ATP 3-12.4

Electromagnetic Warfare Platoon

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Electromagnetic Warfare Platoon

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Preface

ATP 3-12.4 provides doctrinal guidance for leaders responsible for planning, preparing, executing, and assessing operations of electromagnetic warfare platoons. This publication serves as a reference for personnel developing doctrine, materiel solutions, force structure, institutional and unit training, and electromagnetic warfare platoon standard operating procedures.

The doctrinal principles and techniques contained in this publication are intended to be used as a guide and are not prescriptive. ATP 3-12.4 outlines the framework in which electromagnetic warfare platoons plan, train, and operate in support of their parent unit's operations. This publication does not focus on technical tasks; readers must also be familiar with ATP 3-12.3 for the technical aspects of electromagnetic warfare. To properly apply this doctrine, readers must be familiar with ADP 1, ADP 3-0, FM 3-0, and FM 3-12.

The principal audience for ATP 3-12.4 is electromagnetic warfare platoon leaders and platoon sergeants. Commanders and staffs of Army headquarters that form the core of a joint task force, joint land component, or multinational headquarters should refer to applicable joint or multinational doctrine. Trainers and educators throughout the Army will also use this publication.

Commanders, staffs, and subordinates ensure their decisions and actions comply with applicable U.S., international, and, in certain cases, host-nation laws and regulations. Commanders at all levels ensure their Soldiers operate according to the law of war and the rules of engagement (see FM 6-27). Commanders also adhere to the Army Ethic as described in ADP 6-22.

ATP 3-12.4 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. This publication is not the proponent for any Army terms. For other definitions shown in the text, the term is italicized, and the number of the proponent publication follows the definition.

ATP 3-12.4 applies to the Active Army, Army National Guard/Army National Guard of the United States and United States Army Reserve unless otherwise stated.

The proponent of ATP 3-12.4 is the United States Army Cyber Center of Excellence. The preparing agency is the Doctrine Branch, United States Army Cyber Center of Excellence. Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) to Commander, United States Army Cyber Center of Excellence and Fort Gordon, ATTN: ATZH-OPD (ATP 3-12.4), 419 B Street, Fort Gordon, GA 30905-5735; by e-mail to usarmy.gordon.cyber-coe.mbx.gord-fg-doctrine@army.mil.

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Introduction

ATP 3-12.4 provides techniques for electromagnetic warfare platoons at echelons corps and below. This publication provides doctrinal guidance; describes relationships in the platoon; defines organizational roles, functions, capabilities, and limitations; and identifies the responsibilities for electromagnetic warfare platoons in Army operations.

The following paragraphs provide a summary by chapter:

Chapter 1 – Overview.

- Section I—discusses the fundamental principles and core competencies of electromagnetic warfare.
- Section II—discusses the role, capabilities, and limitations of electromagnetic warfare platoons.
- Section III—discusses the duties and responsibilities of platoon leaders, platoon sergeants, electromagnetic warfare teams, and operators.
- Section IV—discusses electromagnetic warfare platoons at the brigade combat team, division, corps, special forces group, and the multidomain effects battalion.
- Section V—discusses command and support relationships and electromagnetic warfare authorities.

Chapter 2 – Planning in the Platoon.

- Section I—discusses considerations for planning, preparation, execution, and assessment.
- Section II—discusses troop leading procedures at the platoon level, with emphasis on electromagnetic warfare-specific planning factors.
- Section III—discusses the purposes, types, and methods of rehearsals and pre-combat checks and inspections.
- Section IV—discusses collective training in the platoon, including electromagnetic warfare platoon essential tasks and the 8-step training model.

Chapter 3 – Support to Operations.

- Section I—discusses electromagnetic support to operations by echelon.
- Section II—discusses operations in a contested environment to prevent, recognize, and react to threat actions in the electromagnetic spectrum.

Chapter 4 – Logistics and Sustainment.

- Section I—discusses logistics responsibilities of platoon leaders, platoon sergeants, and electromagnetic warfare teams and operators.
- Section II—discusses sustainment functions.

Appendix A – Tactical Skills.

- Section I—discusses selected battle drills in which electromagnetic warfare teams must be proficient to ensure survival.

- Section II—discusses tactical movement techniques for teams and platoons.
- Section III—discusses the principles of patrolling and the planning and conduct of patrols.

Chapter 1
Overview

This chapter discusses the fundamental principles and core competencies of electromagnetic warfare. The chapter then discusses the role, capabilities, and limitations of electromagnetic warfare platoons. It further discusses the roles and responsibilities of electromagnetic warfare platoon personnel, platoon organizations, command relationships, control relationships, and electromagnetic warfare authorities.

SECTION I – FUNDAMENTAL PRINCIPLES AND CORE COMPETENCIES OF ELECTROMAGNETIC WARFARE

1-1. The Army employs cyberspace and electromagnetic warfare (EW) capabilities as part of a joint and combined arms approach to defeat threat activities in cyberspace and the electromagnetic spectrum, protect friendly forces, and enable friendly freedom of action across the conflict continuum. EW professionals apply the following fundamental principles and core competencies to achieve positions of relative advantage.

FUNDAMENTAL PRINCIPLES

1-2. Fundamental principles are basic rules or assumptions of central importance that guide how EW professionals approach and conduct operations. The fundamental principles of EW are—

- Operational focus.
- Adaptability and versatility.
- Global reach.

OPERATIONAL FOCUS

1-3. EW forces execute missions in support of the supported commander's overarching operational design. EW forces and staff elements integrate and synchronize EW through the operations process as part of a combined arms approach to produce layered dilemmas for the threat in multiple domains and enhance friendly forces' relative combat power. EW staff elements must collaborate across all warfighting functions to be effective.

ADAPTABILITY AND VERSATILITY

1-4. EW forces conduct operations using capabilities that are adaptable to various mission requirements. EW capabilities vary in the size of the force employed and the magnitude or scope of effects created. Depending on mission requirements, EW capabilities may be main or supporting efforts for decisive, shaping, or sustaining operations.

GLOBAL REACH

1-5. The nature of the electromagnetic spectrum increases the operational reach of EW forces. EW forces deliver strategic, operational, or tactical effects worldwide from co-located or forward operating positions.

CORE COMPETENCIES

1-6. Each branch or function in the Army has certain functions they must be able to perform to accomplish their mission. These key mission requirements are core competencies. The core competencies of EW are those functions EW formations must master for mission success.

1-7. The Army's reliance on networked systems and weapons necessitates highly trained forces to protect warfighting systems and networks dependent upon access to cyberspace and the electromagnetic spectrum. The electromagnetic spectrum in any operational environment is heavily congested due to the high volume of friendly, neutral, and threat use and contested due to threat actions.

1-8. Adversaries continue to develop sophisticated weapons and networked systems that project power through, or are dependent upon, the electromagnetic spectrum. The Army employs EW capabilities as part of a joint and combined arms approach to defeat threat activities in the electromagnetic spectrum, protect friendly forces, and enable friendly freedom of maneuver in all domains across the competition continuum. Army EW forces apply the following core competencies to help friendly forces gain and maintain positions of relative advantage:

- Drive understanding.
- Protect friendly personnel and capabilities.
- Deliver effects.

DRIVE UNDERSTANDING

1-9. EW professionals gather combat information to characterize friendly, neutral, and threat use of the electromagnetic spectrum and understand the integration of threat emitter systems arrays at echelon. This information enables understanding of friendly vulnerabilities and threat capabilities while allowing commanders to prioritize and deliver effects.

PROTECT FRIENDLY PERSONNEL AND CAPABILITIES

1-10. EW forces implement and enhance measures to protect friendly personnel, facilities, warfighting platforms, capabilities, and equipment from adverse effects in the electromagnetic spectrum. EW forces employ measures to mask or control friendly emissions from enemy detection and deny adversaries the ability to locate and target friendly formations. EW forces detect and mitigate enemy attacks in or through the electromagnetic spectrum to maintain the Army's ability to conduct operations and project power across all domains.

DELIVER EFFECTS

1-11. EW professionals deliver effects against adversary networks, systems, and weapons through the electromagnetic spectrum. These effects reduce adversary combat power, protect friendly forces, and enhance the lethality of friendly forces and weapons.

SECTION II – ELECTROMAGNETIC WARFARE PLATOONS

1-12. Army units at echelons corps through brigade combat team have EW platoons assigned to conduct electromagnetic support and electromagnetic attack and support development of electromagnetic protection measures for the assigned or supported unit. The composition and capabilities of EW platoons vary by echelon to which they are assigned and the role of the platoon.

MISSION

1-13. The EW platoon's mission is to conduct electromagnetic sensing and effects delivery. EW Platoons support operations to answer the commander's information requirements and provide early warning to protect the force. Specifically, they conduct tasks to satisfy the commander's critical information requirements before the latest time information is of value expires. Commanders specifically assign EW platoon missions for any given operation based on known and projected friendly operations, the range of threats, and their understanding of potential areas of operations.

1-14. EW platoons conduct electromagnetic support and electromagnetic attack in close contact with enemy organizations and civilian populations to allow maneuver commanders to seize, retain, and exploit the initiative and obtain positions of relative advantage.

1-15. The execution of electromagnetic support missions provides supported units information, time, and space to adjust to the changing situation, react to opportunities and danger, and enable commanders to transition to future operations. For example, EW platoons conducting electromagnetic support allow commanders to transition from defense to offense. By establishing situational awareness of the electromagnetic spectrum, EW platoons provide the commander with early warning of enemy activities with enough time to react and space to maneuver their forces. EW platoons enable the commander and S-2 to determine the enemy's intent and willingness to fight and to preserve freedom of maneuver.

1-16. The platoon's ability to provide the commander with EW capabilities depends on properly training and equipping EW teams and obtaining the authorities required to execute specific missions. During planning and operations, EW leaders must maintain operational focus, which means the platoon's EW plans must support the commander's scheme of maneuver and intent. EW platoons—

- Provide electromagnetic support and electromagnetic attack capabilities.
- Support development of electromagnetic protection plans.
- Enable cyberspace operations.
- Answer the commander's information requirements.
- Provide a potential additional source of signals intelligence (SIGINT) collection.
- Identify and monitor friendly vulnerabilities in the electromagnetic spectrum.

ROLE

1-17. The role of the EW platoon is to provide mounted and dismounted electromagnetic support and electromagnetic attack, and to support electromagnetic protection for its parent brigade, division, corps, or other supported unit. EW platoons provide electromagnetic attack, electromagnetic support, and limited, non-interactive cyberspace operations to brigade combat team, division, corps, special forces group, and multidomain effects battalion formations to gain and maintain freedom of maneuver across all domains through domination of the electromagnetic spectrum. EW platoons advise and coordinate with staffs, and perform these functions to support the integration of cyberspace operations, EW, and SIGINT capabilities to target threat capabilities, support the friendly scheme of maneuver, and preserve combat power.

1-18. When conducting electromagnetic support, the platoon provides indications and warnings, survey of the electromagnetic spectrum, radio frequency direction finding, and geolocation of threat emitters to enable situational understanding of the electromagnetic spectrum for decision making and targeting. Electromagnetic support aids in—

- Answering the commander's critical information requirements.
- Refining the high-payoff target list and target support matrix.
- Supporting the military intelligence company's information collection, integration, and multisource analysis efforts.

1-19. When conducting an electromagnetic attack, the platoon supports offensive and defensive operations by denying, degrading, disrupting, destroying, or manipulating threat combat capabilities. Electromagnetic attack can also support psychological operations, civil affairs, and cyberspace effects.

1-20. When supporting electromagnetic protection, the platoon senses and assesses friendly emissions and electromagnetic signatures to enable the commander, G-3 or S-3, and G-6 or S-6 staff to plan appropriate electromagnetic protection and other force protection measures against unintentional and intentional electromagnetic interference, geolocation, and indirect fires.

CAPABILITIES AND LIMITATIONS

1-21. Leaders and planners must clearly understand the capabilities and limitations of EW personnel, equipment, and authorities to establish plans, set objectives, and mitigate gaps to facilitate mission accomplishment. EW platoons perform one or more of the following functions in support of the parent unit's scheme of maneuver—

- Electromagnetic support.
- Electromagnetic attack.
- Support for planning and implementing electromagnetic protection.

CAPABILITIES

1-22. The EW platoon is manned, trained, and equipped specifically to provide EW capabilities for its supported commander. EW platoon capabilities include—

- Establishing EW sensing and electromagnetic attack sites.
- Conducting radio frequency surveys of the environment.
- Direction finding and geolocating radio frequency emitters.
- Providing indications and warnings.
- Supplementing SIGINT collection, as required.
- Conducting electromagnetic attack against targeted communications and noncommunications radio frequency receivers.
- Developing the signals of interest and frequencies of interest lists.
- Enabling cyberspace operations.
- Supporting manipulation and electromagnetic deception.
- Supporting development of the electromagnetic order of battle as needed.

1-23. EW platoons operate according to published Army doctrine and validated lessons learned. Lessons learned are available online at the Cyber Lessons and Best Practices Website.

LIMITATIONS

1-24. By itself, the EW platoon is vulnerable during operations. Although the EW platoon is organized as a unit, the platoon leader must be prepared to accomplish missions with varying task organizations. While members of the EW teams assist in the coordinated defense of remote sites, they lack crew-served weapons, so they may require augmentation from the supported unit to adequately defend remote sites against a large-scale attack. The platoon and its teams should avoid direct engagement with enemy forces and be prepared to displace to an alternate site if the threat situation changes.

1-25. The EW Platoon has the following limitations:

- Vulnerability to direct and indirect fire.
- Limited dismounted capability.

- May require augmentation or reachback support from the cyberspace electromagnetic activities (CEMA) section or the military intelligence company's technical control and analysis cell.
- May have limited authorities to conduct certain EW activities during non-combat operations.
- May have limited authorities or may need to seek additional authorities to conduct SIGINT operations or support to SIGINT operations.

1-26. The platoon lacks the internal resources to perform many of the support functions required to sustain its mission. When in a supporting role, EW platoons rely on the supported command along with their company and higher chain of command to provide the necessary support, including—

- Supplies—including spare parts and petroleum, oils, and lubricants.
- Field and sustainment maintenance.
- Site defense.
- Field feeding.
- Human resources and finance.
- Legal and spiritual support.

SECTION III – DUTIES AND RESPONSIBILITIES

1-27. EW teams operate and maintain their assigned equipment and function as a cohesive unit to achieve operational success. This success requires a high level of tactical and technical competence to operate and maintain their assigned equipment in a rapidly changing operational environment.

PLATOON LEADER

1-28. The platoon leader bears responsibility for all that the platoon does or fails to do. The platoon leader is responsible for the collective training, administration, planning, tactical employment, personnel management, and logistics of the platoon. The platoon leader has extensive knowledge of EW tasks and works closely with the supported commander during mission analysis. The platoon leader must know the capabilities and limitations of the platoon's personnel and equipment, be proficient in the tactical employment of the platoon, and be familiar with threat organizations, doctrine, and equipment. The platoon leader's responsibilities include—

- Planning.
  - Knowing the capabilities and limitations of the platoon's personnel and equipment.
  - Being a subject matter expert in the tactical employment of the platoon's capabilities, whether independently or as part of a company team.
  - Being responsible to the commander for the platoon's discipline and training, equipment maintenance, and mission success.
  - Understanding troop leading procedures and developing the ability to apply them quickly and efficiently.

  - Analyzing the elements of the operational environment that support the commander's intent and concept of the operation within the platoon's area of operations.
  - Planning operations with the help of the platoon sergeant and other key personnel.
  - Integrating planning with the brigade, division, or corps CEMA section.
  - Attending the supported unit's rehearsals and disseminating relevant information to the EW platoon before execution.
  - Orchestrating communication procedures and methods, including the radio nets on which the platoon operates, the primary, alternate, contingency, and emergency (PACE) communication plan, and positioning considerations.
- Preparation.
  - Knowing and understanding the mission and the commander's intent during decentralized operations.
  - Developing sector sketches and site defense plans.
  - Reviewing platoon requirements based on the tactical plan.
  - Ensuring the platoon receives and rehearses isolated Soldier guidance.
  - Conducting pre-combat inspections of EW teams.
- Execution.
  - Being responsible for the accomplishment of all missions within the commander's intent.
  - Exercising control of the platoon during operations.
  - Maintaining awareness of the situation and going where needed to supervise, issue orders, and accomplish the mission.
  - Analyzing tactical situations; disseminating and filtering information; and employing the platoon's full capabilities to accomplish the mission.
  - Ensuring situation reports are accurately prepared and forwarded to the company commander and CEMA section.
  - Integrating with brigade, division, or corps staff to drive high-payoff target list target prosecution.
  - Integrating with intelligence elements to cross cue other sensors and share signals of interest.
  - Analyzing relevant friendly and enemy tactical updates and disseminating them to subordinates.
  - Maintaining situational awareness of friendly position updates, overlay updates, and digital reports.
  - Being prepared to assume duties as company commander according to the succession of command.
- Sustainment.
  - Assisting the platoon sergeant in planning and coordinating sustainment for the platoon.

- Requesting any support the platoon needs to perform its mission through the chain of command.
- Receiving on-hand status reports from the platoon sergeant and team chiefs during planning.
- Assisting platoon members as necessary.
- Conducting combat and operational stress control.

- Maneuver.
  - Exercising control of the platoon's tactical execution through disciplined initiative.
  - Optimizing employment of EW capabilities within the area of operations, nested with the commander's intent.
  - Being a subject matter expert on the air tasking order.
  - Being a subject matter expert on threat EW systems and tactics, techniques, and procedures.
  - Being well-versed in non-EW threat organizations, doctrine, and equipment.

PLATOON SERGEANT

1-29. The platoon sergeant is second-in-charge of the platoon and the most senior enlisted member in the platoon. During operations, the platoon sergeant leads elements of the platoon as directed by the platoon leader. During tactical missions, the platoon sergeant may assist in the control of the platoon. This requires personal proficiency in all of the platoon's leadership competencies. In the absence of the platoon leader, the platoon sergeant performs all duties of the platoon leader. The platoon sergeant must—

- General.
  - Assist and advise the platoon leader.
  - Maintain responsibility for the professional development and career management of subordinate noncommissioned officers.
  - Maintain accountability to the platoon leader for the training, discipline, and welfare of platoon members.
  - Assist other platoon members as necessary.
- Planning.
  - Assist the platoon leader in planning operations with the help of other key personnel.
  - Assist the platoon leader in analyzing the elements of the operational environment that support the commander's intent and concept of the operation within the platoon's area of operations.
- Preparation.
  - Provide professional development and advice to team chiefs, other noncommissioned officers, and the platoon leader on tactical and technical employment of the platoon's assigned equipment.
  - Supervise individual and crew training.

- Ensure the platoon maintains all equipment.
- Maintain responsibility for the medical and administrative readiness and the deployable status of the platoon.
- Conduct pre-combat checks on EW teams and their equipment.
- Monitor the morale, discipline, and health of platoon members.

- Execution.
  - Update the platoon leader on appropriate reports and forward any reports needed by the company headquarters.
  - Take charge of task-organized elements in the platoon during tactical operations, including quartering parties and support elements.
  - Monitor the common operational picture to maintain awareness of the platoon's position relative to friendly elements, electromagnetic emitters, existing or emergent threats, and signals of interest.
  - Direct the platoon's casualty evacuation plan.
  - Refine tactical placement of platoon personnel.
  - Perform actions in tactical situations which complement those of the platoon leader.
  - Be prepared to support control and sustainment of distributed operations when teams are under tactical control of other elements.
- Sustainment.
  - Supervise the platoon's administration, logistics, and maintenance.
  - Ensure support supplies are present.
  - Provide the platoon leader on-hand status reports during planning.
  - Collect, prepare, and forward logistic status updates and requests to the company executive officer or first sergeant.
  - Coordinate and supervise platoon resupply operations.
  - Maintain platoon strength information; consolidate and forward the platoon's casualty report; and receive and orient replacements.
  - Coordinate the platoon's sustainment requirements and handle the personnel needs of each platoon member.

ELECTROMAGNETIC WARFARE TEAMS AND OPERATORS

1-30. EW teams' tasks and missions require team members to integrate their efforts into accomplishing crew tasks that an individual Soldier cannot perform. Due to the small size and diverse tasks of the EW team, each team member must be familiar with all team tasks and ready to assume the duties of other team members or the team chief.

TEAM CHIEF

1-31. The EW team chief is responsible for mission accomplishment, personnel, team training, counseling, maintenance, accountability, and proper operation of equipment.

The team chief acts as a team member while supervising the individuals' contributions to the team's collective task accomplishment. As the direct supervisor, the team chief is in the best position to monitor and evaluate individual team members' strengths and weaknesses and recommend training topics and events to the platoon sergeant and platoon leader.

1-32. During operations, the team chief should be prepared to assume the duties of the platoon sergeant according to the succession of command in the platoon operation order (OPORD). The team chief supervises cross-training so the loss of an individual does not cause the team to fail in its mission. The team chief performs pre-combat checks on the team and its assigned equipment and exercises responsibility for—

- Training and discipline of the team.
- Tactical employment and control of the team.
- Maintenance and operation of assigned vehicles and equipment.
- Monitoring and reporting status of personnel, weapons, and equipment.
- Distribution of ammunition, equipment, and loads.
- Assisting in development of the scheme of maneuver.
- Planning for and establishing hasty or deliberate listening posts.
- Calling for and adjusting indirect fires or aviation support as required.

ELECTROMAGNETIC WARFARE TEAMS

1-33. EW teams provide one or more of the following capabilities to support the parent unit's operations:

- Mounted and dismounted EW site selection.
- Employment of electromagnetic support and electromagnetic attack capabilities.

1-34. Team members must maintain proficiency and expand personal competence in their individual military occupational specialty tasks through individual, self-directed, and collective training events. Teams train together to develop proficiency in the collective tasks to accomplish the team's mission. Team training incorporates assigned equipment, software, emerging technologies, best practices, and realistic threat as much as possible. Team members are responsible for—

- Practicing vehicle self-recovery and combat lifesaver tasks.
- Performing field maintenance on assigned EW systems.
- Establishing fighting positions.
- Preparing range cards.
- Filling and operating assigned radios and EW equipment.
- Establishing hasty or deliberate listening posts.
- Maintaining situational awareness of friendly, neutral, and threat emissions.
- Observing, detecting, identifying, classifying, and reporting threat emissions and signals of interest.

ELECTROMAGNETIC WARFARE SYSTEM OPERATORS

1-35. In addition to their primary duties as EW specialists, system operators may also be assigned duties as—

- Vehicle driver.
- Gunner.
- Radiotelephone operator.

Vehicle Driver

1-36. The driver is responsible for the combat readiness and tactical employment of their vehicle. The driver tactically maneuvers the vehicle as directed by the vehicle commander. Drivers perform preventive maintenance checks and services on the vehicle and equipment. They maintain the vehicle; track status of personnel, weapons, equipment, and petroleum, oils, and lubricants; and submit reports to the gunner.

1-37. The driver assumes control of the vehicle in the absence of the crew and assists in navigating and maneuvering the vehicle. The driver always seeks the next covered and concealed position during maneuver and communicates it to the vehicle commander.

Gunner

1-38. The gunner performs the weapon system maintenance, assembly, disassembly, and operator checks. The gunner detects, identifies, engages, and assesses enemy targets as directed by the vehicle commander during an engagement. The gunner recognizes weapon firing angles and EW system line of sight limitations and directs the driver to reposition the vehicle to eliminate them. The gunner coordinates sector responsibilities over voice communications systems with other vehicle gunners in the platoon during missions.

1-39. The gunner prepares a range card and assumes control of the vehicle in the absence of the vehicle commander. They assist in navigating and maneuvering the vehicle. They employ their vehicle, weapon system, and optics to accomplish their tasks and requirements, delegate tasks to the driver, and supervise task accomplishment.

Radiotelephone Operator

1-40. The radiotelephone operator receives the mission and exercises subsequent troop leading procedures in the absence of platoon leadership.

1-41. If the team's observation site is at risk of being overrun, the radiotelephone operator authorizes the execution of the compromised action plan and the compromised destruction plan. The compromised action plan consists of expedient methods for relocation or extraction, usually in the form of a standard operating procedure (SOP) battle drill.

1-42. The compromised destruction plan protects classified material to prevent it falling into enemy control. Destruction of classified material should start from most to least

critical. The compromised destruction plan consists of expedient methods for destruction of classified material, usually in the form of an SOP battle drill.

SECTION IV – ELECTROMAGNETIC WARFARE PLATOON ORGANIZATIONS

1-43. EW platoons are organic elements assigned to maneuver forces at echelons brigade combat team and above. EW platoons provide critical electromagnetic support and electromagnetic attack capabilities to the supported unit during operations, and support development and implementation of electromagnetic protection plans.

1-44. Each EW platoon consists of a platoon headquarters and a complement of teams appropriate to the echelon and the team's function. EW platoon headquarters at echelons corps and below consist of a platoon leader and a platoon sergeant. The platoon leader exercises control and planning for the platoon's assigned teams.

BRIGADE COMBAT TEAM

1-45. The brigade combat team EW platoon (see figure 1-1) is organic to the brigade military intelligence company in the brigade engineer battalion. During operations the EW platoon is under the operational control of the brigade S-3. The brigade CEMA section provides technical control during operations. The EW platoon supports the brigade commander's ability to engage targets with lethal and nonlethal fires. The platoon detects and locates communications and noncommunications emitters in the brigade area of operations using its organic electromagnetic support capabilities. The platoon reports the locations of enemy emitters to the CEMA section and S-2 for situational awareness and targeting.

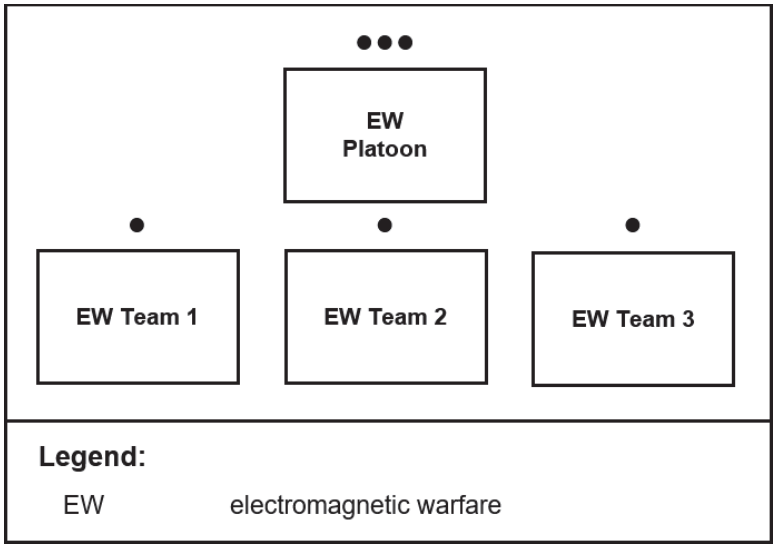

Figure 1-1. Brigade combat team electromagnetic warfare platoon

1-46. The platoon senses and assesses friendly electromagnetic signatures to enable the brigade commander, S-3, and S-6 to develop and implement appropriate electromagnetic protection and other force protection measures against enemy electromagnetic attack, geolocation, and indirect fires. The EW platoon gathers combat information to answer the commander's information requirements. Combat information is unevaluated data, gathered by or provided directly to the tactical commander which, due to its highly perishable nature or the criticality of the situation, cannot be processed into tactical intelligence in time to satisfy the user's tactical intelligence requirements. The platoon also conducts tactical-level electromagnetic attack within the capabilities of the platoon's assigned equipment and delegated electromagnetic attack control authority.

1-47. The platoon consists of the platoon headquarters and three EW teams. The brigade commander may also task organize the EW platoon to best suit their operational requirements. This may include task-organizing the EW platoon with the military intelligence company's technical control and analysis cell and SIGINT teams or as attachments in support of subordinate commanders' missions.

1-48. Teams can deploy anywhere within the brigade area of operations to employ EW capabilities and enable cyberspace operations. EW team 1 consists of a senior team chief and three EW specialists. EW teams 2 and 3 consist of a team chief and three EW specialists. EW teams intercept sources of electromagnetic radiation, perform limited analysis, and report the information they gather to the CEMA section and S-2. The EW teams also conduct electromagnetic attack and assist with manipulation and electromagnetic deception.

1-49. The EW platoon is dependent upon elements of the brigade combat team and higher for—

- Religious support.
- Legal support.
- Force health protection.
- Finance support.
- Transportation.
- Fuel.
- Field feeding.
- Maintenance of non-pacing item equipment.
- Communications security equipment repair and maintenance.
- Chemical, biological, radiological, and nuclear (CBRN) equipment repair and maintenance.
- Personnel and administrative services.

DIVISION

1-50. The division EW company (see figure 1-2 on page 1-14) is organic to the division intelligence and electronic warfare battalion. The company headquarters normally co-locates with the division main command post. The division EW company mission primarily aligns with close area support. The company provides electromagnetic support

and electromagnetic attack capabilities in support of the commander's scheme of maneuver by employing its subordinate platoons and teams throughout the division area of operations.

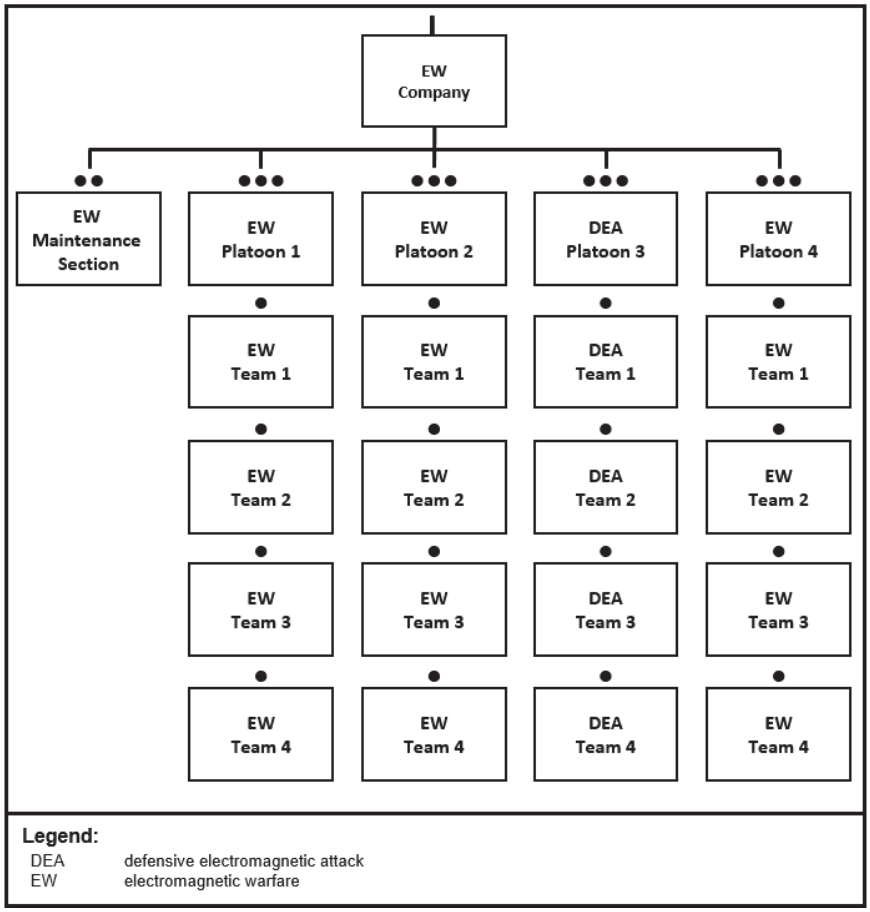

Figure 1-2. Division electromagnetic warfare company

ELECTROMAGNETIC WARFARE COMPANY

1-51. The division EW company provides layered long-range sensing and electromagnetic attack capabilities for direct support, general support, or general support reinforcing relationships. The company's electromagnetic support capabilities can detect, recognize, locate, and identify threat signals of interest, and assist the commander, G-3, and G-6 on electromagnetic protection and cyber integration. The company employs electromagnetic attack capabilities to disrupt enemy spectrum-dependent systems.

1-52. While electromagnetic support mainly enables the supported commander's situational understanding, decision making, and targeting, the EW company also coordinates with the intelligence staff to ensure electromagnetic support data reaches the appropriate analyst for further processing, which supports either production of intelligence or dissemination of combat information. The company can deliver radio frequency-enabled offensive cyberspace operations payloads while also enabling military information support operations, military deception, and other information advantage activities. The EW company is dependent upon elements of the division for—

- Human resources support.
- Logistical services.
- Army Health System support.
- Field feeding.
- Force health protection.
- Personnel and administrative services.
- Recovery of organic vehicles.
- Maneuver planning, support, and analysis.
- Fires planning, support, and analysis.
- Protection planning, support, and analysis.

Company Headquarters

1-53. The company headquarters provides command and control, planning, and limited administrative support for its assigned platoons and sections. The company headquarters consists of the company commander, the first sergeant, a supply sergeant, a CBRN specialist, and a supply specialist.

Electromagnetic Warfare Maintenance Section

1-54. The EW company maintenance section provides maintenance for company vehicles, power generation equipment, and environmental control systems. The section consists of a motor sergeant, two wheeled vehicle mechanics, an equipment records and parts sergeant, a utilities equipment repairer, and a tactical power generation specialist.

Electromagnetic Warfare Platoons

1-55. EW platoons provide electromagnetic support and electromagnetic attack capabilities to support the commander's scheme of maneuver and concept of the operation. Platoons also support the commander and staff in planning and implementing electromagnetic protection measures. The various roles of EW platoons vary, depending on their organization and assigned functions.

1-56. EW teams provide electromagnetic attack and electromagnetic support throughout the division area of operations. While the EW teams may provide reinforcing support to brigade combat teams in the close area, they can also conduct electromagnetic support and electromagnetic attack in the deep area to shape future friendly force engagement and deter the enemy. The platoons usually conduct electromagnetic attack

to suppress a threat for only a limited period. EW team 1 consists of a senior team chief and three EW specialists. EW teams 2, 3, and 4 each consist of a team chief and three EW specialists.

DEFENSIVE ELECTROMAGNETIC ATTACK PLATOON

1-57. The defensive electromagnetic attack platoon employs electromagnetic support and defensive electromagnetic attack capabilities to provide early and accurate warning of enemy operations and disrupt enemy spectrum-dependent capabilities to offer the division main command post adequate time to react to the enemy, protect the force from surprise, and develop the situation so the commander can effectively exercise command and control. The platoon provides electromagnetic support and defensive electromagnetic attack to defend against enemy spectrum-dependent equipment, including—

- Artillery fuses.
- Radio-controlled improvised explosive devices.
- Spectrum-homing rockets and missiles.
- Observation devices.
- Probing—physical and electromagnetic.
- Other electro-optical devices.

1-58. Defensive electromagnetic attack teams provide defensive electromagnetic attack and electromagnetic support and advise the commander, G-3, and G-6 on electromagnetic protection and cyber integration. The teams support operations by locating, assessing, targeting, exploiting, disrupting, degrading, deceiving, denying, or destroying the spectrum-dependent systems an enemy may use to attack friendly systems. Defensive electromagnetic attack team 1 consists of a senior team chief and three EW specialists. Defensive electromagnetic attack teams 2, 3, and 4 each consist of a team chief and three EW specialists.

CORPS

1-59. The corps EW company (see figure 1-3 on page 1-17) is organic to the expeditionary military intelligence brigade. The corps EW company can detect, recognize, locate, and identify signals of interest to support the deep fight and shape the area of operations. The company employs longer-range versions of electromagnetic support and electromagnetic attack systems to locate and disrupt enemy forces at longer range.

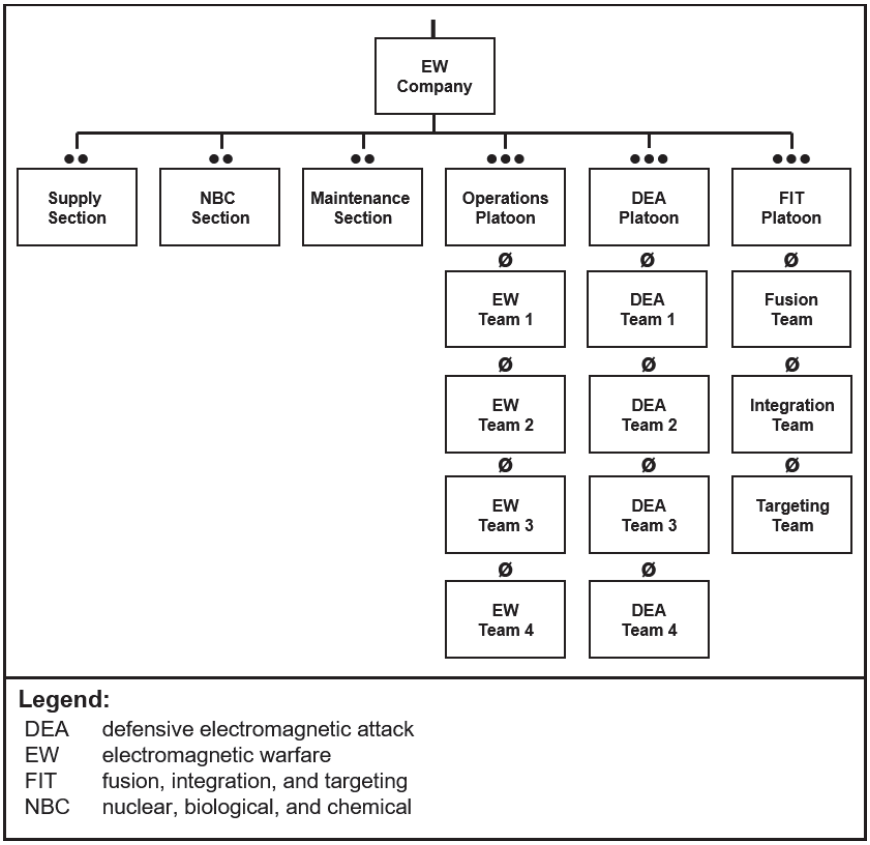

Figure 1-3. Corps electromagnetic warfare company

ELECTROMAGNETIC WARFARE COMPANY

1-60. The corps EW company provides layered, long-range sensing and attack capabilities for direct support, general support, or general support reinforcing command relationships. The company coordinates with the G-2 staff to support information collection requirements, which support either production of intelligence or the dissemination of combat information. The company can deliver radio frequency-enabled offensive cyberspace operations payloads while also enabling military information support operations, military deception, and other information advantage activities.

