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SIGNAL PLATOON

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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 sustaining 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 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 armed conflict 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. When first defining other proponent definitions in the text, the term is italicized and the number of the proponent publication follows the definition. Subsequent uses of the term are not italicized.

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 for this publication is the U.S. Army Cyber Center of Excellence. The preparing agency is the Doctrine Division, U.S. Army Cyber Center of Excellence. Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) to Commander, U.S. Army Cyber Center of Excellence, ATZH-OPD (ATP 6-02.2), 419 B Street, Fort Gordon, GA 30905-5735; by email to usarmy.gordon.cyber-coe.mbx.gord-fg-doctrine@army.mil.

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Introduction

Signal platoons are expected to operate either independently or as part of a larger formation. Decentralized execution, technical competence, and leader initiative are reinforced through standardized duties and unit collective training. The guidance in this publication facilitates streamlined training, resource management, and mission continuity despite personnel loss or degraded communications.

ATP 6-02.2 delineates the roles and responsibilities for signal platoon personnel to ensure mission success in support of maneuver elements. This publication provides doctrinal guidance; describes relationships in the platoon and within the larger organization; defines organizational roles, functions, capabilities, and limitations; and identifies the responsibilities for signal platoon personnel during Army operations. The platoon leader retains responsibility for tactical employment and mission success, supported by the platoon sergeant's expertise in sustainment, discipline, and leader development. Section sergeants ensure the training and readiness of teams, while team chiefs execute mission tasks and maintain cross-functional expertise within teams.

This publication contains five chapters and three appendixes:

- **Chapter 1 – Signal Platoon Organization.**
  - Section I—discusses capabilities and limitations, roles, duties, and responsibilities in signal platoons.
  - Section II—discusses the duties of platoon leaders, platoon sergeants, section sergeants, and signal team chiefs 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, attached, operational control, tactical control, and technical control relationships.
- **Chapter 2 – Planning and Training in the Platoon.**
  - Section I—discusses considerations for planning, preparation, execution, and assessment.
  - Section II—discusses troop leading procedures at platoon level, with emphasis on signal-specific planning considerations.
  - Section III—discusses purposes, types, and methods of rehearsals and pre-combat 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.
- **Chapter 4 – Sustainment**—discusses responsibilities for sustainment, sustainment functions, the platoon sustainment plan, and maintenance.

- **Chapter 5 – Fundamental Principles and Core Competencies**—discusses the fundamental principles of signal support and the core competencies signal Soldiers and units must collectively master to achieve mission success.
- **Appendix A – Echelons Above Corps and Special Operations Tactical Signal Units**—outlines the capabilities and structure of echelons above corps and special operations tactical signal companies and platoons, including—
  - Special operations signal company.
  - Ranger Regiment signal company.
  - Expeditionary signal company.
  - Joint and area signal company.
  - Tactical installation and networking company-enhanced.
- **Appendix B – Retransmission Mission Checklist**—discusses pre-combat checks, pre-combat inspections, and post-mission checks and briefings for retransmission teams.
- **Appendix C – Battle Drills**—discusses the battle drills that are vital to the survivability of retransmission teams operating remotely in the close area.

SUMMARY OF CHANGES

This is an incremental revision to ATP 6-02.2. The primary changes are—

- Revised core competencies of the Signal Corps.
- Signal company force design updates.
- Transformation in contact.
- Establishment of the division signal battalion.
- Removal of brigade combat team signal companies in transformation in contact divisions.
- Addition of squad-level battle drills for retransmission teams operating outside of the command post footprint in units at echelons corps and below.

Chapter 1

Signal Platoon Organizations at Echelons Corps and Below

This chapter discusses the roles, 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 – CAPABILITIES, ROLES, DUTIES, AND RESPONSIBILITIES IN SIGNAL PLATOONS

1-1. The platoon's ability to accomplish its mission is dependent upon proper training, 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.

OVERVIEW

1-2. Signal platoon personnel 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).

1-3. A signal platoon provides a tailored set of signal capabilities to support its parent unit. The organization and capabilities of a signal platoon 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. Section II 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 and in Army special operations forces.

CAPABILITIES AND LIMITATIONS

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

- Tactical radio retransmission.
- Line of sight transport.
- Satellite communications (SATCOM) transport.
- Network switching.
- Information services.

- Cable, wire, and fiber optic installation.
- Department of Defense information network (DODIN) operations.

1-5. Signal platoons are manned and equipped specifically to provide communications capabilities for their parent units. Platoons lack the internal resources to perform many of the support functions required to sustain their communications missions. 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.
- Religious support.
- Human resources and finance support.

1-6. Signal platoons operate according to published Army doctrine, unit standard operating procedure (SOP), and validated lessons and best practices. Lessons and best practices are available online at the Cyber Lessons and Best Practices Website.

DUTIES AND RESPONSIBILITIES

1-7. Well-defined roles for platoon personnel help identify training gaps and support leader development and readiness reporting. Each platoon member has primary duties; however, success depends on the platoon working together. Signal teams install, operate, maintain, and secure their assigned equipment and function as one to fulfill their collective roles. Signal team competence and cohesion are vital in unit training and support to maneuver operations. Key personnel roles in signal platoons include—

- Platoon leader.
- Platoon sergeant.
- Section sergeant.
- Team chiefs and operators.

PLATOON LEADER

1-8. The platoon leader is responsible for the tactical employment, collective training, administration, personnel management, and logistics of the platoon. The platoon leader must understand the platoon's capabilities and how to employ the platoon and its equipment. The platoon leader must—

- **General—**
  - Be responsible to the commander for the discipline and training of the platoon, the maintenance of its equipment, and its mission success.
  - Be a subject matter expert in the tactical employment of the platoon's capabilities, whether independently or as part of a company or larger formation.
  - Know the capabilities and limitations of the platoon's personnel and equipment.
  - Be well-versed in enemy organizations, doctrine, and equipment.

  - Be prepared to assume duties as company commander, according to the succession of command.
  - Assist members of the platoon as necessary.
- **Training—**
  - Evaluate the platoon's training readiness using signal assessment tables.
  - Plan and supervise collective training events within the platoon.
- **Planning—**
  - Understand troop leading procedures and develop the ability to apply them quickly and efficiently.
  - Plan operations with the help of the platoon sergeant, section sergeants, and other key personnel.
  - Analyze the elements of the operational environment that support the commander's intent and concept of operations within the platoon's assigned area.
- **Preparation—**
  - Develop a platoon sector sketch.
  - Review platoon requirements based on the tactical plan.
  - Ensure the platoon receives and rehearses isolated Soldier guidance.
  - Conduct pre-combat inspections of signal teams.
- **Execution—**
  - Ensure accomplishment of all missions based on the commander's intent.
  - 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.
  - Analyze tactical situations, disseminate and filter information, and employ the platoon's full capabilities to accomplish the mission.
  - 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 flexible and use professional judgment to make sound decisions quickly and at the right times, based on the commander's intent and the tactical situation.
  - Direct implementation of protection measures, including local security; camouflage and concealment; emission control; and chemical, biological, radiological, and nuclear (CBRN) protection according to the unit tactical SOP.
- **Sustainment—**
  - Receive on-hand status reports from the platoon sergeant, section sergeants, and team chiefs during planning.
  - Assist the platoon sergeant in planning and coordinating sustainment for the platoon.
  - Request any support the platoon needs to perform its mission through the company commander.

- **Maneuver—**
  - Know and understand the mission and the commander's intent during decentralized operations.
  - Maintain awareness of the tactical situation and go where needed to supervise, issue a fragmentary order (FRAGORD), and accomplish the mission.

PLATOON SERGEANT

1-9. The platoon sergeant is second-in-charge 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—

- **General—**
  - 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.
  - Maintain responsibility for the professional development and career management of subordinate noncommissioned officers.
  - Advise the platoon leader on appointments, promotions and reductions, assignments, and discipline of the noncommissioned officers and junior enlisted members of the platoon.
  - Maintain accountability to the platoon leader for the training, discipline, welfare, and readiness of platoon members.
  - Assist other platoon members as necessary.
- **Training—**
  - Assess Soldiers and teams' training readiness and advise the platoon leader of training gaps.
  - Assist the platoon leader in planning collective training events.
  - Supervise individual and collective training.
- **Planning—**
  - Assist the platoon leader in planning operations with the help of the section sergeants and other key personnel.
- **Preparation—**
  - Supervise preparation for operations.
  - Conduct pre-combat checks of signal teams.
- **Execution—**
  - Update the platoon leader on appropriate reports and forward any reports needed by the company headquarters.
  - Take charge of task-organized elements in the platoon during tactical operations, including quartering parties and support elements.
  - 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 and enemy formations.
- **Sustainment—**
  - Supervise the platoon's administration, logistics, and maintenance.
  - Monitor the morale, discipline, and health of platoon members.

  - Maintain responsibility for medical and administrative readiness and the deployable status of the platoon.
  - Ensure the platoon maintains all assigned equipment.
  - Coordinate and supervise company-directed platoon resupply operations.
  - Collect, prepare, and forward logistic status updates and requests to the company operations officer or first sergeant.
  - Ensure support supplies are present.
  - Coordinate the platoon's sustainment requirements and handle the personnel needs of each platoon member.
- **Maneuver—**
  - Perform actions in tactical situations which complement those of the platoon leader.

SECTION SERGEANT

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

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

TEAM CHIEFS 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 collective tasks which cannot be performed by an individual.

1-12. The team chief acts as a member of the team while supervising individual team members' contributions to 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 collective 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 II – SIGNAL COMPANIES AT ECHELONS 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. Signal platoons are organic elements of the brigade combat team signal company; multifunctional support brigade signal companies; the division and corps signal, intelligence, and sustainment companies; and the expeditionary signal battalions-enhanced. Signal companies at echelons corps and below operate under the technical control of the parent unit's G-6 or S-6.

BRIGADE COMBAT TEAMS

1-15. The brigade combat team signal 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's assigned area.

1-16. The brigade signal company extends information services to the brigade command posts and command vehicles. The brigade signal company also provides—

- Wideband and protected SATCOM transport to connect brigade users with the division portion of the DODIN-A.
- High-throughput line of sight transport to communicate between command posts at-the-halt.
- Line of sight and wideband SATCOM 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 (DISN) services including—
  - SECRET Internet Protocol Router Network.
  - Nonclassified 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.

Note. The division signal battalion force design update implemented in transformation in contact divisions (see paragraph 1-82) removes the brigade signal company from subordinate brigade combat teams. In those divisions, the division signal battalion provides command post support at the quick halt for subordinate brigade combat teams and battalions.

ARMORED BRIGADE COMBAT TEAM

1-17. The armored brigade combat team signal company provides DISN services at-the-halt for the brigade main and tactical command posts and single-channel radio retransmission throughout the brigade's assigned area. The company's signal platoons deploy throughout the brigade's assigned area. The signal company provides these communications capabilities to support the brigade headquarters:

- Tactical internet capabilities, including classified and non-classified DISN services, to support the brigade main and tactical command posts.
- Wideband SATCOM 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.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.

1-18. 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, Army Health System support, finance, personnel, administrative, and logistical services. Figure 1-1 on page 8 shows the organization of the armored brigade combat team signal company.

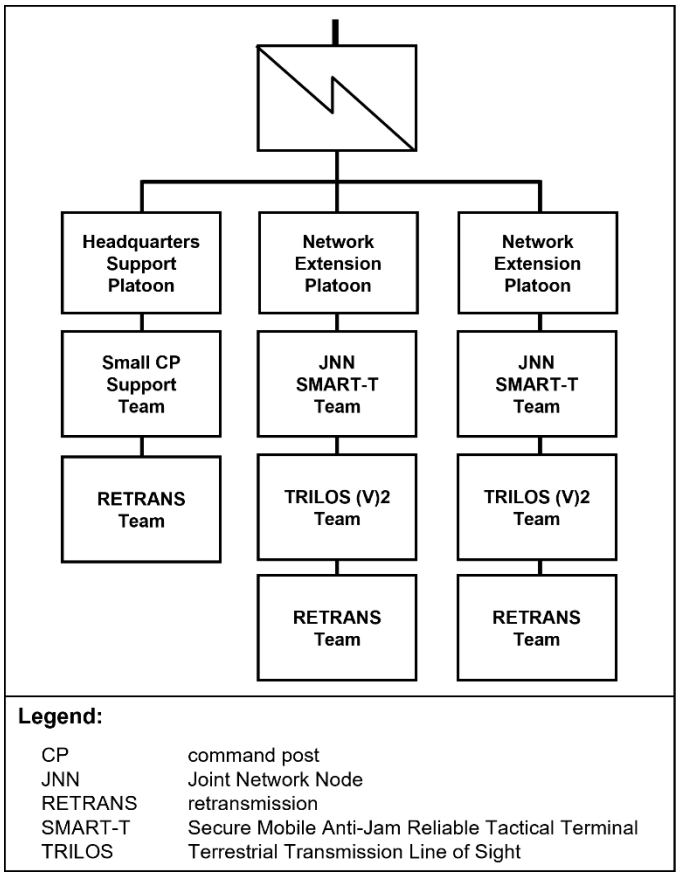


Figure 1-1. Armored brigade combat team signal company organization

Headquarters Support Platoon

1-19. The headquarters support platoon provides communications services to support signal company operations. The team's DISN services and radio retransmission capabilities connect the company with its subordinate platoons and with higher and adjacent headquarters.

Company Headquarters

1-20. The company headquarters provides command and control and staff supervision for the brigade signal company. The company headquarters consists of—

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

Small Command Post Support Team

1-21. The small command post support team equipment includes a Command Post Node and a Satellite Transportable Terminal to provide DISN services to support company operations. The team consists of a senior network communications systems specialist (team chief) and a network communications systems specialist.

Retransmission Team

1-22. The tactical radio retransmission team extends the effective range of tactical radio networks 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 radio retransmission operators.

Network Extension Platoon

1-23. 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 these signal sections and teams:

- Joint Network Node and Secure Mobile Anti-jam Reliable Tactical Terminal (SMART-T) team.
- Retransmission team.
- Terrestrial Transmission Line of Sight section.

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

1-24. The Joint Network Node and SMART-T teams provide wideband and protected SATCOM transport, network switching and DISN services capabilities at the brigade main and tactical command posts. Each team consists of two network communications systems specialists.

Terrestrial Transmission Line of Sight Section

1-25. 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 SATCOM 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 section consists of a senior transmission systems operator (team chief) and four transmission systems operators.

Retransmission Team

1-26. The tactical radio retransmission teams extend the effective range of the brigade's tactical radio networks 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. The network extension platoon retransmission teams each consist of a team chief and two radio retransmission operators.

INFANTRY AND STRYKER BRIGADE COMBAT TEAMS

1-27. The infantry and Stryker brigade combat team signal companies provide DISN services at-the-halt and on-the-move to support the brigade main and tactical command posts and tactical radio retransmission throughout the brigade's assigned area. The companies' signal platoons deploy throughout the brigades' assigned areas. The signal companies provide these communications capabilities to support the brigade headquarters:

- Tactical internet capabilities, including classified and nonclassified DISN 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.
- Wideband SATCOM 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.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.

1-28. 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, Army Health System support, finance, personnel, administrative, and logistical services. Figure 1-2 on page 11 shows the organization of the infantry and Stryker brigade combat team signal companies.

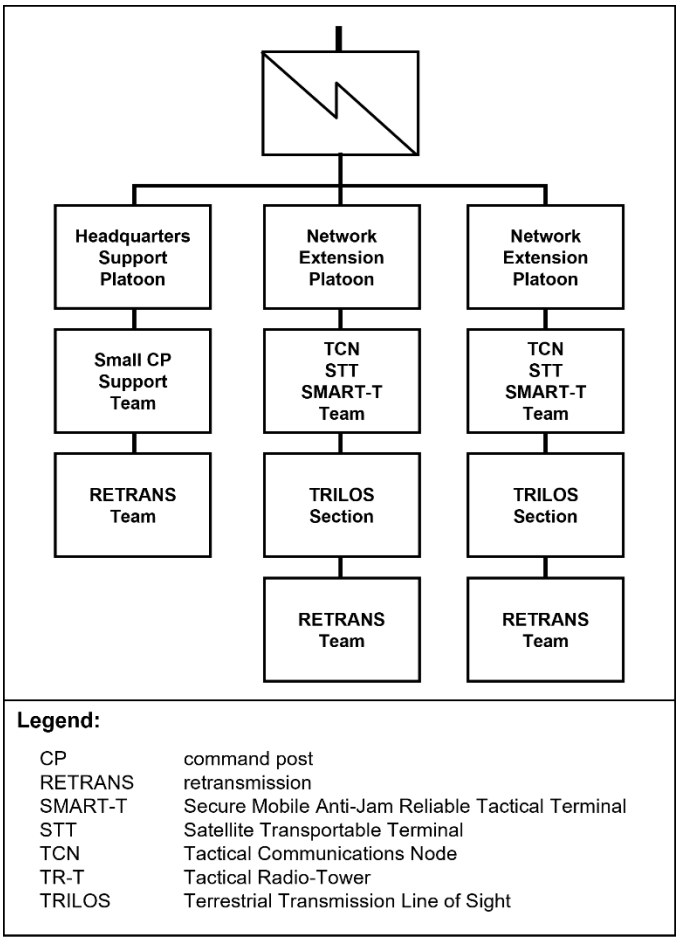


Figure 1-2. Infantry and Stryker brigade combat team signal company organization

Headquarters Support Platoon

1-29. The headquarters support platoon provides communications services to support signal company operations. The team's DISN services and radio retransmission capabilities connect the company with its subordinate platoons and with higher and adjacent headquarters.

Company Headquarters

1-30. The signal company headquarters provides command and control and staff supervision for subordinate signal platoons. The company headquarters consists of—

- Company commander.
- First sergeant.
- Supply sergeant.

- Supply specialist.

Small Command Post Support Team

1-31. The small command post support team provides DISN services at-the-halt to support company operations and on-the-move to support company headquarters relocation. The small command post support team in the infantry brigade combat team consists of three senior network communications systems specialists and four network communications systems specialists. In the Stryker brigade combat team, the team consists of two senior network communications specialists and five network communications specialists.

Retransmission Team

1-32. 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

1-33. The infantry and Stryker brigade combat teams each have two identical network extension platoons. The platoon headquarters consists of a platoon leader and a platoon sergeant. Each platoon is made up of—

- Tactical Communications Node, Satellite Transportable Terminal, and SMART-T team.
- Terrestrial Transmission Line of Sight section.
- Retransmission team.

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

1-34. The Tactical Communications Node, Satellite Transportable Terminal, and SMART-T teams provide DISN services, protected SATCOM transport, and wideband SATCOM transport to one brigade command post (main or tactical). The Tactical Communications Node can also provide DISN services on-the-move using line of sight and wideband SATCOM transport to support key leaders and command post dislocation.

1-35. The Tactical Communications Node, Satellite Transportable Terminal, and SMART-T team consists of—

- Network communications systems specialist (team chief).
- Two SATCOM systems specialists.
- Network communications system specialist.
- Range extension operator.

Terrestrial Transmission Line of Sight Section

1-36. The Terrestrial Transmission Line of Sight team provides high-throughput line of sight connectivity to the division network. Line of sight transport provides higher data throughput than typical SATCOM capabilities, but it is limited to a range of about 25

miles (40 kilometers), if unobstructed by terrain and manmade structures. Each Terrestrial Transmission Line of Sight section consists of a senior transmission systems operator (team chief) and three transmission systems operators.

Retransmission Teams

1-37. The tactical radio retransmission teams extend the effective range of the brigade's tactical radio networks 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 teams assist in the coordinated defense of retransmission sites, but they require augmentation from the brigade to adequately defend remote sites. Each retransmission team consists of a team chief and two radio retransmission operators.

MULTIFUNCTIONAL SUPPORT BRIGADES

1-38. Field artillery, maneuver enhancement, combat aviation, and sustainment brigades have organic tactical signal assets to support their standard missions. Their signal capabilities support the brigade and subordinate battalion command posts operating at-the-halt. 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

1-39. The field artillery brigade signal company provides DISN 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 assigned area. The signal company provides these communications capabilities to support the brigade headquarters:

- Tactical internet capabilities—including classified and nonclassified DISN services—to support the brigade main and tactical command posts.
- Wideband SATCOM 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.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.

1-40. 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, Army Health System support, finance, personnel, administrative, and logistical services. Figure 1-3 on page 14 shows the organization of the field artillery brigade signal company.

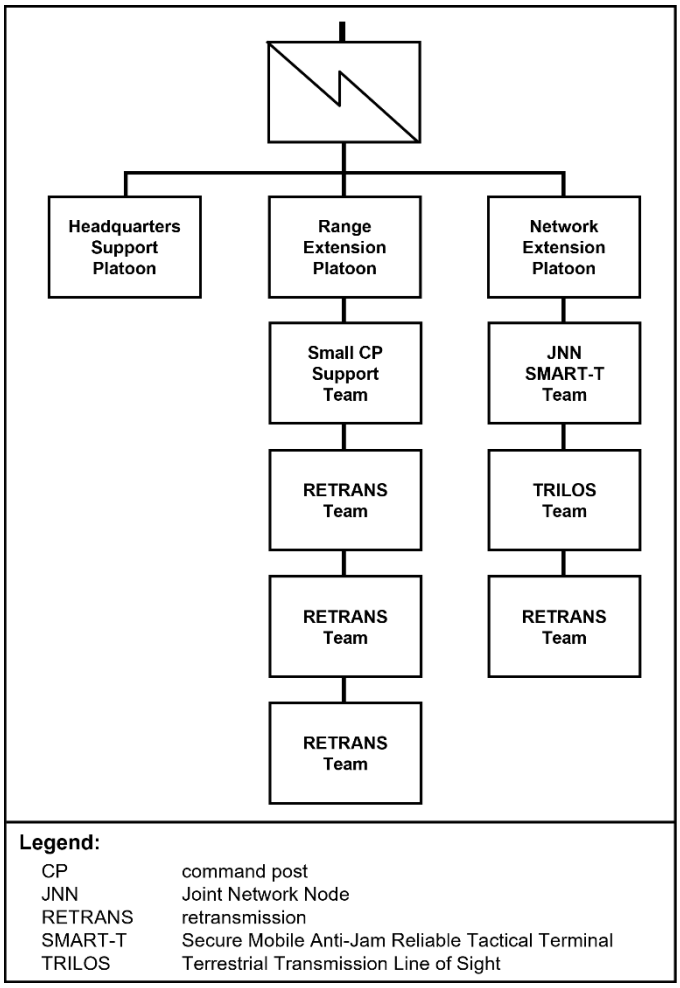


Figure 1-3. Field artillery brigade signal company organization

Range Extension Platoon

1-41. The range extension platoon headquarters consists of a platoon leader and a platoon sergeant. The platoon leader exercises plans and controls operations of a small command post support team and three retransmission teams.

Small Command Post Support Team

1-42. The small command post support team provides tactical internet connectivity to extend DISN services to the field artillery brigade main command post. The team consists of—

- Senior transmission systems operator-maintainer (team chief).
- Network communications systems specialist.
- Two information technology specialists.

Retransmission Team

1-43. The range extension platoon has three identical retransmission teams to extend the effective range of tactical radio networks 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

1-44. The network extension platoon headquarters consists of a platoon leader and a platoon sergeant. The platoon leader plans and controls operations for a Joint Network Node and SMART-T team; a Terrestrial Transmission Line of Sight team; and three retransmission teams.

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

1-45. The Joint Network Node and SMART-T team provides wideband and protected SATCOM transport, network switching and DISN services capabilities at the brigade main command post. The team consists of—

- Senior network communications systems specialist.
- Senior SATCOM systems specialist.
- Two network communications systems specialists.
- Two SATCOM systems specialists.
- Range extension operator.

Terrestrial Transmission Line of Sight Team

1-46. 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 (team chief) and two transmission systems operators. The team provides high-throughput line of sight connectivity to the division network.

Retransmission Team

1-47. The network extension platoon retransmission team extends the effective range of tactical radio networks beyond line of sight distances. Members of the retransmission team assist in the coordinated defense of retransmission sites, but they will 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.

MANEUVER ENHANCEMENT, COMBAT AVIATION, AND SUSTAINMENT BRIGADES

1-48. The maneuver enhancement, combat aviation, and sustainment brigade signal companies provide DISN services at-the-halt and tactical radio retransmission to support the brigade main and tactical command posts. The signal company provides these communications capabilities to support the brigade headquarters:

- Tactical internet capabilities—including classified and nonclassified DISN services—to support the brigade main and tactical command posts.

- Wideband SATCOM 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.
- Radio retransmission using combat net radios and narrowband (single-channel) tactical satellite radios.

1-49. The brigade signal company receives sustainment and field maintenance support from support elements of the brigade. The company is dependent upon elements of the division or corps for religious, legal, Army Health System support, finance, personnel, administrative, and logistical services. Figure 1-4 shows the organization of maneuver enhancement, combat aviation, and sustainment brigade signal companies.

