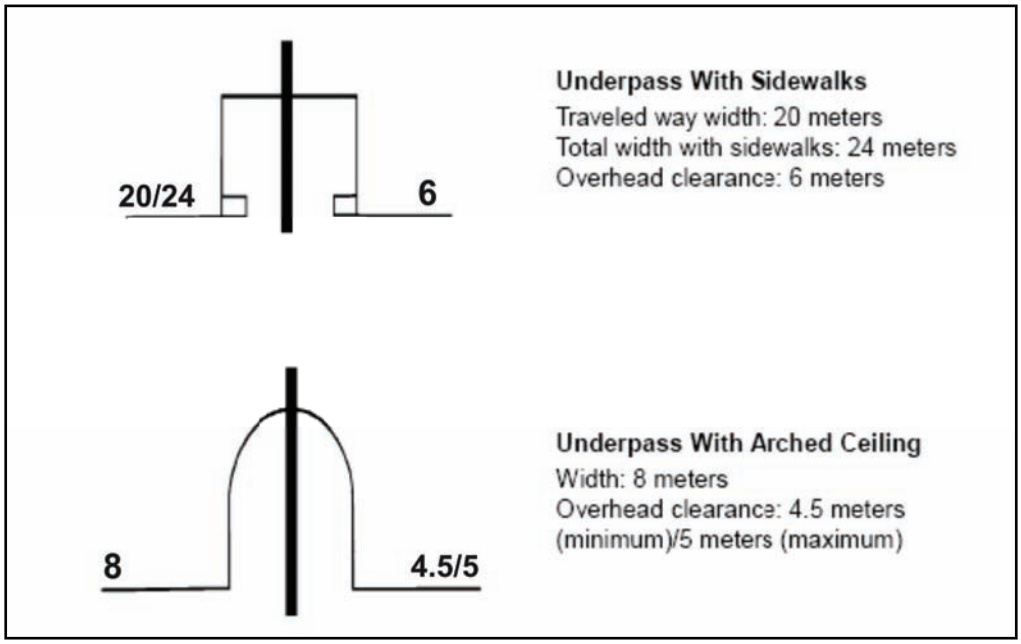


Figure G-15. Underpass symbols

G-36. If sidewalks permit emergency passage of wider vehicles, the sidewalks are symbolically represented. The traveled-way width is recorded first, followed by a slash, then the structure's total width, including sidewalks.

> ***Note.*** Features that result in a decrease in overhead clearance, such as arched ceilings or irregularities in ceilings, must be noted. In such cases, an extension of width does not necessarily mean that the structure will accommodate wider vehicles.

G-37. Both minimum and maximum overhead clearances, if different, will be recorded. The minimum will be recorded first, followed by a slash, then the maximum overhead clearance.

TUNNELS

G-38. A tunnel is a section of roadway along the route that is either artificially covered (such as a covered bridge or a snowshed) or underground. A tunnel classification determines essential information such as the serial number, location, type, length, width (including sidewalks), bypasses, alignment, gradient, and cross section. A tunnel consists of a bore, a tunnel liner, and a portal.

TUNNEL BORE TYPES

G-39. Common shapes of tunnel bores are semicircular, elliptical, horseshoe, and square with an arched ceiling (see Figure G-16).

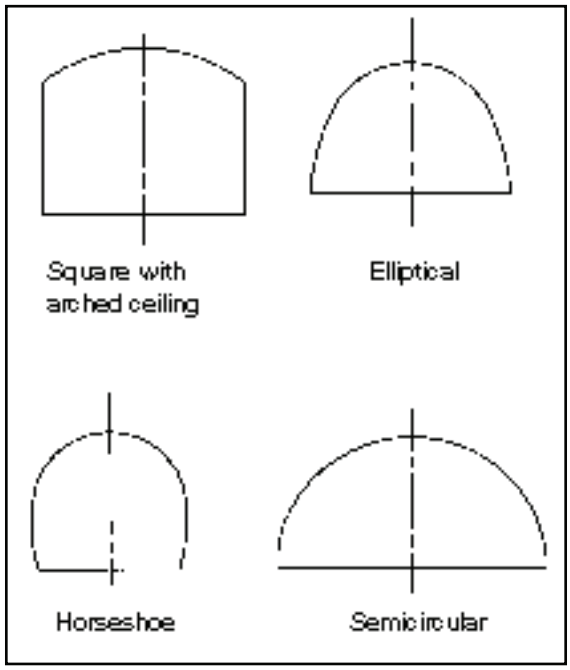


Figure G-16. Types of tunnel bores

TUNNEL SYMBOL

G-40. Basic tunnel information is recorded on maps or overlays using symbols (as shown in Figure G-17). The location of the tunnel entrance is shown by an arrow from the symbol to the location of the entrance. For long tunnels (more than 30.5 meters), both tunnel entrance locations are indicated.

G-41. For later reference purposes, each tunnel on a particular map or overlay is assigned a serial number.

Note. Check for an existing fixed serial number on the actual tunnel or map sheet; if there is no serial number, assign a number based on unit SOP. Serial numbers are not duplicated on any one map sheet, overlay, or document. The number is recorded inside the symbol. The traveled-way width is shown in meters and is recorded below the symbol.

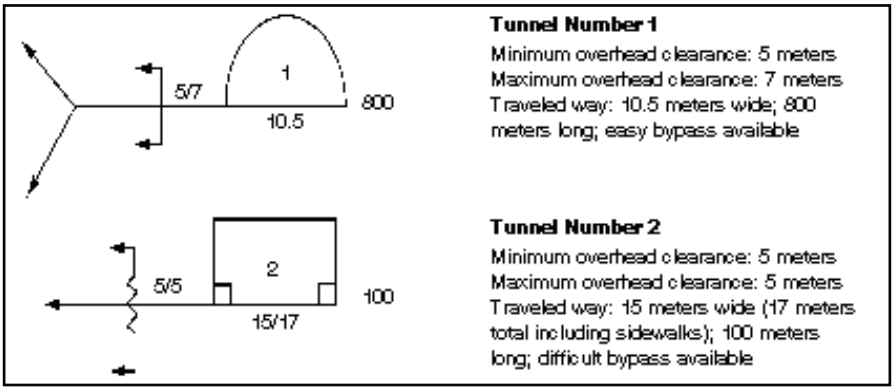


Figure G-17. Tunnel symbols

G-42. If sidewalks permit the emergency passage of wider vehicles, they are symbolically represented. The traveled-way width is written first, followed by a slash, then the total width including the sidewalks.

Note. Structures with arched or irregular ceilings will decrease overhead clearance. An extension of width does not necessarily mean that the structure will accommodate wider vehicles.

OVERHEAD CLEARANCE

G-43. Overhead clearance is the shortest distance between the surface of a traveled way and any obstruction vertically above it. The measurement of overhead clearance must be accurate. Figures G-18 and G-19 show methods and considerations for obtaining these measurements.

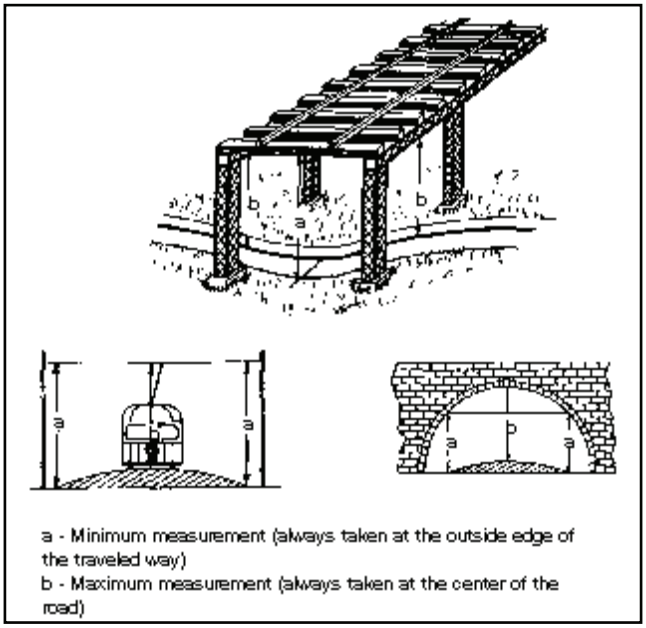


Figure G-18. Overhead clearance measurements

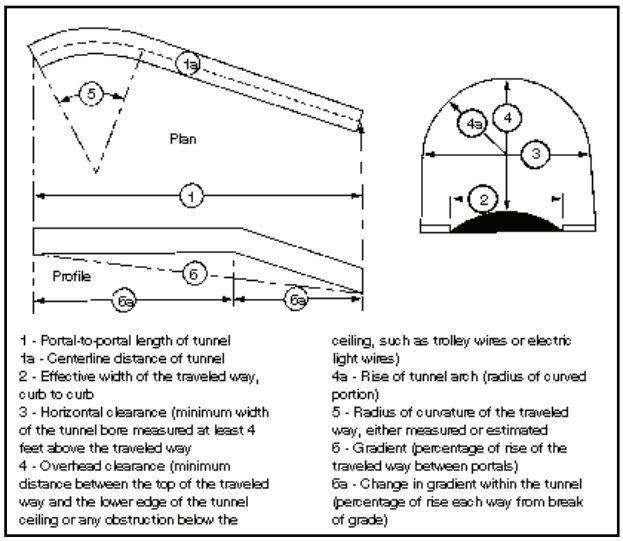


Figure G-19. Overhead clearance in tunnels

SECTION VI – STREAM CLASSIFICATION

G-44. A stream crossing site is a location at a body of water where vehicles can "swim" across and not touch the bottom. Identify and report locations that permit smooth traffic flow and reduce route obstructions as much as possible. When conducting reconnaissance of a stream crossing area, record the stream's depth, width, approaches, velocities, and natural and man-made obstacles (see Figure G-20).

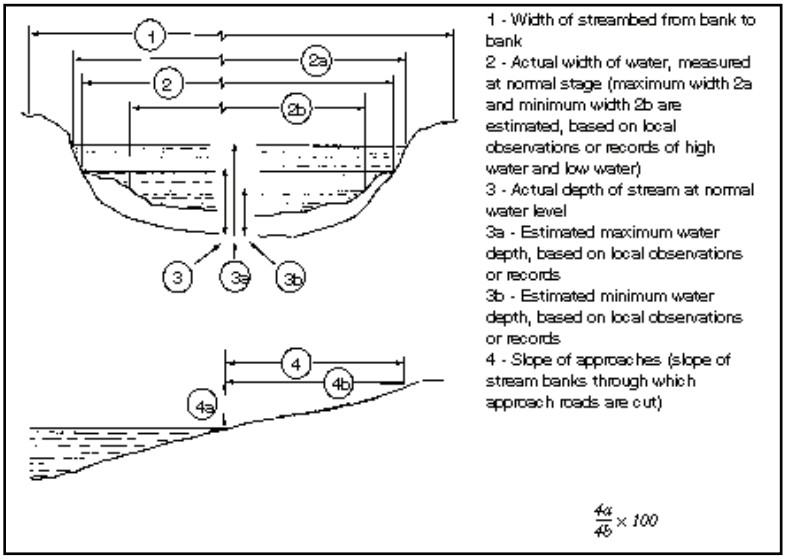


Figure G-20. Dimensions required for streams

MEASUREMENTS

G-45. Stream depth is usually measured using field-expedient devices such as poles or weighted ropes. Measure the depth every 3 meters along the planned stream crossing route. Recheck depths and currents frequently during inclement weather. Sudden, heavy rainfall may turn a sluggish stream or river into a torrent very quickly, particularly in tropical and arid regions. Monitor weather reports of the surrounding area. Storms occurring miles away can cause flash flooding. Always consider the importance of upstream dams and locks that may cause elevated levels or flooding when opened or destroyed.

Note. When there is little time for reconnaissance, the actual measured depth should be recorded as the normal depth.

PREEXISTING DATA

G-46. In developed areas of the world, special water navigation maps containing data on specific bodies of water are available through government agencies. The S2 can obtain copies of such maps. When using these maps, however, check the actual site whenever possible; there is no substitute for in-person reconnaissance.

STREAM WIDTH

G-47. Determine stream width using one of several available methods: the compass method; an aiming circle, azimuth indicator, or alidade; the GPS; or a direct measurement.

COMPASS METHOD

G-48. In this method, use a compass to take an azimuth from a point on the near shore, close to the water's edge, to a point on the opposite shore, also close to the water's edge (as illustrated in Figure G-21). On the near shore, establish another point that is on a line with and at a right angle to the azimuth selected. The azimuth to the same point on the far shore is + or - 45 degrees (800 mils) from the previous azimuth. Measure the distance between the two points on the near shore. This distance is equal to the distance across the stream.

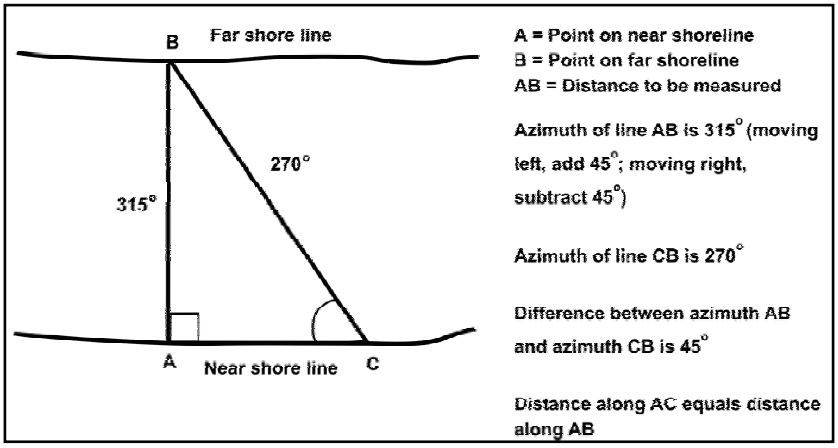


Figure G-21. Measuring stream width with a compass

AIMING CIRCLE, AZIMUTH INDICATOR, OR ALIDADE

G-49. Use an aiming circle, azimuth indicator, or alidade to measure the angle between two points that are a known distance apart on the near shore and a third point directly across the river from one of these points (see Figure G-22). Using trigonometric relationships, compute the distance across the stream.

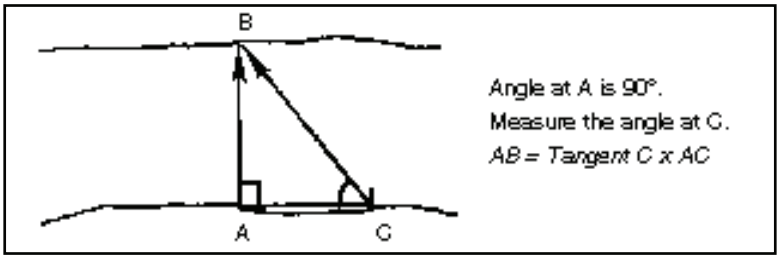


Figure G-22. Measuring stream width with a surveying instrument

GLOBAL POSITIONING SYSTEM

G-50. In this method, calculate the distance using two known grid points taken from the GPS.

DIRECT MEASUREMENT

G-51. Measure short gaps with a tape measure or a dark rope that is accurately measured and marked.

CURRENT VELOCITY

G-52. Current velocity varies in different parts of a stream. Velocity is usually slower near the shore and faster in the main channel. Perform the following procedure to determine stream velocity:

- Measure a distance along a riverbank.
- Throw a light, floating object (not affected by the wind) into the stream.
- Record the time it takes for the object to travel the measured distance. Repeat the procedure at least three times. Use the average time of the test in the following formula (also illustrated in Figure G-23) to determine the stream's velocity:

  Stream velocity (in meters per second) =
  measured distance (in meters) divided by
  average time (in seconds)

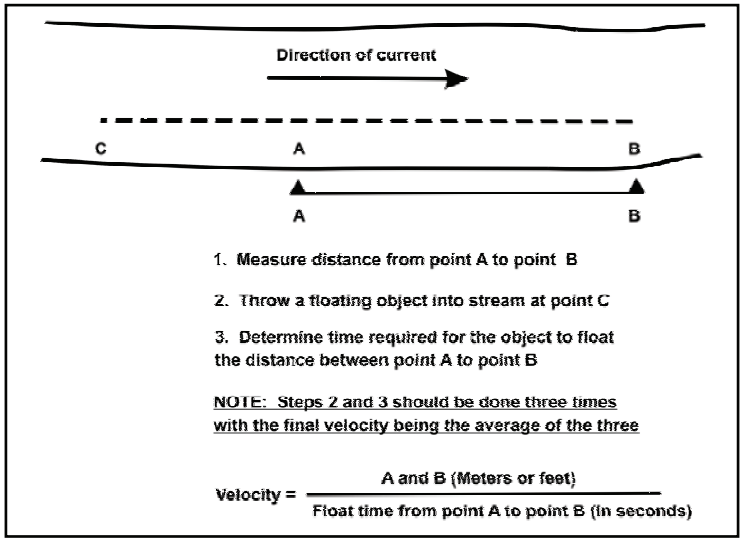


Figure G-23. Measuring stream velocity

STREAM APPROACHES

G-53. Gently sloping stream approaches are desirable for fording and swimming operations. Slope is expressed in percentage. Slope-climbing capability must be considered for the vehicles that are expected to ford/swim the stream. This information is found on the vehicle's data plate or dash plate or in the vehicle's technical manual (TM). When considering slope-climbing capability, consider the degrading effects of weather, the condition of the vehicle's tires or tracks, and the condition of the ground surface of both sides of the stream.

G-54. The platoon should avoid the following obstacles during stream crossing operations:

- High, vertical banks.
- Mines and booby traps that are located at the entrance and exit points or at likely approaches to the stream; that are submerged in the stream itself; or that are attached to poles or floating logs.
- Debris and floating objects such as logs and brush, poles, or floating objects with wire attached that could foul propellers and suspension systems.
- Ice crusts.

SECTION VII – FORD CLASSIFICATION

G-55. A ford is a location in a water barrier where the current, bottom, and approaches allow personnel, vehicles, and other equipment to cross while remaining in contact with the bottom during the crossing. Fords are obstructions to traffic flow and are shown by the abbreviation "OB" in the route classification formula.

G-56. During high-water periods, low-water bridges are easily confused with paved fords because both are completely submerged. It is important to know the difference between this type of bridge and a paved ford because of corresponding military load limitations.

G-57. Fords are classified according to their crossing potential (or trafficability) for pedestrians or vehicles. Fordable depths for vehicular traffic can be increased by providing suitable waterproofing and by adding deep-water fording kits. These kits permit fording depths up to an average of 4.3 meters. Check vehicle TMs for further fording information.

G-58. Record the composition of the approaches. They may be paved or covered with mat or track materials, but they are usually unimproved. The composition and the slope of the approaches to a ford

should be carefully noted to determine the trafficability after fording vehicles saturate the surface material of the approaches. Identify the ford's left and right approaches when looking downstream.

G-59. Record the current velocity and the presence of debris to determine their effect, if any, on the ford's condition and trafficability. Estimate the current velocity using the following categories:

- Swift (more than 1.5 meters per second).
- Moderate (1 to 1.5 meters per second).
- Slow (less than 1 meter per second).

G-60. The composition of the ford's stream bottom largely determines its trafficability. It is important to determine whether the bottom is composed of sand, gravel, silt, clay, or rock and in what proportions. Record whether the ford's natural river bottom has been improved to increase the load-bearing capacity or to reduce the water depth. Improved fords may have gravel, macadam, or concrete surfacing; layers of sandbags; metal screening or matting; or timber (corduroy) planking. Determine if material is available nearby that can be used to improve the ford. Record limited ford information, such as the following, on maps or overlays using symbols as illustrated in Figure G-24:

- Use an arrow to show the ford's geographic location from the symbol to the ford location on a map or overlay. The symbol is drawn on either side of the stream.
- Assign a serial number to each ford for reference (if the map sheet has a preassigned serial number, use it). Follow the unit's SOP in assigning serial numbers. They must not be duplicated within any one map sheet, overlay, or document.
- Use the letters "V" for vehicular or "P" for pedestrian to show the ford type. The type of ford is determined by bottom conditions, width, and water depth. Approaches are not considered in determining the ford type.
- Express the stream's normal velocity in meters per second. Following the stream-velocity notation, list any seasonal limitations, summarizing the factors with these letters:
  - **X.** No seasonal limitations except for sudden flooding of limited duration (such as flash floods).
  - **Y.** Serious, regular, or recurrent flooding or snow blockage.

Note. If the "Y" symbol is used, the route type in the route-classification formula automatically becomes type Z.)

- List the length of the ford, in meters; this is the distance from the near to far shores. Also list the width of the ford, which is the traveled-way width of the ford's bottom.
- Indicate the nature of the bottom by the most appropriate letter symbol:
  - **M.** Mud.
  - **C.** Clay.
  - **S.** Sand.
  - **G.** Gravel.
  - **R.** Rock.
  - **P.** Artificial paving.
- Express the normal depth of the ford, in meters. This is the depth of water at the deepest point. During a hasty reconnaissance, the actual water depth, as measured, is used.
- Label the stream's left and right banks, as determined looking downstream. Imagine yourself in the middle of the stream and looking downstream. Your left arm would indicate the left bank and the right arm the right bank. In drawing this portion of the symbol, pay attention to the direction of the stream flow. Irregular lines placed on the corresponding side of the basic symbol show a difficult approach.

G-61. All elements of the ford symbol are separated by slashes. If you do not know or cannot determine any item of the ford symbol, substitute a question mark for the required information.

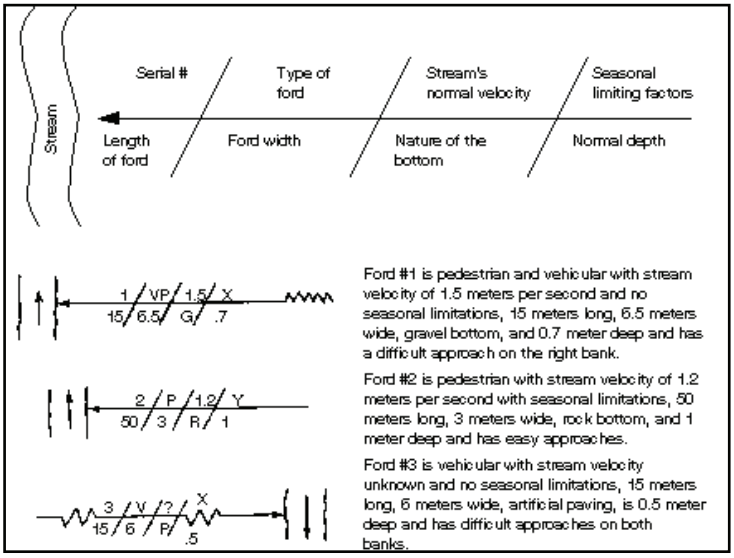


Figure G-24. Ford symbols

SECTION VIII – FERRY CLASSIFICATION

G-62. Ferries are considered obstructions to traffic flow and are indicated by the abbreviation "OB" in the route classification formula. Ferryboat construction varies widely and ranges from expedient rafts to ocean-going vessels. Ferries differ in physical appearance and capacity depending upon the waterway's width, depth, and current and the characteristics of the traffic to be moved. Ferries may be propelled by oars; cable and pulleys; poles; the stream current; or steam, gasoline, or diesel engines.

CIVIL FERRIES AND FERRY SITES

G-63. The capacity of a civil ferryboat is normally expressed in tons and its capacity (total number of passengers and/or vehicles, as well as cargo). In addition, it is often assigned an MLC number. Because ferries vary in capacity, be sure to record the capacity of each ferry when more than one is used at a given site.

G-64. Ferry slips (or piers) are usually provided on each shore to permit easy loading of passengers, cargo, and vehicles. The slips may range from simple log piers to elaborate terminal buildings. A distinguishing characteristic of a ferry slip is often the floating pier that adjusts, with changes in the water depth, to the height of the ferryboat.

G-65. Approach routes to ferry installations have an important bearing on use of the ferry. Reconnoitering and recording the conditions of the approaches (including the load-carrying capacity of landing facilities) is very important.

G-66. Limiting characteristics of ferry sites that should be considered include the following:

- Width of the water barrier from bank to bank.
- Distance and time required for the ferryboat to travel from one bank to the other.
- Depth of the water at each ferry slip.
- Factors influencing the possible defense of each landing site.

G-67. Climatic conditions affect ferry operations. The platoon must consider data on tide fluctuations, freezing periods, floods, excessive dry spells, and their effects on ferry operations. For example, fog and ice substantially reduce the total traffic-moving capacity of the water route and increase the danger associated with movement across the water.

MILITARY FERRIES AND RAFTING

G-68. Reconnaissance personnel will be required to locate and report suitable sites for military rafting or ferrying operations. Military floating bridges are currently available for such operations. Desirable site characteristics include the following:

- Current velocity between 0 and 1.6 meters per second.
- Banks that permit loading without a great deal of preparation.
- Approaches that permit easy access and egress.
- Strong, natural holdfasts.
- Sites with no shoals, sandbars, or snags.
- Sites clear of obstacles immediately downstream.
- Sites clear of mines and booby traps.
- Sites with sufficient depth to prevent grounding of the raft or ferry during loading, unloading, or crossing operations.
- Suitable raft-construction sites (dependent on type of raft).
- Holding areas for vehicles awaiting passage.
- A suitable road network to support crossing traffic.

FERRY INFORMATION

G-69. Record limited ferry information on maps or overlays by using the symbol shown in Figure G-25. Refer to Figure G-26 for examples of completed ferry symbols. Ferry information includes the following:

- Use an arrow to connect the ferry symbol to the geographic location of the ferry on a map or overlay. The symbol may be drawn on the map or overlay on either side of the stream.
- Assign a serial number to each ferry, using unit SOP, for later reference. Numbers must not be duplicated within any one map sheet, overlay, or document. Some maps will already show a ferry serial number; if so, use this number for the reconnaissance.
- Identify the type of ferry, listing "V" for vehicular or "P" for pedestrian after the serial number. If the ferry can haul vehicles, it can also haul pedestrians.
- List the deck's MLC in the bottom left box of the symbol. Most ferries have this information on their data plate.
- List the dead-weight capacity of the ferry. This is the MLC plus the actual weight of the ferry, in short tons.
- Show turnaround time, in minutes, required to cross the waterway, unload, and return.

G-70. When drawing the approach condition portion of the symbol, pay attention to the direction of stream flow. Left and right banks are determined by looking downstream. Approach conditions are determined in the same manner as for fords. Use irregular lines on the corresponding side of the basic symbol to show a difficult approach.

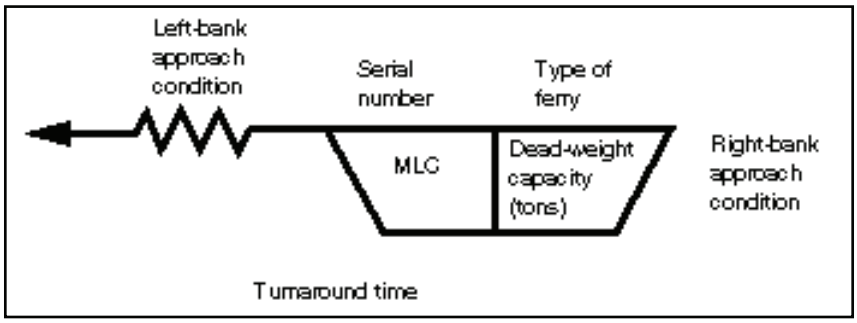


Figure G-25. Basic ferry symbol

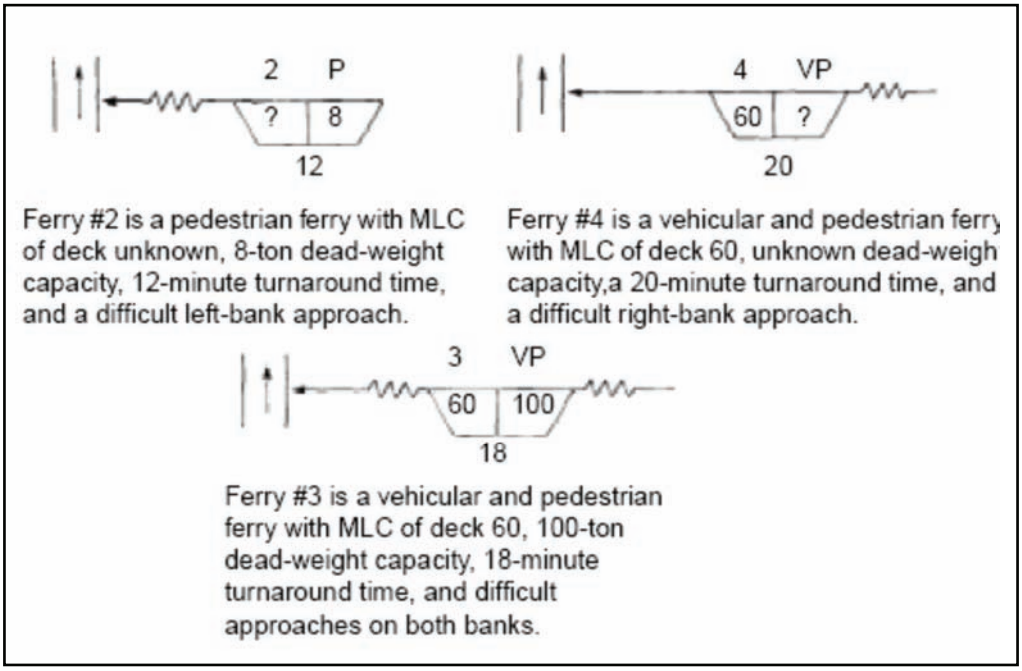


Figure G-26. Sample ferry symbols

SECTION IX – BRIDGE CLASSIFICATION

G-71. The reconnaissance or platoon conducts a bridge reconnaissance to ensure that they know the load-carrying capabilities of each bridge along a specific route. In some situations, this also identifies which bridges are unusable and provides a rough estimate of the materials needed to destroy the bridge. When tactical situation allows, platoon leaders should request engineer support to determine the most accurate capabilities or damages to a bridge. Platoons may employ UAS overflights for preview of the bridge prior to reaching their locations.

> ***Note.*** Platoons may deploy into regions where bridge classifications for most roads and routes is already calculated and posted for civilian traffic.)

G-72. This section reviews the basics of hasty bridge load classification procedures and reconnaissance procedures for bridge destruction. It will help vehicle operators to avoid loss of life or equipment due to bridge failure by outlining procedures for determining what vehicles can cross a bridge. Vehicle operators may cross without restrictions if their vehicle's load class (including the load) is less than or equal to the bridge's load class. The vehicle's load class can be found in the appropriate vehicle TM.

G-73. Common types of bridges that the platoon may encounter include the following (see Figure G-27 for an illustration of bridges, by span type):

- Timber or steel trestle bridge with timber deck.
- Steel stringer bridge with concrete deck.
- Concrete-steel stringer bridge.
- Concrete T-beam.
- Bridge with asphalt surface.
- Masonry arch bridge.

REQUIRED INFORMATION

G-74. To classify a bridge, you must acquire the necessary information concerning the bridge's basic components, including the following:

- **Approaches** (the portions of a route leading to a bridge). Approaches may be mined or booby-trapped, requiring thorough investigation during a reconnaissance.
- **Substructure** (lower part of a bridge). The substructure consists of the abutments and intermediate supports that transfer the bridge's load to the ground. It is important to measure all aspects of an abutment, including its height, width, and length; the abutment wings; and the intermediate supports for bridge demolition missions. It may be more feasible to destroy the intermediate supports or abutments when compared to the rest of the bridge structure.
- **Superstructure** (upper part of a bridge). The superstructure consists of the following components (see Figure G-28):
  - **Stringers.** These rest on and span the distance between the intermediate supports or abutments. Stringers are the superstructure's main load-carrying members. They receive the load from the flooring and the vehicles and transfer it to the substructure.
  - **Flooring system.** This often consists of both decking and tread. The decking is laid directly over the stringers at right angles to the centerline of the bridge. The tread is laid parallel to the centerline of the bridge and between the curbs.
  - **Curbs.** These are placed at both edges of the flooring to guide the vehicles. A vehicle with an axle that is wider than the traveled-way width (between the curbs) cannot cross the bridge. Most bridges, however, allow for vehicular overhang beyond the normal traveled area. This allowance is called horizontal clearance above the curbs and is a safety factor. Platoon leaders s must perform a risk analysis before attempting such a crossing.
  - **Railings.** These are located along the bridge to guide drivers and to protect vehicular and foot traffic.
  - **Trusses.** These are used in some bridge superstructures, either above or below the traveled way, to increase the load-carrying capacity. A truss is a structural element made of several members joined together to form a series of triangles.
  - **Number of members in each span.** This is noted where applicable (for example, for stringer bridges and concrete T-beam bridges). Exact dimensions of specific bridge members are taken as outlined later in this section.
  - **Span length.** This is measured from center to center of the supports. The bridge's classification is usually based on the weakest span. If the weakest span is apparent, no other spans need to be reconnoitered. If the weakest span is difficult or impossible to locate, however, all spans must be classified. Even if several spans look identical, actual measurements should be taken to prevent error.
  - **Traveled-way width.** This is measured between the inside faces of the curbs. On a truss bridge, however, the horizontal clearance is measured from a point 1.21 meters (4 feet) above the roadway.

Note. Figure G-27 illustrates various types of bridges, by span type, that the platoon may encounter. Figure G-28 shows components of the bridge superstructure.