Company Headquarters

1-61. The company headquarters provides command and control and administration for subordinate platoons and sections. The headquarters consists of the company commander and the first sergeant.

Supply Section

1-62. The supply section provides supply functions for the company. The supply section consists of a supply noncommissioned officer and a supply specialist.

Nuclear, Biological, and Chemical Section

1-63. The nuclear, biological, and chemical section provides nuclear, biological, and chemical defense functions for the company. The section consists of a CBRN specialist.

Maintenance Section

1-64. The maintenance section provides maintenance for company vehicles, power generation equipment, and environmental control systems. The section consists of a motor sergeant, two wheeled vehicle mechanics, an equipment records and parts sergeant, a utilities equipment repairer, and a tactical power generation specialist.

Operations Platoon

1-65. The operations platoon provides planning, management, coordination, and oversight of EW activities for all elements. The platoon leader advises the commander on capabilities, authorities, and policies associated with EW activities.

1-66. The EW teams conduct electromagnetic support to provide the corps commander situational awareness of the electromagnetic spectrum within the corps deep and close areas. The teams search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy to enable threat recognition, targeting, planning, and the conduct of future operations. The teams also conduct electromagnetic attack in the corps deep area to shape future friendly force engagement of the enemy. The platoon normally conducts electromagnetic attack to suppress a threat for only a limited period. Examples of electromagnetic attack capabilities the team may employ include—

- Self-propelled decoys.
- Jamming of threat radar or command and control systems.
- Anti-radiation devices to suppress enemy air defenses.
- Electromagnetic deception to confuse threat intelligence, surveillance, and reconnaissance systems.

1-67. The platoon executes its assigned mission using long-range platforms and EW payloads as tasked. To achieve long-range effects, the platoon's EW teams may be positioned forward with subordinate maneuver formations. Each team consists of a senior team chief, a team chief, and two EW specialists.

Defensive Electromagnetic Attack Platoon

1-68. The defensive electromagnetic attack platoon employs electromagnetic support and defensive electromagnetic attack capabilities to provide early and accurate warning of enemy operations and offer the corps main command post adequate time to react to

the enemy, protect the force from surprise, and develop the situation so the commander can effectively exercise command and control. The platoon provides electromagnetic support and defensive electromagnetic attack to secure against enemy spectrum-dependent equipment, including—

- Artillery fuses.
- Radio controlled improvised explosive devices.
- Spectrum-homing rockets and missiles.
- Other electro-optical devices.

1-69. The defensive electromagnetic attack teams provide electromagnetic attack and electromagnetic support, and advise the commander, G-3, and G-6 on electromagnetic protection. The teams support operations by locating, targeting, exploiting, disrupting, degrading, deceiving, denying, or destroying the enemy's spectrum-dependent systems. Each defensive electromagnetic attack team consists of a senior team chief, a team chief and two EW specialists.

Fusion, Integration, and Targeting Platoon

1-70. The fusion, integration, and targeting platoon provides information fusion, information integration, cyberspace targeting, and lethal and nonlethal EW targeting. The platoon analyzes signals of interest databases and electromagnetic support sensor data across the corps and division areas of operations and maintains situational awareness of the electromagnetic spectrum, including civilian, friendly military, and threat use of the electromagnetic spectrum and cyberspace.

1-71. The fusion, integration, and targeting platoon provides critical EW target identification and exploitation analysis data. The platoon coordinates closely with the CEMA section and G-2 to inform counterintelligence and force protection activities. The fusion, integration, and targeting platoon coordinates with the corps CEMA section and the technical control and analysis cell to provide fusion, integration, and targeting data and track long-range fires against corps targets of interest.

1-72. The fusion, integration, and targeting teams maintain EW situational awareness, including civilian, friendly military, and threat use of the electromagnetic spectrum and cyberspace. Each fusion, integration, and targeting team consists of an EW technician, a senior team chief, a team chief and two EW specialists.

SPECIAL FORCES GROUP

1-73. Each Active Component special forces group has an organic EW platoon (see figure 1-4 on page 1-20) to provide electromagnetic attack and electromagnetic support and support the commander and the S-3 and S-6 staff in the development and implementation of electromagnetic protection measures across the joint special operations area. The special forces group EW platoon consists of the platoon headquarters and four EW teams.

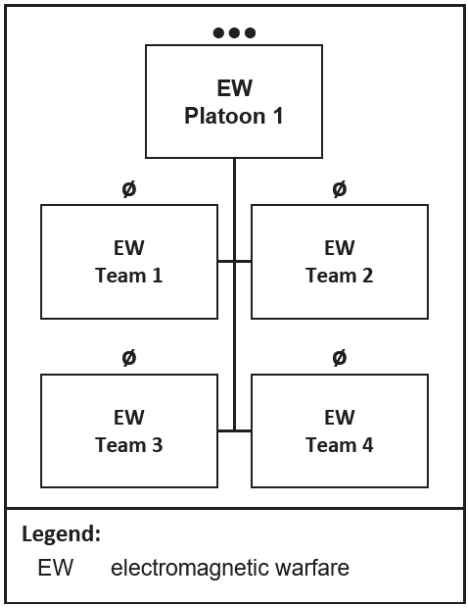

Figure 1-4. Special forces group electromagnetic warfare platoon

1-74. Special forces group EW teams generally deploy independently of the platoon; the platoon leader exercises administrative control of the platoon's EW teams and supports planning activities for deployed elements during distributed operations.

1-75. The EW teams can deploy anywhere within the joint special operations area to employ EW capabilities and enable cyberspace operations. EW teams gather information, perform limited analysis, and report the information they gather. The EW teams also conduct electromagnetic attack and assist with manipulation and electromagnetic deception. Each EW team consists of a senior team chief, an EW sergeant, and two EW specialists.

1-76. The EW teams perform a variety of missions supporting special operations forces unilateral, multinational, or indigenous element operations, including—

- Electromagnetic reconnaissance to support operational preparation of the environment.
- Indication and warning of threat targeting activities.
- Enabling cyberspace operations.
- Electromagnetic attack against threat command and control systems.
- Electromagnetic deception against threat intelligence, surveillance, and reconnaissance systems.
- Counter-radio controlled improvised explosive device and counter-unmanned aircraft systems.

1-77. Refer to Army special operations doctrine for more information about the employment of EW platoons in support of Army special operations forces.

MULTIDOMAIN EFFECTS BATTALION

1-78. The multidomain effects battalion supports the multidomain task force in competition and conflict by enabling joint force options in space, cyberspace, the electromagnetic spectrum, and the information dimension of the operational environment. The battalion's capabilities enable active engagement in the information dimension to deter threat information warfare actions. The battalion performs information advantage tasks to support joint, interorganizational, and multinational partner efforts to counter coercion during competition.

EXTENDED RANGE SENSING AND EFFECTS COMPANY ELECTROMAGNETIC WARFARE PLATOON

1-79. The extended range sensing and effects company EW platoon (see figure 1-5 on page 1-22) consists of two EW sections and an aerial multi-functional EW section that provide sensing, direction finding, and geolocation. These capabilities support target development, line of sight and over-the-horizon electromagnetic attack, and aerial line of sight sensing, surveillance, and reconnaissance for long-range detection to generate effects within the information dimension and open windows of advantage for the multidomain task force and joint force.

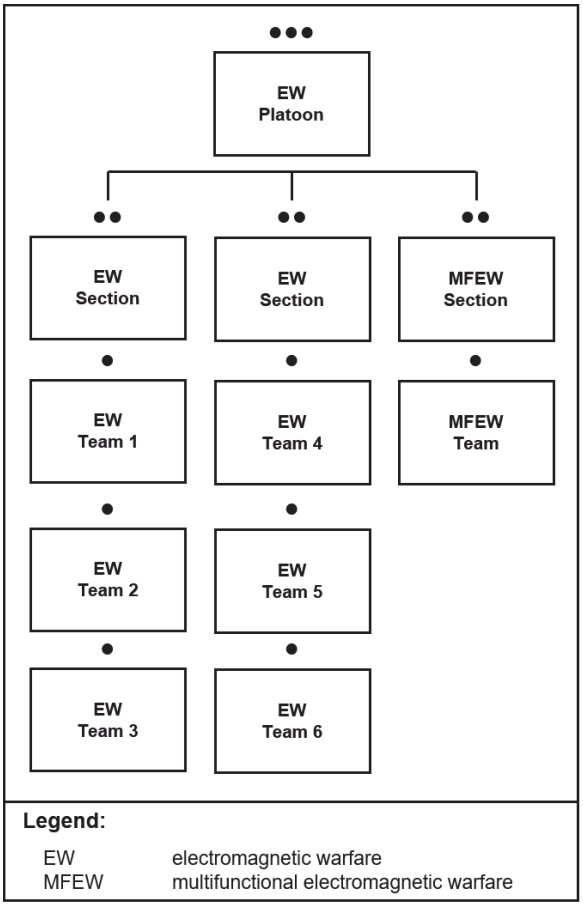

Figure 1-5. Extended range sensing and effects company electromagnetic warfare platoon

Platoon Headquarters

1-80. The extended range sensing and effects company EW platoon headquarters provides control, technical support, and mission guidance to subordinate EW sections and teams. The platoon headquarters consists of a platoon leader, a platoon sergeant, an electromagnetic spectrum noncommissioned officer, a CEMA sergeant, and an EW specialist.

Electromagnetic Warfare Sections

1-81. The EW sections provide electromagnetic attack, electromagnetic support, and limited, non-interactive cyberspace operations to the multidomain task force and joint formations to gain and maintain freedom of maneuver across all domains. EW teams

coordinate with and advise the military intelligence company to integrate cyberspace operations, EW, and SIGINT capabilities to target threat capabilities, preserve friendly combat power, and support the friendly scheme of maneuver. Each section consists of three EW teams and is led by an EW technician.

1-82. The EW teams conduct electromagnetic spectrum vulnerability assessments to support the unit's electromagnetic protection efforts. EW teams 1 and 4 each consist of a senior team chief and six EW specialists. EW teams 2, 3, 5, and 6 each consist of a team chief and six EW specialists.

Multi-Functional Electromagnetic Warfare Section

1-83. The multi-functional electromagnetic warfare section provides electromagnetic support, electromagnetic attack, and radio frequency-enabled cyberspace operations capabilities to the multidomain task force using the EW payload on unmanned aerial platforms. The section consists of an EW technician, a senior team chief, a team chief, and four EW specialists.

Information Defense Company Defensive Electromagnetic Attack Platoon

1-84. The defensive electromagnetic attack platoon (see figure 1-6 on page 1-24) provides control, technical support, and mission guidance to subordinate EW teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

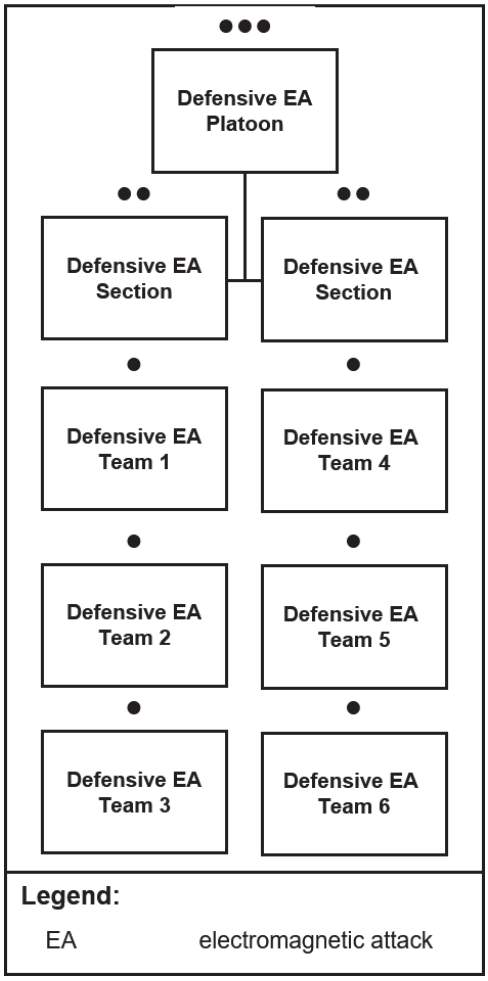

Figure 1-6. Information defense company defensive electromagnetic attack platoon

Defensive Electromagnetic Attack Section

1-85. The defensive electromagnetic attack sections provide electromagnetic support and defensive electromagnetic attack to critical nodes across the multidomain task force's area of operations. Each section consists of three defensive electromagnetic attack teams.

Defensive Electromagnetic Attack Teams

1-86. Defensive electromagnetic attack teams support cruise missile defense, counter-unmanned aircraft systems, and counter-fuze operations through electromagnetic attack

and radio frequency-enabled cyberspace operations. Defensive electromagnetic attack teams 1 and 4 each consist of a senior team chief and three EW specialists. Defensive electromagnetic attack teams 2, 3, 5, and 6 each consist of a team chief and three EW specialists.

SECTION V – COMMAND AND SUPPORT RELATIONSHIPS

1-87. Command and support relationships provide the basis for unity of command and unity of effort in operations and are the basis for task-organizing. *Task-organizing* is the act of designing a force, support staff, or sustainment package of specific size and composition to meet a unique task or mission (ADP 3-0).

1-88. Nonorganic combat and sustainment assets can significantly enhance the platoon's capabilities. Nonorganic elements support the company, team, and platoon under established command and support relationships. Refer to FM 6-0 for more information on command and support relationships.

COMMAND RELATIONSHIPS

1-89. Command relationships define superior and subordinate relationships between unit commanders. The EW platoon is under the command of the company commander. However, within the platoon, command relationships exist between the platoon leader, platoon sergeant, and the team chiefs. Command relationships unify effort and give the platoon leader the ability to employ the platoon with maximum flexibility. Command and support relationships include—

- Organic.
- Assigned.
- Attached.
- Operational control.
- Tactical control.

ORGANIC

1-90. Organic forces are those assigned to and forming an essential part of a military organization. The Army establishes organic command relationships through organizational documents such as tables of organization and equipment and tables of distribution and allowances. In the brigade combat team, the EW platoon is organic to the military intelligence company in the brigade engineer battalion.

ASSIGNED

1-91. Assigned units remain subordinate to the higher headquarters for extended periods, typically years. An example would be that first, second, and third platoons are assigned to B Company.

ATTACHED

1-92. Attached units are temporarily subordinated to the gaining headquarters. The period of attachment may be lengthy, often months or longer. Attached units return to their parent assigned or organic headquarters when the reason for the attachment ends.

OPERATIONAL CONTROL

1-93. Operational control is inherent in combatant command (command authority) and may be delegated within the command. An EW platoon that is under operational control of a higher headquarters can be reorganized as necessary to accomplish assigned tasks. As deliberate operations unfold, the commander may task-organize the EW platoon under the operational control of a subordinate maneuver element as designated in the brigade OPORD.

TACTICAL CONTROL

1-94. Tactical control is inherent in operational control. Placing an EW platoon under tactical control allows a higher headquarters to direct the tactical use of the platoon, but does not provide authority to change the organizational structure or direct administrative and logistical support. During operations, the commander may task-organize the EW platoon under the tactical control of the cavalry squadron to assist the brigade combat team gaining and maintaining contact with the enemy.

SUPPORT RELATIONSHIPS

1-95. Supporting and supported units share specific relationships and responsibilities. For example, the assigning headquarters retains logistic support responsibility and the authority to reorganize or reassign all or part of a supporting force. Although support relationships usually do not occur at the platoon level, it is important to understand how they affect the type of support the platoon provides or receives. For further information on support relationships, refer to ADP 3-0.

1-96. The three types of support relationships are—

- Direct support.
- General support.
- Reinforcing support.

DIRECT SUPPORT

1-97. The EW platoon provides direct support to a specified unit. Although the supporting unit answers the supported unit's requests directly, the supported unit commander may not reallocate, reassign, or task-organize the direct support force.

GENERAL SUPPORT

1-98. An EW platoon in a general support relationship to another organization remains under the control of its parent unit. A general support unit supports the organization as

a whole, not any specific subunit. Therefore, subunit commanders must request support from the general support unit through their parent unit.

REINFORCING SUPPORT

1-99. Reinforcing support is a support mission in which the support unit assists the supported unit's mission. Only like units may conduct a reinforcing support mission. For instance, the division EW company may designate teams to provide reinforcing support to the brigade combat team EW platoon.

CONTROL RELATIONSHIPS AND AUTHORITIES

1-100. Technical operations require special control relationships. These control relationships may be delegated with command authority or parallel the chain of command to enhance unity of command and unity of effort. Control relationships and authorities for EW include—

- Technical control.
- EW authorities.

TECHNICAL CONTROL

1-101. Technical control is an organizational relationship exercised through technical channels. Technical channels are the transmission paths between two technically similar units or offices that perform a specialized technical function, requiring special expertise to control the performance of technical functions. Technical channels are typically used to control performance of technical functions. They are not used for conducting operations or supporting another unit's mission (ADP 6-0).

Technical Channels

1-102. For EW operations, technical channels are the transmission paths between the parent unit's CEMA section and EW companies or platoons that perform a technical function that requires special expertise. Technical channels transmit data to focus EW efforts. Establishing technical channels facilitates adherence to policies for tasks contained in the information collection plan. Technical channels do not interfere with command and control or other staff channels.

Electromagnetic Support Tasking

1-103. Initial tasking for EW platoon assets comes from the brigade S-3 through the orders process. EW platoon taskings are generally synchronized with the brigade collection plan and sync matrix and tracked by the brigade S-2. Electromagnetic support tasking is normally covered in Tab B (Electromagnetic Support), Appendix 12 (Cyberspace Electromagnetic Activities), Annex C (Operations), and the military intelligence company instructions in paragraph 3 and Annex L (Information Collection) of the OPORD. The OPORD also defines reporting requirements for electromagnetic

support data. The EW platoon leader receives initial instructions during the brigade OPORD briefing.

1-104. After EW elements deploy, the collection manager and technical control and analysis cell coordinate with the CEMA section on mission changes. The collection manager relies on the EW platoon to answer those information requirements answerable by their assets based on tasking authority in the OPORD. The collection manager should coordinate all EW platoon information requirements with the CEMA section. The G-3 or S-3 transmits mission taskings to the EW platoon.

ELECTROMAGNETIC WARFARE AUTHORITIES

1-105. The staff cyber electromagnetic warfare officer is normally the senior electromagnetic warfare officer who exercises EW authorities on behalf of the commander.

1-106. EW authorities consist of electromagnetic attack control authority and kill-chain communications. The CEMA section conducts planning and helps focus EW operations through technical channels with the G-2 or S-2. The G-3 or S-3 transmits mission taskings for EW elements through the orders process. A standard handover of authorities should be specified in the unit SOP and outlined in the succession of command in paragraph 5 of the OPORD in case a command post becomes non-functional.

Electromagnetic Attack Control Authority

1-107. Execution of electromagnetic attack requires specific rules of engagement and authorities. The theater special instructions should define authorities and criteria for the execution of electromagnetic attack effects. Electromagnetic attack control authority is the authority a commander holds to issue orders to transmit or cease transmission of electromagnetic energy to control the electromagnetic spectrum or to attack the enemy. In a joint or multinational environment, this authority should be delegated from the joint force commander, through the Service component commanders, down to the lowest level that can maintain situational awareness of the electromagnetic operational environment, positive control of the electromagnetic attack capability, and the ability to monitor and assess electromagnetic attack transmission activity.

1-108. The cyber electromagnetic warfare officer normally exercises delegated electromagnetic attack control authority on behalf of the commander. Responsibilities for electromagnetic attack control authority include—

- Participating in the development of electromagnetic spectrum coordination measures, such as the joint restricted frequency list.
- Ensuring compliance with approved electromagnetic spectrum coordination measures.
- Gaining and maintaining awareness of the operating parameters and activities of electromagnetic attack-capable systems in the area of operations.
- Developing, coordinating, updating, and promulgating electromagnetic attack guidance.

- Monitoring and assessing electromagnetic attack transmissions for electromagnetic attack control authority compliance and determining corrective action when necessary.

Kill-Chain Communications

1-109. Kill-chain communications are enemy communications that, if left unjammed, will pose an immediate threat to friendly forces. Examples of kill-chain communications include enemy calls for reinforcement and calls for fire. Denying kill-chain communications does not require approval from the delegated electromagnetic attack control authority. Refer to ATP 3-09.32 for more information about kill-chain communications.

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Chapter 2

Planning in the Platoon

The platoon leader is responsible for everything the platoon does or fails to do. Working in cooperation with the platoon sergeant, the platoon leader uses a variety of techniques to plan and prepare a platoon's mission.

SECTION I – PLANNING CONSIDERATIONS

2-1. An EW platoon operates to support a larger organization, either an EW company, a brigade combat team, a division, or a corps. The platoon leader plans in conjunction with the directly-supported unit and the next higher echelon to ensure proper alignment of task and purpose in support of the commander's intent. Failure to do so results in the wasted expense of an already limited resource—time.

2-2. Platoon leaders follow the same sequence as their higher-level commander when executing the operations process—planning, preparation, execution, and assessment, though to a lesser degree.

2-3. The planning process is often more important than the final plan itself. It provides platoon leaders with a greater understanding of the threat, operational environment, and assigned tasks, and increases their tactical flexibility when the situation unexpectedly changes or when opportunities arise.

PLANNING

2-4. *Planning* is the art and science of understanding a situation, envisioning a desired future, and determining effective ways of bringing that future about (ADP 5-0). A platoon leader receives a task and purpose as a warning order (WARNORD) or OPORD and begins the planning process. The EW platoon WARNORD includes the commander's intent and pertinent EW-specific information such as—

- Task organization with other elements.
- EW capabilities and elements needed—
  - Electromagnetic attack.
  - Electromagnetic support.
  - EW team positioning.

2-5. Planning is an ongoing process and continues as necessary during preparation and execution. Parallel planning occurs when the platoon leader and the supported brigade combat team, division, or corps commander plan for the same mission at about the same time. Figure 2-1 on page 2-2 shows the parallel sequences of the higher headquarters

military decision-making process and the company and platoon's troop leading procedures. While the figure shows the brigade, company, and platoon, in the brigade combat team, the EW platoon receives its mission directly from the brigade OPORD, not the military intelligence company. At the division and corps, the EW platoons receive their missions from the EW company.

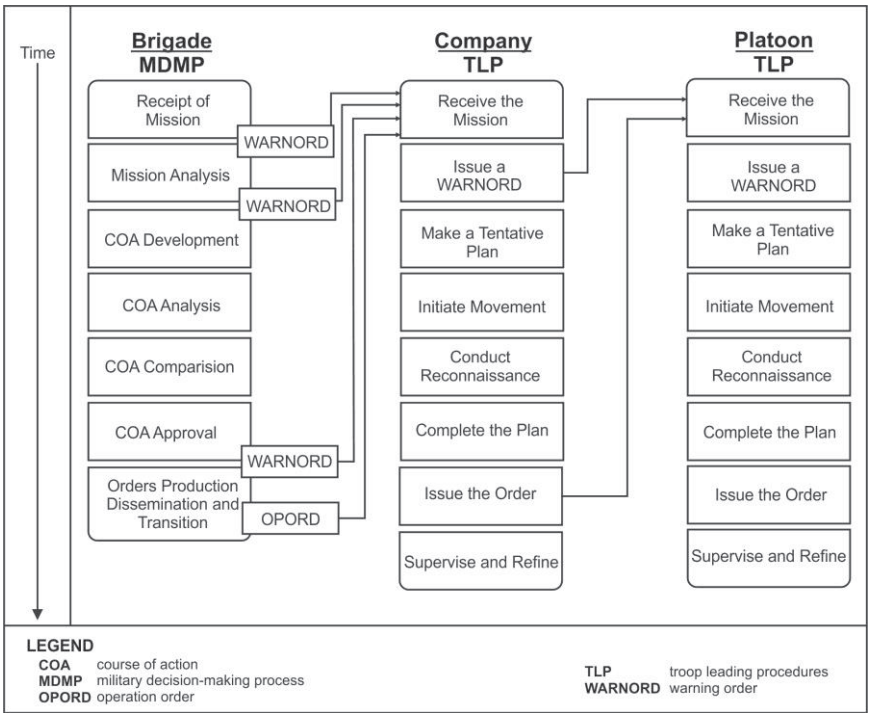

Figure 2-1. Parallel sequences of the military decision-making process and troop leading procedures

2-6. Platoon-level planning focuses on fully developing the platoon's role in the commander's directed course of action and rehearsing for likely contingencies that may cause the course of action to develop in unexpected ways. At the brigade combat team, the EW platoon's mission may be separate from the mission of the military intelligence company to which it is assigned. For this reason, brigade combat team EW platoon may base its troop leading procedures on the brigade OPORD, not the military intelligence company troop leading procedures.

PREPARATION

2-7. Preparation includes activities the EW platoon performs to improve its ability to execute its assigned tasks. Preparation includes, but is not limited to—

- Plan refinement.
- Rehearsals (see section III for more information).

- Coordination.
- EW system configuration and reprogramming.
- Pre-combat checks and inspections.
- Movement.

2-8. During preparation, platoon leaders need to create a timeline and analyze proposed EW sites—including terrain, weather, and enemy and how they affect the mission. Platoon leaders capture all EW-specific guidance, identify facts and assumptions, and identify specified, implied, and essential tasks from the OPORD.

2-9. A detailed and customized platoon SOP considers the personnel and equipment assigned to the EW platoon. When consistently followed and updated after each mission, the SOP can increase the platoon leader's time available to plan and prepare for assigned tasks. The most effective SOPs incorporate input from all leaders in the platoon.

EXECUTION

2-10. *Execution* is the act of putting a plan into action by applying combat power to accomplish the mission and adjusting operations based on changes in the situation (ADP 5-0). The platoon leader develops situational understanding to assess progress and make and adjust decisions during execution.

ASSESSMENT

2-11. *Assessment* is determination of the progress toward accomplishing a task, creating a condition, or achieving an objective (JP 3-0). Leaders and planners continuously monitor and evaluate the current situation, particularly the threat, along with the progress of the assigned task or tasks. Assessment entails—

- Continuously assessing the threat's reactions and vulnerabilities, which may lead to windows of opportunity to exercise disciplined initiative.
- Continuously monitoring the situation and progress of the operation toward the commander's desired end state.

2-12. A *running estimate* is the continuous assessment of the current situation used to determine if the current operation is proceeding according to the commander's intent and if planned future operations are supportable (ADP 5-0). EW platoon leaders should maintain a running estimate that includes all EW information, including—

- Friendly EW systems available, including—
  - System nomenclature and disposition by echelon.
  - System capabilities.
  - Modeling and simulation of each system on configuration and location.
  - Constraints and limitations of each system.
  - Tactics, techniques, and procedures for each system.
  - Critical capabilities and vulnerabilities of each system.
  - Combinations of systems that can be used together or will cause conflict or require additional support.

- Friendly non-EW spectrum-dependent systems including—
  - System nomenclature by disposition and echelon (for example, terrestrial radios, satellite communications, radar, and unmanned aircraft systems).
  - System characteristics (frequency ranges, bandwidth requirements, power, and modulation).
  - Modeling and simulation of each system for configuration and location.
  - Constraints and limitations of each system.
- Friendly EW team capabilities and limitations, including—
  - Characteristics of EW systems.
  - Team line of sight and beyond line of sight characteristics.
  - Team mobility platform characteristics.
  - Team sustainment requirements.
- Threat spectrum-dependent systems, including—
  - System nomenclature and disposition by echelon.
  - System characteristics (frequency, bandwidth, power, and modulation).
  - Threat tactics, techniques, and procedures.
  - What the enemy employment of a system or capability is an indication or warning of.
  - Frequency allocations and cueing cycles for radar systems.
  - Modeling and simulations of systems, based on varying parameters and location.
  - Critical capabilities and vulnerabilities by system.
- Civil infrastructure considerations, including—
  - Networks in the area of operations (for example, supervisory control and data acquisition, Internet service providers, and fiber optic infrastructure).
  - Spectrum resources and allocation (for example, Wi-Fi, television, radio, and satellite ground stations).
  - Physical access to civilian infrastructure and equipment.

SECTION II – TROOP LEADING PROCEDURES

2-13. Troop leading procedures provide a framework for planning and preparing for missions. Smaller units—company and below—lack formal staffs, so they use troop leading procedures to plan and prepare for operations. At the platoon level, this places the primary responsibility for planning on the platoon leader.

2-14. The platoon leader uses troop leading procedures to solve tactical problems and uses the platoon sergeant and team chiefs to help with the process. The type, amount, and timeliness of information passed from higher to lower directly affects the platoon leader's troop leading procedures. Troop leading procedures consist of eight steps:

- Receive the mission.

- Issue a WARNORD.
- Make a tentative plan.
- Initiate movement.
- Conduct reconnaissance.
- Complete the plan.
- Issue the order.
- Supervise and refine.

Note. FM 5-0 contains a more in-depth discussion of each step of troop leading procedures.

EXECUTING TROOP LEADING PROCEDURES

2-15. Troop leading procedures provide a framework for planning and preparing for a platoon mission. Troop leading procedures begin when the platoon leader receives the first indication of an upcoming mission, and continue throughout the operations process. As each subsequent order arrives, platoon leaders modify their assessments, update tentative plans, and continue to supervise and assess preparation.

2-16. The first three steps of troop leading procedures—receive the mission, issue a WARNORD, and make a tentative plan—normally occur in order. However, the sequence of subsequent steps takes place based on the situation. Initiate movement and conduct reconnaissance may occur several times during planning. The last step—supervise and refine—occurs throughout the mission.

2-17. Subordinates require enough information to plan and prepare for their mission. In some cases, troop leading procedures start before receiving a WARNORD, based on existing plans and orders and the subordinate leader's understanding of the situation.

STEP 1 – RECEIVE THE MISSION

2-18. The platoon leader receives the platoon's mission through a written or verbal WARNORD, OPORD, or fragmentary order (FRAGORD). Upon receipt of mission, the platoon leader conducts an initial assessment to determine the time available to accomplish the mission. The platoon leader performs a cursory analysis of assigned tasks using the mission variables of mission, enemy, terrain and weather, troops and support available, time available, civil considerations, and informational considerations—METT-TC (I). A more advanced analysis of the mission variables occurs during step 2.

2-19. During this step, platoon leaders also—

- Determine the time available to plan, prepare, and execute the mission.
- Determine the one-third–two-thirds timeline for leader planning and subordinate preparation (see paragraph 2-28 on page 2-8).
- Prepare an initial planning timeline.

STEP 2 – ISSUE A WARNING ORDER

2-20. The platoon WARNORD is the preliminary notice of an order or action to follow. Less detailed than a complete OPORD, a WARNORD aids in parallel planning. After platoon leaders receive a new or updated mission and assess the time available to plan, prepare, and execute the mission, they immediately issue a platoon WARNORD.

2-21. In the initial platoon WARNORD, the platoon leader includes the same elements given in the initial WARNORD with a focus on the platoon. If practical, platoon leaders brief subordinate leaders face-to-face using a rough terrain model, sketch, or map. Figure 2-2 shows an example of a WARNORD format.

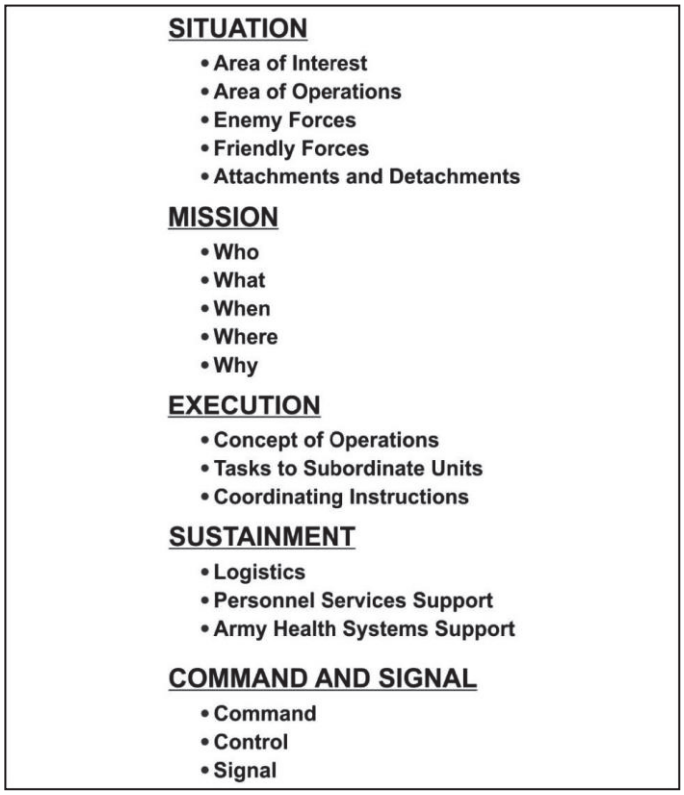

Figure 2-2. Example warning order format

2-22. The WARNORD has no specified format, though it may follow the five-paragraph OPORD format and include the following items:

- Threat situation, as currently known.
- Higher headquarters mission or concept of the operation.
- Commander's intent (if available).
- Initial operational timeline.

- Platoon mission (may modify after step 3).
- Updated graphics (analog and digital).
- Reconnaissance to initiate, if any.
- Movement to initiate, if any.
- Earliest time of movement.
- Planning and preparation instructions (including planning timeline).
- Commander's critical information requirements.
- Changes to task organization, if any.
- Use of specialized equipment, if any.
- Attachment of enablers, if any.
- Recommended supply load (see chapter 4 for classes of supply).
- Key events to rehearse and timeline to rehearse those events.
- Readiness condition and vehicle preparation schedule.
- Personal protective equipment modifications.
- Time and place for issuing the OPORD.

2-23. An essential element of the WARNORD is the initial planning timeline, including instructions or information that will help subordinates prepare for the upcoming mission. Issuing the initial WARNORD as quickly as possible enables subordinates to maximize their planning and preparation time (parallel planning) while the platoon leader begins to develop the OPORD. Upon receipt of more information, the platoon leader issues an updated WARNORD, if time is available, to provide subordinates all of the relevant information available. Otherwise, the platoon leader gives the information during the platoon OPORD brief.

2-24. Figure 2-3 on page 2-8 is an example of a concept sketch the platoon leader may receive from their commander. It shows the commander's task and purpose, along with the task and purpose for each platoon. Each platoon leader uses a concept sketch to make a tentative plan.

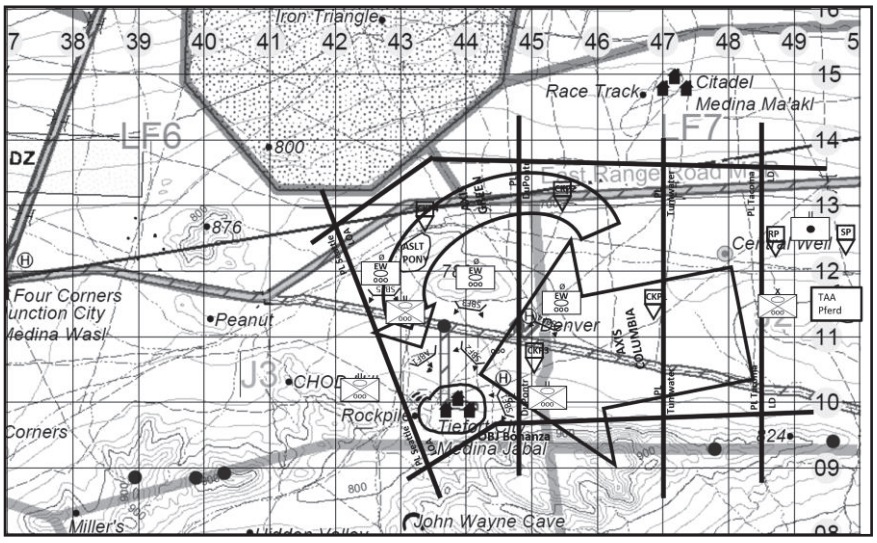

Figure 2-3. Example concept sketch

STEP 3 – MAKE A TENTATIVE PLAN

2-25. Platoon leaders begin to develop a tentative plan after issuing the platoon WARNORD. They should not wait for a complete company OPORD before starting to develop a tentative plan.

MISSION ANALYSIS

2-26. Mission analysis helps the platoon leader determine—

- The current situation.
- The platoon's mission.
- How to best accomplish the mission.
- The possible risks.
- Mission-based spectrum observation requirements for electromagnetic support.
- Calculated effective received power at target for electromagnetic attack.

2-27. The platoon leader begins mission analysis immediately upon receipt of the mission. During mission analysis, the platoon leader restates the assigned mission and conducts an initial risk assessment.

2-28. Though mission analysis is an ongoing process, the platoon leader adheres to the one-third–two-thirds technique to give subordinates sufficient time to prepare at their level. One-third of the time available remains set aside for the platoon leader to prepare and issue an order, while the remaining two-thirds of the time is for team chiefs to disseminate the order to their teams and prepare for the mission.

