FM 11-25

DEPARTMENT OF THE ARMY FIELD MANUAL

SIGNAL CONSTRUCTION BATTALION

HEADQUARTERS, DEPARTMENT OF THE ARMY

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SIGNAL CONSTRUCTION BATTALION

CHAPTER 1
GENERAL

Section I. INTRODUCTION

1. Purpose

This manual establishes army doctrine and provides the information and guidance necessary for the employment and operation of a signal construction battalion.

2. Scope

a. This manual, based on TOE 11–25, covers the organization, mission, operations, and capabilities of a signal construction battalion. It presents material that is applicable without modification to both nuclear and nonnuclear warfare.

b. The methods of employment presented in this manual are guidelines to be supplemented as the situation demands.

3. References

a. Publications that provide information on subjects related to the material contained in this manual are listed in appendix A.

b. A summary of the technical characteristics of selected items of equipment utilized by the signal construction battalion is listed in appendix B.

4. User Comments

Users of this manual are encouraged to submit recommended changes or comments in order to improve it. Comments should be prepared in accordance with AR 310–3, and 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 Commanding Officer, U.S. Army Combat Developments Command Communications-Electronics Agency, ATTN: Doctrinal Literature Division, Fort Monmouth, N.J. 07703.

Section II. BATTALION CHARACTERISTICS

5. Mission

The mission of a signal construction battalion is to provide construction, maintenance, and rehabilitation of wire and cable communications circuits with the communications system of the communications zone (COMMZ) of a theater of operations.

6. Assignment

This battalion is assigned to theater army and field army signal organizations as required.

7. Organization and Category

a. The signal construction battalion (fig. 1) consists of a headquarters and headquarters detachment and four identical signal construction companies.

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

8. Control

a. The theater operations signal command exercises command control over the signal construction battalion.

b. The commanding officer and executive officer of the signal construction battalion assume those duties normally associated with the responsibilities of their positions. The S1 officer, as adjutant, supervises the personnel and administrative functions of the battalion. Consolidated personnel administration is performed at battalion headquarters. The operations officer, S3, supervises the operations, training, and intelligence functions of the battalion. The supply officer, S4, has staff supervision over battalion supply activities with general supervision over the battalion supply section. The battalion motor officer coordinates and supervises the battalion

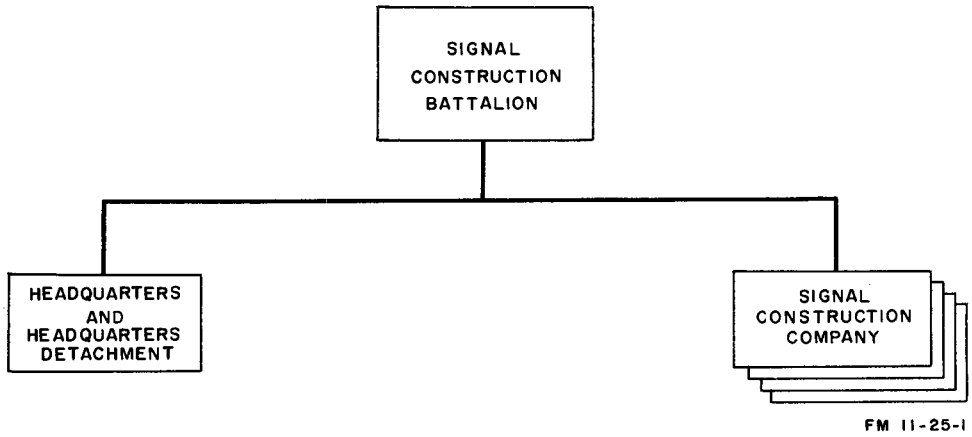

Figure 1. Organization of the signal construction battalion.

vehicle and equipment maintenance program. The chaplain is adviser to the battalion commander and staff on all matters pertaining to religion, welfare, and morale in the command. When the battalion is augmented by a medical section, the section is supervised by the battalion surgeon.

c. The sergeant major is the senior NCO in the battalion and, as such, is the commander's adviser and representative in dealing with other NCO's in the battalion.

9. Capabilities

a. The signal construction battalion constructs, rehabilitates, and maintains open wire pole lines, overhead supported cable, underground cable, and field cable systems. Within these activities, a primary function of the battalion is rehabilitation of indigenous communications facilities.

b. The battalion performs cable splicing as required.

c. The reduced strength column of TOE 11–25 adapts the TOE to the lesser requirements of this unit for personnel and equipment during prolonged noncombat or limited combat periods.

d. The capabilities of a Type B organization are the same as those of a full strength organization.

(1) The Type "B" column of TOE 11–25 adapts the TOE to the lesser requirements of this unit for United States military personnel. Vacancies are positions which can be filled by indigenous personnel who have had prior experience with commercial communications organizations. The number of these people who may be used is determined by the theater operations signal command.

(2) Interpreters and translators required under Type B organization will be provided from appropriate teams available to the theater commander.

(3) Authorization of United States military personnel shown in the Type B column of TOE 11–25 may be modified by the proponents of the TOE to satisfy local conditions of employment when authorized by the Department of the Army.

e. Individuals of this organization can engage in effective, coordinated defense of the unit's area or installation.

f. Medical service, to include emergency medical treatment, operation of aid stations, evacuation of casualties, and supervision of sanitation, may be provided by augmentation.

g. This unit is 75 percent mobile.

10. Location and Employment

a. Generally, the signal construction battalion is widely dispersed throughout the COMMZ. The four signal construction companies are normally deployed two per axis of communications. Usually, the headquarters and headquarters detachment collocates with one of the signal construction companies. The battalion commander will employ his operations capability throughout the theater of operations in a manner which supports the battalion's assigned mission. Through his operations officer, he will plan, coordinate, and control the installation, maintenance, and rehabilitation of wire and cable systems in compliance with missions assigned by the theater operations signal command.

b. It is possible that the signal construction battalion may be given a mission which would confine

its service to a limited geographical area. As an example, a type of employment in support of rehabilitation might involve restoring to operation the telephone outside plant facilities of a major city.

c. Conditions may require the need for heavy construction or extensive rehabilitation within the combat zone (field army area). Under these conditions, it is possible that the battalion might be required to furnish construction support to a signal brigade of the field army.

11. Battalion Internal Communications

The battalion headquarters section has two switchboard operators assigned to operate the local SB–22/PT switchboard. A type wire installation is illustrated in (fig. 2), showing typical service within the headquarters and trunking to the nearest access point within the theater army communications system. In addition, there is an AN/VRC–47 radio (¼-ton truck mounted) in the battalion headquarters section which is used to control the signal construction companies during mission accomplishment. Also, there is one AN/VRC–46 radio (¼-ton truck mounted) provided in the battalion aviation section for communications with the battalion's five organic OH–6 helicopters (fig. 3).

12. Company Internal Communications

The company administration section has an SB–22–PT switchboard, but no assigned operator. Operation of the switchboard is a part of the company clerk's duties. A type installation is illustrated in (fig. 2), showing typical service within the company and trunking to the nearest access point within the theater army communications system. In addition, this headquarters uses an AN/VRC–46 radio to control a company command net with its three platoon headquarters. There are four AN/PRC–25 radios which can be used in the command net when assigned by the company commander (fig. 4).