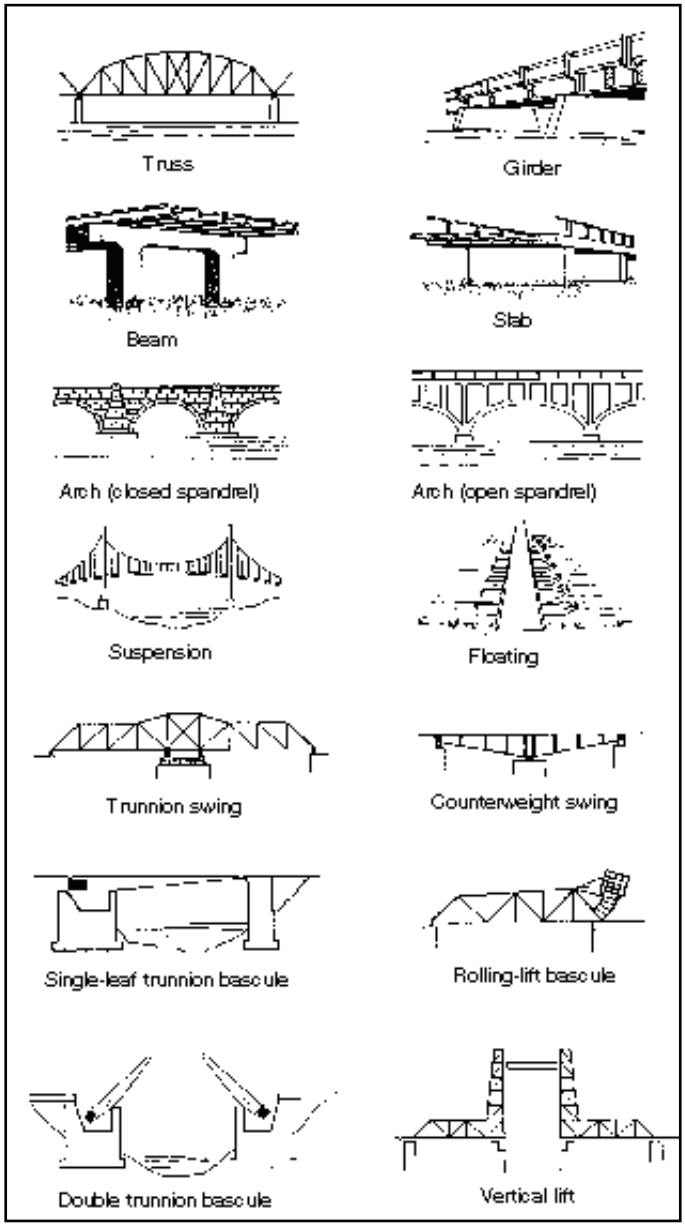


Figure G-27. Typical bridges (by type of span)

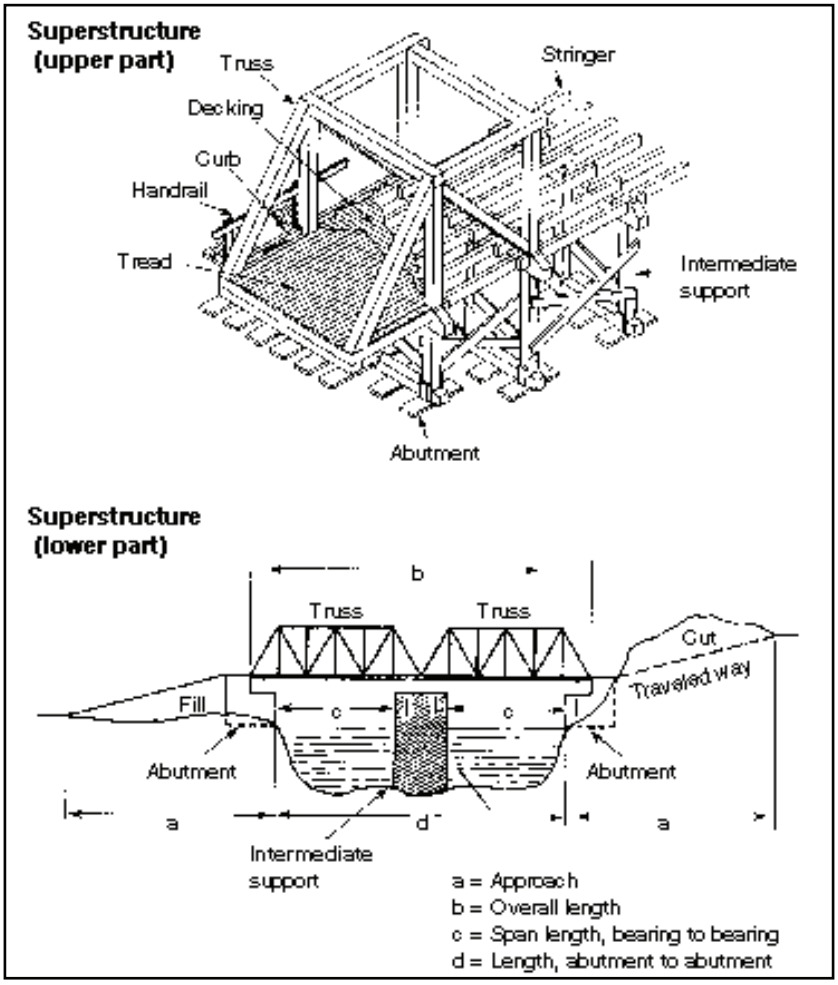


Figure G-28. Bridge components

HASTY BRIDGE CLASSIFICATION TECHNIQUES

G-75. In wartime, the platoon will sometimes have to cross underclass bridges. To determine whether the bridge can be crossed safely, assess it using the following considerations:

- Is there a data plate on the side of or underneath the bridge?
- Can the unit's largest vehicle cross with at least two of the bridge supports under it? (See Figure G-29.)
- If the bridge fails, will the vehicle fall a distance not exceeding its own length? The risk is minimized if the drop is shallow enough that the vehicle can be easily retrieved and the crew can avoid serious injury.
- What does the bridge span? If it spans a railroad track or a highway, the risk of crossing is probably too great. If the bridge crosses a stream, small ravine, or creek, however, it may be worth the risk to attempt a crossing.

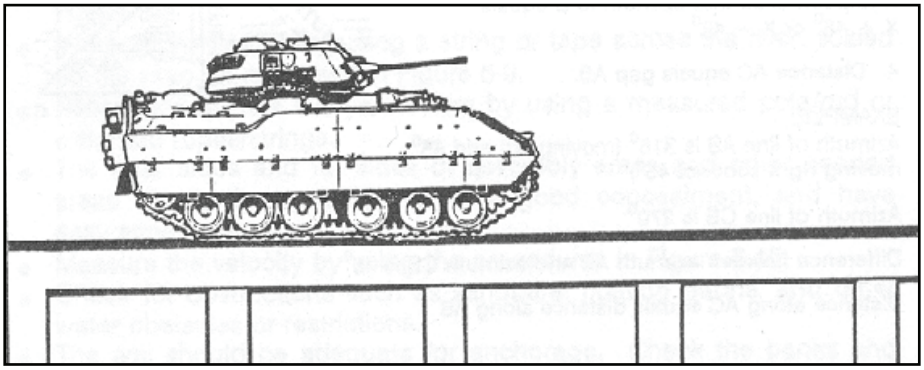


Figure G-29. BFV crossing a bridge with two supports under it

G-76. If the risk is acceptable, the senior member of the crossing element should observe the bridge while the first vehicle crosses. If the first vehicle causes no visible damage to the bridge, subsequent vehicles should cross one at a time, in the center of the bridge, at a constant speed, and without stopping or accelerating. An observer should watch each vehicle from the side of the bridge to detect any sign of bridge damage.

G-77. The following discussion focuses on hasty bridge classification techniques for MLC 30 and MLC 70 bridges.

CONCRETE SLAB MLC 30 BRIDGE

G-78. Before crossing a concrete slab MLC 30 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? If the answer to both of these questions is yes, go to step 2; if the answer to either question is no, do not cross.
- **Step 2.** Measure the span length and deck thickness (as illustrated in Figure G-30). Compare the span length and deck thickness to minimum standards using Table 3. Does the slab meet minimum deck thickness for the corresponding span? If the answer is yes, it safe to cross MLC 30 traffic; if the answer is no, go to step 3.

Table G-3. Measurement correlations for a concrete slab MLC 30 bridge

SPAN LENGTH	*MINIMUM DECK THICKNESS*
30 feet	18 inches
20 feet	13 inches
10 feet	8 inches

- **Step 3.** Take into account the following special condition: For each foot under the closest higher span length shown, deck thickness can decrease by no more than ½ inch. Does the slab meet minimum deck thickness required according to this special condition? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, do not cross.

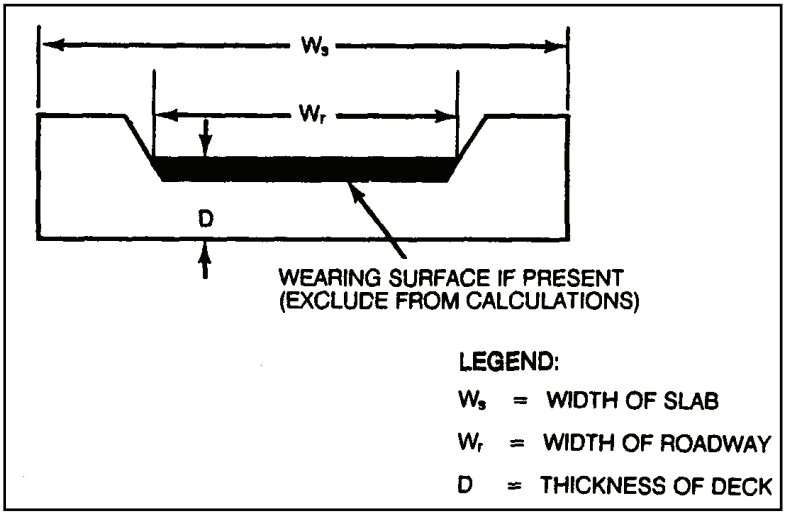


Figure G-30. Concrete slab MLC 30 bridge

CONCRETE T-BEAM MLC 30 BRIDGE

G-79. Before crossing a concrete T-beam MLC 30 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 6 inches thick? If the answer to all three questions is yes, go to step 2; if the answer to any question is no, do not cross.
- **Step 2.** Measure the span length, stringer spacing, and depth of the stringer (as illustrated in Figure G-31). Is the stringer spacing no less than 6 feet and no more than 8 feet? If the answer is yes, go to step 3; if the answer is no, do not cross.
- **Step 3.** Does the stringer depth meet the minimum dimension for the corresponding span length shown in Table G-4? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, do not cross.

Note. If the span length falls between designated lengths, use the next higher value.

Table G-4. Measurement correlations for a concrete T-beam MLC 30 bridge

SPAN LENGTH	*MINIMUM STRINGER DEPTH*
20 feet	15 inches
30 feet	20 inches
40 feet	25 inches
50 feet	30 inches
60 feet	35 inches
70 feet	40 inches
80 feet	44 inches
90 feet	50 inches
100 feet	57 inches

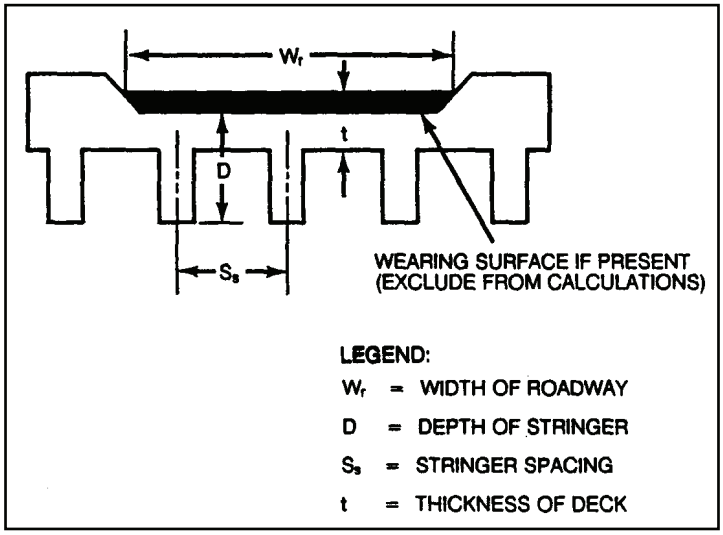


Figure G-31. Concrete T-beam MLC 30 bridge

MASONRY ARCH MLC 30 BRIDGE

G-80. Before crossing a masonry arch MLC 30 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? If the answer to both questions is yes, go to step 2; if the answer to either question is no, do not cross.
- **Step 2.** Measure the span length, arch ring, and fill (as shown in Figure G-32). Compare these measurements to minimum standards using Table G-5. Do the arch ring and fill meet minimum required dimensions for the designated span? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, go to step 3.

Table G-5. Measurement correlations for a masonry arch MLC 30 bridge

SPAN LENGTH	*MINIMUM ARCH RING*	*MINIMUM FILL*
10 feet	9 inches	None
15 feet	9 inches	6 inches
20 feet	9 inches	12 inches
30 feet	13.5 inches	18 inches
40 feet	18 inches	12 inches
50 feet	22.5 inches	12 inches

- **Step 3.** Take into account the following special condition: Fill can be reduced if the thickness of the arch ring exceeds the specifications above. Compare these measurements using Table G-6. Does the bridge span meet the minimum fill requirements for the corresponding arch ring thickness according to this special condition? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, do not cross.

Table G-6. Special conditions for minimum fill on a masonry arch MLC 30 bridge

SPAN LENGTH	*FOR EACH 1-INCH INCREASE ABOVE THE MINIMUM ARCH RING, FILL CAN DECREASE BY:*
15 feet	3 inches
20 feet	2-2/3 inches
30 feet	2-2/3 inches
40 feet	1-1/3 inches
50 feet	2-2/3 inches

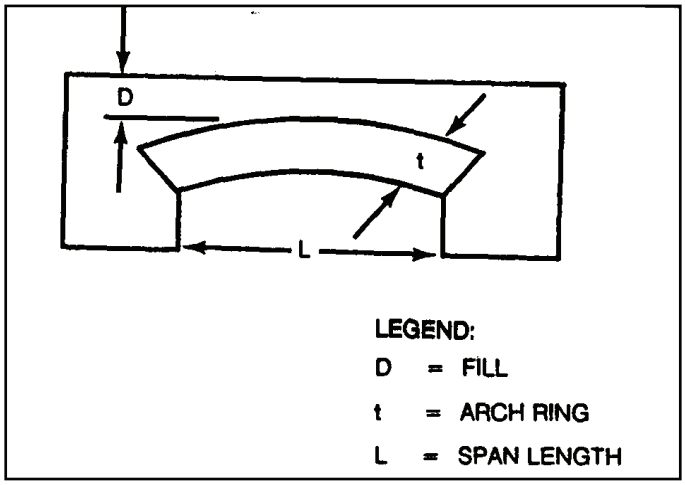


Figure G-32. Masonry arch MLC 30 bridge

STEEL STRINGER MLC 30 BRIDGE WITH CONCRETE DECK

G-81. Before crossing a steel stringer MLC 30 bridge with a concrete deck, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 5 inches and no more than 8 inches thick? If the answer to all three questions is yes, go to step 2; if the answer to any question is no, do not cross.
- **Step 2.** Measure the span length, stringer spacing, and stringer height and width (as illustrated in Figure G-33). Using Table G-7, find the row and column corresponding to the bridge's span length and stringer spacing. Does the stringer meet the minimum requirements for overall height and width? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, do not cross.

Note. If these measurements fall between the values given, use the next higher measurement.

Table G-7. Measurement correlations for a steel stringer MLC 30 bridge with concrete deck

	50-FOOT SPAN	*40-FOOT SPAN*	*30-FOOT SPAN*	*25-FOOT SPAN*	*20-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)				
8-FOOT STRINGER SECTION	24-1/4 x 9	24-1/8 x 9	17-3/4 x 6-5/8	16-3/4 x 6-1/2	15 x 5-7/8
6-FOOT STRINGER SECTION	24-1/8 x 9	24 x 7	16 x 8-1/2	15-3/4 x 6-1/8	14 x 6
4-FOOT STRINGER SECTION	21-1/4 x 8-1/4	18-1/4 x 7	16-3/4 x 6-1/2	15 x 5-7/8	13-3/8 x 5-3/8
2-FOOT STRINGER SECTION	18-1/4 x 7	16-1/4 x 7-1/8	15 x 5-7/8	14 x 5-1/2	12 x 5

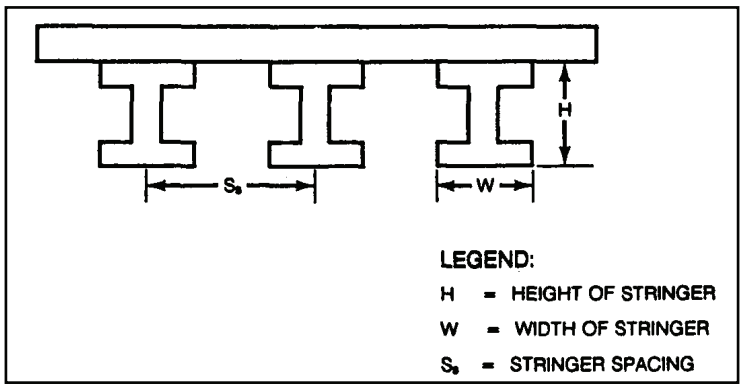


Figure G-33. Steel stringer MLC 30 bridge with concrete deck

TIMBER/STEEL TRESTLE MLC 30 BRIDGE

G-82. Before crossing a timber/steel trestle MLC 30 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 8 inches thick (for 6-foot stringer sections) or at least 6 inches thick (for stringer sections of 4 feet of less)? If the answer to all three questions is yes, go to step 2 for a timber trestle bridge or step 3 for a steel trestle bridge. If the answer to any question is no, do not cross.
- **Step 2.** For a timber trestle bridge, measure the span length, stringer spacing, and stringer height and width (refer to Figure G-34). Using Table G-8, find the row and column corresponding to the bridge's span length and stringer spacing. Does the timber stringer meet the minimum requirements for overall height and width? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, do not cross.

Note. If these measurements fall between the values given, use the next higher measurement.

Table G-8. Measurement correlations for a timber trestle MLC 30 bridge

	20-FOOT SPAN	*15-FOOT SPAN*	*10-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)		
6-FOOT STRINGER SECTION	22 x 8	18 x 8	16 x 6
4-FOOT STRINGER SECTION	20 x 8	16 x 8	14 x 6
2-FOOT STRINGER SECTION	16 x 8	14 x 8	12 x 6

- **Step 3.** For a steel trestle bridge, measure the span length, stringer spacing, and stringer height and width (refer to Figure G-34). Using Table G-9, find the row and column corresponding to the bridge's span length and stringer spacing. Does the steel stringer meet the minimum requirements for overall height and width? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, do not cross.

Note. If these measurements fall between the values given, use the next higher measurement.

Table G-9. Measurement correlations for a steel trestle MLC 30 bridge

	50-FOOT SPAN	*40-FOOT SPAN*	*30-FOOT SPAN*	*25-FOOT SPAN*	*20-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)				
6-FOOT STRINGER SECTION	24 x 7-3/8	24 x 7	18-1/8 x 7-1/2	15 x 5-7/8	14-1/8 x 5-5/8
4-FOOT STRINGER SECTION	24 x 7	22 x 7	15 x 5-7/8	14-1/8 x 5-5/8	14 x 5-1/2
2-FOOT STRINGER SECTION	20 x 6-1/2	18 x 6	14 x 5-1/2	13 x 5	10 x 5

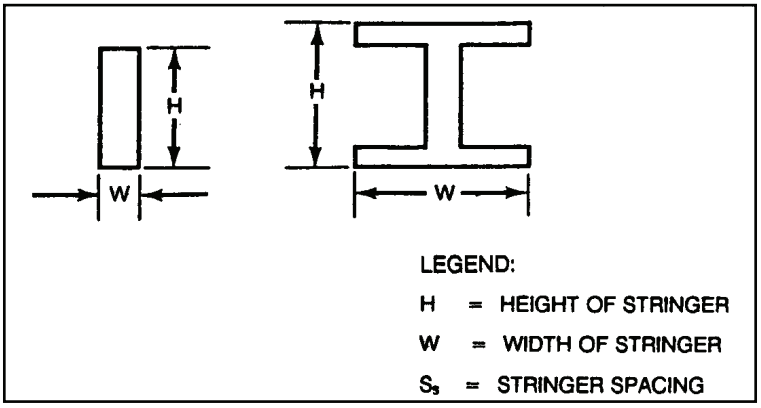


Figure G-34. Timber/steel trestle MLC 30 bridge

COMPOSITE STEEL-CONCRETE STRINGER MLC 30 BRIDGE

G-83. Before crossing a composite steel-concrete stringer MLC 30 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 5 inches thick? If the answer to all three questions is yes, go to step 2; if the answer to any question is no, do not cross.
- **Step 2.** Inspect the stringer to see if there is a plate on the bottom. There are three possible configurations: no plate, a plate one-half or less the thickness of the flange, or a plate more than one-half the thickness of the flange. Measure the span length, stringer spacing, and stringer height and width (as illustrated in Figure G-35). Using one of the tables included here, find the row and column corresponding to the bridge's span length and stringer spacing. Does the stringer meet the overall height and width requirements for its corresponding span length, stringer spacing, and plate status? If the answer is yes, it is safe to cross MLC 30 traffic; if the answer is no, do not cross.

Note. Use Table G-10 for no plate, Table G-11 for a plate one-half or less the thickness of the flange, or Table G-12 for a plate more than one-half the thickness of the flange. If the span length or stringer spacing falls between the values given, use the next higher measurement.

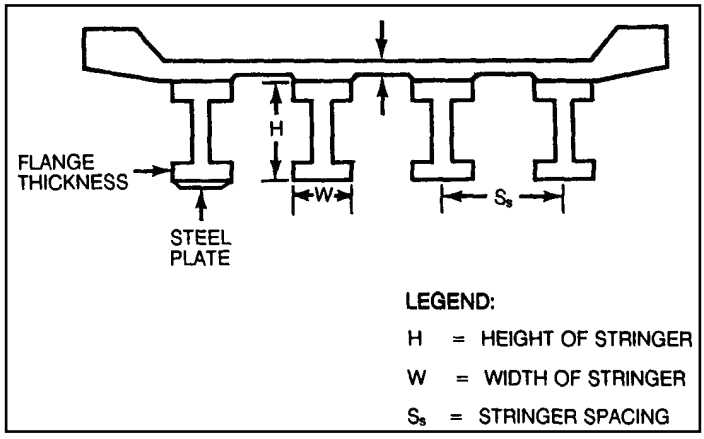


Figure G-35. Composite steel-concrete stringer MLC 30 bridge

Table G-10. Measurement correlations for a composite steel-concrete stringer MLC 30 bridge (with no plate)

	50-FOOT SPAN	***40-FOOT SPAN***	***30-FOOT SPAN***	***25-FOOT SPAN***	***20-FOOT SPAN***
	STRINGER HEIGHT x WIDTH (inches)				
10-FOOT STRINGER SECTION	33-1/8 x 11-1/2	27-1/8 x 10	23-7/8 x 9	18 x 7-1/2	18 x 7-1/2
8-FOOT STRINGER SECTION	30-1/8 x 10-1/2	26-7/8 x 10	21-1/4 x 8-1/4	18 x 7-1/2	18 x 7-1/2
6-FOOT STRINGER SECTION	30 x 10-1/2	24-1/8 x 9	18-1/4 x 7-1/2	18 x 7-1/2	18 x 7-1/2
4-FOOT STRINGER SECTION	26-3/4 x 10	21-1/4 x 8-1/4	18-1/8 x 7-1/2	18 x 7-1/2	18 x 7-1/2

Table G-11. Measurement correlations for a composite steel-concrete stringer MLC 30 bridge (with a plate one-half or less the thickness of the flange)

	50-FOOT SPAN	***40-FOOT SPAN***	***30-FOOT SPAN***	***25-FOOT SPAN***	***20-FOOT SPAN***
	STRINGER HEIGHT x WIDTH (inches)				
10-FOOT STRINGER SECTION	30-1/8 x 10-1/2	26-7/8 x 10	21-1/4 x 8-1/4	18 x 7-1/2	18 x 7-1/2
8-FOOT STRINGER SECTION	30 x 10-1/2	24-1/8 x G-1/8	21-1/8 x 8-1/4	18 x 7-1/2	18 x 7-1/2
6-FOOT STRINGER SECTION	27-1/8 x 10	24-1/8 x 9	21 x 8-1/4	18 x 7-1/2	18 x 7-1/2
4-FOOT STRINGER SECTION	26-3/4 x 10	21-1/8 x 8-1/4	18 x 7-1/2	18 x 7-1/2	18 x 7-1/2

Table G-12. Measurement correlations for a composite steel-concrete stringer MLC 30 bridge (with a plate more than one-half the thickness of the flange)

	50-FOOT SPAN	*40-FOOT SPAN*	*30-FOOT SPAN*	*25-FOOT SPAN*	*20-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)				
10-FOOT STRINGER SECTION	30 x 10-1/2	24-1/4 x G-1/8	21-1/4 x 8-1/4	18 x 7-1/2	18 x 7-1/2
8-FOOT STRINGER SECTION	2G-7/8 x 10-1/2	24-1/4 x G-1/8	21-1/8 x 8-1/4	18 x 7-1/2	18 x 7-1/2
6-FOOT STRINGER SECTION	27-1/8 x 10	23-7/8 x 9	18-1/4 x 7-1/2	18 x 7-1/2	18 x 7-1/2
4-FOOT STRINGER SECTION	24-1/8 x 9	21-1/8 x 8-1/4	18 x 7-1/2	18 x 7-1/2	18 x 7-1/2

CONCRETE SLAB MLC 70 BRIDGE

G-84. Before crossing a concrete slab MLC 70 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? If the answer to both questions is yes, go to step 2; if the answer to either question is no, do not cross.
- **Step 2.** Measure the span length and deck thickness (refer to Figure G-36). Compare the span length and deck thickness to minimum standards using Table G-13. Does the slab meet minimum deck thickness for the corresponding span? If the answer is yes, it safe to cross MLC 70 traffic; if the answer is no, go to step 3.

Table G-13. Measurement correlations for a concrete slab MLC 70 bridge

SPAN LENGTH	*MINIMUM DECK THICKNESS*
30 feet	22 inches
20 feet	17 inches
10 feet	12 inches

- **Step 3.** Take into account the following special condition: For each foot under the closest higher span length shown the deck thickness can decrease by no more than ½ inch. Does the slab meet minimum deck thickness required according to this special condition? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, do not cross.

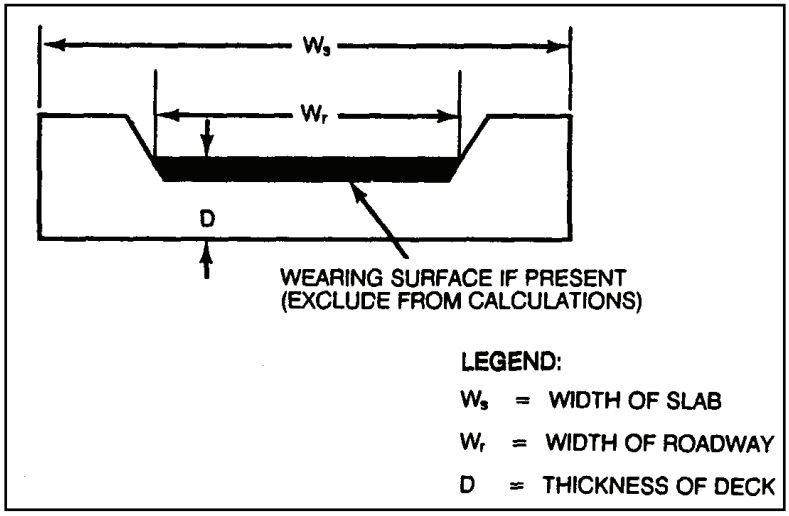


Figure G-36. Concrete slab MLC 70 bridge

CONCRETE T-BEAM MLC 70 BRIDGE

G-85. Before crossing a concrete T-beam MLC 70 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 6 inches thick? If the answer to all three questions is yes, go to step 2; if the answer to any question is no, do not cross.
- **Step 2.** Measure the span length, stringer spacing, and depth of the stringer (as illustrated in Figure G-37). Is the stringer spacing no less than 6 feet and no more than 8 feet? If the answer is yes, go to step 3; if the answer is no, do not cross.
- **Step 3.** Does the stringer depth meet the minimum dimension for the corresponding span length in Table G-14? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, do not cross.

Note. If the span length falls between designated lengths, use the next higher value.

Table G-14. Measurement correlations for a concrete T-beam MLC 70 bridge

SPAN LENGTH	*MINIMUM STRINGER DEPTH*
20 feet	20 inches
30 feet	26 inches
40 feet	32 inches
50 feet	39 inches
60 feet	45 inches
70 feet	50 inches
80 feet	55 inches
90 feet	61 inches
100 feet	66 inches

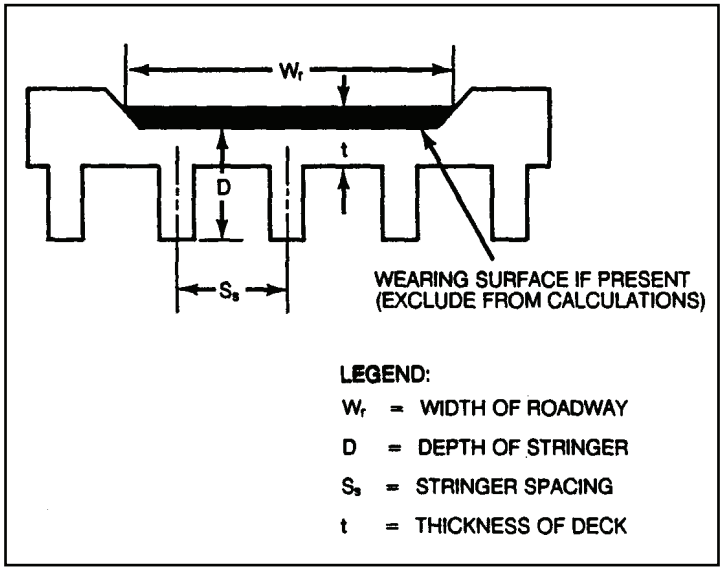


Figure G-37. Concrete T-beam MLC 70 bridge

MASONRY ARCH MLC 70 BRIDGE

G-86. Before crossing a masonry arch MLC 70 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? If the answer to both questions is yes, go to step 2; if the answer to either question is no, do not cross.
- **Step 2.** Measure the span length, arch ring, and fill (as shown in Figure G-38). Compare these measurements to minimum standards using Table G-15. Do the arch ring and fill meet minimum required dimensions for the designated span? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, go to step 3.

Table G-15. Measurement correlations for a masonry arch MLC 70 bridge

SPAN LENGTH	*MINIMUM ARCH RING*	*MINIMUM FILL*
10 feet	9 inches	6 inches
15 feet	9 inches	12 inches
20 feet	9 inches	24 inches
30 feet	13.5 inches	24 inches
40 feet	18 inches	24 inches
50 feet	22.5 inches	24 inches

- **Step 3.** Take into account the following special condition: Fill can be reduced if the thickness of the arch ring exceeds the specifications above. Compare these measurements using Table G-16. Does the bridge span meet the minimum fill requirements for the corresponding arch ring thickness according to this special condition? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, do not cross.

Table G-16. Special conditions for minimum fill on a masonry arch MLC 70 bridge

SPAN LENGTH	*FOR EACH 1-INCH INCREASE ABOVE THE MINIMUM ARCH RING, FILL CAN DECREASE BY:*
10 feet	Not applicable; fill must be no less than 6 inches
15 feet	1-1/4 inches
20 feet	If arch rings are 9 to 13.5 inches thick, fill can decrease by 2-1/2 inches (total) If arch rings are more than 13.5 inches thick, fill can decrease by 1-1/4 inches per inch above minimum
30 feet	If arch rings are 13.5 to 18 inches thick, fill can decrease by 2-1/2 inches (total) If arch rings are more than 18 inches thick, fill can decrease by 1-1/4 inches per inch above minimum
40 feet and 50 feet	1-1/4 inches

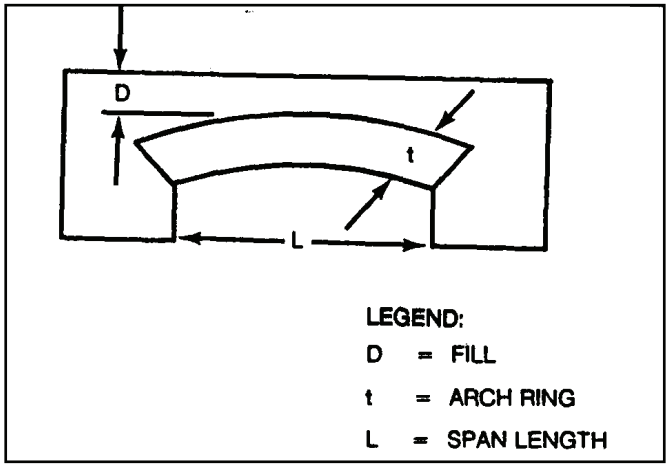


Figure G-38. Masonry arch MLC 70 bridge

STEEL STRINGER MLC 70 BRIDGE WITH CONCRETE DECK

G-87. Before crossing a steel stringer MLC 70 bridge with a concrete deck, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 5 inches and no more than 8 inches thick? If the answer to all three questions is yes, go to step 2; if the answer to any question is no, do not cross.
- **Step 2.** Measure the span length, stringer spacing, and stringer height and width (as illustrated in Figure G-39). Using Table G-17, find the row and column corresponding to the span length and stringer spacing of the bridge. Does the stringer meet the minimum requirements for overall height and width? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, do not cross.

Note. If these measurements fall between the values given, use the next higher measurement.

