ATP 6-02.2

SIGNAL PLATOON

DECEMBER 2020

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Headquarters, Department of the Army

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Signal Platoon

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Preface

ATP 6-02.2 provides doctrinal guidance for leaders who are responsible for planning, preparing, executing, and assessing operations of signal platoons. This publication serves as an authoritative reference for personnel developing doctrine, materiel, and force structure; institutional and unit training; and signal 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 6-02.2 outlines the framework in which signal platoons operate in support of their parent unit's operations. To properly apply this doctrine, readers must be familiar with ADP 1, ADP 3-0, FM 3-0, and FM 6-02.

The principal audience for ATP 6-02.2 is signal platoon leaders and platoon sergeants. Commanders and staffs of Army headquarters serving as joint task force or multinational headquarters should also refer to applicable joint or multinational doctrine concerning the range of military operations and joint or multinational forces. 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 6-02.2 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 6-02.2 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 6-02-2 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 6-02.2), 506 Chamberlain Avenue, Fort Gordon, GA 30905-5735; by e-mail to usarmy.gordon.cyber-coe.mbx.gord-fg-doctrine@mail.mil.

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Introduction

ATP 6-02.2 provides techniques for signal 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 signal platoons during unified land operations.

The following paragraphs provide a summary by chapter:

Chapter 1 – Organization.

- Section I—discusses signal platoons and their capabilities and limitations.
- Section II—discusses the duties of platoon leaders, platoon sergeants, section sergeants, and signal teams and operators.
- Section III—discusses signal companies and platoons at the brigade combat team, multifunctional support brigade, division, and corps.
- Section IV—discusses organic, assigned, operational control, tactical control, and technical control relationships.

Chapter 2 – Planning in the Platoon.

- Section I—discusses considerations for planning, preparation, execution, and assessment.
- Section II—discusses troop leading procedures at platoon level.
- Section III—discusses purposes, types, and methods of rehearsals and precombat checks and inspections.
- Section IV—discusses the 8-step training model.

Chapter 3 – Support to Operations.

- Section I—discusses support to the offense.
- Section II—discusses support to the defense.
- Section III—discusses command post displacement
- Section IV—discusses operation in a contested environment.
  - Enemy electromagnetic attacks.
  - Enemy cyberspace attacks.

Chapter 4 – Logistics and Sustainment.

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

Chapter 5 – Core Competencies and Essential Capability of the Signal Corps.

- Section I—discusses network transport and information services.
- Section II—discusses Department of Defense information network operations.
- Section III—discusses spectrum management operations.
- Section IV—discusses visual information and combat camera.
- Section V—discusses the essential capability of communications security.

Appendix A – Echelons Above Corps Tactical Signal Company Organizations—discusses signal companies and platoons at echelons above corps, including—

- Special operations signal company.
- Ranger Regiment signal company.
- Expeditionary signal company-enhanced.
- En route communications company.
- Combat camera company.
- Tactical installation and networking company-enhanced.

Appendix B – Retransmission Mission checklist—discusses precombat checks, precombat inspections, and post-mission checks and briefings for retransmission teams.

Chapter 1
Organization

This chapter discusses the role, capabilities, and limitations of signal platoons. It further discusses the roles and responsibilities of signal platoon personnel, signal platoon organizations at echelons corps and below, and command relationships.

SECTION I – ROLE OF THE SIGNAL PLATOON

1-1. The platoon's ability to accomplish its mission is dependent upon proper training to provide signal support, sound leadership, and the motivation of its signal teams. Platoon signal support must maintain operational focus. That is, the platoon's signal plans must be tailored to the supported commander's scheme of maneuver and intent.

1-2. Teams must be knowledgeable in their military occupational specialties and able to integrate their equipment into the Department of Defense information network-Army (DODIN-A). The *Department of Defense information network-Army* is an Army-operated enclave of the Department of Defense information network that encompasses all Army information capabilities that collect, process, store, display, disseminate, and protect information worldwide (ATP 6-02.71).

SIGNAL PLATOONS

1-3. A signal platoon provides a tailored set of signal capabilities to support its parent unit. The organization and capabilities of signal platoons depend on the echelon and unit type for which the platoon is organized. Each platoon is led by a platoon leader and a platoon sergeant. The rest of the platoon is made up of signal sections and teams to provide the necessary communications capabilities. Chapter 1 section III shows the organization of signal companies and platoons at echelons corps and below. Appendix A shows the organization of tactical signal companies and platoons at echelons above corps.

CAPABILITIES AND LIMITATIONS

1-4. Leaders must have a clear understanding of the capabilities and limitations of their equipment to ensure mission accomplishment. Signal platoons provide one or more of the following capabilities to support the parent unit's scheme of maneuver:

- Tactical radio retransmission.
- Line of sight transport.
- Satellite communications transport.

- Network switching.
- Information services.
- Wire, cable, and fiber optic installation.
- Department of Defense information network (DODIN) operations.
- Combat camera.

1-5. The signal platoon is manned and equipped specifically to provide communications capabilities for its parent unit. The platoon lacks the internal resources to perform many of the support functions required to sustain its communications mission. Signal platoons rely heavily on their company and higher chain of command and outside organizations to provide necessary support, including—

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

1-6. Signal platoons operate according to published Army doctrine and validated lessons learned. Lessons learned are available online at the Cyber Lessons and Best Practices Website.

SECTION II – DUTIES AND RESPONSIBILITIES

1-7. Signal teams are tightly integrated. Each member has primary duties; however, success depends on the team working together. The team operates and maintains its assigned equipment and functions as one to fulfill its collective role. Signal team competence and cohesion are vital in unit training and support to maneuver operations. Cross-training must remain a priority in case a team member becomes incapacitated.

PLATOON LEADER

1-8. The platoon leader bears responsibility for all that the platoon does or fails to do. The platoon leader is responsible for the tactical employment, collective training, administration, personnel management, and logistics of the platoon. The platoon leader must know each platoon member's capabilities, and how to employ the platoon and its equipment. The platoon leader must—

- Be responsible to the commander for the discipline and training of the platoon, the maintenance of its equipment, and its mission success.
- Operate within the commander's intent when unable to communicate with higher headquarters and update the commander on the actions of the platoon at the earliest opportunity.

- Be responsible for the accomplishment of all missions based on the commander's intent.
- Plan operations with the help of the platoon sergeant, section sergeants, and other key personnel.
- Maintain awareness of the tactical situation and go where needed to supervise, issue a fragmentary order (FRAGORD), and accomplish the mission.
- Request any support the platoon needs to perform its mission through the company commander.
- Develop a platoon sector sketch.
- Assist the platoon sergeant in planning and coordinating sustainment for the platoon.
- Receive on-hand status reports from the platoon sergeant, section sergeants, and team chiefs during planning.
- Review platoon requirements based on the tactical plan.
- Analyze tactical situations, disseminate and filter information, and employ the platoon's full capabilities to accomplish the mission.
- Analyze the elements of the information environment that support the commander's intent and concept of the operation within the platoon's area of operations.
- Ensure situation reports are accurately prepared and forwarded to the company commander.
- Analyze relevant friendly and enemy tactical updates and disseminate them to subordinates.
- Maintain situational awareness of friendly position updates, overlay updates, and digital reports.
- Be a subject matter expert in the tactical employment of the platoon's capabilities, whether independently or as part of a company team.
- Understand troop leading procedures and develop the ability to apply them quickly and efficiently.
- Know the capabilities and limitations of the platoon's personnel and equipment.
- Ensure the platoon receives and rehearses isolated Soldier guidance.
- Be well-versed in enemy organizations, doctrine, and equipment.
- Be prepared to assume duties as company commander, according to the succession of command.
- Be flexible and use sound judgment to make correct decisions quickly and at the right times, based on the commander's intent and the tactical situation.
- Know and understand the mission and the commander's intent during decentralized operations.
- Assist other team members as necessary.

PLATOON SERGEANT

1-9. The platoon sergeant is second-in-command of the platoon and the most experienced enlisted member in the platoon. In the absence of the platoon leader, the platoon sergeant performs all duties of the platoon leader. The platoon sergeant must—

- Assist and advise the platoon leader.
- Mentor section sergeants, other noncommissioned officers, and the platoon leader on tactical and technical employment of the platoon's assigned equipment.
- Supervise the platoon's administration, logistics, and maintenance.
- Maintain responsibility for the medical and administrative readiness and the deployable status of the platoon at all times.
- Maintain responsibility for the professional development and career management of subordinate noncommissioned officers.
- Supervise individual and crew training.
- Advise the platoon leader on appointments, promotions and reductions, assignments, and discipline of the noncommissioned officers and junior enlisted members of the platoon.
- 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 morale, discipline, and health of platoon members.
- Ensure the platoon maintains all equipment.
- Coordinate and supervise company-directed platoon resupply operations.
- Collect, prepare, and forward logistic status updates and requests to the company executive officer or first sergeant.
- Ensure support supplies are present.
- Direct the platoon's casualty evacuation plan.
- Maintain platoon strength information, consolidate and forward the platoon's casualty report, and receive and orient replacements.
- Monitor the common operational picture to maintain awareness of the platoon's position relative to the company formation.
- Maintain accountability to the platoon leader for the training, discipline, and welfare of platoon members.
- Coordinate the platoon's sustainment requirements and handle the personnel needs of each platoon member.
- Perform actions in tactical situations which complement those of the platoon leader.
- Assist other platoon members as necessary.

SECTION SERGEANT

1-10.The section sergeant assists the platoon sergeant and supervises two or more signal teams. In the absence of the platoon sergeant, the section sergeant must be ready to assume the duties of the platoon sergeant. The section sergeant must—

- Assist and advise the platoon sergeant and platoon leader.
- Mentor team chiefs and team members in the technical skills to install, operate, and maintain their assigned equipment.
- Supervise team-level training in their sections.
- Maintain responsibility for the professional development and career management of subordinate noncommissioned officers.
- Supervise individual and crew training within their sections and advise the platoon sergeant and platoon leader of training shortfalls.
- Update the platoon sergeant on appropriate reports.
- Take charge of task organized elements in the section during tactical operations, including support elements.
- Monitor the morale, discipline, and health of section members.
- Ensure assigned teams maintain all equipment.
- Participate in supervision of company-directed platoon resupply operations.
- Assist the platoon sergeant in collecting and preparing logistic status updates.
- Maintain accountability to the platoon sergeant and platoon leader for the training, discipline, and welfare of section members.
- Perform actions in tactical situations which complement those of the platoon sergeant and platoon leader.
- Assist assigned teams and other platoon members as necessary.

SIGNAL TEAMS AND OPERATORS

1-11.Signal teams often consist of team members with different military occupational specialties. The team's tasks and missions require team members to integrate their efforts into accomplishing crew tasks which cannot be performed by an individual.

1-12.The team chief acts as a member of the team 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 team members' individual strengths and weaknesses, and can recommend training topics and events to the section sergeant, platoon sergeant, and platoon leader. The team chief supervises cross-training within the team so the loss of an individual does not cause the team to fail in its mission.

1-13.Individual team members need to become experts at their individual military occupational specialty tasks and those crew and team tasks to which they contribute. Because signal teams are relatively small, team members need to be familiar with the individual tasks of other team members.

SECTION III – SIGNAL COMPANY ORGANIZATIONS AT CORPS AND BELOW

1-14. Combat and combined arms units at echelons corps and below have organic signal capabilities to conduct their standard missions without requiring outside signal support (FM 6-02). Signal platoons are organic elements of the brigade combat team and multifunctional support brigade signal companies and the division and corps signal, intelligence, and sustainment companies. The signal companies at corps and below operate under the technical control of the parent unit's G-6 or S-6.

BRIGADE COMBAT TEAM SIGNAL COMPANY

1-15. The brigade combat team signal company is assigned to the brigade engineer battalion. The company installs, operates, maintains, and secures the brigade's organic network transport, automated information systems, and networks to support command post operations at-the-halt and command and control on-the-move. The signal company employs its platoons and teams throughout the brigade area of operations.

1-16. The signal company receives signal and communications security (COMSEC) systems maintenance augmentation, spares management, and maintenance accountability from the organic communications-electronics maintenance element of the brigade support battalion's field maintenance company. *Field maintenance* is on-system maintenance, repair and return to the user including maintenance actions performed by operators (FM 4-30).

1-17. The brigade signal company extends information services to the brigade command posts and command vehicles. The brigade signal company also provides—

- Wideband and protected satellite communications transport to connect brigade users with the division portion of the DODIN-A.
- High-throughput line of sight transport to communicate between fixed command posts.
- Line of sight and wideband satellite communications transport to support command and control on-the-move (infantry and Stryker brigade combat team).
- Wire, cable, and fiber optic systems to support the brigade and battalion command posts.
- Defense Information Systems Network services including—
  - SECRET Internet Protocol Router Network.
  - Non-classified Internet Protocol Router Network.
  - Joint Worldwide Intelligence Communications System (network transport only).
  - Voice and video.
- Single-channel radio and narrowband (single-channel) tactical satellite retransmission for the brigade and support elements.

- Global Broadcast Service capability to receive high bandwidth imagery, logistics data, and digital map information to support command and control.

ARMORED BRIGADE COMBAT TEAM

1-18.The armored brigade combat team signal company provides Defense Information Systems Network services at-the-halt and single-channel radio retransmission for the brigade main and tactical command posts. The company's signal platoons deploy throughout the brigade's area of operations. The signal company provides the following communications capabilities to support the brigade headquarters:

- Tactical internet capabilities—including classified and non-classified Defense Information Systems Network services—to support the brigade main and tactical command posts.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.
- Wideband satellite communications transport to extend the range of the brigade's communications services and connect with the division network.
- Primary tactical operations center voice and video capabilities for the brigade main and tactical command posts.

1-19.The brigade signal company receives sustainment and field maintenance support from elements of the brigade combat team. The company is dependent upon elements of the corps or division for religious, legal, force health protection, finance, personnel, administrative, and logistical services. Figure 1-1 on page 1-8 shows the organization of the armored brigade combat team signal company.

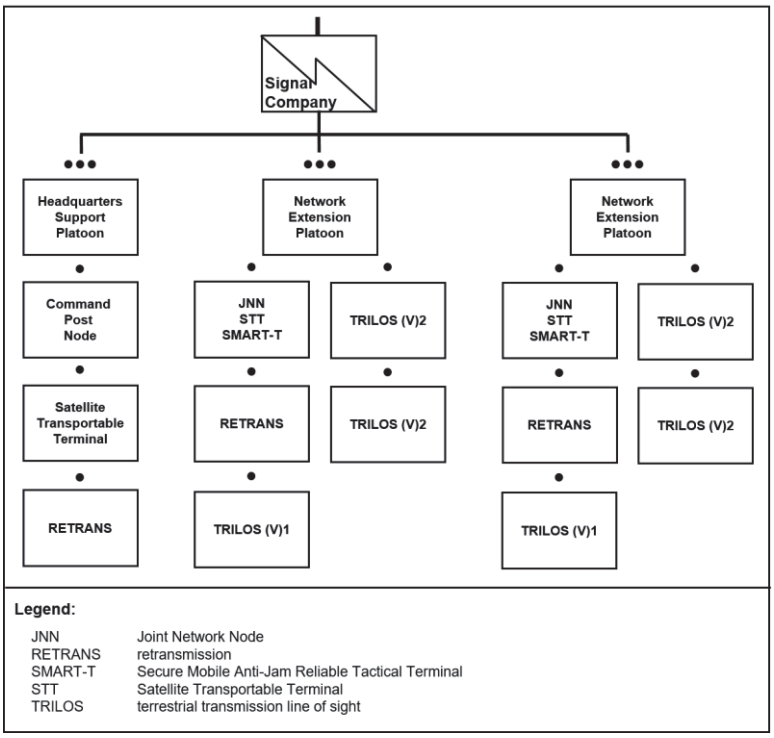


Figure 1-1. Armored brigade combat team signal company organization

Headquarters Support Platoon

1-20. The headquarters support platoon provides communications services to support signal company operations. The team's Defense Information Systems Network services and radio retransmission capabilities connect the company with its subordinate platoons and with higher and adjacent headquarters.

Company Headquarters

1-21. The company headquarters provides command and control and staff supervision for the brigade signal company. The company headquarters consists of the company commander, first sergeant, a supply noncommissioned officer, and a supply specialist.

Small Command Post Support Team

1-22. The small command post support team equipment includes a Command Post Node and a Satellite Transportable Terminal to provide Defense Information Systems Network services to support company operations. The team consists of a

senior transmission systems operator-maintainer (team chief), a transmission systems operator-maintainer, and two information technology specialists.

Retransmission Team

1-23.The tactical radio retransmission team extends the effective range of tactical radio networks to beyond line of sight distances to maintain contact with subordinate platoons, higher headquarters, and adjacent units. The headquarters retransmission team consists of a team chief and two retransmission operators.

Network Extension Platoon

1-24.The armored brigade combat team has two identical network extension platoons. The platoon headquarters consists of a platoon leader and a platoon sergeant. Each platoon is made up of the following signal teams:

- Joint Network Node, Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T), and Satellite Transportable Terminal team.
- Retransmission team.
- Three terrestrial transmission line of sight teams.

Joint Network Node, Secure Mobile Anti-Jam Reliable Tactical Terminal, and Satellite Transportable Terminal Team

1-25.The Joint Network Node, SMART-T, and Satellite Transportable Terminal teams provide wideband and protected satellite communications transport, network switching and Defense Information Systems Network services capabilities at the brigade main and tactical command posts. Each team consists of a senior nodal network systems operator-maintainer (team chief), two nodal network systems operator-maintainers, a senior satellite communications systems operator-maintainer, a satellite communications systems operator-maintainer, and a range extension operator.

Terrestrial Transmission Line of Sight Team

1-26.The terrestrial transmission line of sight teams provide high-throughput line of sight connectivity to the division network. Line of sight transport provides higher data throughput than typical satellite communications capabilities, but is limited to a range of about 25 miles (40 kilometers), if unobstructed by terrain and manmade structures. Each terrestrial transmission line of sight team consists of a senior transmission systems operator-maintainer (team chief) and four transmission systems operator-maintainers.

Retransmission Team

1-27.The tactical radio retransmission teams extend the effective range of the brigade's tactical radio networks to beyond line of sight distances. Retransmission is particularly critical during offensive and defensive operations when maneuver elements cannot access the communications capabilities present in the command

posts. Members of the retransmission team assist in the coordinated defense of retransmission sites, but require augmentation from the brigade to adequately defend remote sites. Each retransmission team consists of a team chief and two radio retransmission operators.

INFANTRY BRIGADE COMBAT TEAM

1-28. The infantry brigade combat team signal company provides Defense Information Systems Network services at-the-halt and on-the-move, and tactical radio retransmission to support the brigade main and tactical command posts. The company's signal platoons deploy throughout the brigade's area of operations. The signal company provides the following communications capabilities to support the brigade headquarters:

- Tactical internet capabilities, including classified and non-classified Defense Information Systems Network services at-the-halt to support the brigade main and tactical command posts and on-the-move to support key leaders and command post dislocation.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.
- Wideband satellite communications transport to extend the range of the brigade's communications services and connect with the division network.
- Primary tactical operations center voice and video capabilities for the brigade main and tactical command posts.

1-29. The brigade signal company receives sustainment and field maintenance support from elements of the brigade combat team. The company is dependent upon elements of the corps or division for religious, legal, force health protection, finance, personnel, administrative, and logistical services. Figure 1-2 on page 1-11 shows the organization of the infantry brigade combat team signal company.

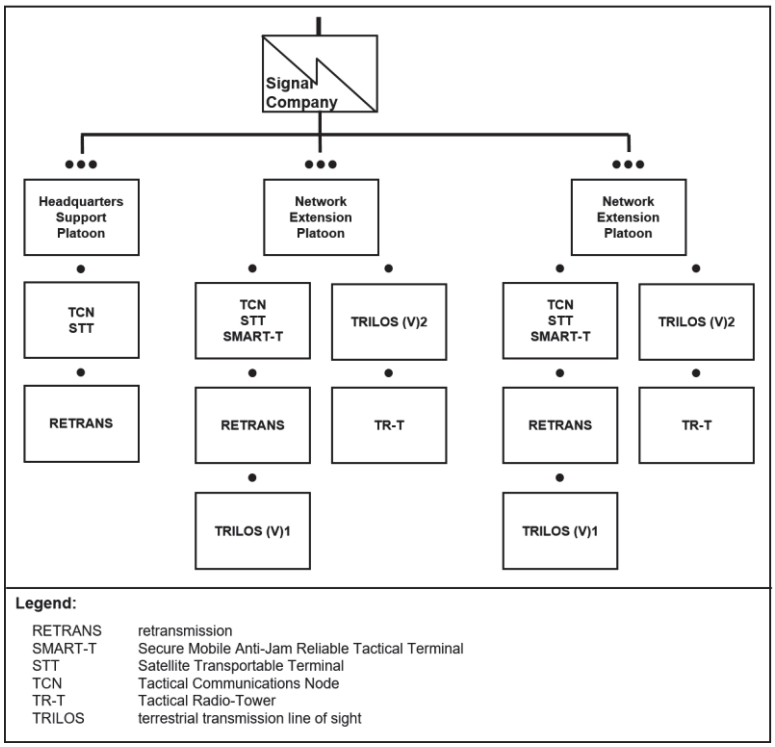


Figure 1-2. Infantry brigade combat team signal company organization

Headquarters Support Platoon

1-30. The headquarters support platoon provides communications services to support signal company operations. The team's Defense Information Systems Network services and radio retransmission capabilities connect the company with its subordinate platoons and with higher and adjacent headquarters.

Company Headquarters

1-31. The signal company headquarters provides command and control and staff supervision for subordinate signal platoons. The company headquarters consists of the company commander, the first sergeant, a supply sergeant, and a supply specialist.

Small Command Post Tactical Communications Node and Satellite Transportable Terminal Team

1-32. The small command post Tactical Communications Node and Satellite Transportable Terminal team provides Defense Information Systems Network services at-the-halt to support company operations and on-the-move to support

company headquarters relocation. The team consists of a senior nodal network systems operator-maintainer (team chief), a nodal network systems operator-maintainer, a senior satellite communications systems operator-maintainer, and a satellite communications systems operator-maintainer.

Retransmission Team

1-33. The retransmission team provides extended-range access for up to three brigade-level tactical radio networks. Retransmission extends the effective range of tactical radios beyond line of sight distances. The headquarters retransmission team consists of a team chief and two radio retransmission operators.

Network Extension Platoon

1-34. The infantry brigade combat team has two identical network extension platoons. The platoon headquarters consists of a platoon leader and a platoon sergeant. Each platoon is made up of the following signal teams:

- Tactical Communications Node, SMART-T, and Satellite Transportable Terminal.
- Terrestrial transmission line of sight.
- Retransmission.
- Tactical Radio-Tower.

Tactical Communications Node, Secure Mobile Anti-Jam Reliable Tactical Terminal, and Satellite Transportable Terminal Team

1-35. The Tactical Communications Node, SMART-T, and Satellite Transportable Terminal teams provide Defense Information Systems Network services, protected satellite communications transport, and wideband satellite communications transport to one brigade command post (main or tactical). The Tactical Communications Node can also provide Defense Information Systems Network services on-the-move using line of sight and wideband satellite communications transport to support key leaders and command post dislocation.

1-36. The Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team consists of a senior nodal network systems operator-maintainer (team chief), a nodal network systems operator-maintainer, a senior satellite communications systems operator-maintainer, a satellite communications systems operator-maintainer, and a range extension operator.

Terrestrial Transmission Line of Sight Team

1-37. The terrestrial transmission line of sight teams provide high-throughput line of sight connectivity to the division network. Line of sight transport provides higher data throughput than typical satellite communications capabilities, but is limited to a range of about 25 miles (40 kilometers), if unobstructed by terrain and manmade structures. Each terrestrial transmission line of sight team consists of a senior

transmission systems operator-maintainer (team chief) and three transmission systems operator-maintainers.

Retransmission Team

1-38.The tactical radio retransmission teams extend the effective range of the brigade's tactical radio networks to beyond line of sight distances. Retransmission is particularly critical during offensive and defensive operations when maneuver elements cannot access the communications capabilities present in the command posts. Members of the retransmission team assist in the coordinated defense of retransmission sites, but require augmentation from the brigade to adequately defend remote sites. Each retransmission team consists of a team chief and two radio retransmission operators.