2-29. The platoon leader will conduct a more in-depth mission analysis by evaluating the mission variables of METT-TC (I), with special emphasis on the EW-related aspects of the mission and operational environment. The platoon leader is concerned about the physical aspects of the mission variables as well as cyberspace and the electromagnetic spectrum. Information about the uses of the electromagnetic spectrum can be found in Appendix 12 (Cyberspace Electromagnetic Activities) to Annex C (Operations), Tab E (Electromagnetic Support). The platoon leader briefs the mission analysis results and their importance, enabling the platoon to recognize and seize opportunities during the mission.

MISSION VARIABLES

2-30. Mission variables describe characteristics of the area of operations and their impacts on a mission, including how these variables affect cyberspace and the electromagnetic spectrum. The mission variables are—

- Mission.
- Enemy.
- Terrain.
- Troops and support available.
- Time available.
- Civil considerations.
- Informational considerations.

2-31. During execution, continuous analysis of the mission variables enables the issuance of well-developed FRAGORDs. Platoon leaders assess whether any new information presented during planning changes their mission and decide how to adjust the plan to meet these new conditions.

2-32. METT-TC (I) analysis does not need to occur in any particular order. How and when platoon leaders analyze the variables depends on when they receive information and their experience and preferences. One technique is to conduct parallel troop leading procedures based on the planning products received from the higher headquarters.

Analysis of Mission

2-33. The platoon leader determines what their platoon has been told to do and why. Platoon leaders must understand the mission, intent, and operational concept one and two levels higher. Doing so makes it possible to exercise disciplined initiative and act to exploit limited windows of opportunity. In analyzing the mission, the platoon leader should also seek to understand the disposition and mission of other EW elements in the area of operations.

2-34. Platoon leaders use the following to gain this understanding:

- Supported unit mission, intent, and concept.
- Brigade, division, or corps (assigned unit) mission, intent, and concept.
- Unit’s purpose.
- Specified, implied, and essential tasks.

- Constraints.
- Define operational environment.
- Visual aids.

Supported Unit Mission, Intent, and Concept

2-35. Regardless of the echelon, leaders must understand the concept of the operation for the supported unit, identifying the tasks and purpose and how their immediate higher headquarters contributes to the operation. At platoon level, this is typically the battalion or squadron commander's mission, intent, and concept. This information appears in paragraph three of a company OPORD or paragraphs two and three of a battalion or squadron OPORD.

Brigade, Division, or Corps (Assigned Unit) Mission, Intent, and Concept

2-36. Leaders must understand their immediate higher headquarters' concept of the operation to identify their headquarters' task and purpose and their contributions to the mission. For an EW platoon, this is brigade, division, or corps commander's mission, intent, and concept. This information appears in paragraphs two and three of the company OPORD. Leaders also identify the tasks, purposes, and dispositions for supported maneuver elements and all adjacent EW elements under the platoon leader's control.

Platoon's Purpose

2-37. The platoon leader locates the platoon's purpose in the concept of the operation in paragraph three of the OPORD. The platoon's purpose helps achieve the purpose of the immediate higher headquarters. If platoon leaders are unclear about their purpose, they should ask the commander for further explanation.

2-38. Understanding the commander's intent and purpose helps the platoon leader exercise disciplined initiative under the mission command approach. In the presence of new information, the platoon leader knows the intent and purpose of the next higher headquarters and can adjust as needed to meet them. If all else fails, the platoon leader must be able to determine what the platoon needs to accomplish and why.

Tasks

2-39. Platoon leaders must identify and understand the task or tasks required to accomplish a given mission. The platoon leader allocates tasks to EW teams for execution with a task, purpose, and end state to each EW team chief, and the technical spectrum data necessary to support the EW-related tasks. The three types of tasks are—

- Specified.
- Implied.
- Essential.

2-40. A *specified task* is a task specifically assigned to a unit by its higher headquarters (FM 5-0). Specified tasks appear in paragraph three of the OPORD, under tasks to subordinate units.

Example specified task: Task: Conduct electromagnetic attack to disrupt threat early warning in vicinity of OBJ LIONS on WRAPPER 1 not later than 221545FEBZ22. Purpose: Enable friendly forces to maneuver on OBJ LIONS.

2-41. An *implied task* is a task that must be performed to accomplish a specified task or mission but is not stated in the higher headquarters' order (FM 5-0). Implied tasks come from a detailed analysis of the OPORD, enemy situation and course of action, terrain, and from knowledge of doctrine and history. Platoon leaders rely on their experience and the experience of subordinate leaders to help identify the implied tasks.

Example implied tasks from the specified task identified above: Verify the target information of WRAPPER 1. An additional implied task for any electromagnetic attack mission is designating an observer, such as one of the EW teams, to conduct electromagnetic support on the target to observe for measures of effectiveness.

2-42. An *essential task* is a specified or implied task that must be executed to accomplish the mission (FM 5-0). Platoon leaders either decide which tasks are essential or are told directly by the higher-level commander. The essential tasks and the platoon's purpose are in the OPORD paragraph three, concept of the operation—if an implied task—or tasks to subordinate units—if a specified task.

Example essential task from the specified task identified above: Maneuvering the electromagnetic attack and electromagnetic support teams into geographic positions from which they execute their specified tasks.

2-43. Some specified, implied, and essential tasks that directly affect the platoon may appear in an annex and not in paragraph three of the OPORD. Either the platoon leader or platoon sergeant should review, at a minimum, Annex C (Operations) from the brigade, division, or corps OPORD, if available and if time permits.

Constraints

2-44. A *constraint* is a restriction placed on the command by a higher command (FM 5-0). A constraint dictates an action or inaction, thus restricting the freedom of action of a subordinate commander. Constraints primarily appear in paragraph three of the OPORD. Examples of constraints for an EW platoon are the joint restricted frequency list, the electromagnetic attack control authority, the location where electromagnetic attack is permitted, and intelligence gain or loss decisions.

Mission Statement

2-45. The platoon leader concludes the mission analysis by restating the platoon mission. To do this, they determine the five Ws—

- Who—the platoon.
- What—the platoon's essential task or tasks, type of operation, and EW team-level tasks necessary to support the platoon's tasks.
- When—the time given in the OPORD.
- Where—the objective or location stated in OPORD.
- Why—the platoon's purpose, taken from the concept of the operation.

Example mission statement: Not later than 180700ZAUG19, D/7 Brigade Engineer Battalion provides electromagnetic support within area of operations WARRIOR to enable command and control of 1/10 Infantry Brigade Combat Team defensive operations. On order, the EW platoon will conduct electromagnetic attack in support of 1-87 Infantry's attack on objective LIONS.

Define Operational Environment

2-46. Platoon leaders should understand the difference between each type of operational area and what their responsibility may be in each:

- *Area of operations*—an operational area defined by a commander for the land or maritime force commander to accomplish their missions and protect their forces (JP 3-0). This is a defined space by the higher commander. Platoon leaders should understand how the area of operations is affected by the electromagnetic spectrum and the space and cyberspace domains.
- *Area of influence*—an area inclusive of and extending beyond an operational area wherein a commander is capable of direct influence by maneuver, fire support, and information normally under the commander's command or control (JP 3-0). Cyberspace and the electromagnetic spectrum may extend the commander's area of influence well beyond the defined area of operations. The electromagnetic spectrum is limited to line of sight; however, this includes the space domain's use of the electromagnetic spectrum. The cyberspace domain is global and all-encompassing, so the platoon leader needs to understand how their desired effects may be impacted by cyberspace.
- *Area of interest*—that area of concern to the commander, including the area of influence, areas adjacent to it, and extending into enemy territory (JP 3-0). This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission. Examples of the area of interest for EW include host-nation and neighboring countries' civil and military use of the electromagnetic spectrum. The EW platoon primarily operates through the electromagnetic spectrum within its supported brigade combat team, division, or corps area of operations, based on maneuver control graphics.

Maneuver control graphics include direct fire control measures and fire support control measures provided by the higher headquarters.

Visual Aids

2-47. Platoon leaders prepare or receive a graphic depiction of terrain to help explain their findings regarding the effects of terrain and weather on the mission. The graphic depiction of terrain can be a photograph, digital map, a map overlay, or a terrain model. For EW platoons, the graphic also includes a plotted template of the electromagnetic spectrum, such as that provided by Systems Planning, Engineering and Evaluation Device or the Electromagnetic Warfare Planning and Management Tool. In the graphic depiction, leaders show terrain mobility classifications, key terrain, intervisibility lines, known obstacles, avenues of approach, mobility corridors, and limitations of EW systems. Refer to ATP 2-01.3 for more information about visual aids.

Analysis of Enemy

2-48. The second mission variable to consider is the enemy. The G-2 or S-2 provides an analysis of the enemy with which the unit anticipates contact. However, platoon leaders still need to know and understand the enemy's disposition, composition, strengths, doctrine (if known), equipment capabilities, vulnerabilities, and probable courses of action. Additionally, the line between enemy combatants and civilian noncombatants is sometimes unclear and therefore requires the leader to understand the law of land warfare, the rules of engagement, and the local situation.

2-49. Analyzing the enemy helps platoon leaders develop an understanding of what the enemy is doing and why. The platoon leader coordinates with the G-2 or S-2 section and the technical control and analysis cell to obtain the current enemy assessment for the next 28–72 hours, the threat estimate, the enemy situation template for the operation, threat characteristics, detailed terrain and weather products, and products concerning the electromagnetic aspects of the operational environment. These products and estimates support the platoon leader's situational understanding of —

- The composition and strength of the enemy force.
- The capabilities of enemy weapons and other systems that may affect EW capabilities.
- Maneuver.
- Manned and unmanned aircraft.
- Intelligence, surveillance, and reconnaissance capabilities.
- SIGINT.
- Artillery.
- Long-range precision fires.
- Electromagnetic attack.
- Electromagnetic protection.
- Cyberspace attack.
- Electromagnetic decoys and signals deception.

- Electromagnetic order of battle—how the enemy is expected to use its capabilities in the electromagnetic spectrum to achieve its objectives.
- Space-based capabilities.
- The location of current and anticipated enemy positions.
- The enemy's most probable course of action—defend, reinforce, attack, withdraw, or delay.
- The enemy's most dangerous course of action.

Assumptions

2-50. An *assumption* is a specific supposition of the operational environment that is assumed to be true, in the absence of positive proof, essential for the continuation of planning. (JP 5-0). Platoon leaders continually improve their situational understanding of the enemy and update their analog and digital enemy templates as new information becomes available. Platoon leaders should bring deviations or significant conclusions reached during intelligence preparation of the battlefield that could positively or negatively affect the plan to the G-3 or S-3 and commander through the CEMA section for awareness and, if necessary, action.

2-51. Assumptions should tell the platoon leader what information they still do not know or have not confirmed. Ideally, these assumptions will subsequently be turned into facts via available means to facilitate a more detailed and accurate analysis. Key assumptions for an EW platoon leader to enable planning include—

- Frequency deconfliction.
- The tasking unit's electromagnetic attack control authority.
- Serviceability of key equipment.

2-52. Planners should always attempt to either verify or invalidate assumptions to the greatest extent possible and adjust their plans accordingly.

How the Enemy Will Fight

2-53. The platoon leader should understand when, where, and how the enemy has historically used their assets. A doctrinal template is a visual illustration of how the enemy force looks and acts without the effects of weather and terrain. The doctrinal template should appear in the OPORD or be provided by the G-2 or S-2. Understanding how the enemy will fight is the starting point for the platoon leader's analysis of the enemy.

2-54. The enemy may not fight using any form of structured or published doctrine. In such a situation, platoon leaders rely on assessments made by the G-2 or S-2 and passed down through the chain of command.

Note. Communication and coordination with the technical control and analysis cell in the G-2 or S-2 improves mutual understanding of how the enemy fights in the electromagnetic spectrum. Cyber electromagnetic warfare officers need to be familiar with threat spectrum use, EW forces, and doctrinal employment of those forces in support of maneuver.

Composition

2-55. 2-55.Platoon leaders should be familiar with the basic characteristics of the enemy units, enemy weapons platforms—including long-range precision munitions—and enemy cyberspace and EW capabilities. Platoon leaders should be familiar with the basic characteristics of the enemy units, enemy weapons platforms (including long-range precision munitions), and enemy cyberspace and EW capabilities.

Disposition

2-56. From the G-2 or S-2 and commander's input, platoon leaders determine how the enemy is, or might be, arrayed, the echelon from where the enemy originated, and the disposition of the next two higher enemy elements. Previous terrain analysis also helps identify where the enemy may or may not be able to go, based upon the number and types of vehicles in their formation.

Strength

2-57. The platoon leader may determine the strength of the enemy element templated in the platoon's area of operations by way of requests for information through the commander to the G-2 or S-2. The employment of electromagnetic support can aid a platoon in understanding nearby enemy unit strength.

Capabilities

2-58. The platoon leader must know what weapon systems the templated enemy has. Knowing the maximum effective ranges of the enemy weapons systems, the platoon leader can better determine the vulnerability of EW sites to lethal fires and electromagnetic attack. Knowing the characteristics and capabilities of enemy cyberspace and EW capabilities, a platoon leader can better—

- Determine power and proximity requirements for electromagnetic attack
- Plan the placement of friendly teams to reduce vulnerability to enemy electromagnetic attack and direction finding.
- Respond to an enemy cyberspace or electromagnetic attack.

2-59. Understanding the capabilities of enemy equipment, such as frequency modulation, agility, and wartime reserve modes, better enables the platoon leader to respond to the tactical situation in real time.

Recent Activities

2-60. Platoon leaders can request information about recent enemy activities in the platoon's area of operations from the G-2 or S-2 through the G-3 or S-3 and the commander. Knowing what the enemy has done in the past may indicate likely future enemy courses of action. Recent activity can assist the platoon leader in predicting the location of high-payoff targets such as counterfire radar systems or enemy command and control nodes which better enable them to position forces.

Enemy Situation Template

2-61. The situation template is a refined version of the doctrinal template, accounting for the effects of terrain, weather, and all previous enemy analysis. The platoon leader may receive a detailed situation template from the commander, either as an analog map overlay, digital joint capabilities release graphic, or Electromagnetic Warfare Planning and Management Tool graphic but should be prepared to generate one for the platoon, if necessary. The situation template is portrayed one echelon lower than the one developed by the next higher headquarters. For example, if the EW platoon receives indicators and warnings that the enemy is conducting a cyberspace or electromagnetic attack that impacts the primary means of communication, the platoon leader can take immediate action to report and mitigate its effects or initiate the PACE plan.

2-62. The situation template includes—

- Likely sectors of fire of enemy weapons.
- Templated locations of enemy scouts, observers, and pre-planned fires.
- Tactical and protective obstacles.
- Electromagnetic order of battle—either confirmed or templated.

2-63. Platoon leaders use the electromagnetic order of battle to plot the electromagnetic spectrum in their area of operations. Table 2-1 on page 2-17 shows recommended enemy situation template items. Refer to ATP 2-01.3 for more information on enemy situation templates. Refer to JP 3-85 for more information about the electromagnetic order of battle.

Table 2-1. Recommended enemy situation template items

Defense	*Offense*
Primary, alternate, and subsequent positions	Attack formations
Engagement area	Axes of advance
Individual vehicles	Firing lines
Crew-served weapons	Objectives
Tactical and protective obstacles	Reserve force commitment
Trenches	Planned indirect fire targets
Planned indirect fire targets	Situational obstacles
Observation posts	Reconnaissance objectives
Command and control positions	Reconnaissance force routes
Final protective fires and final protective line	Phase lines
Locations of reserves	Planned point of penetration
Routes for reserve commitment	Enemy emitters that may require electromagnetic attack effects
Travel time for reserve commitment	
Battle positions, strong point, area of operations	
Sectors of fire	
Plot of the electromagnetic spectrum	

2-64. The situation template is an estimate of the enemy disposition used by the platoon leader as a briefing tool. Leaders must update the situation template when new information changes previous assumptions.

Note. Many allies use equipment similar or nearly identical to that of threat militaries. All platoon members need a robust knowledge of vehicle identification and must be able to identify allied and enemy vehicles from multiple angles, at varying distances, and in conditions of limited visibility.

Information Requirements

2-65. The platoon may be directly or indirectly tasked to answer one or more of the commander's information requirements. The platoon leader must ensure all personnel in the platoon know what to look for and to report changes to the status of friendly capabilities. The commander's information requirements consist of the commander's critical information requirements and essential elements of friendly information.

2-66. Commander's critical information requirements (see figure 2-4 on page 2-19) consist of priority intelligence requirements and friendly force information requirements:

- *Priority intelligence requirement*—the intelligence component of commander's critical information requirements used to focus the employment of limited intelligence assets and resources against competing demands for intelligence support (JP 2-0). Priority intelligence requirements are clear, answerable, focused on a single question, and necessary to drive an operational decision. While an EW platoon does not conduct intelligence collection, it directly supports the unit's information collection activities. Examples of EW-related priority intelligence requirements include—
  - The location of an enemy fire direction radar—The EW platoon conducts electromagnetic support and produces lines of bearing towards the emitter radiating in the known fire finding radar spectrum range as part of the unit ISR plan. The G-2 or S-2 combines the EW platoon combat information with overhead imagery to confirm the location of the enemy fire finding radar to answer the priority intelligence requirement.
  - The location of enemy communications systems—The EW platoon conducts electromagnetic attack on commercial spectrum-dependent communications equipment, which forces the enemy to use military-specific radios (communications herding mission). This allows SIGINT assets to direction find and geolocate emitters that ELINT and COMINT confirm are known enemy emissions, which the G-2 or S-2 validates with other intelligence sources to answer the priority intelligence requirement.
- *Friendly force information requirement*—information the commander and staff need to understand the status of friendly force and supporting capabilities (JP 3-0). Examples of an EW platoon-related friendly force information requirements include—
  - Notification if an organic EW capability is deadlined for any reason.
  - Notification if a crew member is injured, incapacitated, or killed.

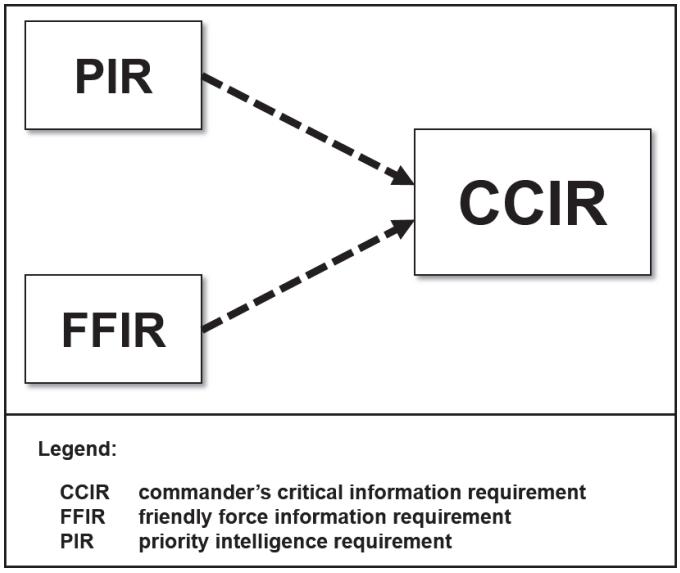

Figure 2-4. Commander's critical information requirements

2-67. Essential elements of friendly information are not commander's critical information requirements but are critical aspects of a friendly operation that, if known by the enemy, would compromise or lead to the failure of the operation. Consequently, this information needs protection from identification by the enemy. EW-related essential elements of friendly information are the type of information typically, but not exclusively, found in system technical manuals. Examples of essential elements of friendly information include—

- The maximum power output of an organic electromagnetic attack system.
- The upper and lower frequency ranges of an electromagnetic support system.

Analysis of Terrain and Weather

2-68. Analysis of terrain helps leaders understand the terrain's effect on the mission. Platoon leaders consider the effects of man-made and natural terrain in conjunction with the weather on friendly and enemy operations. The platoon leader bases analysis of terrain and weather on the physical and electromagnetic effects they may have on the EW platoon—for example, whether terrain will mask a signal or whether a vehicle can access a certain area—as well as the effects they may have on the electromagnetic operational environment.

2-69. Terrain can be categorized into three separate categories:

- **Unrestricted**—terrain free of restrictions to movement—no actions are necessary to enhance mobility. For the EW platoon, unrestricted terrain typically is flat or moderately sloped, with scattered or widely-spaced obstacles such as trees or rocks and no major terrain features or man-made

structures that would interfere with direction finding and electromagnetic attack systems.

- **Restricted**—terrain hindering movement somewhat. Little effort is needed to enhance mobility, but units might have to adjust speed and formations, or make frequent detours. For the EW platoon, restricted terrain typically means moderate to steep slopes or moderate to dense spacing of obstacles such as trees, rocks, or urban structures that would interfere with direction finding and electromagnetic attack. Mountains, steep hills, and man-made structures are examples of restricted terrain for EW forces. Restricted or severely restricted terrain is important in planning to determine whether the EW platoon's vehicles can traverse the terrain and if not, the need to conduct dismounted operations.
- **Severely restricted**—terrain which severely hinders or slows movement of combat formations unless some effort is made to enhance mobility. Engineer forces might be needed to improve mobility, or the platoon might have to deviate from doctrinal tactics. Dense buildings and infrastructures, heavy vegetation, and valleys severely restrict the ability of EW forces to perform direction finding and electromagnetic attack tasks. Severely restricted terrain can canalize forces and should be avoided. Terrain composition is also an important factor for EW forces. For example, tall buildings and rocky canyons can cause multi-path propagation and cause positioning, navigation, and timing errors. This terrain can also amplify the effects of enemy jamming.

2-70. Terrain analysis should produce several specific conclusions for the platoon leader:

- Potential battle, support-by-fire, and attack-by-fire positions.
- Possible engagement areas and ambush sites.
- Asset locations such as—
  - Enemy lethal fires.
  - Enemy emitters.
  - Enemy electromagnetic attack capabilities.
- Template of enemy forces and essential weapon systems.
- Likely avenues of approach.
- Observation post locations.
- Potential breach locations.
- Areas which increase the range of communications systems.
- Positioning of own assets.
- Understanding of time and space relationships of events, leading to thorough contingency plans.
- Identifying possible enemy indirect firing points.
- Selection of movement techniques and formations, including when to transition from movement to tactical maneuver.
- Ability of both friendly and enemy forces to use natural or man-made features to mask electromagnetic signatures.

- Effect of soil type on radio frequency propagation.
- Ability to mask the unit's electromagnetic signature within the noise floor of an area.
- Ability of enemy forces to mask their electromagnetic signature within the noise floor of an area, making detection of enemy signals difficult.

2-71. Limited planning time may force platoon leaders to prioritize their terrain analysis. For example, in support of an attack, they might prioritize the areas immediately around the objective for analysis, followed by the maneuver element's specific axis leading to the objective.

2-72. From the modified combined obstacle overlay developed by the G-2 or S-2, platoon leaders develop their understanding of the general nature of the ground and the effects of weather, including space weather. They must go beyond passing along the modified combined obstacle overlay to their subordinates or making general observations of the terrain, such as identifying high ground or streams. Platoon leaders must conduct their own analysis and determine how the terrain and weather uniquely affect both the enemy and the platoon.

2-73. Following terrain analysis, platoon leaders develop a graphic terrain analysis overlay. This product is similar to the modified combined obstacle overlay in that it shows the critical military aspects of terrain. The terrain analysis overlay facilitates planning and aids in briefing subordinates.

2-74. In general, terrain and weather do not favor one side over the other unless one is better prepared to operate in the environment or is more familiar with it. The terrain may, however, favor defending or attacking forces.

2-75. Platoon leaders analyze terrain using the categories of observation and fields of fire, avenues of approach, key terrain, obstacles, and cover and concealment to determine the effects of each aspect of terrain on friendly and enemy forces.

Obstacles

2-76. Platoon leaders identify existing and reinforcing obstacles that might limit mobility or EW capabilities in the area of operations. They should also analyze whether existing and reinforcing obstacles either hinder or enhance their ability to perform EW missions, since obstacles may also affect radio frequency propagation. Either friendly or enemy forces may use obstacles to gain an advantage. For instance, the unit may use obstacles to mask electromagnetic emissions from enemy detection. Likewise, the obstacles may prevent friendly EW elements from detecting or direction-finding enemy emitters. Obstacles may also provide protective cover and concealment for friendly or enemy formations and weapon platforms. Obstacles include—

- Existing obstacles.
  - Natural—includes rivers, forests, mountains, ravines, gaps, and ditches more than three meters wide, tree stumps and large rocks more than 18 inches high, forests with trees eight inches or more in diameter (with less than four meters between trees).

- Man-made—includes urban areas, canals, ditches, railroad embankments, buildings, power lines, or telephone lines.

- Reinforcing obstacles.
  - Tactical—inhibit the ability of the opposing force to move, mass, and reinforce. Examples include mine fields (conventional and situational), anti-tank ditches, or wire obstacles.
  - Protective—offer close-in protection and are important to survivability.

2-77. Offensive considerations when analyzing obstacles and restricted terrain include—

- How the enemy is using obstacles and restricted terrain, including whether the obstacles mask detection of friendly emitters.
- The composition of the enemy's reinforcing obstacles.
- How obstacles and terrain may affect the movement or maneuver of the unit.
- Whether friendly forces can avoid or reduce such features if necessary.
- How the platoon can detect and—if desired—bypass the obstacles.
- Where the enemy has positioned weapons to cover the obstacles, and what types of weapons they are using.
- If the platoon must support a breach, where the expected breach site is and where the enemy will overwatch the obstacle.

2-78. Defensive considerations when analyzing obstacles and restricted terrain include—

- Where the enemy wants to go.
- How existing obstacles and restricted terrain may affect the enemy.
- How to protect command posts, signal systems, and EW systems from enemy detection using terrain masking techniques.

Avenues of Approach

2-79. An avenue of approach is an air or ground route of an attacking force of a given size leading to its objective or to key terrain in its path. Avenues of approach exist in all domains. Avenues of approach are classified by type (mounted, dismounted, air, or subterranean), formation, and speed of the largest unit traveling on it. The platoon leader primarily focuses on identifying mounted avenues of approach and virtual avenues of approach in cyberspace and the electromagnetic spectrum. An example of this could include cellular infrastructure and how handsets are handed off between towers, radio retransmission locations, or which routing path is best for network transmissions.

2-80. Since EW teams may not be as mobile as, or have the robust defensive capabilities of, maneuver elements, EW planners and leaders should be careful to avoid selecting sites along likely enemy avenues of approach.

2-81. Mobility corridors are classified based on the distance between the terrain features that form the corridor. Though their ranges are not absolute, mobility corridors reflect the relative and approximate distance between terrain features. Refer to ATP 2-01.3 for more information on mobility corridors.

2-82. Offensive considerations the leader can include in evaluating avenues of approach include—

- How the EW platoon's sites can support each friendly avenue of approach to support movement and maneuver.
- How each avenue will support movement techniques, formations and, once the unit makes enemy contact, maneuver.
- Whether variations in trafficability necessitate changes in formations or movement techniques, or require clearance of restricted terrain.
- The advantages and disadvantages of each avenue of approach.
- The enemy's likely counterattack routes.
- Which lateral routes the platoon could use, and which the enemy could use to threaten the platoon's flanks.
- How each avenue of approach will affect the rate of movement.
- Whether or not the platoon can conduct electromagnetic attack or electromagnetic support while on the move.

2-83. Defensive considerations the leader can include in evaluating avenues of approach include—

- Likely enemy avenues of approach into the platoon's area of operations.
- How the enemy can use each avenue of approach.
- Lateral routes the enemy could use to threaten the platoon's flanks.
- Site defensive plans and escape routes for EW sites.

Key Terrain

2-84. *Key terrain* is any locality, or area, the seizure or retention of which affords a marked advantage to either combatant (JP 2-0). Identification of key terrain is a conclusion, usually arrived at after enemy analysis and development of the plan, rather than by direct observation. For EW platoons, key terrain also includes those portions of the electromagnetic spectrum most critical to operations.

2-85. A prominent hilltop overlooking an avenue of approach may or may not be key terrain. Clear observation and fields of fire means little if the enemy can easily bypass it. However, if it offers cover and concealment, observation, and good fields of fire on multiple avenues of approach, or is on the only avenue of approach, then it offers a definite advantage to whoever controls it. For the EW platoon, key terrain provides radio line of sight to a target. This can include the paths a signal of interest may or must take to complete the communication. Achieving line of sight may require control of a prominent terrain feature. The CEMA section normally analyzes and identifies key terrain during the military decision-making process; the EW platoon leader refines site analysis and selection to best utilize the key terrain during operations.

2-86. Key terrain in cyberspace corresponds to nodes, links, processes, or assets in cyberspace, whether part of the physical, logical, or cyber-persona layer. Key terrain in cyberspace may include—

- Locations in cyberspace in which friendly forces can gather intelligence.

- Locations in cyberspace that support network connectivity.
- Entry points to friendly networks that require priority for defense.
- Locations in cyberspace that friendly forces require access to for essential functions or capabilities.

2-87. *Decisive terrain* is key terrain whose seizure and retention is mandatory for successful mission accomplishment (ADP 3-90). Some situations have no decisive terrain.

2-88. Platoon leaders look at tactical considerations in analyzing key terrain and consider the following:

- Whether the terrain is important for friendly observation, both for command and control and in calling for fire.
- Whether the terrain is important to the enemy and why.
- Whether the terrain is important to the platoon.
- Which terrain the higher headquarters has identified as key terrain.
- Whether this terrain is also important to the enemy.
- Whether the enemy controls this key terrain.
- Whether the terrain provides a dominant effect on the area of operations, such as control of a dam.
- Whether the terrain supports terrain masking to prevent the enemy detecting friendly communications and noncommunications emitters.
- Whether the terrain affects employment of EW capabilities, such as direction finding and electromagnetic attack.
- Which portions of the electromagnetic spectrum the CEMA section has identified as most critical to the unit's operation.

Observation and Fields of Fire

2-89. Platoon leaders identify locations along each avenue of approach that provide clear observation and fields of fire for the attacker and defender. They analyze the area surrounding key terrain, objectives, engagement areas, and obstacles; and locate intervisibility lines (ridges or horizons which can hide equipment or personnel from observation). They also assess the ability of the attacking force to overwatch or support movement with direct fire. For the EW platoon, observation and fields of fire also include an assessment of the teams' ability to detect enemy signals and deliver electromagnetic attack effects.

2-90. Intervisibility lines interfere with the line of sight necessary to detect an enemy emitter. An intervisibility line analysis enables the leader to visualize the profile view of terrain using only a topographic map. Intervisibility lines can aid an EW platoon to maneuver into a hide site location. Successful employment of EW systems in the past have used intervisibility lines to hide vehicles and used a remote tether to position system antennas in a camouflaged location on the military crest of the line. EW equipment may overcome an intervisibility line to regain line of sight by elevating antennas or EW systems above ground level.

2-91. An intervisibility line exists only relative to the location of the known or suspected enemy position and the friendly platoon. Once either the platoon or the enemy unit moves from its location, the intervisibility line may no longer mask friendly movement. Ways to overcome intervisibility line issues may be to use an elevated position for the antenna, such as using 550-cord to haul up an antenna and remoting control to the control interface. Figure 2-5 shows an example of an intervisibility line.

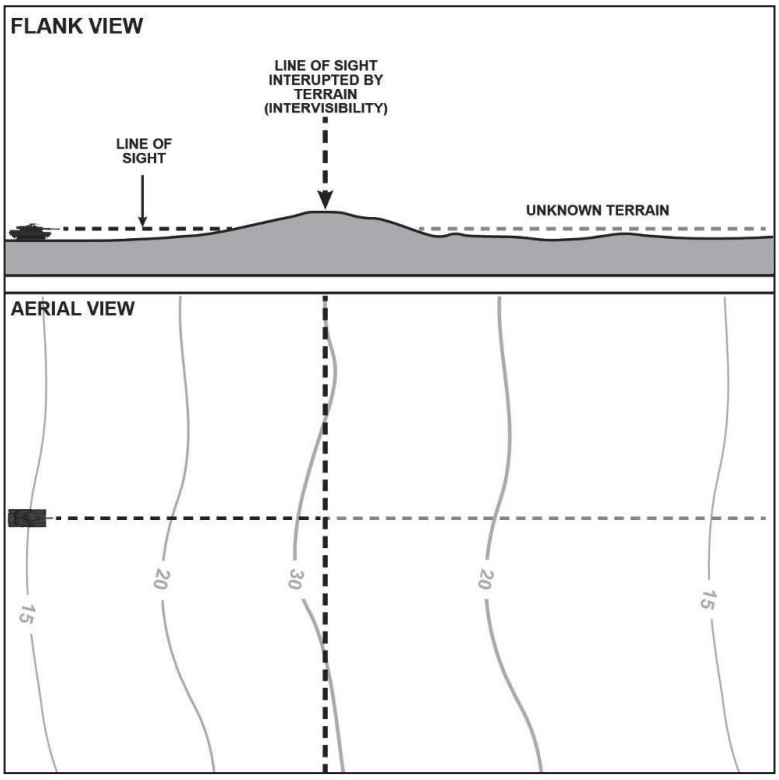

Figure 2-5. Example intervisibility line

Note. When analyzing fields of fire, platoon leaders consider the friendly and enemy potential to cover avenues of approach and key terrain, in particular, with direct fires. Additionally, platoon leaders identified as an observer—either primary or alternate—for indirect fires, identify positions where they can adequately observe the impact and effects of mortar or artillery rounds and adjust as required.

2-92. Offensive considerations when analyzing observation and fields of fire include—

- Whether clear observation and fields of fire are available on or near the objective for enemy observers and weapon systems.
- Where the enemy can concentrate fires.

- Where the enemy will be unable to concentrate fires.
- Where the enemy is vulnerable.
- Where friendly forces can conduct support by fire or assault by fire.
- Where the natural target registration points are.
- Whether EW teams tasked with electromagnetic support have line of sight to the target.

2-93. Defensive considerations in analyzing observation and fields of fire include—

- Locations that have clear observation and fields of fire along enemy avenues of approach.
- Where the enemy will establish firing lines or support by fire positions.
- Where friendly forces will be unable to mass fires.
- Where dead space exists in the area of operations and how that affects electromagnetic spectrum propagation.
- Where the platoon is vulnerable.
- Where natural target registration points exist.
- How obvious these positions are to the enemy.

Cover and Concealment

2-94. All leaders in the platoon look at the terrain, foliage, structures, and other features along avenues of approach and on objectives or key terrain to identify sites that offer adequate cover and concealment. *Cover* is protection from the effects of fires (FM 3-96), while *concealment* is protection from observation or surveillance (FM 3-96). In the defense, positions must be lethal to the enemy and survivable by the platoon.

2-95. Concealment—more specifically camouflage—is critical when enemy aviation assets, unmanned aircraft systems, observers, or SIGINT may be present in the area of operations. Preventing the enemy from identifying the composition or disposition of the EW platoon reduces the likelihood of targeting by enemy direct or indirect fires.

2-96. Platoon leaders analyze cover and concealment, taking both offensive and defensive considerations into account:

- Offensive considerations include—
  - The axis which affords clear fields of fire, lines of bearing, and cover and concealment.
  - The terrain which provides bounding elements with cover and concealment while increasing lethality.
- Defensive considerations include—
  - Locations that afford cover, concealment, and good observation.
  - How friendly and enemy forces can use the available cover and concealment—including terrain, infrastructure, and buildings—to avoid detection, either visually or in the electromagnetic spectrum.

- How friendly forces can use terrain masking or man-made structures to conceal or minimize their electromagnetic signature to prevent detection by the enemy.

Military Aspects of Weather

2-97. The military aspects of weather are—

- Visibility.
- Winds.
- Precipitation.
- Cloud cover and ceiling.
- Temperature and humidity.
- Atmospheric pressure.
- Solar weather.
- Thermal crossover.

2-98. Platoon leaders determine how the weather will affect visibility, radio frequency propagation, mobility, and survivability of the platoon and that of the enemy, reviewing the commander's conclusions and identifying their own. Refer to ATP 2-01.3 for more information about weather analysis.

Visibility

2-99. Platoon leaders identify critical conclusions about visibility factors such as light data, fog, smog, smoke, and dust. They consider light data and identify critical conclusions about beginning of morning nautical twilight, sunrise and sunset, end of evening nautical twilight, moonrise and moonset, and percentage of illumination. Some additional visibility considerations include—

- Whether the sun will rise behind the attack or in the platoon members' eyes.
- How the platoon can take advantage of limited illumination.
- How visibility will affect enemy target acquisition.
- When night vision devices will be most effective or ineffective.
- Whether certain parts of the platoon area of operations are prone to fog at particular times of the day or times of the year.
- How fog, smoke, smog, and airborne dust affect radio frequency propagation and direction-finding abilities.

Winds

2-100. Winds of sufficient speed can reduce the combat effectiveness of a force downwind as the result of blowing dust, obscurants, sand, or precipitation. The upwind force usually has better visibility. CBRN operations usually favor the upwind force. Windblown sand, dust, rain, or snow can reduce the effectiveness of radar and communications systems.

2-101. Wind is described as from…to…as in winds are from the east moving to the west. The leader must determine—

- Whether wind speed will cause obscurants to dissipate quickly.
- Whether wind speed and direction will favor enemy use of obscurants.
- Whether wind speed and direction will affect either friendly or enemy employment of antenna masts.
- Effect of wind on the dust trail of vehicles and dismounts.
- Effect of wind on the sound propagation of the EW platoon's vehicles, voices, and power generation equipment.
- The potential for CBRN contamination.