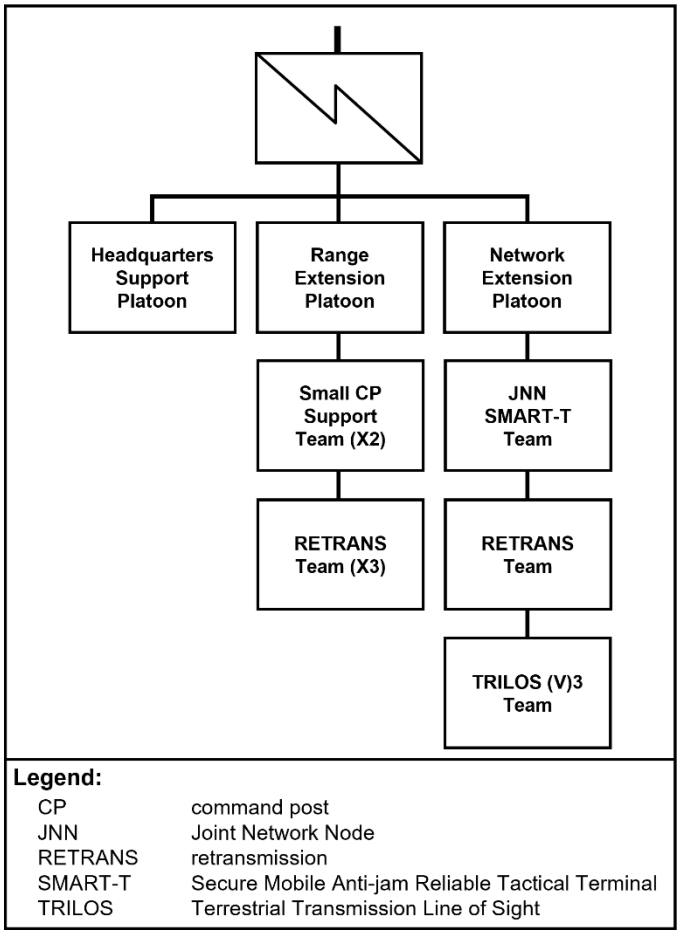


Figure 1-4. Maneuver enhancement, combat aviation, and sustainment brigade signal company organization

Range Extension Platoon

1-50. The range extension platoon headquarters consists of a platoon leader and a platoon sergeant. The platoon leader plans and controls operations for two small command post support teams and three retransmission teams.

Small Command Post Support Team

1-51. The small command post support teams provide tactical internet connectivity to extend DISN services to the brigade tactical command posts. Each team consists of—

- Senior network communications systems specialist (team chief).
- Network communications systems specialist.
- Two information technology specialists.

Retransmission Team

1-52. The range extension platoon has three identical retransmission teams to extend the effective range of tactical radio networks beyond line of sight distances. Members of the retransmission teams assist in the coordinated defense of retransmission sites, but they will 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

1-53. The network extension platoon headquarters consists of a platoon leader and a platoon sergeant. The platoon leader exercises plans and controls operations for—

- Joint Network Node, SMART-T, and Satellite Transportable Terminal team.
- Retransmission team.
- Three Terrestrial Transmission Line of Sight teams.

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

1-54. The Joint Network Node and SMART-T team provides wideband and protected SATCOM transport, network switching, and DISN services capabilities at the brigade main command post. The team consists of—

- Senior network communications systems specialist.
- Senior SATCOM systems specialist.
- Two network communications systems specialists.
- Two SATCOM systems specialists.
- Range extension operator.

Retransmission Team

1-55. The network extension platoon retransmission team extends the effective range of tactical radio networks beyond line of sight distances. Members of the retransmission team assist in the coordinated defense of retransmission sites, but they will 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

1-56. The range extension platoon has three Terrestrial Transmission Line of Sight teams. The team provides high-throughput line of sight connectivity to the division network. Each Terrestrial Transmission Line of Sight team consists of a transmission systems operator (team chief) and two transmission systems operators.

LEGACY DIVISION SIGNAL SUPPORT

1-57. The Army's current fielded network capabilities are complex, have limited mobility, lack flexibility to adapt to changing mission requirements, and do not provide commanders with an effective or survivable communications capability to control large-scale combat operations. To mitigate near-term risk, the Army is prioritizing limited and focused investments drawing from existing programs of record and scalable innovations in development from the operational force and private industry to meet commanders' minimum essential command and control requirements.

1-58. The network portion of the command and control system provides commanders and staffs access to a great deal of data and information to support situational understanding and decision making. However, as currently designed, the network accomplishes this at some cost in mobility and survivability at lower echelons.

1-59. The direct assignment of signal companies and their large equipment assemblages to brigade combat teams decreases the brigades' tactical mobility and agility while maneuver forces move across the battlefield. Additionally, the size of network assemblages makes them targets of opportunity for enemies in large-scale combat operations.

CAPABILITIES

1-60. The currently fielded communications systems to extend the network to brigade combat team and below were designed to support brigade combat teams operating independently with minimal support from higher echelons. The brigade and battalion command posts use large communications assemblages that cannot displace quickly and emit significant electromagnetic signatures. A full brigade command post at-the-halt takes up a large ground footprint and is particularly vulnerable to five of the nine forms of contact outlined in FM 3-0:

- Direct (small arms, crew-served weapons, and antitank missiles).
- Indirect (cannon artillery, rockets, and long-range precision munitions).
- Aerial (manned and unmanned aircraft).
- Visual (human observation and visual sensors).
- Electromagnetic (electromagnetic sensors and jamming).

1-61. The brigade S-6 and legacy brigade signal company provide a robust Internet Protocol network capability to deliver home-station quality DISN services and command and control information systems support to the main and tactical command posts to support staff coordination and planning. Managing these capabilities creates a level of network complexity to install, operate, maintain, and secure the network at the brigade combat team that is a hindrance to the unit's mobility.

SIGNAL, INTELLIGENCE, AND SUSTAINMENT COMPANY

1-62. 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 ATP 2-19.3 for information about division intelligence techniques and ATP 4-91 for information about division sustainment operations.

1-63. 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 SATCOM 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 SATCOM transport to support command and control on-the-move.
- DISN services.
- Wire, cable, and fiber optic systems to support the division command posts.
- Single-channel radio and narrowband (single-channel) tactical satellite retransmission for the division and support elements.

1-64. The signal, intelligence, and sustainment company is dependent on support elements of the division for life support including human resources, logistics, religious, Army Health System support, field maintenance, and vehicle recovery. Figure 1-5 on page 20 shows the organization of the signal portion of the division signal, intelligence and sustainment company.

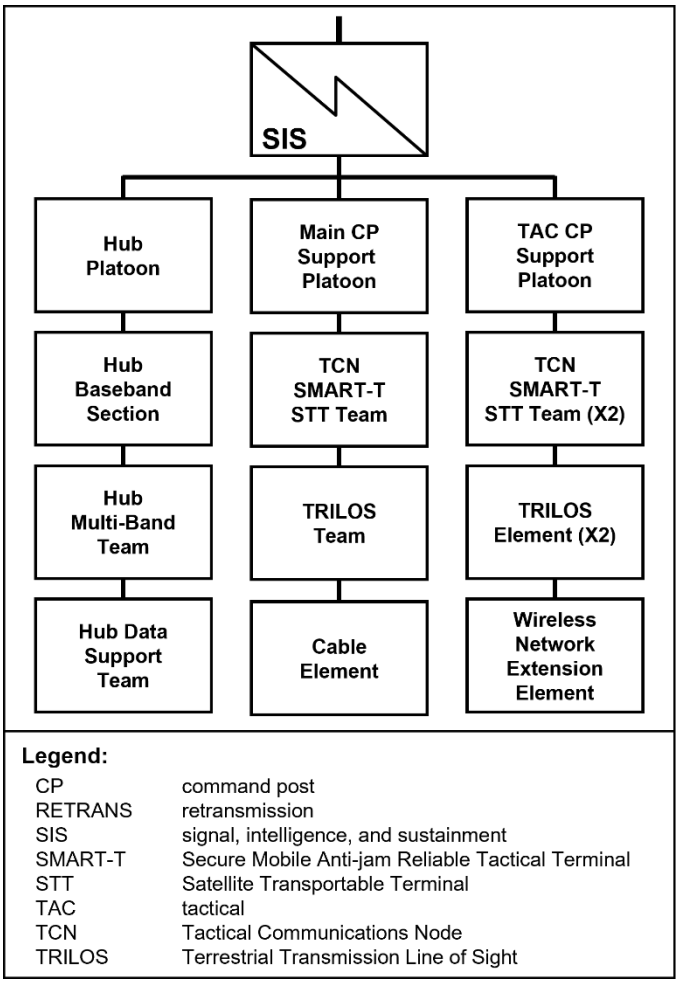


Figure 1-5. Division signal, intelligence, and sustainment company signal platoon organization

Company Headquarters

1-65. The company headquarters provides command and control and limited company-level administration and life support to members of the signal, intelligence, and sustainment company supporting the division command posts. The company headquarters consists of—

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

Hub Platoon

1-66. 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 SATCOM transport—frequency division multiple access and time division multiple access.
- Connectivity to a DOD gateway site for access to DISN services.
- Wire, cable, and fiber optic installation to support the hub node.

Platoon Headquarters

1-67. The hub platoon headquarters controls the hub platoon's subordinate teams. The platoon headquarters consists of a network operations warrant officer and a platoon sergeant.

Hub Baseband Section

1-68. The hub baseband section provides baseband requirements for the hub node. Baseband includes connections to DISN services to support command post operations. The team consists of a network communications systems supervisor (team chief) and three network communications systems specialists.

Hub Multi-Band Team

1-69. The hub multi-band team operates frequency division multiple access and time division multiple access SATCOM terminals to connect the division network to a DOD gateway for access to DISN services, including—

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

1-70. The time division multiple access SATCOM terminal provides master network timing for the division's time division multiple access network. The team consists of—

- SATCOM systems supervisor (team chief).
- Senior SATCOM systems specialist.
- Six SATCOM systems specialists.

Hub Data Support Team

1-71. The hub data support team provides data support for the hub platoon. The team consists of—

- Senior information technology specialist (team chief).
- Information technology specialist.
- Two cable systems installers.

Main Command Post Support Platoon

1-72. The main command post support platoon controls the assets of the teams supporting the division main command post. The platoon includes a Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team; a Terrestrial Transmission Line of Sight team; and a cable element.

Platoon Headquarters

1-73. The main command post support platoon headquarters controls and supervises 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 Team

1-74. The Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team provides wideband and protected SATCOM transport, switching, and data package requirements for the division main command post. The team consists of—

- Senior network communications systems specialist (team chief).
- Network communications systems specialist.
- Two SATCOM systems specialists.

Terrestrial Transmission Line of Sight Team

1-75. 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 (team chief) and two transmission systems operators.

Cable Element

1-76. The cable element installs wire, cable, and fiber optic communication systems to support the division main command post. The element consists of—

- Section supervisor.
- Senior cable systems installer.
- Cable systems installer.

Tactical Command Post Support Platoon

1-77. The tactical command post support platoon consists of—

- Platoon headquarters.
- Two Tactical Communications Node, SMART-T, and Satellite Transportable Terminal teams.
- Terrestrial Transmission Line of Sight section.
- Retransmission section.

Platoon Headquarters

1-78. The tactical command post support platoon headquarters controls and supervises 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

1-79. Each Tactical Communications Node, SMART-T, and Satellite Transportable Terminal team provides wideband and protected SATCOM 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—

- Senior network communications systems specialist (team chief).
- Network communications systems specialist.
- Two SATCOM systems specialists.

Terrestrial Transmission Line of Sight Section

1-80. The Terrestrial Transmission Line of Sight section has two teams to provide high-throughput line of sight connectivity for the division network, including connectivity to subordinate brigade combat teams. Team 1 consists of a senior transmission systems operator (team chief) and two transmission systems operators. Team 2 consists of a transmission systems team supervisor (section sergeant), a senior transmission systems operator (team chief), and three transmission systems operators.

Wireless Network Extension Element

1-81. The wireless network extension element extends the effective range of multiple tactical radio voice and data sub-networks beyond line of sight distances for information exchange among division elements. The element consists of—

- Radio retransmission supervisor (section sergeant).
- Team chief.
- Four radio retransmission operators.

TRANSFORMATION IN CONTACT DIVISION

1-82. As the Army transitions to the division as the primary tactical echelon, signal formations will be reorganized and consolidated at the division, creating a more agile and survivable command and control system at the brigade combat team and below. The integrated tactical network reduces network complexity at the brigade combat team and below and consolidates network management expertise at the division level. Signal capabilities will be concentrated at the division, retaining the most complex network management tasks at the higher echelon while allowing the division to provide downward reinforcing support to the division commander's priority effort. Tasks at the brigade and below will focus on connecting to the network services provided by the division, rather than on installing, operating, maintaining, and securing network systems.

INTEGRATED TACTICAL NETWORK

1-83. In the near to mid term, integrated tactical network modernization efforts will focus on seven divisions in the Active Component. At the end of fielding, most Active Component divisions will undergo signal force restructure with integrated tactical network capabilities. Reserve Component divisions will implement force structure changes if stationing and resources allow.

Imperatives

1-84. The Army of 2030 requires an integrated tactical network with specific capabilities. Modernizing the network and signal force structure is essential to deliver this network and meet those requirements. Modernized signal formations have the imperatives to provide—

- Agility.
- Forward and expeditionary capability.
- Multi-disciplinary approach.
- Convergence at echelon.
- National-level capabilities and authorities.
- Downward reinforcing capabilities and authorities.
- Unified network capability.
- Defensibility, survivability, and sustainment.
- Network mobility.
- Complexity retained at highest echelon possible.

Agility

1-85. Agile communications enable decentralized execution according to the commander's intent. Communications and networking capabilities must meet the commander's communications requirements and support situational understanding and decision making. An agile network adapts to meet user needs in a continually changing operational environment. Agile networks have the capacity, flexibility, mobility, redundancy, reliability, scalability, and timeliness to meet commander's requirements across the competition continuum. To support agile forces and dynamic operations, the communications architecture should be adaptable to a wide range of missions without needing extensive reconfiguration.

Forward and Expeditionary Capability

1-86. Forward and expeditionary forces must be ready to deploy on short notice to austere locations and immediately conduct combat operations. Commanders sequence their deployment so the arriving forces can defend themselves until follow-on forces arrive in the operational area. The earliest arriving forces have limited communications and network capabilities until their organic signal capabilities arrive and establish the network. These signal capabilities provide the same types of services used at the home station, whenever and wherever rapidly deployable forces are needed.

Multi-Disciplinary Approach

1-87. Combining traditional and emerging techniques and capabilities supports the multi-disciplinary approach to engaging and overcoming signal challenges. Success in Army operations can be achieved by bringing together multiple disciplines, creating a single point of impact. This multi-disciplinary approach affords the maneuver commander and staff great range across different elements.

Convergence at Echelon

1-88. The future force focuses on the division as the primary tactical echelon. The transition from brigade combat team focused engagements does not negate the need to converge capabilities at different echelons. Large-scale combat operations require continuous independent thought and initiative from maneuver commanders and the ad hoc need for communications capabilities. Given the dynamic nature of combat, exclusively relying on capacity at the division level may restrict successful operations and outcomes at other echelons.

National-Level Capabilities and Authorities

1-89. Not all capabilities can be concentrated at the division level. Certain capabilities reside at the national level and require unique authorities to access and apply. Some network capabilities, such as DISN services, are implemented and managed as enterprise-wide capabilities across the DOD. Network security and defense tasks are conducted according to USCYBERCOM standards and authorities. Planners and signal personnel at the division formulate signal plans and coordinate for access to enterprise capabilities as necessary. In addition to national-level collaboration, the division signal battalion ensures these capabilities and services are available at the appropriate echelon.

Downward Reinforcing Capabilities and Authorities

1-90. As the division evolves, it is critical to leverage other Army elements. In line with employing and applying national-level capabilities, organic Army capabilities will be critical to maneuver commander success, regardless of echelon. Retaining communications network capabilities at the division-level must be weighed against the need and tactical situation at lower echelons. Division commanders and their staffs plan downward reinforcing support based on the mission variables of mission, enemy, terrain and weather, troops and support available, time available, civil considerations, and informational considerations—METT-TC (I) and the commander's priority effort.

Defensibility, Survivability, and Sustainment

1-91. Reducing the physical and electromagnetic signatures of command posts and communications systems in the close area enhances the defensibility and survivability of command posts and maneuver formations at lower echelons. *Survivability* is all aspects of protecting personnel, weapons, and supplies, including deceptive measures (JP 3-34). Concentrating critical signal capabilities under the training and readiness oversight of a single division signal battalion commander enhances the sustainability of signal equipment.

Network Mobility

1-92. Threat offensive capabilities are ever-changing, more available, and becoming increasingly difficult to detect and defeat. Given the dynamic battlefield, an immobile force is likely to be a defeated force. This applies to all aspects of focused combat. The interconnected Army requires a network that is robust, dynamic, redundant, secure, and arguably most important, mobile. The network and all elements of the network must be ready to proceed to the next position as quickly as possible, always applying the elements of defense, survivability, and sustainment. Reducing the size of signal support elements at lower echelons enhances the mobility of network capabilities.

Complexity Retained at Highest Echelon Possible

1-93. Legacy signal force design and systems require significant manning and signal subject matter expertise to install, operate, maintain, and secure network capabilities at the brigade combat team and maneuver battalion. Transformation in contact consolidates signal manning to maximize expertise to perform critical network tasks at the division level and minimize complexity of the network at the brigade combat team and below, where most command and control-enabling capabilities are provided by general-purpose user-operated devices and systems.

Brigade Combat Team Signal Support

1-94. Transformation in contact transfers large legacy communications systems to the division while delivering enhanced integrated tactical network capabilities to the brigade combat team and below. Signal support at the brigade and below focuses on meeting the brigade commander's minimum essential command and control requirements with reduced physical and electromagnetic signatures for signal support systems.

Minimum Essential Command and Control Requirements

1-95. The integrated tactical network is predicated on providing brigade combat team commanders the minimum essential capabilities to support command and control. This reduces the number and size of brigade communications systems to increase the agility and mobility of maneuver formations. The minimum essential command and control requirements for the brigade and below are—

- Give and receive orders (exercise command and control).
- Maintain situational awareness of two levels up and one level down.
- Planning and orders production.
- Exercise brigade fire control.

Brigade S-6

1-96. The brigade combat team S-6 retains the three single-channel radio retransmission teams from the legacy brigade signal company. These teams can deploy throughout the close area behind the forward line of own troops to extend the range of tactical radio networks beyond line of sight. The division commander can task-organize additional retransmission teams from the signal battalion to subordinate brigade combat teams as necessary to support the priority effort.

Signal Capabilities

1-97. Transformation in contact removes large signal assemblages, SATCOM terminals, and server infrastructure (Command Post Computing Environment) from the brigade combat team and focuses on providing the minimum required command and control capabilities at the brigade and below. These signal capabilities include—

- Mounted and handheld common operational picture.
- Secure, but unclassified-encrypted single-channel radios and retransmission.
- Limited on-the-move SATCOM for command vehicles.

Desired End State

1-98. As signal forces evolve from legacy brigade combat team-focused structure and capabilities to a more agile brigade network retaining larger capabilities and network complexity at the division, the integrated tactical network will support much more agile maneuver forces at lower echelons. This will result in maneuver formations capable of conducting large-scale combat operations with simpler, more intuitive, lower signature, and more flexible command and control capabilities at echelons brigade and below. As brigade combat teams and division signal battalions' force structure is updated; units are fielded integrated tactical network equipment sets; and tactics, techniques, and procedures are validated through combat training center rotations, the Cyber Center of Excellence will update brigade combat team and division signal doctrine accordingly.

DIVISION SIGNAL BATTALION

1-99. The division signal battalion consists of the headquarters, a headquarters and headquarters company and two tactical signal companies. Figure 1-6 shows the organization of the division signal battalion.

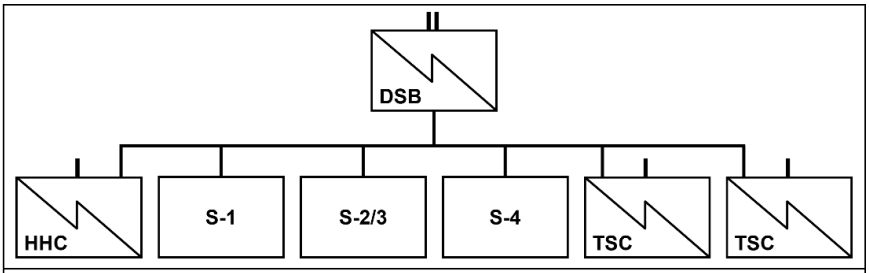


Figure 1-6. Division signal battalion organization

Headquarters and Headquarters Company

1-100. The headquarters and headquarters company, division signal battalion oversees the engineering, installation, operation, and maintenance of nodal and extension communications in support of the division headquarters and provides downward

reinforcing support to brigade combat teams and attached enabling units. Figure 1-7 shows the organization of the headquarters and headquarters company, division signal battalion.

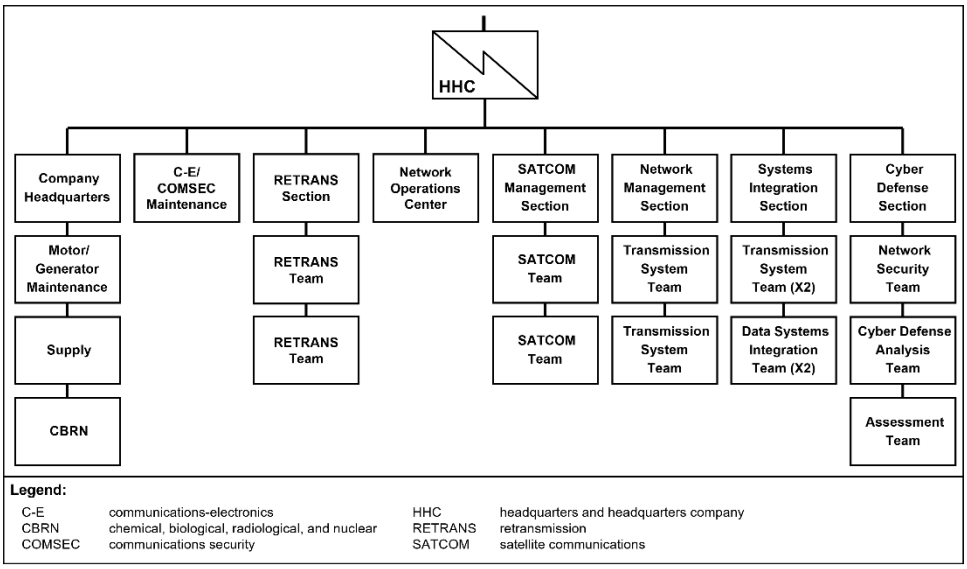


Figure 1-7. Headquarters and headquarters company, division signal battalion organization

Company Headquarters

1-101. The company headquarters—

- Provides administrative and logistical support for the battalion staff.
- Provides field maintenance for all assigned vehicles and generators.
- Develops requirements for and maintains the prescribed load list and monitors maintenance procedures and operations.

1-102. The motor and generator maintenance section provides field maintenance support for automotive; power generation; petroleum, oils, and lubricants; and environmental control equipment for the company. The supply section maintains the prescribed load list for the headquarters vehicles and ground equipment for the division signal battalion.

Communications-Electronics and Communications Security Maintenance Section

1-103. The communications-electronics and communications security (COMSEC) maintenance section performs field maintenance for organic communications equipment and controlled cryptographic items for the division signal battalion. The section consists of—

- Electronic systems maintenance warrant officer.
- Electronic maintenance supervisor (section sergeant).
- Equipment records and parts sergeant.
- Radio equipment repairer.

- Computer and detection systems repairer.

Retransmission Section

1-104. The retransmission section provides radio communications around obstructions and extends tactical radio networks beyond line of sight. They deploy retransmission assets to support tactical radio networks, including the—

- Command network.
- Administrative and logistics network.
- Operations and intelligence network.
- Fires network.

1-105. Retransmission operates on the command network to subordinate units unless specifically tasked to operate on another network. The primary radio monitors the command network and the operations and intelligence network. The secondary radio provides a retransmission link. The retransmission section consists of a radio retransmission supervisor (section sergeant) and two retransmission teams, each consisting of a team chief and two radio retransmission operators.

Network Operations Center

1-106. The network operations center—

- Maintains status reporting of the battalion's network communications systems.
- Provides alternate communications routing.
- Provides technical advice.
- Conducts tactical network planning for the battalion.

1-107. The network operations center consists of—

- Network officer (officer-in-charge).
- Network systems engineer.
- Network officer.
- Network systems technician.
- Network communications systems manager (noncommissioned officer in charge).
- Network communications systems supervisor.
- Senior network communications systems specialist.
- Two information technology specialists.

Satellite Communications Section

1-108. The SATCOM management section includes two SATCOM teams to provide 24-hour communications network and satellite control for the battalion and supported units as directed. The section headquarters consists of a network systems technician (officer-in-charge). Each team consists of a senior SATCOM systems specialist (team chief) and two SATCOM systems specialists.

Network Management Section

1-109. The network management section—

- Manages the networking of information systems and applications from individual platforms for the division.
- Monitors network performance and takes or directs actions to correct degraded performance.
- Executes deliberate network modifications to meet the commander's operational requirements.
- Manages network quality of service.