Tactical Radio-Tower Team

1-39.Similar to the retransmission team, the Tactical Radio-Tower team extends the range of the Tactical Communications Node's built in line of sight communications on-the-move capability. The team consists of a senior transmission systems operator-maintainer (team chief) and two transmission systems operator-maintainers. Members of the Tactical Radio-Tower team assist in the coordinated defense of their sites, but require augmentation from the brigade to adequately defend remote sites.

STRYKER BRIGADE COMBAT TEAM

1-40.The Stryker brigade combat team signal company provides Defense Information Systems Network services at-the-halt and on-the-move, and tactical radio retransmission to support the brigade main and tactical command posts. The company's signal platoons deploy throughout the brigade's area of operations. The signal company provides the following communications capabilities to support the brigade headquarters:

- Tactical internet capabilities—including classified and non-classified Defense Information Systems Network services—at-the-halt to support the brigade main and tactical command posts and on-the-move to support key leaders and command post dislocation.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.
- Wideband satellite communications transport to extend the range of the brigade's communications services and connect with the division network.
- Primary tactical operations center voice and video capabilities for the brigade main and tactical command posts.

1-41.The brigade signal company receives sustainment and field maintenance support from elements of the brigade combat team. The company is dependent upon elements of the corps or division for religious, legal, force health protection, finance, personnel, administrative, and logistical services. Figure 1-3 on page 1-14 shows the organization of the Stryker brigade combat team signal company.

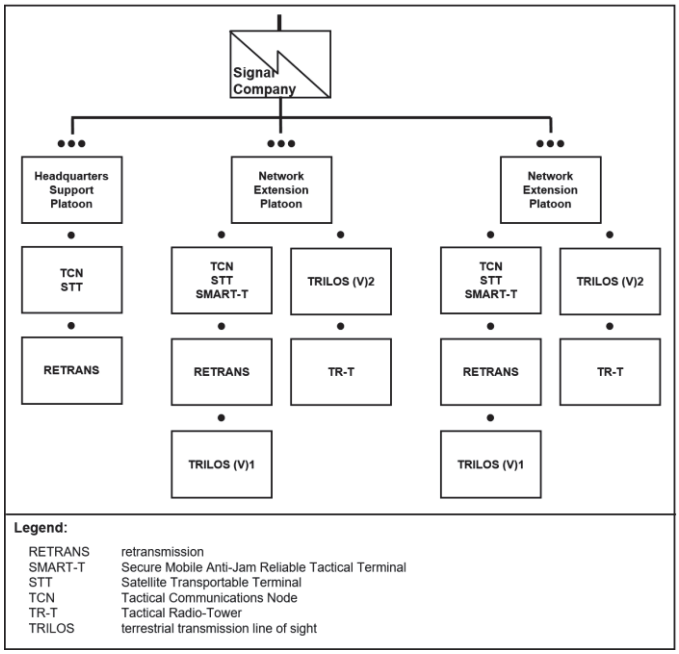


Figure 1-3. Stryker brigade combat team signal company organization

Headquarters Support Platoon

1-42. The headquarters support platoon provides communications services to support signal company operations. The team's Defense Information Systems Network services and radio retransmission capabilities connect the company with its subordinate platoons and with higher and adjacent headquarters.

Company Headquarters

1-43. The signal company headquarters provides command and control and staff supervision for subordinate signal platoons. The company headquarters consists of the company commander, the first sergeant, a supply sergeant, and a supply specialist.

Small Command Post Tactical Communications Node and Satellite Transportable Terminal Team

1-44. The small command post Tactical Communications Node and Satellite Transportable Terminal team provides Defense Information Systems Network services to support company operations at-the-halt, and on-the-move to support company headquarters relocation. The team consists of a senior nodal network systems operator-maintainer (team chief), a nodal network systems operator-

maintainer, a senior satellite communications systems operator-maintainer, and a satellite communications systems operator-maintainer.

Retransmission Team

1-45.The retransmission team provides extended-range access for up to three brigade-level tactical radio networks. Retransmission extends the effective range of tactical radios beyond line of sight distances. The headquarters retransmission team consists of a team chief and two radio retransmission operators.

Network Extension Platoon

1-46.The Stryker brigade combat team has two identical network extension platoons. The platoon headquarters consists of a platoon leader and a platoon sergeant. Each platoon is made up of the following signal teams:

- Tactical Communications Node, SMART-T, and Satellite Transportable Terminal.
- Terrestrial transmission line of sight.
- Retransmission.
- Tactical Radio-Tower.

Tactical Communications Node, Secure Mobile Anti-Jam Reliable Tactical Terminal, and Satellite Transportable Terminal Team

1-47.The Tactical Communications Node, SMART-T, and Satellite Transportable Terminal teams provide Defense Information Systems Network services, protected satellite communications transport, and wideband satellite communications transport to one brigade command post (main or tactical). The Tactical Communications Node can also provide Defense Information Systems Network services on-the-move using line of sight and wideband satellite communications transport to support key leaders and command post dislocation.

1-48.The Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team consists of a senior nodal network systems operator-maintainer (team chief), a nodal network systems operator-maintainer, a senior satellite communications systems operator-maintainer, a satellite communications systems operator-maintainer, and a range extension operator.

Terrestrial Transmission Line of Sight Team

1-49.The terrestrial transmission line of sight teams provide high-throughput line of sight connectivity to the division network. Line of sight transport provides higher data throughput than typical satellite communications capabilities, but is limited to a range of about 25 miles (40 kilometers), if unobstructed by terrain and manmade structures. Each terrestrial transmission line of sight team consists of a senior transmission systems operator-maintainer (team chief) and three transmission systems operator-maintainers.

Retransmission Team

1-50.The tactical radio retransmission teams extend the effective range of the brigade's tactical radio networks to beyond line of sight distances. Retransmission is particularly critical during offensive and defensive operations when maneuver elements cannot access the communications capabilities present in the command posts. Members of the retransmission team assist in the coordinated defense of retransmission sites, but require augmentation from the brigade to adequately defend remote sites. Each retransmission team consists of a team chief and two radio retransmission operators.

Tactical Radio-Tower Team

1-51.Similar to the retransmission team, the Tactical Radio-Tower teams extend the range of the Tactical Communications Node's built in line of sight communications on-the-move capability. Each team consists of a senior transmission systems operator-maintainer (team chief) and two transmission systems operator-maintainers. Members of the Tactical Radio-Tower team assist in the coordinated defense of their sites, but require augmentation from the brigade to adequately defend remote sites.

MULTIFUNCTIONAL SUPPORT BRIGADE SIGNAL COMPANIES

1-52.Combat aviation, field artillery, maneuver enhancement, and sustainment brigades have organic tactical signal assets. Their signal capabilities support the brigade and subordinate battalion command posts operating at-the-halt (FM 6-02). If organic signal assets cannot support an assigned mission, the company requests augmentation through higher headquarters using the request for forces process. Refer to FM 6-02 for more information about requirements definition and the request for forces process.

FIELD ARTILLERY BRIGADE SIGNAL COMPANY

1-53.The field artillery brigade signal company provides Defense Information Systems Network services at-the-halt and tactical radio retransmission for the brigade main and tactical command posts. The company's signal platoons deploy throughout the brigade's area of operations. The signal company provides the following communications capabilities to support the brigade headquarters:

- Tactical internet capabilities—including classified and non-classified Defense Information Systems Network services—to support the brigade main and tactical command posts.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.
- Wideband satellite communications transport to extend the range of the brigade's communications services and connect with the division network.

- Primary tactical operations center voice and video capabilities for the brigade main and tactical command posts.

1-54.The brigade signal company receives sustainment and field maintenance support from support elements of the field artillery brigade. The company is dependent upon elements of the corps or division for religious, legal, force health protection, finance, personnel, administrative, and logistical services. Figure 1-4 on page 1-18 shows the organization of the field artillery brigade signal company.

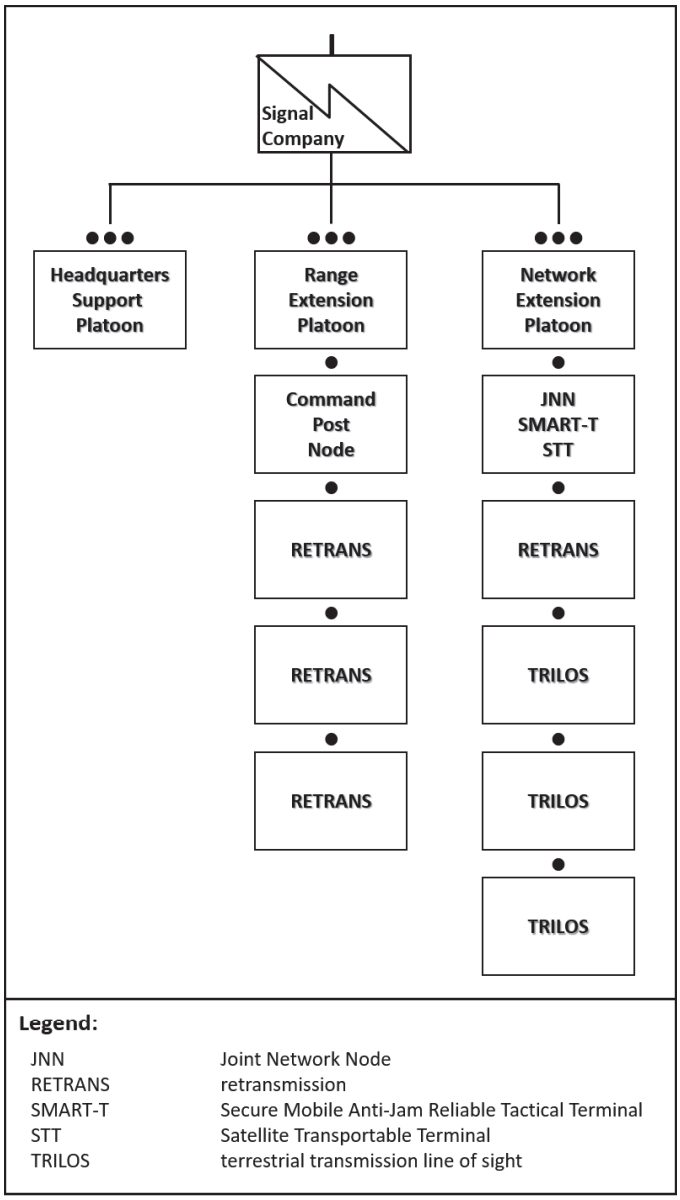


Figure 1-4. Field artillery brigade signal company organization

Range Extension Platoon

1-55.The range extension platoon headquarters consists of a platoon leader and a retransmission supervisor. The platoon leader exercises command and control and planning for a Command Post Node team and three retransmission teams.

Command Post Node Team

1-56. The Command Post Node team provides upper tier tactical internet connectivity to extend Defense Information Systems Network services to the field artillery brigade main command post. The team consists of a senior transmission systems operator-maintainer (team chief), a transmission systems operator-maintainer, and two information technology specialists.

Retransmission Team

1-57. The range extension platoon has three identical retransmission teams to extend the effective range of tactical radio networks to beyond line of sight distances. Members of the retransmission teams assist in the coordinated defense of retransmission sites, but require augmentation from the brigade or maneuver elements to adequately defend remote sites. Each retransmission team consists of a team chief and two radio retransmission operators.

Network Extension Platoon

1-58. The network extension platoon headquarters consists of a platoon leader and a platoon sergeant. The platoon leader exercises command and control and planning for a Joint Network Node, SMART-T, and Satellite Transportable Terminal team, a line of sight team, and three terrestrial transmission line of sight teams.

Joint Network Node, Secure Mobile Anti-Jam Reliable Tactical Terminal, and Satellite Transportable Terminal Team

1-59. The Joint Network Node, SMART-T, and Satellite Transportable Terminal team provides wideband and protected satellite communications transport, network switching and Defense Information Systems Network services capabilities at the brigade main command post. The team consists of a senior nodal network systems operator-maintainer (team chief), two nodal network systems operator-maintainers, a senior satellite communications systems operator-maintainer, two satellite communications systems operator-maintainers, and a range extension operator.

Retransmission Team

1-60. The network extension platoon retransmission team extends the effective range of tactical radio networks to beyond line of sight distances. Members of the retransmission team assist in the coordinated defense of retransmission sites, but require augmentation from the brigade or maneuver elements to adequately defend remote sites. The retransmission team consists of a team chief and two radio retransmission operators.

Terrestrial Transmission Line of Sight Team

1-61. The range extension platoon has three terrestrial transmission line of sight teams. Each terrestrial transmission line of sight team consists of a senior transmission systems operator-maintainer (team chief) and two transmission systems

operator-maintainers. The teams provide high-throughput line of sight connectivity to the brigade network.

MANEUVER ENHANCEMENT, COMBAT AVIATION, AND SUSTAINMENT BRIGADE SIGNAL COMPANIES

1-62. The maneuver enhancement, combat aviation, and sustainment brigade signal companies provide Defense Information Systems Network services at-the-halt and tactical radio retransmission to support the brigade main and tactical command posts. The signal company provides the following communications capabilities to support the brigade headquarters:

- Tactical internet capabilities—including classified and non-classified Defense Information Systems Network services—to support the brigade main and tactical command posts.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.
- Wideband satellite communications transport to extend the range of the brigade's communications services and connect with the division network.
- Primary tactical operations center voice and video capabilities for the brigade main and tactical command posts.

1-63. The brigade signal company receives sustainment and field maintenance support from support elements of the brigade. The company is dependent upon elements of the corps for religious, legal, force health protection, finance, personnel, administrative, and logistical services. Figure 1-5 on page 1-21 shows the organization of the maneuver enhancement, combat aviation, and sustainment brigade signal companies.

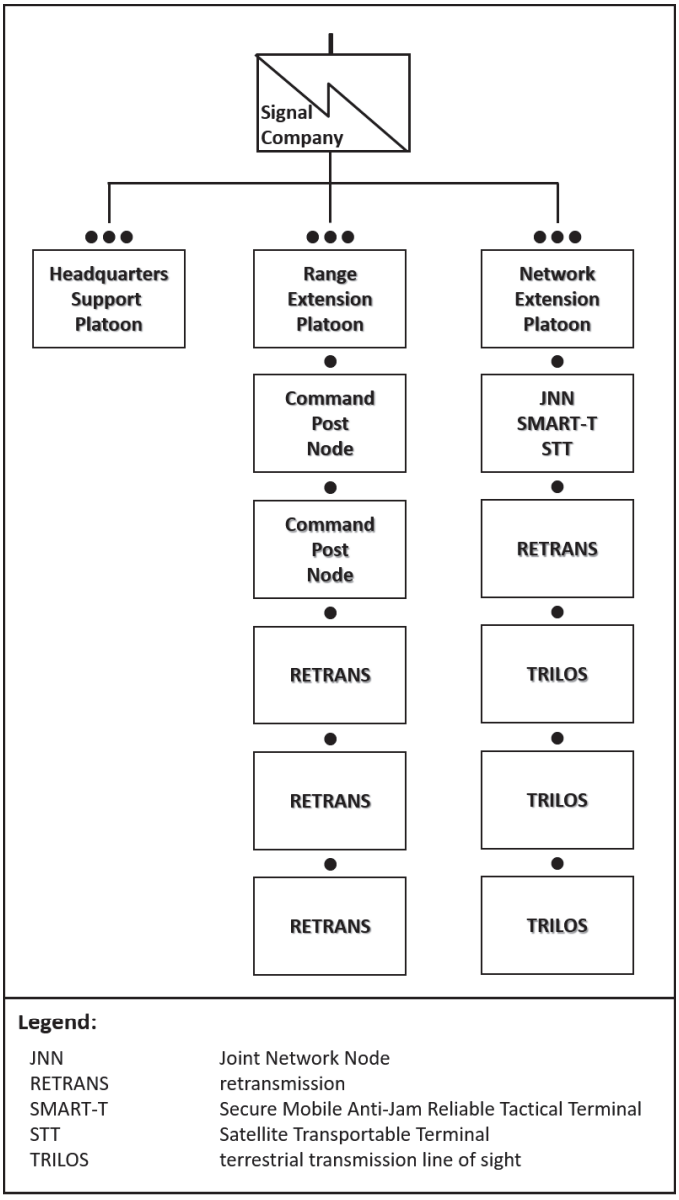


Figure 1-5. Maneuver enhancement, combat aviation, and sustainment brigade signal company organization

Range Extension Platoon

1-64. The range extension platoon headquarters consists of a platoon leader and a retransmission supervisor. The platoon leader exercises command and control and planning for two Command Post Node teams and three retransmission teams.

Command Post Node Team

1-65. The Command Post Node teams provide upper tier tactical internet connectivity to extend Defense Information Systems Network services to the brigade tactical command posts. Each team consists of a senior transmission systems operator-maintainer (team chief), a transmission systems operator-maintainer, and two information technology specialists.

Retransmission Team

1-66. The range extension platoon has three identical retransmission teams to extend the effective range of tactical radio networks to beyond line of sight distances. Members of the retransmission teams assist in the coordinated defense of retransmission sites, but require augmentation from the brigade or maneuver elements to adequately defend remote sites. Each retransmission team consists of a team chief and two radio retransmission operators.

Network Extension Platoon

1-67. The network extension platoon headquarters consists of a platoon leader and a platoon sergeant. The platoon leader exercises command and control and planning for a Joint Network Node, SMART-T, and Satellite Transportable Terminal team, a retransmission team, and three terrestrial transmission line of sight teams.

Joint Network Node, Secure Mobile Anti-Jam Reliable Tactical Terminal, and Satellite Transportable Terminal Team

1-68. The Joint Network Node, SMART-T, and Satellite Transportable Terminal team provides wideband and protected satellite communications transport, network switching and Defense Information Systems Network services capabilities at the brigade main command post. The team consists of a senior nodal network systems operator-maintainer (team chief), two nodal network systems operator-maintainers, a senior satellite communications systems operator-maintainer, two satellite communications systems operator-maintainers, and a range extension operator.

Retransmission Team

1-69. The network extension platoon retransmission team extends the effective range of tactical radio networks to beyond line of sight distances. Members of the retransmission team assist in the coordinated defense of retransmission sites, but require augmentation from the brigade to adequately defend remote sites. The retransmission team consists of a team chief and two radio retransmission operators.

Terrestrial Transmission Line of Sight Team

1-70.The range extension platoon has three terrestrial transmission line of sight teams. Each terrestrial transmission line of sight team consists of a senior transmission systems operator-maintainer (team chief) and two transmission systems operator-maintainers. The team provides high-throughput line of sight connectivity to the brigade network.

DIVISION SIGNAL, INTELLIGENCE, AND SUSTAINMENT COMPANY

1-71.The signal portion of the division signal, intelligence, and sustainment company installs, operates, maintains, and secures the division's network transport, automated information systems, and networks and provides the G-6 staff. The division's organic signal capabilities support operations at-the-halt from the main and tactical command posts, and command and control on-the-move to support key leaders and command post displacement. Refer to relevant intelligence and sustainment doctrine publications for more information on the company's intelligence and sustainment functions.

1-72.The signal portion of the division signal, intelligence, and sustainment company supports the division command posts and the various companies in the division headquarters and headquarters battalion. The company also provides—

- Wideband and protected satellite communications transport to connect with the regional hub node.
- Gateway access to the DODIN-A through the tactical hub node, if regional hub node service is not available.
- High-throughput line of sight transport to communicate between fixed command posts.
- Line of sight and wideband satellite communications transport to support command and control on-the-move.
- Defense Information Systems Network services.
- Single-channel radio and narrowband (single-channel) tactical satellite retransmission for the division and support elements.
- Wire, cable, and fiber optic systems to support the division command posts.

1-73.The signal, intelligence, and sustainment company is dependent on support elements of the division for life support including human resources, logistics, religious, health protection, field maintenance, and vehicle recovery. Figure 1-6 on page 1-24 shows the organization of the signal portion of the division signal, intelligence and sustainment company.

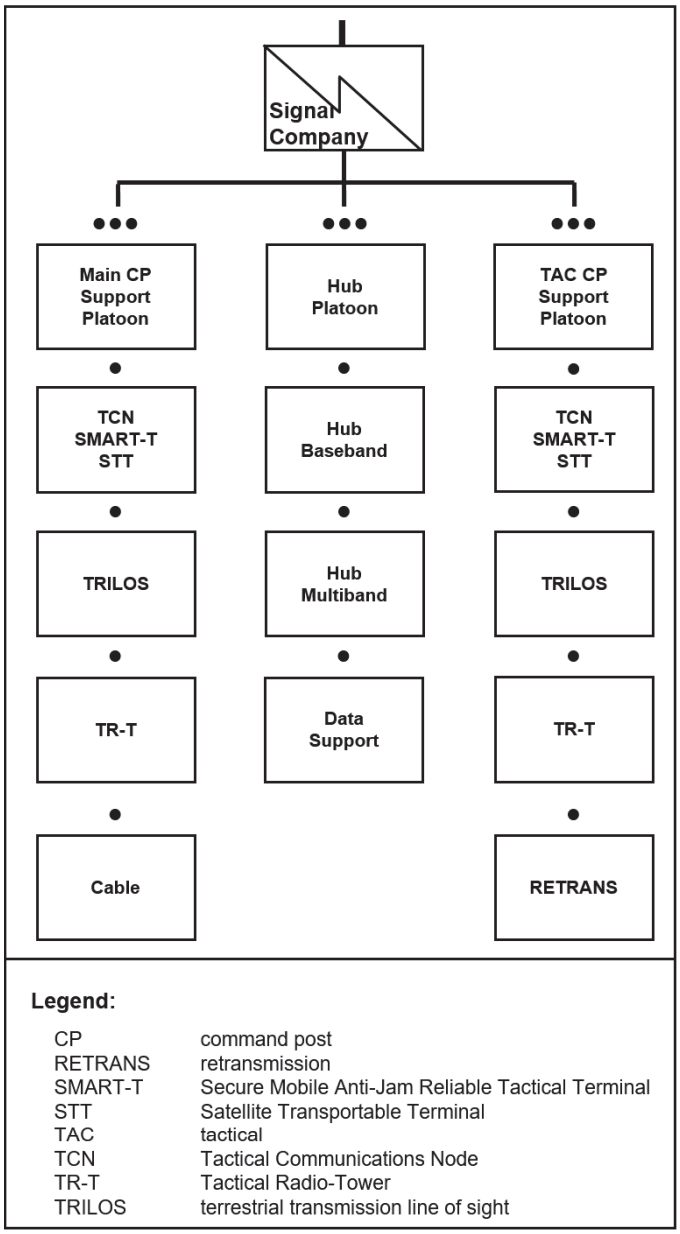


Figure 1-6. Division signal, intelligence, and sustainment company signal platoon organization

COMPANY HEADQUARTERS

1-74.The company headquarters provides command and control and limited company-level administration and life support to members of the signal, intelligence, and sustainment company. The headquarters also provides company-level command and control for the signal elements supporting the division main and tactical command posts. The company headquarters consists of a company commander; an operations officer; a first sergeant; a supply sergeant; a chemical, biological, radiological, and nuclear (CBRN) specialist; and a supply specialist.

MAIN COMMAND POST SUPPORT PLATOON

1-75.The main command post support platoon provides command and control of main command post support team assets. The platoon headquarters consists of a platoon leader and a platoon sergeant. The platoon includes a Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team; a terrestrial transmission line of sight team; a Tactical Radio-Tower team; and a cable team.

Tactical Communications Node, Secure Mobile Anti-Jam Reliable Tactical Terminal, and Satellite Transportable Terminal Team

1-76.The Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team provides wideband and protected satellite communications transport, switching, and data package requirements for the division main command post. The team consists of a senior nodal network systems operator-maintainer (team chief), a nodal network systems operator-maintainer; two satellite communications systems operator-maintainers, and a range extension operator.

Terrestrial Transmission Line of Sight Team

1-77.The terrestrial transmission line of sight team provides high-throughput line of sight connectivity to the division network. The team consists of a senior transmission systems operator-maintainer (team chief) and two transmission systems operator-maintainers.

Cable Element

1-78.The cable element installs wire, cable, and fiber optic communication systems to support the division main command post. The team consists of a cable systems team chief and three cable systems installer-maintainers.

HUB PLATOON

1-79. The hub platoon provides the core of the division communications network. The hub platoon consists of a hub baseband team, a hub multiband team, and a hub data support team. Hub platoon capabilities include—

- Wideband satellite communications transport—frequency division multiple access and time division multiple access.
- Connectivity to a DOD gateway site for access to Defense Information Systems Network services.
- Wire, cable, and fiber optic installation to support the hub node.