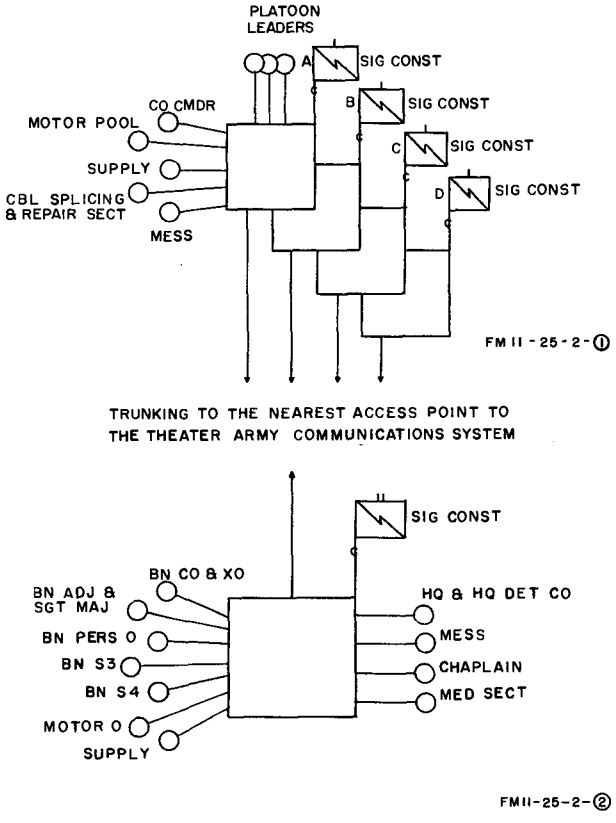

Figure 2. Type internal communications system for signal construction battalion.

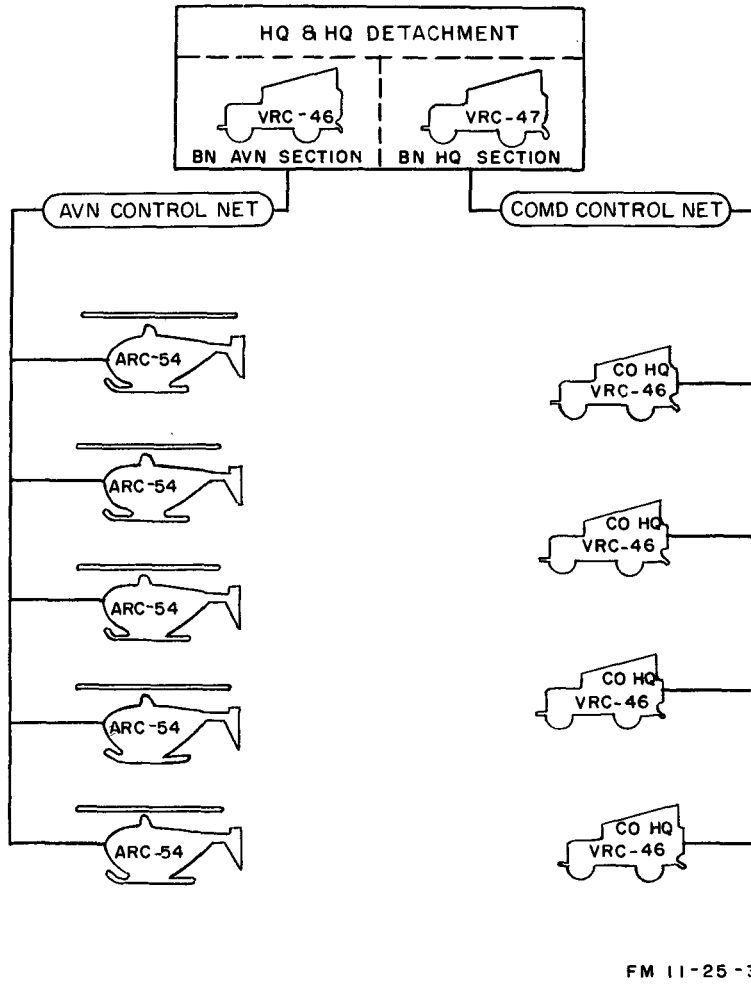

Figure 3. Type FM radio nets for signal construction battalion.

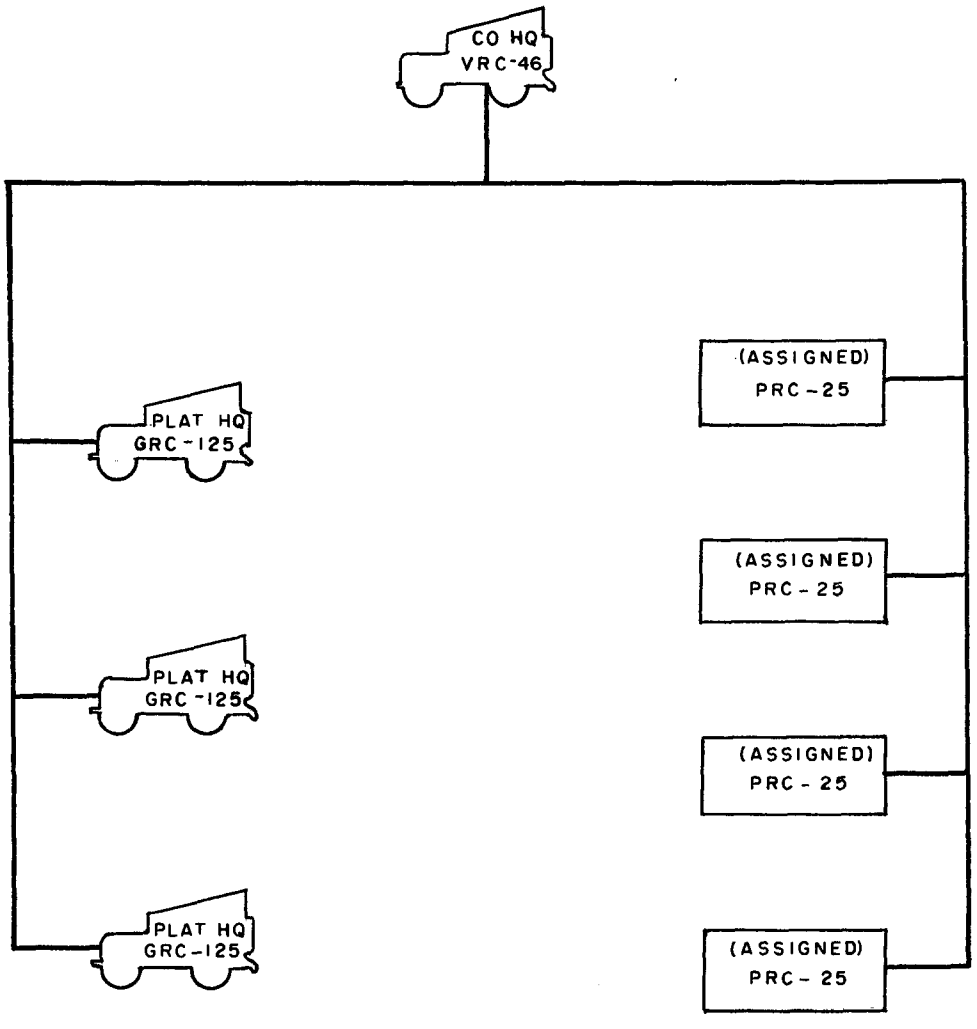

Figure 4. Type FM radio command net for signal construction company.