1-110. The network management section consists of—

- Network systems engineer (officer-in-charge).
- Network officer.
- Network systems technician.
- Electromagnetic spectrum manager.
- Electromagnetic spectrum noncommissioned officer.
- Network communications systems supervisor.
- Senior network communications systems specialist.

Systems Integration Section

1-111. The systems integration section consists of the section headquarters, two transmission system teams, and two data systems integration teams to—

- Manage the integration of information systems and applications from individual platforms for the division.
- Monitor and manage systems of integrated applications, processes, and services that enable information producers and users to locate, retrieve, and send or receive information.

1-112. The section consists of a section headquarters, two transmission system teams, and two data systems integration teams:

- **Section headquarters**—consists of a data systems engineer (officer-in-charge).
- **Transmission system teams**—consist of a network operations warrant officer (officer-in-charge), a senior network communications systems specialist (noncommissioned officer in charge), and two network communications specialists.
- **Data systems integration teams**—consist of a data operations warrant officer (officer-in-charge), a senior information technology specialist (noncommissioned officer in charge), and two information technology specialists.

Cyber Defense Section

1-113. The cyber defense section provides infrastructure support, incident response, auditing and managing. The section also protects against and detects unauthorized network activity and uses a variety of tools to analyze and respond to malicious cyberspace activity. The section consists of a section headquarters, two network security teams, a cyber defense analysis team, and an assessment team.

- **Section headquarters—**consists of a cyberspace defense warrant officer (officer-in-charge) and a senior incident responder.

- **Network security teams—**consist of a senior infrastructure specialist (team chief) and an infrastructure specialist.
- **Cyber defense analysis team—**consists of a cyberspace defense warrant officer and a computer network defense analyst.

Tactical Signal Company (Heavy)

1-114. The tactical signal company (heavy) provides command and control, company-level planning, and supervision of the headquarters section, a command post support platoon, a nodal support platoon, and augmenting elements, personnel, or material assets. The headquarters and headquarters company augments the tactical signal company (heavy) headquarters. Figure 1-8 shows the organization of the tactical signal company (heavy).

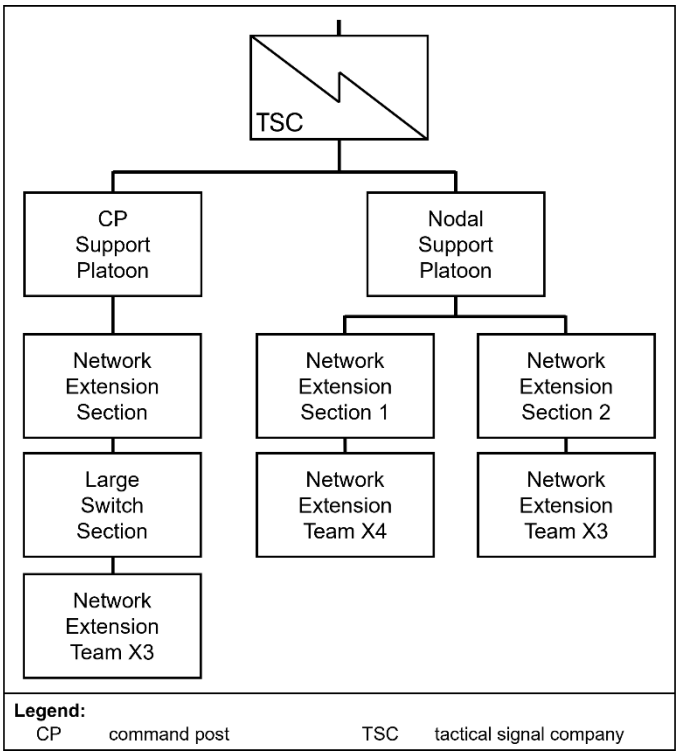


Figure 1-8. Tactical signal company (heavy), division signal battalion organization

Company Headquarters

1-115. The company headquarters provides command and control and logistical support for assigned sections and teams. The company headquarters consists of—

- Company commander.
- Operations officer.
- First sergeant.

- Supply noncommissioned officer.
- Supply specialist.

Command Post Support Platoon

1-116. The command post support platoon installs, operates, maintains, and secures line of sight and beyond line of sight network transport and associated routing and switching capabilities. The command post support platoon is manned and equipped to extend access to classified and nonclassified DISN and cloud services and robust tactical radio connectivity to and between dispersed nodes across the division tactical support area and reachback to the strategic support area. The platoon consists of—

- The platoon headquarters—platoon leader and platoon sergeant.
- The network extension section, consisting of—
  - Section headquarters—network communications systems supervisor (section sergeant).
  - Four network extension teams, each consisting of a senior network communications systems specialist (team chief) and two network communications systems specialists.

1-117. The primary elements supported by the command post support platoon are—

- Division main command post.
- Division tactical command posts.
- Division rear command post.
- Combat aviation brigade main command post.
- Division artillery main and tactical command posts.
- Engineer brigade and battalion main and tactical command posts.
- Division sustainment brigade main and tactical command posts.
- Sustainment battalion command posts.

1-118. The platoon headquarters provides platoon-level planning, operational control, and sustainment for the platoon. The assigned teams install, operate, maintain, and secure—

- Five medium communications packages.
- One large communications package with associated line of sight network transport.
- Multi-channel satellite terminals.

Nodal Support Platoon

1-119. The nodal support platoon installs, operates, maintains, and secures line of sight network transport and associated routing and switching capabilities. The nodal support platoon has the personnel and equipment authorizations to extend access to classified and nonclassified DISN and cloud services and robust tactical radio connectivity to and between dispersed nodes from the division close area and deep maneuver area, and reachback to the strategic support area. The platoon consists of—

- Platoon headquarters—platoon leader and platoon sergeant.
- Two network extension sections, each with three network extension teams—
  - Section headquarters—network communications systems supervisor (section sergeant).

  - Network extension teams each consist of a senior network communications systems specialist (team chief) and two network communications systems specialists.

1-120. The primary elements supported by the nodal support platoon include—

- Brigade combat team main and tactical command posts.
- Maneuver battalion command posts.
- Combat aviation battalion main and tactical command posts, including those in the forward arming and refueling point.
- Field artillery battalion main and tactical command posts.
- Engineer battalion main command posts.
- Division field trains and combat trains command posts.

1-121. The platoon headquarters provides platoon-level planning, operational control, and sustainment for the platoon. The assigned teams install, operate, maintain, and secure medium communications packages.

Tactical Signal Company (Light)

1-122. The tactical signal company (light) provides nodal communications support for subordinate brigade combat teams and battalions. The company is dependent upon—

- Headquarters and headquarters company, division signal battalion for—
  - Logistical support.
  - Personnel and administrative support.
  - Army Health System support.
  - Religious support.
  - Legal support.
  - Finance support.
  - Tactical vehicle and communications-electronics maintenance.
  - Wheeled vehicle recovery.
- The supported unit for petroleum, oils, and lubricants resupply.

Company Headquarters

1-123. The company headquarters provides command and control and logistical support for assigned sections and teams. The company headquarters consists of—

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

Nodal Support Platoons

1-124. The tactical signal company (light) has two nodal support platoons. The nodal support platoons install, operate, maintain, and secure line of sight network transport and associated routing and switching capabilities. The nodal support platoons have the personnel and equipment authorizations to extend access to classified and nonclassified DISN and cloud services and robust tactical radio connectivity to and between dispersed

nodes from the division close area and deep maneuver area, and reachback to the strategic support area. The platoons consist of—

- Platoon headquarters—platoon leader and platoon sergeant.
- Network extension sections, each with three network extension teams—
  - Section headquarters consists of a network communications systems supervisor (section sergeant).
  - Network extension teams each consist of a senior network communications systems specialist (team chief) and two network communications systems specialists.

1-125. The primary elements supported by the nodal support platoons include—

- Brigade combat team main and tactical command posts.
- Maneuver battalion command posts.
- Combat aviation battalion main and tactical command posts, including those in the forward arming and refueling point.

1-126. Nodal support platoon 1 has one network extension section and supports three medium communications packages. Nodal support platoon 2 has two network extension sections and supports six medium communications packages. Figure 1-9 shows the organization of the tactical signal company (light).

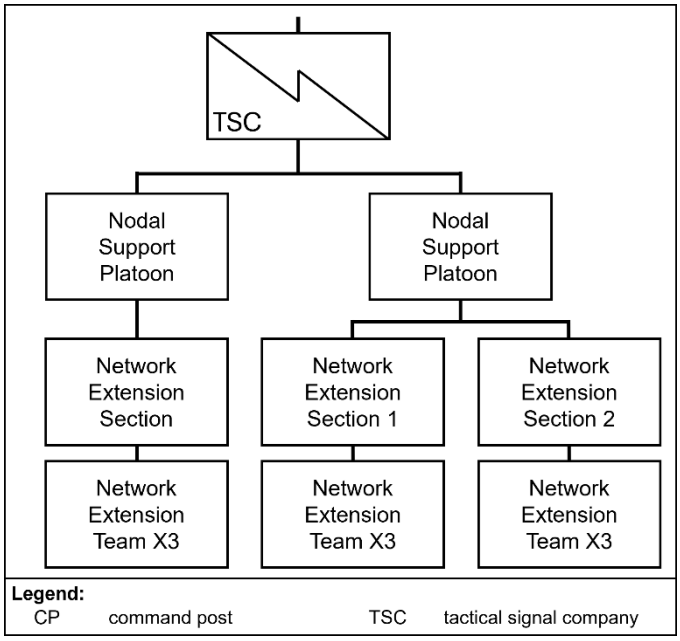


Figure 1-9. Tactical signal company (light), division signal battalion organization

CORPS SIGNAL, INTELLIGENCE, AND SUSTAINMENT COMPANY

1-127. The signal portion of the corps signal, intelligence, and sustainment company includes personnel authorizations for the G-6 section and elements to install, operate, maintain, and secure the corps headquarters' network transport, automated information systems, and networks.

1-128. The corps signal, intelligence, and sustainment company provides communications and network support for the corps main, tactical, and rear command posts and the various companies in the corps headquarters and headquarters battalion. The signal portion of the company also provides—

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

1-129. Figure 1-10 on page 36 shows the organization of the signal portion of the signal, intelligence, and sustainment company. Refer to ATP 2-19.3 for information about corps intelligence techniques and ATP 4-92 for information about corps sustainment support.

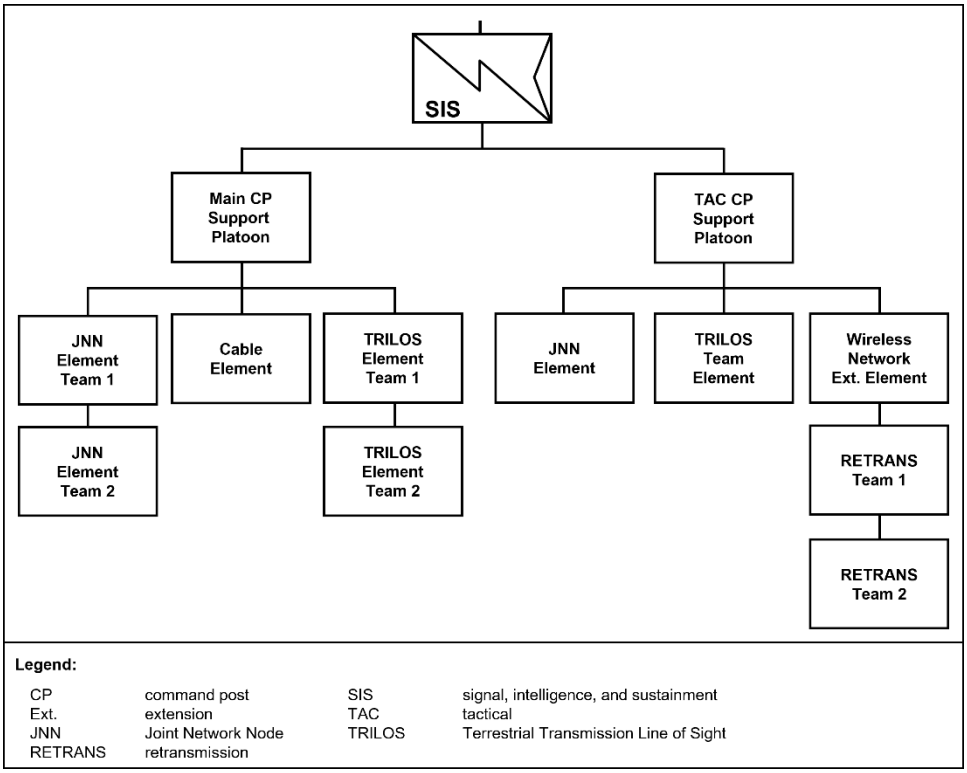


Figure 1-10. Corps signal, intelligence, and sustainment company signal platoon organization

MAIN COMMAND POST SUPPORT PLATOON

1-130. 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.

Platoon Headquarters

1-131. The main command post support platoon headquarters controls and supervises the platoon's assigned teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Joint Network Node Element Teams

1-132. The Joint Network Node element consists of two Joint Network Node teams to install, operate, maintain, and secure a Joint Network Node, a Satellite Transportable Terminal, and a SMART-T to provide connections to DISN services at the corps main command post. Each Joint Network Node team consists of—

- Senior network communications systems specialist.
- Senior SATCOM systems specialist.

- Two network communications systems specialists.
- Two SATCOM systems specialists.

Cable Element

1-133. The cable element installs wire, cable, and fiber optic communication systems to support the corps main and tactical command posts. Personnel authorizations for the cable element reside in the corps main command post operational detachment. The cable element consists of—

- Cable systems installation supervisor (team chief).
- Senior cable systems installer.
- Two cable systems installers.

Terrestrial Transmission Line of Sight Element Teams

1-134. The Terrestrial Transmission Line of Sight element provides high-throughput line of sight connectivity to connect the corps main command post with subordinate divisions. Each team consists of senior transmission systems operator (team chief) and two transmission systems operators.

TACTICAL COMMAND POST SUPPORT PLATOON

1-135. The tactical command post support platoon supports the corps tactical command post. The platoon consists of a platoon headquarters, a Joint Network Node team, a Terrestrial Transmission Line of Sight team, and a wireless network extension element consisting of two retransmission teams.

Platoon Headquarters

1-136. The tactical command post support platoon headquarters controls and supervises the platoon's assigned teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Joint Network Node Element

1-137. The Joint Network Node element installs, operates, maintains, and secures a Joint Network Node, a Satellite Transportable Terminal, and a SMART-T to connect the corps tactical command post with DISN services. The team consists of—

- Senior SATCOM systems specialist (team chief).
- Three network communications systems specialists.
- Two SATCOM systems specialists.

Terrestrial Transmission Line of Sight Team Element

1-138. The Terrestrial Transmission Line of Sight team provides 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 (team chief) and two transmission systems operators.

Wireless Network Extension Element

1-139. The wireless network extension element consists of two retransmission teams to extend the effective range of multiple tactical radio voice and data sub-networks beyond line of sight distances for information exchange among corps and subordinate elements. Team 1 consists of a radio retransmission supervisor (section sergeant) and two radio retransmission operators. Team 2 consists of a team chief and two radio retransmission operators.

CORPS SIGNAL BRIGADE

1-140. The corps signal brigade is a headquarters element to engineer, plan, and oversee signal support to enabling formations, such as functional support brigades and downward reinforcing support to subordinate divisions and brigade combat teams in the corps' assigned area. The brigade commander exercises command and control of up to five expeditionary signal battalions-enhanced and other assigned or attached forces necessary to meet the network support missions in the corps' assigned area. Figure 1-11 on page 39 shows the organization of the corps signal brigade headquarters.

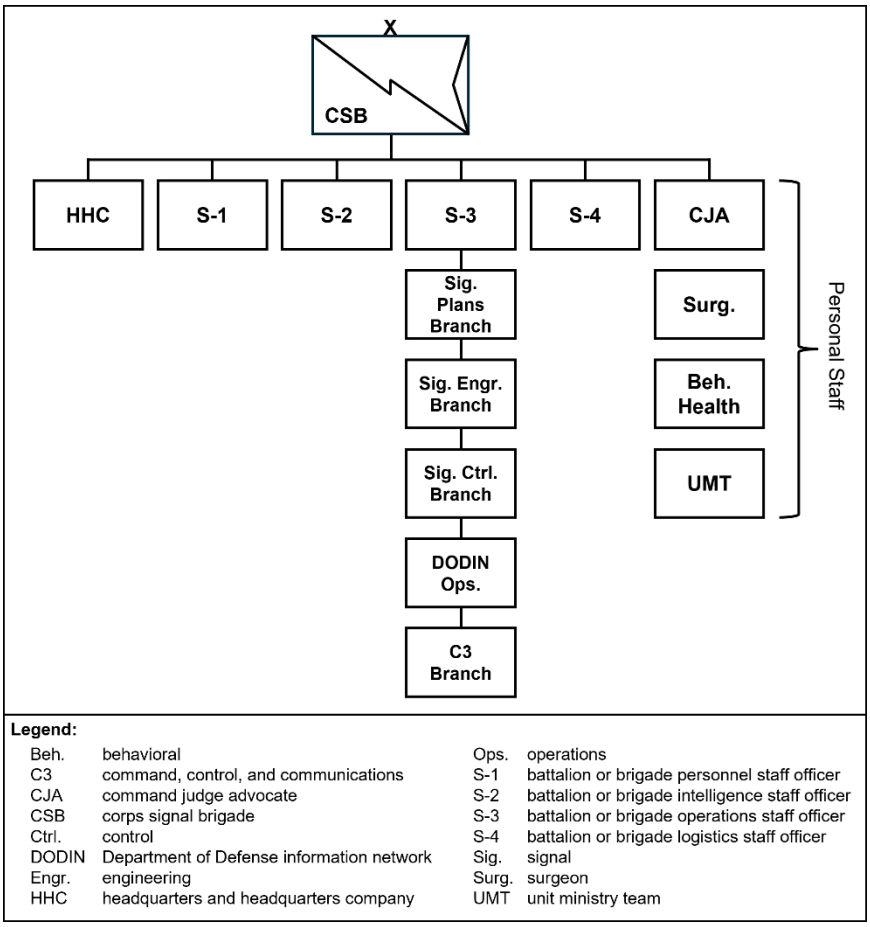


Figure 1-11. Corps signal brigade headquarters organization

EXPEDITIONARY SIGNAL BATTALION-ENHANCED

1-141. The expeditionary signal battalion-enhanced exercises command and control and staff planning and oversees the engineering, installation, operation, and maintenance of nodal and extension communications in support of Army units in a corps' assigned area. Assigned companies provide unclassified, secure but unclassified-encrypted, secret, and top secret voice and data networking. The battalion provides modular, scalable communications capabilities and line of sight and beyond line of sight network transport. The battalion headquarters provides communications-electronics maintenance support to assigned companies.

1-142. The battalion is dependent on the corps signal brigade for legal; Army Health System support; finance; petroleum, oils, and lubricants; and personnel and administrative service and support. Figure 1-12 on page 40 shows the organization of the expeditionary signal battalion-enhanced headquarters.

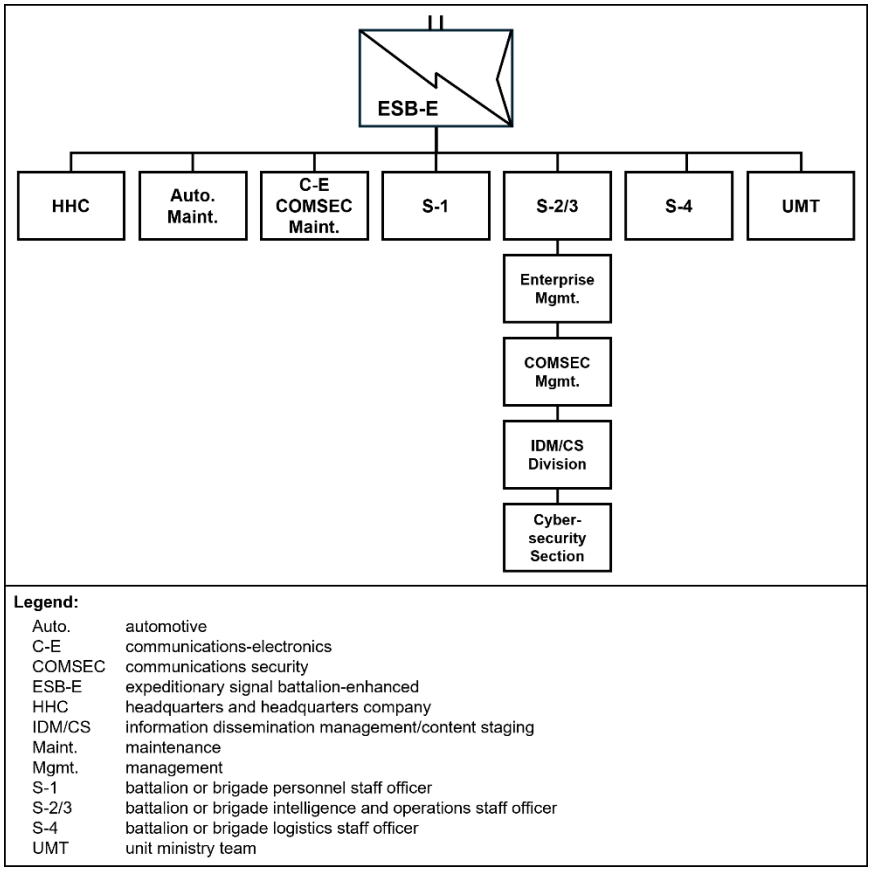


Figure 1-12. Expeditionary signal battalion-enhanced headquarters organization.

EXPEDITIONARY SIGNAL COMPANY-ENHANCED

1-143. The expeditionary signal company-enhanced is a corps signal support unit assigned to the expeditionary signal battalion enhanced. These companies primarily support attached enabling units without organic signal capabilities across a corps' assigned area. They may also provide downward reinforcing support to subordinate divisions and brigade combat teams. Figure 1-13 on page 41 shows the organization of the expeditionary signal company-enhanced. The expeditionary signal company-enhanced also provides—

- Wideband SATCOM 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.
- Access to DISN voice, data, and video services.

- Field maintenance support for organic communications-electronics, COMSEC, automotive, power generation, and environmental control equipment

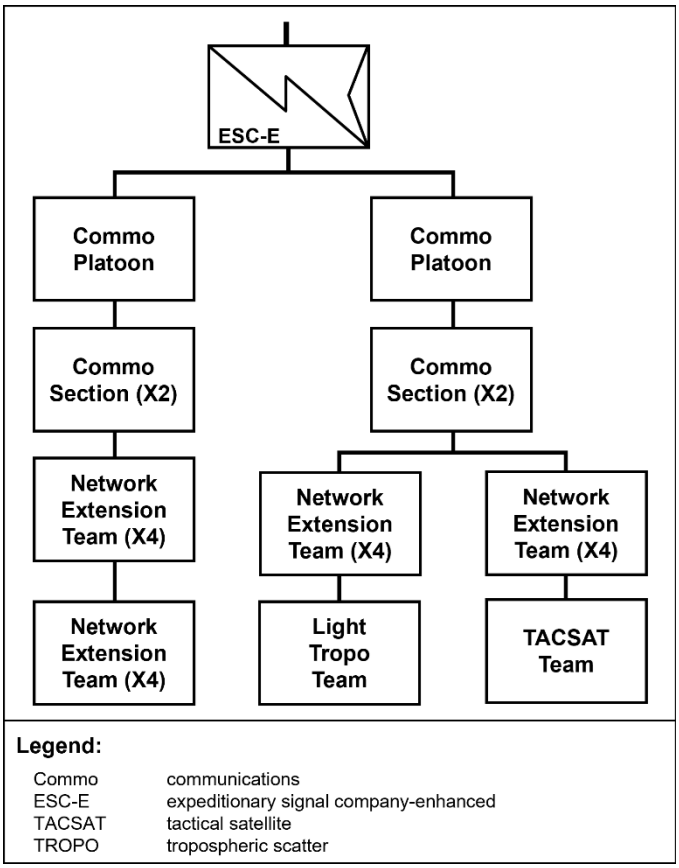


Figure 1-13. Expeditionary signal company-enhanced organization

COMPANY HEADQUARTERS

1-144. The company headquarters provides command and control, logistical support, staff planning, and supervision of its signal platoons and any augmenting elements, personnel, or material assets. The headquarters section consists of—

- Company commander.
- Operations officer.
- First sergeant.
- Network communications systems manager.
- Senior information technology specialist.
- SATCOM operations sergeant.
- Supply noncommissioned officer.
- Two information technology specialists.
- Supply specialist.

COMMUNICATIONS PLATOONS

1-145. The communications platoons provide control, planning, and technical supervision for subordinate sections. Members of the platoon install, operate, maintain, and secure up to 16 medium data packages with their associated line of sight and SATCOM transport systems. Each platoon consists of a platoon headquarters and a communications section with—

- Tropospheric scatter team.
- Tactical satellite team.
- Network extension team.

Platoon Headquarters

1-146. The platoon headquarters controls and supervises the platoon's assigned teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Communications Section

1-147. Each platoon has two communications sections to supervise subordinate teams. The communications section is led by a network communications systems supervisor (section sergeant).

Network Extension Teams

1-148. Each platoon has eight network extension teams to provide data services to support SECRET Internet Protocol Router Network, secure and nonsecure 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 a senior network communications systems specialist (team chief) and a network communications systems specialist.