Platoon Headquarters

1-80. The hub platoon headquarters provides command and control of the hub platoon's subordinate teams. The platoon headquarters consists of a platoon leader, a network systems technician, and a platoon sergeant.

Hub Baseband Section

1-81. The hub baseband section provides baseband requirements for the hub node. Baseband includes connections to Defense Information Systems Network services to support command post operations. The team consists of a nodal network systems supervisor (team chief) and three nodal network systems operator-maintainers.

Hub Multi-Band Team

1-82. The hub multi-band team operates frequency division multiple access and time division multiple access satellite communications terminals to connect the division network to a DOD gateway for access to Defense Information Systems Network services, including—

- SECRET Internet Protocol Router Network.
- Non-classified Internet Protocol Router Network.
- Joint Worldwide Intelligence Communications System.
- Video teleconferencing.

1-83. The time division multiple access satellite communications terminal provides master network timing for the division time division multiple access network. The team consists of a satellite communications systems supervisor (team chief), a senior satellite communications systems operator-maintainer, and six satellite communications systems operator-maintainers.

Hub Data Support Team

1-84. The hub data support team provides data support for the hub platoon. The team consists of a senior information technology specialist (team chief) a senior cable systems installer-maintainer, an information technology specialist, and a cable systems installer-maintainer.

TACTICAL COMMAND POST SUPPORT PLATOON

1-85.The tactical command post support platoon consists of a platoon headquarters; two Tactical Communications Node, SMART-T, and Satellite Transportable Terminal teams; a terrestrial transmission line of sight section; and a retransmission section.

Platoon Headquarters

1-86.The tactical command post support platoon headquarters provides command and control and technical supervision of the platoon's assigned sections and teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Tactical Communications Node, Secure Mobile Anti-Jam Reliable Tactical Terminal, and Satellite Transportable Terminal Teams

1-87.Each Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team provides wideband and protected satellite communications transport, switching, and data package requirements for one division tactical command post at-the-halt for command post operations and on-the-move to support key leaders, command post displacement, and handover. Each team consists of a senior nodal network systems operator-maintainer (team chief), a nodal network systems operator-maintainer, two satellite communications systems operator-maintainers, and a range extension operator.

Terrestrial Transmission Line of Sight Section

1-88.The terrestrial transmission line of sight section provides high-throughput line of sight connectivity for the division network, including connectivity to subordinate brigade combat teams. The section consists of a transmission systems team chief, three senior transmission systems operator-maintainers, and five transmission systems operator-maintainers.

Tactical Radio-Tower Team

1-89.The Tactical Radio-Tower team extends the range of the Tactical Communications Node's built in line of sight communications on-the-move capability. The team consists of a senior transmission systems operator-maintainer (team chief) and two transmission systems operator-maintainers. Members of the Tactical Radio-Tower team assist in the coordinated defense of their sites, but require augmentation to adequately defend remote sites.

Retransmission Section

1-90.The retransmission section extends the effective range of multiple tactical radio voice and data sub-networks to beyond line of sight distances for information exchange among division elements. The section consists of a radio retransmission supervisor (section sergeant), a team chief, and four radio retransmission operators.

CORPS SIGNAL, INTELLIGENCE, AND SUSTAINMENT COMPANY

1-91. The signal portion of the corps signal, intelligence, and sustainment company includes staffing for the G-6 section and elements to install, operate, maintain, and secure the corps headquarters' network transport, automated information systems, and networks. Refer to relevant intelligence and sustainment doctrine publications for more information on the company's intelligence and sustainment functions.

1-92. The corps signal, intelligence, and sustainment company provides communications and network support for the corps main and tactical command posts and the various companies in the corps headquarters and headquarters battalion. The signal portion of the company also provides—

- Wideband and protected satellite communications transport to connect with the DODIN-A.
- High-throughput line of sight transport to communicate between command posts.
- Defense Information Systems Network services, including—
  - SECRET Internet Protocol Router Network.
  - Non-classified Internet Protocol Router Network.
  - Joint Worldwide Intelligence Communications System.
  - Classified and non-classified voice and video.
- Wire, cable, and fiber optic systems to support the corps command posts.
- Single-channel radio and narrowband (single-channel) tactical satellite retransmission for the corps and support elements.
- Global Broadcast Service capability to receive high bandwidth imagery, logistics data, and digital map information to support command and control.

1-93. Figure 1-7 on page 1-29 shows the organization of the corps signal, intelligence, and sustainment company's signal platoons.

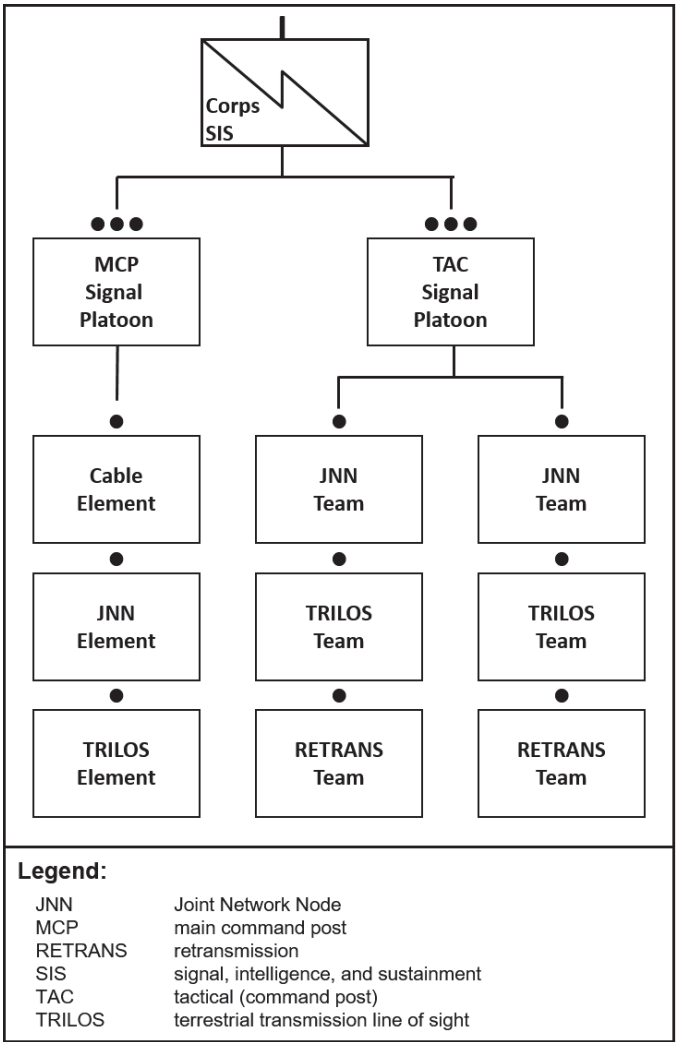


Figure 1-7. Corps signal, intelligence, and sustainment company signal platoon organization

Main Command Post Support Platoon

1-94. The main command post support platoon consists of the platoon headquarters, a Joint Network Node element, a cable element, and a terrestrial transmission line of sight element. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Joint Network Node Element

1-95. The Joint Network Node element installs, operates, and maintains a Joint Network Node, a Satellite Transportable Terminal, and a SMART-T to provide connections to Defense Information Systems Network services at the corps main command post.

Cable Element

1-96. The cable element installs wire, cable, and fiber optic communication systems to support the corps main and tactical command posts. The cable element consists of a senior cable systems installer-maintainer (team chief) and three cable systems installer-maintainers.

Terrestrial Transmission Line of Sight Element

1-97. The terrestrial transmission line of sight element provides high-throughput line of sight connectivity to connect the corps main command post with subordinate divisions. The element consists of a senior transmission systems operator-maintainer (team chief) and two transmission systems operator-maintainers.

TACTICAL COMMAND POST SUPPORT PLATOON

1-98. The tactical command post support platoon supports two tactical command posts. The platoon consists of a platoon headquarters, two Joint Network Node teams, two terrestrial transmission line of sight teams, and two retransmission teams.

Platoon Headquarters

1-99. The tactical command post support platoon headquarters provides command and control and technical supervision of the platoon's assigned teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Joint Network Node Team

1-100. Each Joint Network Node team installs, operates, and maintains a Joint Network Node, a Satellite Transportable Terminal, and a SMART-T to connect the corps tactical command posts with Defense Information Systems Network services. Each team consists of a senior nodal network systems operator-maintainer (team chief), a senior satellite communications systems operator-maintainer, two nodal network systems operator-maintainers, two satellite communications systems operator-maintainers, and a range extension operator.

Terrestrial Transmission Line of Sight Team

1-101. The terrestrial transmission line of sight teams provide high-throughput line of sight connectivity to connect the corps tactical command post with the main command post and subordinate divisions. Each team consists of a senior transmission

systems operator-maintainer (team chief) and two transmission systems operator-maintainers.

Retransmission Teams

1-102. The retransmission teams extend the effective range of multiple tactical radio voice and data sub-networks to beyond line of sight distances for information exchange among corps and subordinate elements. The tactical command post support platoon includes a radio retransmission supervisor (section sergeant). Each retransmission team includes a team chief and two radio retransmission operators.

SECTION IV – COMMAND AND SUPPORT RELATIONSHIPS

1-103. 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). Refer to FM 6-0 for more information on command and support relationships.

1-104. 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.

1-105. Command relationships define superior and subordinate relationships between unit commanders. The signal platoon is under command of the company commander. However, within the platoon, command relationships exist between the platoon leader, platoon sergeant, and the section sergeants and 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.
- Technical control.

ORGANIC

1-106. 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.

ASSIGNED

1-107. 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

1-108. 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

1-109. Operational control is inherent in combatant command (command authority), and may be delegated within the command. A signal platoon that is under operational control of a higher headquarters can be reorganized as necessary to accomplish assigned tasks.

TACTICAL CONTROL

1-110. Tactical control is inherent in operational control. Placing a signal platoon under tactical control allows a higher headquarters to direct the tactical use of the platoon, but does not provide authority to change organizational structure or direct administrative and logistical support.

TECHNICAL CONTROL

1-111. The G-6 or S-6 at echelons corps and below exercises technical control over the assigned signal company through technical channels. *Technical channels* are the chain of authority for ensuring the execution of clearly delineated technical tasks, functions, and capabilities to meet the dynamic requirements of Department of Defense information network operations (ATP 6-02.71).

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.

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

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

SECTION I – PLANNING CONSIDERATIONS

2-1. A signal platoon operates to support a larger organization, whether it be a company team, battalion or squadron, or higher. Therefore, the platoon leader plans in conjunction with the directly supported unit and the next higher echelon to ensure proper alignment of task and purpose. Failure to do so results in the wasted expense of an already limited resource—time.

2-2. Platoon leaders follow the same sequence their company, battalion, or squadron commander does when executing the operations process—planning, preparation, execution, and assessment, though to a lesser degree.

PLANNING

2-3. *Planning* is the art and science of understanding a situation, envisioning a desired future, and laying out effective ways of bringing that future about (ADP 5-0). A platoon leader receives a task and purpose from the company commander as a warning order (WARNORD) or operation order (OPORD) and begins the planning process. The signal platoon WARNORD includes pertinent signal-specific information such as—

- Specific communications elements needed—

- Tactical satellite.
- Retransmission.
- Line of sight.
- Networking systems.

- Types of COMSEC needed.
- Command post positioning.

2-4. Planning is an ongoing process and continues as necessary during preparation and execution. Parallel planning occurs when the platoon leader and company commander plan for the same mission at about the same time. Figure 2-1 shows the parallel sequences of the battalion's military decision-making process and the company and platoon's troop leading procedures.

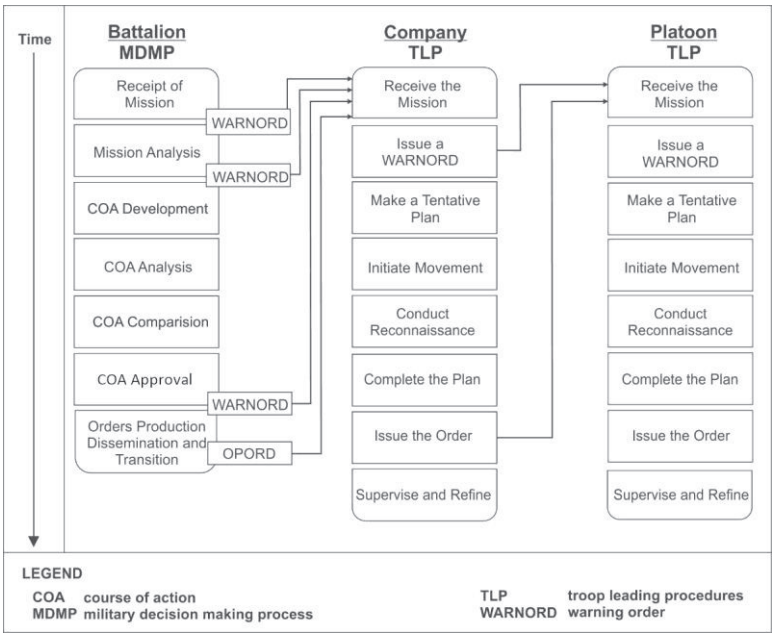


Figure 2-1. Parallel sequences of the military decision-making process and troop leading procedures

2-5. Platoon-level planning focuses on fully developing the platoon's role in the company commander's directed course of action and rehearsing for likely contingencies that may cause the course of action to develop in unexpected ways.

PREPARATION

2-6. Preparation includes activities the signal 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.
- Checks and inspections.
- Movement.

2-7. During preparation, signal platoon leaders need to create a timeline and analyze proposed signal sites—including terrain, weather, and enemy factors and how they affect the mission. Platoon leaders capture all signal-specific guidance, identify facts and assumptions, and identify specified, implied, and essential tasks from the OPORD.

2-8. A detailed and customized platoon standard operating procedure (SOP) considers the personnel and equipment assigned to the signal platoon. When consistently executed 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 are ones developed with input from all leaders in the platoon.

EXECUTION

2-9. *Execution* is putting a plan into action by applying combat power to accomplish the mission (ADP 5-0). The platoon leader develops situational understanding to assess progress and make and adjust decisions during execution.

ASSESSMENT

2-10.Assessment refers to the continuous monitoring and evaluation of the current situation, particularly the enemy, along with the progress of the assigned task or tasks. Assessment entails—

- Continuously assessing the enemy'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 company commander's desired end state.

2-11.Signal platoon leaders should maintain a running estimate that includes all signal information, including—

- Signal equipment on-hand.
- Signal equipment in-use.
- Non-mission-capable equipment.
- Equipment available to support the mission.

SECTION II – TROOP LEADING PROCEDURES

2-12.The platoon leader uses troop leading procedures to solve tactical problems and uses the platoon sergeant and section sergeants 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 6-0 contains a more in-depth discussion of each step of troop leading procedures.

EXECUTING TROOP LEADING PROCEDURES

2-13. 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.

2-14. 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. The last step—supervise and refine—occurs throughout the mission.

2-15. Subordinates require enough information to plan and prepare for their mission. In some cases, troop leading procedures start before receiving a company WARNORD, based on existing plans and orders and the subordinate leader's understanding of the situation.

STEP 1 – RECEIVE THE MISSION

2-16. The platoon leader receives the platoon's mission through a written or verbal WARNORD, OPORD, or 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—mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC). A more advanced analysis of the mission variables occurs during step 2.

2-17. 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 2-26 on page 2-8).
- Prepare an initial planning timeline.

STEP 2 – ISSUE A WARNING ORDER

2-18.The platoon WARNORD is a 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.

2-19.In the initial platoon WARNORD, the platoon leader includes the same elements given in the company commander's initial WARNORD, but platoon-focused. 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.

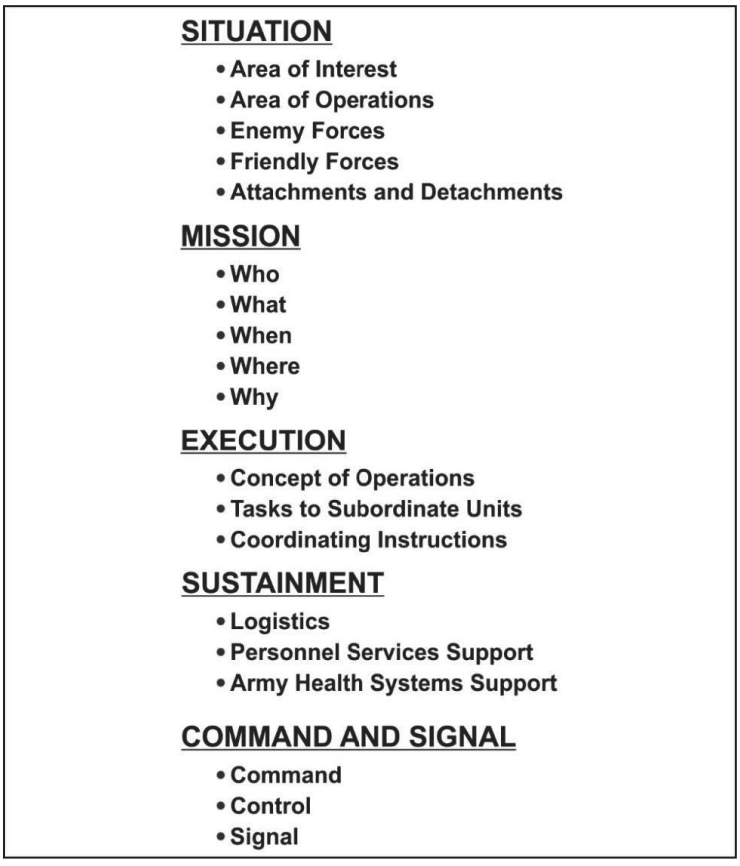


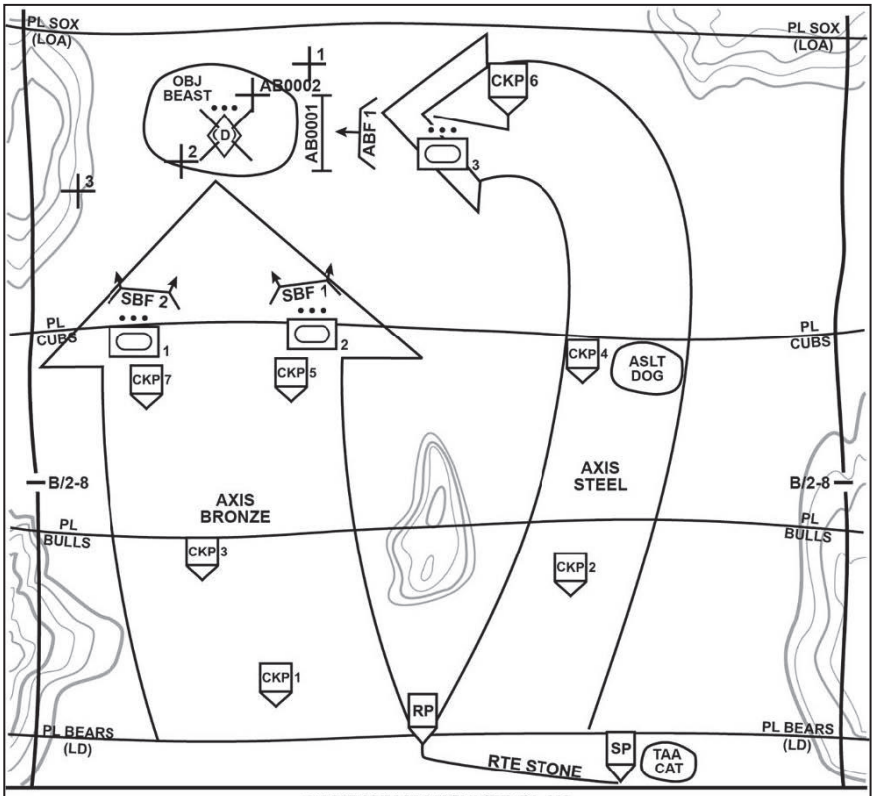
Figure 2-2. Example warning order format

2-20.The WARNORD has no specified format, though it may follow the five-paragraph OPORD format and include the following items:

- Enemy situation, as currently known.
- Company 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).
- Information requirements.
- Commander's critical information requirements.
- Changes to task organization, if any.
- Specialized equipment needed, 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.

2-21.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, so subordinates have all of the relevant information available. Otherwise, the platoon leader gives the information during the platoon OPORD brief.

2-22.Figure 2-3 on page 2-7 is an example of a concept sketch the platoon leader may receive from their company commander. It shows the company 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.



COMPANY MANEUVER PLAN

Company:
T: Destroy
P: Prevent displacement of enemy from OBJ BEAST

2nd platoon:
T: Occupy SBF 2
P: Suppress east side of OBJ BEAST

1st platoon:
T: Occupy SBF 1
P: Suppress west side of OBJ BEAST

3rd platoon:
T: Occupy ABF 1
P: Destroy enemy platoon vicinity of OBJ BEAST

Legend:

ABF=	Attack By Fire	LOA=	Limit Of Advance	RP=	Release Point	T=	Task
ASLT=	Assault	OBJ=	Objective	RTE=	Route	TAA=	Tactical Assembly Area
CKP=	Checkpoint	P=	Purpose	SBF=	Support By Fire		
LD=	Line of Departure	PL=	Phase Line	SP=	Start Point		

Figure 2-3. Example of company concept sketch

STEP 3 – MAKE A TENTATIVE PLAN

2-23.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

2-24.Mission analysis helps the platoon leader determine—

- The current situation.
- The platoon's mission.
- How to best accomplish the mission.
- The possible risks.

2-25.The platoon leader begins mission analysis immediately upon receipt of the mission from the company commander. During mission analysis, the platoon leader restates the given mission and conducts an initial risk assessment.

2-26.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 section sergeants and team chiefs to disseminate the order to their teams and prepare for the mission.

2-27.The platoon leader will conduct a more in-depth mission analysis by evaluating the mission variables (METT-TC). The platoon leader will brief the mission analysis results and their importance, enabling the platoon to recognize and seize opportunities during the mission.

MISSION VARIABLES

2-28.Mission variables describe characteristics of the area of operations and their impacts to a mission. The mission variables are—

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

2-29.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.

2-30.METT-TC 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 on their experience and preferences. One technique is to conduct parallel troop leading procedures based on the products received from the company.

Analysis of Mission

2-31.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.

2-32.Platoon leaders use the following to gain this understanding:

- Battalion or squadron (two levels up) mission, intent, and concept.
- Company (one level up) mission, intent, and concept.
- Unit's purpose.
- Constraints.
- Specified, implied, and essential tasks.
- Restated mission.

Battalion or Squadron (Two Levels Up) Mission, Intent, and Concept

2-33.Regardless of echelon, leaders must understand the concept of the operation two levels up, identifying the tasks and purpose and how their immediate higher headquarters contributes to the operation. At platoon-level, this is the battalion or squadron commander's mission, intent, and concept. This information is found in paragraph three of the company OPORD, or in paragraphs two and three in the battalion or squadron OPORD.

Company (One Level Up) Mission, Intent, and Concept

2-34.Leaders must understand their immediate headquarters' concept of the operation to identify their headquarters' task and purpose and their own contributions to the mission. At platoon-level, this is the company commander's mission, intent, and concept. This information is found in paragraphs two and three of the company OPORD. Leaders also identify the tasks, purposes, and dispositions for supported maneuver elements and all adjacent signal elements under the company's control.

Platoon's Purpose

2-35.The platoon leader locates the platoon's purpose in the concept of the operation in paragraph three of the company OPORD. The platoon's purpose helps achieve the purpose of the immediate higher headquarters. If platoon leaders are unclear of their purpose, they should ask the company commander for further explanation.

2-36.Understanding the company 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 must accomplish and why.

Tasks

2-37. Platoon leaders must identify and understand the task or tasks required to accomplish a given mission. The three types of tasks are—

- Specified.
- Implied.
- Essential.

2-38. A *specified task* is a task specifically assigned to a unit by its higher headquarters (FM 6-0). Specified tasks are found in paragraph three of the company OPORD, under tasks to subordinate units.

2-39. 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 6-0). Implied tasks come from a detailed analysis of the company 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.

2-40. An *essential task* is a specified or implied task that must be executed to accomplish the mission (FM 6-0). Platoon leaders either decide which tasks are essential or are told directly by the company commander. The essential tasks and the platoon's purpose are in the company OPORD paragraph three concept of the operation—if an implied task—or tasks to subordinate units—if a specified task.