2-102. The smell of petroleum products used in the EW platoon's vehicles and generators can carry in heavy winds, revealing the general location of a concealed or camouflaged position. Depending on the direction, heavy winds can either mask the sound of a generator or cause the sound to carry considerable distances. All leaders in the EW platoon must consider how their individual systems will benefit from, or be hindered by, the wind.

2-103. Radio frequency systems—especially large antennas—may suffer adverse effects from high winds. Some antenna systems require extra guy wires, supports, and anchor stakes to withstand heavy wind loading. Wind-blown sand and grit can damage electrical wire insulation over time or clog the environmental control units commonly used to cool radio frequency transmitting and receiving assemblages.

Precipitation

2-104. Precipitation includes rain, sleet, snow, and hail. Precipitation affects soil trafficability, visibility, and optical systems. Heavy precipitation can reduce the quality of supplies in storage. Heavy rain or snow cover can reduce the efficiency of many EW systems, particularly those that operate at higher frequencies. Precipitation considerations include—

- How precipitation, or lack of precipitation, will affect the mobility of the unit or of enemy forces.
- How precipitation, or lack of precipitation, will add to the unit achieving surprise.
- Particular locations in the area of operations that the platoon should avoid during times of increased precipitation, either due to flooding or extremely loose or muddy soil.
- Particular portions of the route that may be susceptible to freezing or black ice due to precipitation.
- How rain, sleet, snow, and hail affect friendly and enemy radio frequency propagation.
- How lightning in the area induces background noise in the electromagnetic spectrum.

Cloud Cover

2-105. Cloud cover affects ground operations by limiting illumination and solar heating of targets. Heavy cloud cover may degrade target acquisition systems, infrared guided munitions, and general aviation operations. Partial cloud cover can cause glare, a condition attacking aircraft or unmanned aircraft system might use to conceal their approach to the target.

2-106. Some types of clouds reduce the effectiveness of radar systems. Clouds may reflect, absorb, scatter, diffract, or refract radio waves. Cloud cover affects different frequencies of radio waves to greater or lesser extent. Heavy cloud cover or fog may reduce the performance of radio frequency systems that operate in higher frequency ranges. As an example, extremely high frequency and super high frequency signals suffer much greater signal loss through heavy cloud cover than systems that operate in lower frequency ranges. Cloud cover considerations include—

- How cloud cover will affect radio frequency propagation.
- Periods during which cloud cover will reduce the effectiveness of EW equipment.

Temperature and Humidity

2-107. Extreme shifts in temperature and humidity reduce personnel and equipment capabilities and may require the use of special shelters or equipment. Air density decreases or increases with changes in temperature and humidity. The leader identifies critical factors about temperature, including high and low temperatures and the effects of obscurants and CBRN. Temperature and humidity considerations include—

- How temperature and humidity will affect the team and equipment.
- Whether temperatures and humidity favor the use of non-persistent CBRN.
- How extreme heat or extreme cold will affect battery life in handheld devices, such as radios and optics.

Atmospheric Pressure

2-108. Atmospheric pressure may significantly impact aviation operations, including those of unmanned aircraft systems. Based on the elevation of the area of operations, atmospheric pressure may affect the lift capacity of aircraft, including resupply and medical evacuation helicopters, if present in the area of operations.

Solar Weather

2-109. Several types of solar activity cause ionized particle streams that intensify background radio frequency noise levels. These changes in solar wind speed and density disturb the Earth's magnetic field as they sweep by, creating geomagnetic and ionospheric storms. The fundamental drivers of solar weather activity include solar flares and coronal mass ejections. These solar weather disturbances may degrade both commercial and military (friendly and enemy) spectrum-dependent capabilities, especially satellites. In extreme circumstances, solar weather may cause a loss of system

performance or may short-circuit electronic components. Refer to FM 3-14 for more information about solar weather.

Thermal Crossover

2-110. *Thermal crossover* is the natural phenomenon that normally occurs twice daily when temperature conditions are such that there is a loss of contrast between two adjacent objects on infrared imagery (JP 3-09.3). Periods of thermal crossover may provide ideal times to move because the ambient temperature matches objects, so they are harder to detect using infrared sensors. The platoon leader may request estimated thermal crossover times from the weather section of the brigade, division, or corps staff.

Analysis of Troops and Support Available

2-111. Platoon leaders realistically and objectively study their platoon to determine the number, type, capabilities, and condition of available friendly troops and other available support. Analysis of troops and support determines what assets will be available to accomplish the mission and the combat potential of the unit. The platoon leader and platoon sergeant attempt to determine—

- The strengths and weaknesses of subordinate leaders.
- The supply status of class I, III, and V and other necessary items.
- The present physical condition of the platoon—health, morale, and sleep.
- The condition of the platoon's assigned equipment.
- The unit's training status and experience relative to the mission.
- Additional personnel or units that will accompany the platoon.
- Additional assets required to accomplish the mission.
- The condition of attached units or those in direct support.
- Indirect fire available, by type, and when it will become available.
- Site defense augmentation available.
- Presence of other friendly EW and SIGINT formations in neighboring areas of operations that may be able to provide additional support to the platoon's mission.
- Availability of joint assets which could provide additional electromagnetic support, SIGINT, or electromagnetic attack capabilities.

Note. Security force augmentation for remote sites may not always be available. EW Soldiers must be adequately prepared to defend remote sites, though EW teams are not equipped to defend against a large enemy force. Teams should try to remain concealed and report enemy activity to higher headquarters. EW teams conduct continual risk assessments from remote sites to determine survivability and the probability of mission success. Platoon leaders must carefully track specific threats and move teams quickly when in danger.

2-112. The platoon leader cannot be expected to think of every aspect of the platoon to analyze, and so requests assistance when the situation exceeds the platoon's capabilities. Assistance can come from either within or external to the unit.

Analysis of Time Available

2-113. Platoon leaders visualize their platoon in time and space. As events occur, the platoon leader adjusts the time available to the platoon and assesses its impact on the mission. Understanding how long it takes to execute a task helps determine where the platoon will be upon completion of that task. The platoon leader must consider—

- Overall time available.
- Priorities of work to be accomplished, including security, maintenance, resupply, coordination, rehearsals, inspections, and sleep.
- Time required for planning and preparation.
- Times specified by the commander in the OPORD for such activities as movement, reconnaissance, rehearsals, and logistics package operations.
- Brigade or higher timelines.
- Enemy timeline.
- Time required to move and set up hide sites.

2-114. Platoon leaders conduct reverse planning to ensure the platoon can accomplish all specified, implied, and essential tasks in the time available. They develop a reverse planning timeline, beginning with actions on the objective and working backward through each step of the operation and preparation to the start time.

Analysis of Civil Considerations

2-115. *Civil considerations* are the influence of man-made infrastructure, civilian institutions, and attitudes and activities of the civilian leaders, populations, and organizations within an area of operations on the conduct of military operations (ADP 6-0). Civil considerations in the operational environment either help or hinder friendly or enemy forces. The difference lies in taking the time to learn the situation and its possible effects on the operation. Considerations in analysis of civil considerations include—

- How civil considerations will affect the operation.
- How the operation will affect civilians.
- Electromagnetic attack effects on host-nation infrastructure and spectrum use, including the effects of harmonic frequencies.
- Whether certain portions of the civilian frequency spectrum—for instance, family radio system or cellular communications—simultaneously support civilian use and enemy and friendly operations.
- How friendly forces build national will in the platoon's area of operations.

2-116. The brigade, division, or corps provides EW companies and platoons an analysis of civil considerations that affect the mission. The memory aid the commander and staff may use to analyze and describe these civil considerations is areas, structures,

capabilities, organizations, people, and events. Refer to ATP 2-01.3 for more information about civil considerations.

RISK ASSESSMENT

2-117. *Risk assessment* is the identification and assessment of hazards (first two steps of the risk management process) (JP 3-26). Leaders at all levels manage risk to protect the force and aid in mission accomplishment. The platoon leader identifies risks based on the results of mission analysis. The platoon leader and platoon sergeant conduct continual risk assessment throughout the duration of the mission.

2-118. Once leaders identify risks, they apply controls to mitigate or eliminate those risks. The commander establishes the overall risk tolerance level for the mission. Platoon leaders determine in their plan how to reduce risk to an acceptable level. For example, EW platoon leaders may mitigate the risk of fratricide by maintaining awareness of transmit power levels of various equipment, both from a personnel safety aspect (radiated energy)—hazards of electromagnetic radiation to personnel, hazards of electromagnetic radiation to ordnance, and hazards of electromagnetic radiation to fuel—and the likelihood of detection by an enemy force (emission control). Refer to ATP 5-19 for more information on the risk management process.

DEVELOP THE PLAN AT THE PLATOON LEVEL

2-119. The platoon leader generally receives a directed course of action from the commander. As a result, the platoon leader has only to determine how to accomplish the platoon's assigned tasks while meeting the commander's intent.

2-120. The platoon leader begins to develop a plan that is—

- **Suitable**—must accomplish the given task.
- **Feasible**—is executable given the skills, time, and resources on hand.
- **Acceptable**—the military advantage gained justifies the expected cost.
- **Distinguishable**—differs sufficiently from other approaches (if required) considered to achieve the given task.
- **Complete**—fully addresses who, what, where, when, and how, from start to finish.
- **Ethical**—conforms to the Law of Armed Conflict and considers effects on non-hostile uses of the electromagnetic spectrum.

2-121. The platoon leader compares and contrasts friendly combat power with the enemy, looking to—

- Identify an enemy weakness to exploit.
- Identify friendly strengths to exploit the enemy weakness.
- Identify enemy strengths to mitigate.
- Identify friendly weaknesses to protect.

2-122. The platoon leader may be able to accomplish the given task and purpose in more than one way. The platoon leader considers tactics, techniques, and procedures

from doctrinal publications, tactical SOPs, history, lessons learned and best practices, or other resources to determine whether a solution to a similar tactical problem already exists.

2-123. The platoon leader determines what combinations of personnel and systems are necessary to accomplish the assigned tasks. This is known as assigning troops to task, based on the mission variables of METT-TC (I) the leader faces, such as having an attachment of engineers or other enablers.

2-124. The platoon leader identifies the best ways to use the available terrain to mitigate the enemy's ability to detect and locate friendly transmissions. The platoon leader develops the maneuver control measures necessary to execute the mission, prevent fratricide, and clarify the task and purpose.

2-125. The platoon leader ensures every EW asset in the platoon is available and prepared for employment, every asset is attached, and adequate control is provided for each element.

2-126. The platoon leader solidifies the plan by notionally fighting or war-gaming it against how they expect the enemy to operate. Asking what if throughout the process can help identify points of friction not previously considered.

2-127. This process may be done solely by the platoon leader, who reviews the plan up to that point, or by including the platoon sergeant and other subordinate leaders' input. This enables the platoon leader to—

- Determine how to maximize the effects of the platoon while protecting the platoon and minimizing collateral damage.
- Anticipate events in the area of operations.
- Determine conditions and additional resources required for success.
- Identify additional control requirements.
- Identify friendly coordination requirements.
- Recognize the time, space, and triggers needed to initiate EW site displacement.
- Develop control measures to aid in control, flexibility, and synchronization.
- Project sustainment expenditures, friendly casualties, and resulting medical requirements.
- Determine defense requirements for remote EW sites and coordinate with nearby units for support.
- Complete paragraphs three, four, and five of the OPORD.

STEP 4 – INITIATE MOVEMENT

2-128. Platoon leaders initiate movements necessary to continue mission preparation or to posture the unit for starting the mission. This step can take place any time during the sequence of troop leading procedures. It can include execution of priorities of work; movement to an assembly area, battle position, or a new area of operations; or the movement of guides or quartering parties.

STEP 5 – CONDUCT RECONNAISSANCE

2-129. EW site reconnaissance involves representatives from the parent unit G-3 or S-3 and key EW leaders. The reconnaissance team should ensure all key leaders from the platoon participate in site reconnaissance and maintain radio communications at all times. The proposed site should be large enough to accommodate all EW assemblages and support equipment.

2-130. Leaders must ensure the site is defensible and offers adequate escape routes to prevent overrun by an enemy force. They should also consider how well the team has concealed the site from major roads or other vantage points and how the site's natural terrain can support terrain masking to prevent enemy direction finding of unit communications or EW equipment. Passive electromagnetic support equipment can benefit from positions exposed to enemy sensors if the information from the electromagnetic support equipment can be transmitted back to a terrain masked position by wire, runner, or on a frequency outside of the enemy's spectrum detection range.

STEP 6 – COMPLETE THE PLAN

2-131. Platoon leaders refine their plan, prepare analog and digital overlays, complete sustainment requirements, and update the tentative plan based on the latest reconnaissance. Platoon leaders prepare briefing sites and other briefing materials they might need to present the OPORD directly to their platoon. Based upon the unit SOP and to maximize use of time, other members of the platoon may prepare graphics, overlays, briefing sites, or briefing materials.

2-132. Using the five-paragraph OPORD format helps platoon leaders explain all aspects of the operation:

- Situation.
- Terrain.
- Enemy.
- Higher and adjacent friendly units.
- Unit mission.
- Execution.
- Team tasks.
- Team purposes.
- Team priorities.
- Support.
- Command and signal.

2-133. The OPORD format serves as a checklist to ensure coverage of all relevant details of the operation. Ultimately, the plan should be as simple as possible, while at the same time ensuring the platoon's EW plan supports the commander's intent.

STEP 7 – ISSUE THE ORDER

2-134. The OPORD precisely and concisely explains the platoon leader's concept of how the platoon will accomplish its mission. Time and security permitting, the platoon leader issues the order from a vantage point overlooking the terrain on which the platoon will maneuver to as many members of the platoon as possible. The platoon leader should deliver the OPORD quickly, confidently, and in a manner that allows subordinates to concentrate on understanding the platoon leader's vision, not just repeating the order verbatim.

2-135. The platoon leader uses a terrain model, sand table, sketches, or a map to orient the platoon. The platoon leader can also build a model of the area of operations using a briefing kit that contains such items as engineer tape, colored yarn, 3 x 5-inch index cards, and micro vehicle models.

2-136. Whenever possible, platoon leaders issue the order in person. They look into the eyes of their subordinate leaders to gauge whether each one understands the mission and what the platoon must achieve. If platoon leaders already addressed an item adequately in a previous WARNORD, they simply state no change, or provide necessary updates. Ultimately, the platoon leader briefs the OPORD in the most effective manner to convey information to subordinates, whether over the radio, through available digital command and control platforms, or on a sand table, terrain model, or map.

2-137. Platoon leaders complete the order with a confirmation brief. At a minimum, team chiefs should be able to backbrief the platoon's mission and intent, the commander's intent, their own tasks and purpose, and when they will inform their teams of the mission details if they were not present at the OPORD brief. The confirmation brief provides an opportunity to identify or highlight issues or concerns. Figure 2-6 on page 2-36 outlines the five-paragraph OPORD format.

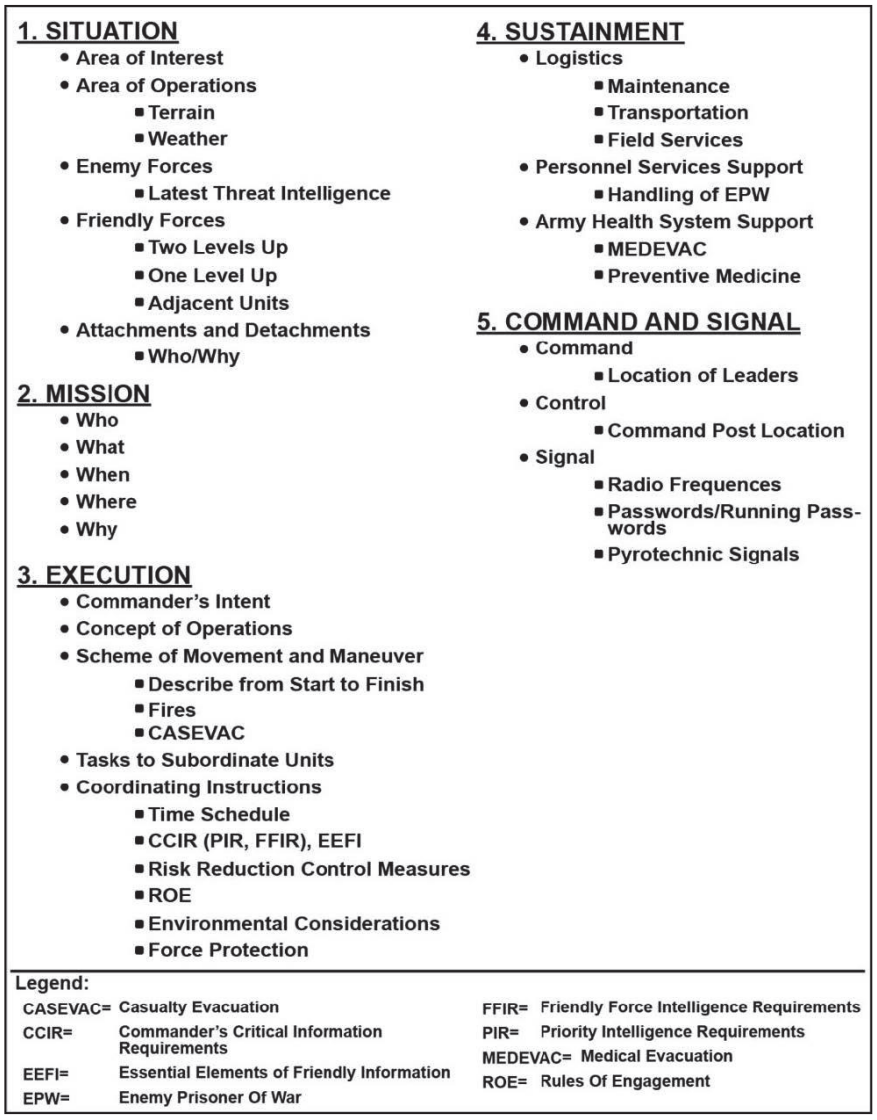

Figure 2-6. Operation order format

STEP 8 – SUPERVISE AND REFINE

2-138. After issuing the OPORD, the platoon leader and subordinate leaders must ensure Soldiers complete the required activities and tasks quickly before mission execution. Supervision is the primary responsibility of all leadership. Platoon leaders and subordinate leaders must check those items or events deemed important for mission accomplishment. This includes—

- Conducting backbriefs on all aspects of the platoon mission.
- Ensuring the second-in-charge in each element is prepared to execute in the leader's absence.
- Observing rehearsals.
- Inspecting load plans to ensure teams carry what is necessary for the mission or what the OPORD specifies.
- Inspecting the status and serviceability of weapons and communications systems.
- Inspecting maintenance activities.
- Ensuring local security is maintained.

ABBREVIATED TROOP LEADING PROCEDURES

2-139. When there is not enough time to conduct all eight steps of troop leading procedures in detail, such as when a change of mission occurs after an operation is in progress, the platoon leader truncates the troop leading procedures to save time. The platoon leader follows most steps of abbreviated troop leading procedures mentally but skips none of the steps.

2-140. Once the order is received, the platoon leader conducts a quick map reconnaissance, analyzes the mission using the mission variables of METT-TC (I), and contacts the team chiefs. The platoon leader ensures the team chiefs post the minimum required control measures on their maps and issues a FRAGORD that covers the key elements of the enemy and friendly situations, the platoon mission, and the concept of the operation. The FRAGORD may omit the sustainment and command and signal paragraphs if they are unchanged or covered by a tactical SOP. The platoon leader and team chiefs may also conduct a quick walk-through rehearsal of critical elements of the support plan using a hastily prepared terrain model or sand table.

2-141. In some cases, there may not be enough time even for these shortened procedures. The platoon may have to move out and receive FRAGORDs by radio or at the next scheduled halt. In this case, it becomes critical for the platoon leader to send platoon FRAGORDs to the team chiefs explaining the platoon's purpose within the overall company plan.

2-142. Digital systems are valuable tools when the platoon must use abbreviated troop leading procedures and FRAGORDs. Digital systems allow the platoon leader to designate waypoints to help in navigation and target reference points to help in weapons orientation while en route to the objective.

2-143. Other keys to success when using abbreviated troop leading procedures include a well-trained platoon; clearly developed, thoroughly understood SOPs; and an understanding by all members of the platoon of the current tactical situation. The platoon leader and platoon sergeant keep the platoon informed of changing enemy and friendly situations. They accomplish this by monitoring the command and control net and issuing frequent updates to the other teams using radios and mission command information systems.

SECTION III – REHEARSALS

2-144. Rehearsals are practice sessions conducted to prepare units for an upcoming operation or event and a valuable tool in preparing the platoon for the upcoming operation. Effective rehearsals require teams to perform needed tasks, ideally under conditions as close as possible to those expected for the actual operation. Participants maneuver their actual vehicles or use vehicle models or simulations while interactively verbalizing their elements' actions.

2-145. The PACE plan helps ensure the maneuver unit can continue to communicate if its primary means of communication fails. A good PACE plan uses different technologies and frequency bands to provide redundant means of communication and mitigate the effects of interference. Units should rehearse and validate the PACE plan during mission and communication rehearsals to ensure the alternate, contingency, and emergency means of communication are viable and that all personnel understand the triggers and can execute the plan as necessary.

2-146. Rehearsals should include such crew drills as requests for indirect fire support, contingency actions, actions on contact, and emergency destruction. Contingency plans should cover vehicle breakdowns, EW equipment failure, lost vehicles, and accidents.

2-147. In a platoon-level rehearsal, the platoon leader selects the tasks to rehearse and controls execution of the rehearsal. The platoon leader may designate a subordinate leader to role-play the enemy they anticipate facing during the operation.

Note. A rehearsal is different from the process of talking through a plan. For example, in a rehearsal team chiefs send a complete spot report when reporting enemy contact, rather than simply saying I would send a spot report now.

REHEARSAL PURPOSES

2-148. Platoon leaders carefully plan and run rehearsals to—

- Reinforce training and increase proficiency in critical tasks.
- Reveal weaknesses or problems in the plan.
- Synchronize the actions of the EW teams.
- Confirm coordination requirements between the platoon and adjacent units.
- Improve each platoon member's understanding of the concept of the operation, the EW plan, anticipated contingencies, and possible actions and reactions for various situations that may arise during the operation.

REHEARSAL TYPES

2-149. The platoon leader can choose among several types of rehearsals, including—

- Backbriefs.
- Support rehearsals.

- Battle drill or SOP rehearsals.

BACKBRIEF

2-150. A platoon backbrief is a briefing by the team chiefs to the platoon leader to review how each intends to accomplish their respective portions of the mission. Normally, subordinates perform backbriefs throughout preparation. Backbriefs allow platoon leaders to clarify the mission early in subordinate planning and identify any problems in the concept of the operation. In the EW platoon, the platoon leader conducts backbriefs after the team chiefs have had a chance to review the OPORD but before the platoon rehearsal begins.

SUPPORT REHEARSAL

2-151. Support rehearsals help synchronize each warfighting function with the overall operation. Platoon leaders and platoon sergeants may take part in brigade or division support rehearsals, depending upon their task and purpose and how it relates to the higher headquarters' operation. The two key support rehearsals for an EW platoon leader are the reconnaissance and security rehearsal and the fire support rehearsal.

Reconnaissance and Security Rehearsal

2-152. The brigade combat team and the cavalry squadron should also conduct a reconnaissance and security rehearsal to ensure that the brigade combat team's reconnaissance and security plan meets the commander's intent and is synchronized throughout the brigade combat team. The brigade combat team commander, executive officer, S-2, S-3 fire support coordinator, cavalry squadron commander, military intelligence company commander, and other brigade combat team staff cells (for example, sustainment, information operations, mission command) should attend. The rehearsal should last no longer than 1-hour, and should focus on rehearsing reconnaissance and security tasks that address each priority intelligence requirement and their associated named areas of interest (FM 3-98).

Fire Support Rehearsal

2-153. The fire support rehearsal (including any augmenting fire support from the division artillery or a field artillery brigade) may be used to prepare for a combined arms rehearsal, or it may take place after a combined arms rehearsal to refine and reinforce key fire support tasks. If the fire support rehearsal takes place first, changes from the combined arms rehearsal may require a second fire support rehearsal. If a combined arms rehearsal is not conducted, a fire support rehearsal may serve as the primary preparation for executing the fire support plan (FM 3-96).

BATTLE DRILL OR STANDARD OPERATING PROCEDURE REHEARSAL

2-154. Battle drills are collective actions performed without the application of a deliberate decision-making process. A battle drill is initiated on a cue, such as an enemy action or a leader's command. A battle drill provides a reflexive response to a given

stimulus. Battle drills require minimal leader orders to accomplish. Rehearsal of battle drills during team training enhances synchronization and reaction speed. The unit SOP should identify relevant battle drills and the required reactions.

2-155. A battle drill or SOP rehearsal ensures all participants understand a technique or a specific set of procedures. Throughout preparation, EW teams rehearse battle drills and SOPs. These rehearsals do not require a completed OPORD to execute. Platoon leaders place priority on drills for actions they anticipate occurring during the operation. Refer to FM 6-0 for more information about battle drills. See appendix A for selected battle drills critical to the survival of EW teams.

METHODS OF REHEARSALS

2-156. Rehearsals should follow the crawl–walk–run methodology whenever possible (see figure 2-7). This prepares the platoon for increasingly difficult conditions. Refer to FM 6-0 for more information on rehearsals. Security must be maintained; however, units can conduct these forms of rehearsals if mission variables permit:

- Full-dress rehearsal.
- Key leader rehearsal.
- Terrain-model rehearsal.
- Digital terrain-model rehearsal.
- Sketch-map rehearsal.
- Map rehearsal.

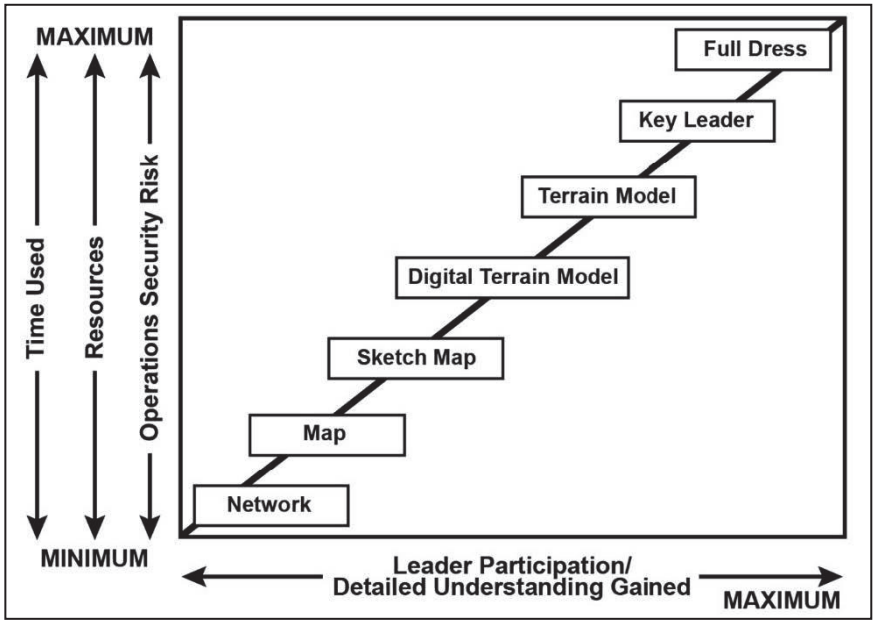

Figure 2-7. Methods of rehearsals

FULL-DRESS REHEARSAL

2-157. A full-dress rehearsal includes every participating platoon member and system, executed on terrain similar to the area of operations, initially under good light conditions, and then in limited visibility. Any attachments to the EW platoon take part in this rehearsal, bringing with them any specific equipment they need to execute the mission.

KEY LEADER REHEARSAL

2-158. This rehearsal involves only key leaders of the organization and subordinate units and normally takes fewer resources than a full-dress rehearsal. Terrain requirements mirror those of a full-dress rehearsal. This reduced-force rehearsal can prepare key leaders for a full-dress rehearsal.

TERRAIN-MODEL REHEARSAL

2-159. A terrain-model rehearsal takes far less time and fewer resources than a full-dress or key leader rehearsal. This technique employs an accurately constructed model to help subordinates visualize the mission. When possible, the platoon leader places the terrain model near, or where it overlooks, the actual terrain of the area of operations. The model should be large enough to depict graphic control measures and important terrain features for reference and orientation. Based on size, participants walk or move markers representing EW equipment and use complete radio transmissions to practice their actions in relation to other members of the platoon. The platoon should take care to conceal the terrain model from enemy aerial assets.

DIGITAL TERRAIN-MODEL REHEARSAL

2-160. During a digital terrain-model rehearsal, units drape high-resolution imagery over elevation data, creating a fly-through or walk-through of the mission. The model may link graphics, detailed information, unmanned aircraft systems, and ground imagery to key points to provide accurate insight to the plan.

SKETCH-MAP REHEARSAL

2-161. Sketch-map rehearsal 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 their actions. EW teams can use symbols to represent their locations and maneuver on the sketch and use complete radio transmissions when indicating their movements.

MAP REHEARSAL

2-162. Procedures for a map rehearsal are similar to those for the sketch-map rehearsal, except the leader uses a map and operation overlay of the same scale used to plan and control the operation. This technique is useful in conjunction with a confirmation brief or backbrief involving subordinate leaders.

PRE-COMBAT CHECKS AND INSPECTIONS

2-163. The platoon leader or platoon sergeant observes each team during preparation for combat. They conduct pre-combat checks and inspections once the team chiefs report their teams and vehicles are prepared. Platoon sergeants and team chiefs conduct pre-combat checks, and platoon leaders conduct pre-combat inspections.

2-164. Platoon leaders and platoon sergeants check items they deem most critical for the upcoming operation, but the team chiefs check all items based on the unit tactical SOP. Failure at the team chief level to check all systems—not just the ones the platoon leader inspects personally—could lead to a critical element or piece of equipment failing during operations.

PRE-COMBAT CHECKS

2-165. Pre-combat checks differ from pre-combat inspections in that they are quick combat checks designed to account for individuals and equipment and performed at team level. Pre-combat checks do not require formal advance notification. They are quick and concise checks to verify the teams have all necessary equipment to accomplish their mission. Examples for EW team pre-combat checks include—

- EW team checks—
  - All EW assemblages are fully functional with pre-operation preventive maintenance checks and services performed.
  - EW assemblages are configured and programmed as needed for the mission.
  - Cables, connections, and antennas are serviceable.
- COMSEC.
  - Fill devices.
  - Courier cards.
  - Changeover times.
  - Emergency destruction procedures and means.
- Radio checks and communications cards.
- Fuel level in vehicles, generators, and gas cans—adequate for the mission duration or until anticipated resupply.
- Class I supply—food and potable water—adequate for the mission duration or until anticipated resupply.
- Military vehicle driver's licenses.
- Maps and overlays of the area of operations.
- Ammunition checked and stored properly.
- Vehicles loaded according to the unit tactical SOP.
- Camouflage material needed for the mission is available, complete, and serviceable.
- Team's uniforms and equipment necessary to accomplish their tasks are accounted for.

Note. Standardized load plans allow the platoon leader and platoon sergeant to quickly check accountability of equipment. They also ensure standard locations of equipment in each vehicle. They can also provide an important advantage if the platoon leader is forced to switch to a different vehicle during an operation.

PRE-COMBAT INSPECTIONS

2-166. Pre-combat inspections allow the platoon leader to check the platoon's operational readiness. The key goal of a pre-combat inspection is to ensure that teams and communications systems are fully prepared to execute the upcoming mission. The platoon leader includes the time and location for pre-combat inspections in the platoon OPORD, reinforcing their importance and ensuring they occur as part of mission preparation.

2-167. It is essential that the entire platoon chain of command know how to conduct pre-combat checks and pre-combat inspections according to applicable SOPs. Examples of an inspection include—

- Perform before-operation preventive maintenance checks and services and report or repair deficiencies, if necessary.
- Perform communications checks of voice and digital systems.
- Inspect and verify maps and corresponding analog and digital graphics.
- Ensure teams understand the plan and are in the correct uniform and mission-oriented protective posture (MOPP) level, based upon the threat level.
- Determine types of ammunition the mission requires.
- Review the supply status of rations, water, fuel, oil, ammunition, pyrotechnics, first-aid kits, and batteries for such items as flashlights, night vision devices, and CBRN alarms.
- Ensure vehicles and communications assemblages are correctly camouflaged to match the area of operations.
- Verify EW equipment is fault tested, loaded with appropriate mission data, and functional.

SECTION IV – TRAINING IN THE PLATOON

2-168. At the company and platoon levels, training models provide a simple and effective planning and execution tool for small unit and individual training events. A training models is a general framework of the major activities and steps to plan training; it does not provide enough detail to develop the unit training plan or to develop and coordinate training events. The unit can modify training a training model based on collective experience.

COLLECTIVE TRAINING

2-169. Individual Soldiers develop competency in their military occupational specialty tasks, but commonly contribute to performance of collective tasks at team level and above that cannot be accomplished by an individual. Units plan and conduct progressive collective training beginning at the team and crew level, building up through platoon, company, battalion, and brigade-level collective tasks. Units follow the combined arms training strategy for collective tasks, crew drills, and recommended training plans for the unit's mission-essential tasks.

PLATOON ESSENTIAL TASKS

2-170. The EW platoon may not have a Department of the Army-approved mission-essential task list. If the platoon does have a validated essential task list as part of a company mission essential task list, the platoon leader and platoon sergeant conduct a mission-essential task list crosswalk as outlined in FM 7-0 to outline the individual tasks, crew or team collective tasks, and platoon collective tasks. The resulting training plan and task list must align to support the company, battalion, and brigade training plan and long-range training calendar.

2-171. If the company's approved mission-essential task list does not include EW tasks, the EW platoon leader may need to assist the commander in developing an augmented mission-essential task list that includes EW tasks for validation by the battalion and brigade commanders. An example augmented mission-essential task list could include the company-level collective task 13-CO-9029 Conduct Electronic Warfare. The supporting platoon-level collective tasks would include—

- 13-PLT-2012 – Conduct Electronic Attack.
- 13-PLT-2013 – Perform Electronic Protection Actions.
- 13-PLT-2014 – Provide Electronic Warfare Support.
- 13-PLT-2019 – Establish an Electronic Warfare Site.

Note. The most current list of approved EW tasks is available on the Army Training Network Website.

8-STEP TRAINING MODEL

2-172. One common model to plan training events at company-level and below is the 8-step training model (see figure 2-8 on page 2-45). The 8-step training model is a flexible framework to plan and manage simple training events.

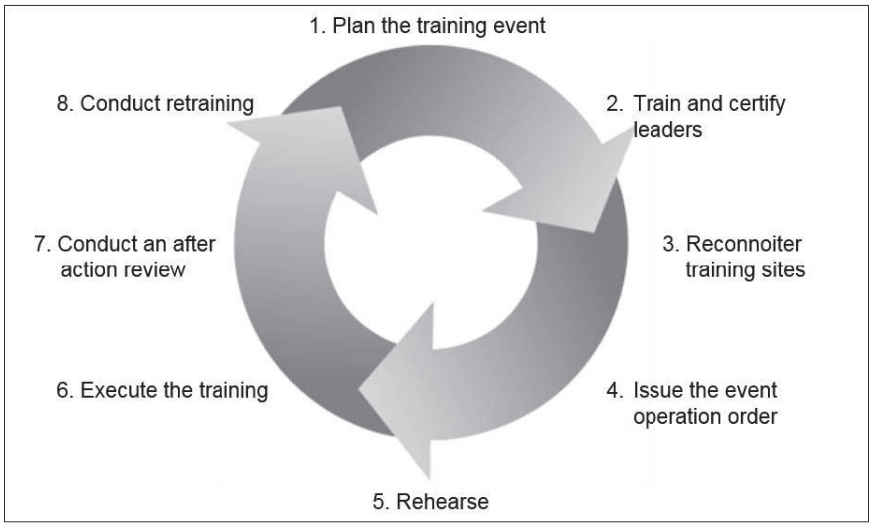

Figure 2-8. 8-Step training model

STEP 1 – PLAN THE TRAINING EVENT

2-173. During step 1, company- and platoon-level leaders develop specific, attainable, and measurable training objectives based on the commander's training guidance. Leaders should allocate and schedule enough time for the event on the company training schedule. During planning, leaders—

- Create scenarios and instructions to support the evaluated training objectives.
- Identify resources needed, including training areas, simulators, supplies, and outside trainers.
- Identify frequencies required and coordination needed—for example, clearance from the Federal Communications Commission or the Federal Aviation Administration.
- Identify potential training hazards and mitigate associated risks. Refer to ATP 5-19 for more information about risk management.
- Develop training support and assessment plans as the basis for demanding, realistic training.

STEP 2 – TRAIN AND CERTIFY LEADERS

2-174. Step 2 involves training and certifying leaders, including officers, noncommissioned officers, civilians, and qualified individual Soldiers. The certified leaders then train and certify other leaders. Qualified personnel demonstrate their subject matter expertise and proficiency in performing the training task or tasks to the objective standard. The train-the-trainer concept ensures leaders and trainers can effectively instruct and certify the unit. Step 2 also includes training and certifying opposing force

elements and training role players to create a realistic, threat-based training environment.

STEP 3 – RECONNOITER TRAINING SITES

2-175. Leaders conduct a reconnaissance of proposed training areas and facilities. The leader's reconnaissance verifies the location can support the proposed training and allow the unit to achieve its training objectives.