Light Tropospheric Scatter Team

1-149. Each light 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 systems operator and a tropospheric scatter systems operator.

Tactical Satellite Team

1-150. The tactical satellite team provides beyond line of sight wideband SATCOM transport to support medium and large command posts. The SATCOM team consists of a senior SATCOM systems specialist (team chief) and a SATCOM systems specialist.

ENROUTE COMMUNICATIONS COMPANY

1-151. The enroute communications company provides DISN services to support in-flight mission planning and early entry communications for deploying forces. Enroute communications enable command and control, staff planning, and situational awareness

while in-flight from the home station to a deployed theater. Enroute 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 and two communications platoons. Figure 1-14 shows the organization of the enroute communications company.

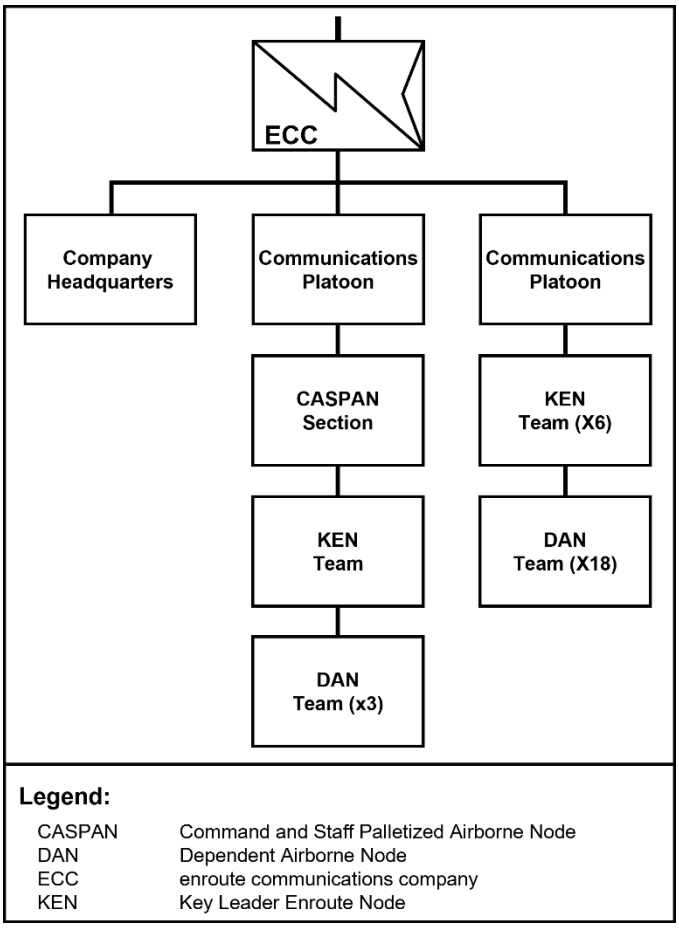


Figure 1-14. Enroute communications company organization

HEADQUARTERS SECTION

1-152. 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.

COMMUNICATIONS PLATOONS

1-153. The communications platoons provide in-flight communications and network services to support deploying commanders' situational understanding and staff planning while enroute to an overseas mission objective. The communications platoon capabilities consist of the Command and Staff Palletized Airborne Node, Key Leader Enroute Node, and Dependent Airborne Node.

Platoon Headquarters

1-154. The platoon headquarters provides control and technical supervision for subordinate teams installing, operating, and maintaining enroute 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 Section

1-155. The Command and Staff Palletized Airborne Node section provides seating and monitors for task force commanders and their staffs in-flight while enroute from the continental United States to a deployment location. The Command and Staff Palletized Airborne Node section consists of—

- SATCOM systems supervisor (section sergeant).
- Network communications systems specialist.
- SATCOM systems specialist.

Key Leader Enroute Node Team

1-156. The Key Leader Enroute Node team provides beyond line of sight reachback capabilities for brigade and battalion commanders, executive officers, and staff. Each Key Leader Enroute Node team consists of a senior network communications systems specialist (team chief) and two network communications systems specialists.

Dependent Airborne Node Team

1-157. 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 senior network communications systems specialist (team chief) and a network communications systems specialist. Refer to ATP 6-02.46 for more information about the enroute communications company.

SECTION III – COMMAND AND SUPPORT RELATIONSHIPS

1-158. 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 about command and support relationships.

1-159. 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.

COMMAND RELATIONSHIPS

1-160. Command relationships define superior and subordinate relationships between unit commanders. The signal platoon is under command of the company commander. Established command relationships enable unity of effort and give the platoon leader the ability to employ the platoon with maximum flexibility. Command relationships include—

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

ORGANIC

1-161. Organic forces are those assigned to and that form 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. For instance, a corps signal, intelligence, and sustainment company is organic to the corps headquarters.

ASSIGNED

1-162. 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

1-163. 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. For example, an expeditionary signal battalion may be attached to a theater tactical signal brigade during deployment.

OPERATIONAL CONTROL

1-164. 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 task-organized as necessary to accomplish assigned tasks.

TACTICAL CONTROL

1-165. 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.

SUPPORT RELATIONSHIPS

1-166. Commanders establish support relationships when subordination of one unit to another is inappropriate. Support relationships establish and prioritize support between and among subordinate commanders in both administrative and operational chains of command.

DIRECT SUPPORT

1-167. Direct support is a relationship requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance. A unit assigned a direct support relationship retains its command relationship with its parent unit, but it is positioned by and has priorities of support established by the supported unit.

GENERAL SUPPORT

1-168. General support is given to the supported force as a whole and not to any particular subdivision. Units assigned a general support relationship are positioned and have priorities established by their parent units.

REINFORCING

1-169. Reinforcing is a support relationship requiring a force to support another supporting unit. Only units of similar type can be given a reinforcing mission. A unit assigned a reinforcing support relationship retains its command relationship with its parent unit but is positioned by the reinforced unit. A unit that is reinforcing has priorities of support established first by the reinforced unit and then by the parent unit.

GENERAL SUPPORT-REINFORCING

1-170. General support-reinforcing is a support relationship assigned to a unit to support the force as a whole and to reinforce another similar type of unit. A unit assigned a general support-reinforcing support relationship is positioned and has priorities established by its parent unit and secondly by the reinforced unit.

TECHNICAL CONTROL AUTHORITY

1-171. Technical control is not a formally established command or support relationship, but it is a necessary relationship to achieve unity of effort in DODIN operations. This relationship is colloquially referred to as the network 'chain of command,' but the signal staff does not exercise command authority.

1-172. 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). Technical channels for DODIN operations parallel the chain of command. Commanders exercise command authority over their respective portions of the network, but their signal staffs exercise technical control through the established technical channels.

Chapter 2

Planning and Training in the Platoon

Working in cooperation with the platoon sergeant, the platoon leader uses a variety of techniques to plan and prepare a platoon's mission.

SECTION I – PLANNING CONSIDERATIONS

2-1. A signal platoon operates to support a larger organization, whether it be a company, 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. The planning process is often more important than the final plan itself, as it provides 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.

2-3. 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

2-4. *Planning* is the art and science of understanding a situation, envisioning a desired future, and determining effective ways to bring 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, including—

- Specific communications elements needed—
  - Tactical satellite.
  - Retransmission.
  - Line of sight.
  - Networking systems.
- Types of COMSEC equipment and keying material needed.
- Command post positioning.

2-5. 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 on page 48 shows the parallel sequences of the battalion's military decision-making process and the company and platoon's troop leading procedures.

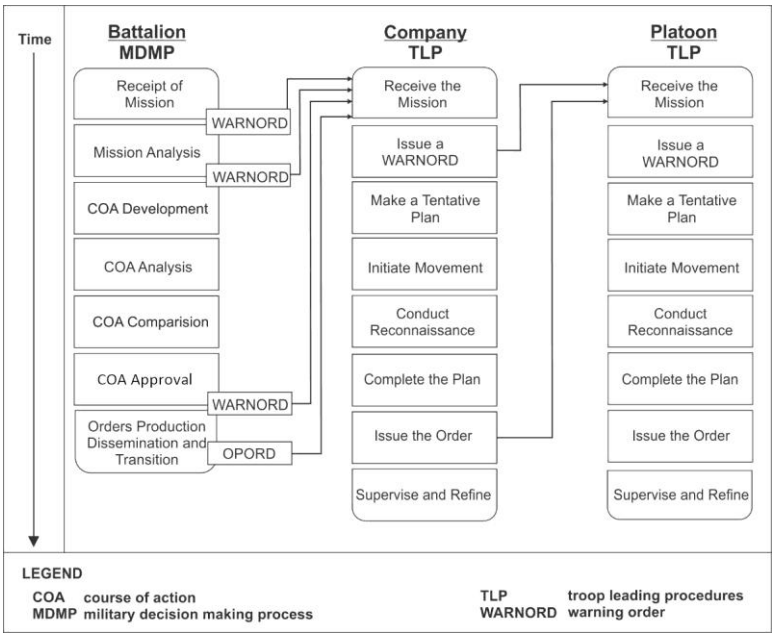


Figure 2-1. Parallel sequences of the military decision-making process and troop leading procedures

2-6. Platoon-level planning focuses on fully developing the platoon's role in the commander's directed course of action and rehearsing for likely contingencies that may cause the course of action to develop in unexpected ways.

PREPARATION

2-7. Preparation includes activities the signal platoon performs to improve its ability to execute its assigned tasks. Preparation includes—

- Plan refinement.
- Rehearsals (see section III for more information).
- Coordination.
- Pre-combat checks and inspections.
- Movement.

2-8. 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.

2-9. A detailed and customized platoon 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

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

ASSESSMENT

2-11. Assessment 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 commander's desired end state.

2-12. 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

2-13. Troop leading procedures provide a framework for planning and preparing for small unit 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.

2-14. 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 5-0 contains a more in-depth discussion of each step of troop leading procedures.

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

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

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

STEP 1 – RECEIVE THE MISSION

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

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

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

STEP 2 – ISSUE THE WARNING ORDER

2-20. 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.

2-21. 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 on page 51 shows an example of a WARNORD format.

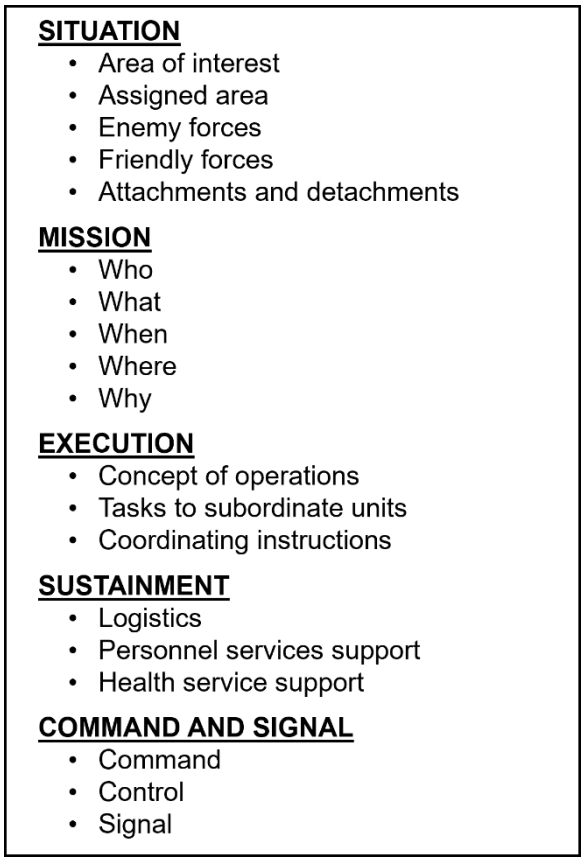


Figure 2-2. Example warning order format

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

- Enemy situation, as currently known.
- Company mission or concept of operations.
- 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.

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

2-24. Figure 2-3 on page 53 is an example of a concept sketch the platoon leader may receive from their company commander. It shows the company's task and purpose, along with the task and purpose for each platoon. Each platoon leader uses a concept sketch to make a tentative plan.

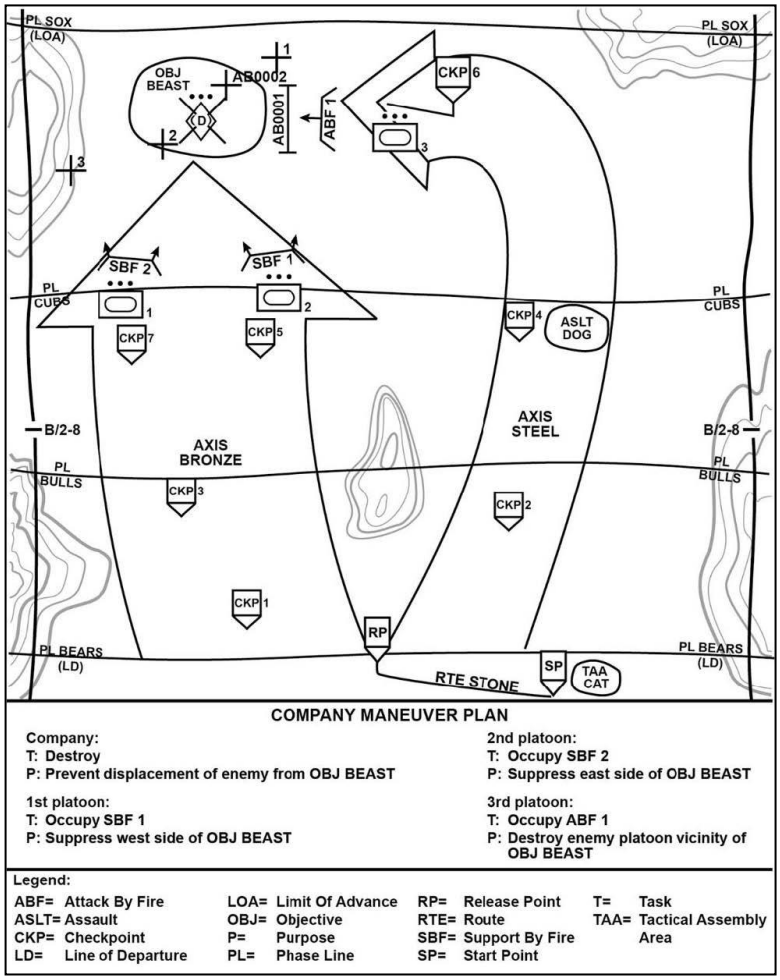


Figure 2-3. Example of company concept sketch

STEP 3 – MAKE A TENTATIVE PLAN

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

MISSION ANALYSIS

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

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

2-27. The platoon leader begins mission analysis immediately upon receiving the mission from the company commander. During mission analysis, the platoon leader restates the given mission and conducts an initial risk assessment.

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

2-29. The platoon leader conducts a more in-depth mission analysis by evaluating the mission variables of METT-TC (I). The platoon leader briefs the mission analysis results and their importance to subordinates, enabling the platoon to recognize and seize opportunities during the mission.

MISSION VARIABLES

2-30. Mission variables describe characteristics of the assigned area and their impacts to a mission. The mission variables are—

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

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

2-32. Analysis of the mission variables of METT-TC (I) does not need to occur in 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 planning products received from the company.

Analysis of Mission

2-33. The platoon leader determines what their platoon has been told to do and why. Platoon leaders must understand the mission, intent, and concept of operations one and two levels higher. Doing so makes it possible to exercise disciplined initiative and act to exploit limited windows of opportunity. Platoon leaders use this information 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.
- Specified, implied, and essential tasks.

- Constraints.
- Restated mission.

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

2-34. Regardless of echelon, leaders must understand the concept of operations 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

2-35. Leaders must understand their immediate headquarters' concept of operations 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

2-36. The platoon leader locates the platoon's purpose in the concept of operations 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.

2-37. 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

2-38. 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.

2-39. A *specified task* is a task specifically assigned to a unit by its higher headquarters (FM 5-0). Specified tasks are found in paragraph three of the company OPORD, under tasks to subordinate units.

2-40. An *implied task* is a task that must be performed to accomplish a specified task or mission but is not stated in the higher headquarters' order (FM 5-0). Implied tasks come from a detailed analysis of the company OPORD, enemy situation and course of action, terrain, and from planners' knowledge of doctrine and history. Platoon leaders rely on

their experience and the experience of subordinate leaders to help identify the implied tasks.

2-41. An *essential task* is a specified or implied task that must be executed to accomplish the mission (FM 5-0). Platoon leaders either decide which tasks are essential or are told directly by the company commander. The essential tasks and the platoon's purpose are in the company OPORD paragraph three concept of operations—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 appear in 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

2-42. For the Army, a *constraint* is a restriction placed on the command by a higher command (FM 5-0). A constraint dictates an action or inaction, thus restricting the freedom of action of a subordinate commander. Constraints primarily appear in paragraph three of the company OPORD.

2-43. 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

2-44. 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 parent unit's concept of operations.

Note. Example mission statement: Beginning 180700ZNOV26, 1/10 mobile brigade combat team signal company provides signal support within assigned area WARRIOR to enable command and control of 1/10 mobile brigade combat team defensive operations. On order, 1/10 mobile brigade combat team signal company increases communications reach to support 1/10 mobile brigade combat team offensive operations.

Define Operational Environment

2-45. Platoon leaders should understand the difference between each type of operational area and what their responsibility may be in each:

- ***Area of operations***—an operational area defined by a commander for the land or maritime force commander to accomplish their missions and protect their forces (JP 3-0).
- ***Area of influence***—an area inclusive of and extending beyond an operational area wherein a commander is capable of direct influence by maneuver, fire support, and information normally under the commander's command or control (JP 3-0).
- ***Area of interest***—that area of concern to the commander, including the area of influence, areas adjacent to it, and extending into enemy territory (JP 3-0). This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission.

2-46. The signal platoon primarily operates in its supported company, battalion, or squadron's assigned area based on maneuver control graphics, which include direct fire control measures and fire support control measures provided by the higher headquarters.

Visual Aids

2-47. Platoon leaders prepare or receive a graphic depiction of terrain to help explain their findings regarding the effects of terrain and weather on the mission. Refer to ATP 2-01.3 for detailed information on visual aids. The graphic depiction of terrain can be a photograph, digital map, map overlay, or terrain model. In the graphic depiction, leaders show—

- Terrain mobility classifications.
- Key terrain.
- Intervisibility lines.
- Known obstacles.
- Avenues of approach.
- Mobility corridors.
- Limitations of communications systems.

Analysis of Enemy

2-48. The second mission variable to consider is the enemy. The G-2 or S-2 provides an analysis of the enemy with which the 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 armed conflict, the rules of engagement, and the local situation.

2-49. 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.

  - Surveillance and reconnaissance capabilities.
  - Artillery.
  - Long-range precision fires.
  - Electromagnetic attack.
  - Malicious cyberspace activity.
- The location of current and anticipated enemy positions.
- The enemy's most probable course of action—defend, reinforce, attack, withdraw, or delay.

Assumptions

2-50. 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

2-51. 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.

2-52. 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

2-53. Platoon leaders determine the types of vehicles, soldiers, and equipment the enemy could use against the signal platoon, including malicious cyberspace activities, electromagnetic attack, and direction-finding capabilities. Platoon leaders should be familiar with the basic characteristics of the enemy units, enemy weapons platforms (including long-range precision munitions), and enemy cyberspace and electromagnetic warfare capabilities identified.

Disposition

2-54. 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

2-55. The platoon leader may determine the strength of the enemy element templated in the platoon's assigned area by way of a request for information through the company commander to the G-2 or S-2.

Capabilities

2-56. 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 malicious cyberspace activities or electromagnetic attacks.

Recent Activities

2-57. Platoon leaders can request any recent enemy activities in the platoon or company's assigned area 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

2-58. 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 malicious cyberspace activities or electromagnetic attacks that affect the primary means of communication, the platoon leader can take immediate action to mitigate their effects or initiate the primary, alternate, contingency, and emergency (PACE) communication plan.

2-59. 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 on page 60 shows recommended situation template items. Refer to ATP 2-01.3 for more information about 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, and assigned area	
Sectors of fire	

2-60. 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

2-61. Commander's critical information requirements (see figure 2-4 on page 61) consist of priority intelligence requirements and friendly force information requirements:

- *Priority intelligence requirement*—the intelligence component of commander's critical information requirements used to focus the employment of limited intelligence assets and resources against competing demands for intelligence support (JP 2-0). Priority intelligence requirements are clear, answerable, focused on a single question, and necessary to drive an operational decision.
- *Friendly force information requirement*—information the commander and staff need to understand the status of friendly force and supporting capabilities (JP 3-0).

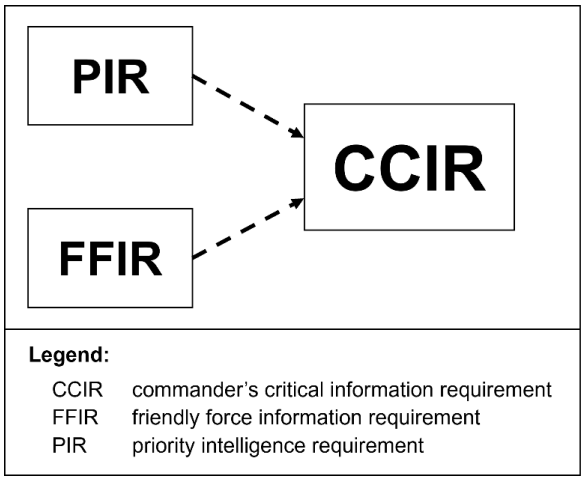


Figure 2-4. Commander's critical information requirements

2-62. 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.

2-63. 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

2-64. 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. 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 that interfere with leveling equipment, erecting antennas, or establishing communications line of sight. 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 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 might require SATCOM 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 from enemy detection.
- 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 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 analyses and determine how the terrain and weather uniquely affect the enemy, the platoon, and communications capabilities.

2-69. Following terrain analysis, platoon leaders develop a graphic terrain analysis overlay. This product is like 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. Understanding the potential effects of weather on friendly and threat capabilities enhances the ability to mitigate these effects, exploit windows of opportunity, and seize operational advantages.

2-71. Platoon leaders analyze terrain using the mnemonic observation and fields of fire, avenues of approach, key terrain, obstacles and movement, and cover and concealment to determine the effects of each aspect of terrain on friendly and enemy forces:

Obstacles

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

- **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 might 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. Signal platoon leaders primarily focus 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 as 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. Refer to ATP 2-01.3 for more information about mobility corridors.

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 of approach 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 assigned area.
- 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. For the Army, *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 mean 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—

- 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).

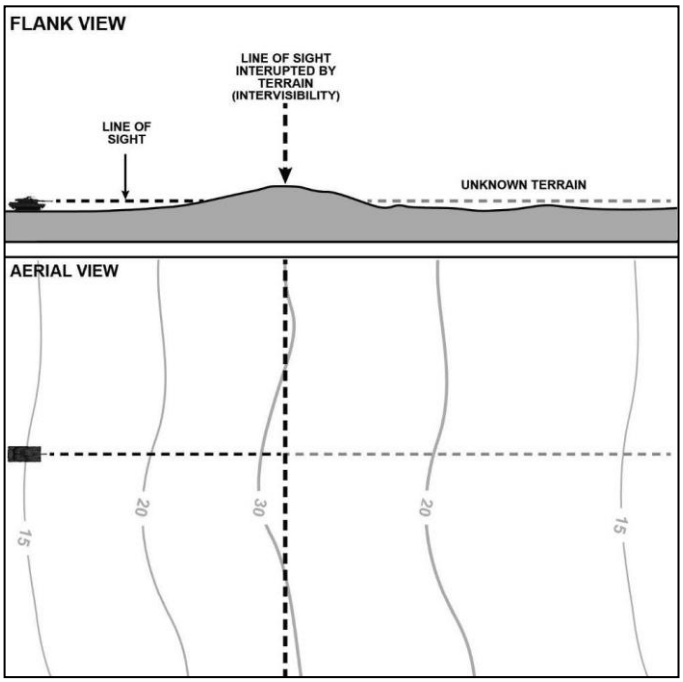


Figure 2-5. Example intervisibility line

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 presence, movement, or electromagnetic signature.

2-85. When analyzing fields of fire, platoon leaders consider the friendly and enemy ability to cover avenues of approach and key terrain, especially with direct fires. Additionally, platoon leaders identified as observers, 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 assigned area.
- 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 manned or unmanned aircraft systems may be present in the assigned area. 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. Platoon leaders must consider the offensive and defensive aspects of cover and concealment:

- Offensive aspects 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 aspects 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 signatures to prevent detection by the enemy.

Military Aspects of Weather

2-91. The military aspects of weather related to signal support are—

- Visibility.
- Wind.
- Precipitation.
- Cloud cover.
- Temperature.
- Humidity.
- Atmospheric pressure.
- Space weather.

2-92. Platoon leaders determine how the weather will affect the visibility, mobility, and survivability of the platoon and that of the enemy, and how weather will affect signal support, 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 like 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's 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's assigned area 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.
- The likelihood of CBRN hazards.

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 snowfall can reduce the efficiency of many communications systems, particularly SATCOM systems. 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.
- Locations in the assigned area that the platoon should avoid during times of increased precipitation, either due to flooding or extremely loose soil.
- Portions of movement routes that may be susceptible to freezing or black ice due to precipitation.
- How precipitation will affect SATCOM signal transmission and reception.