Note. Some specified, implied, and essential tasks that directly affect the platoon may be written into an annex and not be included in paragraph three of the company OPORD. Either the platoon leader or platoon sergeant should review, at a minimum, Annex C (Operations) from the battalion or squadron OPORD, if available and if time permits.

Constraints

2-41. A *constraint* is a restriction placed on the command by a higher command. A constraint dictates an action or inaction, thus restricting the freedom of action of a subordinate commander (FM 6-0). Constraints primarily appear in paragraph three of the company OPORD.

2-42. Examples of constraints for a signal platoon may be resource limitations, such as class III or class V transport capacity, or in the operational environment, such as terrain or man-made structures that interfere with line of sight or single-channel retransmission capabilities. The joint restricted frequency list is also an example of a signal constraint.

Restated Mission

2-43. 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 and type of operation.
- When—the time given in the company OPORD.
- Where—the objective or location stated in company OPORD.
- Why—the platoon's purpose, taken from the company's concept of the operation.

Note. Example mission statement: Beginning 180700ZAUG19, C/7 brigade engineer battalion provides signal support within area of operations WARRIOR to enable command and control of 1/10 infantry brigade combat team defensive operations. On order, C/7 brigade engineer battalion increases communications reach to support 1/10 infantry brigade combat team offensive operations.

Define Operational Environment

2-44.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 the joint force commander for land and maritime forces that should be large enough to accomplish their missions and protect their forces (JP 3-0).
- *Area of influence*—a geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems 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 thereto, and extending into enemy territory. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission (JP 3-0).

2-45.The signal platoon primarily operates in its supported company, battalion, or squadron's area of operations based on maneuver control graphics, which include direct fire control measures and fire support control measures provided by the higher headquarters.

Visual Aids

2-46.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. In the graphic depiction, leaders show terrain mobility classifications, key terrain, intervisibility lines, known obstacles, avenues of approach, mobility corridors, and limitations of communications systems (refer to ATP 2-01.3 for more information).

Analysis of Enemy

2-47. The second mission variable to consider is the enemy. The G-2 or S-2 provides an analysis of the enemy with which the battalion, squadron, or company 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.

2-48. Analyzing the enemy helps platoon leaders understand what the enemy is doing and why. The platoon leader attempts to determine—

- The composition and strength of the enemy force.
- The capabilities of enemy weapons and other systems that may affect signal support.
  - Maneuver.
  - Manned and unmanned aircraft.
  - Intelligence, surveillance, and reconnaissance.
  - Artillery.
  - Long-range precision fires.
  - Electromagnetic attack.
  - Cyberspace attack.
- The location of current and anticipated enemy positions.
- The enemy's most probable course of action—defend, reinforce, attack, withdraw, or delay.

Assumptions

2-49. 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 enemy analysis that could positively or negatively affect the company's plan to the company commander for awareness and, if necessary, action.

How the Enemy Will Fight

2-50. 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 company OPORD or be made available from the G-2 or S-2. This type of understanding is the starting point for the platoon leader's enemy analysis.

2-51.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 company commander.

Composition

2-52.Platoon leaders determine the types of vehicles, soldiers, and equipment the enemy could use against the signal platoon, including cyberspace attack, electromagnetic warfare, and direction finding capabilities. Platoon leaders should be familiar with the basic characteristics of the enemy units, enemy weapons platforms (included long-range precision munitions), and enemy cyberspace and electromagnetic warfare capabilities identified.

Disposition

2-53.From the G-2 or S-2 and company 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

2-54.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 company commander to the G-2 or S-2.

Capabilities

2-55.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 signal sites to lethal fires. Knowing the characteristics and capabilities of enemy cyberspace and electromagnetic warfare capabilities, the platoon leader can better recognize and respond to an enemy cyberspace or electromagnetic attack.

Recent Activities

2-56.Platoon leaders can request any recent enemy activities in the platoon or company's area of operations from the G-2 or S-2 through the company commander. Knowing what the enemy has done in the past may indicate likely future enemy courses of action.

Enemy Situation Template

2-57.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 company commander, either as an analog map overlay or digital joint capabilities release 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 commander determines the enemy is conducting a cyberspace or electromagnetic attack that impacts the primary means of communication, the platoon leader can take immediate action to mitigate its effects or initiate the primary, alternate, contingency, and emergency (PACE) communication plan.

2-58. Platoon leaders include the likely sectors of fire of enemy weapons, tactical and protective obstacles, and electromagnetic order of battle, either confirmed or templated, in their situation template. Table 2-1 shows recommended 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	
Travel time for reserve commitment	
Battle positions, strong point, area of operation	
Sectors of fire	

2-59. The situation template is an estimate of the enemy disposition used as a briefing tool for the platoon leader. 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

2-60.Commander's critical information requirements (see figure 2-4) consist of priority intelligence requirements and friendly force information requirements:

- *Priority intelligence requirement*—an intelligence requirement that the commander and staff need to understand the threat and other aspects of the operational environment (JP 2-01). Priority intelligence requirements are clear, answerable, focused on a single question, and necessary to drive an operational decision.
- *Friendly force information requirement*—information the commander and staff need to understand the status of friendly force and supporting capabilities (JP 3-0).

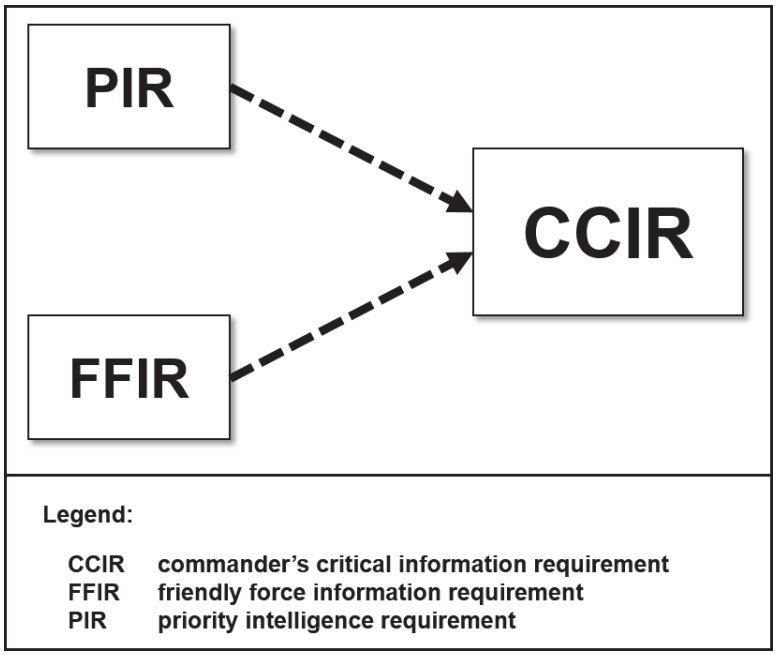


Figure 2-4. Commander's critical information requirements

2-61.The platoon may be directly or indirectly tasked to answer one or more of the company, battalion, or squadron 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.

2-62.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 failure of the operation. Consequently, this information must be protected from identification by the enemy. Examples of essential elements of friendly information include the location of a command post or the signal operating instructions.

Analysis of Terrain and Weather

2-63. Analysis of terrain explains the terrain's effect on the mission. Platoon leaders consider the effects of manmade and natural terrain in conjunction with the weather on friendly and enemy operations.

2-64. Terrain can be categorized into three separate categories:

- **Unrestricted**—terrain free of restrictions to movement; no actions are needed to enhance mobility. For the signal 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 manmade structures that would interfere with line of sight and retransmission 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 signal platoon, restricted terrain typically means moderate to steep slopes or moderate to dense spacing of obstacles such as trees, rocks, or urban structures. Mountains, steep hills, and manmade structures are examples of restricted terrain for signal forces.
- **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 characterize severely restricted terrain for signal forces.

2-65. 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.
- Templated locations of enemy forces, essential weapon systems, and lethal fires.
- Likely avenues of approach.
- Optimum observation post locations.
- Potential breach locations.
- Optimum positions for own assets.
- Thorough understanding of time and space relationships of events, leading to thorough contingency plans.
- Possible enemy indirect firing points.
- Movement techniques and formations, including when to transition from movement to tactical maneuver.

2-66.Terrain analysis also identifies factors specific to signal support, including—

- Identification of areas which may increase the range of communications systems.
- Identification of areas where terrain interferes with line of sight and retransmission capabilities and requires satellite communications or high frequency (HF) radios for beyond line of sight communication.
- The platoon's ability to use natural or manmade features to mask the unit's electromagnetic signature.
- The platoon's ability to mask the unit's electromagnetic signature within the spectral noise of an urban area.

2-67.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.

2-68.From the modified combined obstacle overlay developed by the G-2 or S-2, platoon leaders gain understanding of the general nature of the ground and effects of 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.

2-69.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.

2-70.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.

2-71.Platoon leaders analyze terrain using either of the following mnemonics to determine the effects of each aspect of terrain on friendly and enemy forces:

- Observation and fields of fire, avenues of approach, key terrain, obstacles and movement, and cover and concealment (OAKOC).
- Key terrain, observation and fields of fire, cover and concealment, obstacles, and avenues of approach (KOCOA).

Obstacles

2-72.Platoon leaders identify existing and reinforcing obstacles that might limit mobility or signal support in the area of operations:

- 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.)
    - Manmade—includes urban areas, canals, 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.

2-73.Offensive considerations when analyzing obstacles and restricted terrain include—

- How the enemy is using obstacles and restricted terrain features.
- 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.

2-74.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 signal systems from enemy detection using terrain masking techniques.

Avenues of Approach

2-75.An *avenue of approach* is a path used by an attacking force leading to its objective or to key terrain. Avenues of approach exist in all domains (ADP 3-90). 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 avenues of approach in cyberspace and the electromagnetic spectrum.

2-76.Since signal teams may not be as mobile or have the robust defensive capabilities of maneuver elements, signal planners and leaders should be careful to avoid selecting signal sites along likely enemy avenues of approach.

2-77.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. For more information on mobility corridors, refer to ATP 2-01.3.

2-78.Offensive considerations the leader can include in an evaluation of avenues of approach include—

- How the signal platoon's retransmission 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 might affect the rate of movement.

2-79.Defensive considerations the leader can include in an evaluation of avenues of approach include—

- Likely enemy avenues 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 signal sites.

Key Terrain

2-80.*Key terrain* is an identifiable characteristic whose seizure or retention affords a marked advantage to either combatant (ADP 3-90). Identification of key terrain is a conclusion, usually arrived at after enemy analysis and development of the plan, rather than by direct observation.

2-81.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.

2-82.*Decisive terrain* is key terrain whose seizure and retention is mandatory for successful mission accomplishment (ADP 3-90). Some situations have no decisive terrain.

2-83.Platoon leaders look at the 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 or company.
- 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 supports terrain masking to prevent the enemy detecting friendly communications.
- Whether the terrain affects employment of communications nodes, such as retransmission sites.

Observation and Fields of Fire

2-84.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. An intervisibility line analysis enables the leader to visualize the profile view of terrain when only a topographic product (map) is provided (see figure 2-5).

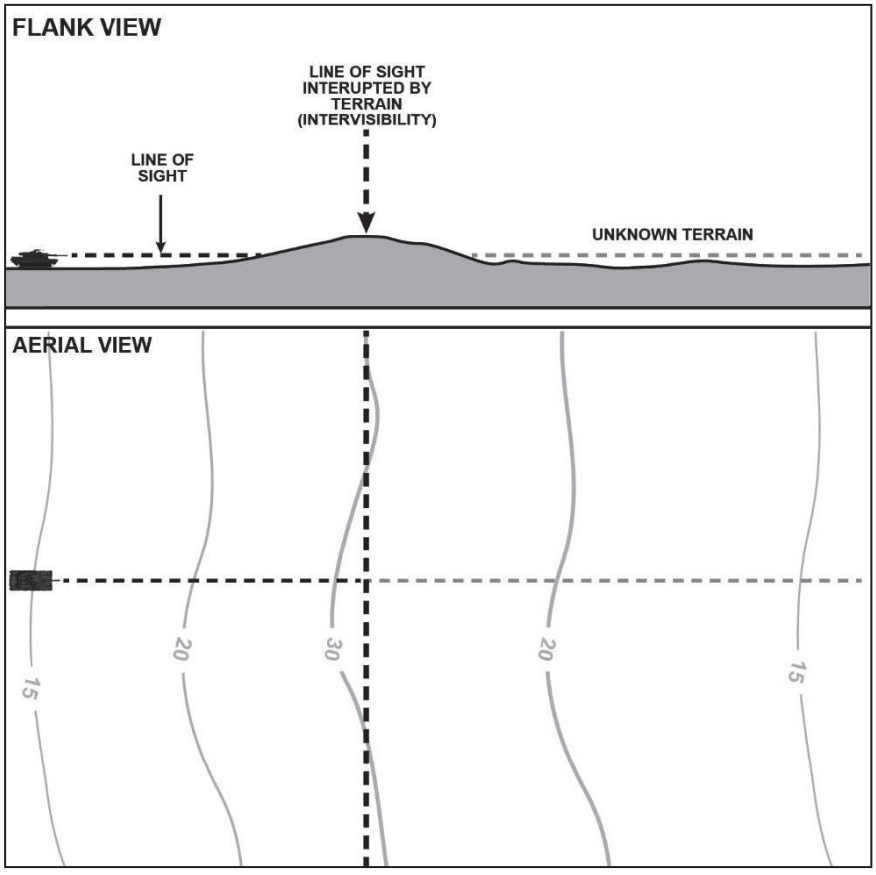


Figure 2-5. Example intervisibility line

Note. 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.

2-85.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.

2-86.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.

2-87.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.
- Where the platoon is vulnerable.
- Where natural target registration points exist.
- How obvious these positions are to the enemy.

Cover and Concealment

2-88.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 cover and concealment. *Cover* is protection from the effects of fires (FM 3-96), whereas *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.

2-89.Concealment—more specifically camouflage—is critical when enemy aviation assets or unmanned aircraft systems may be present in the area of operations. Preventing the enemy from identifying the composition or disposition of the signal platoon reduces the likelihood of being targeted by enemy direct or indirect fires.

2-90. Offensive and defensive considerations must be made:

- Offensive considerations include—
  - The axis which affords clear fields of fire 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.
  - How friendly signal forces can use terrain masking or manmade structures to conceal or minimize the signal systems' electromagnetic signature to prevent detection by the enemy.

Military Aspects of Weather

2-91. The military aspects of weather are—

- Visibility.
- Winds.
- Precipitation.
- Cloud cover and ceiling.
- Temperature and humidity.
- Atmospheric pressure.

2-92. Platoon leaders determine how the weather will affect the visibility, mobility, and survivability of the platoon and that of the enemy, reviewing the company commander's conclusions and identifying their own (refer to ATP 2-01.3).

Visibility

2-93. 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, sunset, end of evening nautical twilight, moonrise, 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.

Winds

2-94.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.

2-95.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 the employment of antenna masts.
- Whether there is potential for CBRN contamination.

2-96.The smell of petroleum products used by the platoon 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 signal platoon must consider how their individual systems will benefit from, or be hindered by, the wind.

2-97.Signal 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 common on large signal assemblages.

Precipitation

2-98.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 communications systems, particularly satellite communications systems (refer to ATP 6-02.54). 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 soil.
- Particular portions of the route that may be susceptible to freezing or black ice due to precipitation.

Cloud Cover

2-99.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 might use to conceal their approach to the target. 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. As an example, extremely high frequency and super high frequency satellite communications signals suffer much greater signal loss through heavy cloud cover than systems that operate at lower frequencies. Heavy cloud cover (or fog) may reduce the performance of satellite communications systems. Cloud cover considerations include—

- How cloud cover will affect satellite communications transport.
- What are time periods during which cloud cover will reduce the effectiveness of communications equipment.

Temperature and Humidity

2-100. Extreme shifts in temperature and humidity reduce personnel and equipment capabilities and may require the use of special shelters or equipment. Air density decreases as temperature and humidity increase. 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

2-101. 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.

Analysis of Troops and Support Available

2-102. 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 assigned platoon 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.

***Note*:** Security force augmentation for remote signal sites may not always be available. Signal Soldiers must be adequately prepared to defend remote sites, though signal teams are not equipped to defend against a large enemy force. Teams should try to remain concealed and report enemy activity to higher headquarters. Signal 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.

2-103. The platoon leader cannot be expected to think of every aspect of the platoon to analyze and so asks for help when the situation exceeds the platoon's capabilities. Assistance can come from either within or external to the company.

Analysis of Time Available

2-104. 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.
- Planning and preparation.
- Times specified by the commander in the OPORD for such activities as movement, reconnaissance, rehearsals, and logistics package operations.
- Company and battalion or squadron timeline.
- Enemy timeline.

2-105. 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 present time.

Analysis of Civil Considerations

2-106. *Civil considerations* are the influence of manmade 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 of 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.
- How friendly forces build national will in the platoon's area of operations.

2-107. The battalion or squadron provides the company and platoon an analysis of civil considerations that affect the mission. The memory aid the battalion or squadron may use to analyze and describe these civil considerations is areas, structures, capabilities, organizations, people, and events (ASCOPE). Refer to ATP 2-01.3 for more information about civil considerations.

RISK ASSESSMENT

2-108. *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.

2-109. Once leaders identify risks, they attempt to mitigate or eliminate those risks through the use of controls. 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, leaders may mitigate the risk of fratricide by taking into consideration surface danger zones and risk estimate distances, resulting in the emplacement of target reference points and phase lines used to control maneuver and thus reduce this risk. Refer to ATP 5-19 for more information on the risk management process.

DEVELOP THE PLAN AT THE PLATOON LEVEL

2-110. The platoon leader generally receives a directed course of action from the company 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.

2-111. 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.

2-112. Platoon leaders compare and contrast 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 vulnerabilities to protect.

2-113. Platoon leaders may be able to accomplish the given task and purpose in more than one way. They consider tactics, techniques, and procedures from doctrinal publications, company, battalion, or brigade tactical SOPs, history, lessons and best practices, or other resources to determine whether a solution to a similar tactical problem already exists.

2-114. Platoon leaders determine what combinations of personnel and systems they need to accomplish their assigned tasks. This is known as assigning troops to task, and is based on the mission variables (METT-TC) the leader faces, such as having an attachment of engineers or other enablers.

2-115. Platoon leaders identify the best ways to use the available terrain to mitigate the enemy's ability to detect and locate friendly transmissions. They develop the maneuver control measures necessary to execute the mission, prevent fratricide, and clarify the task and purpose.

2-116. Platoon leaders ensure every communications asset in the platoon is fully employed, every asset is attached, and adequate control is provided for each element.

2-117. Platoon leaders solidify the plan by notionally fighting it against how they believe the enemy will operate. Asking what if throughout the process can help identify points of friction not previously considered.

2-118. This process may be done solely by platoon leaders who review the plan up to that point, or by including the platoon sergeants and other subordinate leaders' input. This enables platoon leaders 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.
- Appreciate the time, space, and triggers needed to initiate signal 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 signal sites and coordinate with nearby units for support.
- Complete paragraphs three, four, and five of the OPORD.

STEP 4 – INITIATE MOVEMENT

2-119. Platoon leaders initiate movements necessary to continue mission preparation or to posture the unit for starting the mission. This step can be executed anytime 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

2-120. Signal site reconnaissance involves representatives from the parent unit G-3 or S-3 and key signal 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 signal assemblages and support equipment.

2-121. 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 site is concealed from major roads or other vantage points and how the site's natural terrain can support terrain masking to prevent enemy direction finding. Refer to FM 6-02 for more information about site selection and reconnaissance.

STEP 6 – COMPLETE THE PLAN

2-122. 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 on the unit SOP and to maximize use of time, other members of the platoon may prepare graphics, overlays, briefing sites, or briefing materials.

2-123. 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.
- Support.
- Command and signal.

2-124. 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 signal support plan supports the company commander's intent.

STEP 7 – ISSUE THE ORDER

2-125. 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 delivers the OPORD quickly, with confidence, and in a manner that allows subordinates to concentrate on understanding the platoon leader's vision, not just repeating what is said verbatim.

2-126. The platoon leader uses a terrain model, sand table, sketches, or the 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 vehicle models.

2-127. Whenever possible, platoon leaders issue the order in person. They look into the eyes of their subordinate leaders to ensure 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 mission command platforms, or on a sand table, terrain model, or map.

2-128. Platoon leaders complete the order with a confirmation brief. At a minimum, section sergeants and team chiefs should be able to backbrief the platoon's mission and intent, the company 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 2-30 outlines the five-paragraph OPORD format.

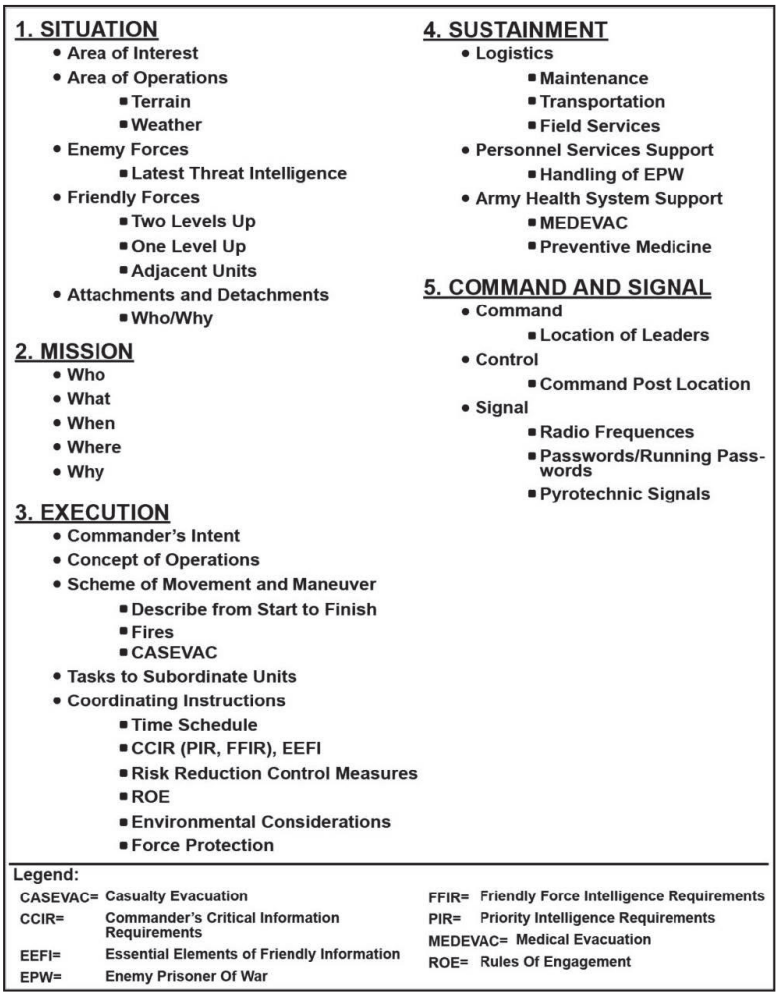


Figure 2-6. Operation order format

STEP 8 – SUPERVISE AND REFINE

2-129. After issuing the OPORD, the platoon leader and subordinate leaders must ensure the required activities and tasks are completed 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, but is not limited to—

- Conducting backbriefs on all aspects of the platoon mission.
- Ensuring the second-in-command in each element is prepared to execute in the platoon 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

2-130. 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.

2-131. Once the order is received, the platoon leader conducts a quick map reconnaissance, analyzes the mission using the mission variables (METT-TC), 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.

2-132. 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.

2-133. Digital systems are valuable tools when the platoon is forced to 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.

2-134. Other keys to success when abbreviated troop leading procedures are in effect 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 company net and issuing frequent updates to the other teams using radios and mission command information systems.

SECTION III – REHEARSALS

2-135. Rehearsals are practice sessions conducted to prepare units for an upcoming operation or event and the most valuable tool in preparing the platoon for the upcoming operation. Effective rehearsals require teams to perform required 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.

2-136. The PACE plan helps ensure the maneuver unit can continue to communicate if its primary means of communication fails. 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.

2-137. 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, lost vehicles, and accidents.

2-138. 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, section sergeants send a complete spot report when reporting enemy contact, rather than simply saying, I would send a spot report now.

