FM 11-157

DEPARTMENT OF THE ARMY FIELD MANUAL

SIGNAL LARGE HEADQUARTERS

OPERATION COMPANY

HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 1967

TAGO 8120A

FIELD MANUAL
No. 11-157

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *5 June 1967*

SIGNAL LARGE HEADQUARTERS OPERATIONS COMPANY

CHAPTER 1

GENERAL

Section I. INTRODUCTION

1. Purpose

This manual establishes army doctrine and prescribes guidance for the employment of personnel and equipment of the signal large headquarters operations company as organized and equipped under TOE 11–327.

2. Scope

a. This manual covers in a general scope the company characteristics, theater army communications, company organization, company communications operations, company administrative operations, and company security operations.

b. The material contained herein is applicable without modification to warfare in nonnuclear, nuclear, and internal defense operational environments.

3. Comments

Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to the Commanding Officer, U. S. Army Combat Developments Command Communications-Electronics Agency, ATTN: Doctrine Division, Fort Monmouth, New Jersey 07703.

4. References

Publications that provide detailed information relating to the material presented herein are listed in the appendix.

Section II. COMPANY CHARACTERISTICS

5. Mission

The primary mission of the signal large headquarters operations company is to provide communications facilities to support a large headquarters such as theater, theater army, and theater army support command.

6. Assignment and Allocation

a. Assignment. The signal large headquarters operations company is normally assigned to a theater army signal group.

b. Allocation. The basis of allocation for this unit is one per supported headquarters.

7. Capabilities and Limitations

a. Capabilities. At full strength this unit—

(1) Installs, operates, and maintains communications facilities for the supported headquarters to include—

(*a*) Two 48-channel radio relay systems to the theater army communications system (TACS).

(*b*) Two 48-channel cable systems from the supported headquarters to the TACS.

(*c*) Two manual telephone central offices, each with facilities for interconnecting 600 telephone lines and 60 manual or dial trunks.

(*d*) Secure teletypewriter terminal facilities capable of terminating 16 full-duplex and 8 half-duplex circuits.

(*e*) A facility control and circuit patching capability.

(*f*) Termination of twelve secure high frequency radio teletypewriter circuits to higher, adjacent, and subordinate headquarters.

(2) Installs and maintains 16 subscriber teletypewriter equipments for use within the supported headquarters having a sufficient volume of unclassified message traffic.

(3) Establishes and operates a message center which provides:

(*a*) Message handling facilities.

(*b*) Facsimile transmission and reception facilities.

(*c*) Six motor messenger teams for delivery of bulk traffic within the supported headquarters complex, to its subordinate headquarters, and to TACS message relay stations.

(4) Is capable of performing direct support maintenance.

(5) Provides, operates, and maintains electric power generating units to supply the power requirements of all organic signal equipment.

(6) Provides unit administration; supply and mess facilities; organizational maintenance of organic arms and power equipment; and battalion level organizational maintenance of organic vehicles.

Individuals of this organization can engage in effective, coordinated defense of the unit's installation(s) at a reduction of mission capability. Adequate personnel and equipment for ground and air defense must be provided by higher headquarters when the need is indicated.

8. Category and Mobility

a. Category. This unit is designated a Category II unit (reference Unit Categories, AR 320–5).

b. Mobility. TOE vehicular authorizations make the company 55 percent mobile.

c. Tactical Airlift Operations.

(1) Air Force tactical airlift forces increase the battlefield mobility of the Army in land combat operations. Basically the Air Force will provide the Army with the capability to airland or airdrop combat army elements (combat support) and to provide Army elements with sustained logistical support (combat service support).

(2) In the event the commanding officer determines that he has a tactical airlift requirement, he submits his request to the transportation movements officer of the headquarters he supports; Theater Army Support Command, Field Army Support Command or Corps Support Brigade. Complete details of joint Army-Air Force doctrine for tactical airlift operations may be obtained from FM 100–27.

9. Command Relationships

a. The following principles normally will apply in theaters of operations where the Army is the operator of the Defense Communications System (DCS) or a significant portion thereof:

(1) The consolidated U.S. Army Strategic Communications Command (USASTRATCOM) organization will include all Army signal troops above field army/field force or the largest tactical maneuver unit except air defense, supply and maintenance signal units. It will also include post, camp, and station communications.

(2) To insure full responsiveness to theater requirements as expressed through the Army component commander, the USASTRATCOM organization, which will be assigned to USASTRATCOM and commanded in USASTRATCOM channels, will be under the operational control of the Army component commander. CGUSASTRATCOM will exercise sufficient technical control of the consolidated USASTRATCOM organization to insure Army responsiveness to the operational direction and management of the DCS by the DCA and to provide a single Army point of contact for DCA in the theater.

(3) In order to provide centralized direction of signal resources, the senior USASTRATCOM commander will, also be the Deputy Chief of Staff for

Communications-Electronics of the Army Component commander's staff (dual-status). This individual will be assigned to USASTRATCOM.

(4) One overall support agreement will cover USASTRATCOM component relationships in each theater. Local level agreements will not be required except under special conditions.

b. Application of the above principles establishes the following specific command relationships:

(1) The CGUSASTRATCOM (Theater) serves concurrently as Deputy Chief of Staff for Communications-Electronics on the staff of the Theater Army Component Commander and accomplishes C–E staff functions for the Theater Army Component Commander. In his capacity as CGUSASTRATCOM (Theater), he commands assigned units. The Theater Army Component Commander exercises operational control over USASTRATCOM (Theater). The position incumbent will be rated by the Theater Army Component Commander who will forward the performance evaluation to the CGUSASTRATCOM for indorsement.

(2) USASTRATCOM (Theater) sub-elements will be under the command of CGUSASTRATCOM (Theater) and will be responsible for operation of their respective segments of the theater communications system, and the provision of C-E support to all elements served by the theater Army communications system.

(3) When a combat or potential combat situation dictates, operational control of a subordinate USASTRATCOM (Theater) command may be delegated by the USASTRATCOM (Theater) commander when requested by the Theater Army Component Commander. In such cases the position incumbent will be rated by the Theater Army Component Subordinate Commander and indorsed in STRATCOM channels.

c. In view of the above the signal large headquarters operations company normally will not be assigned to the supported headquarters. Any attachment order normally will exclude operational control by the supported headquarters.

CHAPTER 2

THEATER ARMY COMMUNICATIONS

Section I. COMMUNICATIONS IN THE COMMUNICATIONS ZONE

10. General

The theater commander is responsible for providing communications to and between component services and joint task forces within a theater of operations. The theater commander normally delegates the functions and resources of this responsibility to the theater army commander. The theater army commander normally delegates the functions and resources for communications within the combat zone to the field army commanders and retains the functions and resources for communications within the COMMZ.

11. Theater Army Communications System

The theater army communications system (TACS) is a multichannel, multi-means, multiaxis, integrated communications system of high-capacity, high-quality trunk circuits. These trunks criss-cross the COMMZ and extend into the field army area and interconnect with the field army area communications system. In addition, the TACS provides terminals for interconnecting with the Defense Communications System (DCS). The TACS utilizes radio, radio relay, and cable links with associated terminal equipments in a combination of control centers, control subcenters, and trunk switching centers. Circuits are provided on a common-user basis; however, sole-user circuits are provided when authorized by the theater army commander. The Air Force, Navy, Allied Forces, and others (Red Cross, USO, etc.) are furnished communications facilities by the TACS when directed or authorized by the theater army commander. For further information on the TACS, see FM 11–20.

12. U.S. Army Strategic Communications Command (Theater)

The operating element of the theater army that is responsible for the installation, operations, and maintenance of the TACS is the U.S. Army Strategic Communications Command (Theater). The command operates under the operational control of the theater army component commander and is organized on a functional basis with "type" battalions and groups and TOE companies and battalions. Elements of this command are deployed throughout the COMMZ as required. USASTRATCOM (Theater) organizations will vary from one theater to another because of the mission assigned to theater army, the organization of theater army forces, the size and terrain of the theater of operations, and the desires of the theater army commander. Therefore, the USASTRATCOM (Theater) organization is flexible and is capable of being tailored to accomplish the signal mission of theater army in any theater of operations. To provide this flexibility, the USASTRATCOM (Theater) organization is made up of building block units that can be added or deleted as the situation requires. One of these building block units is the signal large headquarters operations company.

13. Unit Employment in the Communications Zone

a. The signal large headquarters operations company is employed in the COMMZ to provide communications facilities for the headquarters to which attached. These communications facilities and services were discussed in paragraph 7.

b. The company may depend on the signal units of the USASTRATCOM (Theater) to provide additional trunking facilities, both radio relay and cable with associated carrier equipment, from the headquarters complex to designated control centers and subcenters of the TACS. In addition, support is required for installation of long local wire circuits to units within the vicinity of the supported headquarters.

Section II. COMMUNICATIONS IN THE FIELD ARMY AREA

14. Field Army Area Communications System

The field army area communications system normally consists of signal centers installed throughout the field army area interconnected by multichannel radio relay and cable systems. The system normally will be confined to the area between the field army rear boundary and the division's rear boundary; however, at times signal centers may be located in the forward area of the COMMZ or in the division rear area. The area signal centers will be located to facilitate alternate routing and easy access to the users of the system. Major headquarters, units, installations, and agencies should be provided circuits to more than the area signal center to reduce the possibility of complete disruption of service due to enemy action or equipment failure. Lesser headquarters, units, installations, and agencies will be provided circuits to at least one area signal center. Thus, the entire field army area is covered by a network of radio relay and cable trunks interconnecting area signal centers. All military headquarters, units, installations, and agencies in the vicinity of one of these signal centers are authorized use of the system on a common-user basis. However, sole-user circuits are provided when authorized by the field army commander.

15. Field Army Signal Brigade

The field army area communications system is installed, operated, and maintained by the field army signal brigade. The units of the brigade that perform these functions are the army area signal battalions, each battalion consisting of four army area signal companies. Each company has the capability of installing, operating, and maintaining one area signal center. In addition, each company is provided with limited radio relay and carrier trunk terminal equipment to furnish extension facilities to major headquarters and units.

16. Unit Employment in the Field Army Area

The signal large headquarters operations company may or may not be employed within the field army area. The TOE does not assign the company to a field army signal organization; however, a situation may exist when a signal large headquarters operations company will be required within the field army area. When this company is assigned to the field army, the company's method of assignment, control, and functions will be dictated by the operational needs of the field army commander and existing staff and command relationships.

CHAPTER 3

COMPANY ORGANIZATION

17. General

a. The signal large headquarters operations company (fig. 1) is employed by a major command headquarters in a theater of operations to provide internal communications and multichannel trunk access facilities to the TACS for the supported headquarters. The company operates under the operational control of the supported headquarters staff signal officer.

b. The company consists of a company headquarters, a telephone operations platoon, a communications center platoon, and a radio and carrier platoon. The general and specific responsibilities of the company are discussed in subsequent paragraphs.

18. Company Headquarters

The company headquarters (fig. 2) consists of a command element, an administrative element, a mess element, a supply element, and a motor element. Company headquarters provides personnel and facilities for command control and coordination of the company's training and operational missions. In addition, it provides company administration, supply, and organizational maintenance of organic arms and vehicles.

a. Command Element. The following subparagraphs list the personnel of the command element and discuss their general duties.

(1) The company commander commands the company and insures that administrative policies and operational directives of higher headquarters are executed.