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 SATCOM 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 SATCOM systems. Cloud cover considerations include—

- How cloud cover will affect SATCOM transport.

- 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 effectiveness 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 their effects on obscurants and CBRN hazards. Temperature and humidity considerations include—

- Their effects on personnel and equipment.
- Whether temperatures and humidity favor the use of CBRN agents.
- 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 assigned area, atmospheric pressure may affect the lift capacity of aircraft, including resupply and medical evacuation helicopters, if present in the assigned area.

Space Weather

2-102. Space weather disturbances can disrupt friendly, civil, commercial, and threat spectrum-dependent devices, including communications; radars; and satellite positioning, navigation, and timing. Most space weather events are driven by solar activity and can be unpredictable. USSPACECOM monitors these events closely, providing a warning time of a few hours to a few days. Unit space staff officers, in collaboration with Air Force staff weather officers, provide space weather forecasts so units can prepare for disruptions and arrange backup means of communication.

Analysis of Troops and Support Available

2-103. 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 available 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 condition of the platoon—health, morale, and sleep.
- The condition of the platoon's assigned equipment.
- The unit's training status and experience, relative to the mission.
- Additional personnel or units that will accompany the platoon.
- Additional assets required to accomplish the mission.
- The condition of attached units or those in direct support.
- Indirect fire support 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 to alternate locations quickly when in danger.

2-104. 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

2-105. Platoon leaders visualize their platoon in time and space. As events occur, the platoon leader adjusts the time available to the platoon and assesses their 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 timelines.
- Times specified by the commander in the OPORD for such activities as movement, reconnaissance, rehearsals, and logistics package operations.
- The company and battalion or squadron timeline.
- The enemy timeline.

2-106. Platoon leaders conduct reverse planning to ensure the platoon can accomplish all specified, implied, and essential tasks within 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. For example, a retransmission team supporting offensive forces on a movement to contact must be prepared and positioned at the line of departure before the specified movement time.

Analysis of Civil Considerations

2-107. *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 may 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 the civilian population.
- How friendly forces can build national will in the operational area.

2-108. The company commander and platoon leaders derive civil considerations that affect the mission from paragraph 1.f. of the brigade, division, or corps operation plan or order. Refer to ATP 2-01.3 for more information about civil considerations in intelligence preparation of the operational environment.

RISK ASSESSMENT

2-109. *Risk assessment* is the identification and assessment of hazards (first two steps of 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.

2-110. Once leaders identify risks, they attempt to mitigate or eliminate those risks using 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 to control maneuver and thus reduce this risk. Refer to ATP 5-19 for more information about the risk management process.

DEVELOP THE PLAN AT THE PLATOON LEVEL

2-111. 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. 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 friendly combat power with the enemy to identify—

- An enemy weakness to exploit.
- Friendly strengths to exploit the enemy weakness.
- Enemy strengths to mitigate.
- 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 of METT-TC (I) 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 necessary 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. This process may be done solely by the platoon leader who reviews the plan up to that point, or by including the platoon sergeant and other subordinate leaders' input. This enables platoon leaders to—

- Determine how to maximize the effects of the platoon while protecting the platoon and minimizing collateral damage.
- Anticipate events in the assigned area.
- Determine conditions and additional resources needed for success.
- Identify additional control requirements.
- Identify friendly coordination requirements.
- Appreciate the time, space, and triggers 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 defensive requirements for signal sites and coordinate with nearby units for support.
- Complete paragraphs three, four, and five of the OPORD.

STEP 4 – INITIATE MOVEMENT

2-118. Platoon leaders initiate movements necessary to continue mission preparation or to posture the unit for starting the mission. This step can be executed any time during the sequence of troop leading procedures. It can include execution of priorities of work; movement to an assembly area, battle position, or a new assigned area; or the movement of guides or quartering parties.

STEP 5 – CONDUCT RECONNAISSANCE

2-119. 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 continuous radio communication. The proposed site should be large enough to accommodate all signal assemblages and support equipment.

2-120. 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

2-121. 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. 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.
- Sustainment.
- Command and signal.

2-122. 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 scheme of maneuver and the commander's intent.

STEP 7 – ISSUE THE ORDER

2-123. 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.

2-124. 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 assigned area using a briefing kit that contains such items as engineer tape, colored yarn, 3 x 5-inch index cards, and vehicle models.

2-125. 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 command and control platforms, or on a sand table, terrain model, or map.

2-126. 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 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 outlines the five-paragraph OPORD format.

1. SITUATION
- Area of interest
- Assigned area
  - Terrain
  - Weather
- Enemy forces
  - Latest threat intelligence
- Friendly forces
  - Two levels up
  - One level up
  - Adjacent units
- Attachments and detachments
  - Who/why

2. MISSION
- Who
- What
- When
- Where
- Why

3. EXECUTION
- Commander's intent
- Concept of operations
- Scheme of movement and maneuver
  - Describe from start to finish
  - Fires
- Tasks to subordinate units
- Coordinating instructions
  - Time schedule
  - CCIR (PIR, FFIR), EEFI
  - Risk reduction control measures
  - Rules of engagement
  - Environmental considerations
  - Force Protection

4. SUSTAINMENT
- Logistics
  - Maintenance
  - Transportation
  - Field services
- Personnel services support
  - Handling of EPW
- Health service support
  - MEDEVAC/CASEVAC
  - Preventive medicine

5. COMMAND AND SIGNAL
- Command
  - Location of leaders
- Control
  - Command post locations
- Signal
  - Radio frequencies
  - Passwords/running passwords
  - Pyrotechnic signals

Legend:

CASEVAC	casualty evacuation
CCIR	commander's critical information requirement
EEFI	essential element of friendly information
EPW	enemy prisoner of war
FFIR	friendly force information requirement
PIR	priority intelligence requirement
MEDEVAC	medical evacuation

Figure 2-6. Operation order format

STEP 8 – SUPERVISE AND REFINE

2-127. After issuing the OPORD, the platoon leader and subordinate leaders ensure the required activities and tasks are completed quickly before mission execution. Supervision is the primary responsibility of all leaders. Platoon leaders and subordinate leaders must check those items or events deemed important for mission accomplishment. This includes—

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

2-128. 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.

2-129. Once the order is received, the platoon leader conducts a quick map reconnaissance, analyzes the mission using the mission variables of METT-TC (I), and contacts the team chiefs. The platoon leader ensures the team chiefs post the minimum required control measures on their maps and issues a FRAGORD that covers the key elements of the enemy and friendly situations, the platoon mission, and the concept of operations. 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.

2-130. 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.

2-131. 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 enroute to the objective.

2-132. 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 command and control information systems.

SECTION III – REHEARSALS

2-133. Rehearsals are practice sessions conducted to prepare units for an upcoming operation or event and valuable tools in preparing the platoon for the upcoming operation. Effective rehearsals require teams to perform necessary 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.

2-134. The PACE plan helps ensure maneuver elements can continue to communicate if their 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.

2-135. 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 mishaps.

2-136. 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

2-137. Platoon leaders use well-planned, efficiently run rehearsals to—

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

REHEARSAL TYPES

2-138. The platoon leader can choose from among several types of rehearsals, including—

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

BACKBRIEF

2-139. 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 operations. 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

2-140. 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

2-141. 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

2-142. 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 defined in the unit SOP and rehearsed during training.

2-143. 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 complete 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

2-144. Rehearsals should follow the crawl–walk–run methodology whenever possible (see figure 2-7 on page 78). This prepares the platoon for increasingly difficult conditions. Refer to FM 6-0 for more information about 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.

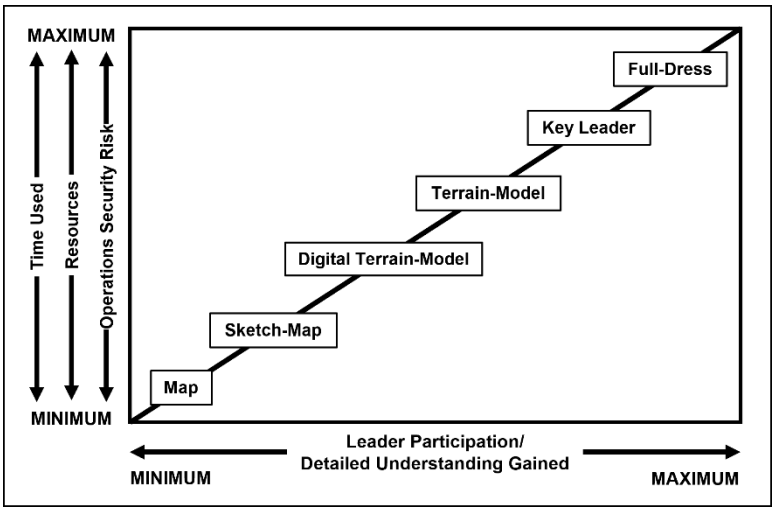


Figure 2-7. Methods of rehearsals

FULL-DRESS REHEARSAL

2-145. A full-dress rehearsal includes every participating platoon member and system, executed on terrain as much like the assigned area as practicable, 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 need to execute the mission.

REDUCED-FORCE (KEY LEADER) REHEARSAL

2-146. 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

2-147. 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 assigned area. 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 aerial observation, either manned or unmanned.

DIGITAL TERRAIN-MODEL REHEARSAL

2-148. 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, aerial imagery, and ground imagery to key points to provide accurate insight to the plan.

SKETCH-MAP REHEARSAL

2-149. Sketch-map rehearsal procedures are much like 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

2-150. Procedures for a map rehearsal are like those for the sketch-map rehearsal, except the leader uses a map and operation overlay of the same scale used to plan and control the operation. This technique is useful in conjunction with a confirmation brief or backbrief involving subordinate leaders.

PRE-COMBAT CHECKS AND INSPECTIONS

2-151. The platoon leader and platoon sergeant observe each team during preparation for combat. They conduct pre-combat 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 planned operation, but the team chiefs check all items based on the unit tactical SOP. Failure at the team chief level to check all systems—not just the ones the platoon leader inspects personally—could lead to a critical element or piece of equipment failing during operations.

PRE-COMBAT CHECKS

2-152. Pre-combat checks differ from pre-combat inspections in that they are quick combat checks performed at team level designed to account for individuals and equipment. Pre-combat 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 pre-combat 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 assigned area.
- Ammunition checked and stored properly.
- Vehicles loaded according to the unit tactical SOP.

- Teams' uniforms and equipment necessary to accomplish their 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.

PRE-COMBAT INSPECTIONS

2-153. Pre-combat inspections allow the platoon leader to assess the platoon's operational readiness. The key goal of a pre-combat inspection is to ensure that teams and their equipment, including communications systems, are fully mission capable. The platoon leader includes the time and location for pre-combat inspections in the platoon OPORD, reinforcing their importance and ensuring they occur as part of pre-mission preparation.

2-154. It is essential that the entire platoon chain of command know how to conduct pre-combat checks and pre-combat inspections according to applicable SOPs. Examples of an inspection include—

- Performing before-operation preventive maintenance checks and services and reporting or repairing deficiencies, if necessary.
- Performing communications checks of voice and digital systems.
- Inspecting and verifying maps and corresponding analog and digital graphics.
- Ensuring teams understand the plan and are in the correct uniform and mission-oriented protective posture (MOPP) based upon the threat level.
- Determining ammunition types the mission requires.
- Reviewing 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 defense equipment.
- Ensuring vehicles and communications assemblages are correctly camouflaged to match the assigned area.

SECTION IV – TRAINING IN THE PLATOON

2-155. Collective training enhances unit cohesion, enables rapid tactical response, and ensures resilient signal support under all operational conditions. At the company and platoon levels, a standardized approach to collective training simplifies planning and execution for small-unit and individual training events. The standardized training model provides a general framework of the major activities and steps to plan training. It does not provide enough detail to develop the unit training plan or to develop and coordinate training events. The unit can modify its training approach based on collective experience.

8-STEP TRAINING MODEL

2-156. One common approach to planning training events at company and below is the 8-step training model (see figure 2-8). The 8-step training model provides a flexible framework to plan and manage effective collective training events.

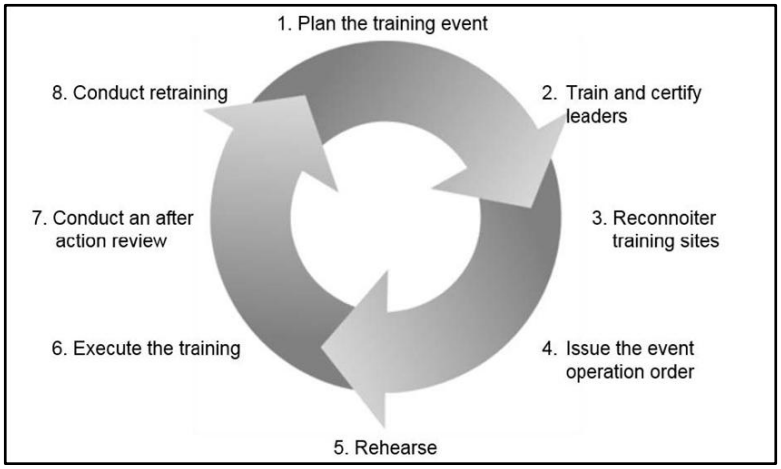


Figure 2-8. The 8-step training model

STEP 1 – PLAN THE TRAINING EVENT

2-157. 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

2-158. 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

2-159. 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.

2-160. 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

2-161. 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

2-162. 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. Leaders in the company and platoon 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

2-163. 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.

2-164. The designated trainers train Soldiers to ensure they can meet the performance 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

2-165. 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.

2-166. Commanders record these assessments in the Digital Training Management System for use in future training events or inclusion in the unit SOP.

STEP 8 – RETRAINING

2-167. 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.

2-168. 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.

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Chapter 3
Support to Operations

Signal platoons at echelons 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 communication. The brigade combat team command posts maintain tactical internet connectivity for communications to division, but communication with subordinate echelons relies heavily on vehicle-mounted, man-pack, and handheld communications devices.

COMMAND POST OPERATIONS

3-2. Signal support allows command post personnel to access the full range of DISN 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 electromagnetic warfare officer to plan support in a way that limits the electromagnetic signatures of the command posts. Measures to reduce the electromagnetic signatures 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, tactical, and rear command posts at-the-halt. The corps headquarters requires augmentation from elements of the corps signal brigade 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 deploys a tactical command post into the close area, the signal platoon may require augmentation for security and defense.

3-6. Signal support enables 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' assigned area.

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 communicate 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 means of communication 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.

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 assigned area, the tactical command post may co-locate with the main command post in the corps rear area. In a high-threat situation, the commander may offset the tactical command post 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, rear command post, and other corps communications and security elements.

Mobile Command Group

3-12. The mission variables of METT-TC (I) 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 assigned area, 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 signal capabilities 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.

Note. In a transformation in contact division, the headquarters and headquarters company, division signal battalion provides communications support for the division command posts.

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 elements can overlap. The G-6 may task Soldiers from a 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 platoons.

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 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 assigned area, 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 area, 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.
- Either 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 posts.

Hub Platoon

3-25. The hub platoon provides reachback connection between the deployed division network and the DODIN for access to DISN services when regional hub node service is not available. Due to the size and characteristics of its communications systems, the hub platoon emits a large electromagnetic signature. 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 brigade main and tactical command posts maintain DISN 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 electromagnetic warfare officer to minimize the electromagnetic signatures of 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 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 a full rehearsal, helps ensure the retransmission network can provide coverage across the assigned area. 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 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.

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 malicious cyberspace activities or electromagnetic attacks to deny friendly forces' communications. Signal forces must be trained and ready to identify and counter such attacks to preserve critical command and control communications (see 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 DISN services, but they 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 or at the quick halt.

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 their 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 keep an operational focus and able to rapidly adapt to the constantly changing situation on the battlefield.

3-44. Signal support to an Army force conducting a mobile defense is much like 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 – OPERATION IN A CONTESTED ENVIRONMENT

3-46. Peer threats consider friendly command and control nodes 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 signatures of major command posts make them vulnerable to enemy direction finding and geolocation.

3-47. 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.

3-48. The electromagnetic signatures of current command posts cannot be reduced without the application of training; tactics, techniques, and procedures; and emerging technologies. Deploying 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 decoys and electromagnetic deception techniques helps mask the nodes that have significant impact on information and decision-making processes.

COMMAND POST DISPLACEMENT

3-49. Maintaining continuity of operations during displacement or catastrophic loss of a command post requires designating alternate command posts and passing control between command posts. 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.

STANDARD OPERATING PROCEDURE CONSIDERATIONS

3-50. Timely and efficient command post displacement is a function of training, SOPs, and rehearsals. The unit 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 factors. This helps to assess the threat situation quickly and determine probability of air or ground attack.
- A timeline for site teardown and reestablishment of command post communications systems.
- The tasks required to transfer primary command and control functions to the alternate command post during displacement.

COORDINATION AND HANDOVER BETWEEN COMMAND POSTS

3-51. 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.

ELECTROMAGNETIC INTERFERENCE

3-52. Electromagnetic interference to spectrum-dependent devices is a persistent, pervasive problem in military operations. Routine continued use of spectrum-dependent devices will inevitably result in electromagnetic interference affecting these devices. *Electromagnetic interference* is any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electromagnetic spectrum-dependent systems and electrical equipment (JP 3-85). Intentional sources of electromagnetic interference are threat electromagnetic attacks, including jamming, deception, and electromagnetic intrusion. Unintentional electromagnetic interference may be the result of—

- Friendly or threat use of the same frequencies.
- Other electronic, electrical, or electromechanical equipment, such as electric motors, power generators, and vehicle ignition systems.
- Atmospheric weather.
- Space weather.
- Equipment malfunction.

3-53. Electromagnetic interference requires mitigation action when it interferes with friendly use of the electromagnetic spectrum. Units incorporate techniques to identify, isolate, and mitigate electromagnetic interference. Techniques to resolve electromagnetic interference include—

- Moving equipment away from sources of electrical or electromechanical noise.
- Changing friendly frequencies as prescribed in the signal operating instructions or OPORD.
- Implementing terrain masking techniques.
- Using directional antennas.
- Relocating transmitters and receivers.

ENEMY ELECTROMAGNETIC ATTACKS

3-54. Signal planners and operators can implement operational tactics, techniques, and procedures to mitigate threat detection and direction finding in the electromagnetic spectrum. If an enemy cannot detect friendly signals, they cannot geolocate those signals.

3-55. Electromagnetic protection techniques can help mask the electromagnetic signatures of command posts and communications sites. The cyber electromagnetic warfare officer assists the G-6 or S-6 in planning electromagnetic protection measures to reduce the command posts' electromagnetic signatures. Platoon leaders implement these measures during site reconnaissance and site setup.

TERRAIN MASKING

3-56. 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.

CAMOUFLAGE NET MASKING

3-57. 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 SATCOM 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

3-58. 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 own 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

3-59. 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 positioning, 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.

3-60. 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

3-61. 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

3-62. 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.

3-63. 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.

3-64. 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.

3-65. 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 96 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 communication.
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 communication. Music, screams, applause, whistles, machinery noise, and laughter are examples.
Preamble Jamming	A tone resembling the synchronization preamble of 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

3-66. Measures operators and planners can use to reduce susceptibility to enemy jamming include—

- Minimizing radio transmissions—
  - Transmitting only when necessary.
  - Trying to keep radio transmissions to six seconds or less.
- Using jam-resistant operating modes.
- Maintaining radio silence.
- Using low power settings on radios for normal operation to reduce the probability of detection.
- Using terrain masking to reduce the probability of detection and block potential sources of enemy jamming.

Indicators

3-67. Threats strive 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

3-68. 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 operation should continue even when degraded by jamming.
- **Increasing transmitter power output.** Operators should use low power settings for normal operation 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 it also 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 will 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 communication 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 electromagnetic warfare officer.

3-69. If none 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 against future jamming incidents. Refer to ATP 6-02.70 for more information about joint spectrum interference resolution reporting.

Positioning, Navigation, and Timing Jamming

3-70. 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.

3-71. 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 system timing.
- Friendly force tracking.
- Navigation.
- Reconnaissance.
- Radar systems.
- Precision guided munitions.

Preventive Measures

3-72. Measures to reduce susceptibility to, and mitigate the effects of, enemy jamming of satellite-based positioning, navigation, and timing include—

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

Indicators

3-73. 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

3-74. 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, increasing distance from the jammer or using 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 electromagnetic warfare officer.
- **Report jamming to higher headquarters.** Submitting a joint spectrum interference resolution report to higher headquarters documents a history of problems and helps identify possible causes for subsequent interference.

Satellite Communications Jamming

3-75. Expeditionary forces rely heavily on SATCOM capabilities for beyond line of sight network transport. Systems and capabilities affected by SATCOM jamming include—

- Friendly force tracking.
- Command post communications systems.
- Tactical satellite radios.
- Intelligence reporting systems.

Preventive Measures

3-76. Operational and employment measures to prevent jamming of narrowband (single-channel) tactical satellite include—

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

Note. Most wideband satellite jamming is directed at the satellite. Preventive measures for wideband satellite jamming are limited. Refer to Army doctrine for space operations for more information about mitigating wideband satellite jamming.

Indicators

3-77. 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.
- Loss of SATLOCK indication.
- Loss of data from the satellite.
- Low signal-to-noise indicated on a wideband SATCOM terminal.
- Increased noise floor or unexplained decrease in signal-to-noise ratio or energy per bit to noise power spectral density ratio.

Reaction

3-78. The reactive measures here apply mostly to narrowband (single-channel) SATCOM communications systems. When a single-channel tactical satellite radio operator recognizes a jamming attempt, they may—

- **Increase transmit power.** Operators should only increase power on wideband SATCOM 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 communication 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 electromagnetic warfare officer.
- **Report jamming to higher headquarters.** The higher headquarters' frequency manager and cyber electromagnetic warfare officer can correlate reports from units across the assigned area 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.
- **Cease transmission or reduce power on satellite terminal.** Lower or eliminate transmit power while observing the suspect link on a spectrum analyzer. If the signal remains, this could indicate the threat matching the friendly waveform.

3-79. Satellite network controllers at the wideband SATCOM operations centers coordinate all interference resolution and reporting on DOD wideband satellite networks. Refer to FM 6-02 for more information about wideband SATCOM. Refer to ATP 3-12.3 for more information about electromagnetic protection techniques.

MALICIOUS CYBERSPACE ACTIVITIES

3-80. U.S. networks face continuous risk of malicious cyberspace activities. Cyberspace risk increases substantially when operating against a peer threat in a contested environment. DODIN operations personnel implementing cybersecurity measures can mitigate most vulnerabilities. If an enemy malicious cyberspace activity 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

3-81. 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. Denial-of-service attacks can affect any Internet Protocol network system, including—

- Command and control information systems.
- Logistics systems.
- Administrative systems.
- End user devices.

Preventive Measures

3-82. 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

3-83. Operator indications of a denial-of-service attack may include—

- Slower than normal network performance when opening files or accessing websites.
- Request timeouts.
- Widespread unavailability of a website or network system.

Reaction

3-84. 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 operation using an alternate or contingency means of communication.

MALWARE

3-85. Malware is software designed to interfere with a computer's normal functioning. Malware attacks can affect any automated information system, including—

- Command and control information systems.
- Logistics systems.
- Administrative systems.
- End user devices.

Preventive Measures

3-86. Cybersecurity personnel attempt to prevent malware attacks by—

- Using and maintaining updated anti-virus software and virus definition files.
- Implementing strict identity, credential, 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

3-87. 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

3-88. 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 operation using an alternate or contingency means of communication.
- Report attack indicators to the G-2 or S-2 and G-3 or S-3.
- 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. All automated information systems are potential targets of data exfiltration and collection. Affected systems include—

- Command and control information systems.
- Logistics systems.
- Administrative systems.
- End user devices.

Preventive Measures

3-90. Cybersecurity measures and physical security combine to prevent data exfiltration and collection by—

- Implementing strict identity, credential, 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

3-91. 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

3-92. 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 G-2 or J-2 and G-3 or J-3.
- Consider changing the maneuver course of action if operation or support plans become compromised.

SOCIAL ENGINEERING

3-93. 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. Threats may also use social engineering techniques to identify and develop potential targets for phishing and spear phishing.

3-94. 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

3-95. 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.

3-96. 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

3-97. Indicators of social engineering attempts include—

- Unexpected phone calls from unknown callers requesting sensitive information.

- Websites that look abnormal, have several broken links, or have mismatching Internet addresses.
- Unauthorized personnel shoulder surfing.

Reaction

3-98. 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.
- Promptly report social engineering attempts to raise awareness and prevent others from falling victim to the same techniques.

PHISHING AND SPEAR PHISHING

3-99. Phishing is a fraudulent attempt to obtain sensitive information, including 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.

3-100. Any individual may fall victim to a phishing attack. Key leaders and network administrators are also subject to spear phishing or whaling.

Preventive Measures

3-101. All personnel should protect themselves from phishing attacks by following best practices outlined in annual cybersecurity refresher training. Depending on the cyber protection 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

3-102. 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.
- Requesting personal information or login credentials.
- Requesting or demanding an urgent response.
- With spoofed links—where the text displayed does not match the Internet address shown when hovering over the link.

Reaction

3-103. 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.

3-104. 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 message.