REHEARSAL PURPOSES

2-139. Platoon leaders use well-planned, efficiently run rehearsals to accomplish the following purposes:

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

REHEARSAL TYPES

2-140. The platoon leader can choose among several types of rehearsals, including—

- Backbriefs.
- Combined arms rehearsals.
- Support rehearsals.
- Battle drill or SOP rehearsals.

BACKBRIEF

2-141. A 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 signal platoon, the platoon leader conducts backbriefs after the team chiefs have had a chance to review the OPORD but before the platoon rehearsal begins.

COMBINED ARMS REHEARSAL

2-142. A combined arms rehearsal is a rehearsal in which subordinate units synchronize their plans with each other and is normally conducted at company-level and above. If they participate in a combined arms rehearsal, platoon leaders generally brief their task and purpose, composition, disposition and key actions executed by phase, though the exact information briefed varies by unit SOP.

SUPPORT REHEARSAL

2-143. The support rehearsal helps synchronize each warfighting function with the overall operation. Platoon leaders may take part in the support rehearsal depending on their task and purpose and how it relates to the higher headquarters' operation.

BATTLE DRILL OR STANDARD OPERATING PROCEDURE REHEARSAL

2-144. 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 is a trained response to a given stimulus. Battle drills require minimal leader orders to accomplish. Synchronization and reaction speed are enhanced when battle drills are identified and the required reactions are defined in the unit SOP and rehearsed during training.

2-145. A battle drill or SOP rehearsal ensures all participants understand a technique or a specific set of procedures. Throughout preparation, signal teams rehearse battle drills and SOPs. These rehearsals do not require a completed order from the company 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.

METHODS OF REHEARSALS

2-146. 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.

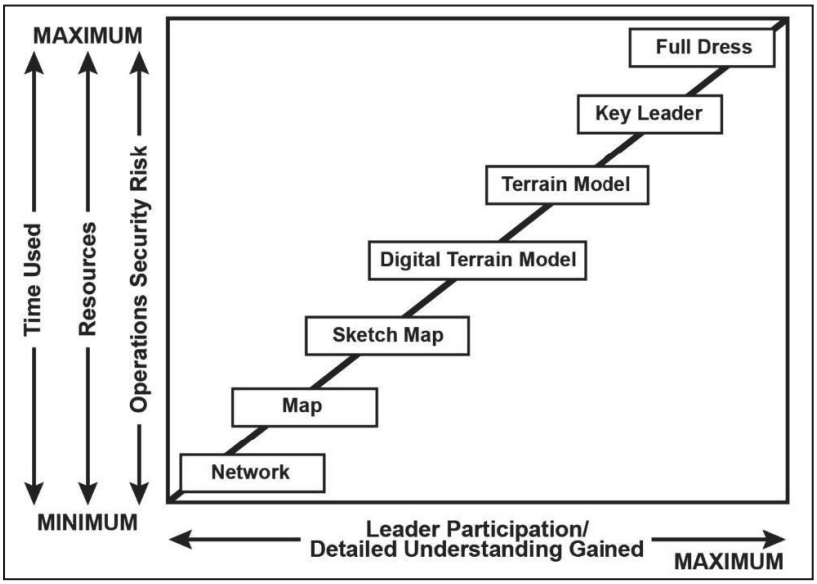


Figure 2-7. Methods of rehearsals

FULL-DRESS REHEARSAL

2-147. 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 signal platoon take part in this rehearsal, bringing with them any equipment they require to execute the mission.

REDUCED-FORCE (KEY LEADER) REHEARSAL

2-148. 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. A reduced-force (key leader) rehearsal can be used to prepare key leaders for a full-dress rehearsal.

TERRAIN-MODEL REHEARSAL

2-149. The terrain-model rehearsal is the most popular rehearsal technique. A terrain-model rehearsal takes far less time and fewer resources than a full-dress or reduced-force (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 signal equipment, such as retransmission sites around the table or model, using 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 air assets.

DIGITAL TERRAIN-MODEL REHEARSAL

2-150. 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

2-151. 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. Signal teams can use symbols to represent their locations and maneuver on the sketch and use complete radio transmissions when executing their movements.

MAP REHEARSAL

2-152. 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 as the platoon leader used to plan and control the operation. This technique is useful in conjunction with a confirmation brief or backbrief involving subordinate leaders.

PRECOMBAT CHECKS AND INSPECTIONS

2-153. The platoon leader or platoon sergeant observes each team during preparation for combat. They conduct precombat checks and inspections once the team chiefs report their teams and vehicles are prepared. It is understood that platoon leaders will

check items they deem critical for the upcoming operations, 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.

PRECOMBAT CHECKS

2-154. Precombat checks differ from precombat inspections in that they are quick combat checks performed at team-level designed to account for individuals and equipment. Precombat checks do not require formal advance notification. They are designed to be quick and concise, verifying the teams have all necessary equipment to accomplish their mission. Examples for signal precombat checks include—

- Retransmission team checks (see appendix B).
- COMSEC.
  - Fill devices.
  - Courier cards.
  - Changeover times.
- Radio checks and communications cards.
- Fuel level in vehicles and generators.
- Military vehicle driver's licenses.
- Maps and overlays of the area of operations.
- Ammunition checked and stored properly.
- Vehicles uploaded according to the unit tactical SOP.
- Teams' uniforms and equipment necessary to accomplish the tasks are accounted for.

Note. The standardization of load plans allows the platoon leader and platoon sergeant to quickly check accountability of equipment. It also ensures standard locations of equipment in each vehicle. This can be an important advantage if the platoon leader is forced to switch to a different vehicle during an operation.

PRECOMBAT INSPECTIONS

2-155. Precombat inspections allow the platoon leader to check the platoon's operational readiness. The key goal of a precombat 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 precombat inspections in the platoon OPORD, reinforcing their importance and ensuring they occur as part of pre-mission preparation.

2-156. It is essential that the entire platoon chain of command know how to conduct precombat checks and precombat 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 based upon the threat level.
- Determine ammunition types 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.

SECTION IV – TRAINING IN THE PLATOON

2-157. At the company and platoon levels, training models are developed and used as a simple and effective planning and execution tool for small-unit and individual training events. Training models are a general framework of the major activities and steps to plan training; they do not provide enough detail to develop the unit training plan or to develop and coordinate training events. The unit can modify training models based on collective experience.

8-STEP TRAINING MODEL

2-158. One common model to plan training events at company-level and below is the 8-step training model (see figure 2-8 on page 2-38). The 8-step training model is a flexible framework to plan and manage simple training events.

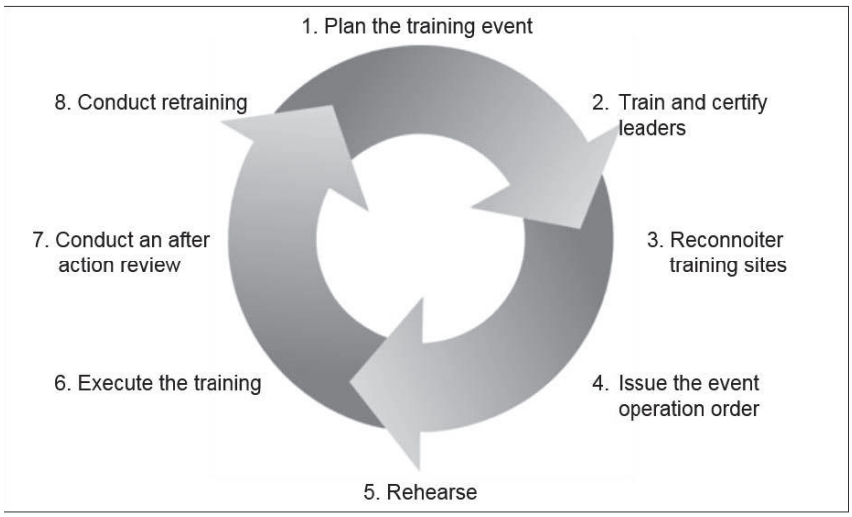


Figure 2-8. The 8-step training model

STEP 1 – PLAN THE TRAINING EVENT

2-159. 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 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

2-160. 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

2-161. Leaders conduct a reconnaissance of proposed training areas and facilities. The leaders' reconnaissance verifies the location can support the proposed training and allow the unit to achieve its training objectives.

2-162. During step 3, leaders verify all necessary resources, training areas, and training support plans are properly coordinated, scheduled, and prepared 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

2-163. 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

2-164. 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

2-165. 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.

2-166. 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

2-167. During and after training, company and platoon leaders—

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

2-168. Commanders record these assessments in the Digital Training Management System for use in future training events or inclusion in the unit SOP.

STEP 8 – CONDUCT RETRAINING

2-169. Units should not end a training event until all scheduled tasks are trained to standard and all training objectives are met. Leaders and trainers should retrain tasks until the training audience achieves the standard before concluding the event.

2-170. 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.

***Note*:** Refer to FM 7-0 for more information about unit collective training and the 8-step training model.

Chapter 3
Support to Operations

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

SECTION I – OFFENSE

3-1. Large-scale offensive operations are inherently mobile. Maneuver elements will perform tactical enabling tasks away from the command posts using highly mobile means of communications. The brigade combat team command posts maintain upper tier tactical internet connectivity for communications to division, but communication with subordinate echelons relies heavily on vehicle-mounted, man-pack, and handheld communications devices (FM 6-02).

COMMAND POST OPERATIONS

3-2. Signal support allows command post personnel to access the full range of Defense Information Systems Network services and capabilities. Command post communications support is critical to transmit plans, develop and disseminate the common operational picture, and to direct action to break the will of or destroy the enemy.

3-3. To protect against a peer threat's ability to locate and target radio signals, signal leaders must collaborate with the cyber electronic warfare officer to plan support in a way that limits the electromagnetic signature of the command posts. Measures to reduce the electromagnetic signature of command posts and communications sites include—

- Careful site selection for communications equipment.
- Employment of directional antennas.
- Operation using the lowest power required.
- Limitation of radio transmissions.
- Use of burst transmission to minimize transmission time.
- Use of a random battle rhythm schedule.
- Use of terrain masking.
- Use of camouflage net masking.

CORPS

3-4. The corps signal, intelligence, and sustainment company has enough organic communications assets to support the corps main and tactical command posts at-the-

halt. The corps headquarters requires augmentation to provide tactical internet support for assigned or attached support units in the corps rear area.

3-5. Support units protecting supply routes may require communications augmentation for assigned or attached battalions operating in the corps close and deep areas. If a corps headquarters forward-deploys a tactical command post into the close area, the signal platoon may require augmentation for security and defense.

3-6. Signal elements enable command and control as commanders maneuver their forces to positions of relative advantage before contact. Redundant systems, PACE plans, and diversity in the network architecture allow for communications throughout the corps area of operations.

3-7. Although commanders need reliable communications, effective command and control does not necessarily rely on continuous access to the DODIN-A. Subordinate leaders exercising disciplined initiative according to the commander's intent is the basis for all operations. PACE plans, organic unit liaison teams, and digital liaison detachments provide commanders options to enhance coordination and interoperability. Units must train and rehearse procedures to operate by redundant means and exercise disciplined initiative within the commander's intent when disconnected from the network. Execution of the PACE plan must be part of mission rehearsals to ensure Soldiers understand and can execute the plan and that the alternate, contingency, and emergency communications means are viable.

Main Command Post

3-8. The main command post controls current operations, performs detailed analysis, and plans future operations. The main command post includes the command group and most of the coordinating, special, and personal staff. Movement of the various corps command posts is a function of transportation means and capacity. The main command post requires considerable external transportation support to move. Once displaced, the main command post requires time to set up facilities, establish network communications, and correct connectivity problems (FM 3-94).

Tactical Command Post

3-9. The primary role of the tactical command post is as the alternate command post of the corps. The tactical command post provides a place from which the commander can exercise command and control while the main command post deploys or displaces.

3-10.In a relatively static area of operations, the tactical command post may co-locate with the main command post in the corps rear area. In a high-threat situation, the tactical command post may offset from the main command post to enhance survivability and provide redundancy in the event of an attack on the main command post. In large-scale combat operations, the tactical command post may need to dislocate frequently to maintain survivability. The tactical command post support platoon must plan and rehearse for rapid command post displacement and reestablishment.

Early Entry Command Post

3-11.Occasionally, the corps commander needs to establish a command post at a remote location ahead of the other corps headquarters elements. In this circumstance, the corps creates and deploys an early entry command post. The early entry command post draws equipment and personnel from the tactical command post, main command post, and other corps communications and security elements.

Mobile Command Group

3-12.The mission variables (METT-TC) may dictate the use of a mobile command group. The mobile command group supports the information and operational needs of the commander while away from the command post. The mobile command group allows the corps commander to maintain situational awareness, receive reports, and issue orders. This allows the commander to circulate and monitor the area of operations, to remain mobile, to increase survivability, and to reduce the electromagnetic signature of a large command post activity as the battle unfolds.

3-13.The corps commander determines the disposition of personnel and equipment for the mobile command group capability, usually consisting of operations, intelligence, and fires elements with the necessary signal assets to provide connectivity. The mobile command group draws these signal assets from existing authorizations for the main and tactical command posts.

DIVISION

3-14.The division's organic communications assets include enough communications assets to support the division main and tactical command posts. The division requires augmentation of communications assets to provide signal support for assigned or attached functional units providing protection, sustainment, and intelligence support within the division rear area.

3-15.The division signal, intelligence, and sustainment company has three signal platoons—the main command post support platoon, the tactical command post support platoon, and the hub platoon. The tactical command post support platoon supports the division headquarters G-6. The platoon leader must understand the support required according to the G-6 scheme of signal support.

3-16.During planning and mission rehearsals, the signal, intelligence, and sustainment company collaborates with the division G-6 to ensure G-6 planners understand what communications capabilities will be available by phase of the operation or critical points of the battle. Command post personnel and their signal support elements must plan and rehearse rapid displacement to enhance command post survivability and support the rapid advance of maneuver forces.

3-17.The responsibilities of the G-6 and signal company elements can overlap. The G-6 may task Soldiers from the signal platoon to assist with laying of cable and fiber; the G-6 network technician may be called upon for their knowledge of communications nodes to assist the signal platoon.

3-18. Signal platoons provide network access for their associated command post. The signal platoon generally handles setup and tear-down of communications equipment outside of the command post tents. G-6 personnel perform local area network setup inside the tents.

Main Command Post

3-19. The division main command post integrates all of the warfighting functions and special staff functions across the three planning horizons—

- Current operations—out to 48 hours.
- Future operations—out to 96 hours.
- Plans—beyond 96 hours.

3-20. The main command post typically operates from a deployed location in tactical sanctuary within the division or corps area of operations, but beyond the range of enemy cannon artillery.

3-21. When the commander decides to deploy one or both of the tactical command posts to control current operations in the close area, the main command post supports the operational tactical command post by performing deliberate targeting and planning, executing shaping operations in the deep and deep maneuver areas, and coordinating with the next higher echelon of command (corps, field army, or joint task force) for joint and Army capabilities to support the division across all three planning horizons.

3-22. The main command post support platoon installs, operates, maintains, and secures tactical internet and network transport capabilities to support command post operations, and tactical radio retransmission to communicate with subordinate and adjacent units during the offense.

Tactical Command Post

3-23. The division tactical command post support platoon supports two tactical command posts. The ability to employ multiple tactical command posts gives the division commander flexibility and redundancy tailorable to the situation. Options for flexible employment include—

- Two separate tactical command posts operating independently, with one displacing or silent while the other actively executes command and control functions.
- Two tactical command posts consolidated for more robust capabilities when the threat situation allows.
- One or both of the tactical command posts consolidated with the main command post when there is no or minimal threat.

3-24. Upon tactical command post establishment, the signal platoon leader establishes the layout of all signal assemblages and ensures the plan coincides with the overall layout of the division command post. The platoon leader seeks clarifying guidance from the G-6 to resolve questions about the equipment layout and setup.

The signal platoon provides connections to the division wide-area network while the G-6 staff installs the local area network within the command post.

Hub Platoon

3-25.The hub platoon provides reachback connection between the deployed division network and the DODIN for access to Defense Information Systems Network services when regional hub node services are not available. Due to the size and characteristics of its communications systems, the hub platoon emits a large electromagnetic footprint. To prevent destruction of the main command post if an enemy geolocates and targets the hub platoon, the division hub should set up remotely from the command post when supporting operations in a contested environment. The hub platoon should locate outside the range of enemy artillery to prevent loss of network capabilities during offensive operations.

BRIGADE COMBAT TEAM

3-26.Brigade combat teams provide combat power in the close area. Elements of the brigade combat team will be in close contact with enemy forces during offensive operations. The main and tactical command posts maintain Defense Information Network Services for planning and reachback, but maneuver elements rely heavily on tactical radio and retransmission capabilities on the offense.

Main Command Post

3-27.The main command post ideally locates outside the close area during offensive operations to support planning, sustainment, and tactical air control in the close area. The main command post support platoon leader should collaborate with the cyber electronic warfare officer to minimize the electromagnetic footprint of the command post communications systems. The main command post should be prepared to dislocate frequently during the offense to prevent an enemy locating and targeting the command post capability with lethal fires.

Tactical Command Post

3-28.The brigade combat team tactical command post deploys in the close area for improved situational awareness when controlling the close battle. Because the tactical command post operates within the range of enemy artillery, it must dislocate frequently during offensive operations. The tactical command post support platoon leader coordinates command post dislocation and battle handover with the main command post support platoon leader, S-3, and S-6.

SINGLE-CHANNEL RADIOS AND RETRANSMISSION

3-29.Single-channel radio retransmission is a critical command and control enabler during offensive operations. Because U.S. ground forces move rapidly in offensive operations and the battlefield situation is fluid, retransmission teams must track the progress of the maneuver operation and anticipate emerging communications

requirements. This awareness helps retransmission teams maintain fully operational networks to support the commander's mission requirements.

3-30.Signal platoon leaders are responsible for testing retransmission locations. A physical reconnaissance of the proposed retransmission site when possible, followed by full rehearsal, helps ensure the retransmission network can provide coverage across the area of operations. If multiple rehearsals are required, the platoon leader should ensure adequate time to execute rehearsals. See chapter 2 for more information about rehearsals. Refer to FM 6-02 for more information about signal site reconnaissance. The G-6 generally has the most senior retransmission operators in the division. Platoon leaders should be rely on their expertise when available.

CORPS

3-31.The corps retransmission networks connect the corps command posts with the field army, adjacent corps, and subordinate divisions and brigade combat teams during the offense. Subordinates use retransmission to corps to request support capabilities not available at lower echelons, including air support, medical evacuation, and requests for long-range fires in the deep area.

DIVISION

3-32. The main command post support platoon deploys and sets up retransmission networks in support of the division's mission. The division signal, intelligence, and sustainment company coordinates with the division G-6 spectrum manager for frequencies before an operation. The signal platoon plans and establishes the retransmission sites. The retransmission vehicle generally co-locates with the division tactical command post.

BRIGADE COMBAT TEAM

3-33.Maneuver elements of the brigade combat team have no access to command post communications capabilities during the offense. They rely heavily on tactical radios and retransmission networks to control offensive operations in the close area, report combat information to their headquarters, and request support.

SECTION II – DEFENSE

3-34.The key to a successful defense is the orchestration and synchronization of combat power across all available domains and the information environment to converge effects (FM 3-0).

3-35.Signal support is critical to defensive operations. An accurate common operational picture helps commanders develop and share situational understanding to enable effective command and control. If forward observers cannot communicate with supporting fires elements, an enemy could penetrate the Army force's defenses.

3-36.In large-scale combat operations an attacking enemy will attempt to press temporary advantages to disrupt friendly command and control. An enemy attack

may be preceded or accompanied by a barrage of cyberspace or electromagnetic attacks to deny friendly forces' communications. Signal forces must be trained and ready to counter such attacks to preserve critical command and control communications. (See chapter 3, section IV.)

3-37.Signal platoon leaders must ensure planned retransmission sites will continue to support the unit in case of displacement to alternate and supplementary fighting positions. Signal platoon leaders must understand and rehearse the PACE plan and the maneuver plan and act within the commander's intent.

COMMAND POST OPERATIONS

3-38.Command and control nodes in the rear area will have full Defense Information Systems Network services, but must be prepared to displace to mitigate the risk of being located and attacked. Command posts in the close area will likely rely mainly on mobile communications capabilities, such as single-channel radios, radio retransmission, and wideband communications on-the-move.

3-39.The main and tactical command post support platoons should rehearse plans for battle handover and dislocation of command posts to mitigate the risk of the enemy locating and targeting friendly command and control nodes.

SINGLE-CHANNEL RADIOS AND RETRANSMISSION

3-40.Corps and division commanders must be able to communicate with adjacent units, subordinates, supporting joint forces, and host-nation and multinational forces. Maneuver forces outside the command posts will rely heavily on single-channel radios and retransmission during defensive operations.

AREA DEFENSE

3-41.During the area defense, Army forces have the full array of their organic and augmenting communications systems to support the mission. Single-channel radio systems support mobile forces with retransmission sites positioned behind the main battle area, but capable of supporting primary and alternate defensive positions.

3-42.Narrowband (single-channel) satellite or HF radios can augment retransmission where terrain or distance degrades or disrupts single-channel very high frequency (VHF) communications. Units should rehearse the single-channel communications plan for the area defense and mitigate any challenges before an enemy attack takes place.

MOBILE DEFENSE

3-43.In the mobile defense, the success of the strike force attacking at the decisive point and time relies on the timely and accurate flow of information. Signal soldiers must be operationally-focused and able to rapidly adapt to the constantly changing situation on the battlefield (FM 6-02).

3-44.Signal support to an Army force conducting a mobile defense is similar to that for an area defense. Retransmission sites supporting the mobile defense should co-locate with other Army elements if possible. If the retransmission site operates remotely, it may not receive immediate updates that it would otherwise.

EMERGENCY DESTRUCTION

3-45.If friendly communications nodes face imminent risk of being overrun, operators must evacuate COMSEC material and encryption devices or destroy them in place. 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. 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 destruction.

SECTION III – COMMAND POST DISPLACEMENT

THE NEED FOR FREQUENT DISPLACEMENT

3-46.Maintaining continuity during displacement of a command post or catastrophic loss requires designating alternate command posts and passing control between command posts (FM 3-0). Despite any electromagnetic protection efforts to reduce and mask the electromagnetic signature of a command post, a peer threat is likely to locate it eventually. Frequent command post displacement reduces the chances of destruction. Frequent moves are especially important when operating within the range of enemy artillery.

COMMAND POST DISPLACEMENT STANDARD OPERATING PROCEDURE CONSIDERATIONS

3-47.Timely and efficient command post displacement is a function of training, SOPs, and rehearsals. A unit's SOP should cover all aspects of displacement from triggers for displacement to vehicle load plans. The G-3 or S-3 SOP establishes movement triggers and responsibilities for displacement of command posts. To enhance command post survivability, the main command post and tactical command post support platoons must be prepared to displace command post communications systems quickly. The signal platoon SOP for command post displacement should include—

- Mission variable (METT-TC) factors. This helps to assess the threat situation and determine probability of air or ground attack.
- A timeline for the site teardown and reestablishment of command post communications systems.
- The tasks required to transfer primary communications functions to the alternate command post during displacement.

COORDINATION AND HANDOVER BETWEEN COMMAND POSTS

3-48.During command post displacement it is critical for one command post to be designated to control the operation. The G-3 or S-3 designates the controlling command post and directs displacement. The main command post and tactical command post support platoon leaders coordinate with the G-6 or S-6 and between the platoons before and after displacement and during handover.

SECTION IV – OPERATION IN A CONTESTED ENVIRONMENT

3-49.Peer threats consider friendly command and control networks to be high priority targets. For this reason, threat militaries have developed extensive capabilities to challenge friendly use of cyberspace and the electromagnetic spectrum. The significant electromagnetic signature of major command posts makes them vulnerable to enemy direction finding and geolocation.

3-50.Using techniques such as terrain masking and remote antennas moves the electromagnetic signature away from command post activities. Signal leaders and equipment operators must learn to recognize and respond to threat effects in cyberspace and the electromagnetic spectrum.

3-51.The electromagnetic signature of current command posts cannot be reduced without the application of training; tactics, techniques, and procedures; and emerging technologies. Deployment of signal assets across a wide area can spread the electromagnetic signature, rather than concentrating it at major command posts. Collaborating with electromagnetic warfare elements to employ decoy and deception techniques helps mask the nodes that have significant impact on information and decision-making processes.