CHAPTER 2
HEADQUARTERS AND HEADQUARTERS DETACHMENT

13. Mission

The mission of the headquarters and headquarters detachment is to direct and coordinate the operation of the battalion and to provide facilities with which the battalion commander controls the battalion.

14. Assignment

The headquarters and headquarters detachment is organic to the signal construction battalion, TOE 11-25.

15. Organization

The battalion headquarters is organized from personnel and equipment authorized the headquarters and headquarters detachment (fig. 5). The headquarters detachment includes, in addition to its headquarters, the battalion headquarters, maintenance, supply, and aviation sections. A medical section is provided by augmentation.

16. Control

a. The headquarters and headquarters detachment provides the means by which the battalion commander exercises command, administrative, operational, and logistical control over the companies of the battalion. The battalion headquarters contains the battalion commander and his staff.

b. The headquarters detachment commander, assisted by the first sergeant, is responsible for the administration, training, housing, and messing of the enlisted personnel of the detachment. Headquarters and headquarters detachment is required to consolidate its limited mess facilities with that of a company to provide adequate service. The detachment has one first cook to contribute to the combined effort, and he should be placed under the direct supervision of the supporting company mess sergeant. The headquarters detachment has an organic supply and maintenance capability. A maintenance data specialist, E4, MOS 71B30, will

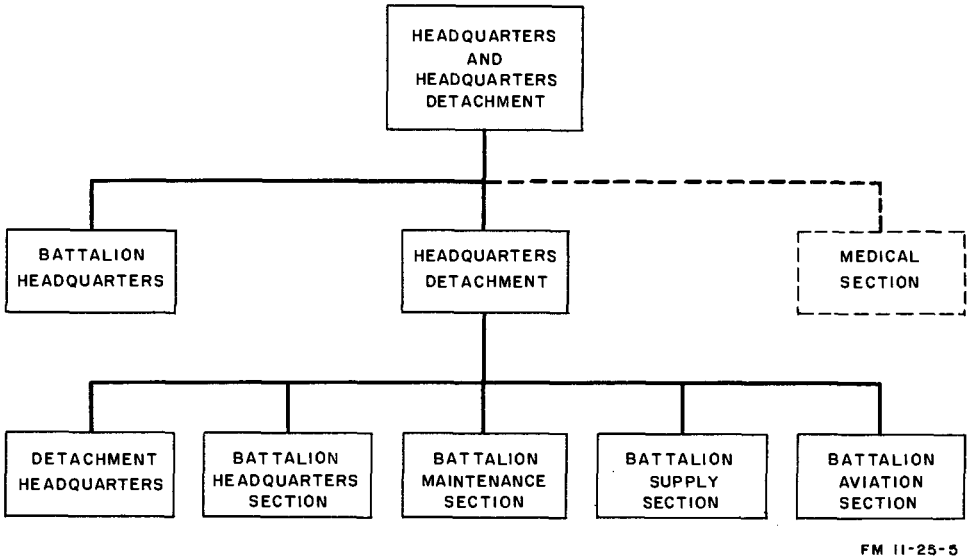

Figure 5. Organization of headquarters and headquarters detachment.

maintain The Army Equipment Records System (TAERS) within the detachment.

c. The battalion headquarters section provides the means for accomplishing the administration, consolidated personnel, and operations functions of the battalion. This section also includes switchboard operators for the headquarters internal communications facility.

d. The battalion maintenance section provides organizational motor and power generator maintenance for headquarters detachment. In addition, this section provides battalion level organizational maintenance for the construction companies as required. A maintenance readiness NCO, E7, MOS 63B40, will supervise the activities of the 13 maintenance data specialists located throughout the battalion. This MOS was selected because of the predominance of motor maintenance within the battalion.

e. The battalion supply section is under the general supervision of the battalion S4 officer and the direct supervision of a unit supply technician. This section is staffed with sufficient personnel to administer a battalion centralized supply system.

f. The aviation section consists of five Oh–6 observation helicopters, five warrant officer pilots, eight enlisted men, and a lieutenant (aviator) who is the section leader. The section is capable of performing its own organizational maintenance. For maintenance beyond their capability, aircraft are evacuated to a maintenance facility designated by higher authority. POL requirements are coordinated with the most conveniently located aviation facility. Generally, the aviation section is consolidated and located near the battalion headquarters. There may be occasions where a helicopter and crew would be located with a company. This is a command decision.

g. The medical section (augmentation) is under the supervision of the battalion surgeon. This section provides medical service to include emergency treatment, operation of aid stations, evacuation of casualties, and supervision of sanitation.

17. Capabilities

At full strength, this unit provides command control, staff planning, and supervision to include administration, supply, and organizational maintenance for the battalion. Refer to paragraph 9 for additional capabilities.

18. Location

The headquarters will be centrally located within the battalion's area of operation to provide effective command and control.

CHAPTER 3
SIGNAL CONSTRUCTION COMPANY

Section I. GENERAL

19. Mission

The mission of the signal construction company is to construct wire and cable circuits.

20. Assignment

The signal construction company is organic to the signal construction battalion, TOE 11–25.

21. Organization

a. The signal construction company (fig. 6) consists of a company headquarters, three construction platoons, and a cable splicing and repair section. The company headquarters has an administrations section and a supply and maintenance section. Each construction platoon is made up of a platoon headquarters and four construction teams.

b. A construction team is deleted when the company is organized at reduced strength. Augmentation provides additional administrative and maintenance personnel and equipment when required.

22. Control

The company commander receives his orders from the battalion commander concerning command, operational, and administrative matters. Based on these orders he assigns projects to his platoon leaders. They, in turn, supervise the activities of their respective platoons. The cable splicing and repair section is supervised by a telephone and telegraph construction officer.

23. Capabilities

a. At full strength this unit is capable of constructing, rehabilitating, and maintaining open wire pole lines, overhead supported cable, underground cable.

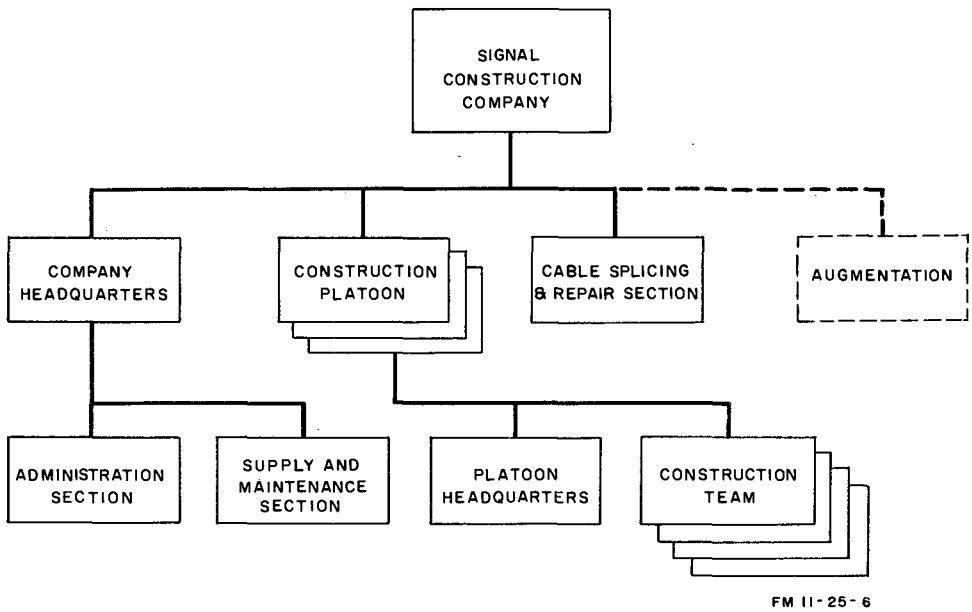

Figure 6. Organization of signal construction company.