Table G-17. Measurement correlations for a steel stringer MLC 70 bridge with concrete deck

	50-FOOT SPAN	*40-FOOT SPAN*	*30-FOOT SPAN*	*25-FOOT SPAN*	*20-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)				
8-FOOT STRINGER SECTION	2G-1/2 x 11-3/4	23-5/8 x 11-3/4	21-5/8 x 11-3/4	16-3/4 x 11-3/4	14-1/4 x 11-3/4
6-FOOT STRINGER SECTION	27-1/2 x 11-3/4	21-5/8 x 11-3/4	21-5/8 x 11-3/4	16-3/4 x 11-3/4	13-3/8 x 11-3/4
4-FOOT STRINGER SECTION	23-5/8 x 11-3/4	1G-5/8 x 11-3/4	16-3/4 x 11-3/4	14-1/4 x 11-3/4	13-3/8 x 11-3/4
2-FOOT STRINGER SECTION	17-3/4 x 11-3/4	16-3/4 x 11-3/4	13-3/8 x 11-3/4	13-3/8 x 11-3/4	11 x 11

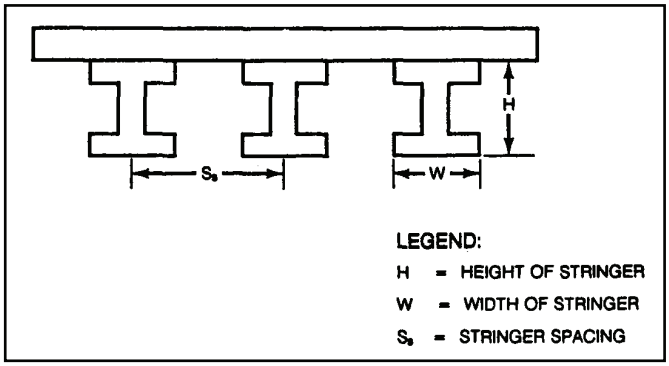


Figure G-39. Steel stringer MLC 70 bridge with concrete deck

TIMBER/STEEL TRESTLE MLC 70 BRIDGE

G-88. Before crossing a timber/steel trestle MLC 70 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 8 inches thick (for 6-foot stringer sections) or at least 6 inches thick (for stringer sections of 4 feet of less)? If the answer to all three questions is yes, go to step 2 for a timber trestle bridge or step 3 for a steel trestle bridge. If the answer to any question is no, do not cross.
- **Step 2.** For a timber trestle bridge, measure the span length, stringer spacing, and stringer height and width (as illustrated in Figure G-40). Using Table G-18, find the row and column corresponding to the bridge's span length and stringer spacing. Does the timber stringer meet the minimum requirements for overall height and width? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, do not cross.

Note. If these measurements fall between the values given, use the next higher measurement.

Table G-18. Measurement correlations for a timber trestle MLC 70 bridge

	20-FOOT SPAN	*15-FOOT SPAN*	*10-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)		
6-FOOT STRINGER SECTION	24 x 12	24 x 10	18 x 8
4-FOOT STRINGER SECTION	22 x 12	22 x 8	16 x 8
2-FOOT STRINGER SECTION	22 x 12	20 x 8	14 x 8

- **Step 3.** For a steel trestle bridge, measure the span length, stringer spacing, and stringer height and width (refer to Figure G-40). Using Table G-19, find the row and column corresponding to the bridge's span length and stringer spacing. Does the steel stringer meet the minimum requirements for overall height and width? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, do not cross.

Note. If these measurements fall between the values given, use the next higher measurement.

Table G-19. Measurement correlations for a steel trestle MLC 70 bridge

	50-FOOT SPAN	*40-FOOT SPAN*	*30-FOOT SPAN*	*25-FOOT SPAN*	*20-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)				
6-FOOT STRINGER SECTION	27-1/2 x 11-3/4	23-5/8 x 11-3/4	1G-5/8 x 11-3/4	16-3/4 x 11-3/4	13-3/8 x 11-3/4
4-FOOT STRINGER SECTION	23-5/8 x 11-3/4	1G-5/8 x 11-3/4	16-3/4 x 11-3/4	15-3/4 x 11-3/4	13-3/8 x 11-3/4
2-FOOT STRINGER SECTION	1G-5/8 x 11-3/4	16-3/4 x 11-3/4	13-3/8 x 11-3/4	11 x 11	11 x 11

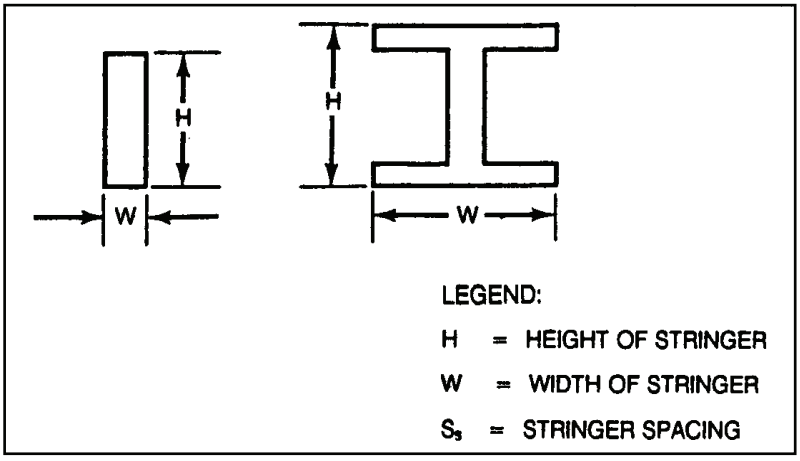


Figure G-40. Timber/steel trestle MLC 70 bridge

COMPOSITE STEEL-CONCRETE STRINGER MLC 70 BRIDGE

G-89. Before crossing a composite steel-concrete stringer MLC 70 bridge, use the following evaluation steps to determine if it is safe to cross:

- **Step 1.** Is the roadway width 4.5 meters (14.75 feet) or greater? Is there 4.3 meters (14 feet) of overhead clearance? Is the deck at least 5 inches thick? If the answer to all three questions is yes, go to step 2; if the answer to any question is no, do not cross.
- **Step 2.** Inspect the stringer to see if there is a plate on the bottom. There are three possible configurations: no plate, a plate one-half or less the thickness of the flange, or a plate more than one-half the thickness of the flange. Measure the span length, stringer spacing, and stringer height and width (as shown in Figure G-41). Using one of the tables included here, find the row and column corresponding to the bridge's span length and stringer spacing. Does the stringer meet the overall height and width requirements for its corresponding span length, stringer spacing, and plate status? If the answer is yes, it is safe to cross MLC 70 traffic; if the answer is no, do not cross.

Note. Use Table G-20 for no plate, Table G-21 for a plate one-half or less the thickness of the flange, or Table G-22 for a plate more than one-half the thickness of the flange. If the span length or stringer spacing falls between the values given, use the next higher measurement.

Table G-20. Measurement correlations for a composite steel-concrete stringer MLC 70 bridge (with no plate)

	50-FOOT SPAN	***40-FOOT SPAN***	***30-FOOT SPAN***	***25-FOOT SPAN***	***20-FOOT SPAN***
	STRINGER HEIGHT x WIDTH (inches)				
10-FOOT STRINGER SECTION	33-7/8 x 15-3/4	36 x 12	30-1/8 x 10-1/2	24-1/8 x 9	18 x 7-1/2
8-FOOT STRINGER SECTION	36-1/2 x 12-1/8	35-7/8 x 12	30 x 10-1/2	23-7/8 x 9	18 x 7-1/2
6-FOOT STRINGER SECTION	36-1/8 x 12	33-1/4 x 11-1/2	2G-7/8 x 10-1/2	21-1/4 x 8-1/4	18 x 7-1/2
4-FOOT STRINGER SECTION	35-7/8 x 12	30 x 10-1/2	26-3/4 x 10	18-1/4 x 7-1/2	18 x 7-1/2

Table G-21. Measurement correlations for a composite steel-concrete stringer MLC 70 bridge (with a plate one-half or less the thickness of the flange)

	50-FOOT SPAN	***40-FOOT SPAN***	***30-FOOT SPAN***	***25-FOOT SPAN***	***20-FOOT SPAN***
	STRINGER HEIGHT x WIDTH (inches)				
10-FOOT STRINGER SECTION	36-3/4 x 16-5/8	35-7/8 x 12	30 x 10-1/2	24-1/8 x 9	18 x 7-1/2
8-FOOT STRINGER SECTION	36-3/8 x 12-1/8	35-7/8 x 12	2G-7/8 x 10-1/2	23-7/8 x 9	18 x 7-1/2
6-FOOT STRINGER SECTION	36 x 12	33-1/8 x 11-1/2	27-1/8 x 10	21-1/8 x 8-1/2	18 x 7-1/2
4-FOOT STRINGER SECTION	33-1/4 x 11-1/2	30 x 10-1/2	24-1/4 x 9	18-1/4 x 7-1/2	18 x 7-1/2

Table G-22. Measurement correlations for a composite steel-concrete stringer MLC 70 bridge (with a plate more than one-half the thickness of the flange)

	50-FOOT SPAN	*40-FOOT SPAN*	*30-FOOT SPAN*	*25-FOOT SPAN*	*20-FOOT SPAN*
	STRINGER HEIGHT x WIDTH (inches)				
10-FOOT STRINGER SECTION	36-1/2 x 12-1/8	35-7/8 x 12	30 x 10-1/2	23-7/8 x 9	18 x 7-1/2
8-FOOT STRINGER SECTION	36-3/8 x 12-1/8	33-1/4 x 11-1/2	2G-7/8 x 10-1/2	23-7/8 x 9	18 x 7-1/2
6-FOOT STRINGER SECTION	36 x 12	33-1/8 x 11-1/2	27-1/8 x 10	21-1/8 x 8-1/4	18 x 7-1/2
4-FOOT STRINGER SECTION	33-1/4 x 11-1/2	30 x 10-1/2	26-7/8 x 10	18-1/4 x 7-1/2	18 x 7-1/2

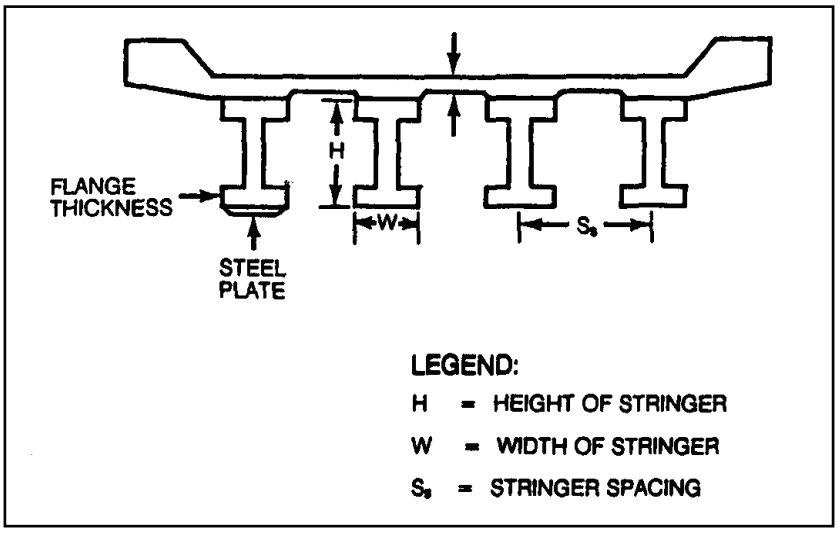


Figure G-41. Composite steel-concrete stringer MLC 70 bridge

AVLB CROSSING RECONNAISSANCE

G-90. Generally, the best site to deploy an AVLB is across a span where a bridge has been destroyed or across an existing bridge that will not hold the unit's vehicles. In both cases, abutments on both sides should be intact, in good shape, and less than 80 feet apart. Crossing at areas without bridge abutments requires a detailed evaluation of both sides to ensure the ground is firm enough to hold both the bridge and the heaviest vehicle in the unit. Once a bridge has been buried in the mud at both ends, it is difficult to retrieve. Refer to Table G-23 for a summary of AVLB characteristics.

Table G-23. AVLB characteristics

ALLOCATION	Engineer battalion of a heavy division: 12 launchers 12 bridges Engineer company of an armor/infantry (M) separate brigade: 4 launchers 4 bridges
TRANSPORTATION	Bridge carried on launcher (modified M48 or M60A1 chassis) Bridge weights 15 tons 20-ton crane transfers bridge to launcher in 20 to 30 minutes
CAPABILITIES	MLC 60 vehicle One vehicle at a time can cross the AVLB AVLB is 19.2 meters (63 feet) long. It spans these gaps: 18.3 meters (60 feet) using prepared abutments 17 meters (57 feet) using unprepared abutments
ASSEMBLY/ PROPULSION	Launched in 2 to 5 minutes by buttoned-up 2-man crew Retrieved from either end; one Soldier exposed; guide and connect Allow 0.9 meter (3 feet) bearing for unprepared abutment, 0.5 meter (1.5 feet) for prepared abutment
REMARKS/ LIMITATIONS	M48A2 requires gas; M60 and M48A5 are diesel Scissors launch requires 10 meters (32.8 feet) overhead clearance Maximum launch slope: Uphill – 2.7 meters (9 feet) Downhill – 2.7 meters (9 feet) Sideslope – 0.3 meters (1 feet) AVLB fords water 1.2 meters (4 feet) deep

BRIDGE CONDITION

G-91. It is essential to note the bridge's general condition, paying particular attention to evidence of damage from natural causes (such as rot, rust, and deterioration) or combat action. Classification procedures presume that a bridge is in good condition. If the bridge is in poor condition, the class determined through mathematical computations must be reduced according to the classifier's judgment.

WIDTH AND HEIGHT RESTRICTIONS

G-92. Table G-24 summarizes width restrictions for bridges. If a one-lane bridge does not meet width requirements, post a rectangular warning sign under the classification sign showing the actual clear width (see Figure G-42). If it is a route restriction, annotate it in the route classification formula. For a two-lane bridge, downgrade the two-way classification to the highest class for which it does qualify (one-way classification is not affected). Post a limited-clearance sign if the overhead clearance is less than 4.3 meters. These signs must be a minimum of 40 centimeters in height or width, with a yellow background and the appropriate description in black letters. Separate rectangular signs are used if necessary to denote width limitations, height limitations, or other technical information.

Note. The same signs are used for tunnels, if applicable.

Table G-24. Minimum roadway widths

ROADWAY WIDTH (meters)	*BRIDGE CLASSIFICATION*	
	One-way	**Two-way**
2.75 to 3.34	12	0
3.35 to 3.99	30	0
4 to 4.49	60	0
4.5 to 4.99	100	0
5 to 5.4	150	0
5.5 to 7.2	150	30
7.3 to 8.1	150	60
8.2 to 9.7	150	100
Over 9.8	150	150
Note. Minimum overhead clearance for all classes is 4.3 meters.		

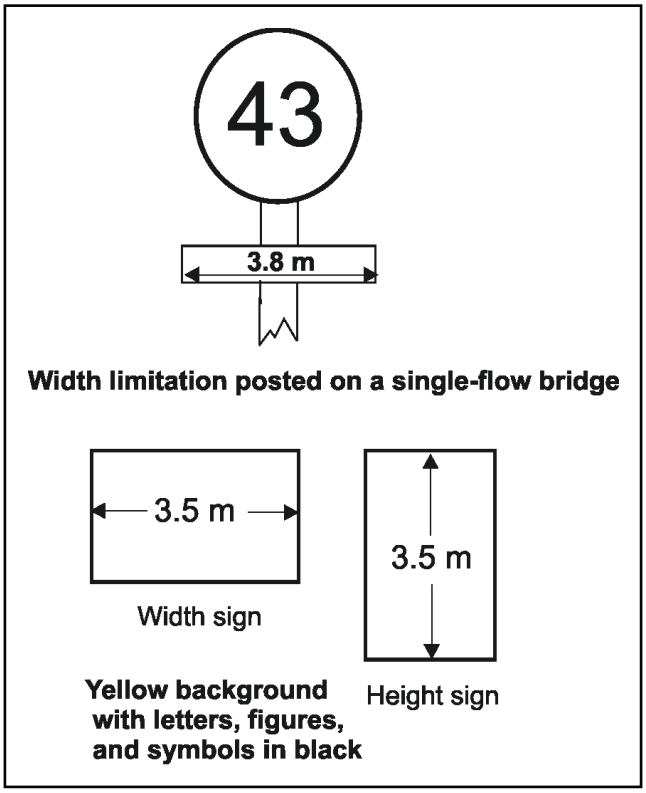


Figure G-42. Width and height signs

BRIDGE TRAFFIC CONTROL PROCEDURES

G-93. Posting standard bridge signs and other signs needed for proper and efficient traffic control across a bridge is the engineer's responsibility. Additional signs are used when vehicles require special controls while crossing. When necessary, holding areas, turnouts for parking and unloading vehicles, and checkpoints are installed near bridges to provide the necessary control during crossings.

FULL NATO BRIDGE SYMBOL

G-94. Bridge information is recorded on a map or overlay using the full NATO bridge symbol (refer to Figure G-43). It is different from an on-site bridge classification sign; do not confuse the two. The information necessary for the full NATO bridge symbol includes the following:

- Bridge's serial number.
- Geographic location.
- Bridge's MLC.
- Overall length.
- Traveled-way width.
- Overhead clearance.
- Available bypasses.

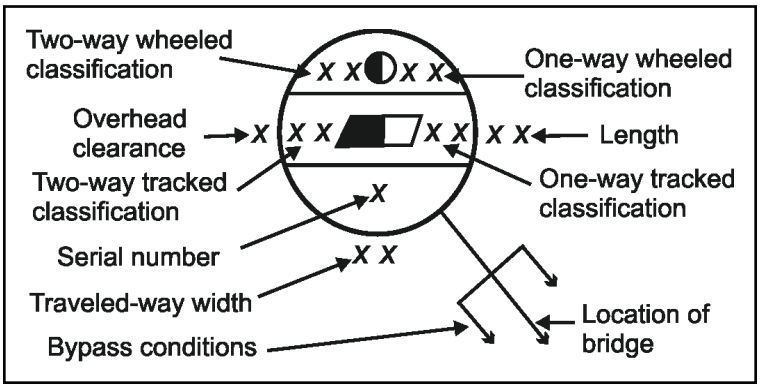


Figure G-43. Full NATO bridge symbol

G-95. A bridge serial number is assigned for future reference and is recorded in the symbol's lower portion (assign a number according to unit SOP). For proper identification, do not duplicate serial numbers within any single map sheet, overlay, or document. The unit S2 can obtain special maps containing bridge information for developed areas of the world.

G-96. An arrow extending from the symbol to the exact map location shows the bridge's geographic location. The bridge's MLC number is shown in the symbol's top portion. This number indicates the bridge's carrying capacity; classifications for both single- and double-flow traffic are included. In those instances where dual classifications for wheeled and tracked vehicles exist, both classifications are shown.

G-97. The bridge's overall length is the distance between abutments, measured along the bridge's centerline. This figure is placed to the right of the circle and is expressed in meters.

G-98. The minimum lane width is the clear distance between curbs. Place this figure below the symbol and express it in meters. Bridges may be obstructions to traffic flow when the traveled-way width on the bridge is less than the minimum standard prescribed for the overall route. Refer to the minimum roadway widths listed earlier in Table G-24.

G-99. The overhead clearance is the minimum distance between the bridge's surface and any obstruction above it. This figure is shown (in meters) to the left of the symbol. Underline any overhead clearance less than the minimum required by the bridge classification number (refer to Table G-25). Unlimited overhead clearance is indicated by the infinity symbol (∞). Often, a telltale (see Figure G-44) or other warning device can be posted before the bridge to indicate overhead clearance limitations. Report any overhead clearance less than 4.3 meters as an obstruction in the route classification formula. A question mark is used to indicate information that is unknown or undetermined and is included as part of the bridge reconnaissance symbol.

Table G-25. Minimum overhead clearances

BRIDGE CLASSIFICATION	*MINIMUM OVERHEAD CLEARANCE*
Up to MLC 70	4.5 meters
Above MLC 70	4.5 meters

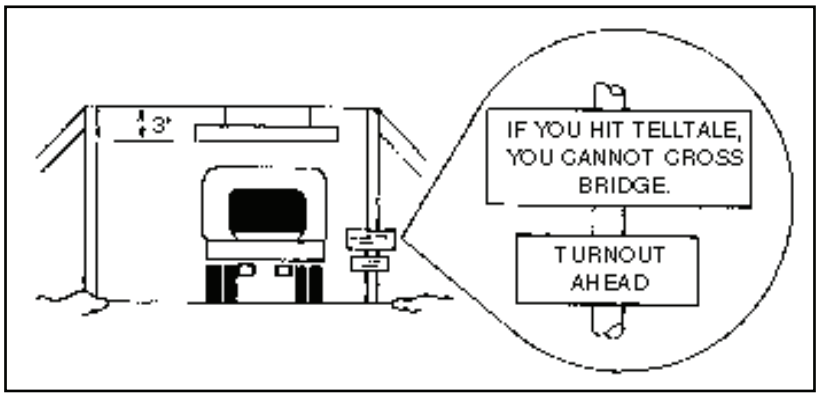


Figure G-44. Use of telltale for bridge restrictions

G-100. Bypasses around the bridge site are indicated using arrows similar to (and branching away from) the arrow connecting the bridge symbol to its location on the map. Bypass arrows should show the approximate route of the bypass. Refer to the discussion of bypasses in the following section.

Note. Railway bridges that could be used by road vehicles in an emergency should be classified and identified on the map or overlay. The symbol for a railway bridge should indicate whether it is "use easy" or "use difficult."

SECTION X – BYPASSES

G-101. Bypasses are detours along a route allowing traffic to avoid an obstruction. Bypasses limited to specific vehicle types, such as those capable of swimming or deep-water fording, are noted in the reconnaissance report. Each bypass is represented symbolically as an arrow. The bypass arrow extends either from the tunnel, ford, bridge, or overpass symbol itself or from the arrow that connects the symbol to the map location of the tunnel, ford, bridge, or overpass. The arrow should indicate the approximate route of the bypass.

Note. Platoons may employ UAS overflights to preview the terrain for advanced knowledge of an area prior to reaching the location. HUMINT may provide advance information on established bypasses known by the local population.

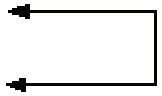
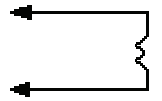
G-102. Bypasses are classified as easy, difficult, or impossible. Table G-26 illustrates the map symbols used to indicate each bypass classification. Considerations for the bypass categories include the following:

- A bypass is considered easy when a 5-ton vehicle can cross the obstacle within the immediate vicinity without work to improve the bypass.
- A difficult bypass also allows vehicles to cross the obstacle within the immediate vicinity; however, some work will be necessary to prepare the bypass.

Note. An estimation of the time, manpower, and equipment necessary to prepare the bypass must be included in the reconnaissance report.)

- The bypass is considered impossible when it would entail repairing an existing route feature (such as a bridge or tunnel) to cross the obstacle, building a new feature, or providing a detour to cross or move around the obstacle outside the immediate vicinity of the original route.

Table G-26. Bypass symbols

SYMBOL	*CLASSIFICATION AND DESCRIPTION*
	**BYPASS EASY.** Use when the obstacle can be crossed in the immediate vicinity by a U.S. 5-ton truck without work to improve the bypass.
	**BYPASS DIFFICULT.** Use when the obstacle can be crossed in the immediate vicinity, but some work is necessary to improve the bypass.
	**BYPASS IMPOSSIBLE.** Use when the obstacle can be crossed only by repairing or constructing a route feature or by detouring around the obstacle.

SECTION XI – MEASUREMENT CONVERSIONS

G-103. This section includes tables covering the basic computations for converting English measurements to their metric equivalents. The following conversions are included:

- Table G-27 lists conversions for common distance measurements (inches to centimeters; feet to meters; yards to meters; miles to kilometers).
- Table G-28 shows conversions of miles per hour to kilometers per hour.

Table G-27. English to metric distance measurement conversions

INCHES to CENTIMETERS	***FEET to METERS***
1 inch = 2.54 centimeters	1 foot = 0.30 meters
2 inches = 5.08 centimeters	2 feet = 0.61 meters
3 inches = 7.62 centimeters	3 feet = 0.91 meters
4 inches = 10.16 centimeters	4 feet = 1.22 meters
5 inches = 12.70 centimeters	5 feet = 1.52 meters
6 inches = 15.24 centimeters	6 feet = 1.83 meters
7 inches = 17.78 centimeters	7 feet = 2.13 meters
8 inches = 20.32 centimeters	8 feet = 2.44 meters
9 inches = 22.86 centimeters	9 feet = 2.74 meters
10 inches = 25.40 centimeter	10 feet = 3.05 meters
20 inches = 50.80 centimeters	20 feet = 6.10 meters
30 inches = 76.20 centimeters	30 feet = 9.14 meters
40 inches = 101.60 centimeters	40 feet = 12.19 meters
50 inches = 127.00 centimeters	50 feet = 15.24 meters
60 inches = 152.40 centimeters	60 feet = 18.29 meters
70 inches = 177.80 centimeters	70 feet = 21.34 meters
80 inches = 203.20 centimeters	80 feet = 24.38 meters
90 inches = 228.60 centimeters	90 feet = 27.43 meters
100 inches = 254.00 centimeters	100 feet = 30.48 meters
YARDS to METERS	***MILES to KILOMETERS***
1 yard = 0.91 meters	1 mile = 1.61 km
2 yards = 1.83 meters	2 miles = 3.22 km
3 yards = 2.74 meters	3 miles = 4.83 km
4 yards = 3.66 meters	4 miles = 6.44 km
5 yards = 4.57 meters	5 miles = 8.05 km
6 yards = 5.49 meters	6 miles = 9.66 km
7 yards = 6.40 meters	7 miles = 11.27 km
8 yards = 7.32 meters	8 miles = 12.87 km
9 yards = 8.23 meters	9 miles = 14.48 km
10 yards = 9.14 meters	10 miles = 16.09 km
20 yards = 18.29 meters	20 miles = 32.19 km
30 yards = 27.43 meters	30 miles = 48.28 km
40 yards = 36.58 meters	40 miles = 64.37 km
50 yards = 45.72 meters	50 miles = 80.47 km
60 yards = 54.86 meters	60 miles = 96.56 km
70 yards = 64.00 meters	70 miles = 112.65 km
80 yards = 73.15 meters	80 miles = 128.75 km
90 yards = 82.30 meters	90 miles = 144.84 km
100 yards = 91.44 meters	100 miles = 62.14 km

Table G-28. Miles per hour to kilometers per hour (kmph) conversions

MILES PER HOUR	*KILOMETERS PER HOUR*
1 mph	1.609 kmph
2 mph	3.22 kmph
3 mph	4.83 kmph
4 mph	6.44 kmph
5 mph	8.05 kmph
6 mph	9.66 kmph
7 mph	11.27 kmph
8 mph	12.87 kmph
9 mph	14.48 kmph
10 mph	16.09 kmph
15 mph	24.14 kmph
20 mph	32.19 kmph
25 mph	40.23 kmph
30 mph	48.28 kmph
35 mph	56.33 kmph
40 mph	64.37 kmph
45 mph	72.42 kmph
50 mph	80.47 kmph
55 mph	88.51 kmph
60 mph	96.56 kmph
65 mph	104.61 kmph
70 mph	112.65 kmph
75 mph	120.70 kmph
100 mph	160.94 kmph

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Appendix H

Demolitions and Obstacles

This appendix provides information on demolitions commonly used in platoon operations and on obstacles that scouts may have to breach or construct in their AO.

SECTION I – DEMOLITIONS

H-1. A reconnaissance or scout section's basic load of demolitions will provide enough explosives and mines to breach or construct an obstacle during a mission. This discussion outlines basic guidelines for the employment of demolitions in military operations. Table H-1 summarizes the characteristics and uses of military explosives.

WARNING

This discussion and accompanying illustrations may not provide enough information to allow safe employment of explosives; therefore, scouts must be thoroughly familiar with fuzes, charge settings, and firing demolitions before using this information. For more information, refer to FM 3-34.214 and DA Pam 350-38.

Table H-1. Characteristics of military explosives

Explosive	*Use*	*Detonation Velocity (fps)/(mps)*	*Relative Effectiveness Factor*	*Size, Weight, and Packaging*
TNT	Breaching/demolition	22,600/6,900	1.00	1 lb: 48/box 1/2 lb: 96/box 1/4 lb: 192/box
Tetrytol 75/25	Breaching/demolition	23,000/7,000	1.20	8 X 2.5 lb/sack, 2 sacks/box
C4 (M112)	Cutting and breaching	26,400/8,040	1.34	30 X 1.25 lb block/box (1 block=2"x1"x10" =20 cu in)
Sheet Explosive (M186)	Cutting	24,000/7,300	1.14	4 X 1/2 lb sheets/pack w/20 packs/box (one sheet is 3 x ¼ x 12 in)
M1 Dynamite	Demolition	20,000/6,100	0.92	100 X1/2 lb sticks/box
Detonating Cord	Priming demolitions	20,000 to 24,000/ 6,100 to 7,300	1.66	3 X 1,000 ft rolls or 8 X 500 ft rolls/box
Ammonium Nitrate	Cratering/earthmoving	8,900/2,700	0.42	1 X 40 lb canister/box
Bangalore Torpedo, M1A2	Wire breaching/ demolition	25,600/7,800	1.17	10 X 5 ft sections/kit (176 lbs)
Shaped Charges M2A3, M2A4, and M3A1	Cutting	25,600/7,800	1.17	1 X 40 lb shaped charge/box

PRIMING EXPLOSIVES

H-2. Explosives may be primed, either electrically or nonelectrically, with a detonating cord. Refer to the illustration in Figure H-1.

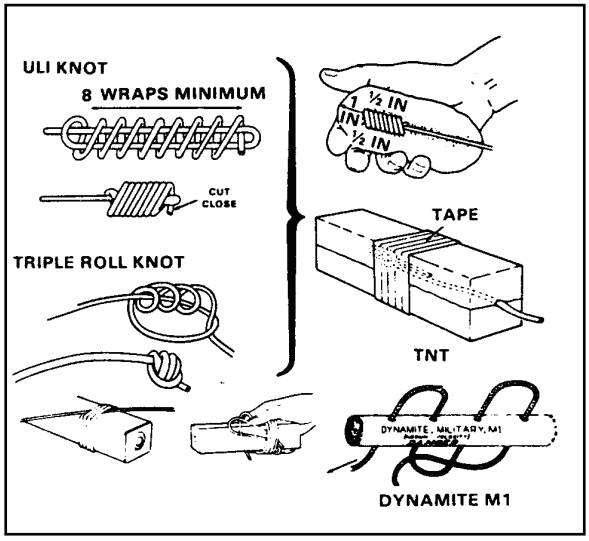


Figure H-1. Detonating cord priming

FIRING SYSTEMS

H-3. Firing systems may be electric or nonelectric. A dual-firing system is composed of two completely separate systems. They may be dual electric, dual nonelectric, or a combination of electric and nonelectric. Figure H-2 illustrates a combination dual-firing system.

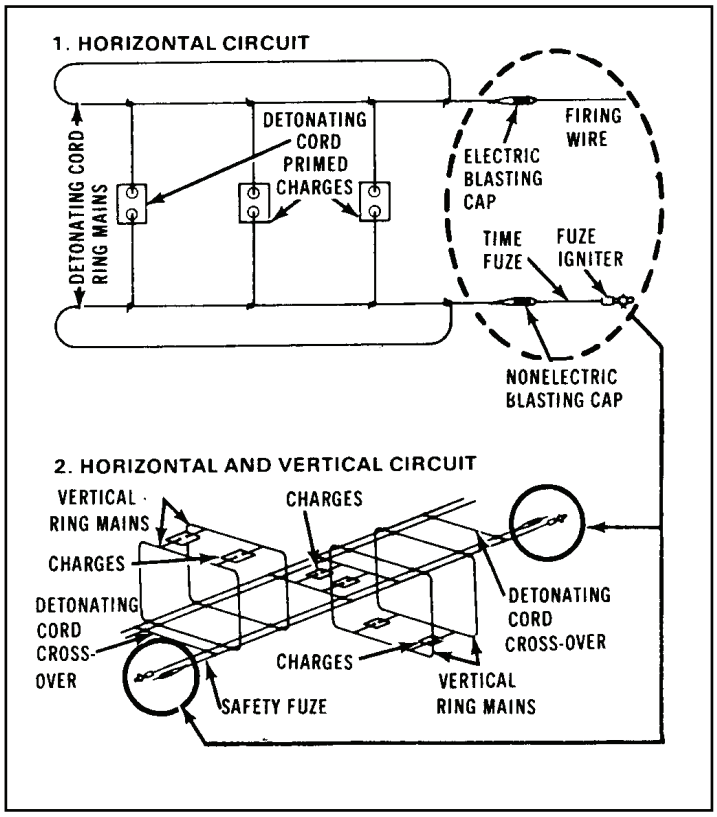


Figure H-2. Combination dual-firing system

SAFETY

GENERAL SAFETY CONSIDERATIONS

H-4. The following safety considerations and procedures apply when scouts must operate with and around explosives and demolitions:

- Conduct CRM operations, completing risk assessments and identifying all hazards and control measures. Refer to Appendix E of this manual.
- Do not attempt to conduct a demolitions mission if you are unsure of demolition procedures; review references or get assistance.
- Do not let inexperienced personnel handle explosives.
- Avoid dividing responsibility for demolition operations.
- Use the minimum number of personnel necessary to accomplish the demolition mission.
- Take your time when working with explosives; make your actions deliberate.
- Post guards to prevent access inside the danger radius.
- Maintain control of the blasting machine or initiation source.
- Use the minimum amount of explosives required to accomplish the mission while keeping sufficient explosives in reserve to handle any possible misfires.
- Maintain accurate accountability of all explosives and accessories. Always store blasting caps separately and at a safe distance from other explosives.
- Ensure that all personnel and equipment are accounted for before detonating a charge.
- Ensure that you give warnings before initiating demolitions; give the warning "FIRE IN THE HOLE!" three times.
- Guard the firing points.
- Assign a competent safety officer for every demolition mission.
- Dual-initiate all demolitions, regardless of whether they are single- or dual-primed.
- Avoid using deteriorated or damaged explosives.
- Do not dismantle or alter the contents of any explosive material.
- Avoid mixing live and inert (dummy) explosives.
- Assess the environmental impact of all demolition operations according to the environmental risk assessment procedures covered in Appendix E of this manual.