ENEMY ELECTROMAGNETIC ATTACKS

3-52.There are operational tactics, techniques, and procedures signal planners and operators can implement to mitigate threat capabilities in the electromagnetic spectrum. If an enemy cannot detect friendly signals, they cannot geolocate or jam those signals.

3-53.Electromagnetic protection techniques can help mask the electromagnetic signature of command posts and communications sites. The cyber electronic warfare officer assists the G-6 or S-6 in planning electromagnetic protection measures to reduce the command post signature. Platoon leaders implement these measures during site reconnaissance and site setup.

TERRAIN MASKING

3-54.Terrain masking can effectively block radio signals from reaching enemy direction finding capabilities. Signal site reconnaissance and selection should take advantage of existing terrain features or manmade structures between the

communications system and the forward line of own troops. Terrain masking effectively blocks an enemy from detecting friendly radio signals.

CAMOUFLAGE NET MASKING

3-55.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.

LINE OF SIGHT

3-56.High-throughput line of sight radios can carry high bandwidth data over distances up to 25 miles (40 kilometers), but the links need to 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

3-57.Large command posts and their high-throughput communications 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.

3-58.Commanders and signal planners should consider locating major communications assemblages as far from the supported command post as practical. Placing terrain features, man-made structures, or distance between communications systems and command posts provides the command post some protection from lethal fires. Commanders and planners must consider the additional physical security and site defense requirements for a remote site during planning.

RECOGNIZING AND RESPONDING TO ENEMY ELECTROMAGNETIC ATTACKS

3-59.Many electromagnetic attacks exhibit clear indicators. Signal 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.

Single-Channel Radio and Retransmission Jamming

3-60.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.

3-61.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.

3-62.Electromagnetic jamming most commonly affects single-channel radio systems. These radios include HF, VHF, and ultrahigh frequency (UHF) 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.

3-63.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 3-12 lists some common types of jamming signals and their characteristics.

Table 3-1. Common jamming signals

Signal	*Description*
Random Noise	Synthetic radio noise. Random noise 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. This jamming method 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

3-64. 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 electronic 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

3-65.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

3-66.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 they are 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 signal 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. Terrain masking may require moving the

antenna and associated radio set anywhere from a few meters to several hundred meters, depending on the terrain and structures available.

- **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 so practical dummy stations can 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 the alternate or contingency means of communications reduces communications disruption.
- **Using signals intelligence or electromagnetic support capabilities to locate the jamming signal.** Leveraging signals intelligence or electromagnetic support capabilities requires coordination and collaboration with the G-2 or S-2 or the cyber electronic warfare officer.

3-67.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

3-68.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.

3-69.Electromagnetic jamming of positioning, navigation, and timing satellite capabilities affects not only communications, but also many other capabilities in tactical formations. Systems affected include—

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

Preventive Measures

3-70.Measures to reduce susceptibility to, and mitigate the effects of, enemy jamming of positioning, navigation, and timing include—

- Encrypted positioning, navigation, and timing systems.
- Antenna masking.
- Terrain masking.
- Navigation using a map and compass.

Indicators

3-71.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

3-72.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 action 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.
- **Use signals intelligence or electromagnetic support capabilities to locate the jamming signal.** Leveraging signals intelligence or electromagnetic support capabilities requires coordination and collaboration with the G-2 or S-2 or the cyber electronic 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.

Satellite Communications Jamming

3-73.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.
- Upper tier tactical internet.

- Tactical satellite radios.
- Intelligence reporting systems.

Preventive Measures

3-74. Operational and employment measures to prevent satellite communications jamming include—

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

Indicators

3-75. 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 communications terminal.

Reaction

3-76. 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 signals intelligence or electromagnetic support capabilities to locate the jamming signal.** Leveraging signals intelligence or electromagnetic support capabilities requires coordination and collaboration with the G-2 or S-2 or the cyber electronic warfare officer.
- **Report jamming to higher headquarters.** The higher headquarters' frequency manager and cyber electronic 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.

3-77.Satellite network controllers at the wideband satellite communications operations center coordinate all interference resolution and reporting on DOD wideband satellite networks. Refer to ATP 6-02.54 for more information about wideband satellite communications. Refer to ATP 3-12.3 for more information about electromagnetic protection techniques.

ENEMY CYBERSPACE ATTACKS

3-78.U.S. networks face continuous risk of cyberspace attacks. Cyberspace risk increases substantially when operating against a peer threat in a contested environment. DODIN operations personnel implementing cybersecurity measures can prevent many attacks. If an enemy cyberspace attack breaches cybersecurity measures, it may require defensive cyberspace operations support to mitigate. Refer to FM 3-12 for more information about defensive cyberspace operations support.

DENIAL OF SERVICE

3-79.A denial-of-service attack seeks to make a computer or network resource unavailable to its intended users by disrupting services of a host connected to the Internet. An attacker floods the target computer or network resource with more requests than it can handle to overload the system and prevent it from fulfilling legitimate requests.

3-80.Denial of service attacks can affect any internet protocol network system, including—

- Mission command information systems.
- Logistics systems.
- Administrative systems.
- End user devices.

Preventive Measures

3-81.Good cybersecurity practices can prevent or lessen the effects of a denial of service attack. Cybersecurity personnel should—

- Maintain current anti-virus software and virus definition files.
- Maintain properly configured network firewalls.

Indicators

3-82.Operator indications of a denial of service attack may include—

- Unusually slow network performance when opening files or accessing websites.
- Request timeouts.
- Widespread unavailability of a website or network system.

Reaction

3-83. When faced with the symptoms of a denial of service attack, DODIN operations personnel should—

- Report to the next higher echelon G-6, S-6, or joint force J-6 to determine whether the system slowdown is due to known activity on the network.
- Report suspected attacks to the G-2 or S-2 and G-3 or S-3.
- Continue operations using alternate or contingency communications means.

MALWARE

3-84. Malware is malicious software designed to damage a computer, server, or computer network. Malware attacks can affect any automated information system, including—

- Mission command information systems.
- Logistics systems.
- Administrative systems.
- End user devices.

Preventive Measures

3-85. Cybersecurity personnel attempt to prevent malware attacks by—

- Using and maintaining updated anti-virus software and virus definition files.
- Implementing strict identity and access management controls (common access card or hardware security token login).
- Keeping system software updated and patched.
- Ensuring compliance with the most recent security technical implementation guides.
- Maintaining properly configured network firewalls.

Indicators

3-86. Possible indicators of a malware attack include—

- Destruction or unexplained changes to files.
- Spontaneous restart of computers.
- Erratic, delayed, or unexpected computer or network activity.
- Anti-virus software warnings.

Reaction

3-87. If operators or DODIN operations personnel observe indications of a possible malware attack, they should—

- Report to the next higher echelon G-6, S-6, or joint force J-6.
- Continue operations using alternate or contingency communications means.
- Report attack indicators to the G-2 or S-2 and G-3 or S-3.

3-88.DODIN operations personnel should not reconfigure computers or network systems in response to an attack unless directed by their next higher echelon.

DATA EXFILTRATION AND COLLECTION

3-89.Data exfiltration may be either electronic—removing files through the network, or physical—removing paper or electronic copies from sensitive areas. Either method may disclose sensitive operational information and plans. This compromise may place operations at risk.

3-90.All automated information systems are potential targets of data exfiltration and collection. Affected systems include—

- Mission command information systems.
- Logistics systems.
- Administrative systems.
- End user devices.

Preventive Measures

3-91.Cybersecurity measures and physical security combine to prevent data exfiltration and collection by—

- Implementing strict identity and access management controls for network systems.
- Enforcing strict physical security controls.
- Implementing access control restrictions.
- Employing data loss prevention software.
- Encrypting data-at-rest.

Indicators

3-92.Indicators of enemy data exfiltration and collection efforts include—

- Attempted or successful unauthorized physical access to sensitive areas.
- Unusually high volume of outgoing network traffic.

Reaction

3-93.The effects of data exfiltration can be catastrophic. If an enemy can steal enough documents, they can develop a complete assessment of U.S. capabilities, troop strength, logistics, and even operation plans. If any member of the unit suspects an enemy data exfiltration attempt, they should—

- Report to the G-2 or S-2 and G-3 or S-3.
- Report to the next higher echelon.
- Consider changing the maneuver course of action if operation or support plans become compromised.

SOCIAL ENGINEERING

3-94. Social engineering uses techniques that rely on weaknesses in human nature rather than hardware or software. The goal is to deceive people into revealing passwords and other information that compromise the security of automated information systems and networks. Adversaries may also use social engineering techniques to identify and develop potential targets for phishing and spear phishing.

3-95. The target of a social engineering attack is an individual. A successful social engineering attack may compromise any system to which the affected individual has access.

Preventive Measures

3-96. All individuals should maintain operations security and cybersecurity awareness to avoid falling victim to a social engineering attack. They should—

- Confirm the identity of persons asking for personal information or access credentials.
- Pay close attention to website addresses.

3-97. As a rule, individuals should avoid disclosing any information to unknown or unverified persons. Disclosing even seemingly innocuous information could make subsequent social engineering or spear phishing attempts against other targeted individuals seem much more legitimate.

Indicators

3-98. Indicators of social engineering attempts include—

- Unexpected phone calls from unknown callers requesting sensitive information.
- Websites that do not look normal, have several broken links, or mismatching Internet address.
- Unauthorized personnel shoulder surfing.

Reaction

3-99. If personnel suspect a social engineering attempt, they should—

- Confirm the requestor's identity before disclosing information.
- Report the attempt to supervisors, network managers, and the G-2 or S-2.
- Report social engineering attempts to the next higher echelon.

3-100. Promptly reporting social engineering attempts can raise awareness and prevent others from falling victim to the same techniques.

PHISHING AND SPEAR PHISHING

3-101. Phishing is a fraudulent attempt to obtain sensitive information such as usernames, passwords, and credit card details, often for malicious reasons, by posing

as a trustworthy entity in electronic communications. Spear phishing is a targeted phishing attempt, usually against key individuals or personnel with elevated or special access. Spear phishing attacks against very senior leaders are known as whaling.

3-102. Any individual may fall victim to a phishing attack. Key leaders and network administrators are also subject to spear phishing.

Preventive Measures

3-103. All personnel should protect themselves from phishing attacks by following best practices outlined in annual cybersecurity refresher training. Depending on the information operations condition level, the command may—

- Maintain awareness of the personal use of commercial e-mail.
- Restrict the use of personal e-mail, as required.
- Block access to commercial e-mail providers.

Indicators

3-104. Most common phishing techniques share certain traits, including—

- E-mails with generic greetings. Note that spear phishing attempts are generally more sophisticated and address targeted individuals by name.
- E-mails requesting personal information or login credentials.
- E-mails requesting or demanding an urgent response.
- E-mails with spoofed links—where the text displayed does not match the Internet address shown when hovering over the link.

Reaction

3-105. If an individual suspects a phishing or spear phishing attempt, they should—

- Report the attempt to the chain of command, automation support section, and the G-2 or S-2.
- Confirm the identity of the sender before taking any action.

3-106. Individuals can further protect themselves from fraudulent links by never accessing their personal accounts through links in e-mails. For instance, if an e-mail purports to be from the individual's bank or credit card issuer, users should access their account only through the legitimate secure website, not through a hyperlink provided in an e-mail.

3-107. Commanders should not threaten punishment against personnel who inadvertently fall victim to phishing attempts. Fear of punishment could prevent individuals from reporting attacks.

SOCIAL MEDIA ATTACKS

3-108. Adversaries may conduct social media attacks in support of their information collection and information operations goals. All individuals using any form of social media are potential targets.

Preventive Measures

3-109. Individuals should strictly limit personal information posted to their social media accounts. The compromise of this information could be damaging in itself or could strengthen an adversary's subsequent social engineering or spear phishing attacks.

- Individuals should restrict who can view their social media profile and activities using the privacy settings on the social media platform.
- Individuals and public affairs personnel must carefully weigh operations security considerations when they engage on social media platforms.
- Individuals and group administrators should not accept friend or group membership requests from unknown or unverifiable persons.
- Commanders should consider limiting or restricting access to social media platforms as mission or operations security concerns dictate.

Indicators

3-110. Indicators of potential social media attacks include—

- Friend requests from unknown persons or duplicate friend requests that mimic a known person.
- Unknown persons commenting on social media posts.

Reaction

3-111. If a social media attack is known or suspected, personnel should—

- Report the suspected compromise to the G-2 or S-2.
- Immediately change any passwords that might have become compromised.
- Watch for indicators of identity theft.

ATTACKS AGAINST PERSONAL ELECTRONIC DEVICES

3-112. Widespread use of personal electronic devices creates significant vulnerabilities when operating against a peer threat. Peer threats have demonstrated advanced capabilities to exploit personal electronic devices, seize control of cellular communications networks, and locate personal cell phones with precision. This gives them the ability to collect information, conduct information warfare activities, and direct accurate lethal fires. Any personal electronic device that can connect to Wi-Fi, Bluetooth, or cellular communications systems is vulnerable to attack.

Preventive Measures

3-113. Measures to protect against personal electronic device attacks include—

- Maintaining strict control and accountability of personal electronic devices.
- Downloading only trusted apps from approved sources.
- Maintaining current security updates on devices and apps.
- Disabling Bluetooth and Wi-Fi features when they are not in use.
- Encrypting sensitive files and personal information.
- Allowing only government-provided personal electronic devices to connect to the DOD network.

3-114. Commanders should consider restricting or banning the use of personal electronic devices, based on the tactical situation. Platoon leaders should be prepared to enforce restrictions placed by the commander.

Indicators

3-115. Some possible indicators of attacks against personal electronic devices are—

- Enemy attacks that seem to correlate with the use of personal electronic devices.
- Incoming lethal attacks that occur with unexplained precision.
- Receiving a barrage of text messages—up to several per second—that prevent the intended use of the device.
- Incoming propaganda or psychological warfare messages from unknown numbers.

Reaction

3-116. If a unit suspects it has come under attack, they should—

- Quickly displace the element under attack and direct all personnel to immediately turn off personal electronic devices.
- Disable personal electronic devices and confiscate them, if necessary.
- Report to the next higher echelon.

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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

PLATOON LEADER

4-1. 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.

PLATOON SERGEANT

4-2. The platoon sergeant coordinates the platoon's maintenance and logistical requirements, compiles maintenance reports, and provides reports to the platoon leader and executive officer.

SECTION SERGEANT

4-3. Section sergeants maintain direct responsibility of section equipment and are responsible for requesting additional spares when on-hand spares are consumed. The section sergeant ensures operator-level preventive maintenance is completed to technical manual standards according to the maintenance schedule.

SIGNAL TEAMS AND OPERATORS

4-4. Signal 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 major signal assemblage and combat net radio subcomponents from available on-hand spares.

SECTION II – FUNCTIONS OF SUSTAINMENT

CLASSES OF SUPPLY

4-5. 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 signal platoons because they are the most critical to successful operations. The classes of supply are—

- **Class I**—supplies required for subsistence, including water.
- **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.
- **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.
- **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. Examples of major end items in signal platoons include—
  - Satellite Transportable Terminals.
  - Tactical Communications Nodes.
  - Joint Network Node Shelters.
  - Line of sight radios.
  - Vehicles.
- **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 and subassemblies required to perform maintenance on equipment such as—
  - Major signal 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.

PROPERTY ITEMS

4-6. Property accountability is one of many challenges platoon leaders face. Signal platoon leaders are responsible for equipment valued from thousands to millions of dollars.

HAND RECEIPT TRANSFER

4-7. In preparation for a change of hand receipt holder, the outgoing platoon leader must verify the property inventory. The outgoing platoon leader updates the DA Form 2062 *(Hand Receipt/Annex Number)* to reflect any changes since the last inventory. Finally, the outgoing platoon leader should account for all loaned equipment.

4-8. 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

4-9. 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.

4-10.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

4-11.Expendable property requires no formal accounting after issue to the user, this means a DA Form 2062 is not required for this type of equipment. 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

4-12. Durable property requires no formal accounting, but is controlled at the user level using a DA Form 2062. Durable property includes such items as—

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

NON-EXPENDABLE PROPERTY

4-13. Non-expendable property requires formal property book accounting at the user level. Accountability for these items is recorded on the company property book. Non-expendable property includes items such as—

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

DEVELOPMENT OF THE PLATOON SUSTAINMENT PLAN

4-14. 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.

4-15. 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, and IX during the mission.
- **Pre-stocked supplies.** Whether operations require pre-stocked supplies to support combat net radio assets located away from the main body.
- **Threat.** Composition, disposition, and capabilities of enemy 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 class III resupply.
- **Resupply techniques.** The primary resupply technique the platoon should use, based on information developed during the sustainment planning process.

4-16.On-board spares are repair parts carried on hand for major signal assemblages and combat net radios, as authorized by the technical manual or the commander. The operator and team manage on-board spares. 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.

RESUPPLY METHODS

4-17.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.

4-18.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 the mission variables.

ROUTINE RESUPPLY

4-19.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.

4-20.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.

4-21.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.

4-22.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

4-23.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. Signal sections can remain in established positions to allow vehicles carrying class I, class III, and class V supplies to reach them.

4-24.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 radio and major signal 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 4-1 on page 4-7 shows an example of a tailgate resupply operation.

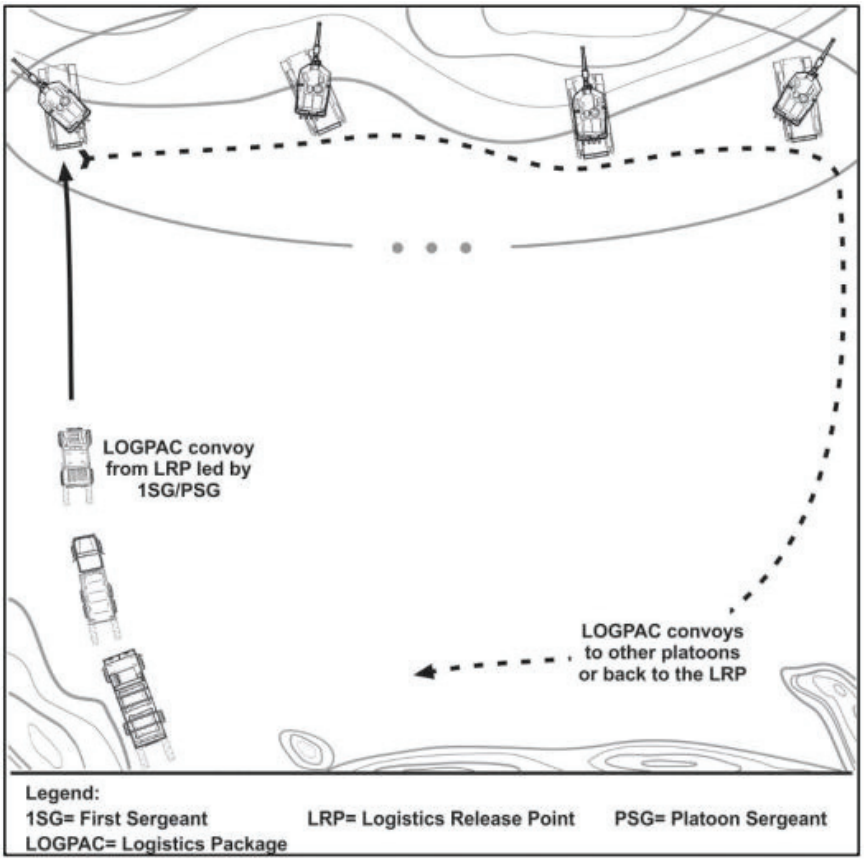


Figure 4-1. Tailgate resupply

Service Station Resupply

4-25.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 has been replenished.

4-26.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.

4-27.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 signal 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 4-2 is an example of a service station resupply operation.

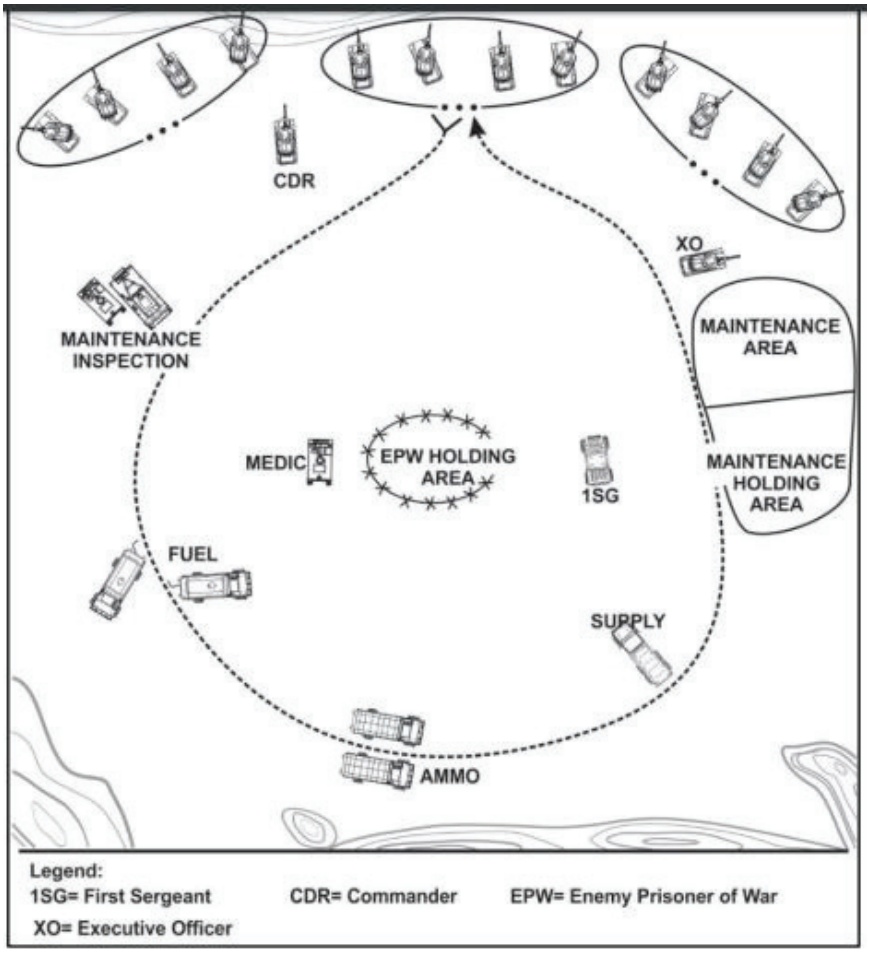


Figure 4-2. Service station resupply

EMERGENCY RESUPPLY

4-28.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. Retransmission teams not co-located with a larger organic element will likely need emergency resupply at some point.

4-29.Once requested through the commander or executive officer, an emergency resupply can be conducted using either the service station or tailgate technique. The unit usually uses the quickest appropriate means between the two techniques:

- **Tailgate technique.** Limited supplies are brought forward to the closest concealed position. Individual vehicles or sections disengage and move to a resupply point, obtain their supplies, and return to their assemblage or to continue or reestablish service. This is a version of the service station technique.
- **Service station technique.** Individual vehicles or sections disengage and move to a resupply point, obtain their supplies, and return to their assemblage to continue or re-establish service.

PRE-POSITIONED RESUPPLY OR CACHE

4-30.As with all operations, leaders consider the mission variables (METT-TC) and sometimes need pre-positioned or cached supplies. Retransmission 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.

4-31.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 a signal platoon are supply classes I, III, and V. Units should not cache sensitive items or on-hand spares.

MAINTENANCE

4-32.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.

4-33.Effective maintenance plans require leaders to—

- Identify requirements—the minimum number of available signal systems required for mission success with redundancy.
- Identify available maintenance resources—maintenance and repair parts capability on hand to meet the mission.
- Manage 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.

4-34. 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-6's mission equipment set priorities.

4-35. 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.

4-36. 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.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-37. Platoon leaders provide leadership to their sections and teams and support the achievement of Army maintenance standards 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 section leaders, team leaders, and operators.
- Training operators and teams to operate equipment and follow proper maintenance procedures.
- Enforcing safety during preventive maintenance.

4-38. 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 (*Equipment Maintenance and Inspection Worksheet*) (available through Global Combat Support System-Army).
- 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 leader, 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

4-39. 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.
- No parts ordered—
  - Fault entered into computer but no parts placed on order.
  - Ensure mechanics look up parts and verify 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—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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Chapter 5

Core Competencies and Essential Capability of the Signal Corps

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 the Signal Corps are those functions signal formations must master for mission success.