2-176. During step 3, leaders verify proper coordination, scheduling, and preparation of all necessary resources, training areas, and training support plans for the training event. Leaders contact support site personnel and review scheduling and coordination issues. If necessary, leaders modify the training plan to meet site requirements and maximize training opportunities. Training events that are not properly planned, coordinated, supported, and resourced are unlikely to meet the established training objectives.

STEP 4 – ISSUE THE EVENT OPERATION ORDER

2-177. The event OPORD ensures subordinates have the information needed to execute the training event. Through the OPORD, the commander clearly identifies the tasks to be trained, the training objectives, and a clearly understandable mission statement. The OPORD communicates the scope of the training, how to conduct the event, and the tasks to train and evaluate. Successful training events require all leaders to understand the expected training outcome, based on the commander's intent and objectives.

STEP 5 – REHEARSE

2-178. Rehearsals are critical to the execution of any operation or training plan. All personnel involved in the training event participate in rehearsals to ensure they understand and can synchronize and prepare for tactical actions. Company- and platoon-level leaders supervise training rehearsals to ensure the platoon is prepared to conduct organized and effective performance-oriented training. This step also includes conducting opposing force rehearsals.

STEP 6 – EXECUTE THE TRAINING

2-179. Commanders ensure the training event occurs as planned and scheduled. Effective training events require—

- Maximum participation of the training audience and leaders.
- Minimum training distractors.
- Leader involvement to check and supervise training, where necessary.

2-180. The designated trainers train Soldiers to ensure they can meet the training objective. While unplanned contingencies often arise, commanders and platoon leaders should make every effort to avoid cancelling a planned training event.

STEP 7 – CONDUCT AN AFTER ACTION REVIEW

2-181. During and after training, company and platoon leaders—

- Review the tasks trained.
- Assess the unit's training level compared to the training objective.
- Document local lessons learned to improve future training events or refine tactics, techniques, and procedures.

2-182. Commanders record these assessments in the Digital Training Management System Website for use in future training events or inclusion in the unit SOP.

STEP 8 – CONDUCT RETRAINING

2-183. Units should not end a training event until all Soldiers meet all training objectives and standards for the scheduled tasks. Leaders and trainers should retrain tasks until the entire training audience achieves the standard before concluding the event.

2-184. Units often neglect retraining due to time or resource limitations or conflicting scheduling requirements. However, retraining is often the most critical step. Training to established standards builds competence and instills confidence in units, leaders, and Soldiers. Commanders and subordinate leaders must honestly and objectively assess their unit's ability to meet performance standards. Refer to FM 7-0 for more information about unit collective training and the 8-step training model.

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Chapter 3
Support to Operations

Electromagnetic warfare platoons at corps and below exist to support the operations of their parent maneuver unit. It is important for platoon leaders to understand the maneuver doctrine and tailor their electromagnetic support to the unit's maneuver operation.

SECTION I – SUPPORT TO OPERATIONS BY ECHELON

3-1. Modern militaries rely on communications equipment that uses broad portions of the electromagnetic spectrum to conduct military operations. Use of the electromagnetic spectrum allows forces to talk, transmit data, provide navigation and timing information, and command and control troops worldwide. They also rely on the electromagnetic spectrum for sensing and awareness of the operational environment. The Army conducts EW to gain and maintain positions of relative advantage within the electromagnetic spectrum (FM 3-12).

CORPS AND DIVISION

3-2. The corps and division EW companies provide electromagnetic support and electromagnetic attack capabilities. These companies support the commander, G-3, and G-6 in development and implementation of electromagnetic protection measures in support of the rear fight, deep fight, and close fight. The EW company commanders employ platoons based on the OPORD and the mission variables of METT-TC (I).

3-3. The corps and division EW companies support the corps, division, and subordinate commanders' close area operations during all periods of competition and conflict. The EW companies offer their supported commanders direct and general EW support for real- or near real-time detection, identification, direction finding, and geolocation of enemy signals and other electronic assets according to the commander's attack guidance matrix.

3-4. The corps and division EW companies focus on integrated EW, SIGINT, and cyberspace operations capabilities to support friendly forces either in contact or about to be in contact with enemy forces. EW elements collaborate with SIGINT elements to provide the corps and division commanders with interoperable EW, SIGINT, and cyberspace operations capabilities that deliver versatile, mutually supporting effects across their assigned areas of operations.

Note. Title 50, United States Code governs intelligence functions. EW personnel do not perform SIGINT activities, but they do coordinate with intelligence elements to ensure synchronization of EW and SIGINT activities.

3-5. The corps and division EW companies provide command and control, training, maintenance oversight, and mission analysis for their assigned platoons and teams. EW company elements conduct electromagnetic support, electromagnetic attack, and limited cyberspace operations by employing organic multi-function and terrestrial layer system capabilities. They leverage corps and division SIGINT, joint EW, and national-level assets to detect, identify, direction find, and geolocate enemy communications and noncommunications emitters and weapon systems. The electromagnetic support data the EW companies sense may also feed into SIGINT processes through the G-2. Corps and division EW companies collaborate with SIGINT elements to support targeting by providing the supported unit near real-time electromagnetic support for direction finding and geolocation for target acquisition.

3-6. EW capabilities disrupt enemy command and control through electromagnetic attack and protect friendly command and control capabilities through monitoring of the electromagnetic spectrum. The corps and division EW companies can manipulate enemy EW sensors by performing electromagnetic deception to protect the locations of selected corps, division, and joint task force units. The EW companies provide localized situational awareness of enemy sensors and friendly emissions through the corps and division CEMA sections and the military intelligence battalion or brigade to aid the commander, joint task force in assessing risk from direct and indirect lethal fires and EW effects.

REAR AREA

3-7. Electromagnetic support and electromagnetic attack efforts in the rear area can focus on countering special purpose forces, counter-fuze defensive electromagnetic attack, or countersurveillance, including enemy unmanned aircraft systems and special operations forces. The corps and division EW companies and platoons employ electromagnetic support and electromagnetic attack capabilities to locate and target enemy EW activities and systems in the rear area. The platoon assigned to the rear fight provides electromagnetic deception, intrusion, and counter-targeting capabilities such as counter-fuze and counter positioning, navigation, and timing to disrupt or neutralize enemy munitions. ES activities in the corps rear area include persistent monitoring and emulation of spectrum-dependent systems and operations to identify insurgents and irregular forces.

DEEP AREA

3-8. Corps-level assets employ extended-range EW and SIGINT capabilities to augment joint- and national-level sensors and databases. These extended range capabilities seek to exploit or counter enemy systems at longer-range. When practical, the corps EW company and its assigned platoons employ enhanced-range

electromagnetic attack capabilities and techniques. EW companies and platoons may achieve enhanced range effects through increased power, taller antennas (or antennas situated at higher elevation), or other means, such as expendable electromagnetic attack munitions.

3-9. Organic EW and SIGINT elements can exploit opportunities to conduct electromagnetic support activities against enemy emitters in the lower frequency bands or tuned to high-powered early warning radars as the longest-range sensors in the corps area of operations. Integrating and synchronizing collection management plans across the corps—including division and brigade combat team collection systems—can achieve EW and SIGINT coverage out to and beyond 500 kilometers. Corps EW and SIGINT elements focus their efforts on enemy long-range systems, such as early warning radar, long-range communications, and satellite communications systems. EW and SIGINT elements contribute information about enemy long-range—500 kilometers and beyond—activities and systems in the electromagnetic spectrum to feed into the common operational picture and to assess corps and division vulnerabilities in the electromagnetic spectrum.

CLOSE AREA

3-10. The division EW company employs EW operators and teams with close access and specialized techniques to augment the organic EW capabilities of the brigade combat teams and counter emerging threat activities according to the division OPORD. Division-level EW efforts focus on augmenting the electromagnetic support activities of the brigade combat teams in the close area and exploiting specialized techniques as tasked by the division commander. EW and SIGINT systems reinforce the main and supporting efforts and extend the effective line of sight of brigade-level EW assets.

COMPETITION AND CONFLICT

3-11. Regional peer adversaries have demonstrated the ability to conduct integrated EW and limited cyberspace attacks on critical infrastructure, military and civilian networks, vehicles, ships, and aircraft. A friendly nation threatened by regional peer military forces or non-state actors may request U.S. and multinational force assistance in an overseas theater of operations. While host-nation forces generally focus their efforts on stability operations and counterinsurgency, U.S. forces and multinational partners may conduct decisive action to defeat enemy forces.

Competition

3-12. The corps and division EW companies deploy into the theater of operations once threat antiaccess and area denial is degraded. The Army competes to expand the competitive space with potential adversaries at this time. Army forces play an integral role in this effort, actively engaging across domains (including space and cyberspace), in the electromagnetic spectrum, and in the information dimension. The goal is to enable the defeat of threat information warfare and hybrid threat, conduct intelligence operations, counter threat reconnaissance, and demonstrate credible deterrence.

3-13. The corps EW company integrates with signal, space, and intelligence assets to support force protection, target development, and information advantage activities, as required. The corps EW company conducts surveys of the electromagnetic spectrum in conjunction with SIGINT and space support elements to support situational awareness in the electromagnetic spectrum and space.

3-14. The ability to effectively compete below the level of armed conflict and to respond to escalation toward armed conflict creates a position of strength and sets favorable conditions if conflict ensues. This position of strength provides a favorable environment for the Army and unified action partners' efforts to counter threat coercion. The threat's proxies may receive little or no support from its conventional forces, which allows U.S. mission partners to counter attempts to destabilize the host nation more easily. The combined and persistent effects of deterring armed conflict and defeating information warfare and hybrid threat in a campaign of competition create unpredictability for the threat and generate additional friendly options.

3-15. During competition, corps commanders base their planning and decisions on a continually evolving understanding of their operational environment. Integrated EW, SIGINT, and cyberspace capabilities collect against and analyze threat operational and tactical systems and other factors of the operational environment and civil networks. This effort builds the information that allows a commander to visualize the operational environment to a level of detail that allows operational-level planning and tactical execution. The corps EW company assists in countering threat reconnaissance activities through counter-reconnaissance and electromagnetic deception. Collectively, these actions enable the joint force to rapidly transition to armed conflict and create uncertainty for the threat as to whether it can achieve its objectives through a surprise attack.

3-16. The corps EW company integrates EW activities with SIGINT and cyberspace operations to complicate the threat's efforts to determine the capability and capacity of friendly forces in theater. While exercises, training, and alerts demonstrate specific capabilities, they also provide opportunities to mislead the threat regarding friendly use of the electromagnetic spectrum, cyberspace signatures and patterns, and methods of employment. These actions create unpredictability and complicate the threat's reconnaissance efforts, which increases the likelihood of compromising threat assets.

3-17. By shaping the corps area of operations and addressing aggression, the corps EW company helps provide a credible deterrent, while the corps commander calibrates force posture to reduce a threat's local military superiority, employs formations in multiple domains to withstand a surprise attack, and demonstrates the ability to converge forward-deployed, joint, and national-level capabilities to disrupt any surprise attack.

3-18. The corps CEMA section coordinates and synchronizes activities of the corps EW company with combat mission teams through the combatant commander's joint cyber center and Joint Force Headquarters-Cyber. In competition, the corps staff collaborates to converge lethal and nonlethal effects from the beginning of a conflict by planning with forward-deployed forces, other elements of the joint task force, and interorganizational and multinational mission partners. This preparation includes developing the necessary command and control structure, flexible command

relationships, and physical and virtual control measures to converge capabilities across multiple domains.

3-19. Precise and integrated EW, SIGINT, and cyberspace effects are critical to operations in dense urban terrain, but also support operations in other environments. The CEMA section plans and integrates actions to ensure U.S. forces have the capacity, capability, and endurance to sustain operations despite the threat's long-range fires—ballistic and cruise missiles, special operations forces, offensive space, and cyberspace attacks.

3-20. The CEMA section also plans employment of corps EW capabilities to secure the rear area and ensure protection of the corps' ability to exercise command and control despite threat offensive capabilities in multiple domains. The CEMA section creates mission resilience by protecting, hardening, and dispersing EW assets and other spectrum-dependent capabilities.

Conflict

3-21. Conflict causes significant changes to regional security environments. The corps and division EW companies provide a persistent presence to ensure the new security environment is advantageous for U.S. forces and mission partners. The corps and division CEMA sections coordinate with the combatant command and joint task force headquarters to best adapt force posture to the changing operational environment. This ensures Army EW forces retain the ability to immediately counter aggression and enables maneuver forces to rapidly renew offensive operations.

3-22. The Army actively engages during conflict to enable the penetration of enemy antiaccess and area denial activities by—

- Neutralizing the enemy's long-range weapons and systems.
- Contesting enemy maneuver forces in all domains and the electromagnetic spectrum.
- Conducting strategic- and operational-level missions.

3-23. During armed conflict, Army forward-deployed and expeditionary forces enable the rapid defeat of aggression through a combination of calibrated force posture, multidomain formations, and convergence to immediately contest an enemy attack in-depth. Neutralizing enemy long-range systems enables strategic- and operational-level operations by reducing the vulnerability of friendly lines of communications. Simultaneously, forward-deployed forces begin to defeat enemy stand-off from the inside by operating within the range of enemy long- and mid-range systems. Together, these efforts effectively—

- Counter the enemy's attack.
- Enable greater freedom of maneuver for elements of the joint force from strategic and operational distances into the area of operations.
- Enable the dis-integration of the enemy's long- and mid-range systems in decisive spaces.

3-24. Army enhanced-range EW capabilities converge with joint capabilities in multiple domains to penetrate and dis-integrate enemy antiaccess and area denial systems to enable friendly freedom of maneuver. The corps EW company converges capabilities to optimize effects across multiple domains against critical components of the enemy's antiaccess and area denial systems, specifically long-range air defense and fires systems. Converging capabilities against the enemy's long-range systems enables the initial penetration and sets the conditions for a quick transition to periods of dis-integration and exploitation.

3-25. EW companies synchronize with SIGINT elements to deploy and support dispersed EW platoons across the corps and division areas of operations in conjunction with, or reinforcing, elements of the division and brigade combat teams.

3-26. The division EW company provides forward-deployed EW forces to immediately contest the attack by enemy maneuver forces and disrupt enemy activities in the space and cyberspace domains and the electromagnetic spectrum. When attacked, EW forces in the close area act in concert with mission partners to impose losses on the enemy to delay achievement of enemy campaign objectives and consolidate gains.

3-27. Coordinated operations security, emission control, and defensive electromagnetic attack activities are instrumental in protecting formations from long-range fires. The corps CEMA section coordinates the employment of airborne EW capabilities with the divisions' combat aviation brigades and brigade combat teams. The G-3 EW staff develops and refines OPORDs, targeting matrixes, and attack guidance with a focus on enemy—

- Command and control nodes.
- Reconnaissance, surveillance, and target acquisition systems.
- Integrated air defenses.
- Other critical infrastructure and critical nodes.

3-28. The corps fusion, integration, and targeting platoon and mission partners employ layered surveillance to develop an understanding of the enemy's attack capabilities. The fusion, integration, and targeting platoon builds and disseminates countermeasures to rapidly degrade enemy intelligence capabilities and protect friendly forces in the close area.

3-29. The corps and division EW companies leverage joint fires and national-level capabilities to assist forward-deployed EW elements with denying enemy objectives in the close area and support the execution of contingency plans to rapidly seize the initiative in the information dimension. The division EW company executes electromagnetic deception plans developed during competition to create tactical unpredictability for the enemy and prevent the massing of enemy lethal and nonlethal fires in the close area. Additionally, the corps and division EW companies enable strategic- and operational-level operations to build friendly combat power and set the conditions for the dis-integration of the enemy's antiaccess and area denial capabilities and for exploitation of the resulting freedom of maneuver.

3-30. Dis-integration of enemy antiaccess and area denial capabilities requires the defeat of the enemy's long-range weapons and systems, the neutralization of the

enemy's mid-range systems, and the conduct of maneuver to begin the dis-integration of the enemy's mid-range systems. Essential to the dis-integration effort is a steady delivery of layered lethal and nonlethal effects to enable commanders to see and strike the enemy's remaining antiaccess and area denial capabilities.

3-31. EW capabilities support operational-level operations to complete the dis-integration of antiaccess and area denial by—

- Stimulating the remaining enemy mid-range assets.
- Fixing and isolating enemy maneuver formations.
- Generating favorable force ratios for friendly maneuver forces.

3-32. The resulting dis-integration places maneuver forces in position to rapidly exploit enemy vulnerabilities at decisive places and times to defeat the enemy in the close area. Enemy forces take hostile action against friendly cyberspace, space (satellite-based), and spectrum-dependent systems to mitigate U.S. advantages in conventional combat power. Enemy attacks may include—

- Communications jamming.
- Cyber attacks on military or civilian infrastructure
- Positioning, navigation, and timing jamming.
- Counter-unmanned aircraft system operations.
- Counterreconnaissance operations.
- Widespread use of improvised explosive devices.

3-33. EW, SIGINT, cyberspace operations, and other assets must rapidly identify, locate, and nominate targets to enable the corps artillery to deliver lethal fires. The corps and division EW companies support information collection in the deep and close areas, respectively. Friendly EW focuses initially on locating the enemy long-range systems (such as air defense or counterfire radar systems) that may prevent friendly air and ground maneuver forces from closing with the enemy. As dis-integration operations continue, the focus shifts to identifying the most critical and vulnerable elements of the enemy's mid-range systems.

3-34. Army forces employ ground and aerial EW and SIGINT systems to conduct coordinated EW, intelligence, and cyberspace operations missions. The technical control and analysis cell and CEMA section nominate targets for lethal and nonlethal fires or identify and locate targets that match the commander's attack guidance matrix or high-payoff target list.

3-35. Friendly electromagnetic attacks and offensive cyberspace operations focus on denying enemy command and control and intelligence, surveillance and reconnaissance systems and networks to open windows of opportunity for exploitation by friendly forces. The high-volume analytical capability provided by the corps' fusion, integration, and targeting platoon enables convergence of effects across all domains and the electromagnetic spectrum.

3-36. The corps CEMA section plans EW effects against designated targets within range to shape the joint operational area. EW assets enable operational-level missions to dis-integrate the enemy's antiaccess and area denial systems, including long-range fires,

sensors, unmanned aircraft systems, and long-haul communications to protect the corps and joint task force and create temporary windows of opportunity to engage enemy forces.

3-37. EW elements may also deliver capabilities to support the corps military information support operations efforts. EW companies conduct electromagnetic support to observe indications and warnings of enemy attacks on corps artillery areas and positioning areas for artillery. They conduct electromagnetic attacks to disrupt enemy engagement of friendly forces.

3-38. The corps EW company enables the defeat of long-range systems, while the division EW company employs its capabilities to identify high-payoff targets in the close area and either strike them or rapidly disseminate the data to the corps to support maneuver in the close area. The corps EW company continues to neutralize enemy mid-range systems and directs the division and brigade EW assets as they maneuver from support areas into the close area.

3-39. The enemy will attempt to isolate and deny friendly maneuver forces support from adjacent units, enablers in other domains, or higher echelons. Friendly EW forces prepare for operations in the contested environment by planning nonlethal fires and electromagnetic deception to fix enemy maneuver forces and the critical capabilities of enemy mid-range systems. Friendly EW forces also support precision targeting with lethal fires to destroy enemy forces and capabilities.

3-40. Corps and division commanders exploit the freedom of maneuver generated by dis-integrating the enemy's antiaccess and area denial systems to—

- Defeat enemy mid-range systems.
- Neutralize enemy short-range systems.
- Isolate and defeat enemy land forces by integrating and synchronizing EW, SIGINT, and offensive cyberspace capabilities with effects generated in other domains.

3-41. The employment of EW assets during the exploitation period sustains the penetration and dis-integration of enemy spectrum-dependent systems and enables the achievement of strategic objectives. EW elements employ integrated EW, SIGINT, and offensive cyberspace capabilities at decisive spaces and maneuver to dislocate enemy defenses by cognitively and virtually isolating enemy forces from their higher headquarters. This allows friendly forces to achieve favorable force ratios and sets the conditions for decisive tactical results.

3-42. During exploitation, the corps EW company continues to attack the enemy's mid-range systems. Enemies will try to preserve these systems by limiting their use and devoting greater effort to their protection and survivability. The corps and division EW companies combine their efforts to overcome the enemy's protection of its mid-range systems, which are the most dangerous element of its tactical systems.

3-43. Divisional maneuver compels the enemy to employ its remaining mid-range systems, which allows the corps' EW resources to defeat them. As exploitation continues, the dislocation of the enemy defense caused by friendly maneuver offers

increased opportunities for electromagnetic attack. The division EW company will converge a combination of capabilities across all domains, the electromagnetic spectrum, and the information dimension to neutralize the enemy's short-range systems. Examples of the capabilities the division EW company can employ are—

- Counter-positioning, navigation, and timing.
- Electromagnetic deception.
- Electromagnetic attacks.

3-44. As the primary echelon responsible for managing the spectrum, the division reinforces subordinate brigade combat teams with ground- and air-based EW capabilities, prioritizing support to aerial maneuver. The division EW company also supports the combat aviation brigade to suppress enemy air defenses and enable exploitation of tactical opportunities. For more information about suppression of enemy air defenses, refer to ATP 3-01.4.

3-45. Regional peers have a significant number of short-range systems. Neutralizing these systems is essential to provide freedom of maneuver for friendly forces. Friendly forces seek to overmatch enemy capabilities at critical times and places to create and exploit temporary windows of opportunity. To converge effects and create windows of opportunity in multiple domains—

- The corps CEMA section coordinates delivery of military information support operations effects by electromagnetic attack assets.
- SIGINT and geospatial intelligence assets focus on target refinement.
- The targeting enterprise, including EW and cyberspace operations elements, focus on multidomain effects.
- Joint, multinational, and national-level assets continue collecting SIGINT to support tactical, operational, and strategic interests.

3-46. EW and SIGINT activities support the targeting process to nominate targets for corps long-range and multidomain fires. EW and SIGINT elements concentrate their collection efforts on intercepting, identifying, locating, and targeting enemy command and control networks and intelligence and targeting systems. Friendly forces conduct cyberspace and EW operations to exploit, disrupt, degrade, destroy, and manipulate the enemy's use of the electromagnetic spectrum and networks. EW systems can temporarily neutralize enemy radio frequency triggering devices to protect friendly forces.

3-47. If they are not already forward-deployed, EW and SIGINT assets maneuver to within range of decisive points to conduct EW activities and intelligence collection against enemy command and control networks, integrated air defense systems, logistics centers, and critical nodes to enable joint combined arms maneuver. These forward-deployed teams may require security and defense augmentation from the supported force. EW forces can employ electromagnetic deception to mask friendly spectrum-dependent capabilities and suppress enemy spectrum-dependent capabilities, including communications and radars. EW forces rapidly maneuver in the close area to open other windows of opportunity on order.

3-48. SIGINT elements conduct collection on enemy emitters and transmit the data to the technical control and analysis cell and the CEMA section. Users at all echelons from tactical to national may access this data to support their respective missions. SIGINT supports targeting for lethal and nonlethal fires. The CEMA section manages the electromagnetic spectrum, coordinates for effects, and employs EW capabilities synchronized with the G-2 and SIGINT elements to support information collection. This operational cycle continues until the corps and joint task force achieve their operational objectives.

Consolidation of Gains

3-49. Through a successful transition from armed conflict to the return to competition, integrated EW, SIGINT, and cyberspace operations planning and assessment translate operational success to the achievement of strategic objectives. During consolidation of gains, friendly EW forces reconstitute and build the EW capacity of mission partners to enable long-term deterrence of renewed armed conflict. Successful adaptation to the new security environment results in an overall improvement of the United States' strategic position.

3-50. Army forces contribute to the consolidation of gains by securing the initiative and maintaining operational contact in all domains, the electromagnetic environment, and the information dimension. This approach ensures military and political conditions remain favorable to the United States and its mission partners.

3-51. Particularly following an armed conflict with a nuclear-capable power, the enemy will retain significant conventional military capabilities in the field. Army EW forces, therefore, must act simultaneously to deter a return to conventional warfare and assist partner forces in restoring order to prevent the enemy from exploiting internal disruption for strategic advantage. Executing these functions across the competition continuum expands the competitive space for policymakers, enables the achievement of strategic objectives, and secures the initiative.

Stability

3-52. The primary mission of the corps and division EW companies during stability operations is to retain advantages over the enemy gained during armed conflict and secure key terrain and friendly populations. If the corps redeploys, the corps EW company hands off responsibility in the area of operations to the multidomain effects battalion so it can resume the role of converging EW, intelligence, and cyberspace capabilities against the threat's remaining mid-range fires. Threat actions in cyberspace may continue at a similar intensity to that of the armed conflict because physical separation of forces will lead neither side to surrender any operational advantage in cyberspace, the electromagnetic environment, or space.

3-53. Army EW forces set conditions for long-term deterrence by regenerating and expanding Army and mission partner capacity. The division EW company plans and prepares for the defense to deter a return to conflict and build mission partner capacity and interoperability. The goal is to allow commanders to achieve relative freedom of maneuver in all domains and freedom of action in the electromagnetic spectrum to set

the conditions for an advantageous long-term force posture. From the threat's perspective, Army EW actions show an increasing and enduring ability and will to counter aggression, demonstrated through robust EW, SIGINT, and cyberspace capabilities that enable information advantage activities. These information advantage activities help set conditions for long-term deterrence.

Enabling Civil Authority

3-54. Operations in the information dimension will continue as both sides seek to consolidate gains by influencing friendly and threat militaries, civilian populations, and governments. Integrated EW, SIGINT, and cyberspace activities support partner governments' efforts to re-establish essential services and civil governance. The corps EW company must be prepared to support irregular warfare against other proxies outside of the area of operations and support any allied corps or divisions in deterring enemy conventional attacks.

BRIGADE COMBAT TEAM

3-55. The brigade combat team EW platoons provide electromagnetic attack, electromagnetic support, and limited, non-interactive cyberspace operations capabilities to their supported unit to gain and maintain freedom of action in cyberspace and the electromagnetic spectrum, and freedom of maneuver in the other domains. The EW platoon advises the commander and coordinates with the staff to integrate EW with SIGINT, cyberspace, psychological operations, civil affairs, special operations, public affairs, and fires capabilities to target adversaries and enemies, preserve combat power, and support the friendly scheme of maneuver.

3-56. The EW platoon provides the ability to detect and locate communications and noncommunications emitters, such as radars or positioning, navigation, and timing jammers—using organic electromagnetic support and SIGINT capabilities. The platoon can support the brigade combat team, division, and corps commanders' ability to engage targets with lethal and nonlethal fires.

3-57. The EW platoon provides organic capabilities to gather information and engage targets in the electromagnetic spectrum. The EW platoon gathers combat information to answer the commander's information requirements. The platoon's organic capabilities enable the engagement of targets in the electromagnetic spectrum to deny, disrupt, degrade, destroy, or manipulate threat weapons systems, sensors, command and control capabilities, and information warfare capabilities. The platoon senses friendly emissions and signature in cyberspace and the electromagnetic spectrum to support emission control plans and other force protection measures to reduce vulnerabilities to threat actions, such as indirect fires and electromagnetic attack. These capabilities, paired with subsequent protection measures, reduce operational risk to the brigade combat team.

3-58. The EW platoon can operate either independently or as part of a multifunctional intelligence and EW company team. The brigade combat team commander determines command relationships and task organization before deployment based on the mission variables of METT-TC (I).

COMPETITION

3-59. Much of the intelligence preparation of the battlefield that takes place during the competition phase takes place at echelons division and above, especially preparation for operations in the rear and deep areas. The brigade combat team concentrates its efforts in the close area.

3-60. During competition, EW platoon activities in the close area are weighted heavily toward electromagnetic support. EW platoons and SIGINT elements collaborate to detect, identify, direction find, and geolocate threat communications and noncommunications emitters, such as radars and positioning, navigation, and timing jammers. This information helps the unit plan defenses against enemy capabilities and feeds the process of nominating targets for the division and corps targeting matrixes for possible lethal and nonlethal fires during the conflict phase.

3-61. The EW platoons also use their electromagnetic support capabilities to detect friendly emissions in the electromagnetic spectrum. The information they gather helps when formulating emission control plans and other force protection measures to reduce the unit's detectable footprint and vulnerability to threat electromagnetic attacks and lethal fires.

3-62. The platoon conducts electromagnetic support activities and leverages intelligence and cyberspace community of interest networks to enable cyberspace operations planning and intelligence preparation of the battlefield. During competition, the EW platoon's contribution to intelligence preparation of the battlefield includes—

- Gathering combat information to support the assessment, planning, preparation, and execution of EW activities and meet the commander's information requirements.
- Providing tactical targeting data derived from electromagnetic support to the fire support coordinator.
- Conducting EW operations in coordination with the CEMA section and the S-6 spectrum manager.
- Maintaining a current EW platoon running estimate.
- Coordinating electromagnetic support with SIGINT elements.

CONFLICT

3-63. During the conflict phase, the brigade combat team EW platoon's activities mirror the major activities of the division and corps EW elements, with a focus on operations in the close area.

3-64. EW platoons may synchronize with SIGINT elements to deploy and support dispersed EW teams across the close area in conjunction with, or reinforcing, elements of the brigade combat team.

3-65. The EW platoon provides forward-deployed EW teams to immediately contest the attack by enemy maneuver forces and disrupt enemy activities in the electromagnetic spectrum. When attacked, EW elements in the close area act in concert with maneuver

elements to impose losses on the enemy to delay its achievement of tactical objectives and to consolidate friendly gains.

3-66. Coordinated operations security, emission control, and electromagnetic attack activities are instrumental in protecting formations from long-range fires. The brigade combat team CEMA section coordinates airborne EW support from higher echelons, if needed. The CEMA section develops and refines OPORDs, targeting matrixes, and attack guidance in the close area with a focus on enemy—

- Command and control nodes.
- Reconnaissance, surveillance, and target acquisition systems.
- Short- and mid-range fires.
- Integrated air defenses.
- Other critical nodes.

3-67. The EW platoon may execute tactical deception plans developed during the competition phase to create tactical unpredictability for the enemy and prevent the massing of enemy fires in the close area. Enemy forces take hostile action against friendly cyberspace, space (satellite-based), and spectrum-dependent systems to mitigate U.S. advantages in conventional combat power. Enemy attacks in, or affecting, the close area may include—

- Communications jamming.
- Cyber attacks on military or civilian infrastructure.
- Electromagnetic and cyber attacks on cellular infrastructure.
- Positioning, navigation, and timing jamming.
- Counter-unmanned aircraft system operations.
- Noncommunications air defense artillery and counterfire radar jamming.

3-68. EW, SIGINT, cyberspace operations, and other assets must rapidly identify, locate, and nominate targets for lethal and nonlethal fires. The brigade combat team EW platoon supports collection efforts in the close area. Friendly EW focuses initially on locating enemy command and control networks, electromagnetic attack capabilities, and spectrum-dependent weapons, sensors, and systems.

3-69. Army forces conduct coordinated EW, SIGINT, and cyberspace operations missions. The technical control and analysis cell and brigade combat team CEMA section nominate targets for lethal and nonlethal fires or identify and locate targets that match the commander’s attack guidance matrix or high-payoff target list.

3-70. Friendly electromagnetic attacks focus on degrading or denying enemy command and control and intelligence, surveillance and reconnaissance systems and networks to open windows of opportunity for exploitation by maneuver elements.

3-71. EW platoons conduct electromagnetic support activities to observe indications and warnings of enemy attacks on friendly formations and capabilities. Additionally, platoons monitor the electromagnetic signatures of friendly forces to ensure electromagnetic protection measures are effective. They conduct electromagnetic attack to disrupt enemy engagement of friendly forces.

3-72. The enemy will attempt to isolate friendly maneuver elements in the close area and deny support from adjacent units, enablers in other domains, or higher echelons. Friendly EW forces prepare for operations in the contested environment by planning nonlethal fires and electromagnetic deception plans to degrade critical capabilities of enemy weapon systems. They also determine locations of enemy forces to support precision targeting with lethal fires.

3-73. The employment of EW assets during the exploitation period sustains the penetration and dis-integration of enemy spectrum-dependent systems and enables the achievement of tactical mission objectives. EW elements employ integrated EW and SIGINT capabilities at decisive spaces and maneuver to dislocate the enemy's defense by fixing and isolating enemy maneuver elements. This allows friendly forces to maneuver to a position of advantage and attack or mass fires against the enemy position.

3-74. As exploitation continues, the dislocation of the enemy defense caused by friendly maneuver offers increased opportunities for electromagnetic attack. The brigade combat team EW platoon support's the division's employment of converged capabilities across all domains, the electromagnetic spectrum, and the information dimension to neutralize the enemy's short-range systems. At this point, the division and brigade combat team EW platoon can employ electromagnetic attacks, including communications and noncommunications jamming.

3-75. The brigade combat team receives downward-reinforcing support from the division EW company. This support includes ground- and air-based EW capabilities, prioritizing support to aerial maneuver.

3-76. Regional peers have a significant number of short-range weapon systems, including large cannon artillery forces. Neutralizing these weapons and systems is essential to protect friendly positions and provide freedom of maneuver for friendly forces.

3-77. Friendly forces seek to overmatch enemy capabilities at critical times and places to create and exploit temporary windows of relative advantage. EW, cyberspace operations, and fires elements focus on converging effects across multiple domains. To converge effects and create windows of opportunity in multiple domains—

- EW elements continue electromagnetic support to support tactical mission objectives and targeting. EW elements concentrate their sensing efforts on receiving, identifying, and geolocating enemy EW capabilities, emitters, and command and control networks.
- Friendly forces conduct cyberspace and EW operations to exploit, disrupt, degrade, destroy, and manipulate the enemy's use of the electromagnetic spectrum and networks. EW systems can temporarily neutralize enemy radio frequency triggering devices to protect maneuver elements from radio-controlled improvised explosive devices, or radio frequency fuzed weapons.

3-78. EW assets in the brigade combat team maneuver to within range of decisive points to conduct EW activities against enemy command and control networks, integrated air defense systems, logistics centers, and critical nodes to enable joint combined arms maneuver. These forward-deployed teams may require security and defense

augmentation from the supported force. EW teams can employ electromagnetic attack to mask friendly spectrum-dependent capabilities and suppress enemy spectrum-dependent capabilities, including communications and radars. EW forces rapidly maneuver in the close area to open temporary windows of opportunity for maneuver elements.

CONSOLIDATION OF GAINS

3-79. Through a successful transition from armed conflict to the return to competition, integrated EW, SIGINT, and cyberspace operations planning and assessment should translate tactical successes to the achievement of mission objectives. During consolidation of gains, EW platoons in the close area reconstitute and focus their efforts on continued force protection and deterrence of renewed armed conflict. Successful adaptation to the new security environment results in an overall improvement of friendly forces' force protection posture.

3-80. Army forces contribute to the consolidation of gains by securing the initiative and maintaining contact in all domains, the electromagnetic spectrum, and the information dimension. This approach ensures military and political conditions remain favorable to wrap up combat operations and return control to the host nation.

3-81. Particularly following an armed conflict with a nuclear-capable power, the enemy will retain significant conventional military capabilities in the field. Army EW forces, therefore, must act simultaneously deter a return to conventional warfare and assist partner forces in restoring order to prevent the enemy from exploiting internal disruption for strategic advantage.

STABILITY

3-82. The primary mission of the brigade EW platoon during stability operations is to retain advantages over the enemy gained during armed conflict and secure key terrain and friendly populations. If the brigade combat team redeploys, the EW platoon hands off responsibility in its area of operations to a relieving element or host-nation authorities. Threat actions in cyberspace and the electromagnetic spectrum may continue at a similar intensity to that of the armed conflict because physical separation of forces will lead neither side to surrender any operational advantage in cyberspace or the electromagnetic spectrum.

3-83. Army EW forces set conditions for long-term deterrence by regenerating and expanding Army and mission partner capacity. The CEMA section and EW platoon plan and prepare for the defense to deter a return to conflict. The goal is to allow commanders to achieve relative freedom of maneuver in all domains and freedom of action in the electromagnetic spectrum to set the conditions for an advantageous long-term force posture. From the threat's perspective, Army EW actions demonstrate an increasing and enduring ability and will to counter aggression, demonstrated through robust EW, SIGINT, and cyberspace capabilities that enable information advantage activities. These information advantage activities help set the conditions for long-term deterrence.

ENABLING CIVIL AUTHORITY

3-84. Operations in the information dimension will continue as both sides seek to consolidate gains by influencing friendly and enemy militaries, civilian populations, and governments. Integrated EW, SIGINT, and cyberspace activities support partner governments' efforts to re-establish essential services and civil governance. The EW platoon must be prepared to counter irregular warfare carried out by proxies in the close area and support any mission partners in deterring enemy conventional attacks.

SECTION II – OPERATION IN A CONTESTED ENVIRONMENT

3-85. Peer threats consider friendly command and control networks to be priority targets. For this reason, they have developed extensive capabilities to challenge friendly use of the electromagnetic spectrum. The significant electromagnetic signature of major command posts makes them vulnerable to enemy direction finding and geolocation.

3-86. Using techniques such as terrain masking and remote antennas moves the electromagnetic signature away from command post activities. Using directional antennas or other methods of increasing the directionality of electromagnetic radiation further reduces a command post's likelihood of detection. Leaders and equipment operators must learn to recognize and respond to threat effects in the electromagnetic spectrum.

3-87. Units cannot reduce the electromagnetic signature of current command posts without the application of training; tactics, techniques, and procedures; and emerging technologies. Deploying radio frequency emitting assets across a wide area can spread the electromagnetic signature, rather than concentrating it at major command posts. EW elements can employ decoys and electromagnetic deception techniques to help mask the nodes that have significant impact on information and decision-making processes.