and field cable systems. A capability for field wire construction also exists within the company.

b. The company has its own administration, supply, and mess facilities. This unit is capable of performing organizational maintenance on organic motor vehicles and equipment. The company can provide mess support to the battalion headquarters and headquarters detachment.

c. The company provides a cable splicing capability for the battalion.

d. This unit is capable of operating as a separate company when provided five additional administrative and maintenance personnel through augmentation. Refer to paragraph 9 for additional capabilities.

Section II. LOCATION AND EMPLOYMENT

24. General

a. Signal construction, in support of the battalion's assigned mission, is accomplished through the battalion's four construction companies. These are 12 construction teams in each company with each team being comprised of 12 pole linemen. There is special heavy signal construction equipment assigned to each of the 12 teams. The companies are generally deployed two per axis of communications within the COMMZ, but can be used in a consolidated manner if necessary. For example, in fulfilling a battalion function of rehabilitating indigenous communications facilities, the companies could be assigned a signal construction mission in and around a major city.

b. This company can be detached from the signal construction battalion or individually organized to carry out a specific mission anywhere within the theater of operation.

25. Company Headquarters

The company headquarters consists of an administrative section and a supply and maintenance section. This headquarters is located to provide effective command and control of its platoons and sections. The company mission generally requires a wide dispersion of company units. This will require the commander to make frequent visits to his units to assure himself that supervision is effective.

26. Administrative Section

a. The company first sergeant is the chief noncommissioned officer in the unit. With the assistance of a clerk and draftsman, he supervises the administrative functions of the company. Adequate personnel and equipment are provided in the TOE for effective company administration in the field. There is a ¼-ton truck for the company commander's use and a 2½-ton cargo truck to transport the company headquarters personnel and equipment.

b. The mess sergeant operates the company mess on a 24-hour basis. He supervises the activities of six cooks. He will gain an additional cook if the battalion headquarters and headquarters detachment collocates with the company. The mess sergeant can make valuable suggestions, based on his experience, for locating the mess facility within the company area. There is a 2½-ton cargo truck (with water trailer) provided for transportation support. The truck is used for transporting all associated mess equipment and personnel when the headquarters moves. In addition, ration resupply and water delivery are accomplished with this vehicle.

27. Supply and Maintenance Section

a. The supply sergeant, assisted by two supply personnel, exercises direct control over the supply activities of the company. He works closely with the battalion S4 on all supply matters. The supply sergeant has the additional duty of company armorer.

b. The motor sergeant supervises the maintenance activities of the company. Seven wheeled vehicle mechanics are authorized to accomplish organizational motor maintenance. The motor sergeant determines the extent of maintenance required and, if it is within the capability of the company, assures that the work is accomplished. If it is determined that the level of maintenance is beyond the company's capability, the motor sergeant will arrange to have the vehicle moved to a supporting maintenance activity. Close liaison should exist with the battalion maintenance section and its services should be requested when battalion level organizational maintenance is required by the company. The motor sergeant directs and performs the administrative functions of maintaining charts, reports, and records connected with the motor maintenance activities of the company. In addition, he administers, through the motor dispatcher, the company commander's policy on vehicle movement. A maintenance data specialist, E4, MOS 71B30, will maintain The Army

Equipment Records System (TAERS) within the company.

c. The supply, motor pool, and motor maintenance facilities should be located as near to the entrance of the company area as possible. This will reduce unnecessary movement of vehicles within the company encampment.

d. The supply and maintenance section has four 2½-ton cargo trucks for transportation and a 2½-ton tank truck for fuel servicing within the company.

28. Construction Platoon

The company has three construction platoons, each consisting of four construction teams. The platoon leader receives instructions from, and is assigned projects by, the company commander. Normally the platoon is employed in a specific geographical area as part of an overall area assigned to the company.

29. Platoon Headquarters

The platoon headquarters includes the platoon leader, platoon sergeant, two assistant platoon sergeants, and six light truck drivers. This headquarters, because of the composition of the TOE, is more an integral part of its four construction teams than the separate entity implied by its title. Each platoon headquarters has two V–18/MTQ earth boring equipment trucks, a V–13/GT pole trailer, and a V–124/G cable or pole trailer. This equipment is mutually used by the teams to accomplish the platoon mission. This headquarters has two ¾-ton cargo trucks and one ¼-ton utility truck for mobility purposes. This mobility is essential for the platoon leader and his assistants to maintain continuity in construction team projects.

30. Construction Teams

Each construction team consists of a team chief and 11 pole linemen. The team has a 2½-ton and a ¾-ton cargo truck to transport personnel and equipment. A truck, V–17/MTQ, is assigned to the team for setting and removing poles and for storing and transporting the tools and equipment required in pole line construction, rehabilitation, and maintenance. The satisfactory progress of a construction or rehabilitation project relies heavily on the proper employment of the team personnel. The team chief should be well aware of individual capabilities in order to assure that personnel are efficiently used.

31. Cable Splicing and Repair Section

The cable splicing and repair section is under the direct supervision of a telephone and telegraph construction officer who controls the activities of four cable splicer personnel. There is an assigned driver for the section chief's ¼-ton utility vehicle. This section performs cable splicing in support of the battalion's mission as directed by the company commander.

CHAPTER 4
OPERATIONS

32. General

a. With the development of a theater of operations there is a requirement for heavy signal construction of wire and cable facilities as a long lines transmission media. The signal construction battalion with its capability for heavy construction fulfills this requirement. Missions will be initiated and assigned to the battalion commander by the director of operations and planning, command headquarters, theater operations signal command. The Theater Army Communications System (TACS) control element of the theater operations signal command is responsible for planning, engineering, and control of systems for TACS. It is at this level that missions for the signal construction battalion are developed. TACS control will make decisions concerning the type and amount of heavy outside plant construction to be installed. Rehabilitation of existing indigenous communications facilities will have influence on these decisions. When these decisions are reached an advanced plan will be initiated, line route surveys will be accomplished, a list of the needed material and equipment compiled, and arrangements made for supply of these items. Project requirements will be supported with Class IV supplies.

b. Missions assigned to the battalion will generally be in the form of work orders. In most cases, advanced planning and engineering will be included as part of these work orders. However, there may be occasions when the battalion will be required to accomplish its own advanced planning and engineering. Within the provisions of the TOE, the battalion S3 operations personnel are capable of doing limited outside plant engineering. In either case, early in the planning state, the battalion will be tasked with conducting preliminary surveys and reconnaissance missions. These surveys and reconnaissance missions will indicate the modifications required in the advance plan and establish the most practical method of supporting the plan. The following factors will be taken into consideration:

(1) Routes for pole line construction for supporting both wire and cable.
(2) Routes for on-the-ground and subterranean cable installation.
(3) River crossings or unusual terrain features which might cause difficulties.
(4) The most advantageous geographical means available, such as good approach roads and favorable features that provide the most expeditious way of accomplishing the work.
(5) How work priorities can be best approached from the field aspect.
(6) The accuracy of unit locations which will be making use of the communications facilities being installed.
(7) The available indigenous facilities which could be usable and the extent of damage to these facilities.
(8) The most likely locations for the battalion units to carry on their operations.

c. The battalion commander will coordinate the preliminary surveys and reconnaissance missions through the battalion operations officer. He will assure that the requested information is quickly obtained and reported back to TACS control. During this period, the battalion commander and his staff will be working very closely with TACS control in developing the construction plan. When this plan is eventually decided upon and mapped out, it will be passed on to the battalion in the form of a mission.