SECTION I – NETWORK TRANSPORT AND INFORMATION SERVICES

5-1. Network transport and information services encompass the combined physical assets and activities to ensure data reliably traverses the network. Network transport and information services ensure access to critical communications capabilities across the range of military operations.

NETWORK TRANSPORT

5-2. *Network transport* is the processes, equipment, and transmission media that provide connectivity and move data between networking devices and facilities (FM 6-02). Information services enable planning, controlling, and manipulating information throughout its life cycle. Globally prepositioned network transport capabilities extend access to Defense Information Systems Network services worldwide to support Army operations. Key network transport capabilities are—

- Satellite communications.
- Line of sight systems.
- Tactical radios and radio retransmission.
- Copper wire and cable.
- Fiber optics.

SATELLITE COMMUNICATIONS

5-3. Satellite transport includes all DOD data and voice satellite communications. Satellite communications is a key method of beyond line of sight network transport. Satellite communications capabilities extend network connectivity worldwide to users without copper or fiber optic cable connections. Army satellite communications systems operate over military and commercial communications satellites.

5-4. Satellite communications transport allows signal forces to quickly establish connectivity within or between theaters. Using satellite communications transport allows Army forces to extend access to the DODIN-A into remote or austere operational environments where there is no existing network infrastructure. Refer to ATP 6-02.54 for more information about satellite communications.

LINE OF SIGHT RADIOS

5-5. Line of sight transport can handle much higher data rates than satellite communications systems, but are range limited by the curvature of the Earth, terrain, and other natural or man-made obstructions. The maximum range of a line of sight radio is approximately 25 miles (40 kilometers). Refer to FM 6-02 and ATP 6-02.60 for more information about line of sight transport.

TACTICAL RADIOS AND RADIO RETRANSMISSION

5-6. Large command post communications systems lack the mobility required during tactical enabling tasks. When executing tactical enabling tasks beyond the range of VHF single-channel radios, or when terrain prevents line of sight communications, units can employ retransmission capabilities, single-channel HF radios, narrowband (single-channel) tactical satellite radios, tactical messaging, or secure satellite telephones for communications between units and command posts (FM 6-02).

5-7. Employing a retransmission site requires deliberate mission planning before deploying the team. Planning factors for retransmission include—

- Units supported.
- Planned retransmission locations throughout the mission, including alternates, with line of sight analysis.
- Triggers for displacement to alternate locations.
- Primary and alternate frequencies.
- Frequencies for emergency contact—
  - Medical evacuation.
  - Command.
  - Nearest units.
- Time required to be on station and retransmitting for supported units.
- Route and site security requirements.
- Infiltration and exfiltration routes.
- Whether unmanned aircraft systems or other aerial retransmission capabilities can meet the requirement.
- Plan to communicate with the parent unit (for example, contact the higher unit every two hours with update).
- Resupply plan.
- Concealment of the site.
- Plans to mask or reduce the electromagnetic signature of the site.

5-8. Refer to ATP 6-02.53 for more information about single-channel radio and retransmission capabilities.

COPPER WIRE AND CABLE

5-9. Copper wire and cable can carry large amounts of data with very little electromagnetic signature. This makes wire and cable the preferred transport medium for command post local area networks. Copper wire and cable outside of secured perimeters is vulnerable to physical destruction. An enemy may also tap into unsecured cables to intercept communications.

FIBER OPTICS

5-10.Fiber optic cables can carry the highest data rates of any network transport means, and emit little to no electromagnetic signature. Like copper wire and cable, any fiber optic cable outside of a secure perimeter is vulnerable to physical destruction.

5-11.When large command posts or command post clusters connect to host-nation infrastructure for network connectivity, the data will likely transit civilian fiber optic infrastructure. Because the infrastructure is geographically dispersed it may be difficult or impossible to defend. Units should ensure they have alternate means of network access, such as satellite communications, in case the host-nation infrastructure is disrupted.

INFORMATION SERVICES

5-12.Information services allow access, storage, and sharing of information among mission partners, as well as dynamically tailoring and prioritizing information to support the mission and affect the operational environment. Information services allow commanders and Soldiers to collect, process, store, transmit, display, and disseminate information. Information services consist of—

- **Messaging services** enable the exchange of information among users. Messaging services include e-mail, Organizational Messaging Service, instant messaging, and alerts.
- **Discovery services** enable discovery of information content or services stored in directories, registries, and catalogs. An example of a discovery service is a search engine.
- **Mediation services** enable system interoperability by processing data to translate, aggregate, fuse, or integrate it with other data.
- **Collaboration services** provide the ability for warfighters to work together and share capabilities. Examples of collaboration services are chat, online meetings, and workgroup applications.
- **Storage services** provide physical and virtual data hosting. Storage services include archiving, continuity of operations, and content staging. SOPs or OPORDs should define information storage locations.

- **User assistance services** provide centralized service desk assistance and automated access to lessons and best practices, which may improve processes or reduce the effort required to perform tasks.
- **Identity and access management** (Enterprise Directory Service) provides authoritative enterprise identity and contact attributes for combatant commands, Services, and agencies. Enterprise Directory Service includes—
  - DOD Enterprise White Pages—authoritative identity and contact information for all DOD common access card holders.
  - Global Directory Service—a distribution point for personal public key certificates, certificate revocation lists, and certificate authority certificates.
  - Identity Synchronization Service—populates directories and global address lists with enterprise identity and contact attributes.

5-13. Information services also support joint, inter-organizational, and multinational collaboration. Information sharing allows the mutual use of information services or capabilities across functional or organizational boundaries.

5-14. Identity and access management services facilitate and control information sharing. Identity and access management assigns users common, portable identity credentials, such as a common access card or SECRET Internet Protocol Router Network token. Users with the proper credentials can access and view operational, business support, or intelligence-related information, services, and applications related to their mission and communities of interest. Refer to ATP 6-02.71 for more information about information services.

SECTION II – DEPARTMENT OF DEFENSE INFORMATION NETWORK OPERATIONS

5-15. DODIN operations are not an individual or crew task, but multifaceted military operations that take place at all echelons. DODIN operations are arguably the most important and most complex operation the Army performs from day-to-day, since the network is the foundation for all other functions and capabilities, including command and control; joint intelligence, surveillance, and reconnaissance; precision fires; logistics; and telemedicine (FM 6-02).

5-16. DODIN operations encompass installing, operating, maintaining and securing the DODIN-A to provide users required information services at the point of need. DODIN operations in Army networks consist of three interrelated main tasks—

- Network management and enterprise systems management.
- Cybersecurity.
- Information dissemination management and content staging.

NETWORK MANAGEMENT AND ENTERPRISE SYSTEMS MANAGEMENT

5-17.Network management and enterprise systems management consist of the technology, processes, and policies necessary to engineer, install, operate, maintain, and sustain DOD communications networks, information systems, and applications. Enterprise management merges information technology services with DODIN operations capabilities.

CYBERSECURITY

5-18.*Cybersecurity* is prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and nonrepudiation (DODI 8500.01). DODIN operations personnel at all echelons implement the Army cybersecurity program to secure networks and sensitive data against malicious cyberspace activities.

INFORMATION DISSEMINATION MANAGEMENT AND CONTENT STAGING

5-19.Information dissemination management and content staging are information management activities that allow DODIN operations centers to optimize the flow and location of information by positioning and repositioning data and information services to optimum locations on the network relative to the information producers, information consumers, and mission requirements.

5-20.These information management activities support the G-3 or S-3 knowledge management processes. The knowledge manager determines which personnel need what information to perform their roles; the G-6 or S-6 information managers determine how best to store and deliver that information to users.

SECTION III – SPECTRUM MANAGEMENT OPERATIONS

SPECTRUM MANAGEMENT

5-21.Since a significant part of any communications system relies upon wireless transmissions, communications planners must consider access to the electromagnetic spectrum. Signal Soldiers support assured access through spectrum management operations. *Spectrum management operations* are the interrelated functions of spectrum management, frequency assignment, host nation coordination, and policy that together enable the planning, management, and execution of operations within the electromagnetic operational environment during all phases of military operations (FM 6-02). Spectrum management operations enable access to the frequency spectrum to support Army operations.

5-22.Frequency assignment involves requesting and issuing authorization to use frequencies for specific equipment. This includes assigning frequencies for combat net radio networks, unmanned aircraft systems, and line of sight networks. Spectrum managers perform frequency assignment for all spectrum-dependent military equipment. Refer to JP 3-85 and ATP 6-02.70 for more information about spectrum management.

SECTION IV – VISUAL INFORMATION AND COMBAT CAMERA

5-23.Visual information and combat camera capture still and motion imagery to support a variety of missions. Visual information and combat camera provide decision makers and supported agencies current and accurate information to support command and control and the common operational picture, but may also support training and education, logistics, human resources, special operations, information operations, public affairs, or intelligence requirements.

VISUAL INFORMATION

5-24.Army visual information records events as they occur. It documents military operations, exercises, and activities to convey an unfiltered view to key audiences. Visual information products are subject to the same security classification and operations security considerations as other operational information. The release of visual information products outside the DOD is subject to security classification and operations security review.

COMBAT CAMERA

5-25.Combat camera supports joint and Army commanders across the range of military operations. Combat camera units and teams produce still imagery and video to support command and control, information operations, humanitarian relief, special operations, intelligence, reconnaissance, engineering, legal, public affairs, and other operations involving the Military Services.

5-26.Combat camera companies are an echelons above corps asset. Commanders define their requirements and request combat camera support through the request for forces process. Refer to FM 6-02 for procedures for requesting combat camera support.

Note. The Department of the Army has made the decision to transfer responsibility for visual information and combat camera from the Signal Corps to public affairs in fiscal year 2022.

SECTION V – COMMUNICATIONS SECURITY

5-27.*Communications security* is the protection resulting from all measures designed to deny unauthorized persons information of value that might be derived from the possession and study of telecommunications, or to mislead unauthorized persons in their interpretation of the results of such possession and study (JP 6-0). While COMSEC does not rise to the level of a core competency, it is still an essential capability to protect sensitive information.

5-28.Cryptographic systems and devices protect sensitive classified and unclassified operational information in the DODIN-A. To decrypt the data, every member of the cryptonet needs an identical key. COMSEC account managers distribute and control keying material and manage routine updates so all authorized users—and only authorized users—have the correct key to communicate. Including COMSEC key management in operations planning is essential to enabling secure communications (FM 6-02). Refer to ATP 6-02.75 for more information about COMSEC.

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Appendix A

Echelons Above Corps Tactical Signal Company Organizations

In addition to the signal companies at echelons corps and below, certain echelons above corps signal companies also support large-scale combat operations. This appendix outlines the capabilities and structure of echelons above corps tactical signal companies and platoons.

SPECIAL OPERATIONS SIGNAL COMPANY

A-1. The special operations signal battalion has three identical special operations signal companies that provide operational- and tactical-level communications to support joint and Army special operations forces. The battalion network operations and security center manages the Army special operations forces tactical network.

A-2. The special operations signal companies (see figure A-1 on page A-2) provide these capabilities:

- Installation, operation, and maintenance of the theater-level special operations forces wide-area network.
- Classified and unclassified voice, video, and data communications to support early or forcible entry and sustained command post operations for United States Army Special Operations Command, a joint task force, or joint special operations task force.
- Reachback to special operations forces headquarters to support split-based operations.
- Communications support for airborne and airdrop operations.

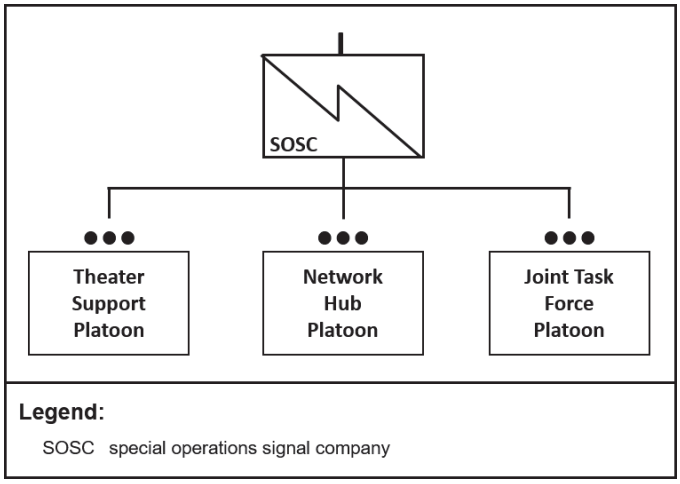


Figure A-1. Special operations signal company organization

COMPANY HEADQUARTERS

A-3. The headquarters section provides command and control and administrative, operational, information management, logistical, maintenance, and CBRN support for the company. The headquarters consists of company commander, a headquarters platoon leader, a first sergeant, a platoon sergeant, a supply noncommissioned officer, a CBRN decontamination specialist, a supply specialist, and a vehicle driver.

THEATER SUPPORT PLATOON

A-4. The theater support platoon headquarters conducts command and control and planning for the platoon and several multifunctional teams that are task organized into communications nodes based on mission and operational requirements. The platoon headquarters consists of a platoon leader and a platoon sergeant.

NETWORK HUB PLATOON

A-5. The hub platoon provides network capabilities for a deployed special operations forces headquarters in austere or immature theaters. The hub capability ensures seamless interaction with the respective theater of operations, United States Special Operations Command, the DOD, and national systems during either short-term deployment or the initial phases of long-term operations when no other in-theater, secure, tactical network infrastructure exists.

JOINT TASK FORCE PLATOON

A-6. The joint task force platoon provides network capabilities for a joint special operations task force headquarters. The platoon headquarters consists of a platoon

leader and a platoon sergeant. The special operations signal company operates according to Army special operations doctrine. Refer to ATP 3-05.60 for more information about the organization and capabilities of the special operations signal company.

RANGER REGIMENT SIGNAL COMPANY

A-7. The Ranger Regiment's organic signal company deploys worldwide to install, operate, maintain, and secure the regiment's communications and automated information systems. The Ranger Regiment signal company establishes secure networks to support the regiment's operations and integrate with the Army force component of a joint force. Figure A-2 on page A-4 shows the Ranger Regiment signal company organization. The signal company provides local area network support for the company, the Ranger battalions, the Ranger Special Troops Battalion, and the Ranger Regiment.

A-8. The Ranger Regiment signal company provides—

- Automated information systems support for maneuver, support, and command elements.
- Tactical radio relay, retransmission, and beyond line of sight HF and narrowband (single-channel) satellite communications to extend networks.
- Global Broadcast Service capability to receive high bandwidth imagery, logistics data, and digital map information to support command and control.
- Field- and sustainment-level communications-electronics and COMSEC maintenance for the special troops battalion and supporting organizations.

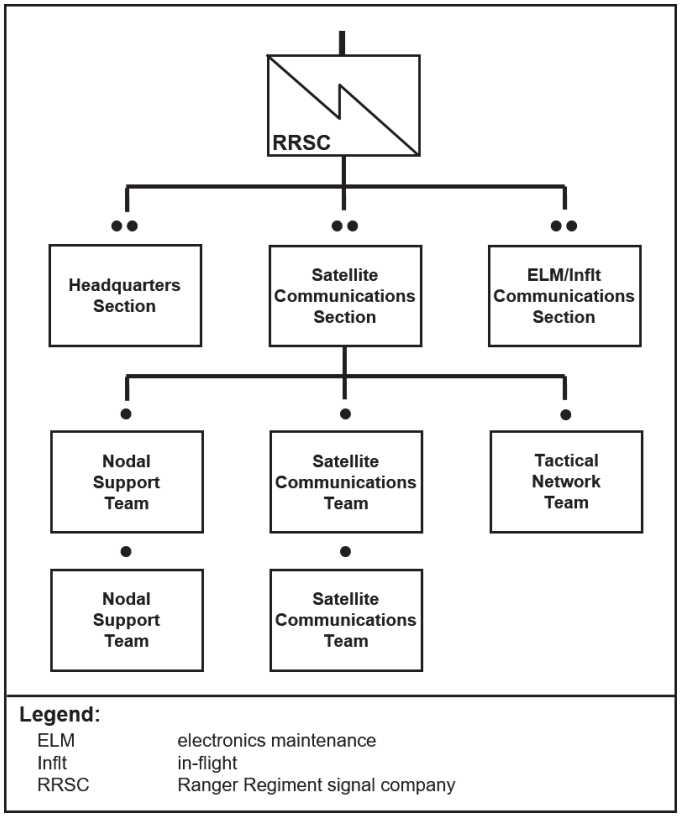


Figure A-2. Ranger Regiment signal company organization

HEADQUARTERS SECTION

A-9. The headquarters section provides command and control and staff supervision for the signal company. The headquarters section consists of—

- Company commander.
- Operations officer.
- First sergeant.
- Telecommunications operations chief.
- Supply noncommissioned officer.
- Two supply specialists.
- Senior information technology specialist.
- CBRN noncommissioned officer.
- Information technology specialist.

SATELLITE COMMUNICATIONS SECTION

A-10. The satellite communication section headquarters provides supervision of the two satellite communications teams. The section headquarters consists of—

- Satellite communications section chief.
- Senior information technology specialist.
- Senior nodal network systems operator-maintainer.
- Two senior satellite communications systems operator-maintainers.
- Information technology specialist.
- Two nodal network systems operator-maintainers.
- Satellite communications systems operator-maintainer.

Satellite Communications Teams

A-11. Each satellite communications team provides long-haul, high data rate connectivity for regimental headquarters and subordinate elements. Each satellite communications team consists of—

- Senior information technology specialist.
- Senior nodal network systems operator-maintainer.
- Two senior satellite communications systems operator-maintainers.
- Two nodal network systems operator-maintainers.
- Three satellite communications systems operator-maintainers.
- Information technology specialist.

Nodal Support Team

A-12. Each nodal support team provides extended range access for battalion-level tactical radio networks for two nodal teams. Each nodal support team consists of—

- Section chief.
- Signal operations noncommissioned officer.
- Senior information technology specialist.
- Senior nodal network systems operator-maintainer.
- Signal operations support noncommissioned officer.
- Forward signal support noncommissioned officer.
- Nodal network systems operator-maintainer.
- Two satellite communications systems operator-maintainers.
- Signal tactical networking specialist.
- Three signal operations support specialists.

Tactical Network Team

A-13. The tactical network teams provide local area network support to the company, the Ranger Special Troops Battalion, the Ranger Battalion, and the Ranger Regiment. Each tactical network team consists of—

- Information technology team chief.
- Senior information technology specialist.
- Information technology specialist.

ELECTRONICS MAINTENANCE AND IN-FLIGHT COMMUNICATIONS SECTION

A-14. The electronics maintenance and in-flight communications section consists of—

- A radio repair supervisor.
- An equipment records and parts sergeant.
- Three senior radio repairers.
- Two satellite communications systems operator-maintainers.
- A computer and detection systems repairer.

A-15. The Ranger Regiment signal company operates according to Army special operations doctrine. Refer to ATP 3-05.60 for more information about the Ranger Regiment signal company.

EXPEDITIONARY SIGNAL COMPANY-ENHANCED

A-16. The expeditionary signal company-enhanced headquarters provides staff planning and supervision of its signal platoons and any augmenting elements, personnel, or material assets. The expeditionary signal company-enhanced provides in-theater communications support primarily for echelons above corps Army units. The expeditionary signal company-enhanced may also support other units at echelons corps and below without organic signal capabilities or augment a unit's organic capabilities. Figure A-3 on page A-7 shows the organization of the expeditionary signal company-enhanced. The expeditionary signal company-enhanced also provides—

- Wideband and protected satellite communications transport.
- Beyond line of sight tropospheric scatter network transport.
- High-throughput line of sight transport.
- Telephone switching services.
- DODIN operations tools to support network management within the company.
- Wire, cable, and fiber optic installation and maintenance.
- Access to Defense Information Systems Network voice, data, and video services.
- Field maintenance support for organic communications-electronics, COMSEC, automotive, power generation, and environmental control equipment.

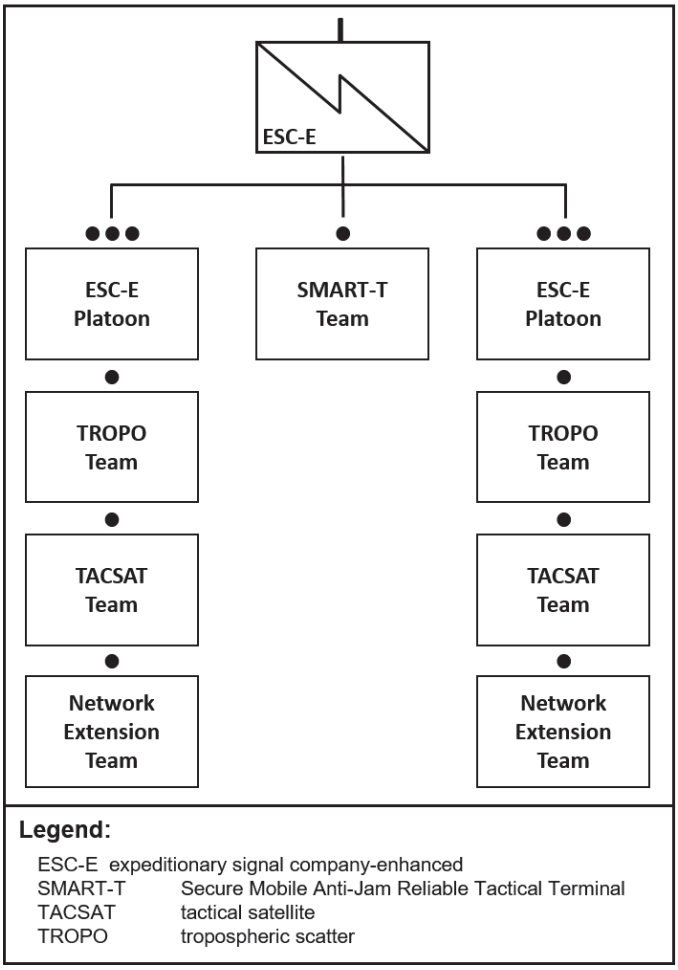


Figure A-3. Expeditionary signal company-enhanced organization

HEADQUARTERS SECTION

A-17. The company headquarters provides command and control and logistical support for assigned platoons, sections, and teams. The headquarters section consists of—

- Company commander.
- Operations officer.
- First sergeant.
- Telecommunications operations chief.
- Satellite communications operations noncommissioned officer.

- Senior information technology specialist.
- Supply noncommissioned officer.
- Two information technology specialists.
- Supply specialist.

EXPEDITIONARY SIGNAL PLATOON-ENHANCED

A-18. The expeditionary signal company-enhanced platoons provide command and control and technical supervision for the platoon's subordinate sections. Each platoon consists of a tropospheric scatter team, a tactical satellite team, and a network extension team. Members of the platoon install, operate, and maintain up to 16 medium data packages with their associated line of sight and satellite communications transport systems. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Tropospheric Scatter Team

A-19. Each tropospheric scatter team provides tropospheric scatter communications for beyond line of sight links between major commands, major functional headquarters, and signal nodes. Each team consists of a senior tropospheric scatter operator maintainer and a tropospheric scatter operator maintainer.

Tactical Satellite Team

A-20. Each tactical satellite team provides beyond line of sight wideband satellite communications transport to support medium and large command posts. Each satellite communications team consists of a satellite communications operations sergeant (team chief) and a satellite communications systems operator-maintainer.

Network Extension Team

A-21. Each of the four network extension teams provides data services to support SECRET Internet Protocol Router Network, secure and non-secure desktop video teleconferencing, Defense Red Switched Network, Defense Switched Network, local area networking, local and tactical phone extensions, and connectivity for other special circuits as required. The network extension teams employ line of sight systems to connect switching systems to the tactical network. Each network extension team consists of—

- Senior nodal network systems operator-maintainer (team chief).
- Senior transmission systems operator-maintainer.
- Three nodal network systems operator-maintainers.
- Three transmission systems operator-maintainers.

SECURE MOBILE ANTI-JAM RELIABLE TACTICAL TERMINAL TEAM

A-22. The SMART-T team provides protected satellite communications transport between selected major command posts. The team consists of one range extension

operator. Refer to ATP 6-02.45 for more information about employment of the expeditionary signal company-enhanced.