ELECTROMAGNETIC PROTECTION

3-88. EW planners and operators can implement operational tactics, techniques, and procedures to mitigate threat capabilities in the electromagnetic spectrum. If an enemy cannot detect friendly signals, they cannot geolocate or jam those signals.

3-89. The cyber electromagnetic warfare officer assists the G-3 or S-3 and the G-6 or S-6 in planning electromagnetic protection measures to reduce the electromagnetic signatures of command posts, communications sites, and weapon platforms. EW platoon leaders implement electromagnetic protection measures to protect EW sites during site reconnaissance and setup. Electromagnetic protection techniques include—

- Terrain masking.
- Camouflage net masking.
- Orienting line of sight.
- Remote antennas.

TERRAIN MASKING

3-90. Terrain masking can effectively block radio signals from reaching enemy direction-finding capabilities. EW planners should assist signal planners during site reconnaissance and selection to take advantage of existing terrain features or man-made structures between communications systems and the forward line of own troops. Terrain masking effectively blocks an enemy from detecting friendly radio signals.

CAMOUFLAGE NET MASKING

3-91. Radar reflective camouflage netting is an effective means of blocking unintended electromagnetic radiation from the rear and sides of directional antennas. Camouflage netting to the sides and back of a line of sight or satellite communications antenna ensures only the main beam of the antenna radiates. The main beam is highly directional; it is much harder to detect since the enemy would need to be directly in the transmission path.

ORIENTING LINE OF SIGHT

3-92. High-throughput line of sight radios can carry high bandwidth data over distances up to 25 miles (40 kilometers), but the links should be engineered to minimize the chance of detection, targeting, and jamming. If the line of sight path is parallel to the forward line of troops, an enemy is less likely to detect the signal, and enemy jammers will be unable to reach the antenna with a strong enough signal to jam the radio.

REMOTE ANTENNAS

3-93. Large command posts and their high-throughput communications systems and EW systems emit a significant amount of electromagnetic energy. While planners and operators can mask some of this energy with careful siting, terrain masking, and directional antennas, some electromagnetic energy remains. Because peer threats target friendly command and control capabilities, anything near the communications system is at risk of destruction from lethal fires.

3-94. Commanders, signal planners, and EW leaders should consider locating major communications and EW assemblages as far from the supported command post as practical. Placing terrain features, man-made structures, or distance between radio frequency emitting systems and command posts provides the command post some protection from geolocation and lethal fires. Commanders and planners must consider the additional physical security and site defense requirements for remote sites during planning.

RECOGNIZING AND RESPONDING TO ENEMY ELECTROMAGNETIC ATTACKS

3-95. Many electromagnetic attacks exhibit clear indicators. EW leaders and equipment operators must learn to identify and respond to the effects of threat electromagnetic attacks to minimize their impact on critical command and control communications and

EW capabilities. This section serves as a quick reference guide to recognizing and responding to enemy electromagnetic attacks. Refer to ATP 3-12.3 for more information about electromagnetic protection techniques.

SINGLE-CHANNEL RADIO AND RETRANSMISSION JAMMING

3-96. Radio operators must learn to recognize and react to electromagnetic jamming. This is not always easy since electromagnetic interference can be either internal or external. Other sources having nothing to do with enemy jamming may cause electromagnetic interference. Unintentional electromagnetic interference may be caused by—

- Other radios (friendly or enemy).
- Other electronic, electrical, or electromechanical equipment.
- Atmospheric conditions.
- Equipment malfunction.

3-97. Radio operators must train to quickly differentiate between internal and external interference. Refer to ATP 6-02.53 for more information about isolating and eliminating internal sources of interference.

3-98. Electromagnetic jamming most commonly affects single-channel radio systems. These radios include high frequency, very high frequency, and ultrahigh frequency radios. Jamming effects may be obvious or subtle. Obvious jamming is normally simple to detect. When experiencing jamming, it is more important to recognize and overcome the incident than to identify it formally.

3-99. Subtle jamming is less obvious because subtle jamming signals produce no sound from the receivers. Although everything may appear normal to the radio operator, the receiver cannot receive an incoming friendly signal. Often, users assume their radios are malfunctioning, instead of recognizing subtle jamming. Table 3-1 on page 3-19 lists some common types of jamming signals and their characteristics.

Table 3-1. Common jamming signals

Signal	*Description*
Random Noise	Synthetic radio noise. It is indiscriminate in amplitude and frequency. It is similar to normal background noise and can degrade all types of signals. Operators often mistake random noise jamming for receiver or atmospheric noise and fail to take appropriate electromagnetic protection actions.
Stepped Tones	Tones transmitted in increasing and decreasing pitch. They resemble the sound of bagpipes. Stepped tones are effective against single-channel amplitude modulation or frequency modulation voice circuits.
Spark	Bursts of short duration and high intensity; they are repeated at a rapid rate. This signal is effective in disrupting all types of radio communications. Spark jamming is easy to produce and one of the most effective jamming signals.
Gulls	Quickly rising and slowly falling variable radio frequency. The effect produced is similar to the cry of a seagull. Gulls produce a nuisance effect and are very effective against voice radio communications.
Random Pulse	Pulses of varying amplitude, duration, and rate. Pulses disrupt teletypewriter, radar, and various data transmission systems.
Wobbler	A single frequency, modulated by a low and slowly varying tone. The result is a howling sound that causes a nuisance effect on voice radio communications.
Recorded Sounds	Any audible sound, especially of a variable nature. Recorded sounds can distract radio operators and disrupt communications. Music, screams, applause, whistles, machinery noise, and laughter are examples.
Preamble Jamming	A tone resembling the synchronization preamble of the speech security equipment, broadcast over the operating frequency of secure radio sets. Results in all radios being locked in the receive mode. Preamble jamming is especially effective when employed against radio networks that use speech security devices.

Preventive Measures

3-100. Measures operators and planners can use to reduce susceptibility to enemy jamming include—

- Minimizing radio transmissions—trying to keep radio transmissions to six seconds or less.
- Using electromagnetic counter-countermeasures, such as frequency hopping.
- Maintaining radio silence.
- Using low power settings on radios for normal operations to reduce the probability of detection.
- Using terrain masking to reduce the probability of detection and block potential sources of enemy jamming.

Indicators

3-101. The enemy strives to perfect and use new and more confusing forms of jamming. This requires radio operators to be increasingly alert to the possibility of

jamming. Training and experience allow operators to determine whether a particular signal is a jamming signal. During operations, radio operators should remain alert to possible jamming indicators. Observable indications of jamming include—

- Apparently random noise or static over voice channels.
- Recorded sounds—messages or music—over voice channels.
- No answer to a radio transmission.

Reaction

3-102. Communications jamming requires prompt corrective action to restore critical communications capabilities. Possible reactions to jamming include—

- **Continuing to operate.** Enemy jamming usually involves a period of jamming followed by a brief listening period. Operator activity during this short period indicates to enemies whether their jamming efforts were successful. Continuing to operate normally gives the enemy no indication of success for failure. If the enemy hears discussion of the problem on the air, or radio operation terminates, the enemy may assume their jamming is effective. Operators should never terminate operation of a radio network unless ordered to do so. Operators should be careful not to disclose to the enemy that the radio has been adversely affected. This means normal operations should continue even when degraded by jamming.
- **Increasing transmitter power output.** Operators should use low power settings for normal operations to minimize detection. Once the enemy begins jamming the radios, the risk of detection becomes secondary to the radio delivering required communications. Higher radio power may overcome the enemy's jamming signal but increases the risk of detection by enemy direction-finding capabilities.
- **Improving the signal-to-jamming ratio.** The signal-to-jamming ratio is the relative strength of the desired signal to the jamming signal at the receiver. If the desired signal is much stronger than the jamming signal, the jamming does not significantly degrade communications. To improve the signal-to-jamming ratio, operators and leaders can consider—
  - **Adjusting or changing the antenna.** When jamming occurs, the radio operator should adjust the antenna to receive the maximum incoming signal strength. Depending on the antenna, some methods include reorienting the antenna, changing antenna polarization at all stations, or installing an antenna with a greater range.
  - **Establishing a retransmission site.** A retransmission site can increase the effective range and power of a signal between radio stations without increasing transmit power.
  - **Relocating the antenna.** Operators may use terrain masking to block the incoming jamming signal. This may require moving the antenna and associated radio set anywhere from a few meters to several hundred meters.

- **Changing frequencies.** If a communications network cannot overcome enemy jamming, the commander may direct using an alternate or spare frequency. Preplanned and well-coordinated actions are required for practical dummy stations to continue to operate on the jammed frequency to mask the change to an alternate frequency. During a jamming incident, it may be difficult to coordinate a frequency change. All radio operators require knowledge of when, and under what circumstances, they should switch to a backup frequency. If the frequency change is not smooth, the enemy may discover what is happening, and try to degrade communications on the new frequency.
- **Executing the PACE plan.** Quickly changing to redundant means of communication reduces communications disruption.
- **Using SIGINT or electromagnetic support capabilities to locate the jamming signal.** Leveraging SIGINT or electromagnetic support capabilities requires coordination and collaboration with the G-2 or S-2 or the cyber electromagnetic warfare officer.

3-103. If any of the corrective actions taken mitigate the enemy jamming, operators should continue operation of the network and submit a joint spectrum interference resolution report to higher headquarters. Joint spectrum interference resolution reports document a history of problems and help identify possible causes for subsequent interference. Maintaining a historical record of interference helps develop countermeasures to future jamming incidents. Refer to ATP 6-02.70 for more information about joint spectrum interference resolution reporting.

POSITIONING, NAVIGATION, AND TIMING JAMMING

3-104. Peer threats have capabilities to contest the space domain and attack the on-orbit, link, and terrestrial segments of U.S. positioning, navigation, and timing satellites. These attacks may have significant impacts across all warfighting functions and many weapon platforms.

3-105. Electromagnetic jamming of positioning, navigation, and timing satellite capabilities affects not only navigation, but also communications and many other capabilities in tactical formations. Systems affected include—

- Communications systems.
- Friendly force tracking.
- Reconnaissance.
- Radar systems.
- Fire support systems.
- Precision guided munitions.

Preventive Measures

3-106. Measures to reduce susceptibility to, and mitigate the effects of, enemy jamming of positioning, navigation, and timing include—

- Using only encrypted positioning, navigation, and timing systems.
- Antenna masking.
- Terrain masking.
- Training and maintaining the ability to navigate using a map and compass.

Indicators

3-107. User indications that an enemy may be jamming positioning, navigation, and timing satellites include—

- Loss of satellite signal.
- Red Global Positioning System icon on the network management system.
- Loss of timing or incorrect time displayed on equipment.
- Wrong location displayed on the map.
- Jamming environment warning message.

Reaction

3-108. Because of the diverse and widespread effects of enemy positioning, navigation, and timing jamming, a prompt, coordinated response is necessary. Operators of all affected systems should—

- **Navigate using map and compass.** While this does not restore system timing and situational awareness displays, navigation using a map and compass cannot be jammed.
- **Increase distance between affected systems and the jammer.** If the jammer location is known, increased distance or terrain masking may mitigate interference.
- **Manually input time in signal systems.** Use a backup method to provide timing to signal systems that require precise time to interoperate.
- **Manually input position in fire support systems.** Entering the position of fire support systems allows the Lightweight Handheld Mortar Ballistic Computer and Advanced Field Artillery Tactical Data System to calculate fire missions.
- **Use SIGINT or electromagnetic support capabilities to locate the jamming signal.** Leveraging SIGINT or electromagnetic support capabilities requires coordination and collaboration with the G-2 or S-2 and the cyber electromagnetic warfare officer.
- **Report jamming to higher headquarters.** Submitting a joint spectrum interference resolution report to higher headquarters documents a history of problems and helps identify possible causes for subsequent interference. The G-6 or S-6 spectrum manager prepares the joint spectrum interference resolution report for submission if the interference cannot be resolved locally.

SATELLITE COMMUNICATIONS JAMMING

3-109. Expeditionary forces rely heavily on satellite communications capabilities for beyond line of sight network transport. Systems and capabilities affected by satellite communications jamming include—

- Friendly force tracking.
- Tactical internet systems.
- Tactical satellite radios.
- Intelligence reporting systems.

Preventive Measures

3-110. Operational and employment measures to prevent satellite communications jamming include—

- Minimizing transmissions on single-channel tactical satellite radios—try to keep radio transmissions to six seconds or less.
- Terrain masking.
- Camouflage net masking.

Indicators

3-111. Possible operator indications of satellite jamming include—

- Seemingly random noise or static on narrowband (single-channel) tactical satellite radios.
- Recorded sounds, such as messages or music, over single-channel tactical satellite radios.
- No answer to transmission.
- Red satellite icon on the network management system display.
- Loss of data from the satellite.
- Low signal-to-noise indicated on a wideband satellite terminal.

Reaction

3-112. The reactive measures here apply mostly to narrowband (single-channel) satellite communications systems. When a single-channel tactical satellite radio operator recognizes a jamming attempt, they may—

- **Increase radio transmit power.** Operators should only increase power on wideband satellite communications terminals if directed to do so by the satellite controller.
- **Change to a preapproved alternate frequency**.
- **Execute the PACE plan.** Quickly changing to the alternate or contingency means of communications reduces communications disruption.
- **Use SIGINT or electromagnetic support capabilities to locate the jamming signal.** Leveraging SIGINT or electromagnetic support capabilities

requires coordination and collaboration with the G-2 or S-2 and the cyber electromagnetic warfare officer.

- **Report jamming to higher headquarters.** The G-6 or S-6 spectrum manager prepares the joint spectrum interference resolution report for submission if the interference cannot be resolved locally. The higher headquarters' frequency manager and cyber electromagnetic warfare officer can correlate reports from units across the area of operations to isolate enemy jammers and plan countermeasures, including nominating targets for lethal fires.
- **Use line of sight systems for network transport.** Units will be unable to communicate beyond line of sight, or through significant physical obstacles.

Note. Satellite network controllers at the wideband satellite communications operations centers coordinate all interference resolution and reporting on DOD wideband satellite networks.

RADAR JAMMING

3-113. Systems affected by radar jamming include—

- Fire-finder radars.
- Surveillance radars.
- Air defense radars.

Preventive Measures

3-114. Operational and employment measures to prevent radar jamming include—

- Radar cueing cycles.
- Use of electromagnetic counter-countermeasures.
- Survivability moves.
- Use of low power settings.
- Terrain masking.

Indicators

3-115. Possible operator indications of radar jamming include—

- Radar-generated jamming report.
- Radar operating in degraded mode.

Reaction

3-116. When a radar operator recognizes a jamming attempt, they may—

- **Increase distance between the radar set and forward line of own troops.** The relocated radar set may not be able to detect as deep into enemy territory,

but the jamming effect may be mitigated enough to allow continued operation.

- **Use alternate radar.** If an alternate radar system is available, switching to a backup system may go unnoticed by the enemy for a time and enable continuing operation.
- **Change radar frequency.** If a radar set cannot overcome enemy jamming, the commander may direct using an alternate or spare frequency. Preplanned and well-coordinated actions are required for practical dummy stations to continue to operate on the jammed frequency and mask the change to an alternate frequency.
- **Use SIGINT or electromagnetic support capabilities to locate the jammer.** Leveraging SIGINT or electromagnetic support capabilities requires coordination and collaboration with the G-2 or S-2 and the cyber electromagnetic warfare officer.
- **Report jamming to higher headquarters.** The G-6 or S-6 spectrum manager prepares the joint spectrum interference resolution report for submission if the interference cannot be resolved locally. The higher headquarters' frequency manager and cyber electromagnetic warfare officer can correlate reports from units across the area of operations to isolate enemy jammers and plan countermeasures, including nominating targets for lethal fires.

EMERGENCY DESTRUCTION

3-117. If friendly EW sites face imminent risk of overrun, operators must evacuate radios, COMSEC material, encryption devices, electromagnetic support systems, and other relevant EW equipment or destroy them in place.

3-118. Allowing COMSEC materials to fall into enemy hands compromises secure communications. A COMSEC compromise disrupts all radio and data networks until operators and net control stations can conduct emergency cryptographic key supersession.

3-119. Allowing EW equipment to fall into enemy hands will allow enemy forces to analyze friendly EW capabilities and develop tactics, techniques, and procedures to neutralize U.S. capabilities. Platoon leaders should include emergency destruction battle drills in mission rehearsals to mitigate the risk of compromise. Refer to ATP 6-02.75 for more information about emergency COMSEC destruction.

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Chapter 4
Logistics and Sustainment

A platoon's mission success requires the platoon leader to develop and implement a comprehensive platoon sustainment and maintenance plan. Each platoon's maintenance plan must support the company commander's maintenance plan.

SECTION I – RESPONSIBILITIES

4-1. The success or failure of military operations often hinges on the ability to resupply and sustain deployed forces. Key leaders in the platoon have specific responsibilities for logistics and sustainment functions.

PLATOON LEADER

4-2. The platoon leader oversees platoon equipment maintenance and has supervisory responsibility for the platoon's property. The platoon leader works with the executive officer to develop a comprehensive maintenance plan and forecasts consumption of on-hand spares. The platoon leader coordinates support for all classes of supply from the appropriate unit, plans field hygiene activities, and sets the work-rest cycle necessary to sustain operations.

PLATOON SERGEANT

4-3. The platoon sergeant coordinates the platoon's maintenance and logistical requirements, compiles maintenance reports, and provides reports to the platoon leader and executive officer. The platoon sergeant is responsible for platoon internal resupply, cross-leveling between teams, enforcement of field hygiene activities, and enforcement of work-rest cycles.

ELECTROMAGNETIC WARFARE TEAMS AND OPERATORS

4-4. EW teams and operators perform preventive maintenance checks and services on their assigned equipment. Based on mission variables, teams and operators can diagnose faults and replace faulty subassemblies from available on-hand spares. EW team chiefs monitor and report rates of consumption, cross-level within the team, direct field hygiene, and execute the team work-rest cycle.

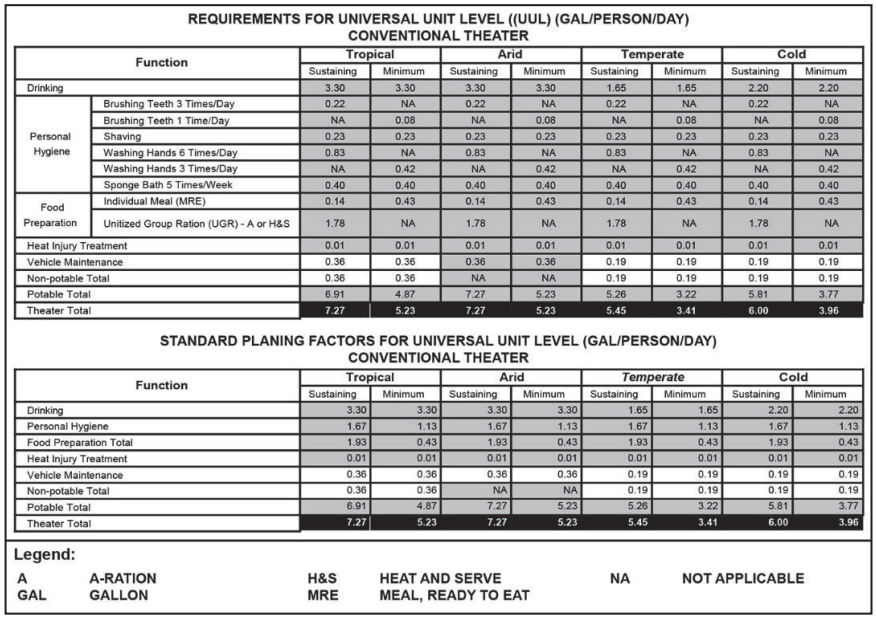
SECTION II – FUNCTIONS OF SUSTAINMENT

4-5. Leaders must integrate sustainment planning into all operational planning. The company SOP should provide the basis for sustainment operations; leaders determine specific requirements and prepare for contingencies during troop leading procedures. The platoon order should address sustainment requirements for the mission.

CLASSES OF SUPPLY

4-6. Supply is essential for enhancing Soldiers' quality of life and provides the materiel required to accomplish the mission. The platoon leader establishes priorities for delivery; however, combat demands that class I, III, and IX supplies and equipment take priority for EW platoons because they are the most critical to successful operations. The classes of supply are—

- **Class I**—supplies required for subsistence, including potable water and food. Class I is among the most important supply classes for platoon sustainment planning. The platoon leader should forecast class I supply requirements based on the number of assigned and attached personnel in the platoon. Meal planning requires an understanding of the unit feeding cycle. Meals, ready-to-eat are available when no heat and serve meal options are available. Leaders should maintain enough potable water for all personnel during all missions. Mission requirements and environmental factors affect the platoon's rate of water consumption. Figure 4-1 and table 4-1 on page 4-3 provide estimated values to aid in projecting the platoon's water requirements.



REQUIREMENTS FOR UNIVERSAL UNIT LEVEL ((UUL) (GAL/PERSON/DAY)
CONVENTIONAL THEATER

Function		Tropical		Arid		Temperate		Cold	
		Sustaining	Minimum	Sustaining	Minimum	Sustaining	Minimum	Sustaining	Minimum
Drinking		3.30	3.30	3.30	3.30	1.65	1.65	2.20	2.20
Personal Hygiene	Brushing Teeth 3 Times/Day	0.22	NA	0.22	NA	0.22	NA	0.22	NA
	Brushing Teeth 1 Time/Day	NA	0.08	NA	0.08	NA	0.08	NA	0.08
	Shaving	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
	Washing Hands 6 Times/Day	0.83	NA	0.83	NA	0.83	NA	0.83	NA
	Washing Hands 3 Times/Day	NA	0.42	NA	0.42	NA	0.42	NA	0.42
	Sponge Bath 5 Times/Week	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Food Preparation	Individual Meal (MRE)	0.14	0.43	0.14	0.43	0.14	0.43	0.14	0.43
	Unitized Group Ration (UGR) - A or H&S	1.78	NA	1.78	NA	1.78	NA	1.78	NA
Heat Injury Treatment		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Vehicle Maintenance		0.36	0.36	0.36	0.36	0.19	0.19	0.19	0.19
Non-potable Total		0.36	0.36	NA	NA	0.19	0.19	0.19	0.19
Potable Total		6.91	4.87	7.27	5.23	5.26	3.22	5.81	3.77
Theater Total		7.27	5.23	7.27	5.23	5.45	3.41	6.00	3.96

STANDARD PLANING FACTORS FOR UNIVERSAL UNIT LEVEL (GAL/PERSON/DAY)
CONVENTIONAL THEATER

Function	Tropical		Arid		*Temperate*		Cold	
	Sustaining	Minimum	Sustaining	Minimum	Sustaining	Minimum	Sustaining	Minimum
Drinking	3.30	3.30	3.30	3.30	1.65	1.65	2.20	2.20
Personal Hygiene	1.67	1.13	1.67	1.13	1.67	1.13	1.67	1.13
Food Preparation Total	1.93	0.43	1.93	0.43	1.93	0.43	1.93	0.43
Heat Injury Treatment	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Vehicle Maintenance	0.36	0.36	0.36	0.36	0.19	0.19	0.19	0.19
Non-potable Total	0.36	0.36	NA	NA	0.19	0.19	0.19	0.19
Potable Total	6.91	4.87	7.27	5.23	5.26	3.22	5.81	3.77
Theater Total	7.27	5.23	7.27	5.23	5.45	3.41	6.00	3.96

Legend:

A	A-RATION	H&S	HEAT AND SERVE	NA	NOT APPLICABLE
GAL	GALLON	MRE	MEAL, READY TO EAT		

Figure 4-1. Water consumption chart

Table 4-1. Daily environmental water consumption in gallons per person

Use	*Temperate*	*Tropical*	*Arid*	*Arctic*
Drinking water	1.5	3.0	3.0	2.0
Personal hygiene	1.7	1.7	1.7	1.7
Field feeding	2.8	2.8	2.8	2.8
Heat injury treatment	.1	.2	.2	.1
Vehicle maintenance			.2	
Standard planning factor	6.1	7.7	7.9	6.6

- **Class II**—clothing, individual equipment, tents, tool sets and tool kits, hand tools, administrative, and housekeeping supplies and equipment (including maps). This includes items of equipment, other than major items, prescribed in authorization and allowance tables and items of supply, not including repair parts.
- **Class III**—petroleum, oils, and lubricants, include petroleum and solid fuels, bulk and packaged fuels, lubricating oils and lubricants, petroleum specialty products, coal, and related products. The EW platoon relies heavily on its assigned vehicles to maneuver within the assigned area of operations. EW teams use the advanced sight and optics systems to see and report. EW platoons also rely on their vehicles for armor protection. While vehicles provide clear advantages, they require substantial amounts of class III supply to operate. Platoon leaders forecast class III supply requirements for each

mission or operation. Table 4-2 provides estimated fuel burn rates by vehicle type.

Table 4-2. Estimated fuel burn rates by vehicle type

Vehicle	*Fuel Capacity (Gal)*	*Idle (Gal/Hr)*	*Cross-Country (Gal/Hr)*	*Road Primary/Secondary (Gal/Hr)*
HMMWV (Armored)	26	1.29	4.53	2.64/2.87
LMTV	52	1.02	7.05	2.82/3.34

Legend:

Gal	gallons
HMMWV	high mobility multipurpose wheeled vehicle
Hr	hour
LMTV	light medium tactical vehicle

- **Class IV**—construction materials, including installed equipment and fortification or barrier materials.
- **Class V**—ammunition of all types, including chemical, radiological, and special weapons, bombs, explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items. EW platoons forecast, request, and carry ammunition based on their assigned mission; there is not a standard basic load for all operations. Each mission receives a unit basic load determined by brigade planners, requested through the Total Ammunition Management Information System, and approved by the S-4. The EW platoon receives class V supplies from the battalion and requests additional as needed throughout the mission.
- **Class VI**—personal demand items, such as health and hygiene products, soaps, toothpaste, writing materials, snack foods and beverages, and other items that are non-military sales items.
- **Class VII**—major end items—final combinations of end products which are ready for their intended use. An example of class VII supply for EW is a major EW assemblage.
- **Class VIII**—medical materiel, including medical-peculiar repair parts and health and welfare items.
- **Class IX**—repair parts and components, including kits and repairable and non-reparable assemblies or subassemblies required to perform maintenance on equipment such as—
  - Major EW assemblages.
  - Radios.
  - Vehicles.
  - Weapons.
- **Class X**—material to support non-military programs, such as agricultural and economic development that do not fall under supply classes I–IX.

BASIC AND COMBAT LOADS

4-7. Before a mission, platoon members ensure they have all appropriate supplies. Platoon leaders and platoon sergeants verify supply loads during pre-combat checks and pre-combat inspections. Throughout the mission, the platoon sergeant ensures basic loads are replenished as needed. Refer to ATP 4-35 for more information on combat loads.

BASIC LOAD

4-8. The basic load is the quantity of supplies required on hand, and which a unit or formation can move. The basic load depends on the wartime organization of the unit or formation and maintained at the prescribed levels.

COMBAT LOAD

4-9. The combat load is the minimum mission-essential equipment and supplies, determined by the platoon responsible for carrying out the mission, and required for EW teams to fight and survive immediate combat operations. The platoon leader bases the combat load on mission requirements according to the OPORD.

PROPERTY ITEMS

4-10. Property accountability is one of many challenges platoon leaders face. EW platoon leaders are responsible for equipment valued from thousands to millions of dollars.

HAND RECEIPT TRANSFER

4-11. In preparation for a change of hand receipt holder, the outgoing platoon leader must verify the property inventory. The outgoing platoon leader updates the hand receipt to reflect any changes since the last inventory. Finally, the outgoing platoon leader should account for all loaned equipment.

4-12. The incoming and outgoing platoon leaders create a schedule for the change of hand receipt inventory, considering the sub-hand-receipt holders, Soldiers, and the company's training schedule. The schedule should maximize the platoon's participation during the inventory. The inventory schedule should include a make-up day in case of an equipment inventory issue.

COMPONENT LISTINGS

4-13. Component listings are technical manual descriptions—usually with pictures—showing the parts and equipment required to consider the item complete. For example, the component listing of a high mobility multipurpose wheeled vehicle shows the tools, fire extinguisher, first-aid kit, and other items the operator needs for a field exercise or deployment. Component listings generally fall into three categories:

- Components of end item.

- Basic issue items.
- Additional authorization list.

4-14. Some end items have just one component (for instance, a technical manual), or none at all. Some mechanic's tool kits, on the other hand, have hundreds or even thousands of components. To determine whether an end item has a component listing, the platoon leader should check the tables in the equipment technical manual. Technical manuals, components of end item listings, basic issue items listings, and additional authorization lists can change with no prior warning.

EXPENDABLE PROPERTY

4-15. Expendable property requires no formal accounting after issue to the user. Although expendable items do not require formal accounting on a property book, they are usually recorded in a supply log. Expendable property items are issued with no expectation they will be returned. Expendable property includes—

- Toilet paper.
- Ink pens.
- Printer paper.
- Nails.
- Tape.

DURABLE PROPERTY

4-16. Durable property requires no formal accounting but requires control at the user level using a DA Form 2062 (*Hand Receipt/Annex Number*). Durable property includes such items as—

- Hammers.
- Fuel cans.
- Screwdrivers.
- Shovels.

NON-EXPENDABLE PROPERTY

4-17. Non-expendable property requires formal property book accounting at the user level. The company property book records accountability for these items. Non-expendable property includes items such as—

- Computers.
- Printers.
- EW assemblages.
- Toolboxes.
- Generators.
- Vehicles.

DEVELOPMENT OF THE PLATOON SUSTAINMENT PLAN

4-18. Platoon leaders develop the sustainment plan by determining what is on hand so they can accurately project requirements. Company leadership must know what designated critical supplies the platoon has on-hand. Accurate projections are important not only to validate the sustainment plan, but to ensure the platoon can submit support requests as early as possible. Platoon leaders develop their sustainment plans and submit support requests based on the maneuver plan. Platoon sergeants and team chiefs execute the sustainment plan and submit requests for resupply or support through the platoon leader.

4-19. The sustainment plan should address—

- **Types of support required.** Types of support the platoon will need based on the nature of the operation and the tactical situation.
- **Quantities.** Quantities, by supply class, the platoon will need.
- **Emergency resupply.** Whether the platoon will need emergency resupply of class I, III, V, and IX during the mission.
- **Pre-stocked supplies.** Whether operations require pre-stocked supplies to support EW teams located away from the main body.
- **Threat.** Composition, disposition, and capabilities of threat forces. How the threat situation will affect execution of the sustainment plan.
- **On-hand spares.** Whether the available on-hand spares are sufficient to support the mission if equipment components fail.
- **Terrain and weather.** How terrain and weather will affect execution of the sustainment plan.
- **Time and location.** When and where the platoon needs sustainment.
- **Support requirements.** The platoon's support requirements, by element and type of support.
- **Priority of resupply.** The section that receives priority consideration for emergency resupply.
- **Resupply techniques.** The primary resupply technique the platoon should use, based on information developed during the sustainment planning process.

ON-BOARD SPARES

4-20. On-board spares are repair parts carried on hand for EW assemblages, as authorized by the technical manual or the commander. The operators and teams manage on-board spares.

4-21. The logistics system considers on-board spares as consumed for accountability purposes. Units do not account for these spares within a logistics information system. The intended use for these items is to support the equipment on which they are mounted.

LOAD PLANNING CONSIDERATIONS

4-22. Units should standardize vehicle load plans among every vehicle type in the platoon. Not every vehicle is going to have the same equipment, but each vehicle load plan should match as closely as possible. Standardized load plans ensure that in an emergency all crewmembers can find the equipment on each vehicle. For instance, if a Soldier needs a combat lifesaver bag, they should be able to find it readily on any vehicle in the platoon.

4-23. Load plans should call for loading items in reverse order of expected use. The most essential items should be the last loaded so they are most accessible when unloading. The platoon SOP should include standardized load plans. The platoon leader and platoon sergeant verify vehicle loading according to the load plan during pre-combat checks and pre-combat inspections. Refer to GTA 13-01-002 (*Electronic Warfare Platoon Checklist*) for a checklist for EW platoon pre-combat checks and pre-combat inspections.

4-24. Each piece of vehicle and platoon equipment must be stored appropriately. Examples of why careful load planning is important include—

- Ammunition needs to be within easy reach of vehicle crewmembers.
- Maintenance equipment and tools should be readily available to the driver.
- Recovery equipment will be required during missions.
- Water and fuel cans are carried outside of the vehicle and separated from each other.
- Grenades need to be stored in a location that they can be used, but in a position where they can be grabbed without being causing them to explode.
- Anti-tank missiles must be accessible if the team needs to react to an armored threat.

SUSTAINMENT OVERLAY

4-25. The key to understanding the platoon's sustainment plan is the sustainment overlay. The sustainment overlay should include current and proposed combat trains locations with—

- Logistics release points.
- Casualty collection points, including the marking methods.
- Maintenance collection points.
- Helicopter landing zones.
- Ambulance exchange points.
- Friendly sustainment locations, such as forward operating bases or combat outposts.

4-26. Refer to FM 1-02.2 for control measures necessary for the overlay. When developing paragraph 4 of the platoon OPORD, the platoon leader should consider—

- **Orientation.** Orient all EW teams to the sustainment overlay.

- **Maintenance.** Including all equipment, maintenance control points, and procedures such as utilizing and exchange of the DA Form 5988-E (*Equipment Maintenance and Inspection Worksheet [EGA]*) and DA Form 2404 (*Equipment Inspection and Maintenance Worksheet*).
- **Transportation.** The current transportation plan, order of march, with the timeline to line up in ready condition 1, bump plans, and recovery assets and plan.
- **Supply.** Specifics of who in the platoon is carrying what supplies by class. For example, each Soldier should carry a three-day supply of class I.
- **Personnel services.** Including who is responsible for detainee processing and locations for detainee collection areas.
- **Medical.** Including locations of treatment facilities, preventive medicine, evacuation procedures, and responsibilities.

SUSTAINMENT REPORTING

4-27. The resupply of the EW platoon and the reporting of supply status should follow unit SOP; however, this should not limit the platoon from reporting or requesting supplies, as needed. Leaders request resupply through the appropriate yellow or red reports by voice or digital means. The platoon sergeant submits these reports by voice or digital communications, based on the timeline in the unit SOP, or immediately following enemy contact or a major loss of supplies.

RESUPPLY METHODS

4-28. Resupply operations are either planned or emergency. Examples of planned resupply to maintain routine resupply operations include—

- Logistics package.
- Caches.
- Modular system exchange (flatrack exchange).
- Pre-positioned supplies.

4-29. The company and platoon SOPs should specify cues and procedures for each resupply method. The platoon rehearses resupply operations during platoon training exercises. The actual method selected for resupply in the field depends on mission variables.

ROUTINE RESUPPLY

4-30. A *logistics package* is a grouping of multiple classes of supply and supply vehicles under the control of a single convoy commander (FM 3-90-1). The logistics package is a simple and efficient method to accomplish routine resupply operations. These operations include regular resupply of items in classes I, III, V, and IX, and of any other items requested by the company. Planning for a logistics package takes place at battalion level and normally occurs at every opportunity. The logistics package consists of company and forward support company assets that transport supplies to the company.

4-31. The company supply sergeant, battalion S-4, and the forward support company assemble the logistics package in the battalion field trains area under the supervision of the designated personnel, typically a representative from the battalion S-4.

4-32. Once the logistics package is prepared for movement, the supply sergeant accompanies the vehicles forward from the field trains command post and convoys to either the combat trains command post or to the logistics release point. The first sergeant, platoon sergeant, or other representative meets the logistics package and guides it to the company resupply point. The company replenishes each platoon; the platoons, in turn, disperse supplies to each section or team.

4-33. The tactical situation dictates which technique of resupply the platoon uses: tailgate, service station, a variation of one type, or a combination of both types. The situation also dictates when to resupply. Generally, the platoon should attempt to avoid resupply during offensive operations. Resupply should take place during mission transition whenever possible. Resupply is unavoidable during long duration defensive missions.

Tailgate Resupply

4-34. In the tailgate resupply technique, the first sergeant, platoon sergeant, or other designated person will bring the logistics package to individual section locations. This method is used when routes leading to vehicle positions are available, terrain permits movement of multiple vehicles to each platoon position and the unit is not under direct enemy observation and fire. EW sections can remain in established positions to allow vehicles carrying class I, class III, and class V supplies to reach them.

4-35. Individuals can rotate through the feeding area, pick up mail, and fill or exchange water cans. Tailgate resupply is time-consuming, but it is useful in maintaining stealth during defensive missions, because combat net radios and major EW assemblages do not have to be broken down to move. If necessary, supplies can be hand-carried to section or team positions to further minimize signatures. Figure 4-2 on page 4-11 shows an example of a tailgate resupply operation.