(2) The facilities control officer serves as the communications system liaison officer between operating elements of the unit and the systems control elements. He also keeps the company commander informed of the operational status of communications in the units area of responsibility.

(3) The facilities control sergeant assists the facilities control officer by supervising the technical specialists working for the facilities control.

(4) The 2 teletypewriter operators operate and maintain the teletypewriter equipment located in the operations central.

(5) The draftsman prepares charts, communications diagrams, equipment configurations, graphs, and other visual aids for the facilities control officer.

(6) The wireman installs and maintains the wire lines for the company's internal telephone system.

b. Administrative Element. This element consists of the first sergeant, a company clerk, 2 personnel records specialists, a pay specialist, and a pay assistant. This element is allocated the equipment to establish and operate the company command post (CP).

c. Mess Element. This element consists of a mess steward, 5 first cooks, 4 cooks, and a cook's helper. The TOE allocates this element a 2½-ton truck, a water tank trailer, a kitchen tent, ranges, cooks' sets, food containers, and other miscellaneous items necessary to establish and operate the company mess. Mess operations are discussed in paragraph 46.

d. Supply Element. This element consists of a supply sergeant, a unit supply specialist, a signal supply parts specialist, an armorer, and a supply clerk. The TOE provides this element with equipment necessary to operate the company supply activity. Company supply operations are discussed in paragraph 47.

e. Motor Element. This element consists of of a motor sergeant, 2 senior wheeled vehicle

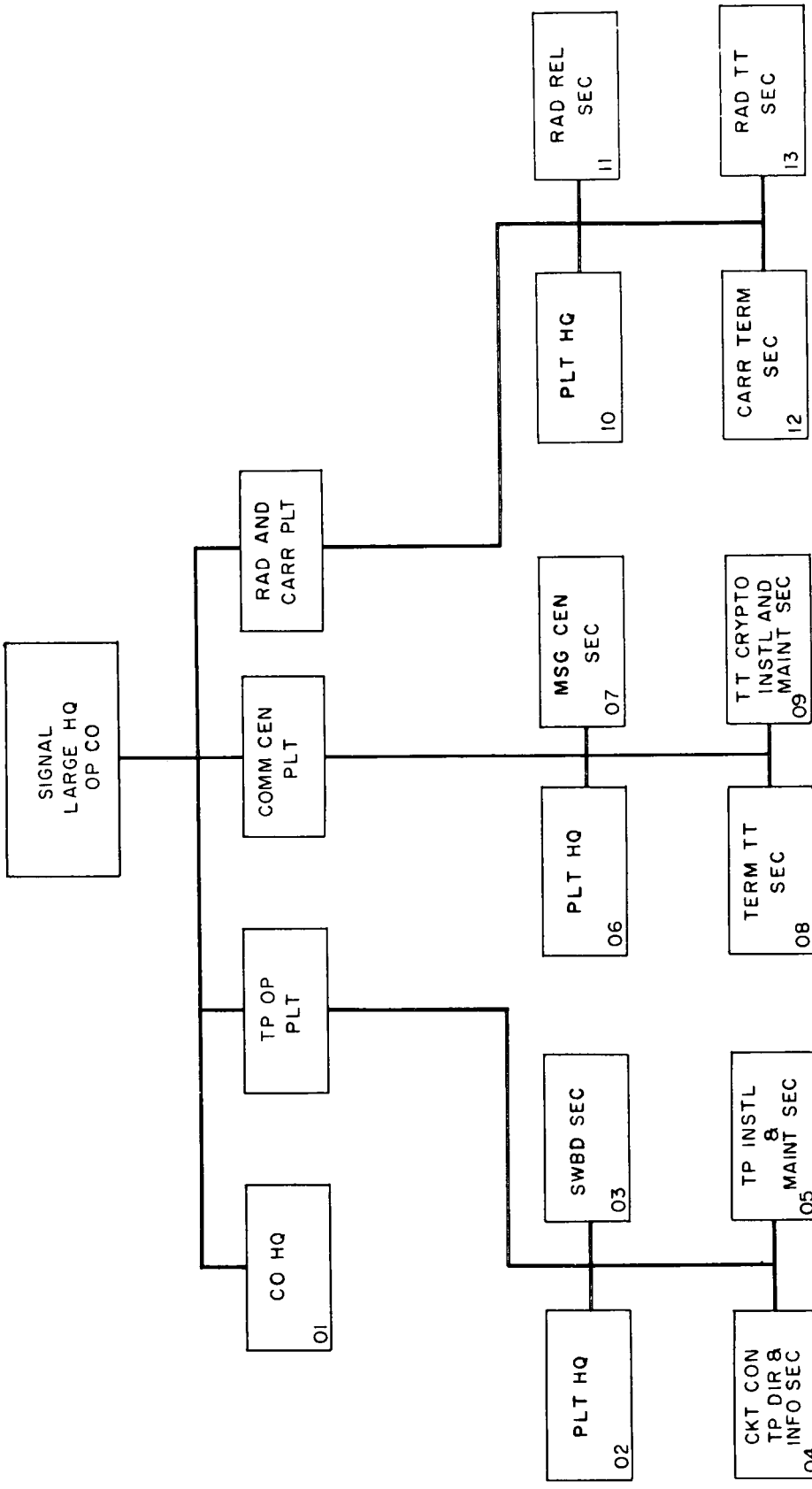


Figure 1. Organization of the signal large headquarters operations company.

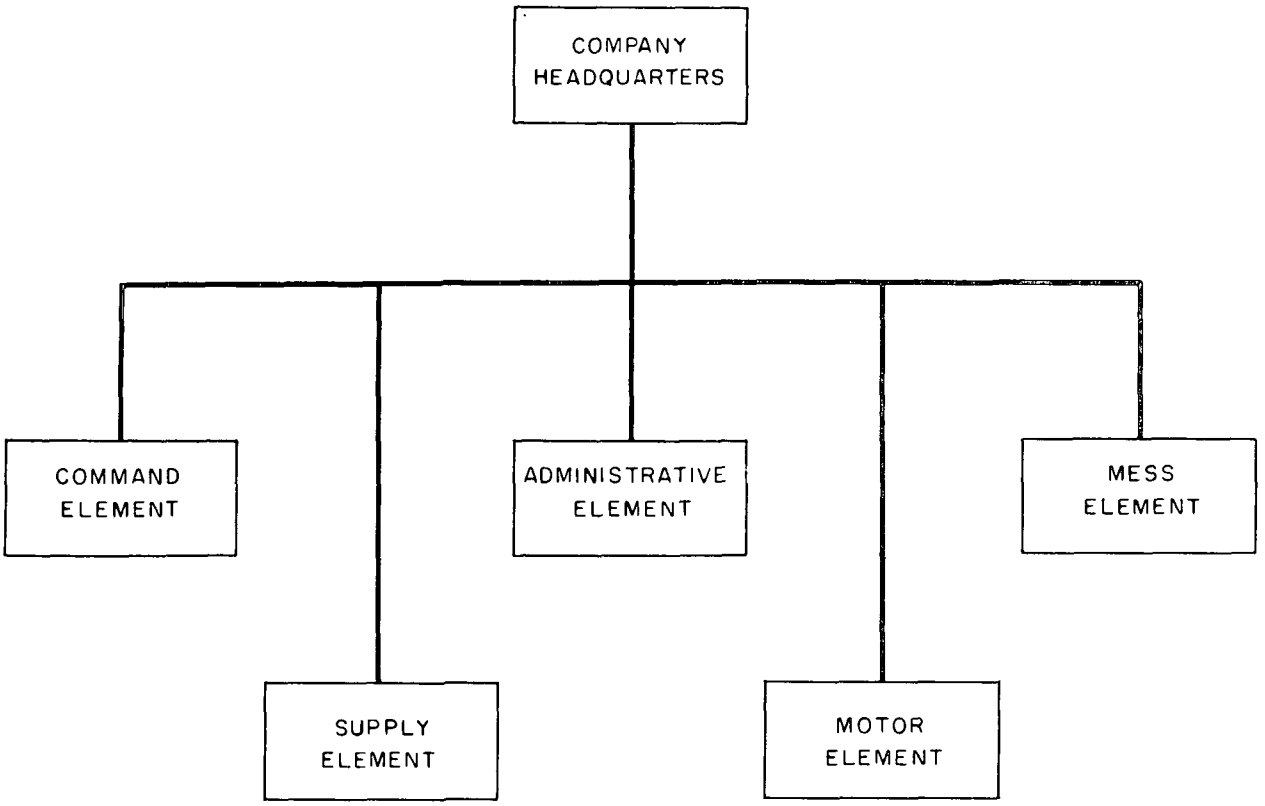


Figure 2. Organization of company headquarters.

mechanics, a wrecker operator, 4 wheeled vehicle mechanics, and 4 wheeled vehicle mechanics' helpers. This element establishes and operates a motor maintenance activity in the company CP area. Motor maintenance is further discussed in paragraph 48.

19. Telephone Operations Platoon

The telephone operations platoon (fig. 3) consists of a platoon headquarters; a switchboard section; a circuit control, telephone directory, and information section; and a telephone installations and maintenance section.

a. Platoon Headquarters. The platoon headquarters consists of a platoon leader, a platoon sergeant, and a light vehicle driver. This headquarters is charged with the responsibilities for command, control, and coordination of the telephone operations platoon activities. The general duties of these personnel are listed below:

(1) The platoon leader commands the platoon and insures that communications equipment organic to the platoon is continuously operational and manned.

(2) The platoon sergeant assists the platoon leader and coordinates the platoon's activities with the facilities control sergeant.

(3) The light vehicle driver operates the ¼-ton truck used by the platoon leader and platoon sergeant. He also assists switchboard operators when required.

b. Switchboard Section. The switchboard section is responsible for the operation of the 2 Telephone Switching Groups AN/MTA–7 (part of the 2 Manual Telephone Central Office AN/MTC–9). The section consists of a section leader, a telephone switchboard operator supervisor, 6 telephone shift supervisors, 18 senior telephone switchboard operators, 42 telephone switchboard operators, and 4 precise power generator specialists. The general duties of these personnel are listed below:

(1) The section leader is responsible for the orderly and efficient operation of the 2 switchboard facilities providing

service to the supported headquarters. In addition, he assists the telephone platoon leader in providing supervision of the platoon activities.

(2) The telephone switchboard operator supervisor prepares shift schedules and insures that the switchboards are adequately manned at all times.

(3) The 6 telephone shift supervisors are organized into two 3-man teams. A team is required for each of the 2 telephone switchboard groups. The shift supervisors assist operators in routing difficult calls and provide information to subscribers during the shift they are on duty. The supervisors also provide the telephone switchboard operators with routing diagrams to assist them in routing calls.

(4) The 18 senior switchboard operators and 42 telephone switchboard operators operate the switchboards.

(5) The 2 precise power generator specialists attend the 4 diesel engine generators organic to the section. These power generator specialists also perform organizational maintenance on the power generators.

c. Circuit Control, Telephone Directory, and Information Section. This section has the responsibility for the preparation and distribution of the headquarters telephone directory, furnishing information to the operators at the 2 switchboards, and operation of the 2 patch panels. The telephone directory and information personnel operate from a type message center shelter. The circuit control personnel operate from the 2 patch panels. The section consists of a section chief, 2 telephone directory and information clerks, 2 general clerks, and 6 circuit control specialists. The general duties of these personnel are listed below:

(1) The section chief is responsible for the orderly and efficient operation of the section.