MINIMUM SAFE DISTANCES

H-5. To ensure safety in the employment of explosives, scouts must maintain a minimum safe distance. Table H-2 lists the minimum safe distances for personnel during detonation of explosives in the open.

Table H-2. Minimum safe distances for explosives

EXPLOSIVES (LB)	*SAFE DISTANCE (M)*	*EXPLOSIVES (LB)*	*SAFE DISTANCE (M)*
27 OR LESS	300	150	534
30	311	175	560
35	327	200	585
40	342	225	609
45	356	250	630
50	369	275	651
60	392	300	670
70	413	325	688
80	431	350	705
90	449	375	722
100	465	400	737
125	500	425	750
		500	800

NOTES:

1. For explosives over 500 pounds, use the following formula to calculate the safe distance:

$$\text{Safe distance (meters)} = 100 \times \sqrt[3]{\text{pounds of explosives}}$$

2. The minimum safe distance for personnel in a missile-proof shelter is 91.4 meters.

INDUCED-CURRENT DETONATION

H-6. Induced currents can prematurely detonate explosives. Figure H-3 lists the distances at which transmitters can detonate explosives by transmitted induced currents.

H-7. Electric firing should not be performed within 155 meters (504 feet) of energized power transmission lines. When it is necessary to conduct blasting operations at distances closer than 155 meters, nonelectric firing systems should be used or the power lines de-energized.

Average or Peak Transmitter Power* (watts)	Minimum Distance to Transmitter (m)
0 to 29	30
3 to 49	50
5 to 99	110
10 to 249	160
25 to 499	230
50 to 999	305
1,000 to 2,999	480
3,000 to 4,999	610
5,000 to 19,999	915
20,000 to 49,999	1,530
50,000 to 100,000	3,050

***When the transmission is a pulsed or pulsed-continuous-wave type and its pulse width is less than 10 microseconds, the left-hand column indicates average power. For all other transmissions, including those with pulse widths greater than 10 microseconds, the left-hand column also indicates peak power.**

NOTE: Do not conduct electric firing within 155 meters of energized power transmission lines. When conducting blasting operations at distances closer than 155 meters to electric power lines, use nonelectric firing systems or de-energize the power lines.

CAUTION

When transporting electric blasting caps near operating transmitters or in vehicles (including helicopters) that have operating transmitters, place the caps in a metal can. The can's cover must have a snug fit and lap over the can's body to a minimum depth of 1/2 inch (ammo can). Do not remove any caps from a container near any operating transmitter unless the hazard is deemed acceptable.

Figure H-3. Premature detonation by induced current

CAUTION

If electric blasting caps are to be transported near operating transmitters or vehicles (including helicopters) in which a transmitter is to be operated, the caps must be placed in a metal can. The cover of the can must be snug and lap over the body of the can to a minimum depth of 1/2 inch. Caps should not be removed from the container in proximity of the operating transmitters. The metal container must have metal-to-metal contact with the lid.

H-8. Misfires should be handled by the person who placed the charge. For safety purposes, allow 30 minutes before investigating the misfire on all nonelectric or buried charges. Aboveground misfires should be blown in place by priming at least 1 pound of explosive and placing it as close as possible to the charge without disturbing it. When dealing with buried misfires, remove excess earth, except for at least 1 foot of earth around the charge. Then blow the charge in place with at least 2 pounds of explosive. Do not attempt to move or disarm a misfire, and do not abandon misfired explosives.

Note. For complete procedures for handling misfires of electric and nonelectric systems, refer to FM 3-34.214.

MODERN DEMOLITION INITIATOR FIRING SYSTEMS

H-9. Modern demolition initiators (MDI), a family of nonelectric blasting caps and associated items described in Table H-3, have been used in the civilian sector for more than 20 years. The snap-together components simplify initiation systems and some types of explosive priming. The MDI system was developed to effectively replace electric demolition systems. It removes the requirement to dual-initiate demolition systems except when there is a high probability of the system becoming cut. FM 3-34.214 provides more information on MDI.

H-10. Nonelectric priming with MDIs is safer and more reliable than the current nonelectric priming methods. MDI blasting caps are factory-crimped to precut lengths of shock tube or time-blasting fuse. Because the caps are sealed units, they are moisture-resistant and will not misfire in damp conditions. A shock tube may be spliced using excess shock tube from an M12 or M13 or a precut splicing-tube splicing kit. Every splice in a shock tube reduces the reliability of the priming system. Prime military explosives with the MDI the same as with standard, nonelectric initiation systems. Use only high-strength MDI blasting caps (M11, M14, M15) to prime explosive charges. M12 and M13 relay-type blasting caps do not have sufficient power to detonate most explosives, although you can use all MDI blasting caps to initiate a shock tube. Use only the M11, M14, or M15 blasting caps to initiate detonating cord or military explosives directly.

WARNING

Use care when cutting and splicing the shock tube. When cutting the shock tube, always tie an overhand knot in the left over shock tube.

Table H-3. MDI components

COMPONENTS	*DESCRIPTION*	*PACKAGING*
M11	High-strength, nonelectric blasting cap, factory crimped to a 30-ft length of shock tube—used to prime all standard military explosives, including detonation cord, or to initiate the shock tube of other MDI blasting caps. A red flag is attached one meter from the cap, and a yellow flag is attached two meters from the cap.	6/package, 10 packages per box
M12	Low-strength, nonelectric blasting cap[1] , factory crimped to a 500-ft length of shock tube—used as a transmission line from an initiator to another relay cap or to a high-strength, shock tube blasting cap that initiates military explosives. Can actuate up to five shock tubes held by the connector.	8 spools/ cardboard box, 6 boxes/ packing box
M13	Low-strength, nonelectric blasting cap[1] , factory crimped to a 1000-ft length of shock tube—used as a transmission line from an initiator to another relay cap or to a high-strength, shock tube blasting cap that initiates military explosives. Can actuate up to five shock tubes held by the connector.	4 spools/ cardboard box, 6 boxes/ packing box
M14	High-strength, nonelectric, delay blasting cap, factory crimped to a 7 ½-ft length of time-blasting fuse–instead of the usual yellow band every 18 in. a marker band and the minimum burning time in minutes (from the band to the detonator) are marked on the fuse. Used to detonate all standard military explosives or initiate shock-tube blasting caps and detonating cord approximately 5 minutes after ignition.	1 package, 60 per wooden box
M15	Nonelectric blasting cap, delay[2]—consists of two blasting caps, factory crimped at each end of a 70-ft length of shock tube. One blasting cap is low-strength to initiate another piece of shock tube, while the second is high-strength to initiate other explosives. A red flag is attached one (1) meter from the high-strength blasting cap, and a yellow flag is attached two (2) meters from the low-strength cap. Used to create staged detonations, as required for quarrying, ditching, and cratering operations.	30/box, 4 boxes/package , 6 packages/ wooden box
M9	Blasting cap and shock tube holder—clamping device used to hold the shock tube's branch lines secure to a high-strength blasting cap of the M11 or M14. Can hold up to five shock tubes and one (1) blasting cap. Can also connect an MDI blasting cap to detonating cord.	
M81	Time-blasting fuse igniter with shock tube capability—M81 and M60 fuse igniters are almost identical except the plug and screw end cap are colored black on the M81.[3]	5 paperboard box/package, 6 packages/ wooden box

Note. The M81 has a stronger primer than the M60.

[1] Does not have enough output to initiate most military explosives.

[2] Blasting caps are slightly larger that standard military blasting caps and will not fit into standard cap wells.

[3] The M60 fuse igniter will not reliably initiate the shock tube.

TYPES OF MDI FIRING SYSTEMS

H-11. With the introduction of MDI components, there will be two types of firing systems: a stand-alone firing system and a combination firing system. Both systems can be emplaced as single- or dual-firing systems. The choice of which system to use for a particular demolition mission is left to the experience of the reconnaissance leader. The combination firing system, however, is the preferred method for reserved demolition targets. See FM 3-34.214 for detailed instructions on both systems.

Stand-Alone System

Employment Considerations

H-12. The stand-alone firing system is one in which the initiation sets and transmission and branch lines are constructed using only MDI components and the explosive charges are primed with MDI blasting caps. It is important to ensure that the firing system is balanced. All charges must have the same distance in shock-tube length from the firing point to the charge. Figure H-4 shows the single-firing MDI system; Figure H-5 shows the dual-firing MDI system; and Figure H-6 shows a branch-line array.

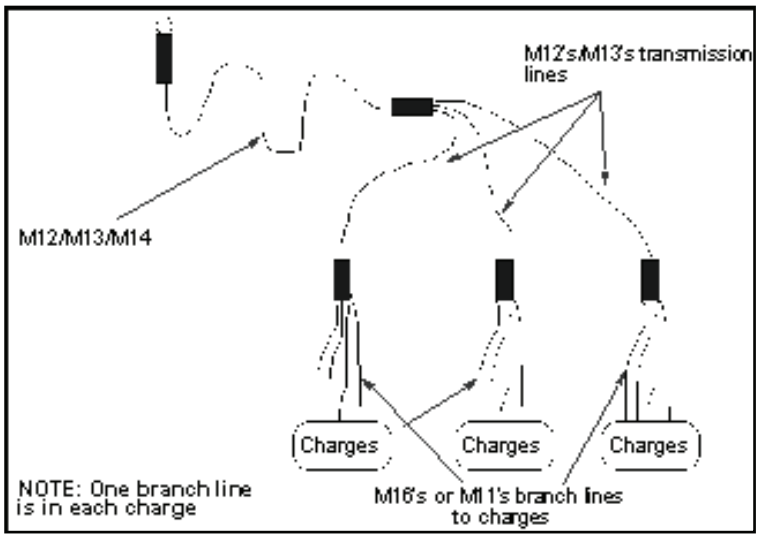


Figure H-4. MDI single-firing system (single-primed)

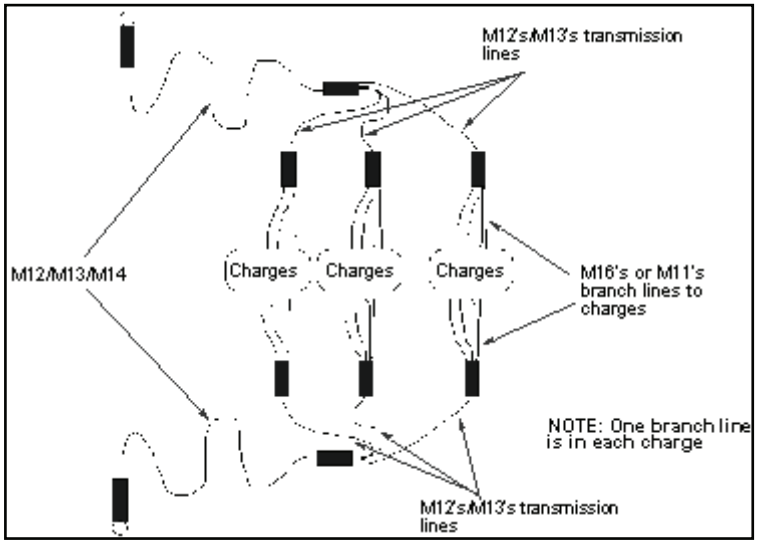


Figure H-5. MDI dual-firing system (dual-primed)

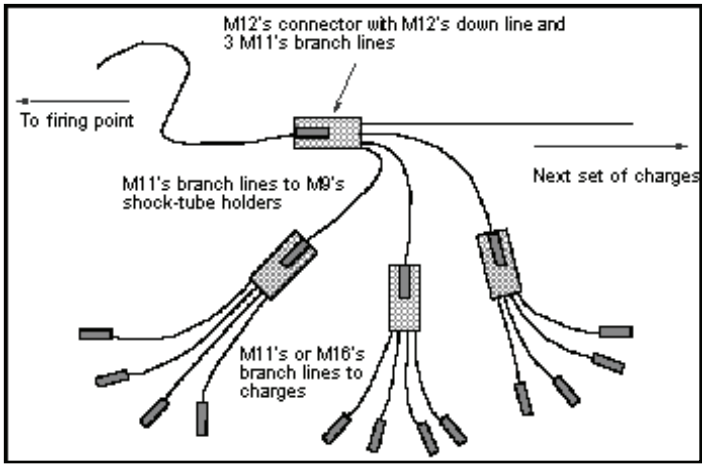


Figure H-6. Branch-line array (M11s or M16s)

H-13. The disadvantage of a single-firing system is that if the transmission line is cut, any charges down line from the cut will not detonate. If there is a possibility of the transmission lines being cut (for example, through artillery fires), a second firing system should be added as shown in Figure H-5. Note that the charges in this case are now dual-primed. The transmission line is laid in the opposite direction of the first transmission line to create a balanced system.

CAUTION

When making multiple shock tube installations, take care to protect the shock tubes from the effects of nearby relay caps and charges. The shrapnel produced by a cap or charge could easily cause a (partial or complete) misfire. When there are many shock tubes involved in a shot, place them carefully away from the junction.

H-14. Use the stand-alone MDI firing system for all types of demolition missions, including bridge demolitions. The MDI firing system can be used to initiate reserved demolition targets; however, under current internationally agreed-upon doctrine, charges cannot be primed with blasting caps until a change of readiness from state 1 (safe) to state 2 (armed) is ordered. Priming every charge with MDI blasting caps at this critical moment would take a considerable amount of time and be unacceptable to the maneuver commander. Priming charges with detonating cord is the preferred method on reserved demolition targets.

Construction/Emplacement Procedures

H-15. Thoroughly reconnoiter the demolition site before emplacing explosive charges on the firing system. Use the following steps to reconnoiter the site and emplace the explosives:

- **Step 1.** Identify the firing point and observe the safe distances as listed in Table H-2 earlier this appendix.
- **Step 2.** Emplace and secure explosive charges on the target.
- **Step 3.** Begin with the set of explosive charges farthest from the firing point, and place a sandbag or other easily identifiable markers over the M12 blasting cap. Then unreel the M12's transmission line toward the next set of charges in the direction of the firing point. If the distance between the sets of charges is less than 30 feet, use an M11.
- **Step 4.** Place the shock tube of the first M12 into the blasting cap holder of the second M12's transmission line. This is done at the second set of charges.

Note. Do not close the hinged flap of the holder at this stage.

- **Step 5.** Place a sandbag or another easily identifiable marker over the holder. Unreel the second M12's transmission line toward the third set of charges in the direction of the firing point.
- **Step 6.** Repeat procedures steps 3 and 4 for each set of charges.
- **Step 7.** Unreel the last transmission line to the firing point from the set of charges closest to it. To achieve the necessary safe distance, you may need several M12s/13s.
- **Step 8.** Lay out, at each set of charges, the M11 or M16 branch lines from the charges to be primed toward the transmission lines blasting-cap holder. Ensure that when building the firing system, it is a balanced system. The shock wave in the shock tube must travel the same distance to all charges to effectively prevent a misfire. No more than five M11 or M16 branch lines can be connected to the transmission line's blasting-cap holder. If there are more than five charges, group the branch lines from the charges, and connect them to the M9 blasting-cap holder of another M11 or M16 branch line. Connect the branch line to the transmission line's blasting-cap holder.

Note. Secure the transmission and branch lines by taping all the holders closed.

- **Step 9.** Prime the explosive charges by inserting the blasting caps of the M11 or M16 branch lines, using minimum personnel on the site.
- **Step 10.** Visually inspect the firing system for possible misfire indicators.
- **Step 11.** Return to the firing point and initiate the system using the procedures in FM 3-34.214.

Follow-up Considerations

H-16. After the charges have been successfully fired, the unit commander is responsible for ensuring proper disposal of the residue. The used shock tube is nonrecyclable plastic and may be sent directly to an approved landfill; however, the blasting-cap residue is considered hazardous waste and must be removed from the shock tube and disposed of according to local policy. Commanders must coordinate with the applicable local directorate (engineering or public works) and/or the local Defense Reutilization and Marketing Office for local disposal guidance and landfill information.

Combination Firing System

Employment Considerations

H-17. A combination firing system is one that consists of the MDI initiation set; either a detonating-cord line or ring main; and branch lines that can be either MDI, detonating cord, or a mix of both. Figure H-7 shows a combination firing system.

H-18. Use the combination firing system (MDI and detonating cord) for all types of demolition missions. It combines the advantages of MDI components with the simplicity and flexibility of detonating cord. The combination firing system is the preferred method for reserved demolition targets, underwater operations, and operations where subsurface-laid charges are used.

WARNING

Do not dispose of used shock tubes by burning them because of potentially toxic fumes given off from the burning plastic.

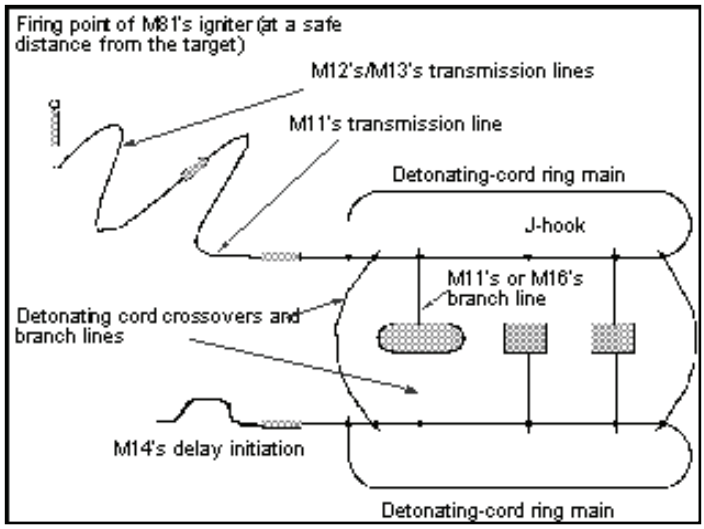


Figure H-7. Combination firing system (MDI and detonating cord; dual-primed)

Construction/Emplacement Procedures

H-19. Thoroughly reconnoiter the demolition site before emplacing explosive charges on the firing system. Use the following steps to reconnoiter the site and emplace the explosives:

- **Step 1.** Identify the firing point and observe the safe distances as given in Table H-2 earlier this appendix.
- **Step 2.** Emplace and secure the explosive charges on the target. If priming with MDI, wait until step 6.
- **Step 3.** Construct detonating-cord line or ring mains according to procedures in FM 3-34.214.
- **Step 4.** Cover the blasting cap of the M12/13 transmission line with a sandbag or another easily identifiable marker at the connection between the detonating cord line or ring main to the MDI initiation set. Unreel the M12/13 transmission line to the firing point. Observe the safe distances given in Table H-2.

- **Step 5.** Tie in any detonating-cord branch lines to the line or ring main. If priming with MDI, clip the M11 or M16 branch lines to the detonating-cord line or ring main using the M11 or M16 J-hook. Use the following procedure:
  - Wrap the shock tube around and to the J-hook.
  - Pull the shock tube tight. This prevents the J-hook from slipping.
  - Clip the detonating cord line or ring main into the J-hook.
  - Lay out the M11 or M16 branch lines toward the charges.
- **Step 6.** Prime the remaining charges by inserting the M11 or M16 blasting caps, using minimum personnel on the site
- **Step 7.** Lay out an M11 or M16 transmission line from the detonation-cord ring main to the M12/M13 transmission line.
- **Step 8.** Attach the M11 or M16 to the holder on the M12/M13 transmission line and tape to secure.
- **Step 9.** Attach an M9 holder on the M11 or M16 transmission line cap and tape.
- **Step 10.** Loop, secure, and tape the detonating cord line of the ring main in the M9 blasting cap holder that is attached to the M11 or M16 transmission line.
- **Step 11.** Perform a visual inspection of the entire firing system for any flaws that might cause a misfire.
- **Step 12.** Return to the firing point and initiate the system using the procedures in FM 3-34.214.

Follow-up Considerations

H-20. After the charges have been successfully fired, the unit commander is responsible for ensuring proper disposal of the residue. The used shock tube is nonrecyclable plastic and may be sent directly to an approved landfill; however, the blasting cap residue is considered hazardous waste and must be removed from the shock tube and disposed of according to local policy.

Splicing the Shock Tube

General Considerations

H-21. MDIs are extremely reliable because all of the components are sealed. Unlike standard nonelectric priming components, they cannot be easily degraded by moisture. Cutting the shock tube makes the open ends vulnerable to moisture. Dampening the explosive film on the inside of the shock tube will stop a detonation from going beyond such a damp spot. Use care when cutting and splicing the shock tube. When cutting the shock tube, always tie an overhand knot in the leftover shock tube. Use splicing to repair a break in the shock tube of a transmission or branch line (caused, for example, by shell fragments from artillery fires) or to extend the shock tube of another MDI blasting cap; but only when necessary. This is done by using excess shock tube from an M12 or M13 shock-tube blasting cap when the entire length is not needed.

H-22. Every splice in the shock tube reduces the reliability of the firing system. Keep the number of splices in a shock-tube line to as few as practicable. Unless splicing is absolutely necessary, use of a full, sealed MDI component is recommended.

Note. Do not splice the shock tube while conducting water or diving demolition missions.

Splicing Procedures

H-23. The following is the proper splicing procedure for the shock tube:

- Use a sharp knife or razor blade to cut about 3 feet from the previously cut-off end of leftover shock tube, whether or not it was knotted according to the guidance above.
- Immediately seal off the shock tube remaining on the spool by tying a tight overhand knot in the cut-off end. Cut the metal seal off the end of the shock-tube blasting cap to be extended. Repair a break in the shock tube by cutting it 3 feet on both sides of the break. Use a minimum 4-foot length of shock tube to repair the break.

- Tie loosely the two shock-tube ends to be spliced together in an overhand knot. Leave at least 2 inches free at the end of each shock tube beyond the knot. Pull the shock tubes lightly to tighten the knot, but not so tight as to significantly deform the shock tube in the knot.
- Push one of the free shock-tube ends to be spliced firmly into one of the precut splicing tubes at least l/4 inch. Push the other shock-tube end firmly into the other end of the splicing tube at least l/4 inch. It is not necessary for the two ends of the shock tube meet; the detonation wave in the shock tube will still generate over a small gap (of up to six inches).

Safety Considerations

H-24. When conducting training and missions with MDIs, follow the general safety considerations for demolitions outlined in FM 3-34.214 and AR 385-63.

H-25. Because MDI components are delivered from the factory pre-crimped, they are more reliable and safer to handle and use than the current standard military blasting caps. During testing of the MDI components, it has been found that the blasting caps always function correctly if the shock tube is properly initiated. Test results show that misfires occur only when—

- The M81 fuse igniter is not properly connected to the shock tube before initiation.
- The shock tube is cut by shrapnel during the initiation process.
- The shock tube is incorrectly inserted into the holders on the M12 or M13 blasting caps or into the M9 holder.
- The shock tube is cut using crimpers.

CAUTION

Taping two cut ends of the shock tube together does not make a reliable splice.

WARNING

Use of MDIs is not authorized for belowground or internal charges.

H-26. Transportation and storage of blasting caps require special consideration. When transporting or storing MDI blasting caps, do not mix them with other explosives. The caps must be placed in a suitable container or in a separate vehicle.

MDI Misfire Clearing Procedures

H-27. In most misfires of shock tube blasting caps, which are nonelectric, these standard rules apply:

- If the primer in the M81 does not fire (the most common problem), recock the M81 by pushing in on the pull rod to reset the firing pin, and then actuate the igniter again. If two or three retries result in a nonfiring, cut the shock tube, replace the igniter with a new one, and repeat the firing procedure.
- If the M81 fires and blows the shock tube out of its securing mechanism without it firing, cut about 3 feet from the end of the shock tube, replace with a new igniter, and repeat the firing procedure.

- If the M81 appears to have functioned properly but the charge did not fire, cut a 1-foot section from the shock tube starting 6 inches from the igniter. Hold the 1-foot piece of shock tube so one end is over your palm; gently blow through the other end. If a fine powder comes out from the shock tube, it has not fired. Install a new igniter on the freshly cut end of the priming shock tube and repeat the firing procedure. If no fine powder comes out from the shock tube or the shock tube was heard to fire or its flash was seen, wait for 30 minutes before moving downrange to check the components in the firing system.
- After waiting 30 minutes, proceed downrange and check all components in the firing system. The most likely cause of a misfire is the incorrect placement of the shock tube in the plastic connectors of the M12/13s or the M9 holder. If incorrect placement was the problem, replace the fired section and properly connect and refire the device.
- If the first component of the firing train did not fail, check out each succeeding component until you find the one that failed. Replace the failed or fired relay components back to the initiating site and refire.
- If the final high-strength blasting cap seems to be the failed component, replace it if it is easily accessible. However, if it is used to prime an explosive charge, do not disturb it. Place a new, primed 1-pound explosive charge next to the misfired charge and detonate it when it is safe.

EXPLOSIVE CHARGES

FUNDAMENTALS

H-28. The amount of explosive used in any demolition project is determined by the demolition charts. The following critical factors apply:

- **Type and strength of material.** A demolition target may be constructed of timber, steel, or other material. Concrete reinforced with steel increases the strength of the target.
- **Size and shape of target.** Large targets, such as concrete piers and steel I-beams, may be attacked more economically using multiple charges rather than a single charge.
- **Desired demolition effect.** Consider the extent of demolition and other desired effects. For example, in constructing an abatis, consider which direction the trees should fall.
- **Type of explosive.** All charts in this chapter reflect the number of M112 (1¼-pound) blocks of C4 to be used.
- **Size and shape of charge.** Use the demolition charts in this chapter to calculate the amount of explosive needed. When external charges are used without special placement techniques, a flat, square charge with a thickness-to-width ratio of 1-to-3 or more will give acceptable results.
- **Charge placement.** For cratering, place charges in holes below the ground. For breaking or collapsing stone or concrete, locate charges on the surface or in boreholes. For cutting timber, tie charges on the outside surface or place them in boreholes, whichever is more practical. Fasten charges to the target by wire, adhesive compound, tape, or string. Prop charges against the target with a frame made of scrap wood or metal or other available materials.
- **Method of initiation.** The method of initiation is not critical except for special types of charges, such as shaped charges or diamond charges.
- **Method of tamping.** Detonating an explosive produces pressure in all directions. If the charge is not completely sealed or confined or if material surrounding the explosive is not equally strong on all sides, the explosive force will escape through the weakest point. To keep as much explosive force as possible on the desired objective, pack the material around the charge. This material is called tamping material; the process is tamping.

H-29. For the most destructive effect, an explosive charge must be of the size and shape that best fits the target; it must be detonated in close contact with the target. Any significant air or water gap between the target and the explosive will lessen the force of the shock wave. Several types of charges, such as sheet explosives or plastic explosives, can be cut or molded to fit odd-shaped targets.

H-30. Whenever possible, place explosive charges to act on or through the smallest or weakest part of the target. Internal charges produce the greatest destructive effect for the least amount of explosive. Internal charges are placed in boreholes in the target. They are confined by tightly packed sand, wet clay, or other material. This is called stemming. Tamp and pack the stemming material against the explosive to fill the hole to the surface.

H-31. Place external charges on the surface of the target. Tamp the charges by covering them with packed sand, clay, or other dense material. This increases their destructive effect. Tamping may be loose or in sandbags. To be most effective, the thickness of the tamping should at least equal the breaching radius. Small breaching charges on horizontal surfaces are sometimes tamped by packing several inches of wet clay or mud around them. This process is called mudcapping.

SELECTION AND CALCULATION OF CHARGES

H-32. Use the six-step, problem-solving format below for all charge calculations. This format is used to determine the weight (P) of the explosives required for a demolition task in pounds of TNT. If using an explosive other than TNT, adjust P accordingly by dividing P for TNT by the relative effectiveness (RE) factor of the explosive you plan to use (see Table H-1).

- Step 1. Determine the critical dimensions of the target.
- Step 2. Calculate the weight of a single charge of TNT by using the appropriate demolition formula.
- Step 3. Divide the quantity of explosive by the RE factor. Skip this step if using TNT.
- Step 4. Determine the number of packages of explosive for a single charge by dividing the individual charge weight by the standard package weight of the chosen explosive. Round this result to the next higher, whole package. Use volumes instead of weights for special-purpose charges (ribbon, diamond, saddle, and similar charges).
- Step 5. Determine the number of charges based on the targets.
- Step 6. Determine the total quantity of explosives required to destroy the target by multiplying the number of charges (step 5) by the number of packages required per charge (step 4).

Formula

H-33. The formula P = R3KC is used to determine the size of the charge required to breach concrete, masonry, rock, or similar material where—

- P = TNT required (in pounds).
- R = breaching radius(in feet).
- K = material factor, which reflects the strength, hardness, and mass of the material to be demolished.
- C = tamping factor, which depends on the location and tamping of the charge.

Breaching Charge Tables

H-34. To use the tables for calculating breaching charges (see Tables H-4 through H-7), determine the type of material in the object you plan to destroy. If in doubt, assume the material to be the stronger type. The four tables cover breaching charges to be used in destroying the following materials:

- Reinforced concrete (see Table H-4).
- Dense concrete or first-class masonry (see Table H-5).
- Ordinary masonry, hardpan, shale, rock, good timber, ordinary concrete, or earth construction (see Table H-6).
- Earth (see Table H-7).

Table H-4. Breaching charges for reinforced concrete

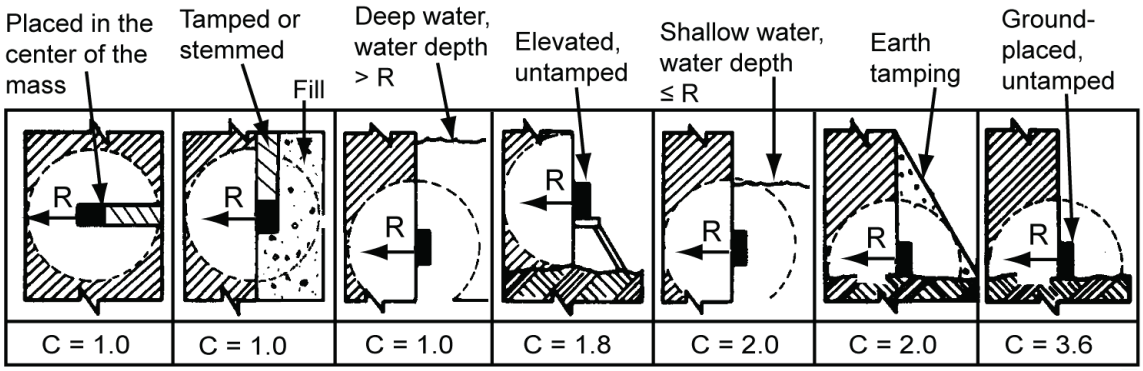
Placement Methods							
							
C = 1.0	C = 1.0	C = 1.0	C = 1.8	C = 2.0	C = 2.0	C = 3.6	
Reinforced Concrete Thickness (ft)		Packages of M112 (Composition C4)					
2.0	1	5	5	9	10	10	17
2.5	2	9	9	17	18	18	33
3.0	2	13	13	24	26	26	47
3.5	4	21	21	37	41	41	74
4.0	5	31	31	56	62	62	111
4.5	7	44	44	79	88	88	157
5.0	9	48	48	85	95	95	170
5.5	12	63	63	113	126	126	226
6.0	13	82	82	147	163	163	293
6.5	17	104	104	186	207	207	372
7.0	21	111	111	200	222	222	399
7.5	26	137	137	245	273	273	490
8.0	31	166	166	298	331	331	595
Note. The results of all calculations for this table are rounded up to the next whole package.							

Table H-5. Breaching charges for dense concrete or first-class masonry

THICKNESS IN METERS (FEET)	*METHODS OF PLACEMENT C-4 M112 (1-1/4 LB BLOCKS)*				
	A	***B***	***C***	***D***	***E***
0.6 (2)	1	4	6	7	12
0.8 (2.5)	1	7	12	13	23
0.9 (3)	2	10	17	19	33
1.1 (3.5)	3	15	27	29	53
1.2 (4)	4	22	39	44	78
1.4 (4.5)	5	31	56	62	111
1.5 (5)	7	34	60	67	119
1.7 (5.5)	9	44	80	88	159
1.8 (6)	10	57	103	115	205
2.0 (6.5)	12	73	131	145	261
2.1 (7)	15	78	140	156	279
2.3 (7.5)	19	96	172	191	344
2.4 (8)	22	116	209	232	417

Table H-6. Breaching charges for ordinary masonry, hardpan, shale, rock, good timber, ordinary concrete, or earth construction

THICKNESS IN METERS (FEET)	*METHODS OF PLACEMENT C-4 M112 (1-1/4 LB BLOCKS)*				
	A	***B***	***C***	***D***	***E***
0.6 (2)	1	3	5	5	9
0.8 (2.5)	1	5	9	9	17
0.9 (3)	2	7	12	14	24
1.1 (3.5)	2	11	19	21	38
1.2 (4)	3	16	28	31	56
1.4 (4.5)	4	22	40	44	79
1.5 (5)	5	24	43	48	85
1.7 (5.5)	6	32	57	63	114
1.8 (6)	7	41	74	82	147
2.0 (6.5)	9	52	94	104	186
2.1 (7)	11	57	100	111	200
2.3 (7.5)	13	69	123	137	246
2.4 (8)	16	83	149	166	298

Table H-7. Breaching charges for earth structures

THICKNESS IN METERS (FEET)	*METHODS OF EMPLACEMENT C-4 M112 (1-1/4 LB BLOCKS)*				
	A	*B*	*C*	*D*	*E*
0.6 (2)	1	1	1	1	2
0.8 (2.5)	1	1	2	2	4
0.9 (3)	1	2	3	3	5
1.1 (3.5)	1	3	4	5	8
1.2 (4)	1	4	6	7	12
1.4 (4.5)	1	5	8	9	16
1.5 (5)	1	5	9	10	17
1.7 (5.5)	2	7	12	13	23
1.8 (6)	2	9	15	17	30
2.0 (6.5)	2	11	19	21	38
2.1 (7)	3	12	20	23	40
2.3 (7.5)	3	14	25	28	50
2.4 (8)	4	17	30	34	60

Correlating Thickness of Object and Placement of Charge

H-35. In deciding how to place the charge against the object, compare the method of placement with the diagrams in Figure H-8. Use the letter matching the diagram to select the appropriate column in the breaching charge tables. Then determine the thickness of the material. On the breaching charge tables, find the intersection of these two factors (placement and thickness) to determine how many M112 (1¼-pound) blocks of C4 it will take to destroy the object.