33. Battalion Procedures

a. In the initial stages of theater development it is probable that the signal construction battalion will be encamped in a consolidated manner. However, for the battalion to carry out its mission, the battalion commander will be required to deploy his companies throughout the COMMZ. As the construction plan develops the commander will resolve how and where his companies are to go. The selection of sites will be governed by operational requirements and the convenience of facilities.

b. Outside plant construction projects are started as the units move into their geographical areas of responsibility. At this time, unit construction personnel begin to apply the mechanical aspects of outside plant wire and cable construction. The effective use of construction techniques will depend mostly on supervision and the training and experience of unit personnel. To help the construction supervisory personnel in their responsibilities there are eleven useful manuals available. These are TM 11–2262–series (1–9), TM 11–486–5, and FM 24–20. These manuals provide general information in relation to the following battalion operational functions:

(1) The construction and maintenance of outside plant telephone and open wire facilities.
(2) The storage, handling, erection, and maintenance of poles.
(3) The construction and maintenance of aerial cable, underground cable, and submarine cable.
(4) The technical characteristics of field wire and field cables, including five-pair cable and spiral-four cable.
(5) The characteristics and use of trucks and trailers peculiar to signal construction work.
(6) The techniques of first aid.

c. The primary function of the battalion is to install and maintain wire and cable long lines systems which provide circuits within the command-oriented and area-oriented subsystems of COMMZ. Mission orders to the battalion may direct that wire and cable systems be installed within various headquarters complexes. Another function of the battalion is the rehabilitation of indigenous communications facilities. These facilities will be used to serve both military and host government needs. The battalion may have to organize indigenous communications personnel into quasi-military units to assist with rehabilitation.

d. A particular problem for the battalion commander and his staff will be the extensive travel required to control battalion areas of operation. When surface travel is impractical, the services of the battalion aviation section will be used (para 16*f*.). The multiplace helicopters assigned to this section are useful to the commander and his staff for the following purposes:

(1) Command and control.
(2) Visits to signal command headquarters for coordination purposes.
(3) Visits to subordinate units and construction sites.
(4) Route reconnaissance and line patrolling for broken messenger strand, downed poles, and missing sections of line.
(5) Delivery of repair teams and parts to sites which are having trouble.

e. Unconventional warfare may require operation by the signal construction battalion in areas threatened by guerrilla action, revolution, subversion, or other tactics aimed at internal seizure of power. Under these conditions, military units will likely concentrate efforts in and around friendly settled areas having obscure boundaries of control. These concentrations are usually widely separated, relying mostly on air travel and long range radio communications. These conditions expose signal systems, which depend on cross-country construction, to the vulnerability of guerrilla action. This drastically reduces the feasibility of heavy long lines signal construction. Inversely, there develops a greater demand for local signal construction work. The battalion function of rehabilitating indigenous communications will take on added importance under these circumstances.

f. A Standing Operating Procedure (SOP) should be kept current in the battalion. It should include those functions of battalion operations which are of a standardized nature.

g. Conditions may exist which use United States military forces in civil affairs actions. Some of these actions will be directed by higher authority while others will be spontaneous on the part of the unit itself after coordination has been effected with the civil affairs representative of the area. Any civil affairs action which can be accomplished by the signal construction battalion, without hindering its mission, should be encouraged by the battalion commander. A useful guide to this subject is FM 41–10.

34. Company Procedures

a. The company commander is involved from the beginning in the planning and surveying carried on by the battalion. It is likely that he will head the survey teams which are concerned with his company's area of operation. He will have full knowledge of all phases of the battalion operation and be well briefed on his part in supporting the assigned mission. With the decision by the battalion commander for a particular company to move, the company commander will assure that the move is effectively accomplished. This will require movement by either infiltration or convoy depending on the existing situation. He will be aware of the conditions of

his bivouac area from prior information gained through reconnaissance. Following standing operating procedure, he will dispatch an advance party to assure the readiness of the bivouac area. Upon arrival in the area, the company units will be placed in accordance with a previously established plan. At this point, the commander is involved in two aspects of his company operations. One is the physical establishment of his encampment and the other is the accomplishment of his signal commitments. It is here that the company first sergeant is relied on to assist in setting up camp. This relieves the commander of the pressures of housekeeping so that he can concentrate more readily on signal construction problems. The company commander will have to distribute his time so that he is able to cover as much of his operation as possible. He should request the services of the aviation section, through the battalion commander, when the need arises (para 16*f*).

b. Company signal operations will commence immediately upon settlement of the company encampment. In fact, certain platoons and teams will probably already be in place, a procedure carried out in conjunction with the company's move. The efficient and satisfactory progress of construction projects calls for a well organized operation with the crews being aware of what is required of them. An orderly distribution of materials and supplies in support of the operation should be accomplished. All the tools and equipment for getting the job done should be on hand and in good working condition. Each construction platoon leader will be fully cognizant of his commitments and the capability of his platoon to accomplish them. His teams should be assigned work in a specific geographical area with a clearly defined mission. Because of the nature of the jobs which are part of his normal commitments, the platoon leader will have to be continually on the move. The fact that his teams are usually stretched out over extended distances presents many problems which require on-the-spot, commonsense, good leadership decisions. Feeding, sleeping, and defense needs have to be fully studied and arrangements made for their provision. There are time schedules which have to be met and progress reports made to the company commander. The platoon leader must work in close harmony with other company platoon leaders to establish a continuity between their construction projects.

c. If headquarters and headquarters detachment moves into an area with one of the construction companies, there are certain resolutions which need to be considered. The intent of the detachment being satellited on the construction company is for mess and perimeter defense support only. Therefore, there should be a distinct definition between the units to avoid any conflicts of command.

d. A current SOP should be maintained in the company. This SOP should reflect the principles established by the battalion SOP.

35. Battalion Equipment

Appendix B briefly reviews the characteristics and use of selected equipment found in the battalion TOE. The choice of items is intended to generally acquaint the reader with equipment peculiar to the signal construction battalion. More detailed information is available in appropriate equipment technical manuals. These manuals are listed in appendix A.