(2) The 2 telephone directory and information clerks and 2 general clerks are required for the preparation and distribution of the headquarters telephone directory. These personnel also provide information to telephone subscribers.

(3) The 6 circuit control specialists and the 6 teletypewriter switchboard operators are required to install, operate and maintain the equipment contained in the 2 communications patch panels.

d. Telephone Installation and Maintenance Section. This section has the responsibility for installing and maintaining the 2 Telephone Terminal Groups AN/MTA–5 (part of the AN/MTC–9). This section consists of a wire operations supervisor, 3 wire team chiefs, 3 senior wiremen, 9 wiremen, 6 installer repairmen, 3 wireman helpers, and 8 manual central office repairmen. The general duties of these personnel are listed below:

(1) The wire operations supervisor, under the general supervision of the platoon leader, is responsible for overall supervision of the telephone installation and maintenance section.

(2) The wiremen are organized into 3 wire teams, each of which consists of a wire team chief, a senior wireman, 3 wiremen, 2 installer repairmen, and 1 wireman helper. These teams are responsible for laying the internal telephone distribution circuits and for installation and maintenance of the subscriber telephone instruments.

(3) The 8 manual central office repairmen install, operate, and maintain the 2 telephone terminal groups and perform maintenance on the two patch panels. Four repairmen are required for each terminal for continuous operation.

(4) This section is also responsible for installing and maintaining twin-coax cable, as required, to interconnect radio relay and/or multiplex equipments.

20. Communications Center Platoon

The communications center platoon (fig. 4) consists of a platoon headquarters, a message center section, a terminal teletypewriter section, and a teletypewriter and crytographic ininstallation and maintenance section. This platoon installs, operates, and maintains the

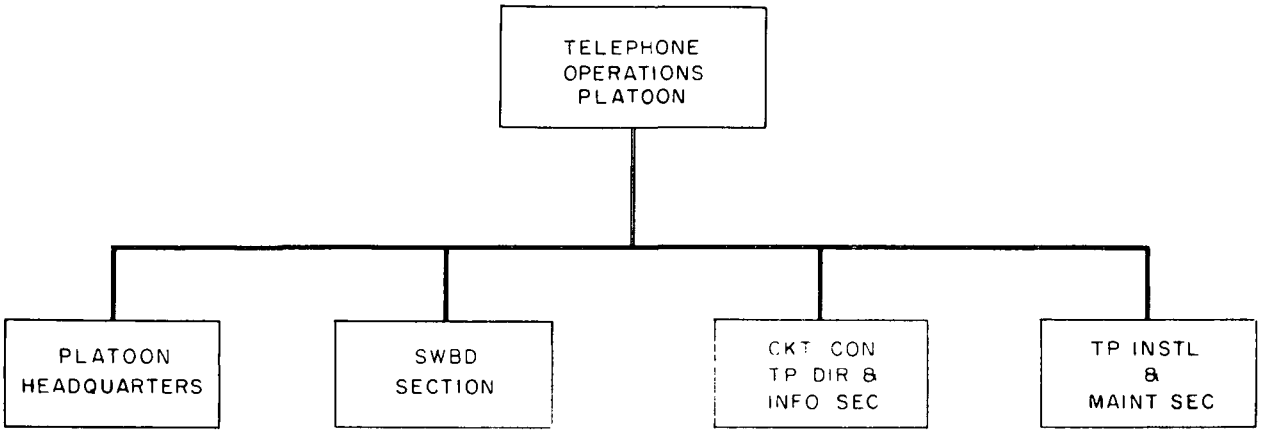


Figure 3. Organization of the telephone operations platoon.

communications center facilities for the supported headquarters.

a. Platoon Headquarters. The platoon headquarters contains personnel and equipment for command, control, and coordination of platoon operations. The headquarters personnel consist of a platoon leader and a platoon sergeant. Their general duties are listed below:

(1) The platoon leader commands the platoon and insures that the communications equipment organic to the platoon is operational and manned 24 hours a day. He is responsible for cryptographic security within the platoon and acts as the cryptographic security officer for the company.

(2) The platoon sergeant assists the platoon leader by coordinating the teletypewriter circuit requirements with the circuit control facility and the operations section. He prepares reports required by the facilities control office and checks on platoon activities to insure compliance with standing operating procedures (SOP).

b. Message Center Section. This section provides continuous message handling and processing service for the supported headquarters. The section operates from 3 Message Center AN/GSO–80's. These shelters contain all the necessary message center equipment required for sustained operation. Off-line cryptographic equipment is provided to encrypt classified messages when on-line cryptographic equipments are not used. This section consists of a section leader, a crypto technician, a communications center specialist, 6 cryptographers, a cryptomaterial specialist, 2 facsimile operators, 12 communications clerks, 6 motor messengers, and 6 assistant motor messengers. The general duties of these personnel are listed below:

(1) The section leader is responsible for the orderly and efficient operation of the message center section. He is charged with the physical security of cryptomaterial in the platoon as well as insuring that proper safeguards are established and practiced. These safeguards are established according to current regulations for handling cryptomaterial and for receipt and transmission of classified traffic. In addition, he assists the communications center platoon leader in providing continuous supervision essential for the platoon's operation and control.

(2) The communications center officer and the cryptomaterial specialist are responsible for secure cryptographic operations in the message center and operational cryptographic security of all other secure communications facilities operated by the platoon.

(3) The cryptographic technician performs the duties of COSMEC custodian for the company as outlined in AR 380–41. He is assisted by the cryptomaterial specialist in accomplishing this function.

(4) The communications center supervisor is responsible to the section leader for the efficient operation of the section. He coordinates the preparation of shift schedules to insure that the message center and the facsimile facility are continuously manned.

(5) The 2 shift supervisors, 3 communications center specialists, and 12 communications clerks provide the message handling service for the supported headquarters to include the handling of bulk message traffic.

(6) The 6 cryptographers work under the supervision of the crypto supervisor and are required for continuous operation of the off-line crypto equipment.

(7) The 2 facsimile operators operate the facsimile equipment located in the facsimile shelter AN/GSO–80. The facsimile operators also perform operator maintenance, insure that adequate supplies of reproduction material are available, and that traffic passed over this facility is clearly and accurately reproduced.

(8) Six motor messengers and 6 assistant motor messengers are formed into six 2-man teams (a motor messenger and an assistant motor messenger per team) to provide special and scheduled messenger service. These motor messenger teams provide local messenger service within the headquarters complex and bulk message delivery and pick-up at message relay stations of the TACS messenger and courier service.

c. Terminal Teletypewriter Section. This section installs and operates the 4 Teletypewriter Terminals AN/MGC–22 and the Teletypewriter Operations Central AN/MGC–32. This section consists of a section chief, 10 shift supervisors, 50 teletypewriter operators, and 2 precise power generator specialists. The general duties of these personnel are listed below:

(1) The section chief is responsible for coordination and efficient operation of the communications equipment organic to the section.

(2) The 10 shift supervisors are required to insure that the equipment is manned adequately and that teletypewriter traffic is expedited. The 10 shift supervisors are organized into five 2-man teams to supervise operations of the 4 teletypewriter terminals and the operations central. The shift supervisors assist the section leader by supervising operations and insuring that operating procedures are in compliance with the SOP.

(3) Fifty teletypewriter operators are required to operate the 4 teletypewriter terminals and the 1 operations central. The operators are organized into five 10-man teams with each team operating a teletypewriter facility.

(4) The 2 precise power generator specialists are required for attending and maintaining the 4 diesel engine generators organic to this section. It is desirable to have a powerman on duty at all times to insure minimum outages resulting from power failure.

d. Teletypewriter and Cryptographic Installation and Maintenance Section. This section is responsible for maintenance at a direct support level of all teletypewriter and cryptographic equipment organic to the company. The section consists of a section leader, a repair supervisor, a senior teletypewriter equipment repairman, 4 teletypewriter equipment repairmen, a teletypewriter equipment repairman helper, and 3 general cryptographic equipment repairmen. The general duties of these personnel are listed below:

(1) The section leader is responsible for the efficient and orderly operation of the section. He insures compliance with maintenance schedules pertaining to teletypewriter and cryptographic equipment. He also takes action on authorizations for subscriber teletypewriter equipment and insures that records of installed items are current and accurate.

(2) The repair supervisor assists the section leader by inspecting facilities containing equipment for which the section has a maintenance responsi-

bility to insure that the maintenance performed by section personnel meets the required standards. He prepares maintenance schedules and assigns task responsibilities to maintenance personnel under his control.

(3) A senior teletypewriter repairman, 4 teletypewriter repairmen, and a repairman helper perform direct support maintenance on all teletypewriter equipment for which the section is responsible, to include installation and removal of subscriber teletypewriter equipment.

(4) Three general cryptographic repairmen perform maintenance at a direct support level on cryptographic equipment as directed by the repair supervisor.

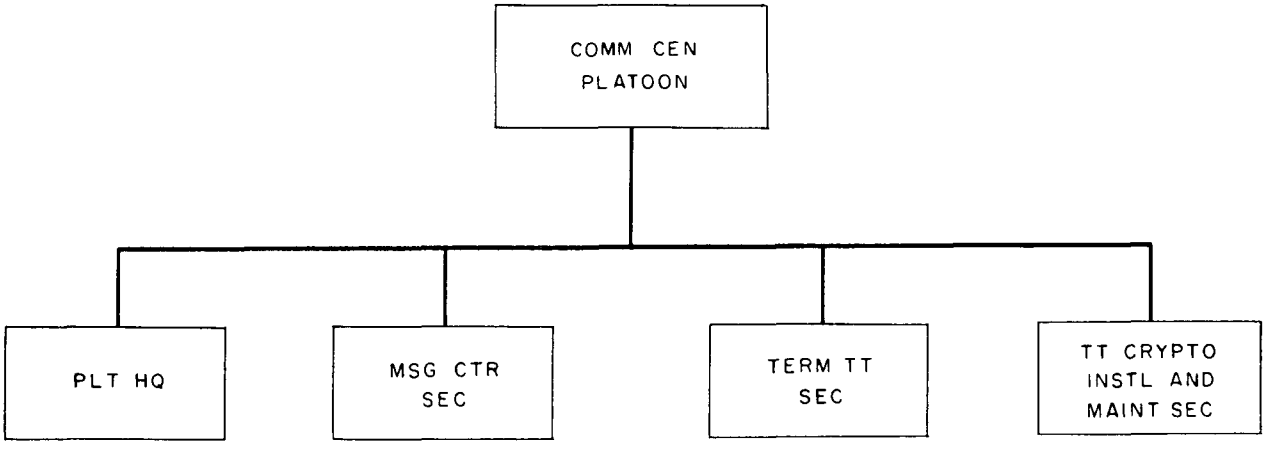


Figure 4. Organization of the communications center platoon.

21. Radio and Carrier Platoon

The radio and carrier platoon (fig. 5) consists of a platoon headquarters, a radio relay section, a radio teletypewriter section, and a carrier terminal section.

a. Platoon Headquarters. The platoon headquarters contains personnel and equipment for command, control, and coordination of platoon activities. The headquarters consists of a platoon leader, a platoon sergeant, and a light vehicle driver. The general duties of these personnel are listed below:

(1) The platoon leader commands the platoon and insures that the communications equipment organic to the platoon is continuously operational and manned.

(2) The platoon sergeant assists the platoon leader and coordinates the platoon activities with the operations sergeant in the operations section. The platoon sergeant also monitors platoon operations to insure compliance with the platoon SOP.