Note. Refer to Tables H-4 through H-7; as noted, the tables are based on the material to be destroyed.

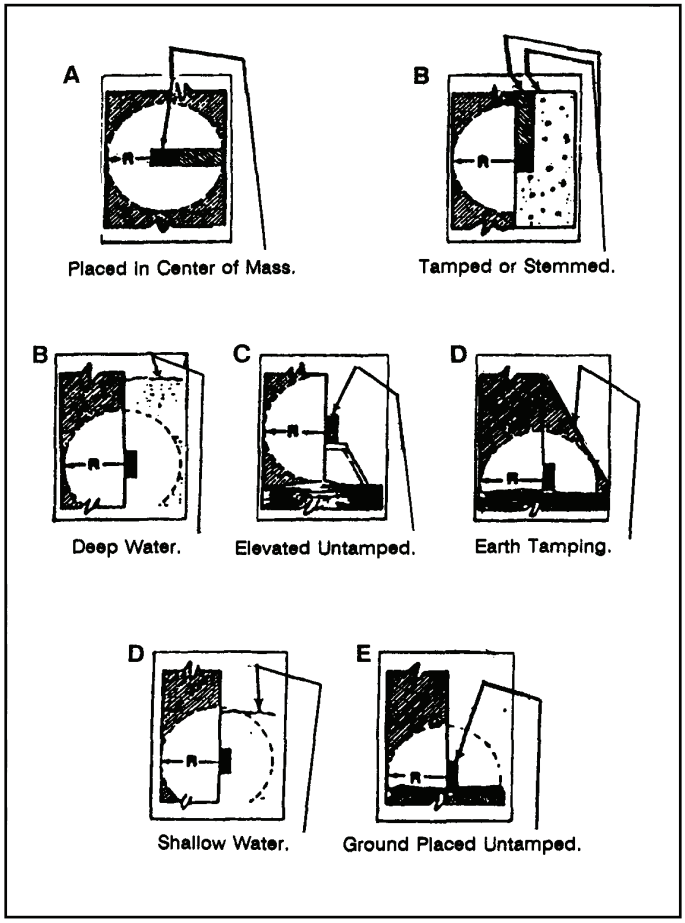


Figure H-8. Methods of placement for explosive charges

Number of Charges

H-36. Calculate the number of charges required to demolish a pier, slab, or wall using this formula:

N = W/2R

N = Number of charges

W = Width of pier, slab, or wall (in feet)

R = Breaching radius (in feet)

Note. The multiplier 2 in the formula is constant.

H-37. If the calculated value of N is between zero and 1¼, use one charge. If the value is between 1¼ and 2½, use two charges. If the value is greater than 2½, round it to the nearest whole number.

PLACEMENT OF CHARGES

H-38. For best results, arrange the charges in a flat square shape with the flat side toward the target. The first charge is placed in from one side of the target; the rest of the charges are spaced at a distance of 2R apart. When breaching hard-surface pavements, use one M112 (1¼-pound) block of C4 for each 2 inches of surface. If you are breaching concrete-beam bridges, breach each beam individually. Figure H-9 lists the thickness of the charge relative to the number of charges used.

AMOUNT OF EXPLOSIVE	THICKNESS OF CHARGE
LESS THAN 4 CHARGES	1 INCH
4 CHARGES TO LESS THAN 32 CHARGES	2 INCHES
32 CHARGES TO LESS THAN 240 CHARGES	4 INCHES
240 CHARGES OR MORE	8 INCHES

Figure H-9. Thickness of breaching charge

H-39. The positions available for placement of explosive charges on piers and walls are limited. Unless a demolition chamber is available, place the charge (or charges) against one face of the target. A charge placed above ground level is more effective than one placed directly on the ground. When several charges are required to destroy a pier, slab, or wall and elevated charges are desired, they are distributed equally at no less than one breaching radius above the base of the object to be demolished. This method makes best use of the shock wave of the blast. If time permits, tamp all charges thoroughly with damp soil or filled sandbags. Tamping must be equal to or greater than the breaching radius. For piers, slabs, or walls that are partially submerged in water, place charges equal to or greater than the breaching radius below the waterline, if possible.

STEEL-CUTTING CHARGES

H-40. In the employment steel-cutting charges, the type of explosive is critical to success. Confinement or tamping of the charge is rarely practical or possible. Placement of the charge in direct contact with the target is more important with steel than with other materials.

H-41. Select steel-cutting charges for their cutting effect and adaptability to placement. The M112 block (C4) is a highly adaptable explosive. Its size and shape are suitable for most steel-cutting operations, and it can be used without cutting or reshaping. In addition, the M112 block adapts well to steel targets because of the adhesive compound on one face, which allows it to be affixed securely to the target.

Amount of Charge

H-42. The amount of steel-cutting charge to be used depends on the type and size of steel and the kind of charge to be used. Figure H-10 shows formulas for the use of TNT in steel-cutting operations. Table H-8 lists the amount of C4 explosive required in steel-cutting operations.

FORMULA	USE
$P = 3/8\ A$	Cut beams, columns, girders, steel plates, any structural steel section, bars 2 inches or more thick
$P = D^2$	Cut high carbon or alloy steel (2 inches or less)
Legend:	P = Pounds of TNT A = Cross-section area in square inches of material to be cut D = Thickness or diameter in inches

Figure H-10. Formulas for use of TNT in steel-cutting charges

Table H-8. Amount of C4 (M112) required to cut steel sections

WIDTH OF SECTION IN CM (IN)	*C-4 M112 (1-1/4 LB BLOCKS) FOR RECTANGULAR STEEL SECTIONS OF GIVEN DIMENSIONS THICKNESS OF SECTION IN CM (IN)*									
	0.6 (1/4)	*1.0 (3/8)*	*1.3 (1/2)*	*1.6 (5/8)*	*1.9 (3/4)*	*2.2 (7/8)*	*2.5 (1)*	*3.1 (1-1/4)*	*3.5 (1-3/8)*	*3.8 (1-1/2)*
5.1 (2)	1	1	1	1	1	1	1	1	1	1
7.6 (3)	1	1	1	1	1	1	1	1	2	2
10.2 (4)	1	1	1	1	1	1	1	2	2	2
12.7 (5)	1	1	1	1	1	2	2	2	2	2
15.2 (6)	1	1	1	1	2	2	2	2	2	3
20.3 (8)	1	1	1	2	2	2	2	2	3	3
25.4 (10)	1	1	2	2	2	2	3	3	4	4
30.5 (12)	1	2	2	2	3	3	3	4	4	5
35.6 (14)	1	2	2	2	3	3	4	4	5	5
40.6 (16)	1	2	2	3	3	4	4	5	6	6
45.7 (18)	2	2	2	3	4	4	5	6	6	7
50.8 (20)	2	2	2	3	4	5	6	6	7	7
55.8 (22)	2	2	2	4	4	5	6	7	7	8
61 (24)	2	2	2	4	5	5	7	7	8	9

Rules of Thumb for Steel-Cutting Charges

H-43. In the following examples of steel-cutting situations, the required explosive is either TNT or plastic explosive (the RE factor is not needed).

Rails

H-44. Cut rails at crossings, switches, or curves. Cut at alternate rail splices for a distance of 500 feet. The rules of thumb are the following:

- For rails less than 5 inches high, use ½ pound.
- For rails 5 inches or higher, use 1 pound.
- At crossings and switches, use 1 pound.

Cables, Chains, Rods, and Bars

H-45. To cut through these items, use the following rules of thumb:

- Up to 1 inch in diameter, use 1 pound.
- From 1 inch to 2 inches in diameter, use 2 pounds.
- Over 2 inches in diameter, use the formula P = 3/8 A. (Refer to Figure H-11.)

Note. These guidelines apply to chains and cables that are under tension. Both sides of the chain link must be cut.

Placement Considerations

H-46. The size and type of steel section will determine the placement of the explosive charge. Cut extended sections by placing all of the explosive on one side of the section along the proposed line of rupture. In some steel trusses with individual members fabricated from two or more primary sections (such as angle irons or bars separated by spacer washers or gusset plates), place the charge with opposing portions offset the same distance as the thickness of the section being cut. This will produce a shearing action. Heavier I-beams, wide flange beams, and columns can also require auxiliary charges. Never place the charges directly opposite each other because this tends to neutralize the explosive effect.

H-47. Figure H-11 illustrates placement of a charge for cutting steel members and railroad rails.

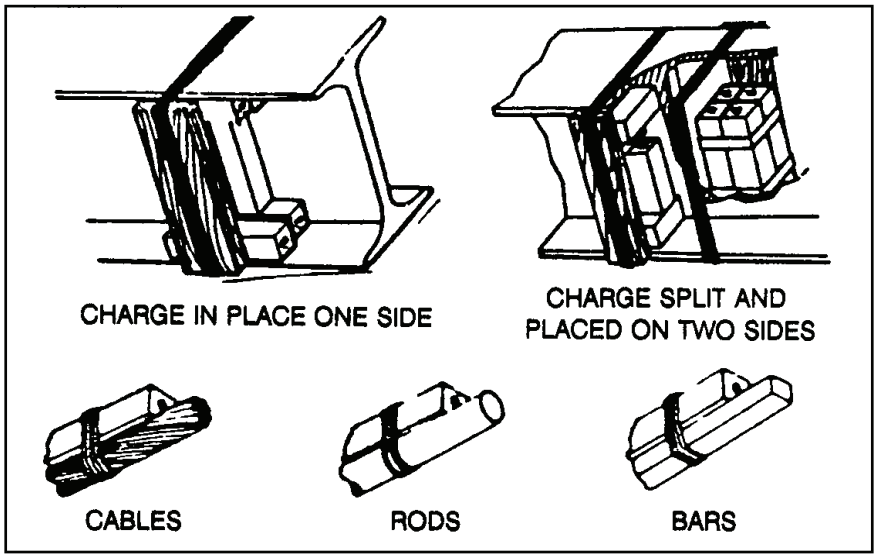


Figure H-11. Placement of charges on steel members

Built-up Members

H-48. Built-up members frequently have an irregular shape, making it difficult to obtain close contact between the explosive charge and a sufficient portion of the surface. If it is impractical to distribute the charge properly to obtain close contact, increase the amount of explosive.

Irregularly Shaped Steel

H-49. Composition C4 is effective for cutting irregularly shaped steel because it can be easily molded or pressed into place to give maximum contact. The M112 block explosive has an adhesive coating on one side, which makes placement easier.

Precautions

H-50. Place the steel-cutting charge on the same side as the firing party because explosive charges throw steel fragments (missiles) long distances at high velocities.

BRIDGE ABUTMENT DESTRUCTION

H-51. Procedures for destroying bridge abutments vary depending on the thickness of the abutment. Refer to Figure H-12 for an illustration of charge placement.

Thickness of 1.5 Meters (5 Feet) or Less

H-52. Beginning 1.5 meters (5 feet) in from one side of the road, place 18.1 kilograms (40 pounds) of cratering charges in holes that are 1.5 meters (5 feet) deep, 1.5 meters (5 feet) on centers, and 1.5 meters (5 feet) behind the river face of the abutment. If the abutments are over 6.1 meters (20 feet) high, add a row of breaching charges on the river face of the abutment.

Thickness of 1.5 Meters (5 Feet) or More

H-53. Calculate charges using the breaching charge tables (see Tables H-4 through H-7) and information provided earlier in this chapter. Place the charges against the rear face at a depth equal to the thickness of the abutment and space them the same as other breaching charges. When the abutments are more than 6.1 meters (20 feet) high, add a row of breaching charges on the river face at the base of the abutment and fire all charges simultaneously.

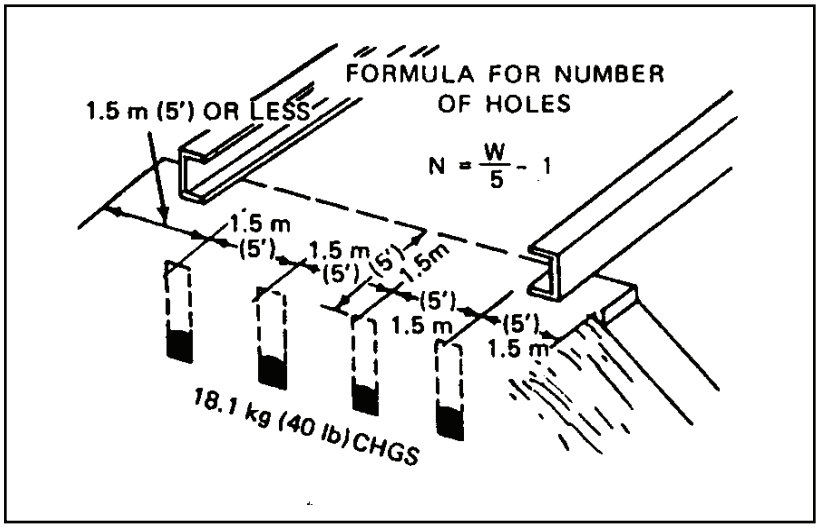


Figure H-12. Charge placement for bridge abutment destruction

TIMBER-CUTTING CHARGES

H-54. Use composition C4 for untamped, concentrated, external charges because it can be easily tied or fastened to the target. Because types of timber vary widely from locality to locality, it is impractical to try to cut all kinds of timber with charges calculated from a single table. It may be necessary, therefore, to make test shots to determine the size of charge needed to cut a specific type of timber. Table H-9 shows the amount of M112 (1¼-pound blocks) C4 needed for the various sizes of timber. Figure H-13 provides several formulas for determining timber-cutting charges and illustrates charge placement.

H-55. Place the charge in a borehole parallel to the greatest dimension of the cross section and tightly tamp it with moist earth. If the charge is too large for one borehole, make two boreholes side by side in the dimensional timber. For round timber, make two boreholes at approximate right angles to each other, but do not intersect them (see Figure H-14). Tamp both boreholes and fire the charges simultaneously.

Table H-9. Amount of C4 (M112) required for timber-cutting charges

SMALLEST DIMENSION OF TIMBER CM (IN)	*EXPLOSIVE C4 M112 (11/4 – Pound Blocks*		
	TYPE OF CHARGE		
	INTERNAL	*EXTERNAL*	*ABATIS*
15.2 (6)	1	1	1
20.3 (8)	1	2	2
25.4 (10)	1	2	2
30.5 (12)	1	3	2
38.1 (15)	1	4	3
45.7 (18)	1	6	4
53.3 (21)	2	7	6
61 (24)	2	9	8
68.6 (27)	2	12	9
76.2 (30)	3	14	11
83.8 (33)	3	17	14
91.4 (36)	4	20	16

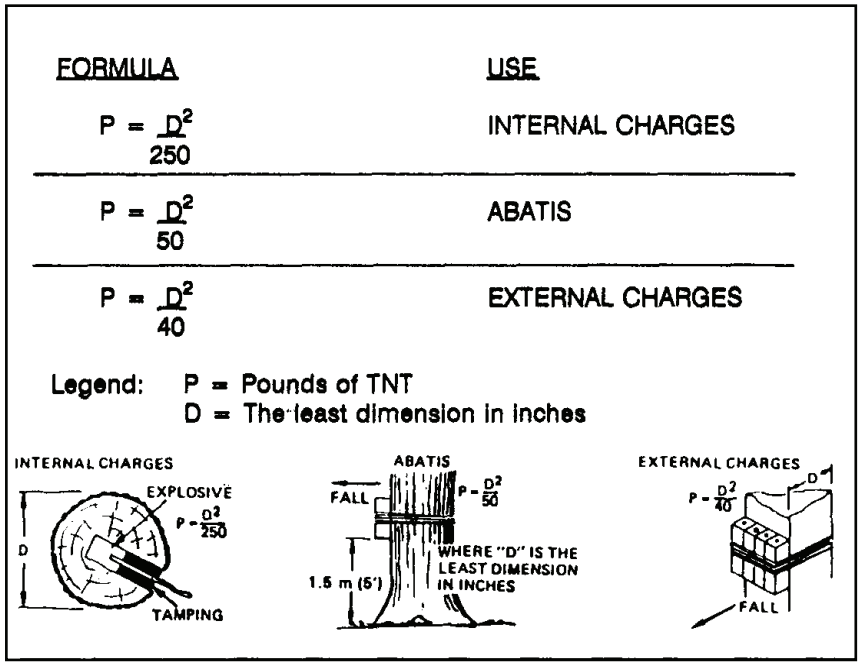


Figure H-13. Timber-cutting formulas and charge placement

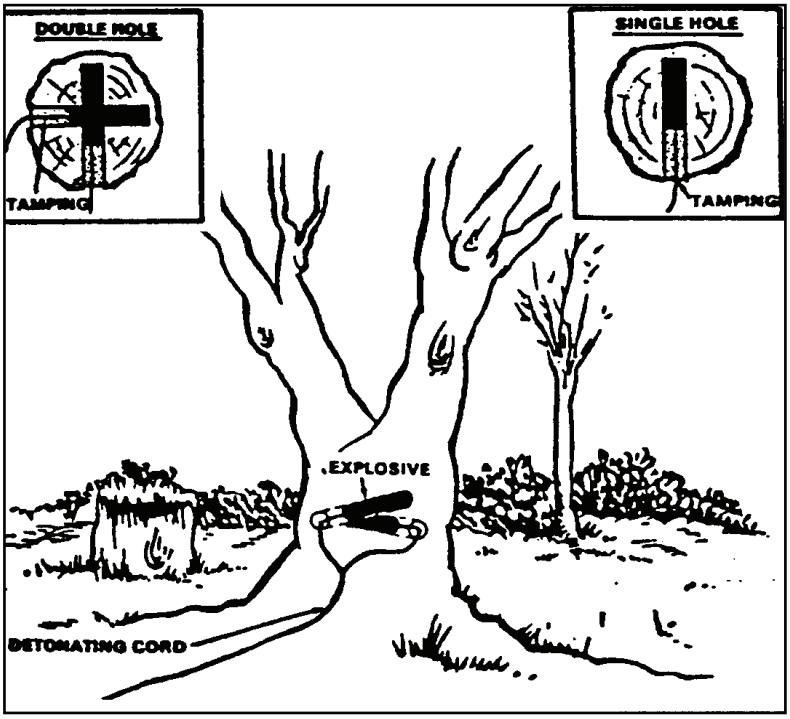


Figure H-14. Internal timber-cutting charges

OBSTACLE DESTRUCTION

H-56. The reconnaissance/scout platoon may be tasked to destroy obstacles. The illustrations in Figures H-15 through H-19 show the recommended methods for explosives placement to achieve the greatest destructive effect with various types of obstacles.

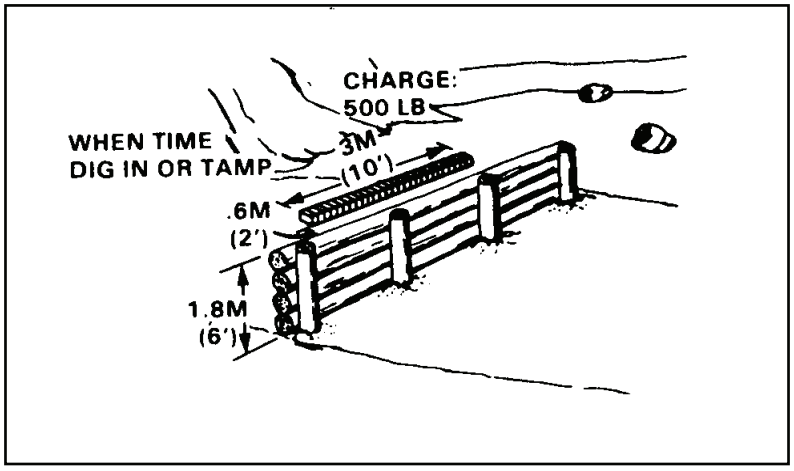


Figure H-15. Breaching of a backfilled log wall

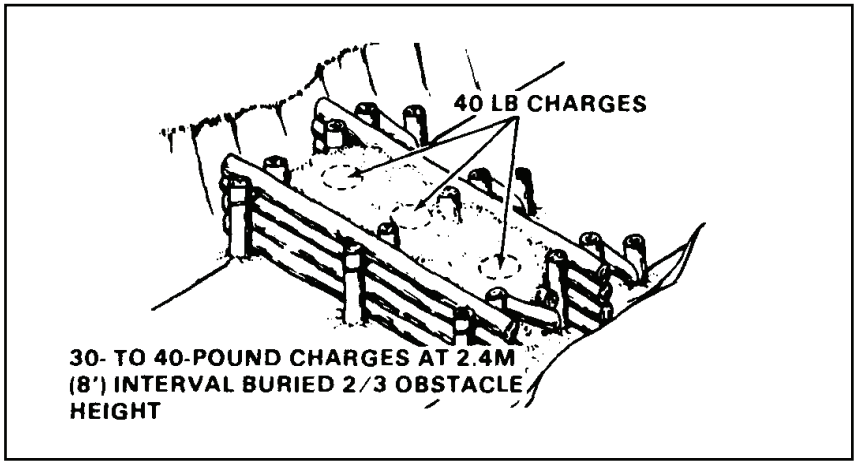


Figure H-16. Breaching of a log crib

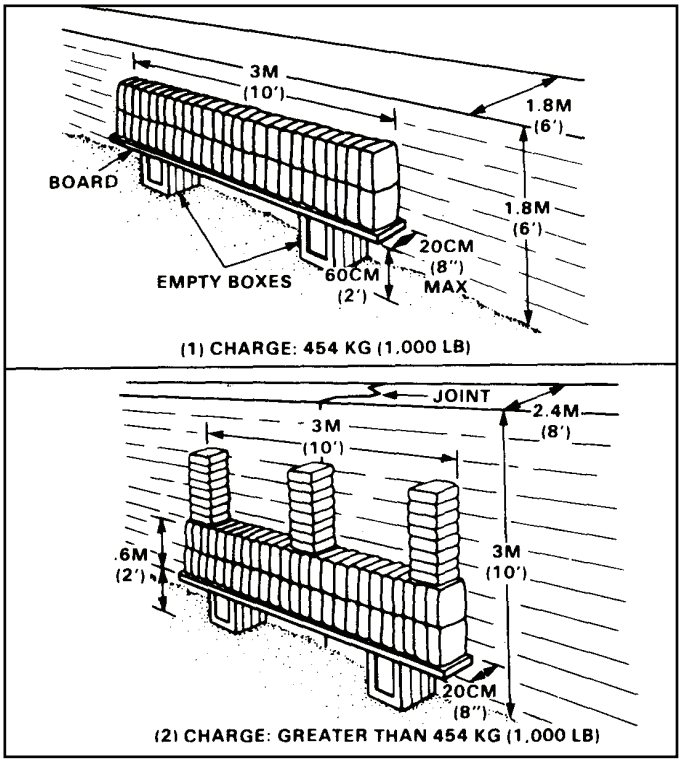


Figure H-17. Placement of charges for breaching of walls

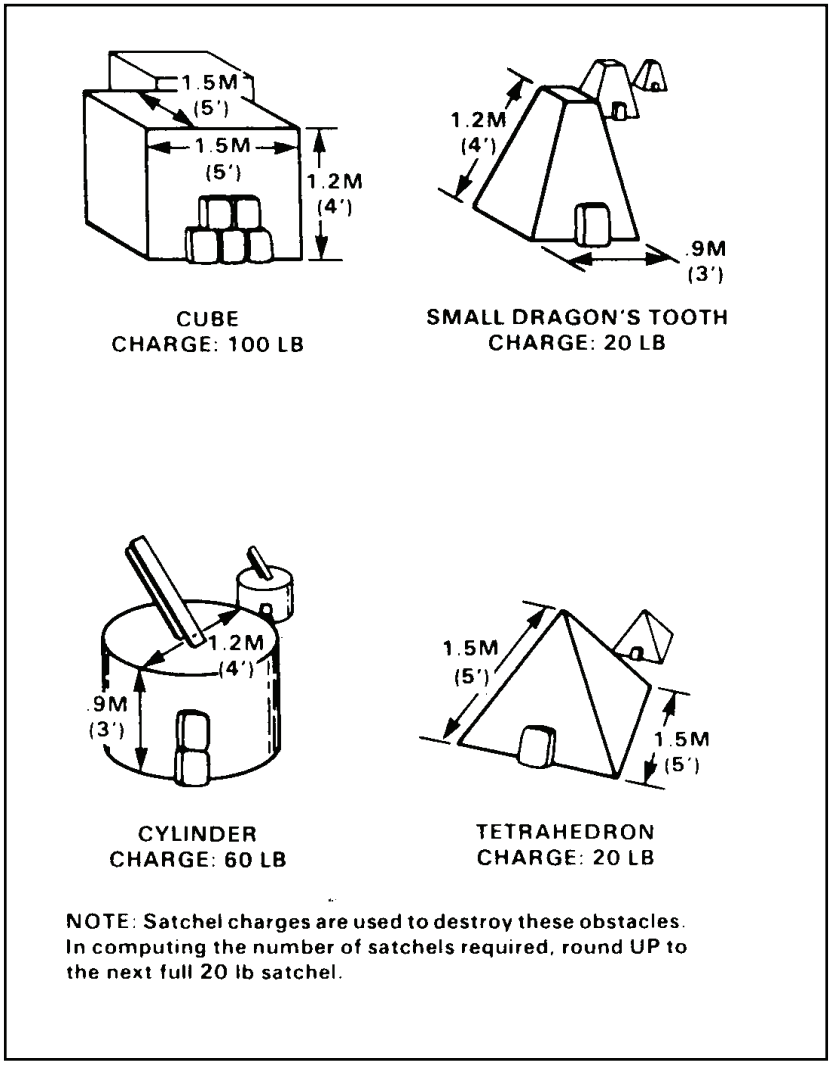


Figure H-18. Explosive packs required to destroy typical small concrete obstacles

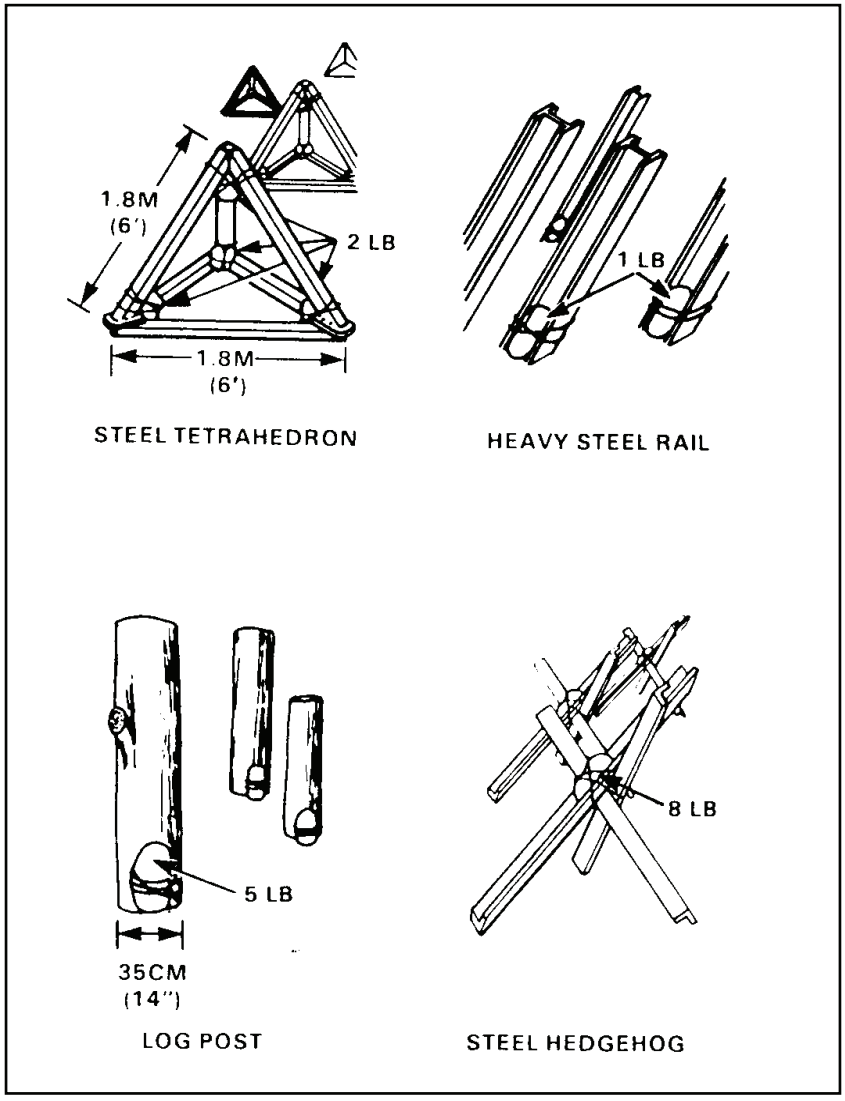


Figure H-19. Placement of charges for destruction of steel and log obstacles

CRATERING CHARGES

H-57. The explanation and sketches in Figure H-20 includes explanations and illustrations for procedures to be used in creating various types of road craters.

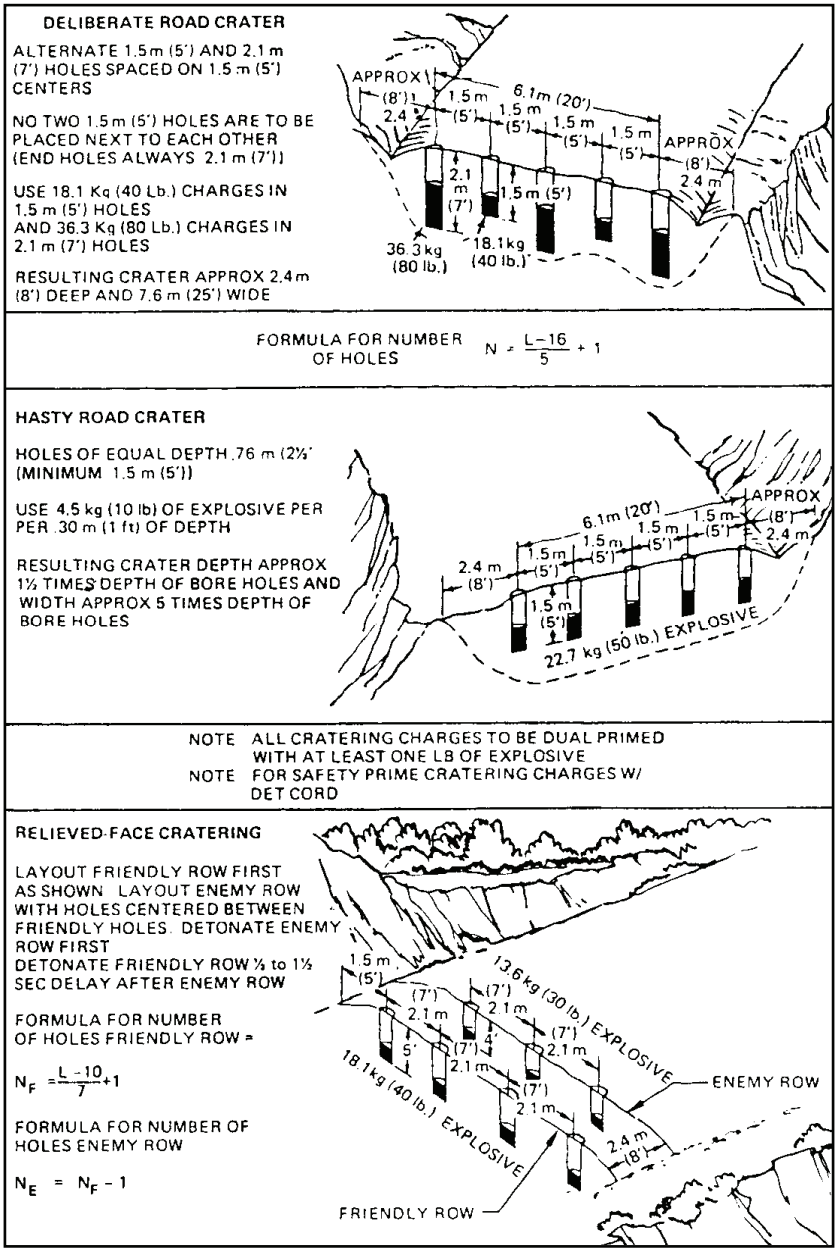


Figure H-20. Road cratering charges

SECTION II – MINES

H-58. This discussion provides examples of mines employed by U.S. forces, including the reconnaissance/scout platoon. The discussion also examines the types of minefields the platoon may encounter in the AO. It covers how to record minefields after they have been emplaced and how to mark and record lanes that have been cleared through a minefield.

MINES EMPLOYED BY U.S. FORCES

H-59. Figure H-21 depicts various mines employed by the U.S. military, including the reconnaissance/scout platoons. The information covers characteristics of mines and firing devices and procedures for mine installation, arming, and disarming.