EN ROUTE COMMUNICATIONS COMPANY

A-23. The en route communications company provides Defense Information Systems Network services to support in-flight mission planning and early entry communications for deploying forces. En route communications enable command and control, staff planning, and situational awareness while in-flight from the home station to a deployed area of operations. En route communications allow aircraft-to-aircraft and aircraft-to-ground communications. Upon initial entry, an early entry team remains in place until the supported unit's organic communications support arrives. The company consists of a headquarters section, two identical en route signal platoons, and one Command and Staff Palletized Airborne Node platoon. Figure A-4 shows the organization of the en route communications company.

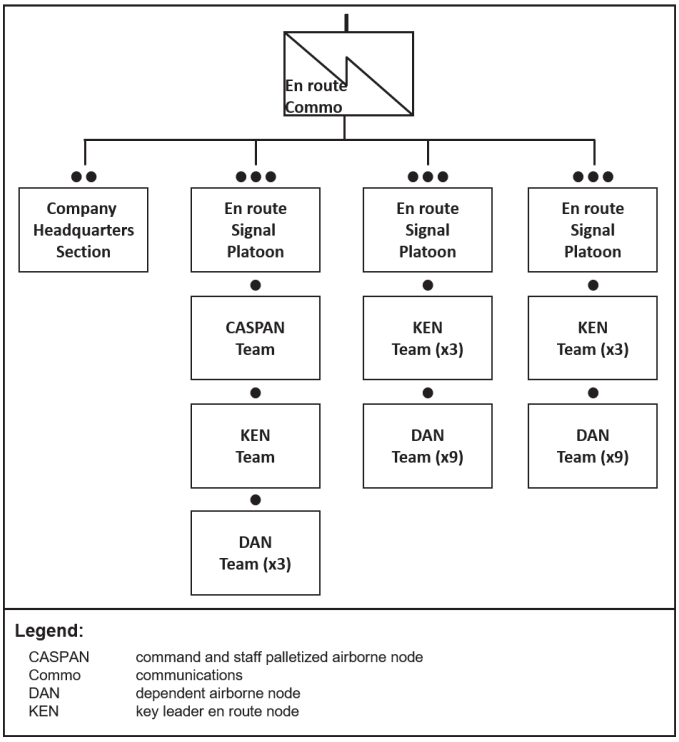


Figure A-4. En route communications company organization

HEADQUARTERS SECTION

A-24. The company headquarters provides personnel and facilities for command and control, administration, logistics, and supervision of subordinate platoons. The headquarters section consists of—

- Company commander.
- Operations officer.
- First sergeant.
- Supply noncommissioned officer.
- Supply specialist.

EN ROUTE SIGNAL PLATOON

A-25. The en route signal platoon provides in-flight communications and network services to support deploying commanders' situational understanding and staff planning while en route to an overseas mission objective. The en route signal platoon consists of one Command and Staff Palletized Airborne Node team, seven Key Leader Enroute Node teams, and three Dependent Airborne Node teams with 21 total Dependent Airborne Nodes.

Platoon Headquarters

A-26. The platoon headquarters provides command and control and technical supervision for its subordinate teams installing, operating, and maintaining en route communications capabilities. The platoon headquarters integrates and coordinates planning efforts with supported deploying units. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Command and Staff Palletized Airborne Node

A-27. The Command and Staff Palletized Airborne Node team provides seating and monitors for task force commanders and their staffs in-flight while en route from the continental United States to a deployment location. The Command and Staff Palletized Airborne Node team consists of—

- Senior transmission systems operator-maintainer (team chief).
- Nodal network systems operator-maintainer.
- Transmission systems operator-maintainer.

Key Leader En Route Node

A-28. The Key Leader En Route Node provides beyond line of sight reachback capabilities for brigade and battalion commanders, executive officers, and staff. Each Key Leader En Route Node team consists of—

- Senior transmission systems operator-maintainer (team chief).
- Nodal network systems operator-maintainer.
- Transmission systems operator-maintainer.

Dependent Airborne Node

A-29. Each Dependent Airborne Node team provides communications links through narrowband (single-channel) tactical satellite voice and line of sight voice and data capabilities to battalion and company commanders in-flight. Each Dependent Airborne Node team consists of a nodal network systems operator-maintainer (team chief) and a transmission systems operator-maintainer. Refer to ATP 6-02.45 for more information about the en route signal company.

COMBAT CAMERA COMPANY

A-30. The combat camera company provides visual documentation covering the Military Services in war, natural disasters, and training activities. The company provides still and motion imagery and video documentation to support intelligence and decision making. Figure A-5 on page A-12 shows the organization of the combat camera company. The combat camera company provides—

- Liaison to supported units, joint combat camera teams, and other Service combat camera elements.
- Planning, coordination, and supervision of combat camera documentation support missions.
- Combat camera support for airborne operations (airborne combat camera company only).
- Combat camera support for ground, air assault, and amphibious operations.
- Still photo (film and digital) and video editing, including rough editing for on-site customers.
- Tailored still and motion media, graphics products, narration support, video reports, presentations, and visual imagery to support operational headquarters in the theater army, corps, and division areas of operation.
- Combat camera equipment maintenance by on-site repair, replacement, or evacuation to maintenance contractors.
- Field maintenance of vehicles, power generators, environmental control units, and signal support systems.

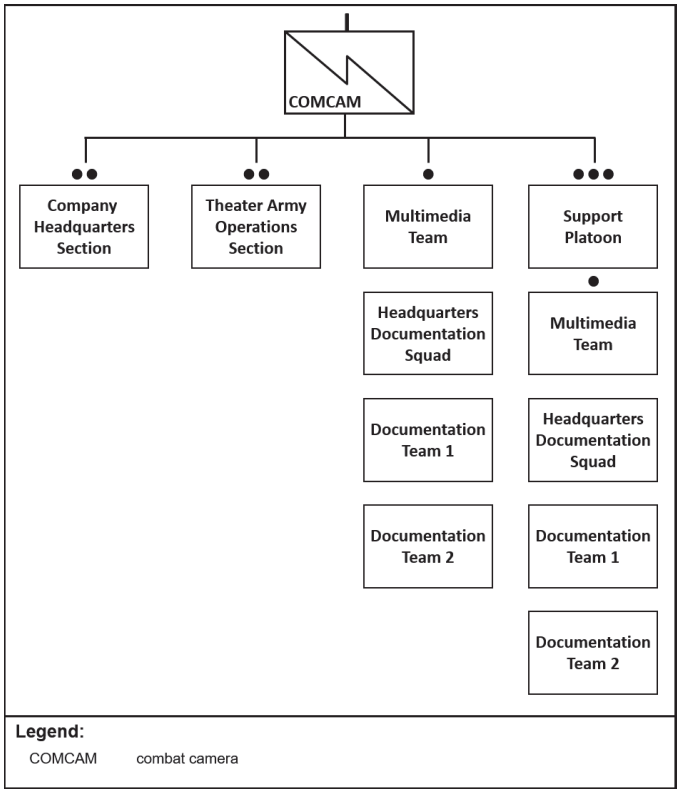


Figure A-5. Combat camera company organization

HEADQUARTERS SECTION

A-31. The company headquarters provides command and control, operations, logistics and administrative support to the company's subordinate sections. The headquarters section consists of—

- Company commander.
- First sergeant.
- Motor sergeant.
- Supply sergeant.
- CBRN noncommissioned officer.
- Three wheeled vehicle mechanics.
- Equipment records and parts sergeant.
- Human resources specialist.
- Utilities equipment repairer.
- Supply specialist.

THEATER ARMY OPERATIONS SECTION

A-32. The theater army operations section provides planning, coordination and supervision of operations of all theater-, corps-, and division-level combat camera documentation support missions. The theater army operations section ensures the execution of combat camera support to joint, multinational, and Army operations by assigned platoons. The theater army operations section exercises direct control over the documentation and multimedia sections of the combat camera company. The theater army operations section consists of an operations officer, a visual information liaison noncommissioned officer, and a visual information operations sergeant.

MULTIMEDIA TEAM

A-33. Each multimedia team provides still photographic and video products at theater army, corps, and division levels. The section also provides tailored still and motion media products, graphics, narration, video reports, presentation and exploitation of visual imagery, video and still editing, and archive production of combat camera documentation. The multimedia team can produce still photographs in digital, 35mm film, 35mm slide, and print formats to support theater army, corps, and division. Each multimedia team consists of four visual information specialists.

SUPPORT PLATOON

A-34. Each of the three support platoons conducts combat camera support missions and other combat camera missions as assigned. Each platoon consists of a multimedia team, a headquarters documentation squad, and two documentation squads. The platoon headquarters consists of a platoon leader, a platoon sergeant, and a visual information supervisor.

Headquarters Documentation Squad

A-35. The headquarters documentation squad supervises two types of documentation teams—one documentation team 1 and three documentation team 2. Each headquarters documentation squad consists of a squad leader and a visual information noncommissioned officer.

Documentation Team

A-36. The documentation teams 1 and 2 (airborne), provide COMCAM visual support of airborne operations and other assigned COMCAM missions throughout the theater of operations, through documentation with conventional still, digital still, and video products; and rough editing to the on-site customer. Each documentation team consists of five visual information specialists. Refer to ATP 6-02.40 for more information about the combat camera company.

TACTICAL INSTALLATION AND NETWORKING COMPANY-ENHANCED

A-37. The tactical installation and networking company-enhanced provides network installation, troubleshooting, quality assurance testing, and handoff coordination to enable the transition from tactical to semi-permanent automation support. Figure A-6 shows the organization of the tactical installation and networking company-enhanced. The company provides these capabilities to support geographic combatant command, theater army, signal command (theater), and joint task force or multinational headquarters:

- Installation, maintenance, troubleshooting, testing, and repair of wire, cable, and fiber optic transmission systems.
- Antenna and tower construction and repair.
- Installation of automated information systems and services, including—
  - Local area networks.
  - Wide-area networks.
  - Network security hardware.
  - SECRET Internet Protocol Router Network.
  - Non-classified Internet Protocol Router Network.
  - Video teleconferencing.

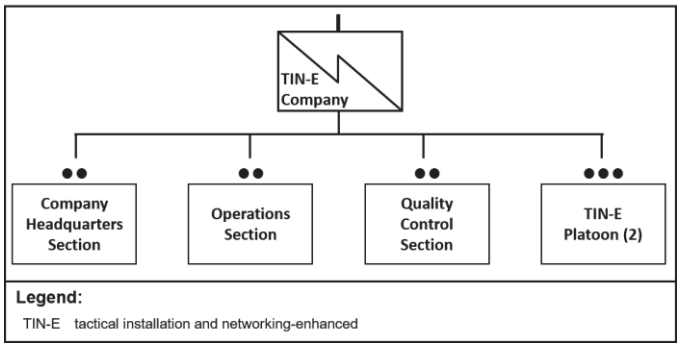


Figure A-6. Tactical installation and networking company-enhanced organization

HEADQUARTERS SECTION

A-38. The company headquarters provides command and control, personnel administration, maintenance, and supply for the company. The headquarters section advises the supported commander on aspects of network installation, including inside plant, outside plant, local area networking, and other network installation and initialization. The headquarters section consists of—

- Company commander.
- First sergeant.

- Motor sergeant.
- Supply sergeant.
- Six wheeled vehicle mechanics.
- Equipment records and parts sergeant.
- Human resources specialist.
- CBRN specialist.
- Utilities equipment repairer.
- Two supply specialists.

OPERATIONS SECTION

A-39. The operations section provides personnel and equipment to employ wire, cable, and fiber optic capabilities by providing technical expertise and by interpreting and implementing engineering plans. The section plans, coordinates, configures, and integrates network installation, operation, maintenance, and management. The operations section consists of—

- Operations officer.
- Network systems technician.
- Telecommunications operations chief.
- Two senior information technology specialists.
- Information technology specialist.

QUALITY CONTROL TEAM

A-40. The quality control team performs quality assurance testing and handoff of installed network systems. The team also provides internal quality control to the line platoons. The quality control team consists of—

- Information technology chief.
- Telecommunications operations chief.
- Installer.
- Apprentice installer.

TACTICAL INSTALLATION AND NETWORKING PLATOON-ENHANCED

A-41. The tactical installation and networking platoon-enhanced provides cable installation capabilities that include—

- Inside plant.
- Heavy outside plant.
- Light outside plant.
- Local area networking.

Platoon Headquarters

A-42. The platoon headquarters provides command and control, planning, and technical supervision for its subordinate sections and teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Cable Section

A-43. Each cable section is made of various teams, including inside plant teams, heavy outside plant teams, and light outside plant teams. The section is supervised by a cable section chief.

Inside Plant Team

A-44. Inside plant teams install and maintain indoor wire, cable, and fiber optic systems. The teams also repair and maintain existing wire, cable, and fiber optic systems in indoor facilities. Each inside plant team consists of—

- Two senior installers.
- Six installers.
- Six apprentice installers.

Heavy Outside Plant Team

A-45. Heavy outside plant teams maintain aerial, buried, and underground wire, cable, and fiber optic systems. The heavy outside plant teams also repair and maintain existing wire, cable, and fiber optic systems. The heavy outside plant teams are manned and equipped heavier than the light outside plant teams to support larger outside plant operations. The heavier equipment includes telephone pole and bucket trucks, ditch diggers, and trailer-mounted cable reel handling equipment. Each heavy outside plant team consists of—

- Two cable and antenna systems supervisors.
- Two senior cable and antenna systems specialists.
- 14 cable and antenna systems specialists.

Light Outside Plant Team

A-46. Light outside plant teams maintain aerial, buried, and underground wire, cable, and fiber optic systems. The teams also repair and maintain existing wire, cable, and fiber optic systems. Each light outside plant team consists of—

- Two senior cable and antenna systems specialists.
- Eight cable and antenna specialists.

Network Installation Section

A-47. Each network installation section is made up of an information system team and a local area network installation team. The network installation section chief is an information technology staff noncommissioned officer.

Information System Team

A-48. Each information system team performs digital system installation and facilities digital system installation through construction, editing, and testing of computer system programs and data systems studies. The team troubleshoots software associated with initialization of wide-area networks and other networks in accordance with established procedures. Team members provide knowledge of system administration, wide-area network management, and local area network management. The team troubleshoots digital systems and identifies whether the faults are in cabling or computer hardware or software. Each information systems team consists of—

- Two information technology team chiefs.
- Six senior information technology specialists.
- Six information technology specialists.

Local Area Network Installation Team

A-49. The local area network installation teams connect various headquarters local area networks into the wide-area network via cabling, hardware installation, and connection to tactical and host-nation switches and transport systems. The local area network installation teams install digital systems, including local area networks, network security hardware, SECRET Internet Protocol Router Network, Non-classified Internet Protocol Router Network, and video teleconferencing. Each local area network installation team consists of—

- Two senior installers.
- Six installers.
- Six apprentice installers.

A-50. Refer to ATP 6-02.45 for more information about the tactical installation and networking company-enhanced.

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Appendix B
Retransmission Mission Checklist

Because retransmission teams often operate remotely from other elements, it is critical that they have all required supplies, equipment, and site defense support coordinated and on-hand before leaving the staging area, command post, or forward operating base. Team chiefs, platoon sergeants, and platoon leaders should thoroughly inspect all retransmission systems and personnel before employing a remote retransmission site. Upon return, teams must recover their equipment and prepare for immediate follow-on missions.

RETRANSMISSION PRECOMBAT CHECKS AND PRECOMBAT INSPECTIONS

B-1. The platoon leader or platoon sergeant must evaluate retransmission teams' preparation for combat. They conduct precombat checks to validate the teams' readiness once the team chiefs report their teams and vehicles are prepared. Because of the difficulty of reaching and resupplying retransmission teams operating from remote sites, it is vital that the platoon leader and platoon sergeant conduct detailed precombat inspections of retransmission teams before they leave the staging area. During precombat checks and inspections, leaders check or inspect—

- Weapons, ammunition, and sensitive items inventory—
  - Global Positioning System with selective availability key loaded.
  - Night observation devices tested.
  - Simple key loader.
  - Communications card.
  - Maps, protractors, and compasses.
  - Systems Planning, Engineering, and Evaluation Device assessment.
- Preventive maintenance checks and services performed on all equipment and documented.
- Top off all vehicles and fuel cans.
- All basic issue items are present.
- Complete combat lifesaver's bag.
- Battery plan—spare batteries on hand for all equipment.
- Cables installed.
- Hand microphones with spares.
- Speakers.

- Load retransmission radios—COMSEC and frequencies.
- Radio check with adjacent and supported units.
- Load plan—equipment that is needed first is available and readily accessible.
  - Personnel manifest.
  - Equipment manifest.
  - Seven-day supply of food and water.
  - Camouflage netting layout.
  - All items are tied down securely.
- Recommended retransmission equipment:
  - Six complete antenna systems.
  - Tents and heaters.
  - Extension cords.
  - Tool boxes.
  - PRM-34/PRM-36.
  - Petroleum, oils, and lubricants.
- Boxes (2) containing—
  - Spare cables.
  - Spare ground cables.
  - Trash bags.
  - Connectors.
  - Toilet paper.
  - Tape—100 mile per hour and electrical.
  - Chemical lights.
  - Mechanical pencils.
  - Binoculars.
  - All applicable equipment and doctrine manuals.
  - AN/PRC-119, complete.

PRE-MISSION BRIEFING

B-2. The platoon leader and platoon sergeant present retransmission teams an updated mission briefing immediately before a mission to ensure team chiefs and team members understand the plan. Leaders should have the team chief backbrief portions of the plan to verify their understanding of the mission and procedures. The pre-mission briefing includes—

- Commander's intent.
- Convoy plan and procedures.
- PACE plan.
- Frequencies.
- COMSEC.
- Jamming plan.

- Supported unit's scheme of maneuver.
- Location and role of supporting units.
- Enemy Situation.
  - Primary enemy location—update daily.
  - Enemy manned and unmanned aircraft.
  - Enemy intelligence, surveillance, and reconnaissance capabilities.
  - Enemy indirect fire capabilities.
  - Most likely enemy actions.
  - Enemy tactics, techniques, and procedures against remote sites like retransmission sites.
  - Primary and alternate enemy avenues of approach.
  - If the enemy requires an escort, identify escorting unit.
- Timeline of operations.
- Weather and terrain.
- Location of site.
- Terrain masking techniques—
  - Avoid skylining.
  - Use terrain to mask transmissions from enemy detection.
- Primary and alternate retransmission site locations—explain movement triggers.
- Antenna placement plan—
  - Know where the enemy is in relation to the operation.
  - Shield transmissions from the enemy.
- Site security and defense plan—vital and continuous.
  - Supporting security elements.
  - Internal security plan.
  - Site concealment and camouflage.
  - Concertina wire.
  - Range card and fires plan.
- Compromise plan
  - Emergency destruction plan—COMSEC, documents, maps, and equipment.
  - Escape and evasion plan.
- Resupply plan and reporting plan.

POST MISSION BRIEF—ON SITE

B-3. At the conclusion of a mission, leaders should conduct a post-mission briefing and inspection before leaving the retransmission site. If the platoon leader or platoon sergeant is not available to conduct the on-site briefing, the team chief performs post-mission checks, including—

- Ammunition.
- Individual equipment.
  - Weapons.
  - Sensitive items.
  - Eye protection.
  - Water.
  - Hand protection.
  - Identification tags and identification cards.
  - Body armor.
- Chock blocks and drip pans.
- Trailer is connected, brakes are functional, and parking brake is off.
- Vehicular antennas are tied down.
- Convoy frequency plan loaded.
  - Sheriff net (quick reaction force).
  - Medical evacuation.
- Communications checks with supporting units and security elements.
- Convoy briefing.

POST MISSION BRIEF—AFTER RETURN

B-4. Upon end of mission and return to the staging area or command post, the retransmission team should prepare for immediate redeployment if it becomes necessary. The post-mission briefing and equipment checks after return help the unit collect lessons learned and recover equipment so it is ready for immediate use. The post-mission briefing and after action review include—

- Weapons, sensitive items, and ammunition checked immediately upon return.
- After operation preventive maintenance checks and services performed on vehicles and generators.
  - Petroleum, oils, and lubricants resupplied.
  - Trucks, generators, and fuel cans refilled.
  - Trucks and trailers cleaned as needed.
- Communications equipment.
  - Zeroized as necessary.
  - After operation preventive maintenance checks and services performed on all communications equipment.
  - Inventory—missing or broken equipment identified and replaced.
- All classes of supply (including food and water) replenished and load plan updated as necessary.
- Missing personal equipment identified and replaced.
- Internal after action review conducted.
  - Input from team.

  - Consolidation of notes.
  - After action review comments submitted to higher headquarters for lessons learned and SOP updates.
- Debriefing to higher headquarters conducted.

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Glossary

The glossary lists acronyms and terms with Army, multi-service, or joint definitions, and other selected terms. Where Army and joint definitions are different, (Army) follows the term. The proponent for other terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATION

ADP	Army doctrine publication
ASCOPE	areas, structures, capabilities, organizations, people, and events
ATP	Army techniques publication
CBRN	chemical, biological, radiological, and nuclear
COMSEC	communications security
DA	Department of the Army
DODI	Department of Defense instruction
DODIN	Department of Defense information network
DODIN-A	Department of Defense information network-Army
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
HF	high frequency
J-6	communications system directorate of a joint staff
JP	joint publication
KOCOA	key terrain, observation and fields of fire, cover and concealment, obstacles, and avenues of approach
METT-TC	mission, enemy, terrain and weather, troops and support available, time available, and civil considerations
OAKOC	observation and fields of fire, avenues of approach, key terrain, obstacles and movement, and cover and concealment

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
SMART-T	Secure Mobile Anti-Jam Reliable Tactical Terminal
SOP	standard operating procedure
UHF	ultrahigh frequency
VHF	very high frequency
WARNORD	warning order

SECTION II – TERMS

area of influence

A geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems 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 thereto, and extending into enemy territory. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission. (JP 3-0)

area of operations

An operational area defined by the joint force commander for land and maritime forces that should be large enough to accomplish their missions and protect their forces. (JP 3-0)

avenue of approach

A path used by an attacking force leading to its objective or to key terrain. Avenues of approach exist in all domains. (ADP 3-90)

civil considerations

The influence of manmade 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)

communications security

The protection resulting from all measures designed to deny unauthorized persons information of value that might be derived from the possession and study of telecommunications, or to mislead unauthorized persons in their interpretation of the results of such possession and study. Also called **COMSEC**. (JP 6-0)

concealment

Protection from observation or surveillance. (FM 3-96)

constraint

A restriction placed on the command by a higher command. A constraint dictates an action or inaction, thus restricting the freedom of action of a subordinate commander. (FM 6-0)

cover

Protection from the effects of fires. (FM 3-96)

cybersecurity

Prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and nonrepudiation. (DODI 8500.01)

decisive terrain

Key terrain whose seizure and retention is mandatory for successful mission accomplishment. (ADP 3-90)

Department of Defense information network-Army

An Army-operated enclave of the Department of Defense information network that encompasses all Army information capabilities that collect, process, store, display, disseminate, and protect information worldwide. Also called **DODIN-A**. (ATP 6-02.71)

essential task

A specified or implied task that must be executed to accomplish the mission. (FM 6-0)

execution

Putting a plan into action by applying combat power to accomplish the mission. (ADP 5-0)

field maintenance

On-system maintenance, repair and return to the user including maintenance actions performed by operators. (FM 4-30)

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 6-0)

key terrain

An identifiable characteristic whose seizure or retention affords a marked advantage to either combatant. (ADP 3-90)

logistics package

A grouping of multiple classes of supply and supply vehicles under the control of a single convoy commander. (FM 3-90.1)

network transport

The processes, equipment, and transmission media that provide connectivity and move data between networking devices and facilities. (FM 6-02)

planning

The art and science of understanding a situation, envisioning a desired future, and laying out effective ways of bringing that future about. (ADP 5-0)

priority intelligence requirement

An intelligence requirement that the commander and staff need to understand the threat and other aspects of the operational environment. (JP 2-01)

risk assessment

The identification and assessment of hazards (first two steps of the risk management process). (JP 3-26)

specified task

A task specifically assigned to a unit by its higher headquarters. (FM 6-0)

spectrum management operations

The interrelated functions of spectrum management, frequency assignment, host nation coordination, and policy that together enable the planning, management, and execution of operations within the electromagnetic operational environment during all phases of military operations. (FM 6-02)

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)

technical channels

The chain of authority for ensuring the execution of clearly delineated technical tasks, functions, and capabilities to meet the dynamic requirements of Department of Defense information network operations. (ATP 6-02.71)

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30 December 2020

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