CHAPTER 5
UNIT DEFENSE

36. General

The mission of the signal construction battalion requires a wide deployment of its units. The defense of these units is a command responsibility. The battalion commander will establish a defense plan as part of the battalion SOP and will require his companies to establish similar plans based on the battalion's. These plans will cover defensive measures taken to protect the units under the following conditions:

a. Enemy attack by conventional forces.
b. Harassment by guerrilla forces.
c. Mine and boobytrap hazards.
d. Nuclear attack.
e. Chemical and biological attack.
f. Low altitude air threat.

37. Defense Against Enemy Attack by Conventional Forces

The battalion commander insures that battalion units organize and conduct defenses according to established plans. Due to wide unit dispersion, heavy reliance is placed on unit commanders to initiate the plans. Organization of defense begins as soon as a unit arrives in an area and continues as long as the position is occupied. Battalion units are limited in their capability for maintaining *total* perimeter defense. However, they are capable of an *effective* defense using organic weapons and well established defense measures. The following defense measures are presented as a guide for those responsible with establishing an encampment or a bivouac:

a. Although ideal defensive terrain is seldom available, land areas are selected which provide the maximum concealment consistent with clear fields of observation and fire.

b. Positions are designated for both individual and crewserved weapons to cover all possible enemy approaches.

c. Sufficient foxholes and trenches are dug in order to support the total number of troops involved. Digging-in of equipment is accomplished whenever possible.

d. Camouflage and dispersion of unit facilities is used to foil observation and air attack. Blackout discipline is observed when directed.

e. Warning devices, such as trip flares, are placed on unit perimeters.

f. Guards are designated, posted, and checked frequently for alertness. Night security requires additional guards.

g. Signs and countersigns are to be understood and adhered to.

h. The unit must hold alert drills to instill responsiveness to possible attack.

38. Defense Against Harassment by Guerrilla Forces

Defense of battalion personnel and facilities against guerrilla attack is of important concern to the battalion commander. It is anticipated there will be a rear area protection plan developed specifically for the area in which the battalion and its units will be operating. If possible the battalion commander should support such a plan. The security problems which exist where guerrillas are active involve sniping, ambush, and hit-and-run tactics. In addition, action is directed toward capturing equipment and supplies for future use in other guerrilla operations. These problems are minimized by—

a. Enforcing security discipline.

b. Taking extra precaution when approaching likely ambush sites.

c. Assuring that all personnel remain alert to indigenous activity which arouses suspicion.

d. Requiring that personnel carry their weapon, or if impractical, keep it near by. An effective tactic would be to post armed lookouts.

e. Bivouacing construction teams at unfinished construction projects.

f. Employing both stationary and roving guards in motor pools and equipment storage or assembly areas.

39. Defense Against Mine and Boobytrap Hazards

The unit commander must insure that mines, boobytraps, and like explosives are cleared from operations, bivouac, and encampment areas. Such clearance is accomplished by trained personnel in accordance with methods prescribed by the Corps of Engineers. The assistance of engineer troops for clearing mines should be requested by the battalion commander. A field expedient, where engineer services are not available, is to isolate hazards by encircling with a conspicuous marking.

40. Defense Against Nuclear Attack

The signal construction battalion may be faced with operating under conditions of heavy and widespread use of nuclear weapons. This presents extreme problems in preservation of both personnel and equipment. The general manner of battalion operations supports the theory of troop and unit dispersion. However, since operations are accomplished in the open, battalion personnel are particularly susceptible to the blast, heat, and radiation effects of a nuclear explosion. Battalion personnel should know these effects and the measures taken for protection. Briefly, these measures are—

a. Establishment of a warning system.

b. Dispersion of personnel and equipment.

c. Use of protective mask and clothing.

d. Use of underground shelters for personnel, equipment, and supplies.

e. Digging-in of equipment whenever practicable.

f. Use of radiological detecting instruments.

g. Use of personnel decontamination centers.

h. Use of firefighting apparatus.

41. Defense Against Chemical and Biological Attack

Because battalion personnel work exposed on construction projects, they must be especially aware of chemical and biological hazards. They must also understand the effects and the methods of defense against these hazards. Such defensive measures include—

a. Prompt use of protective masks without a command or alarm.

b. Use of protective clothing and shelters.

c. Being aware of established warning alarms and signs.

d. Observing the principles of military sanitation.

e. Protection of food and water supplies.

f. Use of decontamination techniques and facilities.

42. Defense Against Low Altitude Air Threat through Employment of Non-Air Defense Weapons Against Aircraft

a. Application. This following doctrine recognizes the responsibility of all commanders for the self defense of their units and applies to all U.S. Army units. It prescribes the *normal* condition under which non-air defense weapons will be employed against low altitude air threat. It increases the effectiveness of fires and reduces indiscriminate use of these weapons when such use is likely to be ineffective.

b. Doctrine.

(1) The substantial low altitude air threat faced by units in the combat theater may be partially countered by aggressive use of the large volume of fire which non-air defense weapons can place against this threat.

(2) Exercise of the individual and collective right of self defense against hostile aircraft must be emphasized. Hostile aircraft include all attacking aircraft and those positively identified enemy aircraft which pose a threat to the unit. The requirement for exercise of this right has not been adequately emphasized in the past. Large volumes of fire from non-air defense weapons have proven capable of destroying both high and low speed aircraft or disrupting their attack. Exercise of this right does not demand specialized use of communications and is independent of theater air defense rules for engagement and air defense control procedures.

(3) Indiscriminate use of non-air defense weapons must be prevented due to the resulting danger to friendly aircraft and troops and the requirement to place in proper perspective the technique of withholding fire to preclude disclosure of positions. Effective and safe employment of these weapons necessitates Armywide training expenditures. Engagement of hostile aircraft in immediate self defense will be most frequent and training emphasis should reflect this.

(4) Situations may arise wherein the exercise of the right of self defense should be temporarily suppressed, or when freer use of non-air defense weapons against aircraft should

be encouraged. The former case involves a local decision that prevention of position disclosure is paramount. Notice of such restriction is disseminated through command channels. The latter case should be based on a theater-level decision.

(5) Use of a single rule for engagement: "Engage hostile aircraft;" is based on the knowledge that commonsense interpretations of the rule will be correct. For example, all aircraft attacking the unit and enemy aircraft performing operations such as forward air control, reconnaissance, surveillance, or dropping or landing troops are clearly "hostile aircraft."

c. Rule for Engagement. In the absence of orders to the contrary, individual weapon operators will engage attacking aircraft; engagement of all other hostile aircraft will be on orders issued through the unit chain of command and will be supervised by unit leaders. Nothing in this rule is to be taken as requiring actions prejudicial to accomplishment of the primary mission of the unit.

d. Techniques. The following techniques should maximize the destructive and/or deterrent effect against aircraft. Aircraft may be divided into two categories: low speed and high speed. Low speed aircraft include helicopters and liaison, reconnaissance, and observation fixed wing propeller aircraft. High speed aircraft include all other propeller aircraft and all jet fixed wing aircraft. This distinction will result in simplified engagement procedures.

(1) *Engagement of low speed aircraft.* In accordance with the rule for engagement, engage low speed enemy aircraft with aimed fire, employing the maximum weapon rate of fire. Aerial gunnery techniques (less lead) generally applicable to all small arms and automatic weapons are presented in FM 23–65.