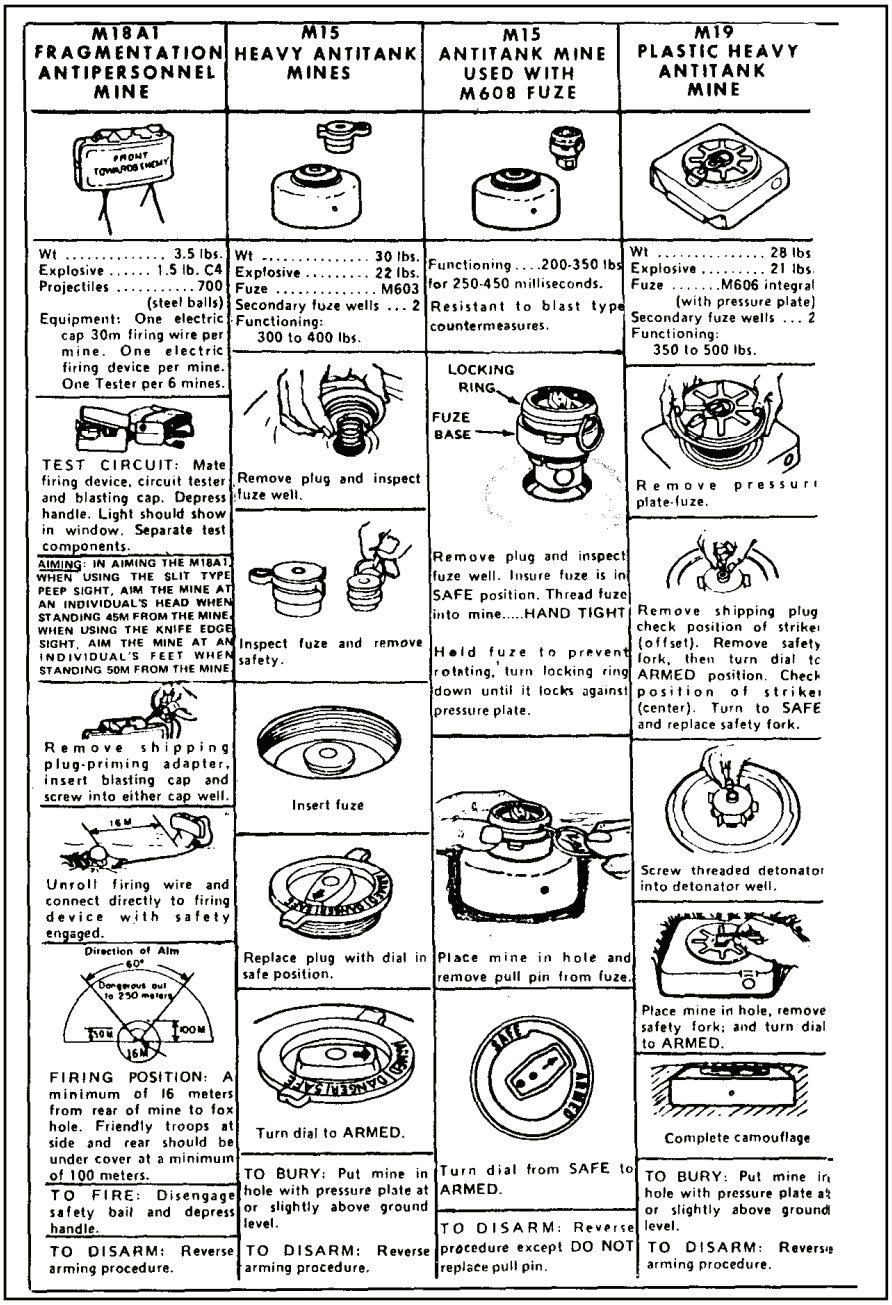


Figure H-21. U.S. mines

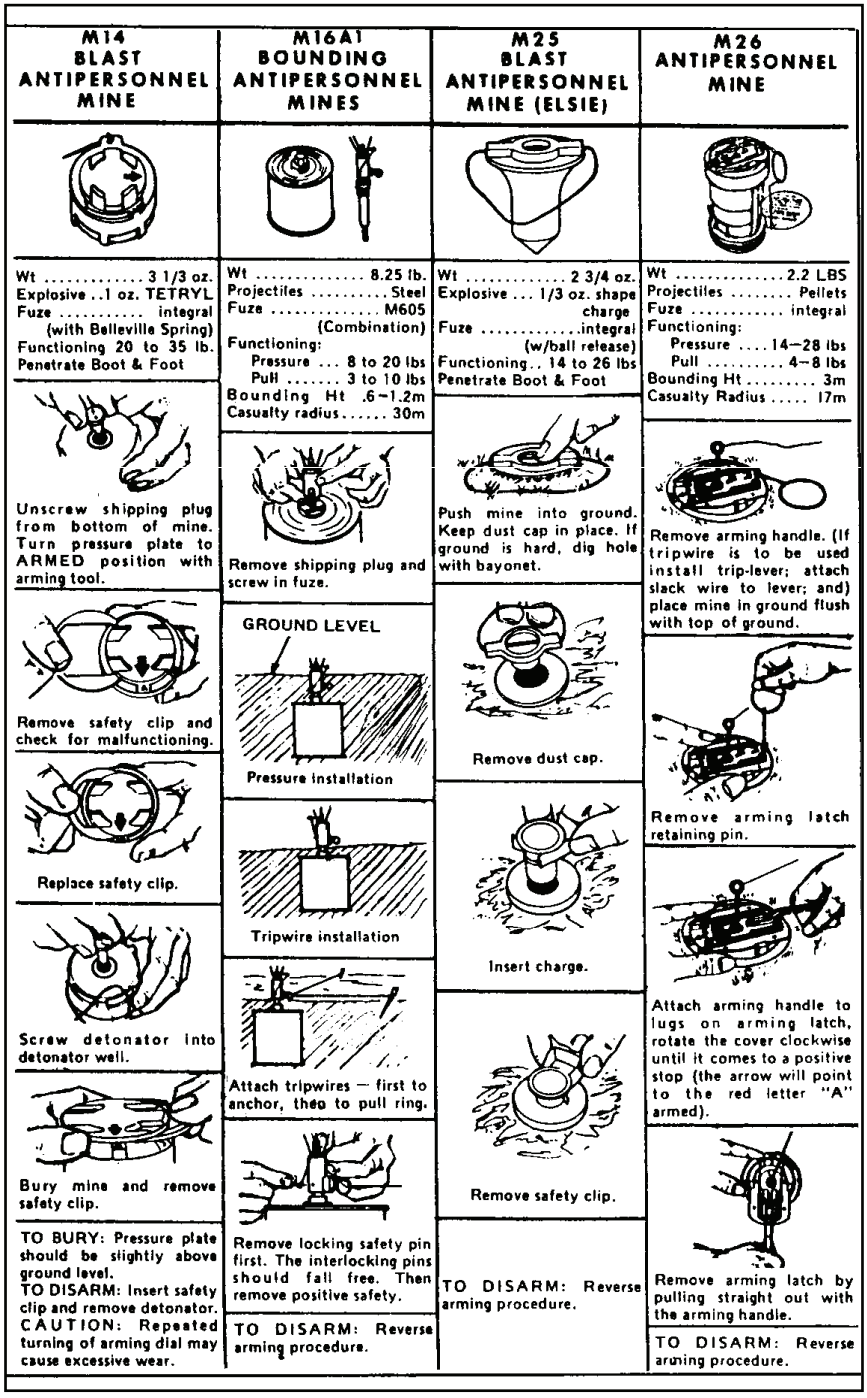


Figure H-21. U.S. mines (continued)

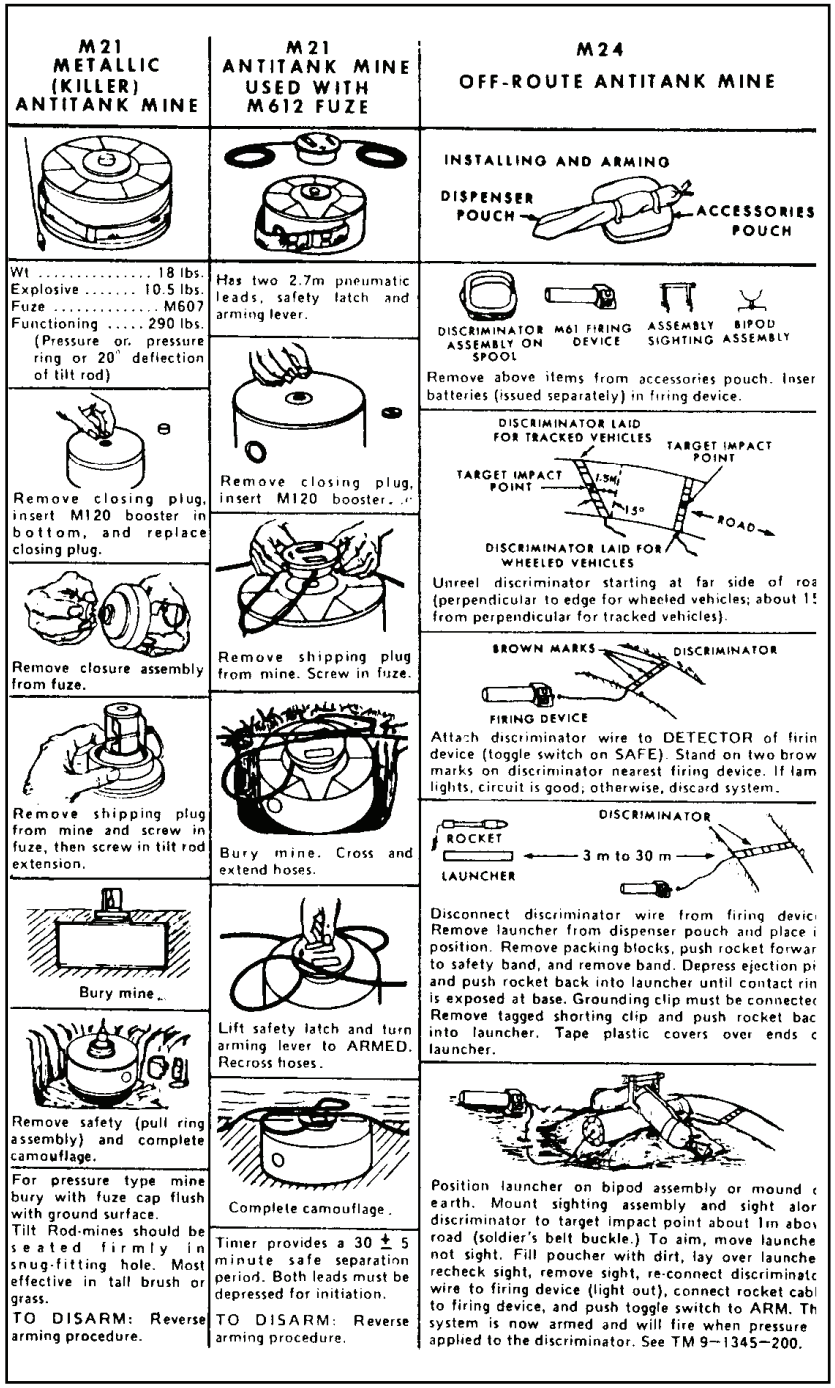


Figure H-21. U.S. mines (continued)

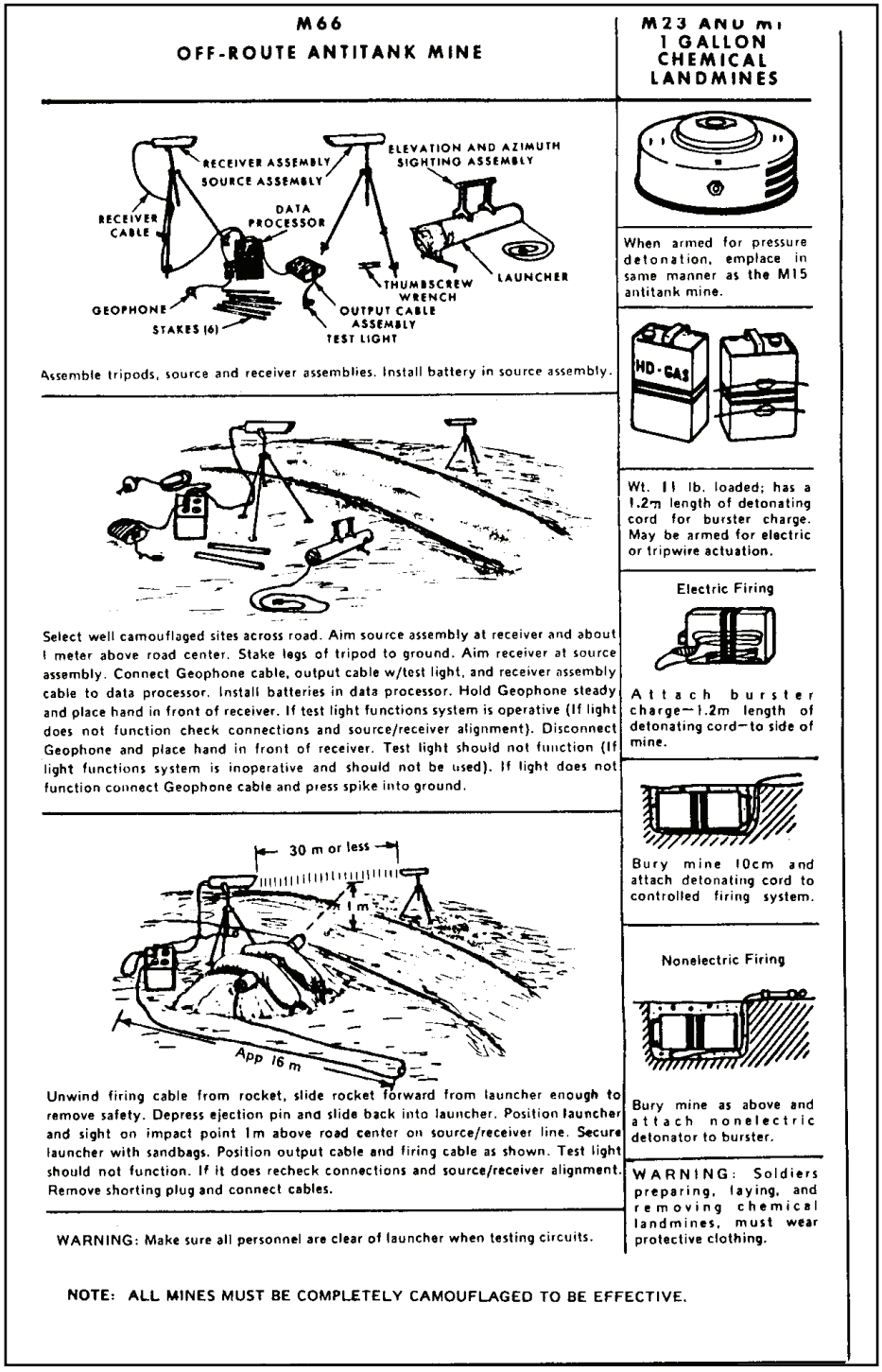


Figure H-21. U.S. mines (continued)

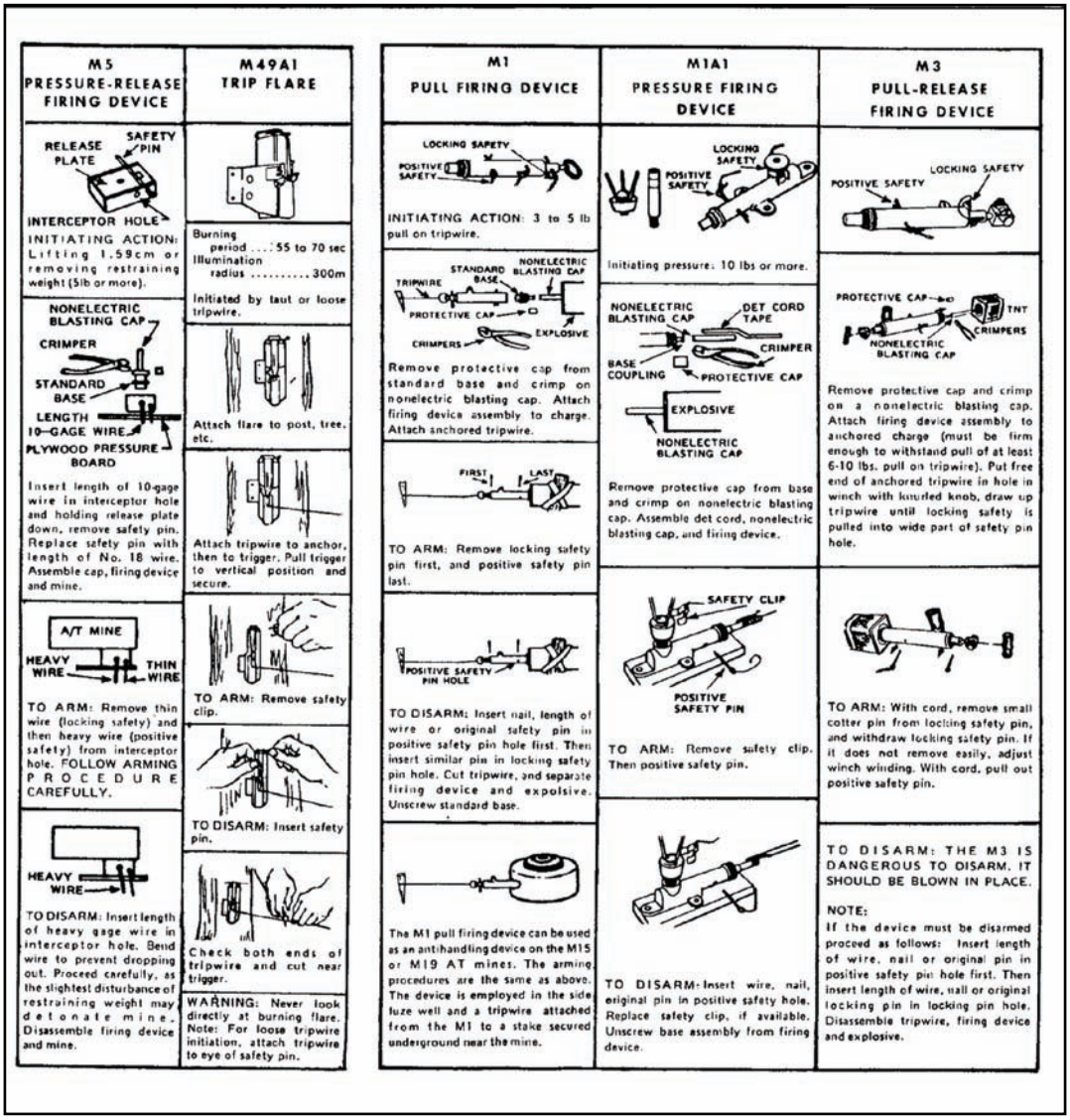
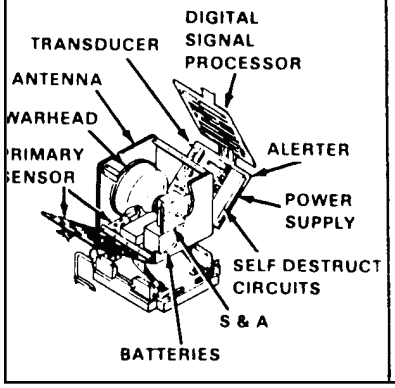
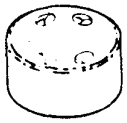
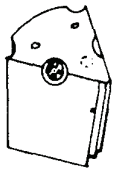


Figure H-21. U.S. mines (continued)

ANTITANK	SYSTEM	TYPE KILL	ACTUATION	SELF DESTRUCT OPTIONS
	WASPM	K	Acoustical	Adjustable

ANTIPERSONNEL	SYSTEM	CASUALTY RADIUS	TYPE MINE	ACTUATION	SELF DESTRUCT OPTIONS
	GEMSS	10-15M	Blast	Tripwire (20-40')	2
	GATOR				3
	MOPMS				Adjustable
	VOLCANO				3
	FLIPPER				2
	ADAMS	6-10M	Bounding	Tripwire	2

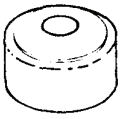
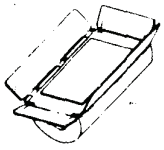
ANTITANK	SYSTEM	TYPE KILL	ACTUATION	SELF DESTRUCT OPTIONS
	GEMSS/FLIPPER	K	Magnetic Influence	2
	GATOR			3
	MOPMS			Adjustable
	VOLCANO			3
	RAAMS			2
	M56	M	Pressure	1

Figure H-21. U.S. mines (continued)

TYPES OF MINEFIELDS

H-60. The reconnaissance/scout platoons may employ or encounter one of four main types of minefields. Refer to Table H-10 for a summary of characteristics and uses of these minefields.

Table H-10. Minefield types and characteristics

TYPE	*DESCRIPTION*	*TACTICAL USE*	*REPORTS REQUIRED*	*RECORDS REQUIRED*	*MINES USED*			*AUTHORITY (Delegated to)* **
Protective **Hasty protective**	Above-ground; random pattern; no antihandling devices	Aids in unit's local, close-in protection of defensive perimeter	Intention Initiation Completion Change/ removal	DA Form 1355-1 (to parent unit)	X	X	X	Brigade commander (Battalion or company commander)
Deliberate protective	Standard pattern; fenced and marked	Same as hasty deliberate minefield	As above (to author-izing HQ)	DA Form 1355 (to authorizing HQ)	X	X		Division commander (Installing commander)
Tactical	Standard or random pattern; scatterable	As part of obstacle plan	As above	DA Form 1355 (to authorizing HQ)	X	X	X	Division commander (Brigade commander)
Nuisance	Random pattern; surface or buried	Enhance obstacles; hinder use of key areas	As above	As above	X	X	X	Brigade commander (Battalion commander)
Phony	Same as live minefield being simulated	Simulate other types of minefields	Same as simulated minefield	Same as simulated minefield				Same as simulated minefield
* Use the scatterable minefield report and records for all scatterable minefields (under "S" column).								
** The corps commander is the initial employment authority for all scatterable minefields ("S" column). Long self-destruct minefields (more than 24 hours) may be delegated to division and brigade level. Short self-destruct minefields (24 hours or less) may be delegated to battalion/task force level.								

MINEFIELD EMPLACEMENT REQUIREMENTS

H-61. Of the four types of minefields, the reconnaissance/scout platoons will most frequently be tasked to emplace a hasty protective minefield. It will rarely emplace a deliberate protective minefield. Scouts may employ a row minefield and, occasionally, if time allows, a standard pattern minefield.

H-62. Emplacement of a row minefield (three rows, 60 meters by 100 meters, 100 AT mines) consumes about 30 platoon minutes (30 scouts) if done by hand. This time does not include fuzing and uncrating of the mines.

HASTY PROTECTIVE MINEFIELD

H-63. Hasty protective minefields are generally emplaced by small units at outposts, work sites, bivouac areas, or ambush sites. The reconnaissance platoon may also use them to supplement manned weapons, prevent tactical surprise, or provide early warning of enemy advances.

H-64. Mines should be readily detectable and removable. They should be sited across likely avenues of approach and within range of organic weapons and visual observation. If the minefield includes M18A1 AP mines or will be employed for more than 72 hours, it should be marked by signs or fences or have guards to warn friendly troops.

H-65. The hasty protective minefield must be recorded on DA Form 1355-1, which is illustrated in Figure H-22. If the form is not available, improvise one. The unit that installs the minefield should warn adjacent units and inform higher headquarters. This unit must either remove the field before leaving the area or transfer the responsibility to the relieving unit commander. Refer to FM 3-34.210.

HASTY PROTECTIVE ROW MINEFIELD RECORD

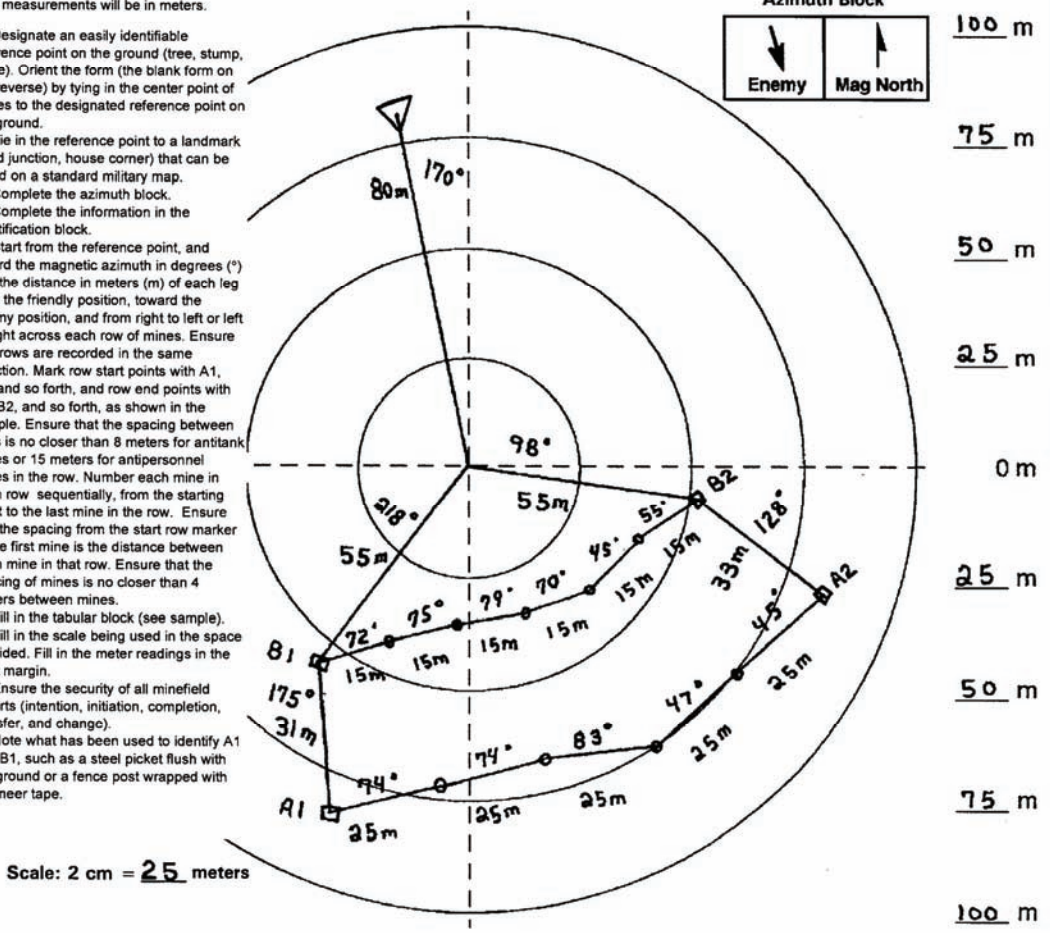
For use of this form, see FM 3-34.210; the proponent agency is TRADOC.

INSTRUCTIONS

All measurements will be in meters.

1. Designate an easily identifiable reference point on the ground (tree, stump, stake). Orient the form (the blank form on the reverse) by tying in the center point of circles to the designated reference point on the ground.
2. Tie in the reference point to a landmark (road junction, house corner) that can be found on a standard military map.
3. Complete the azimuth block.
4. Complete the information in the identification block.
5. Start from the reference point, and record the magnetic azimuth in degrees (°) and the distance in meters (m) of each leg from the friendly position, toward the enemy position, and from right to left or left to right across each row of mines. Ensure that rows are recorded in the same direction. Mark row start points with A1, B1, and so forth, and row end points with A2, B2, and so forth, as shown in the sample. Ensure that the spacing between rows is no closer than 8 meters for antitank mines or 15 meters for antipersonnel mines in the row. Number each mine in each row sequentially, from the starting point to the last mine in the row. Ensure that the spacing from the start row marker to the first mine is the distance between each mine in that row. Ensure that the spacing of mines is no closer than 4 meters between mines.
6. Fill in the tabular block (see sample).
7. Fill in the scale being used in the space provided. Fill in the meter readings in the right margin.
8. Ensure the security of all minefield reports (intention, initiation, completion, transfer, and change).
9. Note what has been used to identify A1 and B1, such as a steel picket flush with the ground or a fence post wrapped with engineer tape.

Azimuth Block: Enemy | Mag North



Scale: 2 cm = 25 meters

Tabular Block

Row	Type	Actuation	Mine Number
A	M 15	Pressure	1, 4
A	M 21	Tilt-Rod	2, 3
B	M 15	Pressure	1, 3, 5
B	M 15	Tilt-Rod	2, 4

Remarks: Points: A1, A2, B1, B2 are marked with orange tent pegs flush to the ground.

Identification Block

Unit: 2nd PLT C Co 317TH Eng BN	
Reference Point: Tree stump right side of the road w/white eng. tape at NA 14503505	
Remarks: Landmark: Center of road junction at NA 1340 3409	
Map and Sheet No: Talbot #5568	
Name and SSN of OIC: 2LT Roy Bean 123-45-7611	
Signature: Roy Bean	Time and Date: 1400Z/1 JUL 05
Mines Removed	
Mines Transferred	

Reverse of DA FORM 1355-1, JUL 2006 APD V1.00

Figure H-22. Hasty protective row minefield record

MINEFIELD MARKING

H-66. Figure H-23 shows a standard pattern minefield with appropriate markings. Figure H-24 illustrates several methods of marking lanes through a minefield.

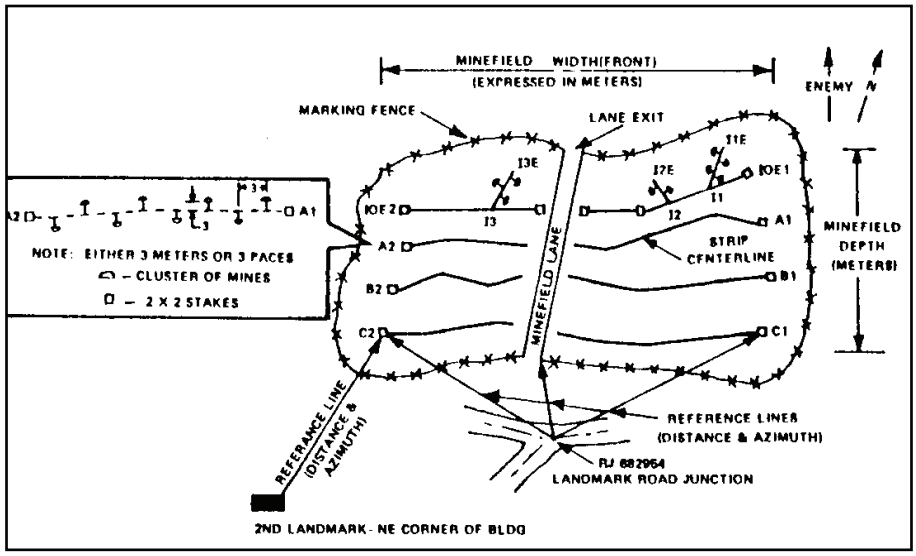


Figure H-23. Standard pattern minefield (fenced, marked, and referenced)

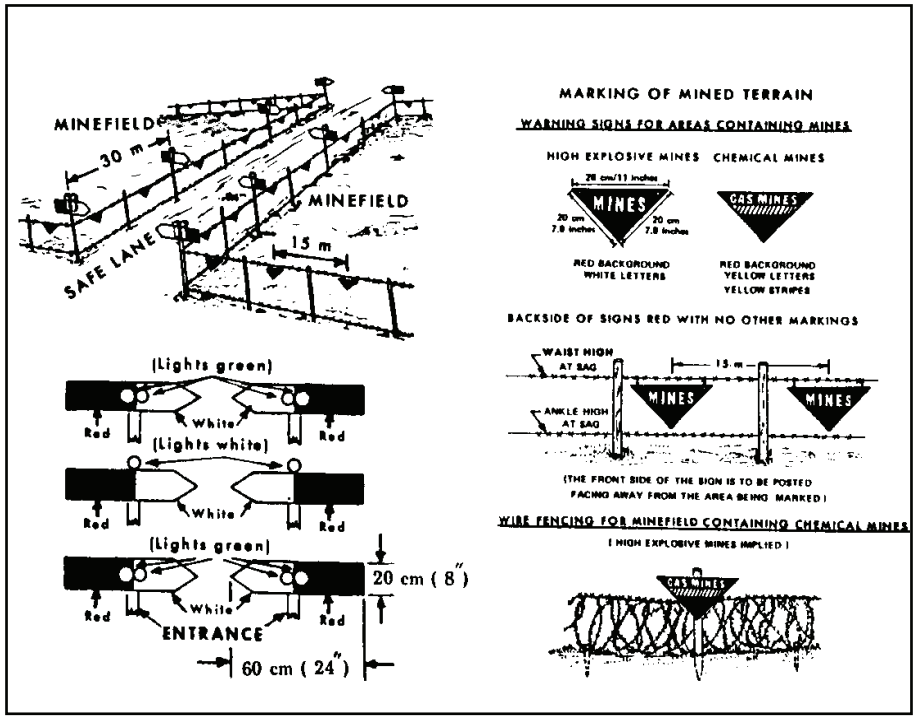


Figure H-24. Standard rear area lane marking procedures

SECTION III – OBSTACLE CHARACTERISTICS AND REPORT FORMATS

OBSTACLE TYPES

H-67. Figure H-25 shows various obstacles that the reconnaissance platoon may encounter during combat operations.

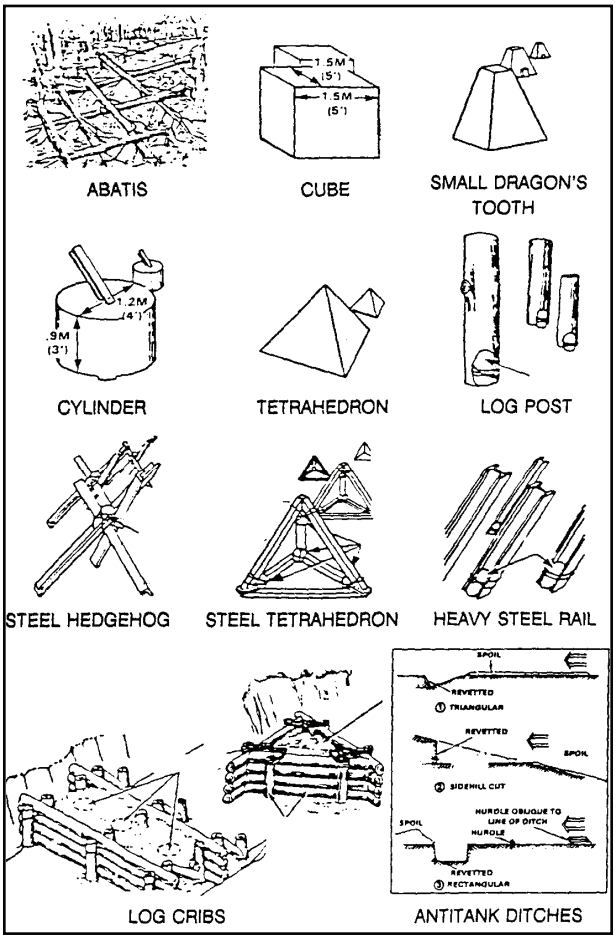


Figure H-25. Common obstacle types

REPORT FORMATS

OBSTACLE REPORT

H-68. Table H-11 shows a sample format for an obstacle report. For further information on reporting procedures for obstacles, refer to Appendix A of this manual.