3-105. 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

3-106. Threats may conduct social media attacks in support of their information collection and information warfare goals. All individuals using any form of social media are potential targets.

Preventive Measures

3-107. Individuals should strictly limit personal information posted to their social media accounts. The compromise of this information could be damaging itself, or it could strengthen a threat'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

3-108. 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

3-109. 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

3-110. 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

3-111. 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.

3-112. 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

3-113. 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 fires 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

3-114. 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 the incident to the next higher echelon.

Chapter 4
Sustainment

Success and endurance in platoon operations require the platoon leader to develop and implement a comprehensive platoon sustainment plan. Each platoon's sustainment plan must support the company commander's maintenance plan.

RESPONSIBILITIES

4-1. For the Army, *sustainment* is the provision of logistics, financial management, personnel services, and health service support necessary to maintain operations until successful mission completion (ADP 4-0). Sustainment is essential to military operations. Particularly on the offense when maneuver elements conduct operations away from their parent headquarters, well-planned supply and maintenance operations are critical to the force's effectiveness and endurance. Platoon personnel at all levels have key functions and responsibilities for the platoon's sustainment.

PLATOON LEADER

4-2. The platoon leader oversees platoon equipment maintenance and has supervisory responsibility for the platoon's property. The platoon leader works with the operations officer to develop a comprehensive maintenance plan and forecasts consumption of on-hand spares.

PLATOON SERGEANT

4-3. The platoon sergeant coordinates the platoon's maintenance and logistical requirements, compiles maintenance reports, and provides reports to the platoon leader and operations officer.

SECTION SERGEANT

4-4. Section sergeants maintain direct responsibility for section equipment and requests additional spares when on-hand spares are consumed. The section sergeant ensures operator-level preventive maintenance is completed to the schedule and standards in the technical manual maintenance allocation chart.

SIGNAL TEAMS AND OPERATORS

4-5. Signal teams and operators perform preventive maintenance checks and services on their assigned equipment. Teams and operators can diagnose faults and replace subcomponents in major signal assemblages and combat net radios from available on-hand spares.

SUSTAINMENT FUNCTIONS

4-6. The key sustainment functions for signal platoons are supply and maintenance. Leaders in the platoon must be well versed in the supply system and resupply

procedures. Signal platoons' effectiveness also depends on maintenance—vehicles, power generation, and communications-electronics equipment.

SUPPLY

4-7. 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.

Note. While class V supply includes all types of munitions, the Army does not have or use chemical, biological, or radiological weapons.

- **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 device repair parts and health and welfare items.
- **Class IX**—repair parts and components, including kits and repairable and non-repairable 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

4-8. Property accountability is one of many challenges platoon leaders face. Signal platoon leaders are often responsible for accountability of equipment valued from hundreds of thousands to millions of dollars. Consequently, improper accounting of Army property can become costly to platoon leaders and end users.

Hand Receipt Transfer

4-9. In preparation for a change of hand receipt holder, the outgoing platoon leader must verify the property inventory. The outgoing platoon leader updates the component hand receipt to reflect any changes since the last inventory. Finally, the outgoing platoon leader should account for all loaned equipment.

4-10. 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

4-11. 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.

4-12. Some end items have just one component (for instance, a technical manual), or none. 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 without advance warning.

Expendable Property

4-13. Expendable property is property that is consumed in use or loses its identity in use. It includes items not consumed in use, with an organization cost of less than $500, and having a controlled inventory item code of 'U' assigned. Expendable property authorized on the modified table of organization and equipment is accounted for in the unit property book. All other expendable property is considered, for accounting purposes, to be consumed upon issue; consequently, it requires no formal accounting after issue to the user. This means a hand receipt 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 includes—

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

Durable Property

4-14. Durable property requires no formal accounting, but it is controlled at the user level using a hand receipt. Durable property includes such items as—

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

Non-Expendable Property

4-15. Non-expendable property requires formal property book accounting at the user level. Accountability for these items is recorded in the company property book. Non-expendable property includes such items as—

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

PLATOON SUSTAINMENT PLAN

4-16. Platoon leaders develop the sustainment plan by determining what is on hand so they can accurately project requirements. Leaders in the company 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. 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.** Quantity of supplies the platoon will need, by class.
- **Emergency resupply.** Whether the platoon will need emergency resupply of class I, III, V, and IX during the mission.
- **Pre-stocked supplies.** Whether operations require pre-stocked supplies to support 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.

4-17. 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

4-18. 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.

4-19. 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

4-20. 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). 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.

4-21. The company supply sergeant, battalion S-4, and forward support company assemble the logistics package in the battalion field trains area, typically under the supervision of a representative from the battalion S-4.

4-22. Once the logistics package is prepared for movement, the supply sergeant accompanies the vehicles forward from the field trains command post and transports them by convoy 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.

4-23. The tactical situation dictates which resupply technique 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

4-24. 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.

4-25. 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 shows an example of a tailgate resupply operation.

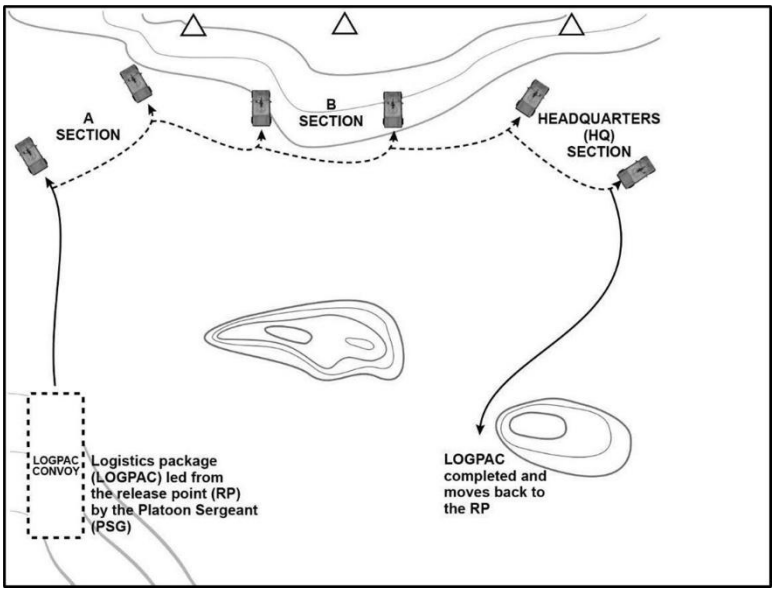


Figure 4-1. Tailgate resupply

Service Station Resupply

4-26. 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.

4-27. 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 operators or crews verify preventive maintenance checks and services on their vehicles. Maintainers can correct minor deficiencies on the spot with available tools, repair parts, and battle damage assessment and repair techniques.

4-28. Each vehicle or individual rotates through the supply location 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.

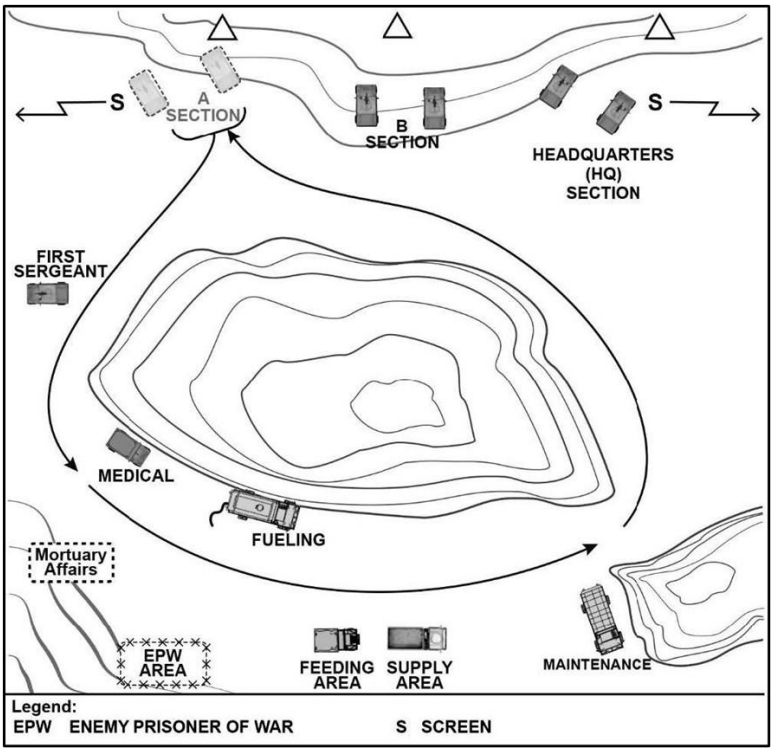


Figure 4-2. Service station resupply

Emergency Resupply

4-29. Emergency, or immediate, resupply normally involves class III and class V supplies. Emergency resupply takes place when the platoon has such an urgent need for resupply that it cannot wait for a routine logistics package. Retransmission teams not co-located with a larger organic element will likely need emergency resupply at some point.

4-30. Once requested through the commander or operations 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 assemblages to continue or reestablish service.
- **Service station technique.** Individual vehicles or sections disengage and move to a resupply point, obtain their supplies, and return to their assemblages to continue or reestablish service.

Pre-Positioned Resupply or Cache

4-31. As with all operations, leaders consider the mission variables of METT-TC (I) 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.

4-32. 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 needing the cached supplies will retrieve them 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. Refer to ATP 4-90 for additional information about resupply methods.

MAINTENANCE

4-33. The signal company receives signal and 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 (ATP 4-33).

4-34. 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. 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 priority of work assigned to key systems. Prioritization identifies weighting of maintenance support for the mission.

4-35. The platoon leader develops the maintenance plan in coordination with the company commander and operations officer to align with the company commander or brigade S-6's mission priorities.

4-36. The operations officer plans and supervises the company's maintenance effort with the first sergeant before operations. The operations officer works with the first sergeant, platoon leaders, platoon sergeants and maintenance team chief to maintain current awareness of maintenance status. The operations officer regularly updates the company commander on the maintenance status. The operations officer coordinates with the battalion S-3 and S-4 to plan and resource the company's missions.

4-37. Global Combat Support System-Army tracks supplies, spare parts, organizational equipment, 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

4-38. 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.

4-39. 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 [EGA]*), 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 either present and serviceable or on order.

Most Common Maintenance Problems (and Fixes) for Platoon Leaders

4-40. The most common maintenance problems (and fixes) for platoon leaders are—

- Improper fault 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 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.

Chapter 5

Fundamental Principles and Core Competencies

Effective command and control is the backbone of successful military operations. Reliable communications are an essential command and control enabler. Signal elements play a vital role in ensuring that commanders and soldiers have the information and data they need, when they need it, to execute their missions. Signal soldiers' expertise in communications enables the Army to operate with speed, agility, and precision, making it an indispensable component of modern Army operations.

FUNDAMENTAL PRINCIPLES OF SIGNAL SUPPORT

5-1. The network connects geographically separated forces for network-enabled operations. Because the Army conducts operations as part of a joint force, signal support requires joint interoperability in systems engineering, planning, deployment, and operation. Joint forces must be networked, linked, and synchronized in time and purpose so dispersed forces can communicate, maneuver, share data and information, collaborate, and share a common operational picture.

5-2. By integrating information from across the operational area, Army forces can maintain timely and relevant situational understanding. The integrated common operational picture allows commanders to manage operational risk and employ the right capabilities at the right place and time to achieve mission objectives. Making this possible requires signal Soldiers and leaders to apply the fundamental principles of—

- Operational focus.
- Interoperability.
- Agility.
- Trusted systems.
- Shared networks.
- Network situational awareness.

OPERATIONAL FOCUS

5-3. Communications support should never be the limiting factor to the commander's ability to execute a mission. The signal staff needs to understand the commander's scheme of maneuver and intent and be able to articulate the capabilities and limitations of their communications systems to their commanders. This way, commanders can employ their signal capabilities to best support the operation.

5-4. The signal staff must participate throughout the operations process to integrate the signal plan with the scheme of maneuver. This integration requires signal planners at every echelon to participate as full partners in the military decision-making process. Signal planners participate throughout planning so they can better understand the maneuver plan and anticipate changes in operational requirements. During course of

action comparison, signal planners advise the commander and staff of capability shortfalls that may adversely affect or limit a proposed course of action.

INTEROPERABILITY

5-5. Interoperability among mission partners enables information advantage in joint and multinational operations. Sharing common technical standards and policies among joint partners allows a wide range of networking and information systems to interoperate as a joint network. Interoperability among systems and mission partners facilitates information exchange and speeds up decision making and implementation. Interoperability requires compatibility and standardization among communications and automated information systems. Planners must consider joint interoperability when formulating signal support plans.

Compatibility

5-6. Compatibility is the capability of two or more different items or components of equipment to function in the same system or environment without mutual interference. Electromagnetic compatibility, including frequency supportability, is a design consideration at the earliest conceptual stage and throughout the planning, design, development, testing, evaluation, and operational life cycle of all systems.

Standardization

5-7. The need for standardization applies across the DOD, including the joint, Army, and other Services' networks. Sharing common technical standards among mission partners ensures technical interoperability. Standardization enables collaboration with mission partners and reduces duplication in research and development efforts.

AGILITY

5-8. Communications and networking capabilities must meet the commander's communications requirements and support timely decision making. Agile communications enable decentralized execution according to the commander's intent.

5-9. Agile networks have the capacity, flexibility, mobility, redundancy, reliability, scalability, and timeliness to meet the commander's requirements across the competition continuum. To support agile forces and fast paced operations, the communications architecture should adapt to a wide range of missions without needing extensive reconfiguration. An agile network adapts to meet user needs in a continually changing operational environment.

Capacity

5-10. The signal staff must plan communications and network capabilities to support all anticipated requirements in the operational area. High-level plans for the theater network must consider satellite bandwidth and spectrum availability to support growth as the theater network expands to meet increasing operational requirements.

Flexibility

5-11. Flexibility allows rapid integration at all levels of joint and Army communications support. Flexibility allows signal elements to adapt to changing situations and dynamic operations with minimal disruption or delay. Flexibility is particularly important during contingency operations.

Mobility

5-12. Commanders at all levels must have network systems that are as mobile as the forces, elements, or organizations they support, without degraded information quality or flow. The network should provide an operational advantage and not a burden while enhancing the speed and agility of warfighting formations.

Redundancy

5-13. Redundancy provides multiple transmission paths, backups, self-healing strategies, and data replication. Redundancy enables quick recovery if portions of the network or the data that it transports are destroyed, rendered inoperative, or degraded. Signal elements implement redundancy through—

- Communications in depth—using alternate means of network transport to maintain reachback capability in a degraded environment.
- PACE plans.

Reliability

5-14. Reliability ensures networks are available when needed and perform as intended. Use of systems and networks with low failure rates, error correction techniques, and self-healing network architecture enhances the reliability of communications support.

Scalability

5-15. Signal forces must provide a network that is tailorable to adapt, based on phases of an operation, to enable command and control during reception, staging, onward movement, and integration in support of deployed environments. Deployed environments include training, exercises, theater security cooperation, initial entry, and maneuver. Deployed environments may involve minimal to robust force packages. Signal elements must be able to adjust the network to provide the right services at the point of need, under all conditions as the size of the supported deployed forces changes.

Timeliness

5-16. Timeliness ensures that the processing and transmission time for warning, critical intelligence, and OPORD execution information is as short as practicable. As weapon systems technology shortens the time between warning and attack, information management processes and data architectures must accelerate to reduce the lag between information collection, analysis, and dissemination.

5-17. Signal elements perform information management in support of the unit's knowledge management plan to ensure commanders and their staffs receive the information they need, when they need it, to support planning and decision making. As

the network expands or network nodes relocate to meet mission requirements, signal elements ensure timely network support through—

- Priorities of work.
- Priorities of service.
- Quality of service management.

TRUSTED SYSTEMS

5-18. Commanders and system users need to be able to trust the confidentiality, integrity, and availability of communications systems. Trusted networks must be transparent to users, protect the information and services on the network, and provide users with confidence in the validity of the information the network delivers. Trusted networks must be protected, survivable, and sustainable.

Protection

5-19. Protected communications systems and networks enable joint command and control in a contested environment. As such, they present high-value targets to the threat. Cybersecurity and COMSEC secure DOD networks and the information they carry. Cybersecurity establishes the baseline security of the network. COMSEC secures network transport media and classified terminal devices. Signal elements protect the network through—

- Cybersecurity.
- COMSEC.
- Anti-jamming techniques.

Survivability

5-20. Survivable networks result from such techniques as dispersal of key facilities, redundant communications nodes, or a combination of techniques necessary for the physical and electrical protection of networks and critical infrastructure. While it is not practical or economically feasible to make all networks or elements of a system equally survivable, the networks and systems that enable command and control need protection corresponding with the survivability requirements of the associated command post. Since the Army network is a key command and control enabler, enemies consider it a priority target for lethal and nonlethal fires.

Sustainability

5-21. Sustainable networks provide support during any type of operation, regardless of its duration. This requires the economical design and employment of networks without sacrificing operational capability or survivability. Examples that might improve system sustainability include—

- Consolidating functionality of similar facilities.
- Adherence to approved joint architectures.
- Integrating special purpose and dedicated networks, when possible, into the joint portion of the DOD network.
- Maximum use of DOD-wide common user services.
- Judicious use of commercial services to augment military capabilities.

SHARED NETWORKS

5-22. Shared networks and services allow the mutual use of information services and communications capabilities among mission partners at all echelons. Shared networks enable collaboration, rapid dissemination of intelligence and combat information, and the ability to project decisions based on common situational understanding. Signal elements provide shared networking capabilities by implementing—

- DOD-wide common standards—common cybersecurity policies and system configurations to enhance interoperability.
- Cybersecurity reciprocity—sharing security authorization packages and agreeing to accept other Services' test and assessment results and authorization.
- Mission partner network—secure networking environment for collaboration with multinational partners.

NETWORK SITUATIONAL AWARENESS

5-23. Comprehensive network situational awareness allows commanders and their staffs to receive, correlate, and display an accurate representation of systems and networks. A clear visual representation of the network allows near real-time assessment of operational impacts and helps staffs identify mission-relevant terrain in cyberspace.

5-24. Observation of the intensity of network activity, traffic load, and data throughput yields network situational understanding to enable dynamic rerouting of priority traffic and services and may provide indications of malicious cyberspace activity or electromagnetic attack. Situational awareness allows commanders and signal elements to—

- Monitor, protect, and prioritize their network assets.
- Assess the operational impact of network disruptions.
- Respond to network outages or attacks.
- Dynamically reallocate network traffic.

CORE COMPETENCIES OF THE SIGNAL CORPS

5-25. A *core competency* is an essential and enduring capability that a branch or an organization provides to Army operations (ADP 1-01). A core competency is not a task; it is a capability stated in general terms. Simply stated, the core competencies of the Signal Corps identify the technical disciplines signaleers must collectively master to achieve success. The core competencies of the Signal Corps are—

- Network transport.
- Network integration.
- Network security.
- Information and data delivery.
- Electromagnetic spectrum access.
- Data engineering.
- Application development.

NETWORK TRANSPORT

5-26. *Network transport* is the processes, equipment, and transmission media that provide connectivity and move data between networking devices and facilities (FM 6-

02). All communications networks require some means of network transport to provide the connections between networking nodes and the connections from networking nodes to end users. The Signal Corps has military occupational specialties that exist solely to install, operate, maintain, and secure network transport capabilities. Major network transport capabilities include—

- SATCOM.
- Line of sight communications.
- Tropospheric scatter.
- Tactical radios and radio retransmission.
- Cable, wire, and fiber optic.

NETWORK INTEGRATION

5-27. Network integration entails planning, establishing, and maintaining local area networks, wide-area networks, and tactical radio networks by integrating network transport links with networking capabilities. The tasks to integrate the Army network include—

- Communications planning.
- Network management.
- Enterprise systems management.

NETWORK SECURITY

5-28. Network security protects friendly information by denying threats access to information of value about U.S. operations. The tasks to provide network security include—

- Cybersecurity.
- COMSEC.
- Electromagnetic protection—including emission control.

INFORMATION AND DATA DELIVERY

5-29. The Army operates in a rapidly changing and increasingly complex environment where the ability to deliver accurate, timely, and relevant information is critical to achieving mission success. Information delivery enables commanders and staffs to collect, process, and disseminate information to support operations. The Army's information delivery systems and networks are designed to enable shared situational understanding, facilitate command and control, and support decision making.

5-30. Information delivery plays a vital role in enabling commanders to make informed decisions, Soldiers to execute their missions, and logisticians to manage the flow of resources. Signal systems support the delivery of relevant information and data at the strategic, operational, and tactical levels.

ELECTROMAGNETIC SPECTRUM ACCESS

5-31. Since a significant portion of any communications system relies upon wireless transmissions, access to the electromagnetic spectrum must be a consideration when planning network connectivity. All joint force operations depend on assured electromagnetic spectrum access throughout the operational environment.

5-32. Signal Soldiers enable electromagnetic spectrum access through spectrum management operations. *Spectrum management operations* consist of 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. Refer to ATP 6-02.70 for more information about spectrum management operations.

DATA ENGINEERING

5-33. Improved technology in mobility, weapons, sensors, and communications generates large amounts of data with which to establish situational understanding. However, the sheer volume of available data can quickly overwhelm planners and decision makers, leading to poor decisions. To prevent data overload from interfering with decision making, the data must be filtered and converted so commanders and staffs can access relevant data and information to support timely decision making.

5-34. Data engineering encompasses sourcing, transforming, and managing data from various systems across the competition continuum. Data engineering applies intricate methodologies for gathering and authenticating data, ranging from data integration tools to artificial intelligence. Data engineering products provide decision makers with descriptive, predictive, and prescriptive analysis, leading to increased data maturity.

5-35. Commanders and leaders employ data engineering capabilities and products to optimize command and control, evaluate current performance, and provide foresight for strategic mission planning. Data engineering involves designing and building automated information systems to—

- **Collect data**—acquire datasets that meet the needs of commanders and staffs.
- **Transform data**—create algorithms to convert raw data into usable information.
- **Store data**—design and support data stores and pipelines.
- **Analyze data**—create data analysis tools and methods to validate data.
- **Govern data**—ensure compliance with data security and governance policies.

APPLICATION DEVELOPMENT

5-36. Application development plays a critical role in supporting command and control by providing the necessary software applications and tools to enable effective communication, collaboration, and decision making. Application development helps facilitate this process by creating customized applications that meet the specific needs of commanders and staff.

5-37. These applications can include tools for situational understanding, battle management, and logistics management, among other functions, and are designed to provide real-time information, enabling commanders to make informed decisions and execute their missions effectively. Developing applications tailored to commanders' unique requirements provides them with the timely and accurate information they need to succeed in their operations.

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Appendix A

Echelons Above Corps and Special Operations Tactical Signal Units

In addition to the signal companies at echelons corps and below, certain echelons above corps signal companies also support large-scale combat operations or specialized functions. This appendix outlines the capabilities and structure of echelons above corps and special operations 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) 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 USASOC, 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.

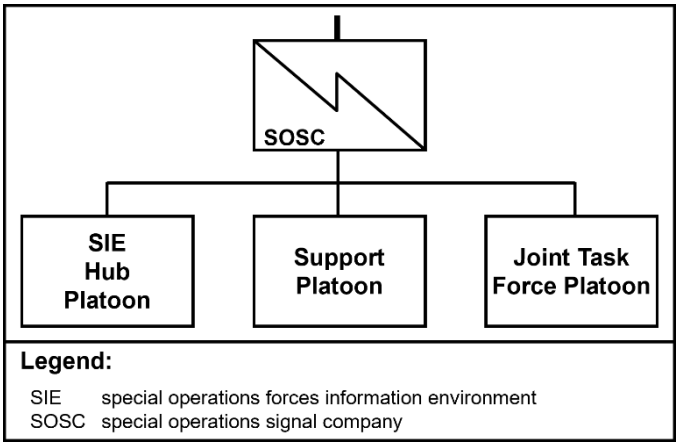


Figure A-1. Special operations signal company organization

COMPANY HEADQUARTERS

A-3. The company headquarters provides command and control and administrative, operational, information management, logistical, maintenance, and CBRN support for the company. The headquarters consists of—

- Company commander.
- Headquarters platoon leader.
- First sergeant.
- Platoon sergeant.
- Supply noncommissioned officer.
- CBRN decontamination specialist.
- Supply specialist.
- Vehicle driver.

SPECIAL OPERATIONS FORCES INFORMATION ENVIRONMENT HUB PLATOON

A-4. 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 other forces in the theater of operations, USASOC, 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.

SUPPORT PLATOON

A-5. The support platoon headquarters controls and plans operations 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.

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 127 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 to maneuver, support, and command elements.