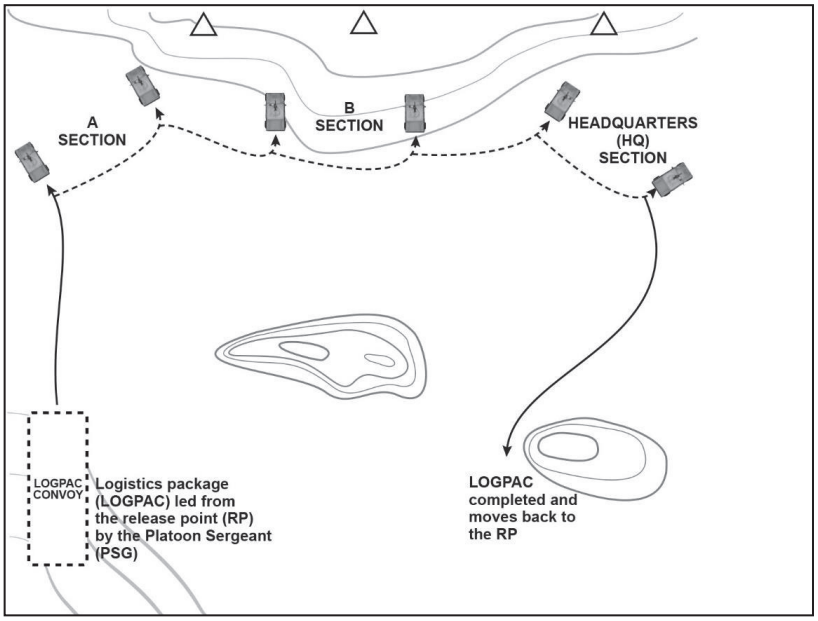


Figure 4-2. Tailgate resupply

Service Station Resupply

4-36. In the service station resupply technique, vehicles or individuals move to a designated location to rearm, refuel, and resupply, or turn in damaged equipment. The platoon leader directs the platoon sergeant to rotate vehicles or sections through the resupply site based on the enemy situation and shortages in the platoon. This process continues until the entire platoon receives necessary supply replenishment.

4-37. When using service station resupply, the vehicles and individuals enter the resupply point following one-way traffic flow and only vehicles requiring maintenance stop at the maintenance holding area. The maintenance element can help the operator or crew in verifying preventive maintenance checks and services of their vehicles. Maintainers can correct minor deficiencies on the spot with available tools, repair parts, and battle damage assessment and repair techniques.

4-38. Each vehicle or individual rotates through the supply location, with teams rotating through to eat, pick up mail, and refill or exchange water cans. Service station resupply is inherently faster than the tailgate method because vehicles must move and concentrate, however, it can create security problems and disrupt EW support. During defensive missions, the platoon leader must create a plan to rotate the platoon based on shortages and must be careful not to compromise the location of assemblages or disrupt service. Figure 4-3 on page 4-12 is an example of a service station resupply operation.

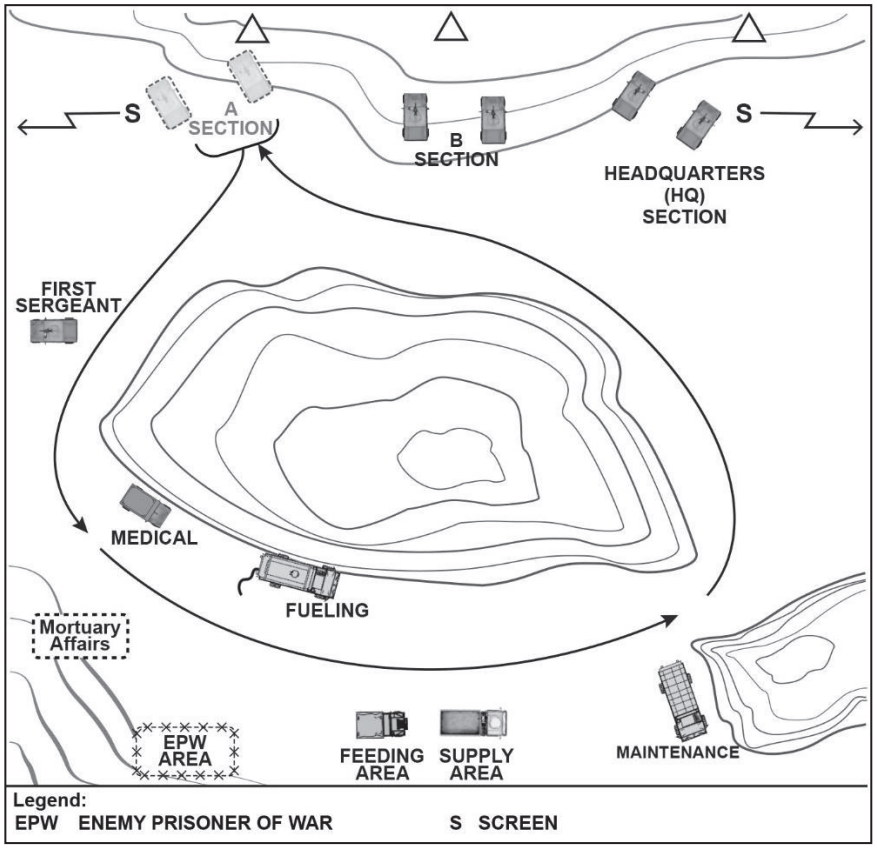


Figure 4-3. Service station resupply

EMERGENCY RESUPPLY

4-39. Emergency, or immediate, resupply normally involves class III and class V supplies, and takes place when the platoon has such an urgent need for resupply that it cannot wait for the routine logistics package. EW teams not co-located with a larger organic element will likely need emergency resupply at some point. Once requested through the commander or executive officer, an emergency resupply can take place using either the service station or tailgate technique.

PRE-POSITIONED RESUPPLY OR CACHE

4-40. As with all operations, leaders consider the mission variables of METT-TC (I) and sometimes need pre-positioned or cached supplies. EW teams with attached security elements will most likely require pre-positioned supplies before conducting defensive operations, or to support the occupation of a battle position.

4-41. During a movement to contact or offensive operations, platoons will likely cache supplies not needed during the operation. The caching unit, or another friendly unit requiring those cached supplies will retrieve the supplies later. Appropriate materials for caching for an EW platoon are supply classes I, III, and V. Units should not cache sensitive items or on-hand spares.

MAINTENANCE

4-42. Equipment maintenance can make or break a platoon's ability to contribute to the unit's overall mission. Maintenance generates and regenerates combat power and preserves combat systems and equipment to enable training and mission accomplishment. Equipment maintenance includes inspecting, testing, servicing, classifying, repairing, rebuilding, and overhauling.

4-43. Effective maintenance plans require leaders to—

- Identify requirements—the minimum number of available EW systems required for mission success with redundancy.
- Identify available maintenance resources—maintenance and repair parts capability on hand to meet the mission.
- Manage the maintenance resources for maximum effect—establish priorities, task-organize to weight the main effort, and posture class IX supplies, anticipating shortfalls. This last requirement is aligned to the maintenance priority and the priority of work assigned to key systems. Prioritization identifies weighting of maintenance support for the mission.

4-44. The platoon leader develops the maintenance plan in coordination with the company commander and executive officer to align with the company commander or brigade S-2 and S-3 priorities.

4-45. The company executive officer plans and supervises the company's maintenance effort with the first sergeant before battle. The executive officer works with the first sergeant, platoon leaders, platoon sergeants and maintenance team chief to maintain current awareness of maintenance status. The executive officer regularly updates the company commander on the maintenance status. The executive officer coordinates with the battalion S-3 and S-4 to plan and resource the company's missions.

4-46. Global Combat Support System-Army tracks supplies, spare parts, and organizational equipment. It tracks unit maintenance, total cost of ownership, and other financial transactions related to logistics for all Army units. Platoon leaders need access to Global Combat Support System-Army to manage supplies and maintenance in the platoon. To gain access, platoon leaders must complete training on the Global Combat Support System-Army Training and Certification System Website.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-47. Platoon leaders provide leadership to their sections and teams and support the achievement of the Army maintenance standard by—

- Preparing for and ensuring that their subordinates fully participate in unit-scheduled preventive maintenance.
- Attending, leading, and supervising preventive maintenance operations.
- Being technically competent.
- Checking and updating platoon SOPs.
- Knowing their responsibilities for their areas of supervision and field maintenance operation procedures.
- Enforcing Army maintenance standards for the platoon's equipment and instilling a sense of ownership in subordinate team chiefs and operators.
- Training operators and teams to operate equipment and follow proper maintenance procedures.
- Enforcing safety during preventive maintenance.

4-48. The keys to a successful preventive maintenance program are—

- Scheduling time for preventive maintenance checks and services on the unit training schedule.
- Performing preventive maintenance according to operator and unit maintenance technical manuals.
- Ensuring the unit's supervisors and operators are trained in preventive maintenance techniques.
- Properly resourcing operators and crews to perform preventive maintenance.
- Performing preventive maintenance before using equipment or dispatching vehicles.
- Performing preventive maintenance before scheduled maintenance services.
- Recording preventive maintenance checks and services on a DA Form 5988-E or DA Form 2404.
- Ensuring mechanics verify faults identified during preventive maintenance and place orders for the parts required to fix those faults.
- Ensuring timely and accurate reporting of non-mission-capable systems through the chain of command, from the operator, to the team chief, to the maintenance section.
- Checking basic issue items and components of end item lists to verify all items are present and serviceable or on order.

Most Common Maintenance Problems (and Fixes) for Platoon Leaders

4-49. The most common maintenance problems (and fixes) for platoon leaders are—

- Improper description or no verification—
  - The description in the faults section is unclear or unreadable.
  - Ensure operator legibly annotates faults on the DA Form 5988-E or DA Form 2404.
- No parts ordered—

  - Fault entered into the computer, but no parts are placed on order.
  - Mechanics look up parts and ensure the supply clerk enters them in the ordering system.
- No status—parts on order with national stock number, but parts do not arrive—
  - Check for Global Combat Support System-Army computer problems.
  - Cancel requisition and reorder part.
- Parts arrived, installed, and left on DA Form 5988-E or DA Form 2404—remove fault and parts ordered.
- Repaired vehicles left in dead-lined status—ensure corrective action is complete and faults removed from Global Combat Support System-Army.

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Appendix A

Tactical Skills

Electromagnetic warfare platoons undergo extensive training to support combat operations in all operational environments. In preparation for these operations, electromagnetic warfare platoons and teams train and practice battle drills in response to common battlefield occurrences and tactical movement and patrolling techniques.

SECTION I – BATTLE DRILLS

A-1. Battle drills are standardized collective actions designed for rapid reaction without the need to apply a deliberate decision-making process. Battle drills are initiated on a cue, such as an enemy action or the leader's order, and are a trained response to that stimulus. They require minimal leader orders to accomplish and are vital to achieve success in combat and preserve life.

TEAM BATTLE DRILLS

A-2. To ensure survivability, EW platoons and teams should be proficient in the following battle drills:

- React to Direct Fire Contact While Dismounted – Squad (07-SQD-D9501).
- Break Contact – Squad (07-SQD-D9505).
- React to Ambush (Dismounted) – Squad (07-SQD-D9502).
- React to Indirect Fire While Mounted (07-SQD-D9504).

A-3. The following are abbreviated drill outlines. The full battle drills with task measures and evaluation standards are available on the Army Training Network Website.

SAFETY

A-4. In a training environment, leaders must perform a risk assessment before each training event in accordance with ATP 5-19. Leaders complete the current Department of Defense Form 2977 (*Deliberate Risk Assessment Worksheet*) during the planning and completion of each task and sub-task by assessing the risk factors and the mission variables of METT-TC (I).

Note. During MOPP training, leaders must monitor personnel for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat-related injury. Leaders consider the MOPP work-rest cycles and water replacement guidelines in accordance with current CBRN doctrine.

REACT TO DIRECT FIRE CONTACT WHILE DISMOUNTED (07-SQD-D9501)

CONDITIONS: The squad is conducting operations in a live training environment independently or as part of a platoon or larger force. The squad is dismounted. While stationary or moving, the enemy engages the squad with direct fire. Some iterations of this task should be performed in MOPP 4.

CUE: The drill begins when the enemy initiates direct fire contact.

STANDARDS: The squad reacts to direct fire contact while dismounted according to ATP 3-21.8. The team in contact returns fire immediately and seeks cover. The team in contact locates the enemy and places well-aimed fire on known enemy positions. Leaders point out enemy positions and identify the types of weapons, such as small arms and light machine guns. The team not in contact assumes the nearest covered and concealed position. The squad leader reports the contact to the platoon leader.

TASK STEPS AND PERFORMANCE MEASURES (ASTERISKS INDICATE LEADER PERFORMANCE STEPS)

1. The team in contact immediately returns well-aimed suppressive fire on known or suspected enemy positions while taking a covered position.

2. The team not in contact assumes the nearest covered and concealed position (see figure A-1 on page A-3).

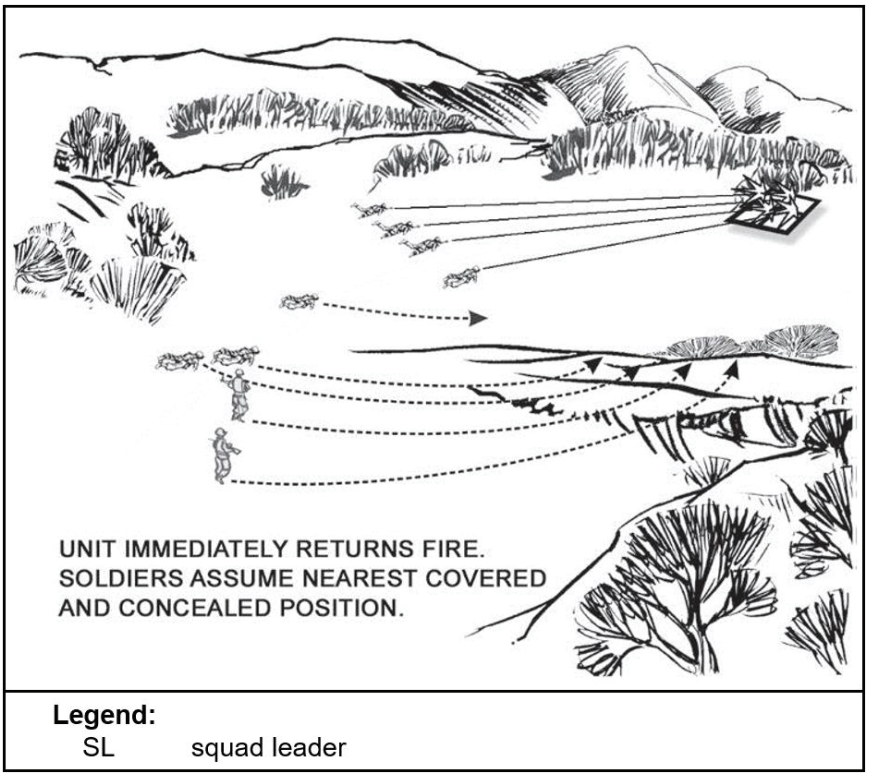


Figure A-1. The team not in contact assuming a covered and concealed position

* 3. Team leaders engage known enemy positions with well-aimed suppressive fire and report information to the squad leader.

* 4. Team leaders control the fire of their teams by using standard fire commands (initial and supplemental) containing the following information:

a. Alert.

b. Weapon or ammunition (optional).

c. Target description.

d. Direction.

e. Range.

f. Method.

g. Control (optional).

h. Execution.

i. Termination.

5. Soldiers maintain visual or vocal contact with their team leader and the other Soldiers on their left or right (if applicable).

6. Soldiers maintain contact with the team leader and indicate the location of the enemy positions.

* 7. Leaders visually or vocally check the status of their personnel.

* 8. Team leaders maintain visual contact with the squad leader.

9. The squad leader moves up to a covered and concealed position where best to observe, communicate, and control the engagement (see figure A-2).

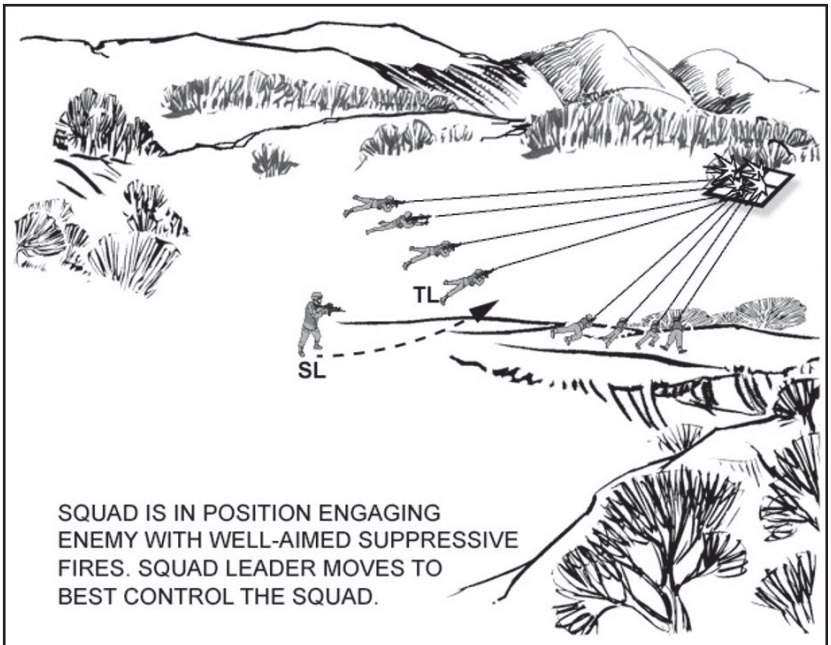


Figure A-2. Well-aimed fires and squad leader control

* 10. The squad leader determines whether or not the squad can gain and maintain suppressive fires with the team already in contact (based on the volume and accuracy of enemy fires against the team in contact).

* 11. The squad leader confirms the commander's criteria to disengage and determines whether or not the squad must move out of the engagement area.

* 12. The squad leader makes an assessment of the situation and identifies—

a. The location of the enemy position and obstacles.

b. The size of the enemy force engaging the team in contact. (The number of enemy automatic weapons, the presence of any vehicles, and the employment of indirect fires are indicators of enemy strength.)

c. Vulnerable flanks.

d. Covered and concealed flanking routes to the enemy positions.

* 13. The squad leader decides whether to conduct an assault, bypass (if authorized by the platoon leader), or break contact.

* 14. The squad leader reports the situation to the platoon leader and begins to maneuver the squad.

BREAK CONTACT – SQUAD (07-SQD-D9505)

CONDITIONS: The squad is conducting operations in a live training environment independently or as part of a platoon or larger force. The squad is moving as part of a larger force, conducting a movement to contact or an attack. Following direct fire contact with the enemy, the squad leader decides to break contact. Some iterations of this task should be performed in MOPP 4.

CUE: The drill begins when the squad leader orders the squad to break contact.

STANDARDS: The squad breaks contact according to ATP 3-21.8. Using fire and movement, the squad continues to move until the enemy cannot observe or place fire on them. The squad leader reports the contact to the platoon leader.

TASK STEPS AND PERFORMANCE MEASURES (ASTERISKS INDICATE LEADER PERFORMANCE STEPS)

* 1. While receiving direct fire from the enemy or on orders, the squad leader orders the squad to break contact.

* 2. The squad leader directs one team to suppress by fire to support the disengagement of the remainder of the squad. This distance should not exceed small arms range to ensure supporting fire.

* 3. The squad leader orders a distance and direction, terrain feature, or last rally point of the movement of the team in contact.

* 4. The squad leader employs direct fires to suppress enemy positions. (See figure A-3.)

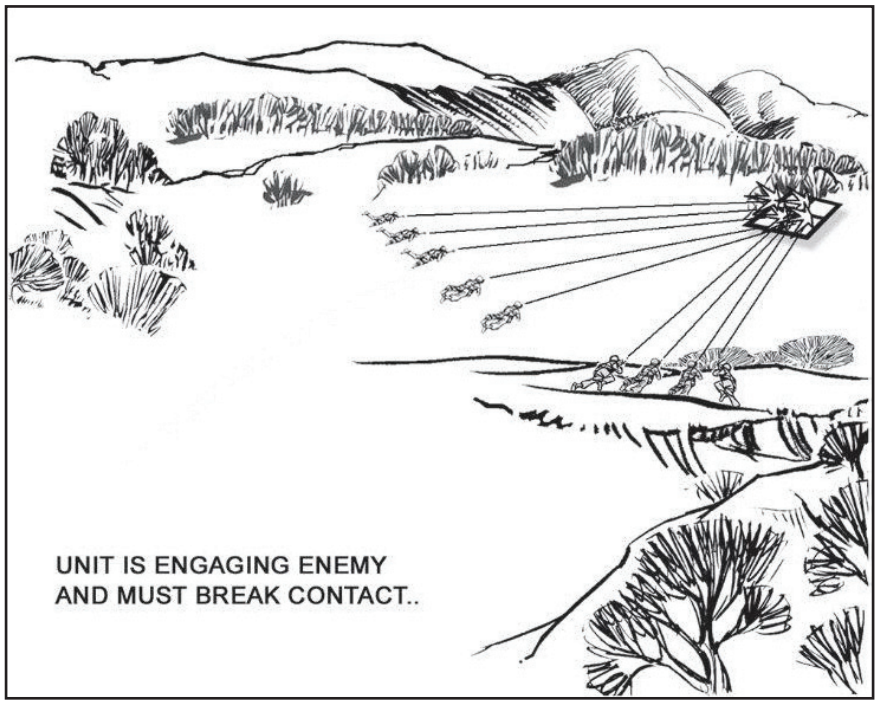


Figure A-3. Employing direct and indirect fires to suppress enemy

5. The moving team moves to occupy the overwatch position, employs smoke (M203/M320, smoke grenades, indirect fires, and other options) to screen movement. If necessary, employs fragmentation and concussion grenades to facilitate breaking contact.

6. The base-of-fire team continues to suppress the enemy.

7. The moving team occupies their overwatch position and engages enemy positions. (See figure A-4 on page A-7.)

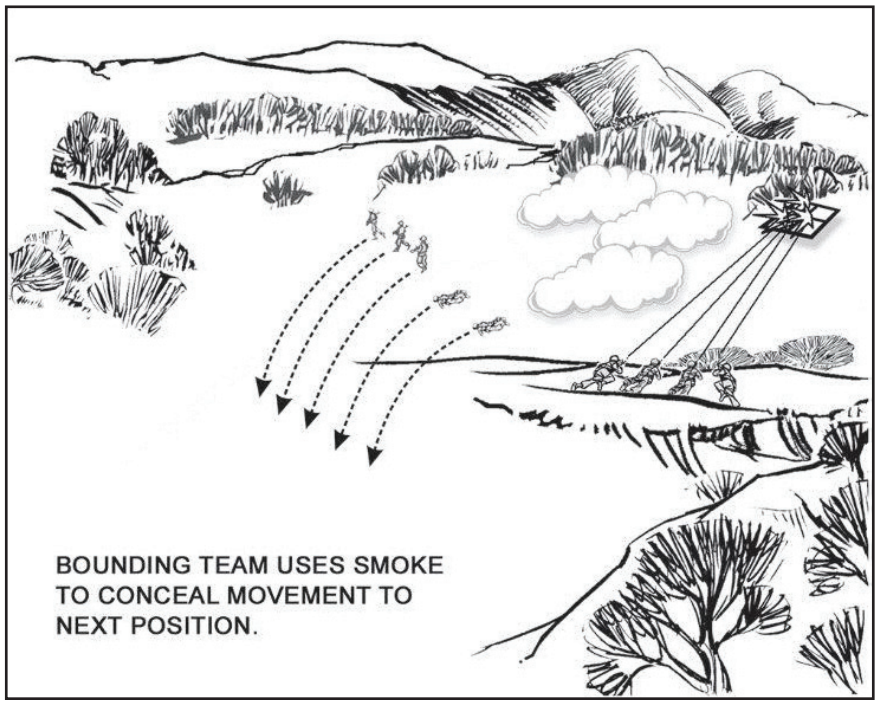


Figure A-4. Moving element occupies overwatch and engages enemy

* 8. The squad leader directs the base-of-fire team to move to its next covered and concealed position. Based on the terrain and the volume and accuracy of the enemy's fire, the moving team may need to use fire and movement techniques. (See figure A-5 on page A-8.)

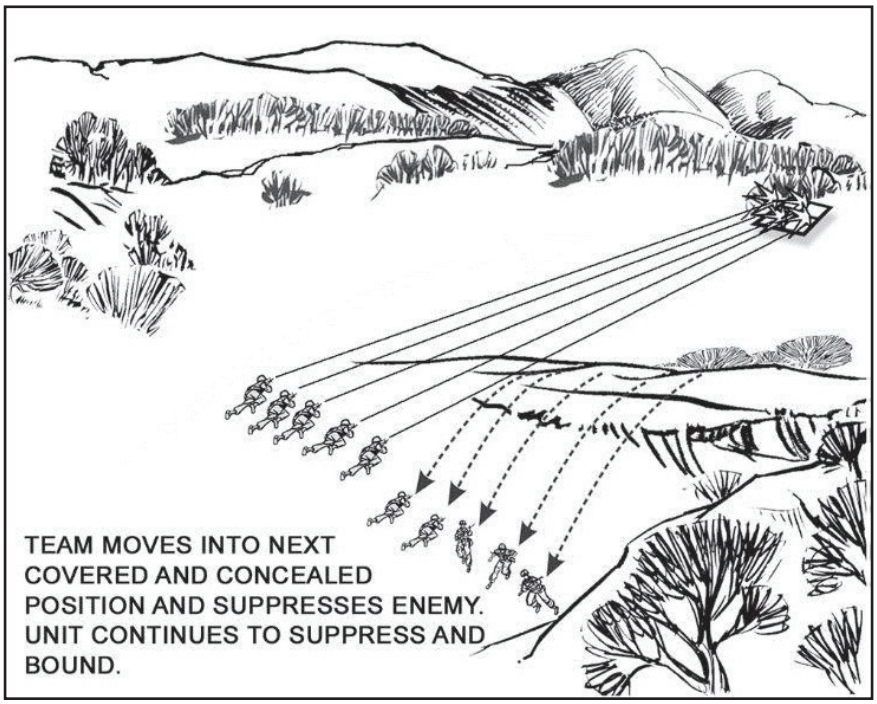


Figure A-5. Fire and movement technique

9. The squad continues to move away from the enemy until—

   a. It breaks contact (the squad must continue to suppress the enemy as it breaks contact).

   b. Its teams are in the assigned positions to conduct the next mission.

* 10. Leaders account for Soldiers, report the situation, reorganize as necessary, and continue the mission.

* 11. The squad leader moves the squad onto an azimuth or alternate route away from enemy forces.

> ***Note.*** The squad leader should consider changing the unit's direction of movement once contact is broken. This reduces the ability of the enemy to place effective indirect fire on the squad.

12. Teams and Soldiers that become divided stay together and move to the last designated rally point.

REACT TO AMBUSH (DISMOUNTED) – SQUAD (07-SQD-D9502)

CONDITIONS: The squad is conducting operations in a live training environment independently or as part of a platoon or larger force. The squad is moving tactically dismounted in close terrain. The squad moves into an enemy prepared kill zone. The enemy initiates contact with the most casualty-producing weapon or detonation of explosives and a high volume of well-aimed fire from covered and concealed positions. Some iterations of this task should be performed in MOPP 4 and at night.

CUE: This drill begins when the enemy initiates ambush.

STANDARDS: The squad reacts to an ambush according to ATP 3-21.8.

Near ambush: Soldiers in the kill zone immediately return fire on known or suspected enemy positions and assault through the kill zone. Soldiers not in the kill zone locate and place well-aimed suppressive fire on the enemy. The squad assaults through the kill zone and destroys the enemy.

Far ambush: Soldiers in the kill zone immediately return fire on known or suspected enemy positions and suppress the enemy. Soldiers not in the kill zone assault the enemy using fire and movement. The squad assaults through the kill zone and destroys the enemy.

TASK STEPS AND PERFORMANCE MEASURES (ASTERISKS INDICATE LEADER PERFORMANCE STEPS)

1. The squad is moving dismounted, receives a high volume of well-aimed fire from the enemy, and takes the following actions:

    a. React to a near ambush in which the enemy is within hand grenade range:

        (1) The Soldiers or team in the kill zone execute one of the following two actions:

            (a) Return fire immediately. If cover is not available, without order or signal immediately assume the prone position and throw smoke grenades. (See figure A-6 on page A-10.)

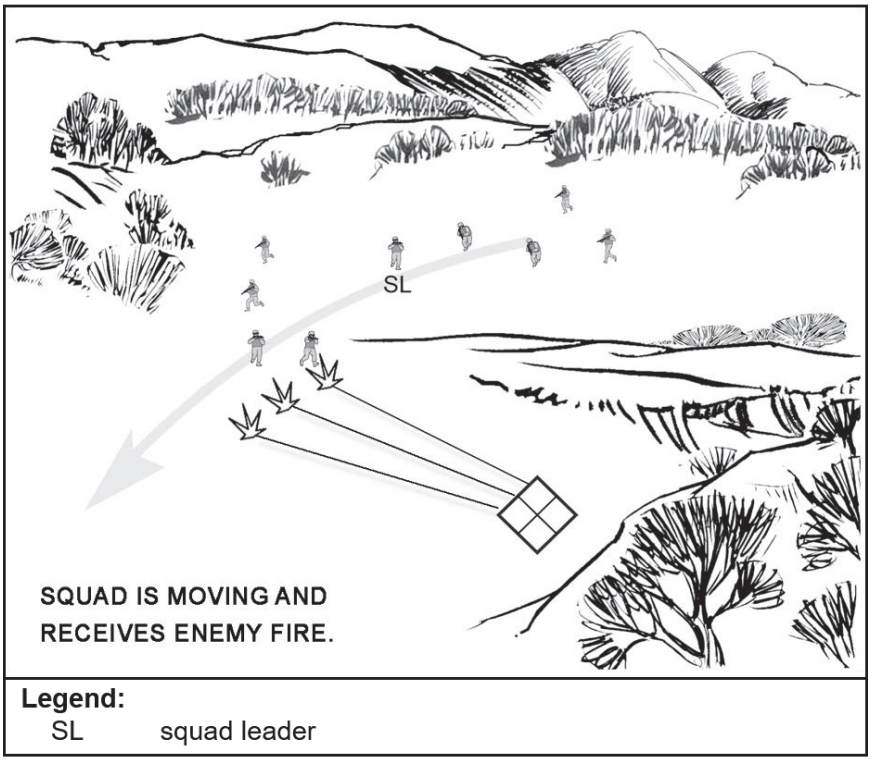
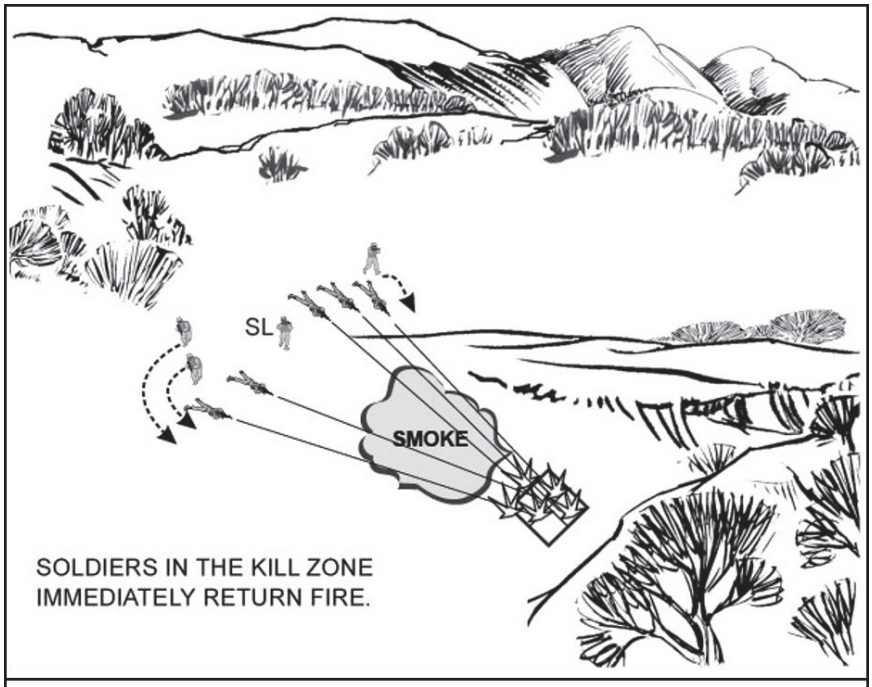


Figure A-6. Squad receives enemy fire

(b) Return fire immediately. If cover is available, without order or signal, occupy the nearest covered position and throw smoke grenades. (See figure A-7 on page A-11.)



Legend:
SL squad leader

Figure A-7. Squad immediately returns fire

(2) The Soldiers or team in the kill zone, immediately after the explosion of the smoke grenades, assault through the ambush position using fire and movement.

(3) The Soldiers or team not in the kill zone identify the enemy location, place well-aimed suppressive fire on the enemy's position, and shift fire as Soldiers assault the objective.

(4) The Soldiers or team in the kill zone continue to assault through and destroy the enemy position. (See figure A-8 on page A-12).

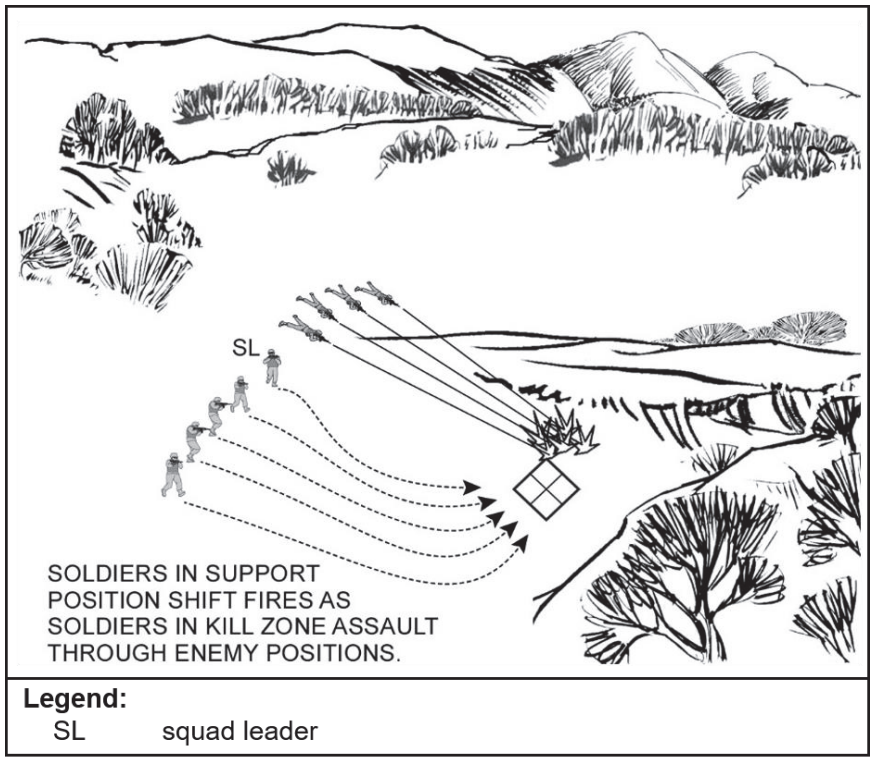


Figure A-8. Squad assaults through enemy position

b. React to a far ambush in which the enemy is beyond hand grenade range.

(1) The Soldiers or team receiving fire immediately return fire, seek cover, and place well-aimed suppressive fire on the enemy's position.

* (2) The team leader or squad leader leads the Soldiers or team not receiving fire along a covered and concealed route to the enemy's flank to assault the enemy using fire and movement.

(3) The Soldiers or team in the kill zone shift suppressive fires as the assaulting Soldiers fight through and destroy the enemy.

* 2. The squad leader reports the contact to the platoon leader.

REACT TO INDIRECT FIRE WHILE DISMOUNTED – SQUAD (07-SQD-D9504)

CONDITIONS:

The squad is conducting operations in a live training environment independently or as part of a platoon or larger force. The squad is dismounted. While stationary or moving, a member of the squad alerts INCOMING, or a round impacts nearby. Some iterations of this task should be performed in MOPP 4 and at night.

CUE: The drill begins when any squad member alerts INCOMING, or a round impacts nearby.

STANDARDS: The squad reacts to indirect fire while dismounted according to ATP 3-21.8. Soldiers immediately seek the best available cover. The squad moves out of the area to the designated rally point after the impacts. The squad leader reports the contact to the platoon leader.

TASK STEPS AND PERFORMANCE MEASURES

1. A member of the squad hears or observes artillery impacting near the squad and alerts the squad with the announcement INCOMING!

2. Soldiers immediately assume the prone position or immediately move to available cover during initial impacts. (See figure A-9.)

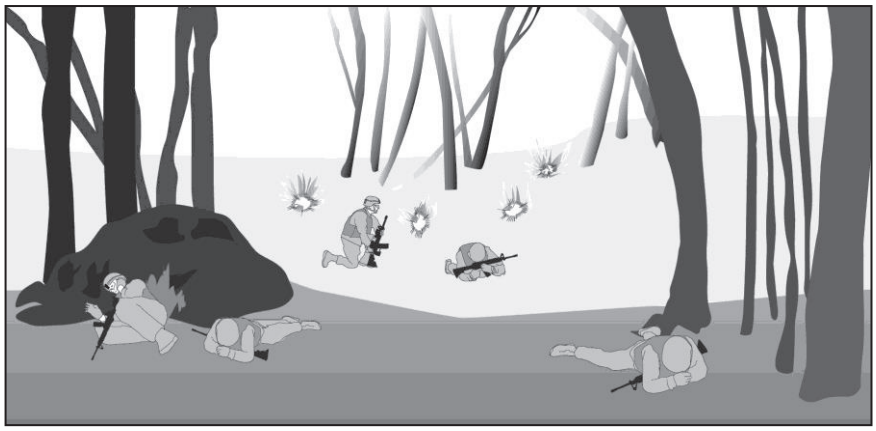


Figure A-9. Soldiers reacting to indirect fire

* 3. The squad leader orders the squad to move to a rally point by giving a direction and distance.