Table H-11. Obstacle report format

REPORT LINE	*INFORMATION*
ALPHA	Map sheets
BRAVO	Date-time group for observation of obstacle
CHARLIE	Location (grid reference)
DELTA	Type of obstacle
ECHO	Enemy elements -and/or weapons with coverage of the obstacle (if applicable)
FOXTROT	Any other information that could affect breaching or bypassing; for example, terrain restricts bypass or work required (in personnel hours) to breach obstacle

DEMOLITION RECONNAISSANCE RECORD

H-69. When members of the platoon encounter an obstacle that may require demolition support, they conduct a reconnaissance of the obstacle and surrounding area and complete DA Form 2203, *Demolition Reconnaissance Record*. The form is then sent up the chain of command to the appropriate support unit for evaluation, planning, and conduct of the demolition mission. Refer to FM 3-34.214 for additional information on the preparation and use of DA Form 2203; the manual includes an example of the completed form.

Note. DA Form 2203 consists of four pages. The first page lists general information about the reconnaissance party and the obstacle (including map location information, description of the demolition site, and nature of the proposed demolition), as well as detailed estimates for the demolition in terms of materials, equipment, transport, personnel, and time requirements. The second page provides space for additional information, while Page 3 contains space for a general sketch of the demolition site and a sketch of the purpose of the proposed demolition mission. The fourth page offers detailed instructions for completing the form.

SECTION IV – OBSTACLE/MINEFIELD TURNOVER

H-70. Once an obstacle group or minefield is completed, the emplacing unit may conduct turnover with another unit. The turnover process ensures that the commander of the incoming unit is familiar with the obstacle or minefield and understands his responsibilities concerning it. Turnover is conducted whether or not there are lanes/gaps to be closed. (***Note.*** Minefield turnover is required in almost all tactical situations; the time and the location for the turnover are established during initial coordination.)

TURNOVER PROCEDURES

H-71. A target prepared for demolition by engineers may be turned over to another unit for safeguarding or execution. The following turnover procedures are followed:

- The senior member of the emplacing unit (normally an engineer squad leader) and the demolition guard commander (normally a reconnaissance squad leader) will conduct face-to-face coordination before the turnover if the tactical situation permits. This prior coordination greatly aids and speeds the turnover process.
- The senior member of the emplacing unit will require positive identification of the demolition guard commander by means of sign/countersign or by personal recognition.

- Once identification is established, the emplacing unit will give the demolition guard commander a completed target folder for the target being turned over. The folder contains orders to the demolition guard commander and the firing party commander. These orders must be signed and thoroughly understood by the demolition guard commander.

SECTION IV – OBSTACLE/MINEFIELD TURNOVER

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- The senior member of the emplacing unit will require positive identification of the demolition guard commander by means of sign/countersign or by personal recognition.
- Once identification is established, the emplacing unit will give the demolition guard commander a completed target folder for the target being turned over. The folder contains orders to the demolition guard commander and the firing party commander. These orders must be signed and thoroughly understood by the demolition guard commander.
- The senior member of the emplacing unit will then describe the obstacle, in detail, to the demolition guard commander.
- Once the demolition guard commander fully understands his responsibilities and he (or the firing party commander, if separately designated) is capable of executing the target, the emplacing unit may depart to conduct further operations.

COORDINATION

H-74. In conducting coordination for obstacle/minefield turnover, scouts must cover the following items with the other unit:

- Intelligence.
  - Provide an update on enemy activity forward of the minefield.
  - Discuss expected enemy reconnaissance efforts.
  - Brief on local, friendly, and enemy situations.
- Maneuver.
  - Discuss obstacle protection against enemy dismounted patrols.
  - Recommend that the other unit conduct security patrols to protect the minefield during limited visibility.
  - Discuss fire control measures.
- Mobility and survivability.
  - Discuss the obstacle's intended effect on enemy maneuver.
  - Discuss the minefield front and depth and walk/ride the minefield trace. Provide grid coordinates of the minefield trace.
  - Discuss minefield composition.

  - Discuss friendly minefield marking.
  - Discuss lane/gap closure, if applicable. Confirm the signal or activity that will trigger/initiate lane closure.
  - Train units on how to close lanes. This may mean training the unit on emplacing conventional mines or using the MOPMS.
- Fire support.
  - Update the other unit's FIST on grid coordinates for the minefield trace.
  - Discuss indirect fires covering the minefield.
- Sustainment. Provide mines/materials required to close lanes/gaps; ensure all necessary materials are available and prepared.
- C2.
  - Transfer graphics and documentation (minefield records, demolition-target folders, or other written records).
  - Report completion of the turnover to the higher engineer and supported unit headquarters.
  - Complete an obstacle turnover report and submit it to higher headquarters.
  - Forward the written minefield report and record (using DA Form 1355 or DA Form 1355-1) to the next higher commander common to both units.

SECTION V – OBSTACLE BREACHING CAPABILITIES

H-75. This section provides information on breaching capabilities. It will assist the reconnaissance or scout platoon in determining what types of equipment, vehicles, and other assets can be used for certain breaching situations. Also covered are the obstacle-crossing capabilities (trafficability and fordability) of various U.S. and allied vehicles.

ACTIONS ON CONTACT (WITH OBSTACLES)

H-76. Use this format to conduct actions on contact with obstacles:

- Reconnoiter the obstacle and report.
- Seek a bypass.
- If a bypass is impossible, attempt a breach.
- As a last resort, force through the obstacle. All reconnaissance sections should have a chain saw (issued or locally procured) for clearing roads wooden obstacles from roads or trails.
- If the obstacle is covered by fire, use obscurants to conceal movement.

AN/PSS-12 MINE DETECTOR

H-77. The reconnaissance/scout platoons may use mine detectors such as the AN/PSS-12 to help detect mines and clear lanes in minefields.

CHARACTERISTICS

H-78. The AN/PSS-12 mine detector (see Figure H-26) is a man-portable metallic mine-detection system that is used to detect AT and AP land mines. Its search head contains two concentric coils—the transmitting coil and the receiving coil. During operation, the transmitting coil is energized with electric pulses to build up a magnetic field. The magnetic field induces currents in metal objects near the search head, and the currents build up a magnetic field in the metal objects. Depending on the metal's composition and quantity, the magnetic field may be strong enough to be picked up by the receiving coil. Signals from the receiving coil are processed in the AN/PSS-12's electronics. When a signal is considered positive, the electronic unit provides an audible alarm to the operator.

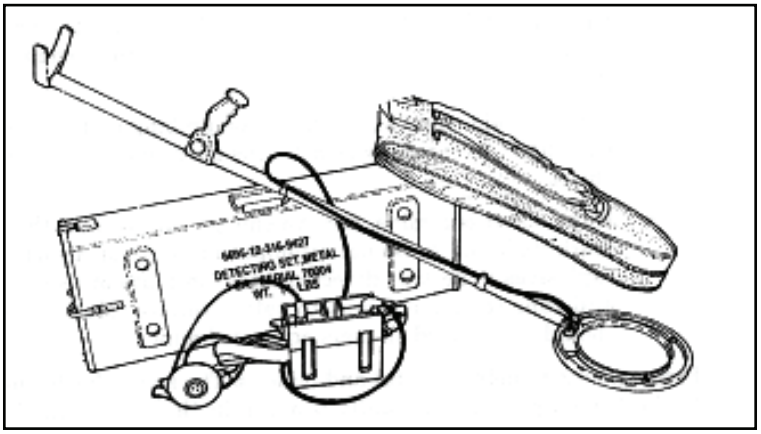

Figure H-26. AN/PSS-12 metallic mine detector

WARNING

Users must keep in mind that magnetic detection is effective only when there is a sufficient amount of alloy in the mine to trigger an alarm from the detector.

The detector's sensitivity control may require frequent adjustment during operation.

SEARCH METHODS

H-79. Use the following procedures and guidance in searching for mines using the AN/PSS-12:

- Move the search head in sweeping motions a maximum of 5 centimeters above the ground. Sweeping speed should be approximately 0.3 meter per second.
- Listen for an audible tone indicating that the inner ring of the magnetic search head is over a metal object. The intensity of the tone depends on the size, the shape, the content, the depth, and the position of the object.
- Make an X-pattern sweeping movement (Figure H-27) across the area when a tone is heard. The tone will be loudest when the search head is immediately above the object.
- For small, horizontal metal pins, the tone will be louder when the inner ring is near the pin rather than when the pin is in the center of the ring.
- If you are searching for large, metal objects, detecting and localizing is faster when the sensitivity control is turned down (counterclockwise).

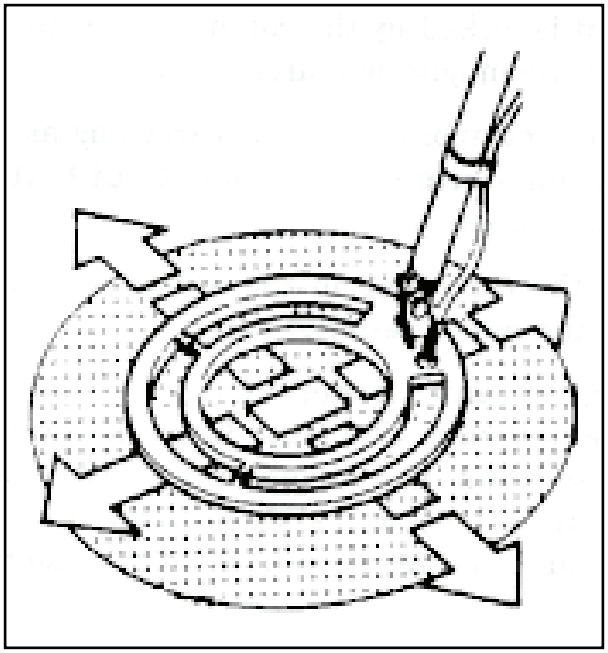

Figure H-27. X-Pattern sweeping movement

- Keep mine detectors at least 2 meters apart during setting and adjustment phases to prevent interference.
- Change the batteries and readjust the unit if the indicator lamp flashes. The search sensitivity is not affected when the lamp is flashing; if searching continues, a constant audible tone will sound and the unit will be unusable until fresh batteries are installed.
- Discontinue searching and readjust the unit's sensitivity if the check tone disappears or its frequency decreases.
- Ensure that only the inner part of the telescopic pole is used when the equipment is operated by a Soldier in the prone position.
- Turn the unit off after completing the search operations.

BREACHING AND CLEARING OPERATIONS

H-80. Table H-12 illustrates the characteristics and capabilities of explosive and manual breaching methods. Table H-13 summarizes the characteristics of several types of obstacle breaching equipment. Although the reconnaissance platoon does not have direct access to such assets, the platoon can take advantage of these capabilities by calling on other elements for assistance in breaching operations.

Table H-12. Breaching assets and methods

EXPLOSIVE BREACHING ASSETS/METHODS							
NOMENCLATURE	***TYPE***	***MINES CLEARED***	***WEIGHT (pounds)***	***LANE CLEARED in meters (feet) Width***		***ASSEMBLY TIME***	***EMPLOYMENT TIME in minutes (speed)***
M58A3 (MICLIC)	Trailer-mounted	AT/AP	3,100	8 (26)	100 (328)	Crane and crew – 35 minutes	4 (25 mph)
M1A1 (Bangalore torpedo)	Portable	AP	130 per kit	0.6 (2)	15 (50)	1 squad – 5 minutes	5
Antipersonnel obstacle breaching system (APOBS)	Portable	AP	115 (in 2 manpack units)	0.6 (2)	45 (140)	2 Soldiers – 2 minutes	2

MANUAL BREACHING ASSETS/METHODS		
BREACHING PROCEDURE	**LANE CLEARED Width (type of lane)**	**MAN-HOURS REQUIRED (per 100 meters of lane)**
Location by probing	1 meter (footpath)	16 to 22
Removal by rope or explosives	1 meter (footpath)	38 to 44
Location by detector, assisted by probing	8 meters (one-way vehicle lane)	27 to 33
Removal by rope or explosives	8 meters (one-way vehicle lane)	220 to 247

Table H-13. Nonexplosive obstacle breaching equipment

NOMENCLATURE	***MILITARY LOAD CLASS***	***HEIGHT in meters (feet)***	***WIDTH in meters (feet)***	***SPEED in kmph (mph)***	***ARMAMENT***	***MOBILITY EMPLOYMENT***
M9 armored combat earthmover (ACE)	18	2.3 (7.5)	3.2 (10.5)	48 (30+)	None	Fill craters and ditches Remove road blocks, trees, and rubble Prepare river and ford access Prepare and maintain routes
D7F dozer	28	2.4 (7.9)	3.48 (11.4)	10 (6)	None	Cut tactical routes Fill craters and ditches Remove rubble and trees
Loader (2½-ton)	20	3.7 (12)	2.6 (8.5)	NA	None	Fill craters and ditches Remove wire obstacles
AVLB	57 (with bridge) 37 (without bridge)	5 (16.4)	4 (13.1)	48 (30)	None	Bridge gaps of 18 meters or less Bridge gaps of 15 meters or less for Load Class 70

Note. Another nonexplosive breaching asset is the M1-series tank equipped with either the mine-clearing blade or mine-clearing roller. Use of the tank affords a combination of breaching capability, firepower, and mobility. The primary disadvantage is the vehicle's weight. The blade adds 3.5 tons and the roller 10 tons to the tank's base weight of more than 60 tons. An M1 equipped with the roller exceeds the weight capacity of the AVLB.

OBSTACLE-CROSSING CAPABILITIES

H-81. Table H-14 summarizes the obstacle-crossing capabilities of selected vehicles and equipment of the U.S. Army and allied nations.

Table H-14. Vehicle/equipment obstacle-crossing capabilities

COUNTRY/ VEHICLE	*MILITARY LOAD CLASS (MLC)*	*FORDING DEPTH in meters (feet)*	*HEIGHT TO CLEAR in meters (feet)*	*WIDTH TO CLEAR in meters (feet)*	*MAX GAP TRAVERSE in meters (feet)*	*GROUND CLEARANCE in meters (inches)*	*MAX STEP in meters (inches)*	*MAX TILT (%)*	*MAX GRADIENT (%)*	*MAX STRADDLE in meters (feet)*
U.S. / M113	13	No limit	2.13 (7.0)	2.68 (8.8)	1.60 (5.2)	0.29 (11)	0.64 (25)	30	60	1.78 (5.8)
U.S./ M2 and M3	24	No limit	2.92 (9.6)	3.04 (10.0)	2.54 (8.3)	0.45 (18)	0.91 (36)	40	60	1.87 (6.1)
U.S. / M60	54	1.22 (4.0)	3.26 (10.7)	3.63 (12.0)	2.66 (8.7)	0.41 (16)	0.91 (36)	30	60	2.21 (7.3)
U.S. / M48A5		1.22 (4.0)	3.12 (10.2)	3.63 (12.0)	2.59 (8.5)	0.41 (16)	0.91 (36)	30	60	2.21 (7.3)
U.S. / M1 series	70 (M1A2)	1.22 (4.0)	2.89 (9.5)	3.60 (11.8)	2.74 (9.0)	0.48 (19)	1.24 (49)	40	60	2.14 (7.0)
Germany / Leopard 2	46	2.25 (7.4)	2.93 (9.6)	3.71 (12.2)	3.00 (10.0)	0.48 (19)	1.15 (45)	30	60	2.15 (7.1)
UK / Centurian	60	1.20 (3.9)	2.96 (9.7)	3.40 (11.2)	3.35 (11.0)	0.51 (20)	0.90 (35)	30	60	2.19 (7.2)
UK / Chieftain	45	1.07 (3.5)	2.90 (9.5)	3.66 (12.0)	3.15 (10.3)	0.51 (20)	0.91 (36)	30	60	2.44 (8.0)
France / AMX30	38	2.00 (6.6)	2.86 (9.4)	3.10 (10.2)	2.90 (9.5)	0.45 (18)	0.93 (37)	30	60	1.96 (6.4)

SECTION VI – FIELD-EXPEDIENT MINES AND DEMOLITIONS

H-82. This discussion describes a variety of field-expedient methods for constructing mines and demolitions. The information in this discussion is for reference only. See FM 3-34.214 for detailed explanations on constructing and employing field-expedient mines and demolitions.

WARNING

Employment of expedient and improvised mines and demolitions must ALWAYS be in accordance with the applicable ROE, the provisions of the Geneva Conventions, and the Law of Land Warfare (see FM 27-10).

DANGER

The field-expedient devices and techniques described in this discussion are intended for use only by personnel who are experienced in mine and demolition employment and safety. Other units/personnel should NEVER use expedient mines and demolitions in place of standard devices and methods.

EXPEDIENT MINES

H-83. When constructing and employing improvised mines, the reconnaissance platoon must consider safety, neutralization, and disarming requirements. Authorization of employment depends on the minefield in which the mine is to be used. Figures H-28 through H-35 provide design and function guidance for expedient mines. Actual construction will depend on several factors, including the availability of materials.

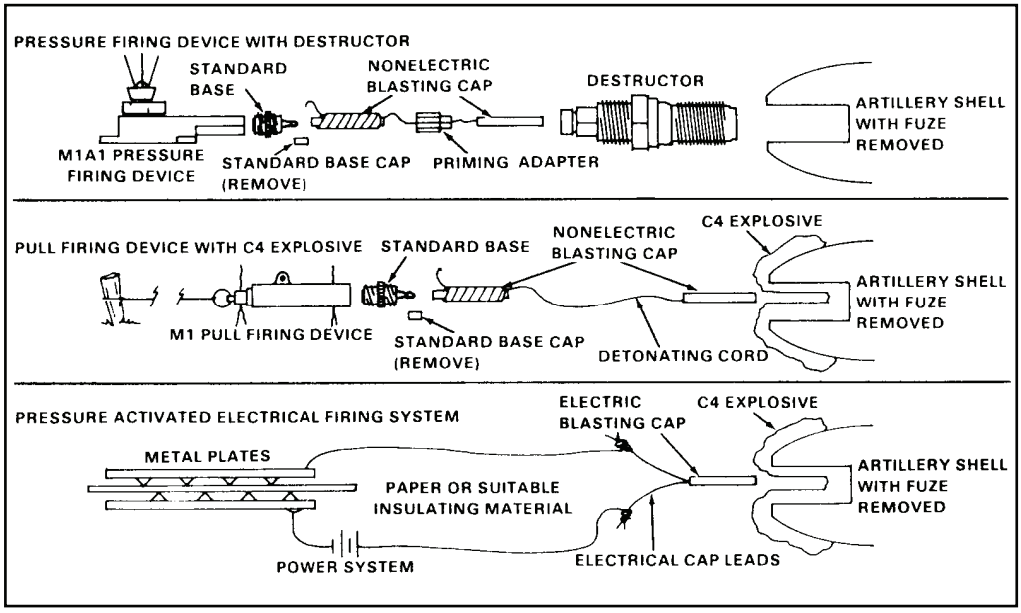

Figure H-28. Antitank mine using high-explosive artillery shell (with three different firing systems)

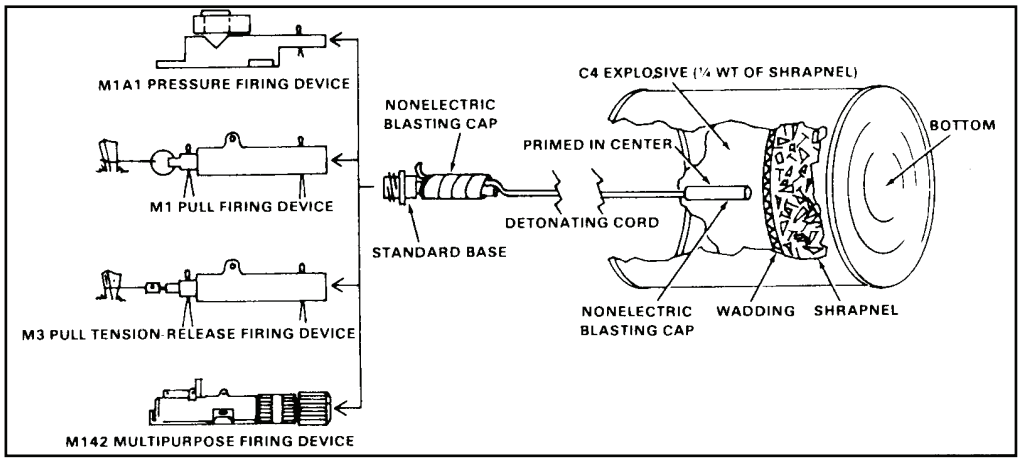

Figure H-29. Grapeshot antipersonnel mine

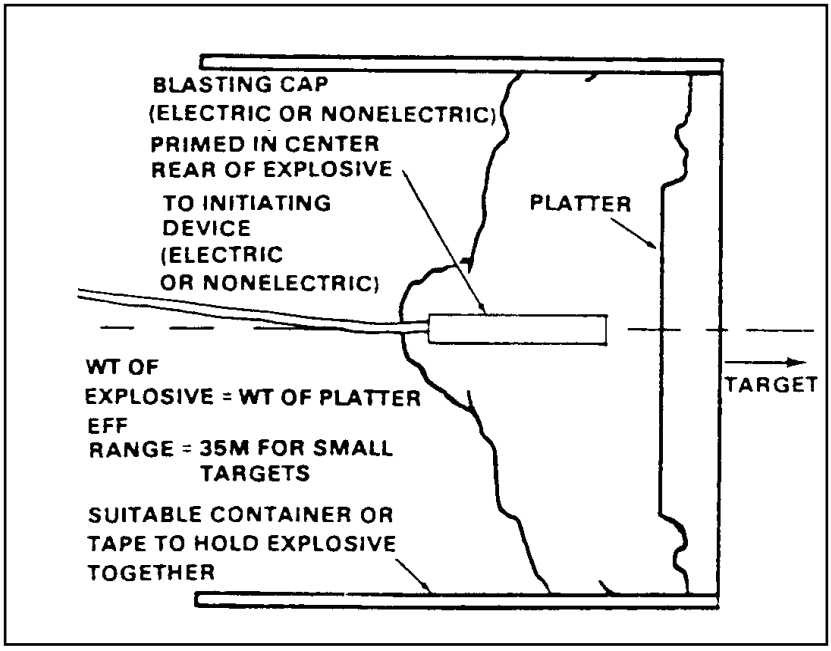

Figure H-30. Plate charge expedient mine

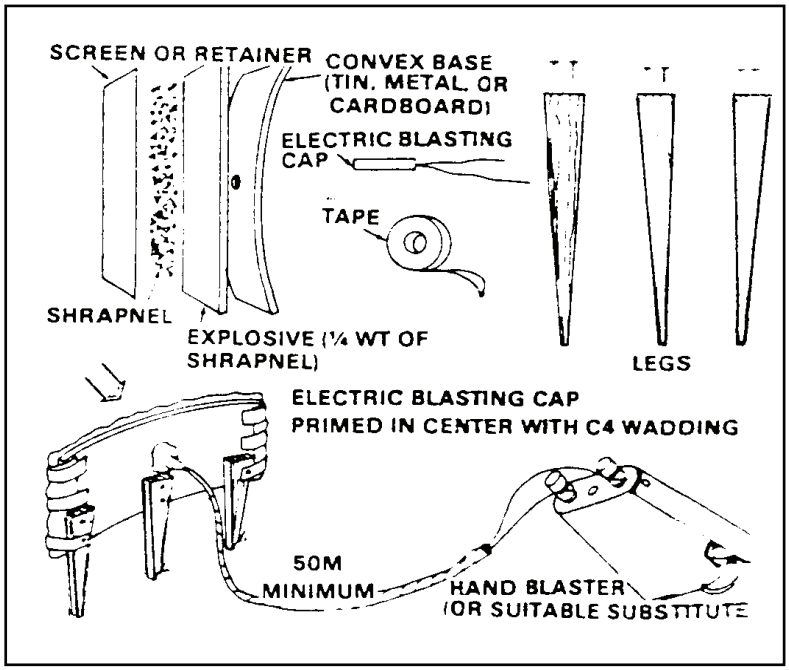

Figure H-31. Improvised claymore mine

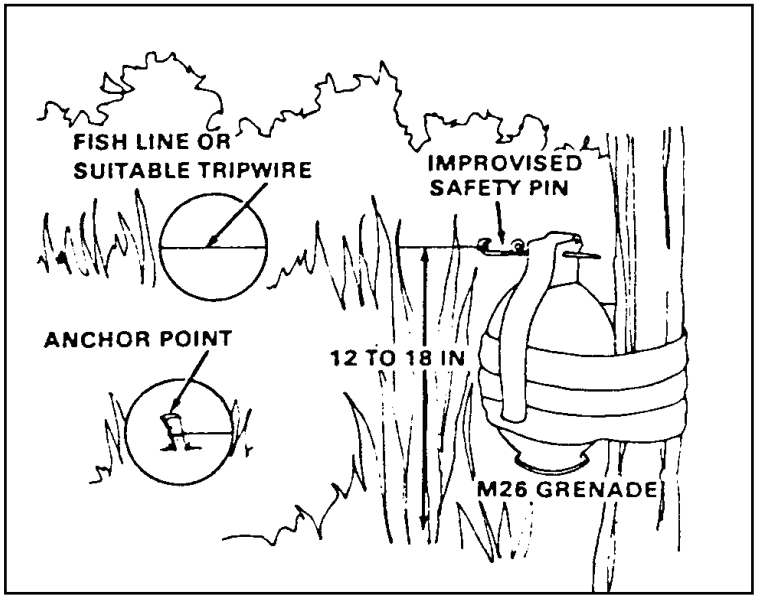

Figure H-32. Fragmentation grenade mine (with 5-second delay)

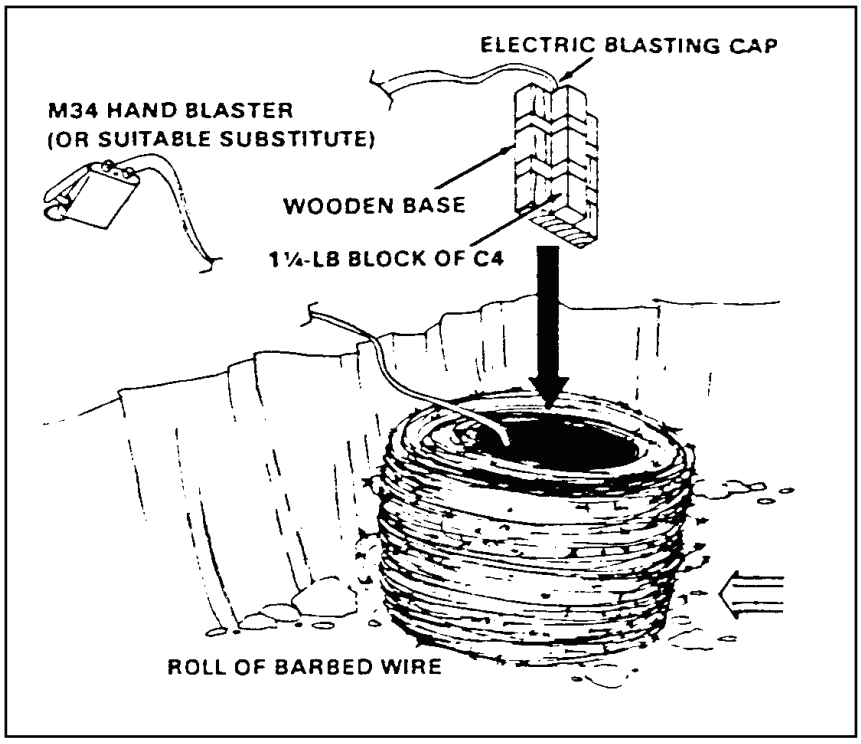

Figure H-33. Barbed wire expedient mine

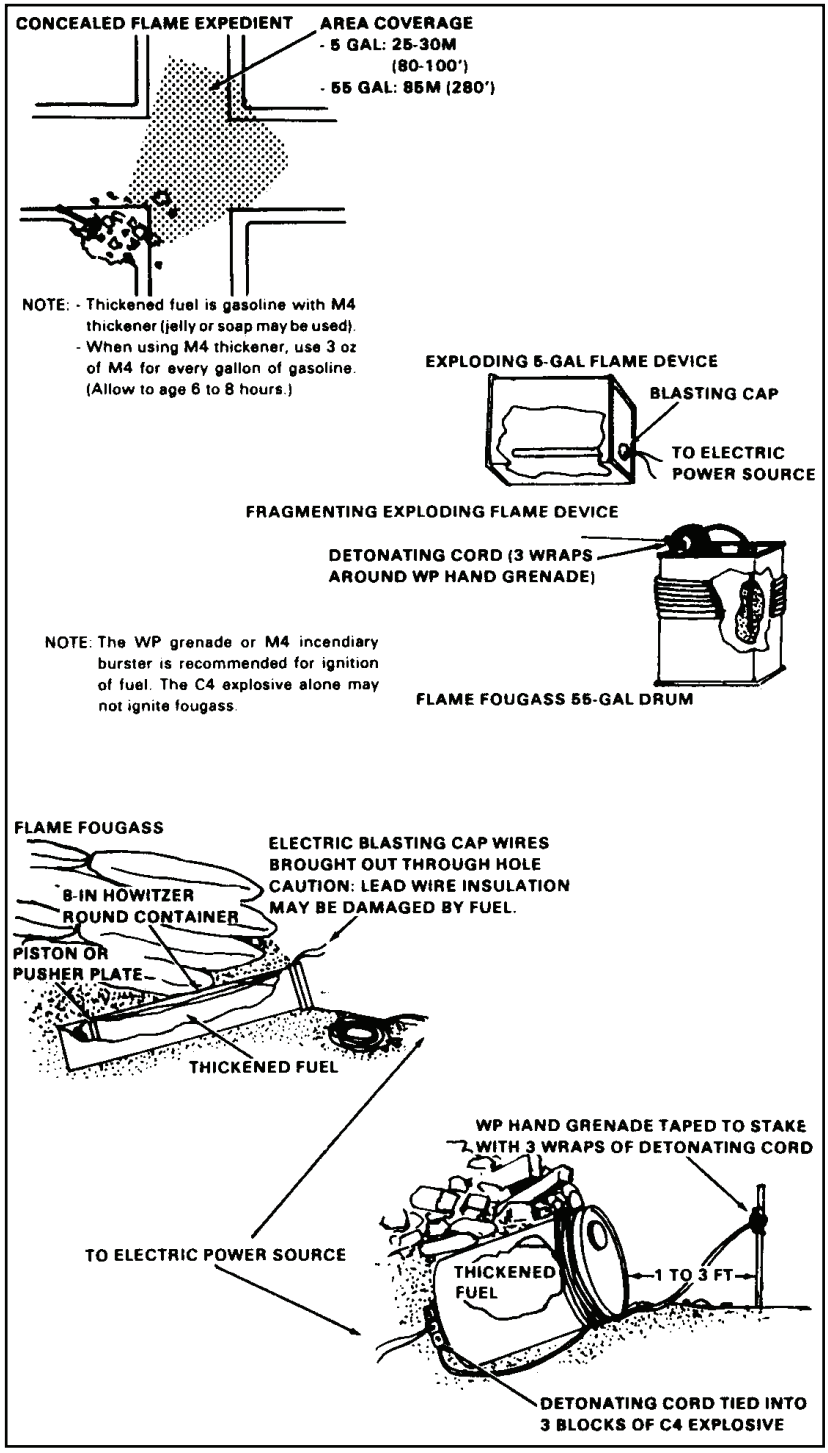

Figure H-34. Improvised flame mines

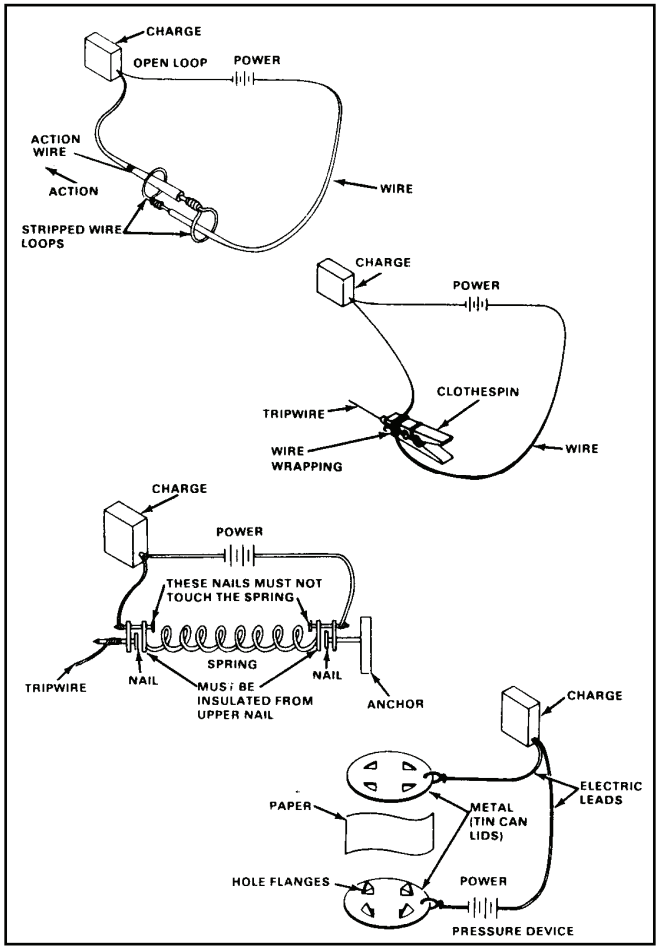

Figure H-35. Expedient firing devices

EXPEDIENT DEMOLITIONS

CRATERING CHARGE

H-84. To make a cratering charge, use a mixture of dry fertilizer (at least one-third nitrogen; refer to the package contents list) and liquid (diesel fuel, motor oil, or gasoline) at a ratio of 25 pounds of fertilizer to a quart of liquid. Mix the fertilizer and liquid and allow the mixture to soak for an hour. Place half of the charge in a hole; add 1 pound of primed explosive, and then pour in the other half of the charge.