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

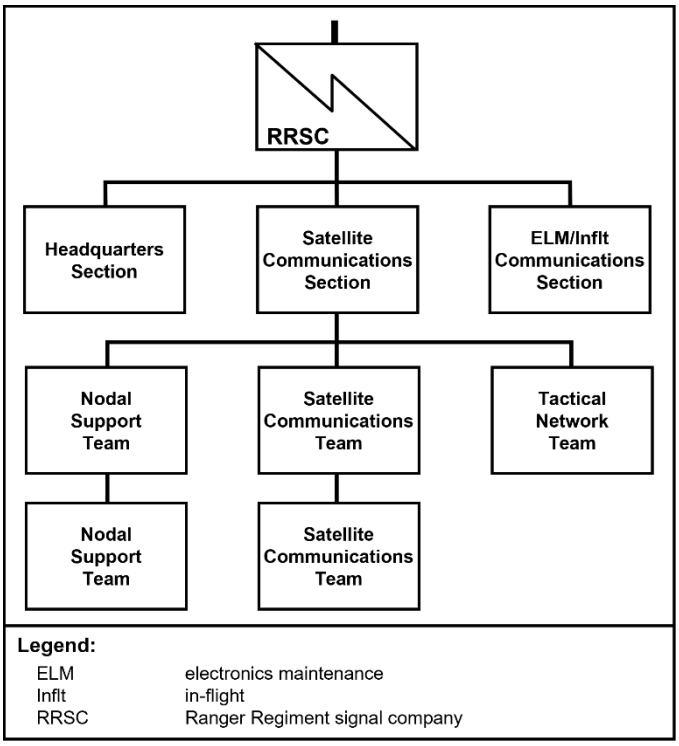


Figure A-2. Ranger Regiment signal company organization

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 SATCOM teams. The section headquarters consists of—

- SATCOM section chief (section sergeant).
- Senior information technology specialist.
- Senior network communications systems specialist.
- Senior SATCOM systems specialist.
- Information technology specialist.
- Two network communications systems specialists.
- Two SATCOM systems specialists.

Satellite Communications Teams

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

- Senior information technology specialist.
- Senior network communications systems specialist.
- Senior SATCOM systems specialist.
- Two network communications systems specialists.
- Four SATCOM systems specialists.
- 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 network communications systems specialist.
- Forward signal support noncommissioned officer.
- Signal operations support noncommissioned officer.
- Network communications systems specialist.
- Two SATCOM systems specialists.
- Four 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 a senior information technology specialist (team chief) and two information technology specialists.

ELECTRONICS MAINTENANCE AND IN-FLIGHT COMMUNICATIONS SECTION

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

- Radio equipment repair supervisor (section sergeant).

- Equipment records and parts sergeant.
- Three senior radio equipment repairers.
- Two SATCOM systems specialists.
- 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.

THEATER TACTICAL SIGNAL BRIGADE

A-16. The theater tactical signal brigade headquarters supervises building, configuration, operation, and maintenance of communications nodes, and secures these nodes, in the deployed portion of the network, excluding the corps, division, and brigade combat team systems. It also integrates mission partners into the DODIN. The theater tactical signal brigade—

- Allocates, controls, and positions tactical networking resources.
- Oversees connection to the network for Army units and designated mission partner elements.
- Provides physical security for, and actively defends, network resources.
- Performs long-range planning for tactical network expansion and upgrade.
- Enforces global (enterprise) and theater-level technical standards and policies for assigned tactical networking resources.
- Conducts enterprise systems management and network management.
- Exercises communications-electronics maintenance and logistical readiness oversight over subordinate elements.
- Oversees contractor support operations and personnel.

A-17. The table of organization and equipment for a theater tactical signal brigade provides minimal staffing for the headquarters. The brigade headquarters depends on staffing by subordinate tables of distribution and allowance to perform most of the brigade headquarters functions.

A-18. The theater tactical signal brigade designs tailored communications packages from the assets of an expeditionary signal battalion. The theater tactical signal brigade establishes a network operations and security center to conduct DODIN operations for its subordinate battalions and companies.

A-19. In a large-scale mobilization, the theater tactical signal brigade will normally be deployed into the operational theater to provide signal support. The deployed theater tactical signal brigade will be under the administrative control of the theater army and allocated to the combatant commander. This simplifies and streamlines requests for forces (see appendix A), since the combatant commander can source requests for signal support from allocated forces without needing to forward the request for forces through Headquarters, Department of the Army to the joint staff J-3 for sourcing. It also makes the signal support more responsive to contingency requirements, since the signal elements in theater do not need to go through the lengthy processes of deployment from home station and reception, staging, onward movement, and integration. The theater tactical signal brigade has no organic transportation assets and is dependent on the supported unit (the SC[T] or theater army) for transportation. Figure A-3 on page 130

shows the organization of the theater tactical signal brigade headquarters without table of distribution and allowances augmentation.

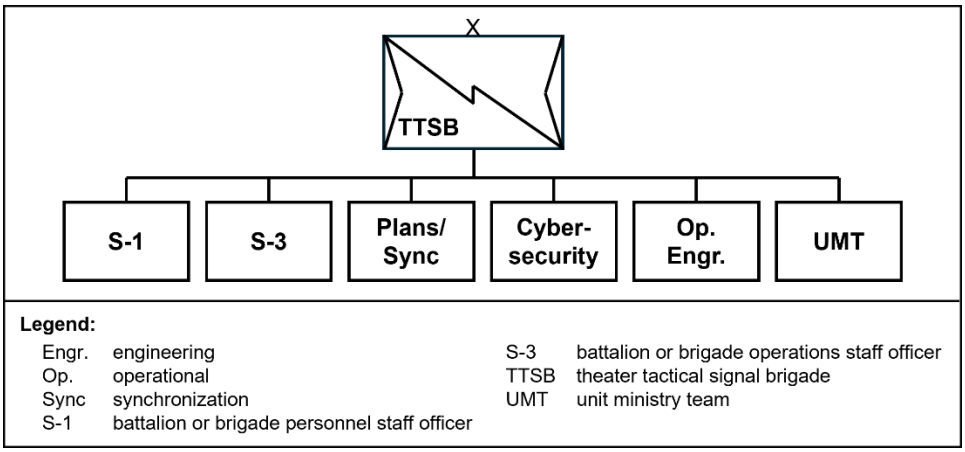


Figure A-3. Theater tactical signal brigade headquarters organization

EXPEDITIONARY SIGNAL BATTALION

A-20. Expeditionary signal battalions are fundamental building blocks of the Army's global force pool. Most expeditionary signal battalions are theater-available forces that can deploy for contingency or enduring missions. An expeditionary signal battalion consists of a headquarters and headquarters company, two expeditionary signal companies, and a joint and area signal company. The battalion headquarters provides administrative and logistical support for the signal battalion. The battalion S-3 oversees designing, building, configuring, securing, operating, maintaining, and sustaining nodal and extension communications.

A-21. Expeditionary signal battalions support joint and Army units up to theater army, field army, joint force land component command, or joint task force headquarters. They also manage tactical communications assets in the battalion through their suites of DODIN operations tools. The battalion headquarters provides—

- Staff planning and supervision for the battalion and any attached units.
- Field maintenance support for the battalion headquarters.
- COMSEC account management for the battalion.
- Field maintenance of organic COMSEC equipment.

A-22. Figure A-4 on page 131 shows the expeditionary signal battalion headquarters organization.

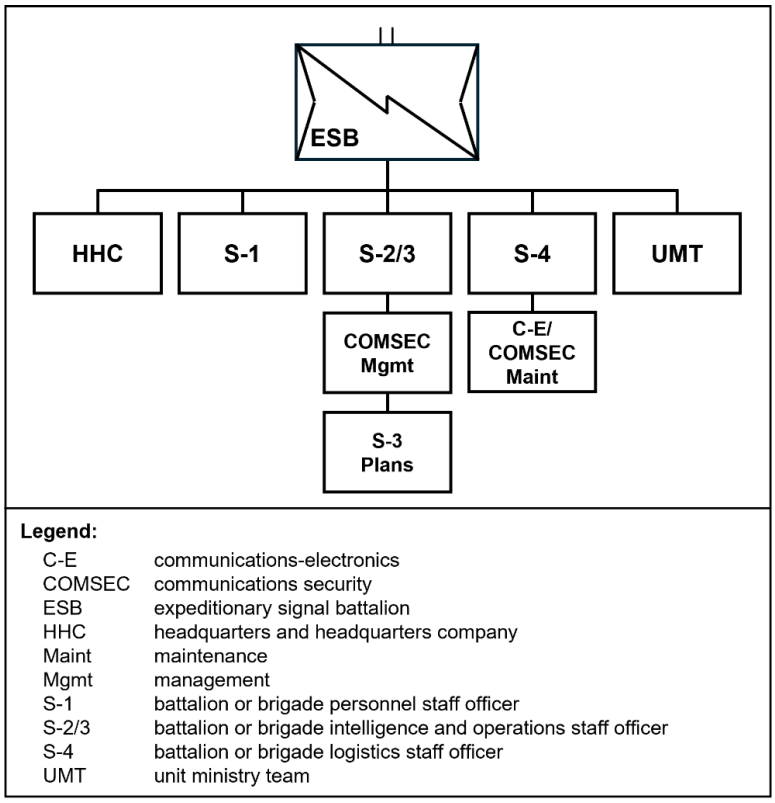


Figure A-4. Expeditionary signal battalion headquarters organization

EXPEDITIONARY SIGNAL COMPANY

A-23. Expeditionary signal companies are echelons above corps signal assets assigned to an expeditionary signal battalion under the theater tactical signal brigade to support enabling units across a geographic area of responsibility. The company consists of a company headquarters and two identical expeditionary signal platoons. Figure A-5 on page 132 shows the organization of an expeditionary signal company.

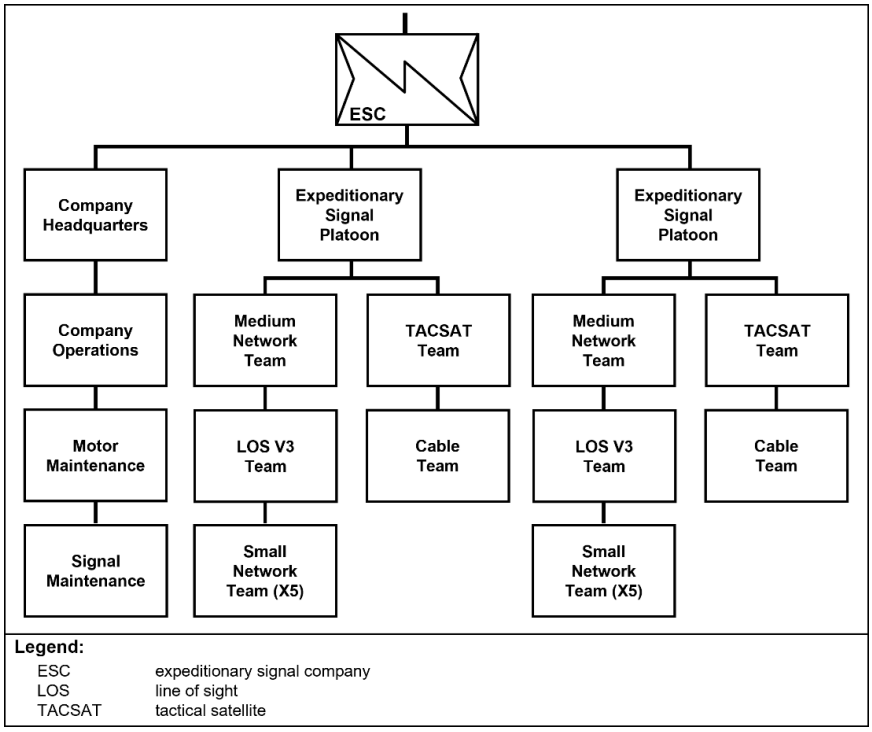


Figure A-5. Expeditionary signal company organization

Company Headquarters

A-24. The company headquarters provides command and control, administrative and logistical support, and field feeding for assigned sections and teams. The company headquarters consists of—

- Company commander.
- First sergeant.
- Supply sergeant.
- CBRN specialist.
- Two supply specialists.
- Vehicle driver.

Company Operations

A-25. The operations section manages training, conducts tactical planning, and executes sustainment support for unit operations. The operations section consists of—

- Operations officer.
- Infrastructure specialist.
- Network communications systems supervisor.
- Plans and operations noncommissioned officer.
- SATCOM operations sergeant.
- Information technology specialist.

Motor Maintenance

A-26. The motor maintenance section provides field maintenance for automotive; power generation; petroleum, oils and lubricants; and environmental control equipment for the company and battalion headquarters and headquarters company when co-located. The motor maintenance section consists of—

- Motor sergeant (section sergeant).
- Senior mechanic.
- 11 wheeled vehicle mechanics.
- Two utilities equipment repairers.
- Two tactical power generation specialists.
- Equipment records and parts sergeant.
- Recovery vehicle operator.
- Equipment records and parts specialist.
- Petroleum light vehicle operator.

Signal Maintenance

A-27. The signal maintenance section provides limited sustainment maintenance for organic communications-electronics, controlled cryptographic items, and COMSEC equipment. The section maintains logbooks for communications equipment and the prescribed load list for organic communications-electronics, controlled cryptographic items, and COMSEC equipment. The section consists of—

- Equipment records and parts sergeant.
- SATCOM systems specialist.
- Radio equipment repairer.

Expeditionary Signal Platoon

A-28. An expeditionary signal platoon installs, operates, maintains, secures, and conducts network management for one medium network node and five small network nodes with associated line of sight and SATCOM transport and cable, wire, and fiber optics. One expeditionary signal platoon can support a unit as large as a brigade.

Platoon Headquarters

A-29. The platoon headquarters plans, controls, and sustains platoon operations. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Medium Network Teams

A-30. A medium network team provides personnel to support a medium command post using a Joint Network Node with associated line of sight and wideband SATCOM transport to extend access to classified and nonclassified DISN and cloud services. The team consists of—

- Senior network communications systems specialist (team chief).
- Two network communications systems specialists.
- Three SATCOM systems specialists.

Line of Sight V3 Teams

A-31. A line of sight V3 team provides high-throughput line of sight network transport to support the Joint Network Node. The team consists of a senior transmission systems operator (team chief) and two transmission systems operators.

Small Network Teams

A-32. The small network teams provide personnel to support a small command post using the Command Post Node with associated line of sight network transport to extend access to classified and nonclassified DISN and cloud services. Each expeditionary signal platoon has five small network teams. The small network teams are led by a transmission systems team supervisor (section sergeant). Each team consists of—

- Senior transmission systems operator (team chief).
- Two information technology specialists.
- Three transmission systems operators.

Tactical Satellite Teams

A-33. Tactical satellite teams provide wideband SATCOM transport to support assigned networking and switching equipment. The team normally deploys with a telephone switchboard section. Each team consists of three SATCOM specialists.

Cable Teams

A-34. Cable teams provide cable, wire, and fiber optics to interconnect the platoon's communications assemblages. Each team consists of a senior cable systems installer and three cable systems installers.

JOINT AND AREA SIGNAL COMPANY

A-35. The joint and area signal company is an echelons above corps unit assigned to a theater tactical signal brigade to provide large and medium command node support across a geographic area of responsibility. The company consists of a company headquarters and two identical heavy signal platoons. Figure A-6 on page 135 shows the organization of a joint and area signal company.

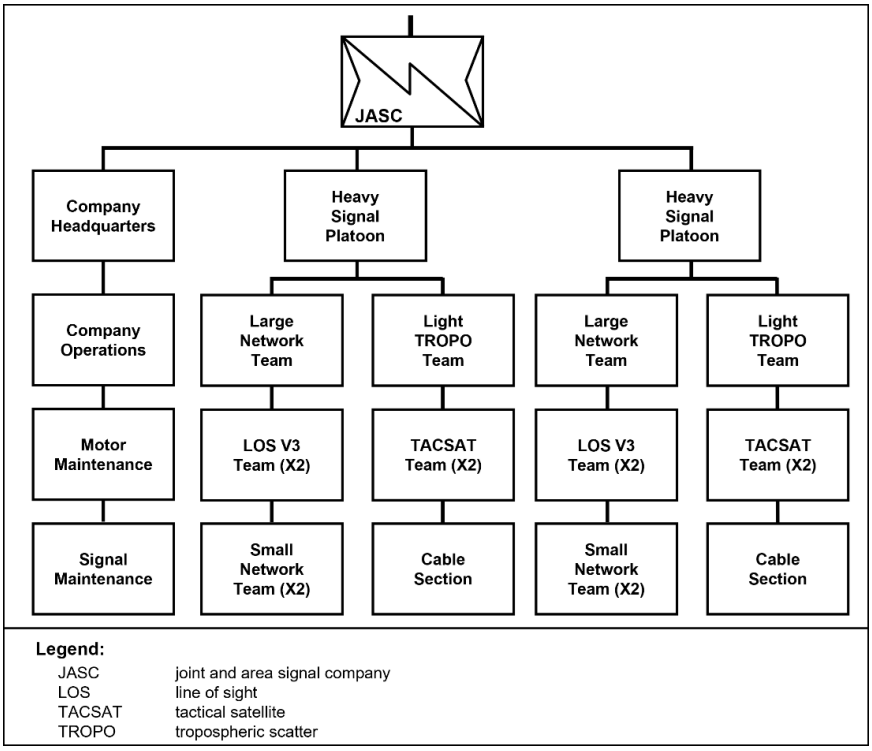


Figure A-6. Joint and area signal company organization

Company Headquarters

A-36. The company headquarters provides command and control, logistical support, and field feeding support for assigned sections and teams. The company headquarters consists of—

- Company commander.
- First sergeant.
- Supply sergeant.
- CBRN specialist.
- Vehicle driver.

Company Operations

A-37. The company operations section plans and coordinates operations and training for the company. The company operations section consists of—

- Operations officer.
- Computer network defense analyst.
- Network communications systems supervisor.
- Plans and operations noncommissioned officer.
- SATCOM systems specialist
- Information technology specialist.

Motor Maintenance

A-38. The motor maintenance section provides field maintenance support for automotive; power generation; petroleum, oils, and lubricants; and environmental control equipment for the company and the headquarters and headquarters company, expeditionary signal battalion when co-located. The section consists of—

- Motor sergeant (section sergeant).
- Senior mechanic.
- 12 wheeled vehicle mechanics.
- Recovery vehicle operator.
- Three utilities equipment repairers.
- Equipment records and parts sergeant.
- Tactical power generation specialist.
- Petroleum light vehicle operator.

Signal Maintenance

A-39. The signal maintenance section provides field maintenance and limited sustainment maintenance for organic communications-electronics, controlled cryptographic items, and COMSEC equipment. The section maintains logbooks for communications equipment and the prescribed load list for organic communications-electronics, controlled cryptographic items, and COMSEC equipment. The section consists of—

- Equipment records and parts sergeant (section sergeant).
- SATCOM systems specialist.
- Radio equipment repairer.

Heavy Signal Platoon

A-40. Each heavy signal platoon installs, operates, maintains, secures, and performs network management for one large network node (Single Shelter Switch), two small communications nodes (Command Post Nodes) line of sight transmission systems, wideband SATCOM terminals, and light tropospheric scatter systems. A heavy signal platoon can support a large headquarters command post, such as a combatant command, theater army, or a joint task force while also supporting two small battalion-sized command posts.

Platoon Headquarters

A-41. The platoon headquarters trains for, plans, and controls operations of subordinate teams and sections. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Large Network Teams

A-42. Large network teams provide personnel and equipment to receive, transmit, and process low, medium, and high capacity multichannel voice and data communications. A large network team consists of—

- Network communications systems manager.
- Senior network communications systems specialist.

- Four network communications systems specialists.

Line of Sight V3 Teams

A-43. The line of sight V3 teams install, operate, maintain, and secure high-throughput line of sight systems to provide network transport for Single Shelter Switches. Each team consists of a senior transmission systems operator and two transmission systems operators.

Small Network Teams

A-44. Small network teams install, operate, maintain, and secure transmission and networking systems to support a small command post. Each team consists of—

- Senior network communications systems specialist (team chief).
- Two information technology specialists.
- Network communications systems specialist.
- Two transmission systems operators.

Light Tropospheric Scatter Team

A-45. Light tropospheric scatter teams provide beyond line of sight ability to receive, transmit, and process low, medium, and high-capacity multichannel voice and data communications. Each team consists of a tropospheric scatter team supervisor (team chief), and two tropospheric scatter systems operators.

Tactical Satellite Teams

A-46. Tactical satellite teams provide inter- and intra-theater wideband SATCOM transport. Tactical satellite teams normally deploy with a telephone switchboard section. Each team consists of three SATCOM specialists.

Cable Section

A-47. The cable section provides wire, cable, and fiber optic interconnectivity for the platoon's communications systems. The section consists of—

- Cable systems installation supervisor (section sergeant).
- Senior cable systems installer.
- Eight cable systems installers.

TACTICAL INSTALLATION AND NETWORKING COMPANY-ENHANCED

A-48. 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-7 on page 139 shows the organization of the tactical installation and networking company-enhanced. The company provides these capabilities to support 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.
  - Nonclassified Internet Protocol Router Network.
  - Video teleconferencing.

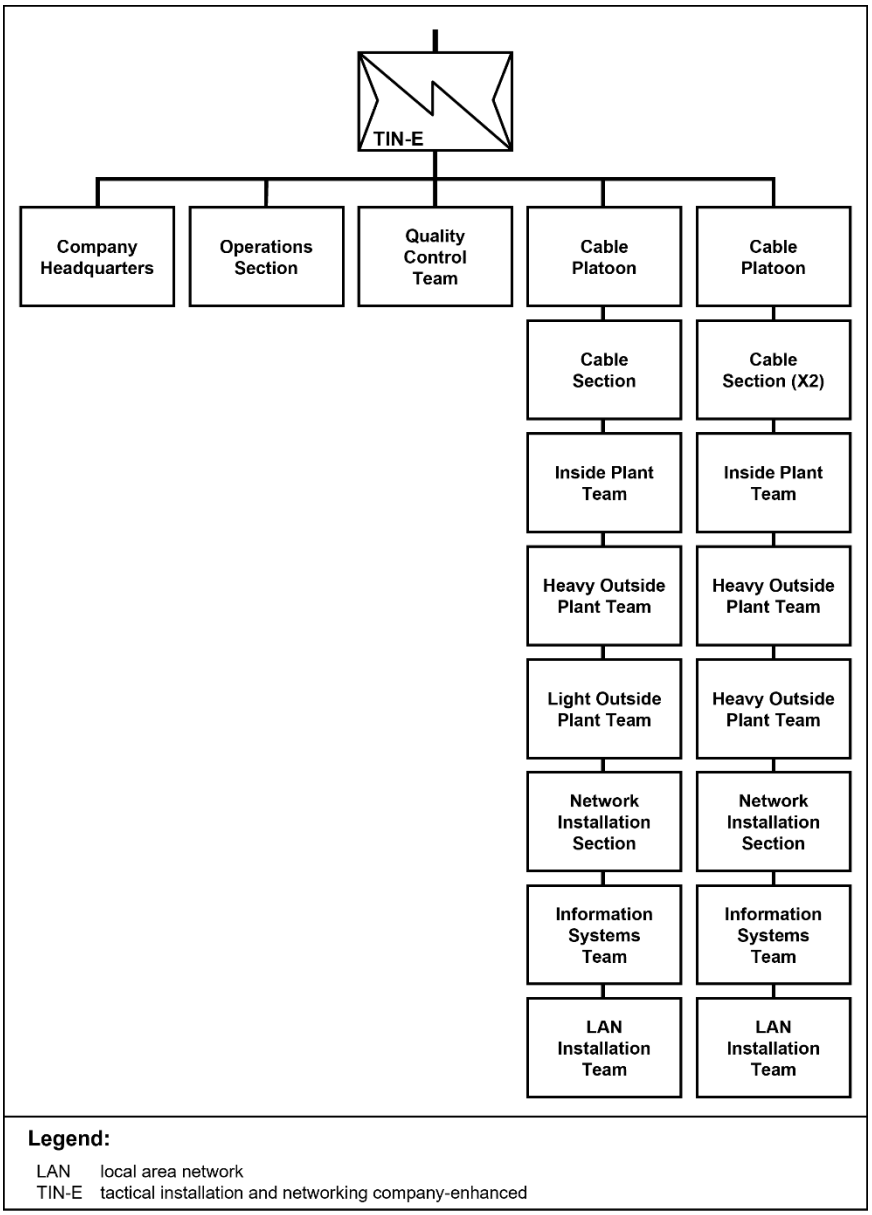


Figure A-7. Tactical installation and networking company-enhanced organization

COMPANY HEADQUARTERS

A-49. 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-50. 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 operations warrant officer.
- Network communications systems manager.
- Senior information technology specialist.
- Two information technology specialists.

QUALITY CONTROL TEAM

A-51. 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—

- Senior signal sergeant.
- Network communications systems manager.
- Cable systems installation supervisor.
- Senior cable systems installer.

CABLE PLATOON

A-52. Each cable platoon provides cable installation capabilities that include—

- Inside plant.
- Heavy outside plant.
- Light outside plant.
- Network systems installation.
- Information systems management.
- Local area networking.

Platoon Headquarters

A-53. The platoon headquarters exercises control, plans, and provides technical supervision for subordinate sections and teams. The platoon headquarters consists of a platoon leader and a platoon sergeant.

Cable Section

A-54. Each cable section is made of various teams, including inside plant teams, heavy outside plant teams, and light outside plant teams. Each cable section is led by a section supervisor (section sergeant).

Inside Plant Team

A-55. 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—

- Cable systems installation supervisor (team chief).
- Six senior cable systems installers.
- Six cable systems installers.

Heavy Outside Plant Team

A-56. 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 systems installation supervisors.
- Two senior cable systems installers.
- 14 cable systems installers.