(3) The light vehicle driver operates the ¼-ton truck organic to platoon headquarters. He may also be used as a carrier equipment attendant.

b. Radio Relay Section. This section is responsible for the installation, operation, and maintenance of the multichannel radio relay equipment that provide access to the TACS. The section consists of a section chief, 4 microwave team chiefs, a senior microwave radio repairman, a microwave radio repairman, 4 senior microwave radio attendants, 4 microwave radio attendants, and 4 powermen. The general duties of these personnel are listed below:

(1) The section chief is responsible for the microwave relay and microwave terminal equipment. He coordinates operations with the radio and carrier platoon leader, carrier section, and the TACS entrance facility. He supervises the work of the station team chiefs and insures that the system is operational.

(2) The 4 microwave radio team chiefs, each of whom is responsible for either a Radio Repeater Set AN/TRC–111 or a Radio Terminal Set AN/TRC–118. They supervise the initial installation and line-up and make systems checks of the radio relay links. They insure that the microwave facilities are continuously manned and operational.

(3) The 8 microwave radio attendants are organized into four 2-man teams. Each team consists of a senior microwave radio attendant and a microwave radio attendant. The attendant check system line-up and perform scheduled organizational maintenance.

(4) The 2 microwave radio repairmen perform direct support maintenance on all microwave equipment organic to the section.

(5) The 4 powermen are required to maintain and attend the eight 10-kw generators organic to the section. Because the radio relay installations (terminals and repeaters) normally are deployed separately in remote areas and separated from each other, a powerman is required for the 2 terminal and 2 repeater sites. Thus, 4 powermen are required, 1 at each site, to keep the power generators operative for continuous operations.

c. Carrier Terminal Section. The carrier terminal section is responsible for the installation, operations, and maintenance of the 6 telephone terminals. This section consists of section chief, 6 carrier terminal team chiefs, 2 carrier equipment repairmen, 6 senior carrier equipment attendants, 6 carrier equipment attendants, and 2 precise power generator specialists. The general duties of these personnel are listed below:

(1) A section chief is responsible for the overall operation of the section. He supervises the work performed by the carrier terminal team chiefs and insures that cable termination and circuit records are accurately maintained.

(2) The 6 carrier terminal team chiefs insure that the 6 telephone terminals (two AN/TCC–60 and four AN/TCC–62) are manned and operational. A team chief is assigned to each of the telephone terminal installations. He prepares shift schedules, reviews logs covering equipment down time, and supervises the scheduled maintenance of equipments.

(3) The 6 senior carrier equipment attendants and 6 carrier equipment attendants are organized into six 2-man teams with each team supervised by 1 of the team chiefs. They interconnect equipment during installation, check meter readings, and aline the telephone terminal equipment with the distant terminal. They also make operating adjustments to maintain circuit efficiency and perform operator maintenance. In addition, they keep operating records and furnish reports as required.

(4) Two carrier equipment repairmen are required to provide direct support maintenance for the telephone terminal equipment organic to this section.

(5) The 2 precise power generator specialists attend and perform organizational maintenance on the eight 5-kw generator and two 45-kw generators organic to this section. It is desirable for a precise powerman to be on duty for each 12-hour shift for this type of communications operation.

d. Radio Teletypewriter Section. The radio teletypewriter section is responsible for the installation, operation, and maintenance of the radio teletypewriter equipment organic to the section. This section consists of a section chief, 3 radio teletypewriter receiver team chiefs, 4 radio transmitter team chiefs, 9 radio teletypewriter receiver attendants, 12 radio teletypewriter transmitter attendants, a senior field radio repairman, a field radio repairman, 2 powermen and a powerman helper. The general duties of these personnel are listed below:

(1) The section chief is responsible for the orderly and efficient operation of the section. He supervises the instal-

lation, operation, and maintenance of the radio teletypewriter transmitters and receivers.

(2) The receiver team chiefs and receiver attendants are organized into teams. A team consists of a receiver team chief and 3 attendants. A team is required for each of the 3 radio teletypewriter receivers.

(3) The transmitter team chiefs and the transmitter attendants are also organized into teams. A team consists of a team chief and 3 attendants. A team is required at each of the 4 radio teletypewriter transmitters.

(4) The senior repairman and radio repairman provide direct support maintenance for the radio teletypewriter transmitters and receivers.

(5) The 2 powermen and powerman helper perform organizational maintenance and attend the power generators for the transmitters and receivers. They also provide organizational maintenance and attend the power units used by the teletypewriter and cryptographic installation and maintenance section of the communications center platoon.

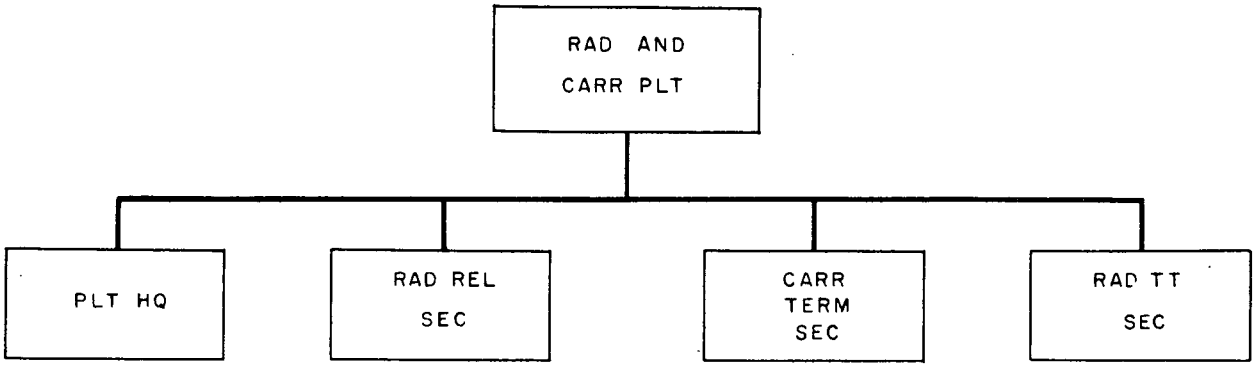


Figure 5. Organization of the radio and carrier platoon.

CHAPTER 4

COMPANY COMMUNICATIONS OPERATIONS

Section I. INTRODUCTION

22. General

The signal large headquarters operations company is organized and equipped to provide communications facilities for a large headquarters within a theater of operations. However, there may be situations in which the headquarters requirements cannot be satisfied by the capabilities of the company. In such situations, the signal company will be augmented by teams from TOE 11–500.

23. "Typical" Communications Installation

Figure 6 illustrates a "typical" communications installation that can be installed, operated, and maintained by the signal large headquarters operations company. This "typical" system may be modified to meet varying requirements due to the military situation, type of headquarters supported, terrain, and other local conditions.

24. Planning the Communications Installation

Before the communications facilities to support a large headquarters are installed, a reconnaissance should be made in coordination with the headquarters commandant or his representative and should include the company commander, platoon leaders, and key noncommissioned officers. During the reconnaissance, the layout of the communications facilities should be determined and plans made for their installation. Most of the communications facilities will be located within the headquarters complex; however, relay terminals and teletypewriter transmitters normally will be located outside the headquarters complex.

a. The communications facilities within the headquarters complex should be located to best serve the headquarters and to facilitate communications operations. Some of the factors to consider are—

(1) The equipment vans and shelters should be located to permit 26-pair cabling between them. The cables should not exceed 1000 ft in length and should be installed overhead or buried underground.

(2) The equipment vans and shelters should be located so that noise from the headquarters and traffic in and out of the headquarters will not disrupt or interfere with communications operations.

(3) The communications center should be located to be accessible to the headquarters staff and to permit motor messenger runs in and out of the communications center area.

b. The radio relay terminals and radio teletypewriter transmitters normally will be located outside the headquarters complex. Factors to consider in the sites for the radio equipment are—

(1) Select a site on high ground that has good drainage.

(2) Select a site that is secure or at least defensible.

(3) Select a site that is accessible to trucks, or under less desirable conditions, accessible to helicopters.

(4) Select a site that has sufficient cleared ground that will give line-of-site paths to distant antennas. Antenna heights

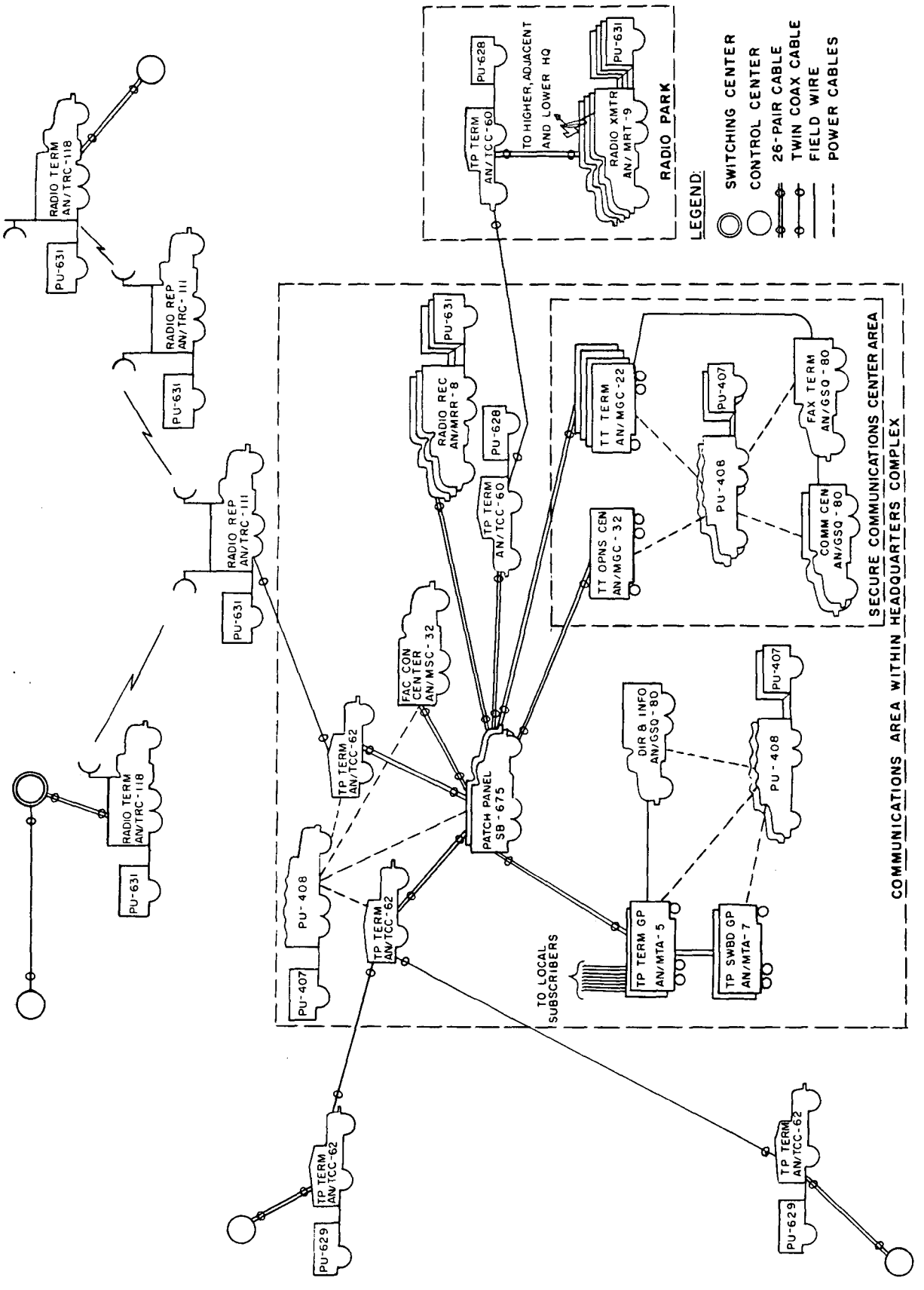


Figure 6. A "typical" employment of communications equipment.