SHAPED CHARGE

H-85. Figure H-36 illustrates how to construct an expedient shaped charge.

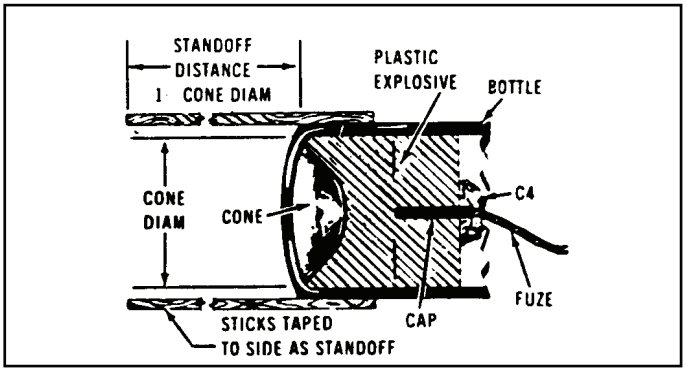

Figure H-36. Improvised shaped charge

SATCHEL CHARGE

H-86. Melt ordinary paraffin (wax) and stir in ammonium nitrate (fertilizer) pellets. Make sure the paraffin is hot while mixing. Before the mixture hardens, add a ½-pound block of TNT, or its equivalent, as a primer. Pour the mixture into a container. Shrapnel material can be added to the mixture if desired, or it can be attached on the outside of the container to give a shrapnel effect.

IMPROVISED BANGALORE TORPEDO

H-87. The principal use of an improvised bangalore torpedo is to clear paths through barbed-wire entanglements using one of the following methods:

- Use any length of pipe with an approximate inside diameter of 2 inches and a wall thickness of at least .025 inch (24 gauge). Pack the pipe with 2 pounds of explosive per foot of length. Close one end of the pipe with a threaded cap, wooden plug, or damp earth.
- Use any length of U-shaped picket. Pack the inside section of the picket with 2 pounds of explosives per foot of length. Place the steel section of the U-shaped picket upward.
- Use any length of board. Attach 4 pounds of explosive per foot of length. Place the explosives to the top side of the board.

DETONATING CORD WICK

H-88. Use a detonating cord wick to widen the boreholes; one strand will generally widen a hole by 1 inch. Tape the desired number of strands together, and prime one stick of dynamite with one of the strands. (The dynamite is used to clean the hole.) Place the wick and the dynamite in a hole. The wick must extend from the bottom of the hole to the surface. Prime the wick and detonate the dynamite. Make sure the hole is "cold" before putting in any other explosives.

EXPEDIENT TIME FUZE

H-89. Soak a length of clean string (1/8 inch in diameter) in gasoline. Hang it to dry; then store it in a tightly sealed container. Handle expedient fuzes as little as possible, and test them extensively before use.

MISCELLANEOUS IMPROVISED DEMOLITIONS

THERMITE

H-90. Using any size can, tie or tape sticks to the sides, and cut a small hole in the bottom. Cover the bottom with paper. Place a round stick wrapped in paper in the middle of the can. Fill the bottom of the can with ¼ inch of magnesium. Over this, place a mixture of three parts ferric oxide and two parts aluminum

powder. Remove the stick, and fill the hole with a mixture of three parts potassium chlorate and one part sugar. On top of this, place a paper bag containing the chlorate-sugar mixture. Place a fuze in the top, and tamp with dirt or clay. Refer to Figure H-37.

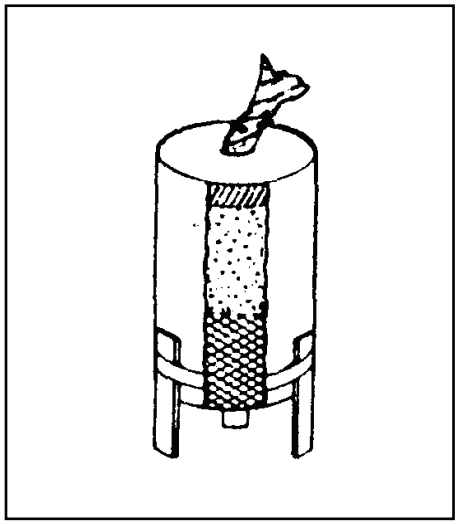

Figure H-37. Thermite demolition

MOLOTOV COCKTAIL

H-91. Fill a bottle with napalm, jelly gas, or a 2-to-1 mixture of gas and oil. Insert a rag wick dipped in wax. Light the wick before throwing the bottle. (NOTE: Cotton rags burn slower than some other materials, such as silk. Use a rag wick that will burn long enough so the Molotov cocktail reaches the target before exploding.) Refer to Figure H-38.

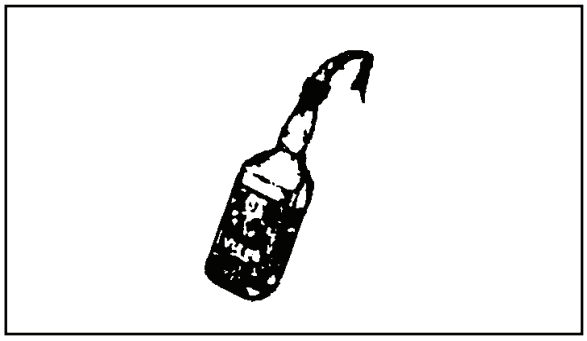

Figure H-38. Molotov cocktail

SATCHEL CHARGE

H-92. Fill a #10 can with a mixture of ammonium nitrate and melted wax; stir vigorously to ensure a complete mix. Add a small amount of C4 or TNT, and prime the charge with a time-fuze cord before the mixture hardens. A rope handle creates a convenient improvised satchel charge.

IMPROVISED BLACK POWDER DEMOLITIONS

H-93. Table H-15 lists materials required for improvised black powder demolitions.

Table H-15. Materials in black powder demolitions

MATERIALS REQUIRED	*PERCENT (by weight)*	*PARTS (by volume)*
Potassium nitrate	74	28
Powdered charcoal	16	3
Sulfur	10	2

H-94. Dissolve the potassium nitrate using a ratio (by weight) of three parts water to one part nitrate. In a second container, dry-mix the powdered charcoal and sulfur by stirring with a wooden stick or swirling or shaking them in a tightly closed container. Add a few drops of the potassium nitrate solution to the dry mixture, and blend to obtain a thoroughly wet paste. Then add the rest of the solution and stir. Pour the mixture into a shallow dish or pan and allow it to stand until it has a paste-like consistency. Mix the paste thoroughly with a wooden stick to assure uniformity, and set it aside for further drying. When the mixture is nearly dried, granulate it by forcing it through a piece of wire screen. Spread the granules thinly, and allow them to dry.

IMPROVISED FUZES

H-95. The following are three methods for making improvised string fuzes:

- Put a string in a mixture of ¾ cup water and 1 teaspoon potassium chlorate. Boil for 30 minutes.
- Soak a string in gasoline, and allow it to dry. This fuse will burn slowly.
- Soak a string in a mixture of ¾ cup cold water and 2 teaspoons potassium nitrate.

IMPROVISED GRENADES

H-96. Use the following steps to make two types of improvised grenades:

- Combine 7.8 parts potassium nitrate or sodium nitrate, 1.6 parts charcoal, and 1 part sulfur. No detonator is required, just a fuse.
- Combine 3 parts sodium chlorate and 3 parts sugar. Load the mixture into a lead pipe. No detonator is required, just a fuse.

IMPROVISED DELAY MECHANISMS

H-97. Figure H-39 shows three types of delay mechanisms that can be used with improvised demolitions.

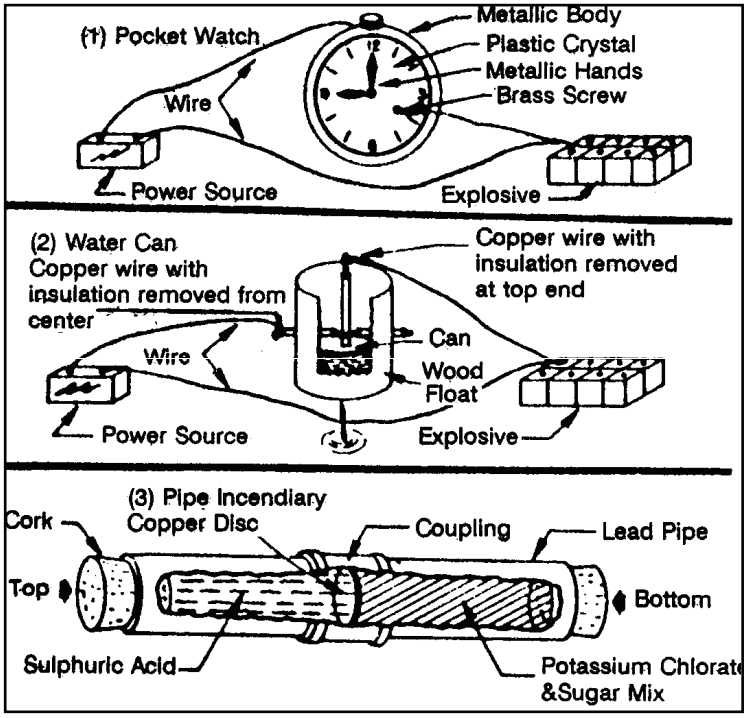

Figure H-39. Types of delay mechanisms

FLAME ILLUMINATOR

H-98. Fill a container to 3 inches from the top with thickened fuel, and seal the container tightly. Put three wraps of detonating cord on the top inside rim, and pack with dirt or mud. Wrap a grenade with detonating cord. Place the grenade next to the container, and tie it to the main detonating cord line. See Figure H-40.

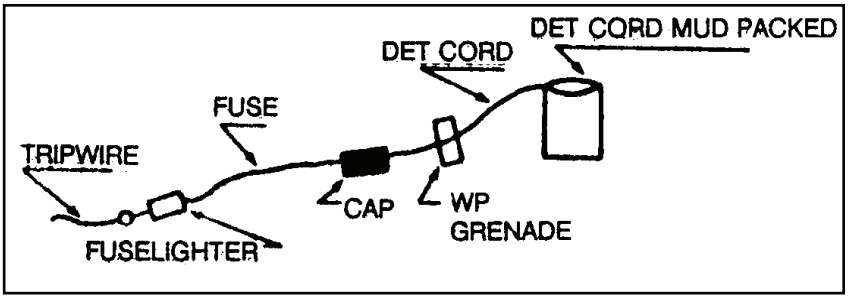

Figure H-40. Flame illuminator

HUSCH FLARE

H-99. To construct a Husch flare, which burns for 90 minutes and lights a diameter of 50 meters, remove the crossbars from a metal 60-mm mortar can. Punch three 3/8-inch holes in each side of the can halfway between the top and bottom. Punch a hole no bigger than 1/8 inch in the bottom of a metal 81-mm mortar shell container. Temporarily fill the holes; then fill the 81-mm container three-fourths full with thickened fuel. Apply heavy grease to the cap, and tighten it. Place the 81-mm container cap-down in the 60-mm container, and use stones or other materials to wedge it tightly. Then fill the 60-mm mortar can up to the holes with thickened fuel. Remove the plug from the hole in the bottom of the 81-mm shell container. Tie an illumination hand grenade between the 81-mm shell containers just above the level of the 60-mm mortar can. Run a trip wire from the grenade pin.

DRIED SEED TIMER

H-100. The reconnaissance/scout platoons can use the properties of dried seeds, which expand when they are soaked, to create a time delay device for electrical firing circuits. Required materials are the following:

- Dried peas or beans or other dehydrated seeds.
- Wide-mouthed glass jar with nonmetal cap.
- Two screws or bolts.
- Thin metal plate.
- Hand drill.
- Screwdriver.

H-101. Use the following steps to construct the dried seed timer:

- **Step 1.** Determine the rate of rise of the dried seeds selected; this is necessary to determine the amount of seeds needed to provide the required delay time. Use these steps:
  - Place a sample of dried seeds in the jar that will be used as the timer. Cover the seeds with water.
  - Measure the time it takes for the seeds to rise a given height. Most dried seeds increase in volume by 50 percent in 1 to 2 hours.
- **Step 2.** Cut a disk from a thin metal plate. The disk should fit loosely inside the jar. Refer to Figure H-41.

Note. If the metal is painted, rusty, or otherwise coated, it must be scraped or sanded to create a clean metal surface.

- **Step 3.** Drill two holes in the cap of the jar about 2 inches apart. The diameter of the holes should be such that screws or bolts will thread tightly into them. If the jar has a metal cap or no cap, a piece of wood or plastic (NOT METAL) can be used as a cover. See Figure H-42.
- **Step 4.** Turn the two screws or bolts through the holes in the cap. The bolts should extend about 1 inch (2½ cm) into the jar. See Figure H-43 (top).

CAUTION

Both bolts must extend the same distance below the container cover.

- **Step 5.** Pour the required quantity of dried seeds into the container. The level will depend on the previously measured rise time and the desired delay. Refer to Figure H-42 (middle).
- **Step 6.** Place the metal disk in the jar on top of the seeds. Refer to Figure G-42 (middle).

H-102. Use the following steps to activate and employ the dried seed timer:

- **Step 1.** Add just enough water to completely cover the seeds, and place the cap on the jar. Refer to Figure H-42 (bottom).
- **Step 2.** Attach the connecting wires from the firing circuit to the two screws on the cap. Refer to Figure H-42 (bottom).
- **Step 3.** Expansion of the seeds will raise the metal disk until it makes contact with the screws and closes the circuit, triggering the explosive. Figure H-43 illustrates the complete explosive device with a dried seed timer.

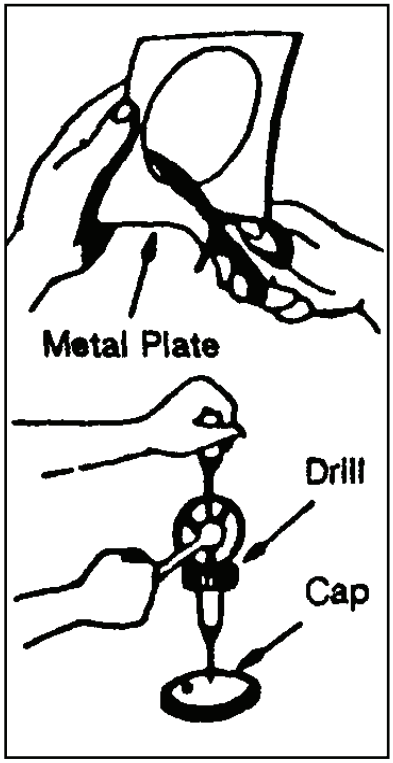

Figure H-41. Cutting and drilling metal plate

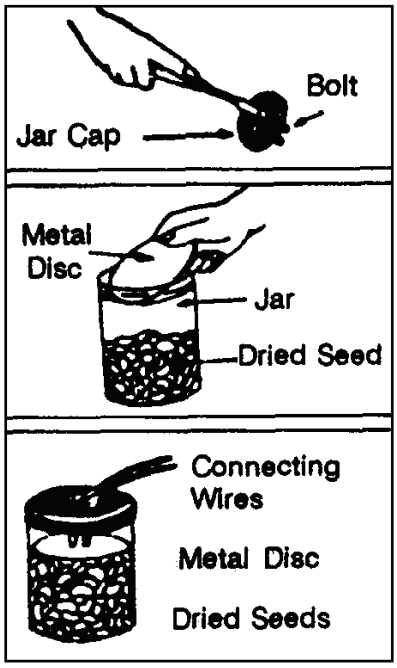

Figure H-42. Inserting bolts, seeds, and metal disc; completed timer with water added and wires connected

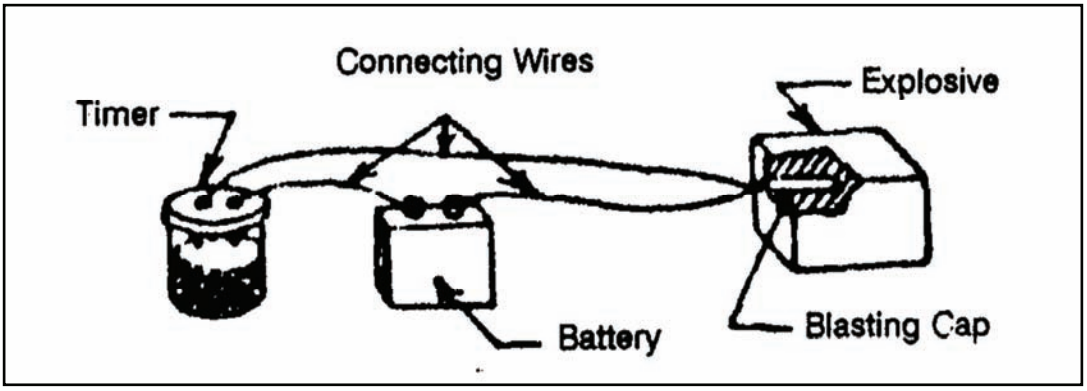

Figure H-43. Explosive device with dried seed timer attached

TIN CAN GRENADE

H-103. Construction of a tin can grenade requires the following materials:

- Tin can, jar, or similar container.
- Bolts, nuts, metal scrap, and/or other solid objects.
- Commercial or improvised black powder.
- Commercial or improvised fuse cord.
- Cardboard or heavy paper and tape.

H-104. Construct a cardboard or heavy-paper cylinder using tape that is approximately one-half the diameter of the tin can or other container. Insert the fuze into one end of the paper cylinder, pack the cylinder tightly with black powder, and tape the ends closed. Insert the cylinder into the can as shown in Figure H-44, and surround it with such items as bolts, nuts, metal scrap, or stones. Close the can with a lid that has a hole in the center through which to pass the fuze. If the container has no lid, it may be closed with a piece of wood, metal, or cardboard of the required size taped in place.

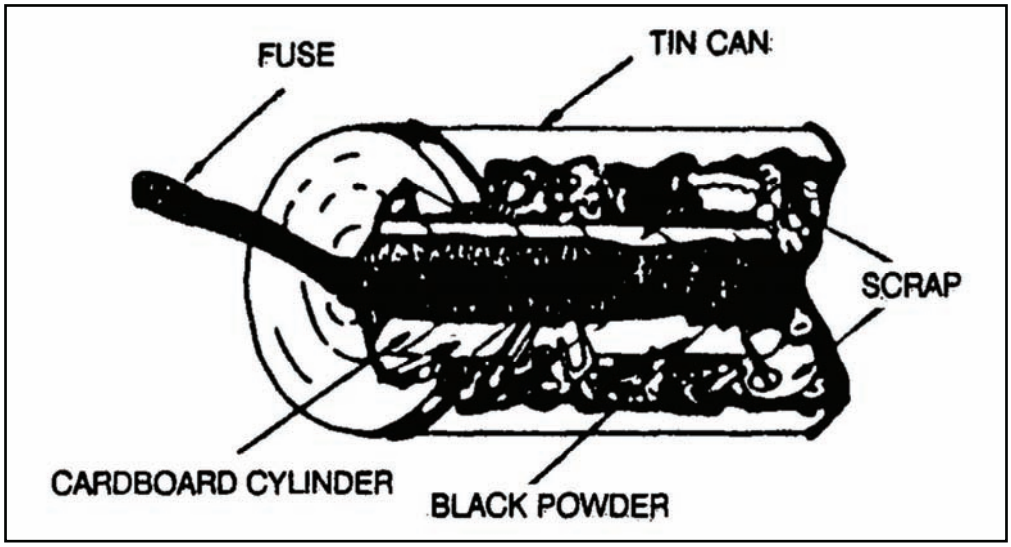

Figure H-44. Tin can grenade

FIELD-EXPEDIENT DELAYS

H-105. The reconnaissance/scout platoons can take advantage of a variety of materials for use as expedient delay mechanisms in the employment of demolitions. Examples include the following:

- Cigarette (in matchbook or box).
- Candle (surrounded by flammable material).
- Spark (from short-circuited electrical wires).
- Sulfuric acid (sugar chlorate mixture).
- Glycerin (sugar permangate mixture).
- Nitrate acid (sugar chlorate mixture).
- Water delay (see Figure H-41).
- Watch delay (see Figure H-41).

COMMON CHEMICALS IN FIELD-EXPEDIENT DEMOLITIONS

H-106. Table H-16 lists a number of chemicals that are commonly used in expedient demolitions. The table includes sources for these substances, including local sites that may provide the reconnaissance platoon with access to necessary chemicals.

Table H-16. Common chemicals in expedient demolitions

CHEMICAL	*SYMBOL*	*POSSIBLE SOURCES*
Potassium permanganate	KMNO4	Drug store, hospital, gym
Potassium chlorate	KCLO3	Drug store, hospital, gym
Potassium nitrate	KNO3	Fertilizer or explosives factory
Sodium nitrate	NgNO3	Fertilizer or glass factory
Ammonium nitrate	(NH4)NO3	Fertilizer or explosives factory
Ferric oxide	Fe2O3	Hardware or paint store
Powdered aluminum	Al	Paint, electric, or auto parts store
Magnesium	Mg	Auto, machine, or chemical factory
Glycerin	C3H5(OH)3	Drug store, soap/candle factory
Sulfuric acid	H2SO4	Garage, machine shop, hospital
Sodium chlorate	NgClO3	Match or explosives factory
Sulfur	S	Drug store, match factory

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Glossary

ACRONYMS AND ABBREVIATIONS

1SG	first sergeant
A/L	administrative/logistics
AA	avenue of approach
AAR	after action review
AB	abates (obstacle graphics)
ABCS	Army Battle Command System
ACA	airspace coordination area
ACR	armored cavalry regiment
ADA	air defense artillery
AFATDS	Advanced Field Artillery Tactical Data System
AHS	Army health system
ALO	air liaison officer
ALSA	Air Land Sea Application (Center)
AM	amplitude modulation
AMC	air mission commander
AMD	air and missile defense
AO	area of operations
AP	antipersonnel
APC	armored personnel carrier
AR	Army regulation
ASAS	All Source Analysis System
ASCOPE	areas, structures, capabilities, organizations, people, events
AT	antitank
ATGM	antitank guided missile
AVLB	armored vehicle launched bridge
BCIS	battlefield combat identification system
BCS3	battle command sustainment and support system
BCT	brigade combat team
BDA	battle damage assessment
BFSB	battlefield surveillance brigade
BFT	Blue Force Tracker
BHL	battle handover line
BHO	battle handover
BMNT	begin morning nautical twilight
BP	battle position
BRIDGEREP	bridge report

C2	command and control
CA	civil affairs
CAB	combined arms battalion
CALL	Center for Army Lessons Learned
CAO	civil affairs operations
CAS	close air support
CASEVAC	casualty evacuation
CAT	civil affairs team
CBRN	chemical, biological, radiological, and nuclear
CBU	cluster bomb unit
CCA	close combat attack
CCIR	commander's critical information requirement
CCP	casualty collection point
CEXC	combined explosives exploitation cell
CFF	call for fire
CFL	coordinated fire line
CFSO	counterintelligence force protection source operation
CFV	cavalry fighting vehicle
CFZ	critical friendly zone
CI	counterintelligence
CIA	Central Intelligence Agency
CID	combat identification
CIDDS	combat identification system dismounted Soldier
CIP	combat identification panel
CMO	civil-military operations
COA	course of action
COIN	counterinsurgency
COLT	combat lasing observation team
COMSEC	communications security
COP	common operational picture
COSC	combat and operational stress control
CP	command post
CRM	composite risk management
CROSSREP	crossing site report
CW	concertina wire (obstacle graphics)
DA	Department of the Army
DA APM	Department of the Army pamphlet
DCIMS	dismounted Solider combat identification marking system
DDL	digital data link
DIDEA	detect, identify, decide, engage, assess

DOCEX	document exploitation
DOD	Department of Defense
DP	decision point
DPICM	dual-purpose improvised conventional munitions
DS	direct support
DTG	date-time group
DZ	drop zone
EA	engagement area
EEFI	essential elements of friendly information
EENT	end evening nautical twilight
EFP	explosively formed penetrator
EO	electro-optical
EOD	explosive ordnance disposal
EOF	escalation of force
EPLRS	enhanced position location and reporting system
EPW	enemy prisoner of war
ESTAT	equipment status report
EW	electronic warfare
FA	field artillery
FBCB2	Force XXI Battle Command, Brigade and Below
FBI	Federal Bureau of Investigation
FC	fires cell
FDC	fire direction center
FEBA	forward edge of the battle area
FFA	free fire area
FFIR	friendly force information requirement
FIPR	flash immediate priority routine
FIST	fire support team
FLIR	forward-looking infrared
FM	field manual; frequency modulation
FMI	field manual, interim
FO	forward observer
FOB	forward operating base
FPF	final protective fire
FRAGO	fragmentary order
FRIES	fast rope insertion/extraction system
FSCL	fire support coordination line
FSCM	fire support coordination measure
FSO	fire support officer
GCS	ground control station

GIRS	grid index reference system
GMLRS	guided Multiple Launch Rocket System
GPS	global positioning system
GS	general support
HBCT	heavy brigade combat team
HCT	human intelligence collection team
HE	high explosive
HELOCAST	helicopter cast and recovery
HHC	headquarters and headquarters company
HIIDE	handheld interagency identity detection equipment
HIMARS	high mobility artillery rocket system
HMMWV	high mobility multipurpose wheeled vehicle
HN	host nation
HPT	high-payoff target
HQ	headquarters
HUMINT	human intelligence
HVT	high-value target
IAW	in accordance with
IBCT	infantry brigade combat team
ID	identification
IED	improvised explosive device
IFF	identification, friend or foe
IFV	infantry fighting vehicle
IMINT	imagery intelligence
IO	information operations
IPB	intelligence preparation of the battlefield
IR	information requirement
ISR	intelligence, surveillance, and reconnaissance
IV	intervisibility
JCIMS	joint combat identification marking system
JFO	joint fires observer
JP	joint publication
JSTARS	Joint Surveillance Target Attack Radar System
JTAC	joint terminal attack controller
JTF	joint task force
JVMF	joint variable message format
KIA	killed in action
km	kilometer
kmph	kilometers per hour
LC	line of contact

LD	line of departure
LD/LC	line of departure is line of contact
LNO	liaison officer
LOA	limit of advance
LOGPAC	logistics package
LOS	line of sight
LRAS3	long-range advanced scout surveillance system
LTD	laser target designator
LZ	landing zone
m	meter
MASINT	measurement and signature intelligence
MCO	major combat operation
MCOO	modified combined obstacle overlay
MDI	modern demolition initiator
MDMP	military decision-making process
MEDEVAC	medical evacuation
METT-TC	mission, enemy, terrain and weather, troops and support available, time available, civil considerations
MF	minefield (obstacle graphics)
MGS	mobile gun system
MI	military intelligence
MICO	military intelligence company
MLC	military load classification
MLRS	multiple launch rocket system
MOPMS	modular pack mine system
MOPP	mission-oriented protective posture
MOS	military occupational specialty
MP	military police
mph	miles per hour
MRE	meals, ready to eat
MSR	main supply route
MTF	medical treatment facility
MTOE	modified table of organization and equipment
MWD	military working dog
NAI	named area of interest
NATO	North Atlantic Treaty Organization
NBC	nuclear, biological, and chemical (used in report titles only; replaced by abbreviation CBRN in normal use)
NCO	noncommissioned officer
NEO	noncombatant evacuation operation
NFA	no-fire area

NGF	naval gunfire
NGO	nongovernmental organization
NLT	no later than
NOD	night observation device
NVG	night vision goggles
OAKOC	observation and fields of fire; avenues of approach; key terrain; obstacles; and cover and concealment
OBSTINTEL	obstacle intelligence
OE	operational environment
OEF	Operation Enduring Freedom
OIC	officer in charge
OIF	Operation Iraqi Freedom
OP	observation post
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
OPSEC	operations security
ORP	objective rally point
OT	observer-target
PC	pint of curvature
PCC	precombat check
PCI	precombat inspection
PGM	precision-guided munitions
PIR	priority intelligence requirement
PL	phase line
PMCS	preventive maintenance checks and services
PMESII-PT	political, military, economic, social, information, infrastructure, physical environment, time
POL	petroleum, oil, and lubricants
POSNAV	position navigation
PSG	platoon sergeant
PSYOP	psychological operations
PT	point of tangency
PVNTMED	preventive medicine
PZ	pickup zone
QRF	quick reaction force
R&S	reconnaissance and surveillance
RALS	right add, left subtract
RAP	rocket-assisted projectile
RC	road crater (obstacle graphics)
RE	relative effectiveness

REDCON	readiness condition
RFA	restrictive fire area
RFL	restrictive fire line
RHO	reconnaissance handover
RHOCP	reconnaissance handover coordination point
RHOL	reconnaissance handover line
ROE	rules of engagement
ROI	rules of interaction
ROUTEREP	route report
RP	release point
RPG	rocket-propelled grenade
RTO	radio-telephone operator
RTP	radiotelephone procedures
RV	reconnaissance vehicle
RVT	remote video terminal
S-2	intelligence staff officer
S-3	operations staff officer
SA	situational awareness
SALT	size, activity, location, time
SALUTE	size, activity, location, unit, time, equipment
SBCT	Stryker brigade combat team
SBF	support by fire
SE	site exploitation
SEAD	suppression of enemy air defenses
SENSERER	sensitive item report
SERE	survival, escape resistance, evasion
SIGINT	signals intelligence
SINCGARS	single-channel ground and airborne radio system
SIR	specific information requirement
SITREP	situation report
SITTEMP	situation template
SOF	special operations forces
SOFA	status-of-forces agreement
SOI	signal operating instructions
SOP	standing operating procedure
SOSRA	suppression, obscuration, security, reduction, assault
SP	start point
SPIES	special mission infiltration/exfiltration system
SPOTREP	spot report
SSC	small-scale contingency

SSG	staff sergeant
STANREP	stand-to report
SU	situational understanding
SWEAT-MSO	sewage, water, electricity, academics, trash, medical, safety, and other considerations
SWT	scout weapons team
TAC CP	tactical command post
TACSAT	tactical satellite
TAI	target area of interest
TCP	traffic control point
TD	tank ditch (obstacle graphics)
TI	target identification
TIRS	terrain index reference system
TM	technical manual
TOC	tactical operations center
TOR	terms of reference
TOW	tube-launched, optically tracked, wire-guided
TPT	tactical psychological operations team
TQ	tactical questioning
TRP	target reference point
TTP	tactics, techniques, and procedures
TV	television
U.S.	United States
UAS	unmanned aircraft system
UGV	unmanned ground vehicle
UHF	ultrahigh frequency
UN	United Nations
UTM	universal transverse Mercator
VBIED	vehicle-borne improvised explosive device
VHF	very high frequency
WARNO	warning order
WIA	wounded in action
WIT	weapons inspection team
WMD	weapons of mass destruction
WP	white phosphorus
XO	executive officer

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FM 4-02.17*, Preventive Medicine Services*, 28 August 2000

FM 4-02.51, *Combat and Operational Stress Control*, 6 July 2006

FM 4-20.197, *Multiservice Helicopter Sling Load: Basic Operations and Equipment,* 20 July 2006.

FM 5-0, *Army Planning and Orders Production*, 20 January 2005.

FM 5-19, *Composite Risk Management*, 21 August 2006.

FM 5-34, *Engineer Field Data*, 19 July 2005.

FM 6-0, *Mission Command: Command and Control of Army Forces*, 11 August 2003.

FM 6-20-40, *Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Heavy),* 5 January 1990.

FM 6-22.5 (FM 22-51), *Combat and Operational Stress Control Manual for Leaders and Soldiers*, 18 March 2009.

FM 7-93, *Long-Range Surveillance Unit Operations*, 3 October 1995.

FM 17-95, *Cavalry Operations*, 24 December 1996.

FM 27-10, *The Law of Land Warfare*, 18 July 1956.

FM 34-5, *Human Intelligence and Related Counterintelligence Operations*, 29 July 1994.

FM 34-54, *Technical Intelligence*, 30 January 1998.

FM 34.60, *Counterintelligence*, 3 October 1995.

FMI 2-01.301 (FM 34-130), *Specific Tactics, Techniques, and Procedures and Applications for Intelligence Preparation of the Battlefield*, 31 March 2009.

FMI 5-0.1*, The Operations Process*, 31 March 2006.

DOCUMENTS NEEDED

These documents must be available to the intended users of this publication. DA Forms are available on the APD website (www.apd.army.mil).

DA Form 1156, *Casualty Feeder Card*.

DA Form 1355, *Minefield Record*.

DA Form 1355-1, *Hasty Protective Row Minefield Record*.

DA Form 1594, *Daily Staff Journal or Duty Officer's Log*.

DA Form 2028, *Recommended Changes to Publications and Blank Forms*.

DA Form 2203, *Demolition Reconnaissance Record*.

DA Form 2408-18, *Equipment Inspection List*.

DA Form 5988-E, *Equipment Inspection Maintenance Worksheet (EGA)*.

DA Form 7566, *Composite Risk Management Worksheet*.

READINGS RECOMMENDED

These sources contain relevant supplemental information.

FM 1, *The Army*, 14 June 2005.

Center for Army Lessons Learned (CALL) Handbook 07-26, *Tactical Site Exploitation and Cache Search Operations*, May 2007.

CALL Handbook 04-7, *Interpreter Operations, Multiservice Reference Manual for Interpreter Operations*, February 2004, Air Land Sea Application Center, March 2004. (http://file.sunshinepress.org:54445/call-hb-using-interperters-04-7.pdf)

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3 August 2009

By order of the Secretary of the Army:

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