Light Outside Plant Team

A-57. 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 cable systems installation supervisors.
- Two senior cable systems installers.
- Six cable systems installers.

Network Installation Section

A-58. Each network installation section is made up of an information systems team and a local area network installation team. The network installation section chief is an information technology staff noncommissioned officer.

Information Systems Team

A-59. Each information systems 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. 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—

- Information technology noncommissioned officer (team chief).
- Three senior information technology specialists.
- Three information technology specialists.

Local Area Network Installation Team

A-60. 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, Nonclassified Internet Protocol Router Network, and video teleconferencing. Each local area network installation team consists of—

- Information technology noncommissioned officer (team chief).
- Three senior information technology specialists.
- Three information technology specialists.

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 PRE-COMBAT CHECKS AND INSPECTIONS

B-1. The platoon leader or platoon sergeant must evaluate retransmission teams' preparation for combat. They conduct pre-combat inspections 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 pre-combat inspections of retransmission teams before they leave the staging area. During pre-combat 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.
  - COMSEC fill device.
  - Communications card.
  - Maps, protractors, and compasses.
  - Systems Planning, Engineering, and Evaluation Device assessment.
- Preventive maintenance checks and services on all equipment completed and documented.
- All vehicles and fuel cans topped off.
- All basic issue items present.
- Complete combat lifesaver's bag.
- Battery plan—spare batteries on hand for all equipment.
- Cables installed.
- Hand microphones with spares.
- Speakers.
- Retransmission radios loaded—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 tied down securely.
- Recommended retransmission equipment:
  - Six complete antenna systems.
  - Tents and heaters.
  - Extension cords.
  - Toolboxes.
  - 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 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 fire support plan.
- Compromise plan—
  - Emergency destruction plan—COMSEC, documents, maps, and equipment.
  - Escape and evasion plan.
- Resupply plan.
- 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 and sensitive items accountability.
  - 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.

Appendix C

Battle Drills

Retransmission teams often operate independently from other elements to support combat operations in the close area. In preparation for these operations, retransmission teams must train and practice battle drills for common battlefield occurrences and tactical movement techniques.

TEAM BATTLE DRILLS

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

C-2. To ensure survivability, tactical radio retransmission teams should be proficient in these battle drills:

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

C-3. The following are abbreviated drill outlines. The full battle drills with task measures and evaluation standards are available on the Central Army Registry Website.

SAFETY

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

Note. When training in MOPP, leaders must monitor personnel for potential heat injury. Leaders must follow local policies and procedures during times of increased heat category to avoid heat-related injuries. Leaders must consider the MOPP work-rest cycles and water replacement guidelines in ATP 4-02.7.

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

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

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

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

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

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

2. The team not in contact assumes the nearest covered and concealed position (see figure C-1 on page 149).

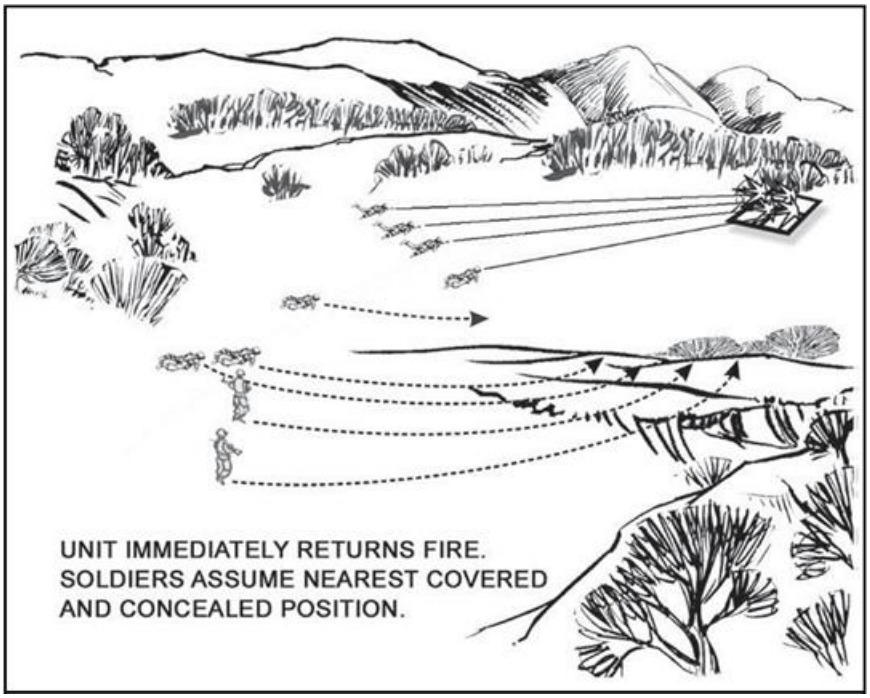


Figure C-1. The team not in contact assuming a covered and concealed position

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

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

a. Alert.

b. Weapon or ammunition (optional).

c. Target description.

d. Direction.

e. Range.

f. Method.

g. Control (optional).

h. Execution.

i. Termination.

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

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

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

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

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

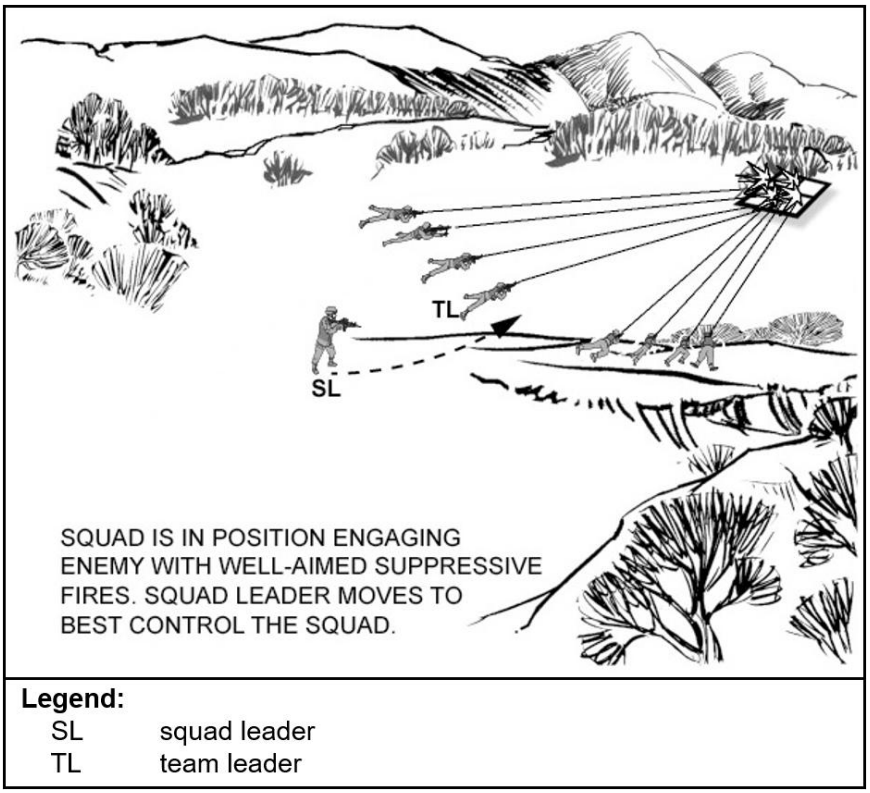


Figure C-2. Well-aimed fires and squad leader control

*10. The squad leader determines whether the squad can gain and maintain suppressive fires with the team already in contact (based on the volume and accuracy of enemy fires against the team in contact).

*11. The squad leader confirms the commander's criteria to disengage and determines whether the squad must move out of the engagement area.

*12. The squad leader assesses the situation and identifies—

a. The location of the enemy position and obstacles.

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

c. Vulnerable flanks.

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

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

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

BREAK CONTACT – SQUAD (07-SQD-D9505)

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

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

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

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

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

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

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

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

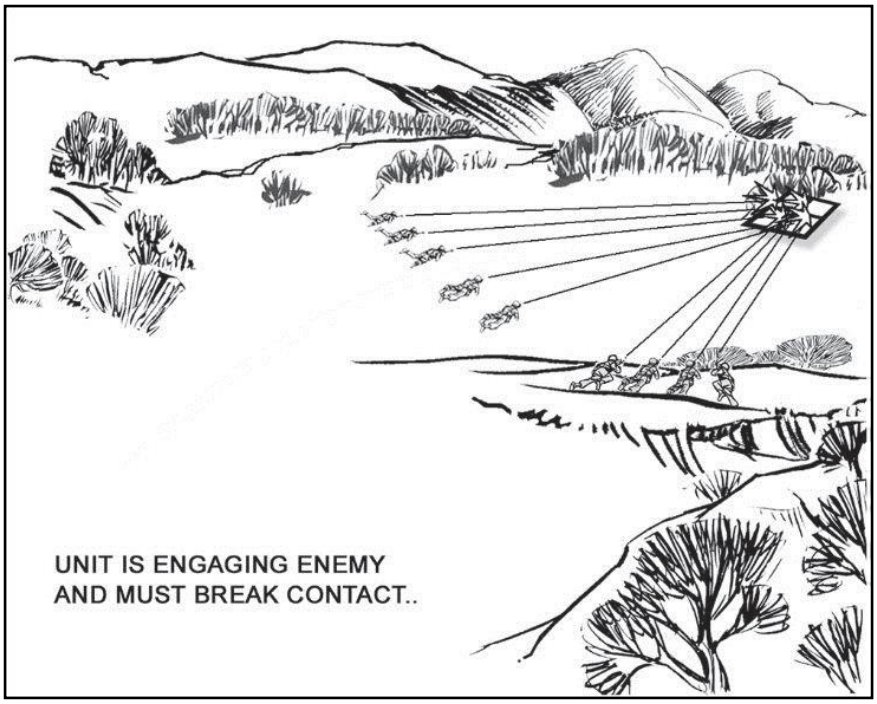


Figure C-3. Employing direct and indirect fires to suppress enemy

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

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

7. The moving team occupies their overwatch position and engages enemy positions. (See figure C-4 on page 153.)

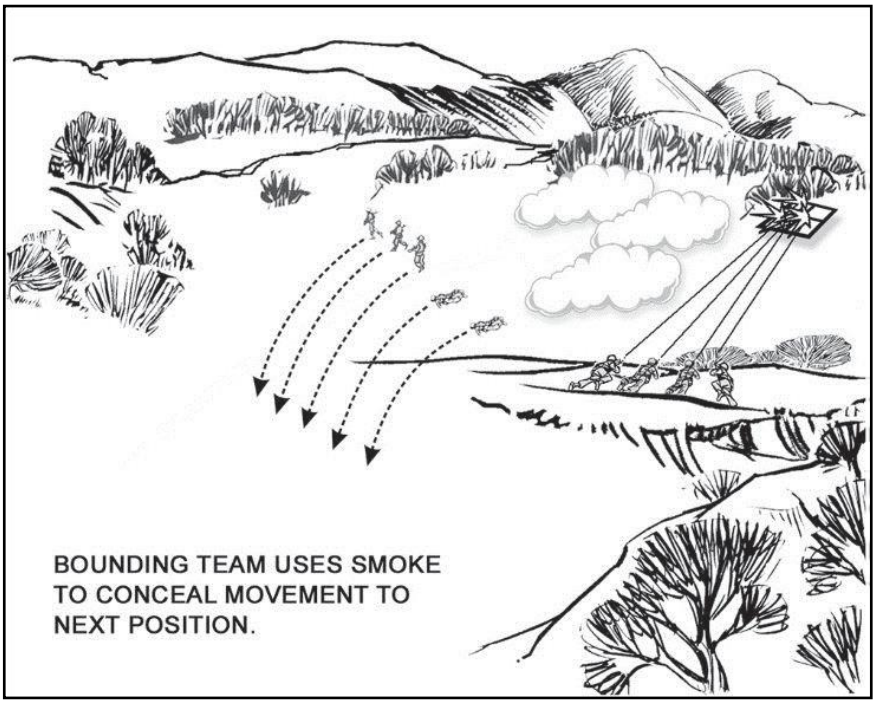


Figure C-4. Moving element occupies overwatch and engages enemy

8. The squad leader directs the base-of-fire team to move to its next covered and concealed position. Based on the terrain and the volume and accuracy of the enemy's fire, the moving team may need to use fire and movement techniques. (See figure C-5 on page 154.)

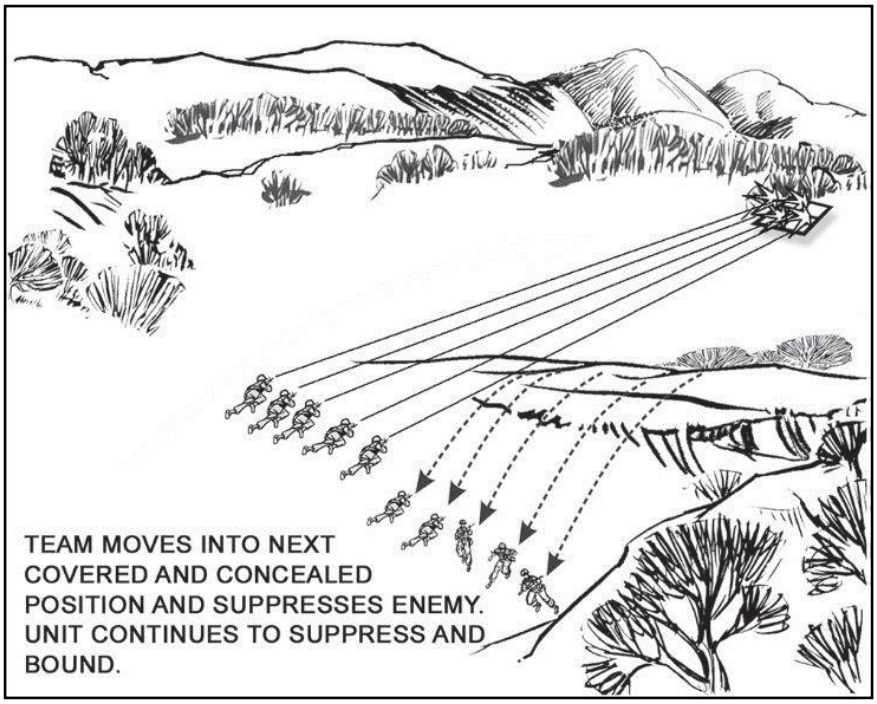


Figure C-5. Fire and movement technique

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

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

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

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

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

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

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

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

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

CUE: This drill begins when the enemy initiates an ambush.

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

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

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

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

1. The squad is moving dismounted (see figure C-6 on page 156), receives a high volume of well-aimed fire from the enemy, and takes these actions:

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

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

            (a) Return fire immediately. If cover is not available, without order or signal immediately assume the prone position and throw smoke grenades.

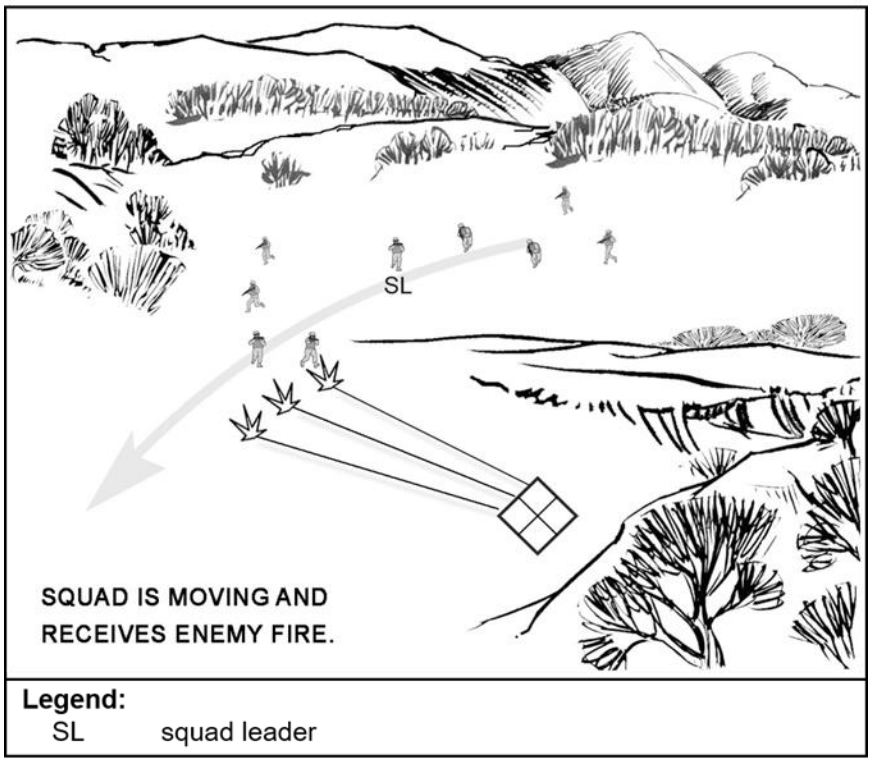
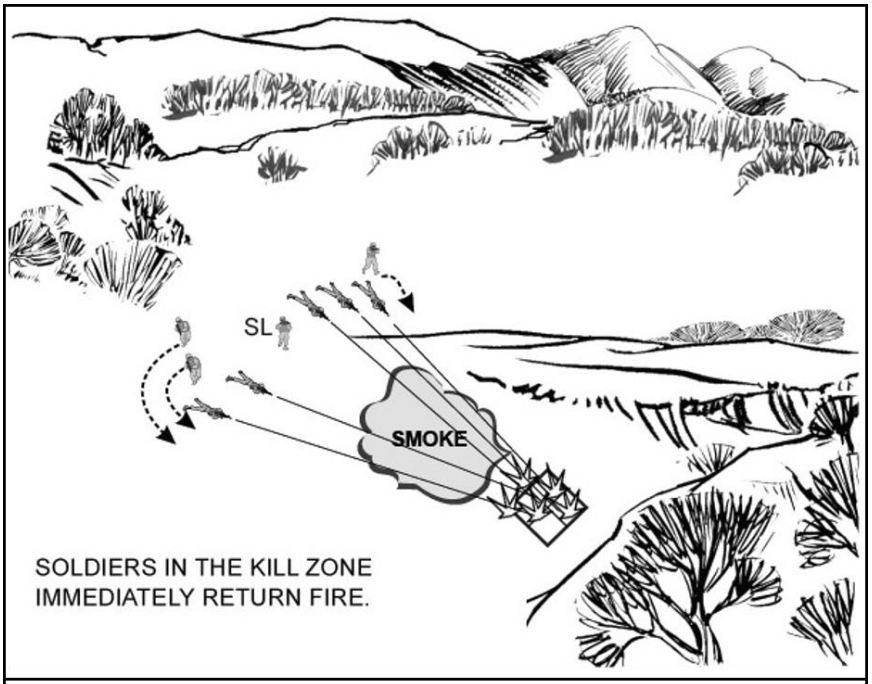


Figure C-6. Squad receives enemy fire

(b) Return fire immediately. If cover is available, without order or signal, occupy the nearest covered position and throw smoke grenades. (See figure C-7 on page 157.)



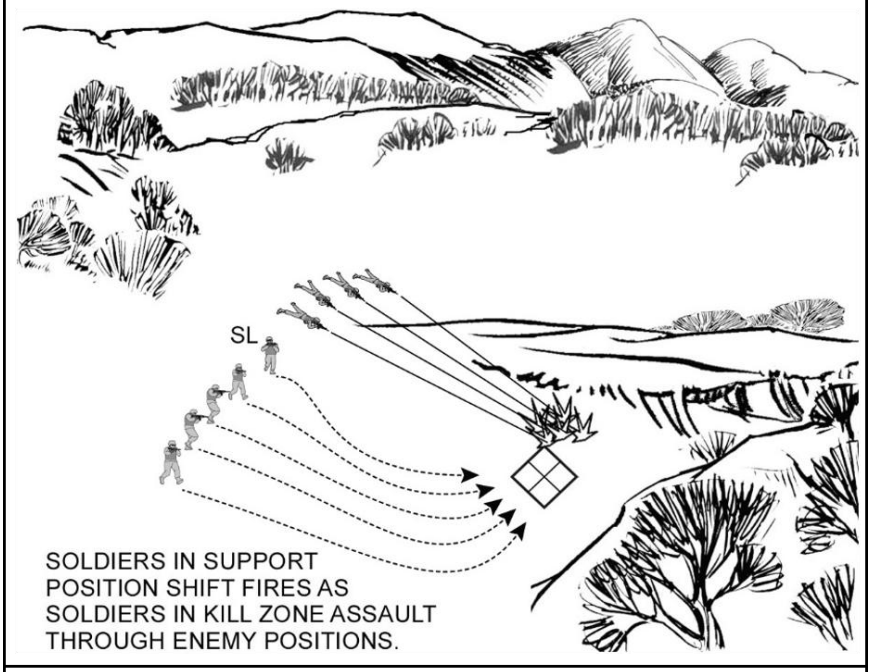
Legend:
SL squad leader

Figure C-7. Squad immediately returns fire

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

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

(4) The Soldiers or team in the kill zone continue to assault through and destroy the enemy position. (See figure C-8 on page 158).



Legend:
SL squad leader

Figure C-8. Squad assaults through enemy position

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

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

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

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

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

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

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

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

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

TASK STEPS AND PERFORMANCE MEASURES

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

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

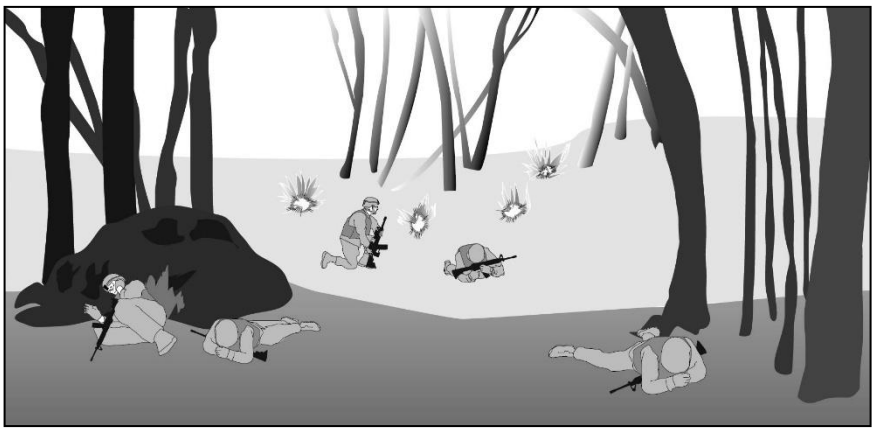


Figure C-9. Soldiers reacting to indirect fire

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

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

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

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

Glossary

The glossary lists acronyms and terms with Army or joint definitions. Where Army and joint definitions differ, (Army) precedes the definition. The proponent publication for terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATIONS

ADP	Army doctrine publication
ATP	Army techniques publication
CBRN	chemical, biological, radiological, and nuclear
COMSEC	communications security
DA	Department of the Army
DISN	Defense Information Systems Network
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
METT-TC (I)	mission, enemy, terrain and weather, troops and support available, time available, civil considerations, and informational considerations
MOPP	mission-oriented protective posture
OPORD	operation order
PACE	primary, alternate, contingency, and emergency
S-2	battalion or brigade intelligence staff officer
S-3	battalion or brigade operations staff officer
S-4	battalion or brigade logistics staff officer
S-6	battalion or brigade signal staff officer
SATCOM	satellite communications
SMART-T	Secure, Mobile, Anti-jam Reliable Tactical Terminal
SOP	standard operating procedure
UHF	ultrahigh frequency

USASOC	United States Army Special Operations Command
USCYBERCOM	United States Cyber Command
USSPACECOM	United States Space Command
VHF	very high frequency
WARNORD	warning order

SECTION II – TERMS

area of influence

An area inclusive of and extending beyond an operational area wherein a commander is capable of direct influence by maneuver, fire support, and information normally under the commander's command or control. (JP 3-0)

area of interest

That area of concern to the commander, including the area of influence, areas adjacent to it, and extending into enemy territory. (JP 3-0)

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)

concealment

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

constraint

(Army) A restriction placed on the command by a higher command. (FM 5-0)

core competency

An essential and enduring capability that a branch or an organization provides to Army operations. (ADP 1-01)

cover

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

decisive terrain

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

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)

electromagnetic interference

Any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electromagnetic spectrum-dependent systems and electrical equipment. (JP 3-85)

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 and adjusting operations based on changes in the situation. (ADP 5-0)

field maintenance

On-system maintenance, repair and return to the user including maintenance actions performed by operators. (ATP 4-33)

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

(Army) 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)

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 determining effective ways to bring that future about. (ADP 5-0)

priority intelligence requirement

The intelligence component of commander's critical information requirements used to focus the employment of limited intelligence assets and resources against competing demands for intelligence support. (JP 2-0)

risk assessment

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

specified task

A task specifically assigned to a unit by its higher headquarters. (FM 5-0)

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)

survivability

All aspects of protecting personnel, weapons, and supplies, including deceptive measures. (JP 3-34)

sustainment

(Army) The provision of logistics, financial management, personnel services, and health service support necessary to maintain operations until successful mission completion. (ADP 4-0)

task-organizing

The act of designing a force, support staff, or sustainment package of specific size and composition to meet a unique task or mission. (ADP 3-0)

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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10 July 2026

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