AGO 8120A

should clear all land masks; however, excessive antenna heights must be avoided. The line-of-site paths to distant antennas are absolutely necessary to provide maximum efficiency of the radio links.

c. When the communications facilities are to remain in place for a considerable period of time, the shelters containing the equipment can be removed from the trucks. This will release the trucks for supply, maintenance, or other activities. The shelters should be placed on blocks and not on the ground to protect them from deterioration.

d. Shelters and vans containing communications equipments should be dug in or revetted, concealed, and camouflaged.

e. The telephone terminals, operations central, telephone switching, and teletypewriter operations centrals should be collocated with the patch panel to permit ease of cabling.

f. The radio relay terminals and radio teletypewriter transmitters normally are located outside the headquarters complex and connected to the telephone terminals at the patch panel by twin coax cable.

g. The communications installations should be moved into the area and installed as quickly as possible. This will require the use of all personnel of the company. Those personnel of the company who are not required for normal duties should be used to disassemble and load the equipment at the old location, and, after the move, used for the initial installation at the new location. This will require cross training of personnel and a detailed SOP if the move is to be made in an efficient manner. Using all available personnel will reduce the disassembly and installation time and provide better service to the supported headquarters.

h. Details of installation, operation, and maintenance of the communications facilities of the company are discussed in paragraphs 25 through 40.

Section II. COMMUNICATIONS OPERATIONS

25. Facilities Control Center

An operations central is provided for the company commander and the facilities control officer to plan, engineer, and control the communications installations as shown in figure 6. The operations central is equipped with a switchboard, teletypewriter equipment, telephones, and display boards. Provisions are made in the operations central for the installation of on-line cryptographic devices and for an FM radio set. The radio set is used for communications between the facilities control officer in the operations central and operations personnel at the radio terminal sites. Other functions performed in the operations central are—

(1) Preparation of circuit diagrams, maps, SOP's, and operational reports for control purposes.

(2) Preparation of communications data to be used by other operating elements of the company.

(3) Dissemination of information to the circuit control specialists operating the communications patch panel.

26. Telephone Operations Platoon

The telephone operations platoon consists of personnel and equipment to install, operate, and maintain the command headquarters switchboard; install and operate the circuit control facility; install and maintain the local wire distribution system; and provide information and directory service.

27. Platoon Headquarters

Personnel of the platoon headquarters supervise all activities and functions of the platoon. They also provide the facilities control center with feeder data for traffic diagrams, trunk circuit numbering charts, and trunk availability information.

28. Switchboard Section

Personnel of the switchboard section operate the 2 telephone switching groups. Each switching group is capable of providing 600 locals and 60 manual or dial trunk circuits.

a. The layout of the switching groups should be arranged to provide ease of cabling to the telephone terminal groups.

b. Electrical power to operate the switchboards is provided by a truck mounted generator set PU–408/M or a trailer mounted generator set PU–407/M. These 2 generator sets provide continuous electrical power.

c. Two precise power generator specialist are provided to attend and maintain the 2 generator sets, diesel engine trailer mounted, PU–407/M, and the 2 generator sets, diesel engine truck mounted, PU–408/M.

29. Circuit Control, Telephone Directory, and Information Section

The personnel of this section operate from a message center shelter and communications patch panel. The personnel that prepare the telephone directory and provide information operate from the message center shelter. The shelter contains duplicating facilities for duplicating the required number of telephone directories for the supported headquarters. The circuit control personnel operate the patch panels and perform the required patching of all telephone and teletypewriter circuits as directed by the systems control.

30. Telephone Installation and Maintenance Section

The personnel of this section have the responsibility for the installation and maintenance of the internal telephone distribution circuits. In addition, they perform telephone instrument repair. They also install and maintain the two telephone terminal groups which contain the telephone main distribution frame.

a. Each of the 3 wire teams use a ¾-ton truck to transport section supervisory and maintenance personnel and appropriate maintenance equipment when inspecting, maintaining, and/or repairing field wire and cable installed by the section.

b. Each of the 3 wire teams also use a 2½-ton truck with a 1½-ton trailer to transport field wire, cable, and cable reeling equipment when engaged in the installation and recovery of cable and field wire circuits.

c. Each of the 3 telephone installer-repair teams uses a V–41/GT truck for the installation and maintenance of the subscriber telephone instruments.

31. Communications Center Platoon

The communications center platoon consists of personnel and equipment necessary for the operation of the platoon headquarters, a message center section, and a terminal teletypewriter section. The platoon is equipped with 3 message center shelters (one used as a facsimile terminal), 4 teletypewriter terminals, and 1 teletypewriter operations center. The layout of the communications center facilities within the headquarters area will depend on the type of headquarters supported and the position of the other communications equipment of the company. Factors to consider in the layout of the communications center are—

a. The location of the facilities should facilitate message handling.

b. The message center should be located near the AG distribution center.

c. Communications center facilities should be located as near to the patching panel as possible to terminate the 26-pair cables in the teletypewriter terminals and teletypewriter central.

32. Platoon Headquarters

The platoon leader and the platoon sergeant, who compromise the platoon headquarters, supervise all activities of the platoon. The platoon leader is also the crypto security officer of the company. The platoon sergeant assists the platoon leader by preparing reports required by the facility control center and checks the message handling procedures of the communications center to insure compliance with the SOP.

33. Message Center Section

The personnel of the message center section receive and process message traffic in and out of the communications center. Message handling procedures within the communications center are established and published in the platoon SOP. Army doctrinal message handling procedures are discussed in FM 24–17.

a. Generally, messages are handled by the message center as follows:

(1) Outgoing messages are received from the AG distribution center, logged in, processed, encrypted if required,

means of transmission selected, and passed to the means operator for transmission. The transmitted message is returned to the message center. The time of transmission and receipt of the distant station are entered on the log and the message returned to the AG distribution center.

(2) Incoming messages are received from the means operator, logged in (decrypted if required), and given to a messenger for delivery to the AG distribution center.

(3) Close coordination should be established between the message center and the AG distribution center for the control of message traffic. This will reduce to a minimum the inquiry about messages handled between the two agencies.

b. The personnel of the message center section also install, operate, and maintain the two facsimile sets. The facsimile sets are used to transmit maps, map overlays, photographs, and similar pictorial subjects. A high quality voice frequency circuit is required for facsimile transmission.

c. Message center personnel normally are organized into duty shifts for operation of the message center on a 24-hour basis. The organization of duty shifts will depend on the expected volume of message traffic. More personnel are required to process messages during peak traffic periods than are needed when message traffic volume is relatively low.

d. The motor message teams of the message center play a vital part in the transmission of message traffic in and out of the communications center. Motor messengers are used as follows:

(1) For delivery of high-precedence messages when electrical means are not available or when messenger is the fastest means of delivery.

(2) For delivery of bulk items.

(3) For delivery of long, low precedence messages to reduce traffic load on electrical means.

(4) For delivery of clear text classified messages to a headquarters not equipped with cryptographic equipment.

(5) For delivery of registered documents.

e. The six 2-man motor messenger teams of the message center section are used to provide two types of messenger service—scheduled and special. Scheduled messengers follow prearranged time schedules and routes for message delivery and pick-up. Special messengers are dispatched when the urgency of a message requires their use.

f. Motor messenger teams normally are used between the echelons of the supported headquarters; however, they may be used for delivery of messages to subordinate or adjacent units and to the message relay stations of the TACS.

g. The motor messenger teams are under the control of the message center supervisor. The message center supervisor will prepare messenger duty shifts and motor messenger routes and schedules.

34. Terminal Teletypewriter Section

The terminal teletypewriter section is allocated 4 teletypewriter terminals, 1 teletypewriter operations central, on-line security equipments, and power generating equipments. These equipments will be employed to terminate direct point-to-point teletypewriter circuits or to terminate circuits in the TACS tape relay network.

a. Normally the teletypewriter operations central is employed for high precedence traffic between the supported headquarters and its superior and subordinate headquarters. The central is capable of terminating 4 full duplex or 8 half duplex neutral or voice frequency synchronous secure circuits.

b. The teletypewriter terminals normally are employed to provide the supported headquarters with circuits into the tape relay network of the TACS. The terminals can also terminate point-to-point circuits between the supported headquarters and other major headquarters within the theater of operations. Each terminal is capable of terminating 4 full duplex dc neutral or voice frequency synchronous secure circuits.

c. Forty on-line security equipments are provided the section to be used as required. Eight

security equipments are required in each of the terminals and the operations central if all circuits are to be made secure.

d. Four 45-kw generator sets, 2 truck mounted and 2 trailer mounted, are provided to furnish electrical power to the teletypewriter facilities organic to the section.

35. Teletypewriter and Cryptographic Installation and Maintenance Section

The personnel of this section are responsible for maintenance at a direct support level for all teletypewriter and cryptographic equipment organic to the company. This section is also responsible for the issue and maintenance of subscriber teletypewriter equipment issued to subscribers within the headquarters complex. These teletypewriter sets provide direct point-to-point teletypewriter circuits between widely separated agencies and activities within the headquarters complex. The sets are operated by the using agency or activity but are issued and installed by this section. The section has 32 of these teletypewriter sets for issue to local subscribers.

a. The section is also authorized 2 shop trucks. One truck contains appropriate maintenance equipment employed by the teletypewriter equipment repairmen. The other truck is equipped with appropriate cryptographic maintenance equipment and is employed by the cryptographic repairmen. These repairmen perform direct support maintenance.

b. The shop trucks tow a trailer mounted generator set which provides electrical power to the shop trucks.

36. Radio and Carrier Platoon

The radio and carrier platoon consists of a platoon headquarters, a radio relay section, a radio teletypewriter section, and a carrier termina' section. The operation of these sections and the utilization of allocated equipments are discussed in subsequent paragraphs.

37. Platoon Headquarters

The personnel of the platoon headquarters supervise the operations of the platoon. The platoon leader is provided a ¼-ton truck in which is mounted an FM radio set. The platoon leader uses the radio set to coordinate platoon operations.

38. Radio Relay Section

The personnel of the radio relay section are responsible for providing the supported headquarters with multichannel access trunks to the TACS. Radio relay links are installed, operated, and maintained between the supported headquarters and the TACS control and switching centers.

a. The section is authorized 2 radio terminal sets with associated multiplexer to provide 2 radio relay links. Each link provides 48 channels between the headquarters and control centers and/or switching centers of the TACS.

b. This section is also authorized 2 radio repeaters for the radio relay links. One of the repeaters may be used as a double 48 channel terminal when a telephone terminal containing 2 multiplexers is provided.

c. The 2 FM radio sets are employed to communicate between the facility control center and the radio teams that install, engineer, and trouble-shoot the radio relay links.

d. The four 2½-ton trucks are used to mount the radio relay and radio terminal sets. These trucks tow a trailer which mounts power units that provide power to the relays and terminals.

e. One ¾-ton truck is employed to transport radio repairmen and their equipment to the widely scattered radio relay and terminal sites.