4. Soldiers move rapidly in the given direction and distance to the designated rally point and reestablish security after the impacts.

* 5. Leaders regain accountability of their Soldiers, weapons, and equipment at the rally point and treat casualties as required.

* 6. The squad leader reports the action to the platoon leader.

SECTION II – TACTICAL MOVEMENT

A-5. To survive on the battlefield, leaders enforce stealth, dispersion, and security in all tactical movements. EW leaders and Soldiers must be skilled in all tactical movement techniques. Refer to ATP 3-21.8 for more information on movement techniques.

FORMATIONS

A-6. Movement formations include elements and Soldiers arranged in relation to one another. EW teams and platoons may use a variety of movement formation types. Formations give the leader the ability to lead by example and control movement, based on mission variables of METT-TC (I). Typical formations are the line, vee, echelon, diamond, wedge, and file.

A-7. Formations reflect EW teams' relative position during movement. Platoon formations are very similar with more Soldiers. Platoons can move in lines and files similar to teams. When platoons operate in wedges or in echelon, the teams use those formations and arrange themselves in a column or with one team behind the other. Platoons may also use the vee formation, where one team forms the lines of the vee with the leader at the front (at the point of the vee) to exercise control. Leaders position themselves where they can best control and direct their formations, as shown in figure A-10. All Soldiers in the movement must be able to see their leader. When the unit operates as a platoon, the platoon leader carefully selects the location for crew-served weapons in the movement formation.

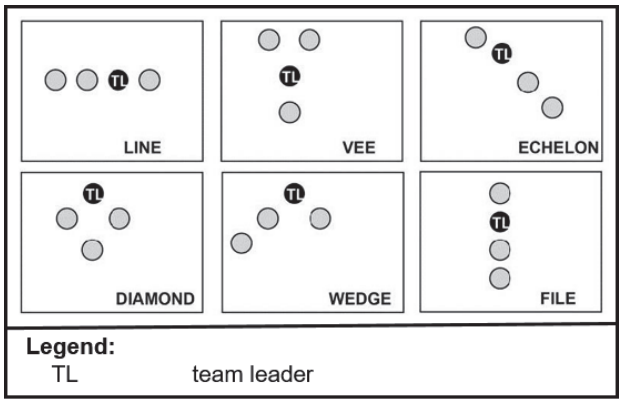


Figure A-10. Movement formations

MOVEMENT TECHNIQUES

A-8. Movement techniques are neither fixed nor are they formations. Instead, movement techniques are distinguished by a set of criteria such as distance between individual Soldiers and between teams. The most appropriate movement technique for a situation is based on the mission variables of METT-TC (I). There are three movement techniques:

- Traveling.
- Traveling overwatch.
- Bounding overwatch.

A-9. The selection of a movement technique is based on the likelihood of enemy contact and the need for speed (see table A-1). Factors to consider include control, dispersion, speed, and security.

Table A-1. Characteristics of movement techniques

Movement Techniques	***When normally used***	***Characteristics***			
		Control	***Dispersion***	***Speed***	***Security***
Traveling	Contact not likely	More	Less	Fastest	Least
Traveling overwatch	Contact possible	Less	More	Slower	More
Bounding overwatch	Contact expected	Most	Most	Slowest	Most

A-10. From these movement techniques, leaders can conduct actions on contact, make natural transitions to fire and movement, and conduct tactical mission tasks. When analyzing the situation, some enemy positions are known. However, most of the time enemy positions will only be templated positions based on terrain analysis and knowledge of the enemy. Leaders seek to confirm or deny both known and templated positions throughout the operation.

A-11. While movement techniques vary based on the tactical situation, Soldiers must always be able to see their team chiefs. In platoon movement, the platoon leader should be able to see the lead team chief. Leaders control movement with hand and arm signals; they use radios only when needed. Leaders match the movement technique to the tactical situation.

TRAVELING

A-12. Leaders select this technique when enemy contact is not likely and speed is necessary. In the traveling technique, leaders leave approximately 40 meters between squads. Traveling provides—

- More control than traveling overwatch, but less control than bounding overwatch.
- Minimum dispersion.

- Maximum speed.
- Minimum security.

TRAVELING OVERWATCH

A-13. Traveling overwatch is an appropriate technique when enemy contact en route to the objective is possible. Traveling overwatch is the most often used movement technique. In the traveling overwatch technique, the trail element maintains dispersion based on its ability to provide immediate suppressive fires in support of the lead element (see figure A-11 on page A-17). Considerations for the traveling overwatch technique include—

- In general, only the lead team in a platoon movement uses traveling overwatch. However, in cases where greater dispersion is desired, all teams may use it.
- In other formations, all teams use traveling overwatch unless otherwise directed by the platoon leader. Traveling overwatch offers good control, dispersion, speed, and forward security.
- In platoon traveling overwatch, the lead team should remain far enough ahead of the rest of the platoon to detect or engage any enemy before the enemy observes or fires on the main body. However, the lead team stays within 50–100 meters ahead of the rest of the platoon so the platoon can support them with small arms fire. This distance is dependent on terrain, vegetation, and light and weather conditions.

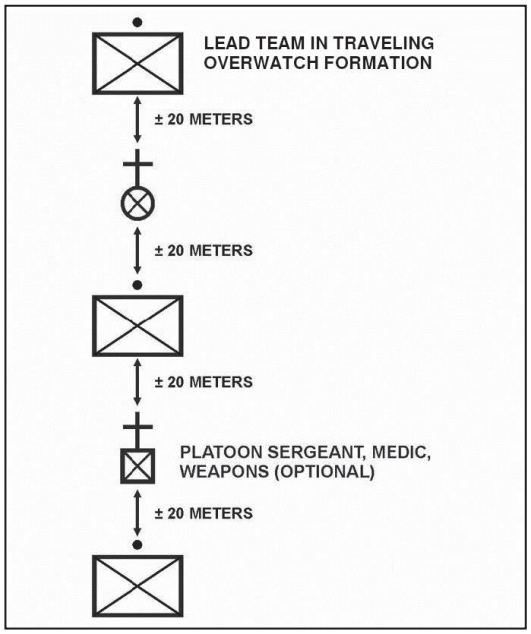


Figure A-11. Platoon traveling overwatch

BOUNDING OVERWATCH

A-14. Leaders should select bounding overwatch when enemy contact is likely or when crossing a danger area. Both teams and platoons use bounding and overwatch elements. The bounding element moves while the other element occupies a position where it can overwatch by fire the bounding element's route. The bounding element remains within firing range of the overwatching element at all times. Considerations for this technique include—

- **Characteristics.** Bounding overwatch offers maximum control, dispersion, and security with minimum speed.
- Types of bounds:
  - Successive bounds. One element moves to a position, and then the overwatching element moves to a position generally online with the first element.
  - Alternating bounds. The first bounding element moves into position, then the overwatching element bounds to a position in front of the first element while the first maintains overwatch.
- **Length.** The length of a bound depends on the terrain, visibility, and control.
- **Instructions.** Before a bound, the leader gives the following instructions to subordinates:
  - Direction of the enemy, if known.
  - Position of overwatch elements.
  - Next overwatch position.
- **Route of the bounding element.**
- **What to do after the bounding element reaches the next position.**
- **What signal the bounding element will use to announce it is prepared to overwatch.**
- **How the elements will receive follow-on orders.**

Team Bounding Overwatch

A-15. In team bounding overwatch, Soldiers move using either successive or alternating bounds as shown in figure A-12 on page A-18.

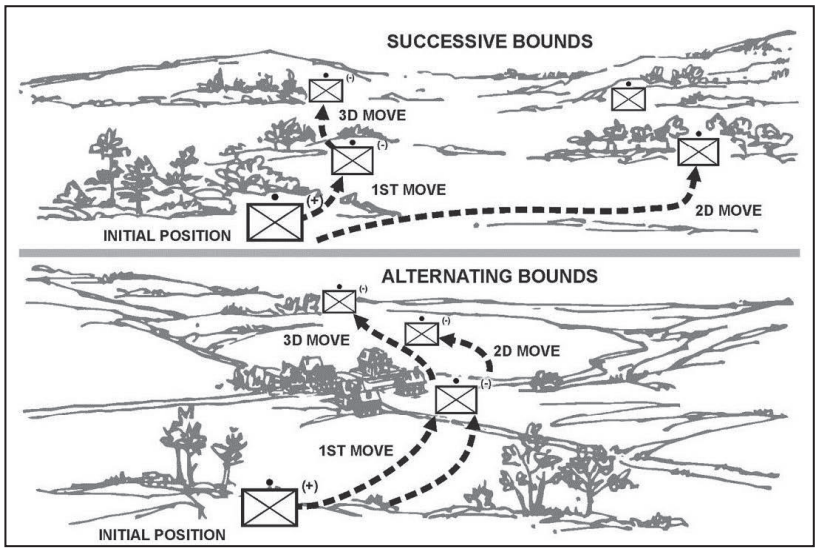


Figure A-12. Successive and alternating bounds

Platoon Bounding Overwatch

A-16. When EW platoons use bounding overwatch (see figure A-13 on page A-19), one team bounds, a second team overwatches, and a third awaits orders. The distance between teams varies. Forward observers stay with the overwatching squad to call for fire. Platoon leaders normally stay with the overwatching squad, which supports the bounding squad by small arms fire. Another technique is to have one team use bounding overwatch while the other two use traveling or traveling overwatch. When deciding where to move the bounding element, the leader considers the—

- Enemy's likely action.
- Mission.
- Routes to the next overwatch position.
- Weapon ranges of the overwatching unit.
- Responsiveness of the rest of the unit.

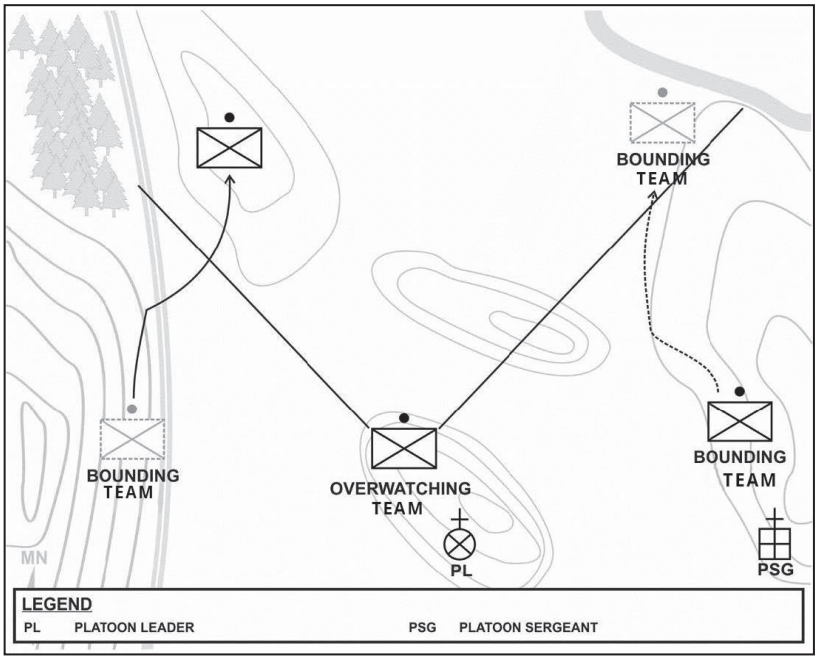


Figure A-13. Platoon bounding overwatch

STANDARDS

A-17. Unit moves on a designated route or arrives at a specified location according to the OPORD, maintaining accountability of all assigned and attached personnel. The unit uses the movement formation and technique ordered by the leader based on the mission variables of METT-TC (I). Leaders remain oriented within 200 meters and follow a planned route, unless the mission variables dictate otherwise.

A-18. During movement, the unit maintains 360-degree security with all members alert. During halts, the unit maintains 360-degree security and with at least 75 percent of personnel alert. If the unit makes enemy contact, they engage with the smallest element possible. The unit uses control measures during movement such as head counts, rally points, or phase lines.

FUNDAMENTALS OF MOVEMENT

A-19. Mission accomplishment depends on successful land navigation. The team should use stealth and vigilance to avoid chance contact. The leader should designate a primary and alternate compass person for each patrol. Leaders move inside their formations to best control the movement.

Note. The point person should never be tasked to perform compass or pace duties; the point person's sole responsibility is forward security for the element.

A-20. Patrols use stealth, cover, and concealment of the terrain to maximum advantage. Whenever possible, the patrol should move during periods of limited visibility to maximize the technological advantages of night vision devices and hinder the enemy's ability to detect the patrol. They exploit the enemy's weaknesses and try to time movements to coincide with other operations that distract the enemy.

A-21. The patrol continues to use active and passive security measures. The leader assigns responsibilities for security at danger areas, patrol bases, and in the objective area. The leader plans fire support such as mortars, artillery, and air support.

A-22. The leader selects the movement technique to use based on the threat situation and terrain. Teams maintain visual contact with enough distance between team members so that the entire element does not become engaged if it makes contact. Teams can spread their formations to gain better observation to the flanks, as needed. Although widely spaced, Soldiers retain their relative positions in the wedge and follow their team chief. Only in extreme situations should the file formation be used. The lead element secures the front and is responsible for navigation. For a long movement, the leader may rotate lead responsibilities. The element in the rear provides rear security. Leaders should vary movement techniques as necessary to meet changing situations.

A-23. The patrol achieves 360-degree security, high and low. Within a team or platoon, the leader assigns appropriate sectors of fire to subordinates. This ensures the battlefield is covered. This includes trees, multistory structures, tunnels, sewers, and ditches.

TACTICAL MARCHES

A-24. Platoons conduct two types of marches with the company—tactical road marches and approach marches. Tactical road marches are employed using three tactical march techniques: open column, close column, and infiltration. An approach march is the advance of a combat unit when direct contact with the enemy is intended.

A-25. To meet the standard, the unit crosses the start point and release point at the times specified in the order and follows the prescribed route, rate of march, and interval, without deviation unless required by enemy action or higher headquarters direction. The fundamentals of tactical marches include effective control, detailed planning, and rehearsals. Considerations include—

- Mission variables of METT-TC (I).
- Task organization—
  - Security—advance and trail teams.
  - Main body.
  - Headquarters command and control.
- Control measures.
  - Start point and release point (given by higher headquarters).

  - Checkpoints—at checkpoints, leaders report to higher headquarters to remain oriented.
  - Rally or rendezvous points—used when elements become separated.
  - Locations of leaders—where they can best control their elements.
  - Communication plan—locations of radios, frequencies, call signs, and operation schedules, including the PACE plan.
  - Dispersion between Soldiers—3–5 meters during daylight and 1–3 meters at night.
- A march order may be issued as an OPORD, FRAGORD, or an annex to either type of order (an operational overlay or strip map is used for this). The march order includes—
  - Formations and order of movement.
  - Route of march, assembly area, start point, release point, rally points, checkpoints, and break or halt points.
  - Start point time, release point time, and rate of march.
  - March interval for teams and individuals.
  - Actions on enemy contact—air and ground.
  - Actions at halts.
  - Detailed plan of fire support for the march.
  - Water supply plan.
  - Medical evacuation plan.

PLATOON MARCHES

A-26. Platoons are made up of several Soldiers fulfilling different positions and responsibilities. They include the platoon leader, platoon sergeant, team chiefs, and individual Soldiers. Their duties before, during, and after the movement are detailed below.

Platoon Leader

A-27. The platoon leader's responsibilities before, during, and after the march include—

- Before—
  - Issues WARNORD, OPORD, or FRAGORD.
  - Inspects and supervises movement preparations.
- During—
  - Ensures the unit makes its designated movement time.
  - Maintains interval and remains oriented.
  - Maintains security.
  - Checks condition of Soldiers.
  - Spot checks water discipline and field sanitation.
- After—
  - Ensures Soldiers are prepared to accomplish their mission.

- Supervises team chiefs.
- Ensures Soldiers receive medical coverage, as needed.

Platoon Sergeant

A-28. The platoon sergeant's responsibilities before, during, at-the-halt, and after marches include—

- Before—
  - Assists the platoon leader.
  - Makes recommendations.
  - Enforces uniform and packing lists.
  - Obtains accountability of Soldiers prior to start point time.
- During—
  - Controls stragglers.
  - Assists the platoon leader maintaining proper interval and security.
- At-the-halt—
  - Maintains accountability of Soldiers and equipment.
  - Enforces security and the welfare of Soldiers.
  - Enforces field sanitation and litter discipline.
  - Performs preventive medicine.
  - Confirms head count before resuming the march.
- After—
  - Coordinates for water, rations, and medical supplies.
  - Recovers any casualties.

Team Chiefs

A-29. Team chiefs' responsibilities before, during, at-the-halt, and after a march include—

- Before—
  - Provides detailed instruction to team members.
  - Inspects boots and socks for serviceability and proper fit.
  - Verifies adjustment of individual equipment.
  - Ensures team members have full canteens.
  - Verifies equal distribution of loads.
- During—
  - Controls team.
  - Maintains proper interval between Soldiers and equipment.
  - Enforces security.
  - Remains oriented.
- At-the-halt—
  - Ensures security is maintained.

- Provides Soldiers for water resupply, as detailed.
- Physically checks the Soldiers in the team.
- Ensures Soldiers drink water and change socks, as necessary.
- Rotates heavy equipment.

- After—
  - Occupies team sector assembly area.
  - Conducts foot inspection.
  - Reports condition of Soldiers to the platoon leader.
  - Prepares Soldiers to accomplish the mission.

Forward Observer/Radiotelephone Operator

A-30. The forward observer/radiotelephone operator—

- Maintains constant communication with higher headquarters, moves with the leader, and sends reports as required in the OPORD.
- Builds field-expedient antennas, as needed.

Combat Lifesaver

A-31. During marches, the combat lifesaver—

- Assesses and treats march casualties.
- Advises the chain of command on evacuation and transportation of casualties.

Individuals

A-32. The responsibilities of individual Soldiers during a march include—

- Maintaining the designated tactical interval.
- Following the team chief's examples.
- Relaying hand and arm signals.
- Remaining alert during movement and at halts.

Movement During Limited Visibility Conditions

A-33. During periods of limited visibility, the platoon uses surveillance, target acquisition, and night observation devices to enhance effectiveness. Leaders must be able to control, navigate, maintain security, and move during limited visibility.

A-34. When visibility is poor, methods that aid in control include moving leaders closer to the front, reducing the formation speed, and using luminescent tape on equipment. Leaders also reduce the intervals between Soldiers and elements and conduct periodic head counts.

A-35. While navigating during limited visibility the unit uses the same techniques as in daylight, but leaders exercise more care to keep the patrol oriented. To maintain security, leaders enforce strict noise and light discipline, radio listening silence, and camouflage techniques. Using the terrain to avoid detection by enemy surveillance or night vision,

Soldiers make frequent halts to stop, look, listen, and smell. Whenever possible, leaders should attempt to mask the sounds of movement. Rain, wind, and flowing water disguise movement sounds very efficiently.

A-36. Leaders plan detailed actions at rally points. All elements maintain communication at all times. The two techniques for actions at rally points are:

- Minimum force. Patrol members assemble at the rally point, and the senior leader assumes command. When the minimum force (designated in the OPORD) is assembled and organized, the patrol continues the mission.
- Time available. The senior leader determines if the patrol has enough time remaining to accomplish the mission.

A-37. During halts, the unit posts security and covers all approaches into the sector with key weapons. The positions used are:

- Short halt. This typically takes one to two minutes. Soldiers seek immediate cover and concealment and take a knee. Leaders assign sectors of fire.
- Long halt. This typically takes more than two minutes. Soldiers assume the prone position behind cover and concealment. Leaders ensure Soldiers have clear fields of fire and assign sectors of fire.

DANGER AREAS

A-38. A danger area is any place on a unit's route where the leader determines the unit may be exposed to enemy observation or fire. Some examples of danger areas are open areas, roads and trails, urban terrain, enemy positions, and natural and manmade obstacles. Platoon leaders should plan movement to bypass danger areas whenever possible.

STANDARDS

A-39. When crossing a danger area, the unit—

- Prevents the enemy from surprising the main body.
- Moves all personnel and equipment across the danger area.
- Prevents decisive engagement by the enemy.

FUNDAMENTALS

A-40. When crossing a danger area, leaders—

- Designate nearside and farside rally points.
- Secure nearside, left and right flank, and rear security.
- Reconnoiter and secure the far side.
- Cross the danger area.
- Plan for fires on all known danger areas.

LINEAR DANGER AREAS

A-41. A linear danger area is an area where the platoon's flanks are exposed along a relatively narrow field of fire. Examples include streets, roads, trails, and streams. The platoon crosses a linear danger area in the formation and location specified by the platoon leader (ATP 3-21.8).

Linear Danger Area Actions for a Team

A-42. The actions for a team crossing a linear danger area (see figure A-14), are—

- Step 1. The point person observes the linear danger area and sends the hand and arm signal to the team leader, who makes the determination to bound across.
- Step 2. The team leader directs the point person to move across the linear danger area far enough to fit the remainder of the team on the far side of the danger area.
- Step 3. The team leader receives the hand and arm signal that it is safe to move the rest of the team across the danger area.
- Step 4. The team leader moves with radiotelephone operator across the danger area. Designated personnel provide overwatch.
- Step 5. The team assumes original azimuth at the team chief's command or by hand and arm signals.

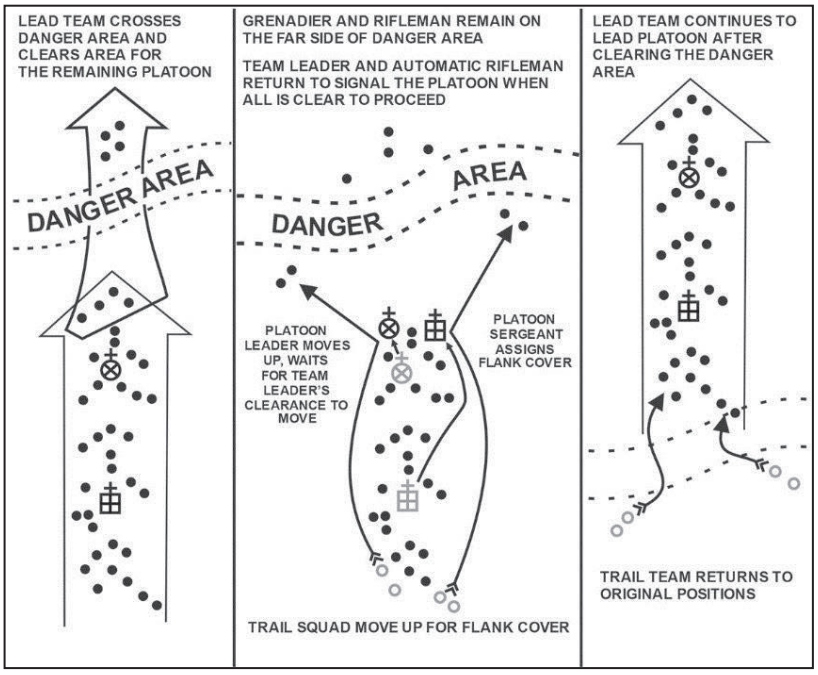


Figure A-14. Linear danger area

Linear Danger Crossing for a Platoon

A-43. The actions for a platoon crossing a linear danger area are—

- The lead team halts the platoon and signals danger area.
- The platoon leader moves forward to the lead team to confirm the danger area and decides whether the current location is suitable for crossing.
- The platoon leader confirms the danger area or crossing site and establishes nearside and farside rally points.
- On the platoon leader's signal, the trail team moves forward to establish left and right nearside security.
- Once nearside security is established, the lead team moves across to confirm there is enough room to fit the rest of the platoon on the far side of the danger area.
- The lead team chief pauses to stop, look, listen, and smell and signals the platoon leader if it is all clear. During daylight, the signal can be as simple as a thumbs-up. At night, the team leader should use a signal such as an infrared or red-lensed flashlight.
- The platoon leader then directs the next team to bound across, link up with the lead team, and pick up a half step while the rest of the platoon crosses.
- The platoon leader then crosses with the radiotelephone operator and forward observer.
- Once across, the platoon leader signals the platoon sergeant and combat lifesaver to cross with the last team in the movement.
- The platoon sergeant signals the platoon leader to confirm all elements are across.
- The platoon leader directs the lead team to pick up the normal rate of movement.

Note. The platoon leader plans fires on all known larger danger area crossing sites. Nearside security in overwatch sterilizes signs of the patrol.

DANGER AREA (SMALL OR OPEN)

A-44. The actions for a platoon crossing a small or open danger area (see figure A-15 on page A-27) are—

- The lead team halts the platoon and signals danger area.
- The platoon leader moves forward to the lead team to confirm the danger area.
- The platoon leader confirms the danger area and establishes nearside and farside rally points.
- The platoon leader designates a lead team to bypass the danger area using the detour bypass method.

- The pace person suspends the current pace count and initiates an interim pace count. The alternate pace person and compass person move forward, offset the compass 90 degrees to the left or right, as designated, and move in that direction until clear of the danger area.
- After moving a set distance, as instructed by platoon leader, the lead team assumes the original azimuth and the primary pace person resumes the original pace count.
- After the open area, the alternate pace and compass person offset the compass 90 degrees to the left or right and lead the platoon or team the same distance back to the original line of travel.

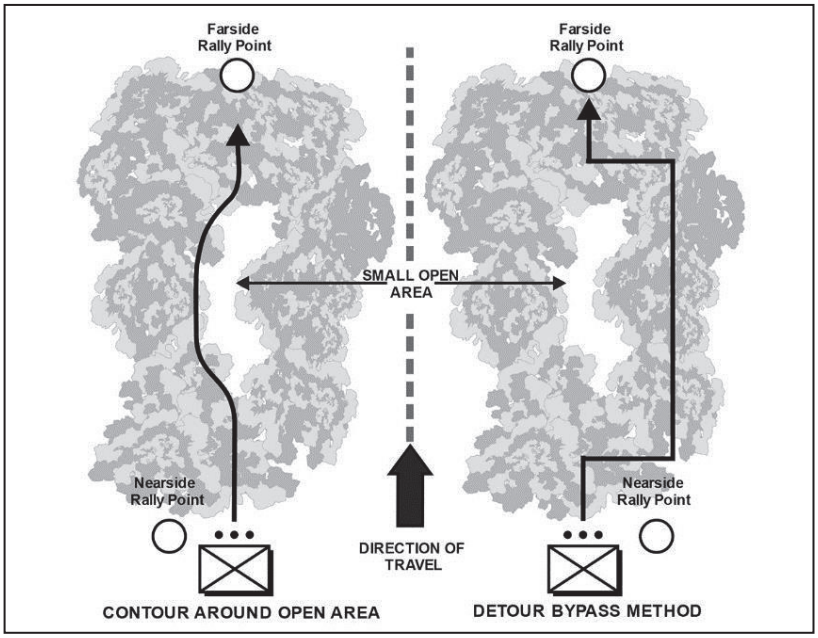


Figure A-15. Small open danger area

DANGER AREAS (SERIES)

A-45. A series is two or more danger areas within an area that can be either observed or covered by fire. The types of series danger areas and the techniques for crossing include—

- **Double linear danger area**—the team or platoon should cross as if the series were one danger area.
- **Linear or small open danger area**—the team or platoon should use the bypass or contour technique.
- **Linear or large open danger area**—the platoon should use a wedge formation when crossing.

Note. The platoon leader should select the technique that provides the most security to cross a series of danger areas.

DANGER AREA (LARGE)

A-46. When a platoon crosses a large danger area, the—

- Lead team halts the platoon and signals danger area.
- The platoon leader moves forward with the radiotelephone operator and forward observer and confirms the danger area.
- The platoon leader establishes nearside and farside rally points.
- The platoon leader designates the direction of movement.
- The platoon leader designates a change of formation, if necessary, to ensure security.

Note. The platoon leader plans for all larger danger area crossing sites. Nearside security in overwatch sterilizes signs of the patrol. Before the point person steps into a danger area, the platoon leader and forward observer adjust targets to cover movement. If the far side of the danger area is nearer than 250 meters, the platoon leader establishes overwatch and designates a lead team to clear the wood line on the far side.

SECTION III – PATROLLING

A-47. A *patrol* is a detachment sent out by a larger unit to conduct a specific mission that operates semi-independently and return to the main body upon completion of mission (ATP 3-21.8). Patrolling fulfills the function of finding the enemy to report their disposition, location, and actions. Patrols act as the eyes and ears of the larger unit. EW teams conducting electromagnetic support or electromagnetic attack in the close area should be skilled in patrolling techniques to maintain stealth, dispersion, and security, and avoid unnecessary enemy contact. Refer to ATP 3-21.8 for more information on patrols.

PRINCIPLES OF PATROLLING

A-48. All patrols are governed by five principles:

- **Planning**—the leader should quickly make a simple plan and effectively communicate it to the lowest level. A great plan that takes forever to complete and is poorly disseminated is not a great plan. Leaders plan and prepare to a realistic standard and rehearse everything.
- **Reconnaissance**—the leader's responsibility is to confirm what they think they know and to learn that which they do not already know.

- **Security**—leaders preserve their entire force. Every Soldier and every rifle counts, either one could be the difference between victory and defeat.
- **Control**—the leader clarifies the concept of the operation and commander's intent, coupled with disciplined communications, to bring every Soldier and weapon available to overwhelm the enemy at the decisive point.
- **Common sense**—leaders use all available information and good judgment to make sound, timely decisions.

PLANNING

A-49. A patrol's organization is temporary and specifically matched to the immediate task. Because a patrol is an organization, not a mission, it is not correct to speak of giving a unit a mission to patrol. Planning considerations common to most patrols include task organization, initial planning and coordination, completion of the plan, and contingency planning.

INITIAL PLANNING AND COORDINATION

A-50. Leaders plan and prepare for patrols using troop leading procedures and estimation of the situation, as described in chapter 2. Through an estimate of the situation, leaders identify required actions on the objective (mission analysis) and plan backward to departure from friendly lines and forward to reentry of friendly lines. Because patrolling units act independently, move beyond the direct fire support of the parent unit, and often operate forward of friendly units, coordination must be thorough, detailed, and continuous throughout planning and preparation. Platoon leaders use planning checklists to avoid omitting any items vital to the accomplishment of the mission.

A-51. Coordination with higher headquarters includes intelligence, operations, and fire support. This initial coordination is an integral part of the troop leading procedures (step 3 – make a tentative plan). The leader also coordinates the unit's patrol activities with the leaders of other units that will be patrolling in adjacent areas at the same time.

COMPLETION OF THE PLAN

A-52. As the platoon leader completes the plan, they consider all specified and implied tasks. The platoon leader takes care to assign all specified tasks in the higher headquarters order.

Time

A-53. The platoon leader also considers key travel and execution times. The leader estimates time requirements for movement to the objective, leader's reconnaissance of the objective, establishment of security and surveillance, completion of all assigned tasks on the objective, and passage through friendly lines. Time planning factors include—

- **Movement rate:** average of one kilometer per hour during daylight hours in woodland terrain and 1/2 kilometer per hour with limited visibility. The platoon leader should add additional time when operating in restrictive or severely restrictive terrain.
- **Leader's reconnaissance:** not less than 1.5 hours.
- **Establishment of security and surveillance:** 0.5 hour.

Routes

A-54. The leader selects primary and alternate routes to and from the objective. The return routes should differ from the routes to the objective. The platoon leader may delegate route selection to a subordinate but is ultimately responsible for the routes selected.

Signals

A-55. The leader should consider the use of special signals. These include hand and arm signals, flares, voice, whistles, radios, and infrared equipment. Primary and alternate signals must be identified and rehearsed so that all Soldiers know their meaning.

Location of Leaders

A-56. The platoon leader must always know the locations of subordinate leaders. The platoon leader considers where the platoon sergeant and team chiefs will be during each phase of the mission. The platoon leader assumes a position to best control the actions of the patrol. During a reconnaissance mission, the platoon sergeant may stay behind in the objective rally point to facilitate the transfer of intelligence to the higher headquarters and control the reconnaissance elements' movement into and out of the objective rally point.

Rally Points

A-57. The platoon leader considers the use and location of rally points. A *rally point* is an easily identifiable point on the ground at which units can reassemble and reorganize if they become dispersed. Also depicted in graphics as RLY (ATP 3-21.20). Soldiers must know which rally point to move to at each phase of the patrol if they become separated from the unit. They also need to know what actions are required there and how long to wait at each rally point before moving to another. The most common types of rally points include initial, en route, objective, nearside, and farside rally points. Rally points must be—

- Be easily identifiable in both daylight and limited visibility.
- Show no signs of recent enemy activity.
- Be covered and concealed from the ground and air.
- Be way from natural lines of drift and high-speed avenues of approach.
- Be defendable for short periods of time.

A-58. The objective rally point typically lies 200–400 meters from the objective, or at least one major terrain feature away. Actions at the objective rally point include—

- Stop, look, listen, and smell.
- Leader's reconnaissance of the objective.
- Issuing a FRAGORD, if needed.
- Making final preparations before continuing operations. For example, re-camouflage; prepare first aid kits, and inspect weapons.
- Accounting for Soldiers and equipment after completing actions on the objective.
- Disseminating information from reconnaissance, if no contact was made.

Leader's Reconnaissance

A-59. The plan includes a leader's reconnaissance of the objective once the platoon or team establishes the objective rally point. Before departing, the leader issues a five-point contingency plan. During reconnaissance, the leader pinpoints the objective; selects reconnaissance, security, support, and assault positions for the elements; and adjusts the plan based on observation of the objective. Refer to ATP 3-21.8 for more information about types of patrols and actions on the objective.

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Glossary

The glossary lists acronyms and terms with Army, multi-service, or joint definitions, and other selected terms. This publication is not the proponent for any Army terms. The proponent for other terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATION

ADP	Army doctrine publication
ATP	Army techniques publication
CBRN	chemical, biological, radiological, and nuclear
CEMA	cyberspace electromagnetic activities
DA	Department of the Army
DD	Department of Defense
EW	electromagnetic warfare
FM	field manual
FRAGORD	fragmentary order
G-2	assistant chief of staff, intelligence
G-3	assistant chief of staff, operations
G-6	assistant chief of staff, signal
GTA	graphic training aid
JP	joint publication
METT-TC (I)	mission, enemy, terrain and weather, troops and support available, time available, civil considerations, and informational considerations
MOPP	mission-oriented protective posture
OPORD	operation order
PACE	primary, alternate, contingency, and emergency
S-2	battalion or brigade intelligence staff officer
S-3	battalion or brigade operations staff officer
S-4	battalion or brigade logistics staff officer
S-6	battalion or brigade signal staff officer

SIGINT	signals intelligence
SOP	standard operating procedure
WARNORD	warning order

SECTION II – TERMS

area of operations

An operational area defined by a commander for the land or maritime force commander to accomplish their missions and protect their forces. (JP 3-0)

area of influence

An area inclusive of and extending beyond an operational area wherein a commander is capable of direct influence by maneuver, fire support, and information normally under the commander's command or control. (JP 3-0)

area of interest

That area of concern to the commander, including the area of influence, areas adjacent to it, and extending into enemy territory. (JP 3-0)

assessment

Determination of the progress toward accomplishing a task, creating a condition, or achieving an objective. (JP 3-0)

assumption

A specific supposition of the operational environment that is assumed to be true, in the absence of positive proof, essential for the continuation of planning. (JP 5-0)

civil considerations

The influence of man-made infrastructure, civilian institutions, and attitudes and activities of the civilian leaders, populations, and organizations within an area of operations on the conduct of military operations. (ADP 6-0)

concealment

Protection from observation or surveillance. (FM 3-96)

constraint

A restriction placed on the command by a higher command. (FM 5-0)

cover

Protection from the effects of fires. (FM 3-96)

decisive terrain

Key terrain whose seizure and retention is mandatory for successful mission accomplishment. (ADP 3-90)

essential task

A specified or implied task that must be executed to accomplish the mission. (FM 5-0)

execution

The act of putting a plan into action by applying combat power to accomplish the mission and adjusting operations based on changes in the situation. (ADP 5-0)

friendly force information requirement

Information the commander and staff need to understand the status of friendly force and supporting capabilities. (JP 3-0)

implied task

A task that must be performed to accomplish a specified task or mission but is not stated in the higher headquarters' order. (FM 5-0)

key terrain

Any locality, or area, the seizure or retention of which affords a marked advantage to either combatant. (JP 2-0)

logistics package

A grouping of multiple classes of supply and supply vehicles under the control of a single convoy commander. (FM 3-90-1)

patrol

A detachment sent out by a larger unit to conduct a specific mission that operates semi-independently and return to the main body upon completion of mission. (ATP 3-21.8)

planning

The art and science of understanding a situation, envisioning a desired future, and determining effective ways of bringing that future about. (ADP 5-0)

priority intelligence requirement

The intelligence component of commander's critical information requirements used to focus the employment of limited intelligence assets and resources against competing demands for intelligence support. (JP 2-0)

rally point

An easily identifiable point on the ground at which units can reassemble and reorganize if they become dispersed. Also depicted in graphics as RLY. (ATP 3-21.20)

risk assessment

The identification and assessment of hazards (first two steps of the risk management process). (JP 3-26)

running estimate

The continuous assessment of the current situation used to determine if the current operation is proceeding according to the commander's intent and if planned future operations are supportable. (ADP 5-0)

specified task

A task specifically assigned to a unit by its higher headquarters. (FM 5-0)

task-organizing

The act of designing a force, support staff, or sustainment package of specific size and composition to meet a unique task or mission. (ADP 3-0)

thermal crossover

The natural phenomenon that normally occurs twice daily when temperature conditions are such that there is a loss of contrast between two adjacent objects on infrared imagery. (JP 3-09.3)

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