(2) *Engagement of high speed aircraft.* In accordance with the rule of engagement, engage high speed enemy aircraft with maximum fire aimed well in front of the aircraft, and above its flight path, in order to force it to fly through a pattern of fire. This technique is not unaimed "barrage" fire, but requires a degree of aimed fire. It does not, however, call for careful estimation of aircraft speed and required lead.

(3) *Use of tracer ammunition.* Automatic weapons should utilize the highest practical proportion of tracer ammunition to enhance the deterrent or disruptive effect.

(4) *Massed fire.* Units should employ a massed fire technique when using small arms and automatic weapons in an air defense role.

e. SOP Items. Company-level SOP should cover, but not be limited to, the following items relevant to engagement of aircraft with non-air defense weapons:

(1) *Applicability.* (Operators of designated weapons.)

(2) *Relation to primary mission.* (Primary mission is never prejudiced.)

(3) *Relation to passive air defense.* (The necessity for aggressively engaging hostile aircraft is balanced with the requirement to place in proper perspective the tactic of withholding fire to preclude disclosure of position.)

(4) *Authority to engage.* (Authority to engage attacking aircraft delegated to individual weapons operators and to engage all other hostile aircraft on orders through unit chain of command, subject to the rule for engagement and rules for withholding fire.)

(5) *Rule for engagement.* (Normally self-defense only against all attacking aircraft and those positively identified enemy aircraft which pose a threat to the unit.)

(6) *Rules for withholding fire.* (When ordered. When not positive that aircraft are actually attacking or otherwise hostile.)

(7) *Position selection* (FM 44–1). (Applicable only to weapons specifically assigned on air defense role; e.g., designated single barrel caliber .50 machineguns.)

(8) *Firing techniques.* (Lead and superelevation. Massed fire. Maximum rate of fire. Maximum use of tracer ammunition.)

(9) *Unit training requirements.* (Motivation and discipline. Gunnery. Aircraft recognition.)

CHAPTER 6
SUPPLY AND MAINTENANCE

Section I. SUPPLY

43. General

Basically the supply functions of the signal construction battalion are concerned with procurement, distribution, and evacuation. The battalion supply officer (S4) coordinates these functions through any of the army direct support points located conveniently throughout the COMMZ of the theater. Property accountability is a responsibility which is identical at all levels of command. Both battalion and company commanders will insure that the required property is procured, issued for use, and maintained in a serviceable condition. The battalion supply system is considered as an informal account. A decision will have to be made by the battalion commander whether to have a consolidated property book at battalion level or to maintain separate unit property books at company level. The TOE of the company provides them the capability of maintaining their own property book. For guidance, refer to AR 735–35.

44. Battalion Supply Operations

a. The battalion commander is responsible for overall supply operations within the battalion. He makes certain all property in the command is properly administered, safeguarded, and accounted for. He further discharges his responsibilities by assuring that commanders of subordinate units conduct supply functions within their respective commands. He makes frequent personal inspections and evaluates reports of inspections made by his S4 to appraise the efficiency of his battalion's supply activities. He must take immediate steps to correct any supply discrepancy or problem which becomes evident as a result of inspections.

b. The S4 functions as the means through which the battalion commander accomplishes his supply responsibilities. The S4 closely supervises the supply activities of all subordinate units. He maintains informal accountability of all military property within the battalion. His operation is keyed to the battalion needs in order to support any mission or tactical plan based on orders from higher headquarters. He maintains close harmony with the staff sections of these headquarters and assures that a good working relationship exists between the battalion and those establishments which are the source of supply. The primary supply functions of the S4 include—

(1) Supervision of the battalion supply section.
(2) Maintains liaison with supporting supply establishments.
(3) Provides the necessary guidance to the unit commanders on all supply matters.
(4) Assures that all supply personnel are knowledgeable about their particular jobs and trains and cross-trains these personnel where necessary.
(5) Keeps the battalion commander informed on the status of supply operations through both formal and informal reports.
(6) In compliance with the battalion commander's wishes, establishes either a consolidated property book account at battalion lever or directs the establishment of separate accounts at unit level. In the case of the consolidated account, the battalion unit supply technician (warrant officer) is normally assigned the duties of property book officer for the whole battalion. Under separate accounts he may assume the same duties, but for the headquarters detachment only. In either situation, his responsibilities will involve—
   (*a*) Maintaining battalion property books.
   (*b*) Maintaining a document register to reflect all supply actions initiated by the battalion.

(c) Accomplishing supply requisitions and turn-ins.
(d) Preparing adjustment transactions as required.
(e) Maintaining a file of vouchers to support property book and document register entries

45. Company Supply Operations

a. The company commander is responsible for supervision and administration of supply activities within a signal construction company. He must provide the necessary guidance and direction to insure the timely acquisition and distribution of supplies. He accomplishes these duties through the company supply sergeant and his two assistants. In the interest of improving his supply activities, the company commander should seek the suggestions and recommendations of his officers and key noncommissioned officers. Specific responsibilities of the company commander for accomplishing his duties in property management are—

(1) The company commander assumes responsibility for all government property under his control, whether receipted for or not.
(2) All authorized items of equipment should be in the company and maintained in a serviceable condition.
(3) A continuing determination must be made to insure that there is no accumulation of unauthorized or unserviceable equipment in the company. Property found in this status should be disposed of in accordance with current regulations through prescribed channels.
(4) All company officers and enlisted personnel should be instructed in the proper use, care, and maintenance of property committed to their care. Followup by the commander is essential to make certain that instructions are followed.
(5) Individual clothing and such other records necessary to determine status of property should be maintained accurately. This requires close scrutiny by the company commander.
(6) Acceptable vouchers should be obtained to cover any loss, damage, or destruction to property. These vouchers should be processed in accordance with appropriate regulations.
(7) When desired, the company commander may designate one or more authorized individuals to act as his representative in receipting for property. This fact, however, does not alter his responsibilities in relation to property.
(8) Upon termination of the commander's tenure he should take a joint inventory with his successor to accomplish an accurate transfer of property responsibility. Action should be initiated to adjust discrepancies, where found.

b. The platoon leader is responsible for the equipment assigned to his platoon through proper hand receipt. He carries out inspections to assure that all authorized equipment is on hand and that shortages are replaced. He follows up on his supply requests to ascertain the timely delivery of replacement items. When his platoon is committed to a mission, he sees that they are properly replenished as their supplies and rations are depleted. He must promptly inform his company commander of any discrepancies which have potential of developing into a greater problem for the company.