39. Carrier Terminal Section

The personnel of this section are responsible for the installation, operation, and maintenance of the telephone terminals organic to the section.

a. Two telephone terminals provide multichannel facilities over twin-coax cable which will enable the 4 radio teletypewriters (RATT) transmitters to be located outside the headquarters complex. This will decrease the electromagnetic signature of the headquarters and permit the location of the multiplexing equipment near the patch panel.

b. Three telephone terminals are used to provide two 48-channel cable systems between the headquarters and the TACS entrance facilities. These cable systems are connected to different control centers, thereby providing for alternate routing of communications circuits between the headquarters and the TACS.

c. One telephone terminal is used to terminate two 48-channel radio relay links at the major headquarters complex. The 48-channel radio relay links are terminated in a control center and a switching center which provides alternate routing over the radio relay links from the headquarters to TACS entrance facilities.

d. Four trailer mounted generator sets, each containing 2 generators, are used to provide continuous power for the telephone terminals not located near a central source of power.

e. Two 45-kw generator sets, 1 truck mounted and the other trailer mounted, are used to provide continuous power for the 2 telephone terminals located within the headquarters complex. These generator sets also provide power for the facilities control center and the 2 patch panels.

40. Radio Teletypewriter Section

The personnel of this section are responsible for the installation, operation, and maintenance of the RATT transmitters and receivers. These sets are used to provide RATT back-up for the multichannel cable systems and the radio relay links. The RATT equipment is used in conjunction with the teletypewriter terminals and the teletypewriter operations central through a patching arrangement in the patch panels. This will provide for continuous RATT communications when the cable systems and radio relay links are disrupted or out of operation for emergency maintenance.

a. Four RATT transmitter sets and three RATT receiving sets terminate a sufficient number of RATT circuits (twelve secure RATT circuits) to support a major headquarters.

b. The 4 RATT transmitters and 4 RATT receivers are installed in shelters that are transportable on 2½-ton trucks.

Section III. COMPANY INTERNAL COMMUNICATIONS

41. Wire Communications

a. A local battery Telephone Switchboard SB-22/PT is provided the company headquarters for local telephone service. A "type" wire system is shown in figure 7.

b. A wireman is assigned to the company headquarters to install and maintain the company telephone system and assist in the operation of the switchboard located in the company headquarters.

42. Radio Communications

a. An FM radio net is utilized in the company to provide radio communications between the company commander and the various operating elements of the company and for monitoring the net(s) of higher headquarters. A "type" internal FM net is shown in figure 8.

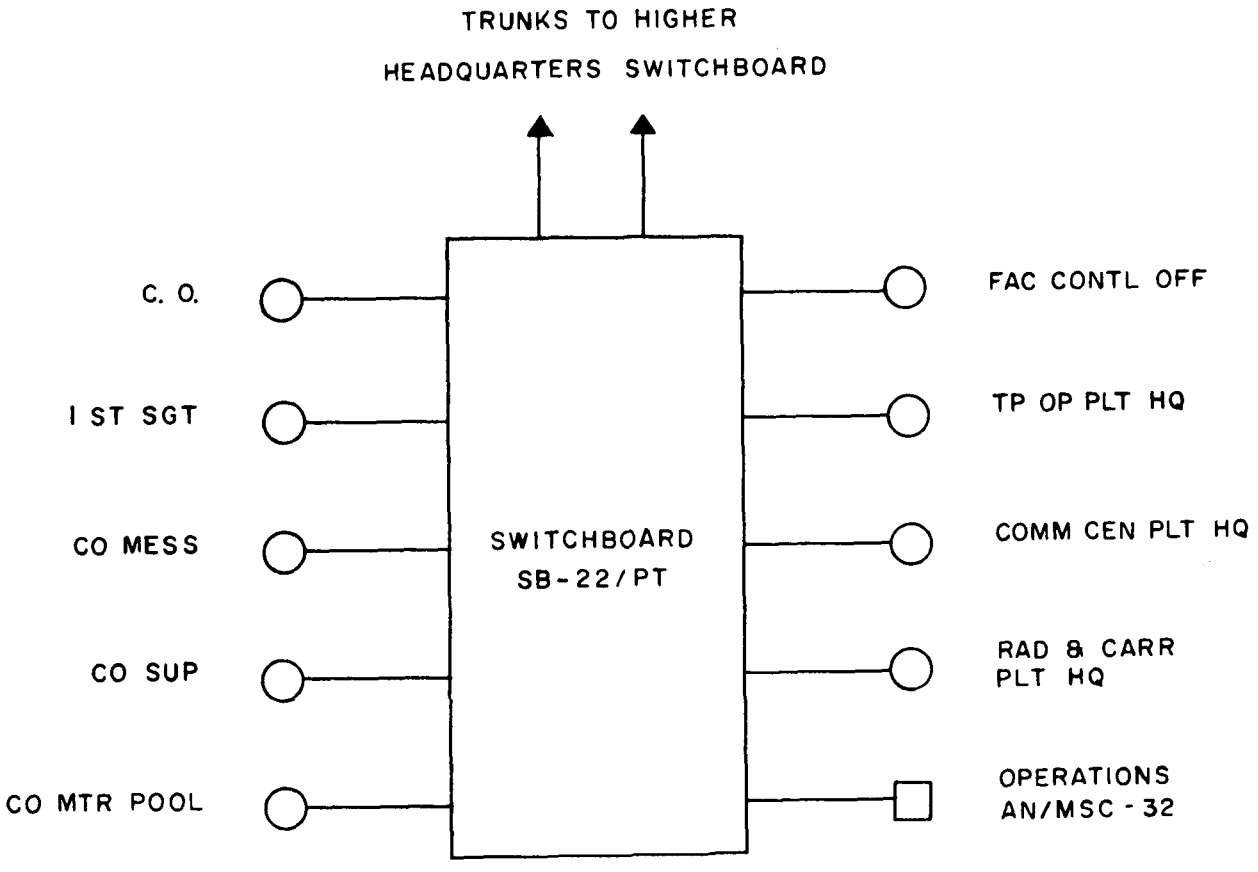
b. The radios of the company FM net are employed as follows:

(1) The company commander uses one radio set mounted in a ¼-ton truck to maintain command and operational control of the company's mission assignment when he is away from the company headquarters or the operations central. Additionally, he is able to enter external FM nets of a higher headquarters unit to which the company may be assigned or attached.

(2) One radio set is installed in the operations central for communications with the radio relay sites and as net control station (NCS) for the company net.

(3) The radio and carrier platoon leader uses one radio set for control of the platoon and to maintain contact with the company headquarters when away from the unit.

(4) One radio set is installed in each shelter housing the radio terminal sets. These sets are used for coordination during the establishment, engineering, and trouble-shooting the radio relay links.



LEGEND:

PHONE PART OF FACILITY

TA-312/PT

Figure 7. "Type" wire diagram signal large headquarters operations company.

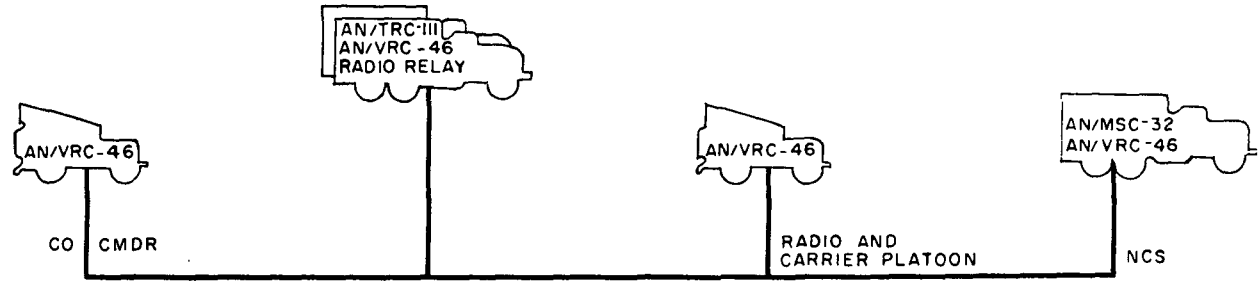


Figure 8. A "type" radio diagram signal large headquarters operations company.

CHAPTER 5

COMPANY ADMINISTRATIVE OPERATIONS

43. General

The operating elements of the signal large headquarters operations company normally will function in either the supported headquarters area of the radio and radio relay sites. The supporting elements of the company normally will be located in the company bivouac or command post area. This limits the company operations to no more than two or three general areas which assists the company commander in performing his administrative and supervisory functions. However, the company commander should never become tied to the company headquarters at the expense of performing command visits and inspections of his unit's communications sites. In addition to command visits and inspections, the company commander must keep all elements of the company advised of command policies and procedures. The most practical method of coordinating with subordinates is to issue timely orders and prepare and distribute a detailed SOP. Details of preparation of SOP's are contained in FM 24–16.

44. Company Command Post

The company command post (CP) should be conveniently located in relation to the operating elements of the company and collocated with the administrative elements. Locating the CP in this manner reduces the distance between the company CP and company elements, thereby facilitating command control, administrative, and supply functions.

45. Personnel Management

a. Effective daily coordination of the operating platoon's activities must take place between the platoon leaders and company headquarters. The platoon leaders must keep the company commander advised on the current communications situation. Conversely, the company commander must keep the platoon leaders advised on such personnel matters as pay, leave, mail, promotions, rotation, and administrative matters such as supply and maintenance having an impact on operations. The close coordination required can be accomplished through visits and use of the company communications systems.

b. Although the pay specialist, personnel records specialist, and the personnel reports clerk are assigned to the company headquarters, they normally will function in the consolidated personnel section of the headquarters organization to which the company may be assigned or attached.

46. Mess Management

Mess operations are under the direct supervision of the mess stewart. This element is organized to operate on a 24-hour basis with over 15 percent of total rations being consumed at night. This is due to the communications facilities operating on a 24-hour-a-day basis. Through prior arrangements, personnel on duty in the headquarters area of the unit supported may be provided mess support by the headquarters to which the company is assigned or attached. In this situation, it may be necessary to fragment the mess seciton and attach cooks to the headquarters mess.

47. Company Supply Operations

The acquisition and distribution of supplies are essential to the accomplishment of the company mission. The company commander must be familiar with the status of supplies and equipment within his organization and must plan the logistical support required for continuing operations. He must insure that company supply records are accurate and that supply procedures within the company will pro-

vide an adequate steady flow of supplies to the operating platoons. The company commander is assisted in this function by the company supply sergeant. A consolidated supply activity is established at the company CP to insure that each operating platoon has its normal TOE equipment and is provided adequate expendable supplies. The details of company supply may vary according to the situation; however, supply procedures must be in compliance with AR 735–35 and AR 711–17, and instructions of supported headquarters.

a. The company receives required supply support from designated direct support units. Each platoon or section makes its needs known to the company supply activity at the company CP and, when the requested supplies arrive, the company supply sergeant may arrange for their delivery to the platoon or notify the platoon leader that they are available.

b. The company supply activity establishes and maintains the records required for all company property and equipment authorized by TOE; table of allowances, or other document. Records are not usually required for expendable supplies; however, the company commander should insure that each platoon exercises proper supply economy.

48. Equipment Maintenance

a. Maintenance of company equipment is the responsibility of the company commander. All commanders are required to insure that the equipment issued to their commands is properly used and maintained. The platoon leaders assume supervisory responsibility for equipment this is issued to their platoons, and the operators assume direct responsibility for the equipment they operate. The company commander, platoon and section leaders, and the equipment operators all have specific responsibilities for maintenance and care of issued equipment. For information on preventative maintenance, see the equipment technical manual pertinent to the item of equipment. For details on the preparation, maintenance, and processing of records associated with maintenance performance, see TM 38–750.

b. The company's maintenance responsibilities encompass preventive and organizational maintenance on all unit equipment, and direct support maintenance on organic signal equipment. Within the company headquarters, personnel are provided for organizational maintenance of unit vehicles, generators, and small arms.

(1) For the performance of organizational maintenance on vehicles and generators, maintenance personnel of company headquarters are organized into a motor maintenance element. This element comes under the direct supervision of the motor sergeant. The section is provided a 2½-ton truck, with winch, and one 1½-ton trailer for use by the motor maintenance personnel for organizational vehicle maintenance and to transport vehicle maintenance equipment, automotive spare parts, and lubricants. Another 2½-ton truck is used to haul the tank and pump unit and will tow a trailer containing one liquid dispensing tank unit. Additionally, a 5-ton wrecker truck is used by the motor maintenance personnel for motor maintenance, vehicle recovery operations, and loading and unloading communications equipment shelters as required. The 4 wheeled-vehicle mechanics are included in the TOE based on criteria for separate units. When the unit is assigned to a higher headquarters having battalion motor maintenance facilities, these individuals will perform their duties at that facility.

(2) When the maintenance organizational equipment exceeds the capabilities or capacities of the company, arrangements are made for necessary maintenance support with the supporting direct support maintenance unit. This procedure is followed for all equipment utilized by the company, including signal equipment requiring general support category maintenance.

(3) Support for medical material is provided by the medical activity serving the area. Maintenance and repair parts support for communications security equipment is provided by the

supporting general support activity in accordance with procedures estblished by that activity.

(4) For all other items, the signal company looks to its supporting direct support maintenance unit for maintenance and repair parts support. Direct support maintenance is provided on site or in the maintenance shop of the direct support unit. When general support maintenance is required, the direct support maintenance unit arranges for evacuation of the materiel to the appropriate general support maintenance unit. This includes signal equipment requiring general support maintenance. For details on maintenance operations in the field army, see FM 29–22.

49. Company Training

The combat effectiveness of the signal large headquarters operations company will depend on the training of the unit. This training will include individual, section, and platoon training. Normally a soldier is first trained as a soldier and then as a specialist. Some specialists of the company are school-trained while others must be trained in the unit. Common specialists such as cooks, clerks, truck drivers, and mechanics may be trained in unit schools, training centers, or service schools. However, these specialists must receive on-the-job refresher training to retain their skills.

a. A newly activated unit can get much of its training support from the G–3 section of the camp, post, or station responsible for its training. The support will include training literature, training areas, training aids, and, in some cases, instructor support.

b. The company commander will be assisted in his training program through the use of army training programs (ATP's), army training tests (ATT's), field manuals (FM's), and equipment technical manuals (TM's). The training literature manuals that are applicable to the signal large headquarters operations company are shown in the appendix.

50. Company Standing Operating Procedures (SOP)

An SOP is a set of tactical and administrative instructions which the commander wishes to make routine. SOP's are a form of combat orders; thus, the SOP eliminates the necessity for repeating the details of instructions in orders for each operation. Normally, an order will refer to the SOP unless the procedures for an operation are contrary to the procedures contained in the SOP. In such cases, the procedures must be detailed in the order.

a. The amount of detail in the SOP will depend on the training and experience of the unit. Normally, the initial SOP, prepared during the training phase of the unit, will be detailed and as the unit becomes experienced, the SOP becomes less detailed.

b. The SOP of a unit is based on the SOP of the next higher echelon of command. This is necessary to standardize procedures as much as possible.

c. The SOP of a unit should be continually revised and refined to eliminate unnecessary details and to change procedures to adjust to a change in organization, operations, or the tactical situation.

d. The details of preparation of the signal SOP are contained in FM 24–16.

CHAPTER 6

COMPANY SECURITY OPERATIONS

Section I. INTRODUCTION

51. General

Every commander is ultimately responsible for the security of his command. Unit security embraces all defensive measures taken to prevent enemy interference with the unit's activities. A poor defense invites attack, and a poorly prepared and weakly defended signal installation is a prime target for hostile action. In addition, poor communications security measures and electronic counter-countermeasures can cause complete collapse of the unit's communications operations.

52. Defense of Signal Installations

The effectiveness of the defense system that any particular signal element can provide from its own resources will vary greatly depending on its size, its degree of commitment to communications activities, and its location. When feasible, signal installations and signal elements should be located with other units or headquarters to take advantage of established defenses. Normally, the signal installations of the signal large headquarters operations company will be located within the headquarters complex of the supported headquarters. However, some signal installations such as radio teletypewriter and radio relay sites will be located away from the headquarters complex of the supported headquarters.

a. The defense of signal installations located with the headquarters complex will be coordinated with the security officer of the headquarters. The company commander must insure that the headquarters defense plan adequately protects the signal installations located therein.

b. Those signal installations located outside the headquarters complex must be adequately protected. If the signal teams operating these signal installations cannot provide adequate protection, assistance must be provided from other resources. The engineers may be able to assist in the preparation of the defense by constructing obstacles and for preparation of fields of fire and observation. The military police may be able to provide military patrols or guards for the signal installations. The company commander must make every effort to protect signal installations, signal equipment, and signal personnel regardless of their employment. Some of the basic aspects of security are—

(1) Camouflage and concealment of installations against air, ground, CBR, and nuclear attack.

(2) The use of obstacles such as mine fields, barb wire, and natural obstructions such as rivers, forests, swamps, and mountains.

(3) The use of guard posts and alarm systems.

(4) Protective measures to be taken before, during, and after nuclear, chemical, and biological attack.

Section II. COMMUNICATIONS SECURITY

53. General

Communications security (COMSEC) is of vital importance to operations at all levels. For this reason, personnel involved with communications, whether on a primary- or occasional-duty basis, must be thoroughly indoctrinated and trained in approved COMSEC procedures.

54. Definition of Communications Security

Communications security is the protection resulting from all measures designed to deny unauthorized persons information of value which might be derived from the possession and study of communications, or to mislead unauthorized persons in their interpretation of the results of such a study. COMSEC includes cryptosecurity, physical security, and transmission security.

a. Cryptosecurity. Cryptosecurity is that component of communications security which results from the provision of technically sound cryptosystems and their proper use.

b. Physical security. Physical security is that part of communications security concerned with physical measures designed to safeguard personnel, to prevent unauthorized access to equipment, facilities, material, and documents, and to safeguard them against espionage, sabotage, damage, and theft. See AR 190–13 and FM 19–30.

c. Transmission security. Transmission security is that component of communication security which includes all measures designed to protect transmissions from unauthorized interception traffic analysis, imitative deception, and direction finding.

55. Application of Communications Security

The basic objective of COMSEC is to prevent unauthorized personnel from gaining useful information from our communications. This object can only be realized if all personnel are security conscious and cognizant of their personal responsibilities in this regard. COMSEC should be a habit; a state of mind developed through training and application in daily routine. All personnel should be thoroughly familiar with, and follow, the security practices designed to minimize the value of communications as a source of intelligence to unauthorized personnel. A summary of the more basic practices for effective COMSEC follow (refer to FM 32–5 for more detailed discussion).

a. Cryptosecurity.

(1) Use only authorized cryptosystems.

(2) Use authorized cryptosystems only as prescribed by the operating instructions.

(3) Encrypt information requiring long term security only in those cryptosystems providing long term security.

(4) Access to crypto information is reserved only to those who have been cleared and granted formal authorization to cryptomaterial.

b. Physical Security.

(1) Maintain an adequate emergency plan and practice it frequently.

(2) Provide proper safeguarding and control of COMSEC materials at all times.

c. Transmission Security

(1) Use radio only when other means of communication are not practical.

(2) Restrict the transmission of clear text messages to a minimum.

(3) Maintain circuit discipline.

(4) Assign call-signs/words and frequencies simultaneously.

(5) Change call-signs/words and frequencies simultaneously.

(6) Make transmissions brief.

(7) Authenticate.

(8) Use broadcast and intercept transmission methods.

(9) Use only prescribed communications operating procedures.

Section III. ELECTRONIC WARFARE SECURITY

56. General

a. The use of tactical communications and electronic devices by the military has grown to the point where tactical military forces are dependent upon such devices. Communications is a critical facet of command and control. Our most part, dependent upon electronic devices such as radar and infrared. Today's "arts of war" must include action to degrade or destroy the enemy's effective use of communications-electronics systems. At the same time, we must take all possible action to insure our own effectiveness of communications-electronics equipment and systems.

b. Electronic warfare consists of the fields of electronic counter-measures (ECM) and electronic counter-countermeasures (ECCM). Total understanding of the field of electronic warfare also requires an understanding of the fields of communications intelligence (COMINT) and communications security (COMSEC). The importance of the components of electronic warfare, ECM and ECCM, and the related fields of COMINT and COMSEC must be recognized throughout the military structure. Electronic warfare is a potent weapon which can assist the commander in accomplishing his mission, or electronic warfare can be used to defeat us.

57. Scope of Electronic Warfare

An example of electronic warfare follows:

a. The field radio is used by the field commander to control his forces during an assault. The enemy may realize just how essential the use of the field radio is to this operation and use a powerful radio transmitter tuned to the same radio frequency to override the communications of the field radio set. Interfering with radio communication in this manner is called the electronic countermeasure. The operator of the field radio set which is being jammed may adjust his radio receiver to work through the jamming or change radio frequency to avoid the jamming. These actions are called electronic counter-countermeasures.

b. The enemy action taken to determine those times during military operations when the field radio is essential for the successful accomplishment of the mission falls within the scope of communications intelligence. Further, determining commuunications structure of the United States Army forces, the signal parameters of the communications equipment and systems used by the United States Army and other technical information which supports enemy ECM activities also falls within their communications intelligence activity. Enemy COMINT activities must be recognized as supporting enemy electronic countermeasures activities.

c. The action taken by the United States Army to counteract enemy communications intelligence efforts is communications security. COMSEC is of vital importance to military operations at all levels to minimize the amount of intelligence information the enemy can derive through their COMINT activities as well as to minimize the amount of technical information derived through COMINT in support of their electronic countermeasures operations. For this reason, personnel involved with communications, whether on a primary- or on an occasional-duty basis, must be thoroughly indoctrinated and trained in approved COMSEC and ECCM procedures.

d. For details of electronic warfare, refer to FM 24–150.

58. Communications Security and Electronic Countermeasures

Communications security practices are important and they are effective in limiting the amount of information the enemy gains from our communications to aid his ECM operations. The enemy may not use ECM against us if these ECM operations are not supported with sufficient technical information. COMSEC plays an important role in these situations because the enemy will use his COMINT capability to measure the effectiveness of his ECM operations. As the enemy jams our radio communications, he also uses his COMINT facilities to determine the reaction of our radio operators to his jamming. It is imperative that the radio operators do not reveal that they are being jammed. The enemy finds it extremely difficult to determine if his jamming is effective unless the radio operators who are being jammed give this information to the enemy.

Section IV. INTERNAL DEFENSE SECURITY

59. General

In internal defense operations, many factors contribute to make the operational environment different from that in a general war. Among these factors are—

a. The nature of the terrain generally is poor for modern sophisticated operations.

b. Forces usually are dispersed over extremely wide areas.

c. The insurgent is elusive, hard to identify, and well trained in the art of guerrilla and mobile warfare.

d. Winning the support of the receiving state population is the most critical requirement in internal defense operations.

e. Because units are dispersed over extremely wide areas, command supervision, to include training, maintenance, and other command responsibilities, will be abnormally difficult.

f. Commanders will be responsible for more independent actions and must be able to operate with less supervision than usual in army combat situations.

g. Combat support units may be deployed in early phases of insurgency to provide military assistance to both United States and the receiving state armed and paramilitary forces and civilian agencies of the receiving state. Predeployment internal defense training should prepare the unit to utilize its capabilities effectively in internal defense situations.

h. Special messing arrangements may be required. Units may be required to obtain food from the local economy, particularly if it is separated from normal supply channels.

i. Resupply procedures and techniques in internal defense operations require special planning because of the ambush hazard along roads and the great dependency upon aerial resupply. Flexibility, responsiveness, and improvisation are key factors. Certain unique transportation problems must be considered to assure that units in remote areas are supplied effectively. Logistical planning must consider stocking larger quantities of essential items and planning for resupply well in advance of the normal requisitioning cycle, and must anticipate measures to secure supplies and prevent them from falling into insurgent hands.

j. Preventive maintenance in internal defence situations requires continuous emphasis to insure that it is conducted and supervised more closely than normally prescribed. Mobile maintenance teams should be available to make periodic or "on call" visits to service the installed equipment of the deployed teams.

60. Signal Defense for Tactical Operations

Physical security of the unit, whether deployed in seemingly safe areas or in areas under insurgent control, is of special importance and particular care must be taken to provide adequate defense against possible insurgent attacks.

(1) Personnel must be fully trained in the use of all unit weapons and be continually alert for insurgent attacks.

(2) RS armed, paramilitary, or civilian police forces may be required to supplement and assist organic unit security elements to assure that communications are not adversely affected.

(3) Heavier weapons than those organic to operating teams may be required for employment in the defense plan. In addition, extra grenades, trip flares, mines, and barbed wire may be required in order to protect signal installations against insurgent attack. Signal company personnel must know how to handle these weapons. Emergency communications procedures to request assistance in case of attack must be prearranged.

(4) Communications equipment should be dug-in and adequately revetted in order to offer maximum protection against insurgent attacks and sabotage.

(5) Particular attention must be given to formulating adequate convoy protection plans when signal units are required to displace, and movement plans must include adequate weapons, communications between vehicles, and between convoys to base camp, as well as ground-to-air contact for more effective air cover.

61. Signal Operations for Internal Defense

Internal security operations include supporting RS police and other essentially civilian organizations in their responsibilities to maintain a state of law and order, and taking actions to control human and material resources and/or to deny insurgent access to those resources. For details, see FM 31–73.

a. Through psychological operations, it is possible to gain and maintain the loyalty of the population toward the government and specifically to win back the support of those elements of the population which are supporting the insurgent forces. The manner in which United States personnel behave in their association with the RS people has a definite effect on the attitude of the population toward United States

assistance programs and their willingness to cooperate when required. For further details on PSYOP, see FM 31–22 and FM 33–1.

b. Psychological activities include—

(1) Military personnel acting courteously toward the populace.

(2) Posting good will signs and information posters outside the installation compound fence.

(3) Performing military civic action activities in the local area.

(4) Learning to speak the local language of the RS from local civilians.

c. An adequate and timely intelligence effort is vital to achieve internal defense objectives. As a result of their frequent associations with civilians, United States military personnel operating in internal defensive environments are in excellent positions to collect and disseminate to higher headquarters information from the population. For details see FM 31–22 and FM 31–73.

Section V. DEFENSE AGAINST ENEMY AIRCRAFT

62. General

In any combat theater all units must realize the threat of attack from enemy aircraft and be prepared to take action against the attack. The air attack may be in the form of air strikes, aerial reconnaissance, and airmobile operations. Actions that might be taken against such air attacks may be either passive or active. The air defense plan of the supported headquarters will define when and how active or passive defense will be employed against enemy aircraft. The signal company commander must insure that his company is familiar with the air defense plan of the supported headquarters.

63. Passive Defense Measures

The effectiveness of enemy air attacks can be curtailed considerably by employing passive measures such as camouflage and dispersion. Passive measures should always be in effect to preclude the surprise attack by enemy aircraft. It may be more important to employ passive measures against enemy aircraft than to actively engage the aircraft and disclose the location of the major headquarters. An active defense may also present danger to friendly troops and installations, and an active defense must be command decision. Normally, theater headquarters will promulgate doctrine on when and how passive and active defense against enemy aircraft will be employed.

64. Active Defense Measures

Active defense against enemy aircraft must be emphasized because large volumes of small arms fire have proven capable of dstroying both high speed or low speed aircraft or disrupting their attack. To maximize the effectiveness of organic weapons when employed in an air defense role, the following actions should be taken.

a. Commanders must insure that an air defense SOP is established within the company which is based on the SOP of the supported headquarters. This SOP must contain firm guidance on how to identify aircraft, personnel to engage aircraft, techniques of fire to be used, rules of engagement, and controls to be exercised.

b. All personnel must be made aware of the effectiveness of a large volume of small arms fire against low flying aircraft. Emphasis must be placed on the aggressive engagement of hostile aircraft in accordance with the SOP.

c. All personnel must be well trained and kept current on aircraft identification, techniques of firing at aerial targets, fire discipline, and response to control methods. Extreme emphasis must be placed on the threat to friendly aircraft involved in failure to properly identify and discriminate between friendly and enemy aircraft.

d. Tactics of withholding fire to preclude disclosure of position must be kept in proper perspective.

e. When the signal small headquarters operations company is located within a headquarters complex of the supported headquarters, it will adhere to the air defense SOP of that headquarters.

Section VI. UNIT CBR DEFENSE

65. Responsibilities

Attaining and maintaining individual and unit CBR proficiency in CBR protective measures within the established standards is a command responsibility. The unit commander must be certain that his unit can continue its mission and operate successfully in a CBR environment. Some of the protective measures that must be taken to insure this capability are—use of alarm systems, wearing of protective masks, use of protective clothing and other protective equipment, use of protective shelters, dispersion of personnel and equipment, decontamination and first aid. For detailed information, see FM 21–40 and FM 21–41.

66. Organization and Training

The company will appoint and train a CBR team as prescribed in AR 220–58. The unit SOP will designate the specific duties, assignments, and equipment for the CBR team. To assist in the conduct of training for CBR operations the company will appoint a school-trained CBR NCO on additional duty basis. Considerations should also be given to appointing a school-trained CBR Officer on additional duty basis.

APPENDIX

REFERENCES

1. General

This appendix contains a selected list of publications pertinent to the operations of the signal large headquarters operations company. For availability of items listed and other publications on additional subjects, refer to DA Pamphlets 310–1, 310–3, and 310–4.

2. Army Regulations (AR)

190–13 Physical Security.
230–5 Non-Appropriated Funds and Related Activities; General Policies.
320–5 Dictionary of United States Army Terms.
320–50 Authorized Abbreviations and Brevity Codes.
340–15 Correspondence.
350–1 Army Training.
380–5 Safeguarding Defense Information.
380–40 Safeguarding Crypto-Information.
380–41 Control of Cryptomaterial.
604–5 Personnel Security Clearances, clearance of personnel for access to classified defense information.
711–16 Installation Stock Control and Supply Procedures.
711–17 Utilization and Processing of DA Form 2765 and 2765.1.
735–5 Property Accountability, General Principles and Policies and Basic Procedures.
735–11 Accounting for Lost, Damaged, and Destroyed Property.
735–35 Supply Procedures for TOE and TDA or Activities.
750–5 Organizations, Policies, and Responsibilities for Maintenance Operations.
750–8 Command Maintenance Management Inspections.
750–610 Communications Security Equipment maintenance.

3. Army Training Programs (ATP)

11–327 Signal Large Headquarters Operations Company.

4. Army Training Tests (ATT)

11–327 Signal Large Headquarters Operations Company.

5. Department of the Army Pamphlets (DA Pam)

108–1 Index of Motion Pictures, Film Strips, Slides and Phono-Recordings.
310–1 Index of Administrative Publications.
310–2 Index of Blank Forms.
310–3 Index of Doctrinal, Training, and Organizational Publications.
310–4 Military Publications.
310–9 Index of Communications Security (COMSEC) Publication.

6. Field Manuals (FM)

3–12 Operational Aspects of Radiological Defense.
5–22 Camouflage Materials.
11–29 Signal Operations, Theater of Operations.
11–21 Tactical Signal Communications Systems, Army, Corps, and Division.
11–86 Combat Area Signal Battalion, Army.
11–92 Corps Signal Battalion.
11–95 Army Signal Battalion.
19–2 Military Police Support in the Field Army.

19–3	Military Police Support in Communications Zone.
19–30	Physical Security.
21–5	Military Training Management.
21–6	Techniques of Military Instruction.
21–30	Military Symbols.
21–40	Chemical, Biological, and Nuclear Defense.
21–41	Soldier's Handbook for Defense Against Chemical and Biological Operations and Nuclear Warfare.
21–48	Chemical, Biological, and Radiological (CBR) and Nuclear Defense Training Exercises.
21–60	Visual Signals.
24–1	Tactical Communications Doctrine.
24–16	Signal Orders, Records, and Reports.
24–17	Tactical Communications Center Operations.
24–18	Field Radio Techniques.
24–19	Communications - Electronics Reference Data.
24–20	Field Wire and Field Cable Techniques.
24–21	Field Radio Relay Techniques.
29–22	Maintenance Operations in the Field Army.
31–22	Internal Defense and Development.
31–25	Desert Operations.
31–30	Jungle Training and Operations.
31–71	Northern Operations.
31–72	Mountain Operations.
31–73	Advisor Handbook for Counterinsurgency.
(CM)32–5	Communications Security (U).
(C)32–20	Electronic Warfare (Ground Based) (U).
33–1	Psychological Operations—U.S. Army Doctrine.
33–5	Psychological Operations.
101–5	Staff Officers' Field Manual; Staff Organization and Procedures.
101–10–1	Organizational, Technical, and Logistical Data: Part I—Unclassified Data.
101–10–2	Staff Officers' Field Manual; Organizational, Technical, and Logistical Data: Part II—Extracts of Tables of Organization and Equipment.
FM 100–27	U.S. Army/U.S. Air Force Doctrine for Tactical Airlift Operations.

7. Technical Manuals (TM)

38–750	Army Equipment Record Procedures.

8. Joint Army-Navy-Air Force Publication (JANAP)

(C)	JANAP 201E Status of Noncryptographic JANAPS and ACP's.

9. Allied Communication Publication (ACP)

ACP 121	Communications Instructions—General.
ACP 122B	Communications Instructions—Security.
ACP 124	Communications Instructions—Radio Telegraph Procedures.
ACP 125	Communications Instructions—Radio Telephone Procedures.
ACP 129	Communications Instructions—Visual Signal Procedures.
ACP 136	Communications Instructions—Panel Signaling.
ACP 168B	Pyrotechnic Signals.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12–11 requirements for Signal Operations: Theater of Operations.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1967—255-604/8120A