46. Requirements

a. The initial supply requirements for the battalion are determined on authority of applicable Table of Organization and Equipment (TOE) or Table of Allowance (TA) as modified by Equipment Modification List (EML). There are other documents also to be considered depending on which currently affect this matter. The computation and maintenance of the battalion's Prescribed Load List (PLL) is based on the authorized density of equipment and should be administered in accordance with section VI, AR 735–35. Any equipment required in excess of authorized allowances should be requested in accordance with AR 725–50.

b. The determination as to the level of command within the battalion which will be dealing directly with the supply units within the COMMZ will depend on whether consolidated or unit property books are established.

c. Normally, the unit's Class I requirements will be computed on number of personnel and submitted to the most conveniently located Class I supply point. The requesting unit, either battalion or company, will provide the vehicle for picking up the rations. In a consolidated supply activity the battalion supply section will further break down and distribute the rations to the company messes.

d. Class II and IV supplies are obtained in much the same manner as Class I. The unit requesting the supplies will pick them up from the most conveniently located supply point utilizing their own transportation.

e. The unit maintains a daily status of the quantity of petroleum, oil, and lubricants (POL) on hand and the estimated requirements for the ensuing 24-hour period. Class III needs of headquarters and headquarters detachment are provided by the signal construction company to which it is satellited.

f. Requisitions (transportation orders) for Class V supplies are prepared at the unit maintaining the property book. Ammunition support is provided by designated COMMZ organizations and may be provided by direct support units if warranted by sufficient demand. Again, supply point distribution would be in effect, requiring the unit to make pickup with their own vehicles. The only ammunition held in the battalion is that authorized by the basic load. No reserve of Class V supplies is maintained.

g. Each unit of the battalion draws water from the nearest engineer water point. Normally, the tactical situation and the sources of water will dictate the location and hours of operation of water supply points. The unit should be well acquainted with these conditions to maintain adequate supply. If engineer water services are unavailable, there are several expedients which may be used for water purification. Boiling and the use of issued water purification tablets or chemicals are the most common. The importance of using only purified water for cooking and drinking should be continually stressed within the battalion. For details refer to FM 21–10.

h. Medical supplies for the battalion, when augmented by a medical section, will be requisitioned through appropriate medical channels.

47. Economy

The proper management and regulation of battalion property in the interest of economy are matters of prime concern to commanders at all levels. The conservation of equipment and materiel should be stressed to every member of the battalion. Active programs including training classes, visual aids, competitions, contests, and rewards should be initiated to promote supply economy.

48. Inspections

One of the most valuable tools of the commander for evaluating the effectiveness of his supply activities is inspection. Inspections should be thorough and as frequent as is felt necessary. The every day walkthrough and spot check are of great value for maintaining a readiness posture for eventual command inspections.

Section II. MAINTENANCE

49. General

Maintenance is a constant obligation of all members of the signal construction battalion. Although the ultimate responsibility of assuring that maintenance is accomplished lies with the commander, the responsibility for performance of maintenance is charged to each individual of the battalion. The care required to continually inspect, test, service, and repair equipment is an extremely challenging task and one which seems to have reason for neglect when a unit is obligated by a mission. Experience has proven however, that pride in the condition of equipment will have a favorable effect on the morale of battalion personnel and actions taken to keep equipment in a serviceable condition are guarantees that the obligated mission can be accomplished.

50. Organizational Maintenance

The signal construction battalion has the responsibility of performing organizational maintenance on its own authorized equipment. Some of the normal activities required for this maintenance involve inspecting, cleaning, servicing, preserving, lubricating, repairing, replacing, and adjusting as required. The basic level of organizational maintenance is the preventive stage. Here, the man or crew using the equipment performs regular and systematic work to insure the efficient day-to-day operation of the equipment involved. This is best carried out under the supervision of qualified maintenance personnel of the unit. The extent and limitations of this level should be consistant with the tactical situation, time involved, tools available, and the skill of the operator. Where the work to be done is beyond the capabilities of the operator, involving certain testing and replacement of parts, the unit mechanics should take over. This level of organizational maintenance permits functions and repairs within the limitations of the mechanics training, the spare parts authorized and available, and the tools and test equipment prescribed by applicable Department of the Army

publications. Repairs will be accomplished under the Inspect and Repair Only As Necessary (IRON) principle and will be completed prior to any required evacuation. When unserviceable material is beyond the capability of the battalion, it should be evacuated to a direct support, general support, or depot maintenance facility located within the COMMZ. Timely guidance and valuable reference is available in the AR 750-series and TM 38–750.

51. Maintenance Inspections

The battalion commander should insure that the unit commanders have an effective program of maintenance inspections established within their units. These inspections insure proper utilization of equipment, adequacy of maintenance and maintenance support, and operational readiness of equipment to perform the unit's intended mission. AR 750–8, clearly defines the desired inspection objectives for which the command should strive.

CHAPTER 7
TRAINING

52. General

The objective of training in the signal construction battalion is to develop individual capabilities and unit operating techniques which enable the battalion to function at its maximum efficiency. This chapter outlines individual responsibilities and tells how the phases of army training affect the battalion. Training is important to the battalion and is a process that never ends. Training, properly executed, results in an ideal unit which is well disciplined, thoroughly proficient in its mission, high in morale, and able to act promptly as a team in any specified period of time. The need for on-the-job training and cross-training should be stressed. Experience has proven that the added insurance of having personnel who are versatile in their duties results in a more efficient unit. From the outset, each member of the battalion must be taught those factors which best prepare him for survival. As a general guide, subject to modification by local command directives, training follows the Army Training Programs (ATPs) provided by the Department of the Army. AR 350–1 and FM 21–5 set forth broad principles and general guidance which can be of definite value to the battalion commander and his unit commanders in assuming their training responsibilities.

53. Responsibilities

a. The battalion commander is responsible for insuring that training supports the requirements of the battalion's primary mission. He provides direct supervision of his operations officer (S3) and unit commanders in all training activities. He specifies the training which is to be accomplished within the guidance, directives and policies established by higher headquarters. He designates the individuals responsible for the conduct of training and procures and controls the use of training facilities, aids, and equipment. He issues the appropriate memorandums necessary to implement the battalion training program. His aim is to make certain that the battalion's performance and proficiency standards are in line with those of the Department of the Army.

b. The battalion operations officer (S3), in assuming the role of training officer, prepares a training program and makes recommendations concerning this program to the battalion commander. For an effective program, he should remain abreast of all factors which may have an influence on unit training. Some of these factors are—

(1) The planning of administrative work so as to have a minimum adverse effect on the training mission.
(2) The determination of availability of training aids and the facilities which provide them.
(3) The necessity of possible local fabrication and procurement of training aids when training aids centers are not available.
(4) The use of interesting and capable instructors for subject presentation. Instructor training should follow the guidance of FM 21–6.
(5) The possible need for battalion level schools for officers, noncommissioned officers, and specialists.
(6) The variables which affect training time and methods. These variables include such things as specific battalion mission, present training status of the battalion, personnel situation, time available for training, weather conditions, training areas and facilities, and status of battalion equipment.

c. All other battalion staff members should work in cooperation with the training officer in providing recommendations and suggestions to the battalion commander for preparing the training which pertains to their particular functions.

d. The company commander is responsible for the conduct of training within his company in accordance with battalion memorandums and policies. Company training is a continuing affair requiring the constant supervision of the company commander.

54. Individual Training

a. It is logically assumed that any individual who becomes a member of the battalion will have had some training. He has been exposed to basic military training and received special additional training in a specified field. Initially, in the various phases of training, emphasis is placed on promoting the development of the individual, but the ultimate goal is to eventually develop the battalion team. The basic and advanced training that the individual has received provides the necessary foundation for developing an efficient battalion. His knowledge and capabilities can be a valuable contribution if used properly by those charged with his control.

b. The fundamentals of the basic and advanced training the individual has received must be continually reviewed to maintain his proficiency. Review of basic combat training skills prepares the unit for any eventuality involving combat. These activities develop well disciplined, highly motivated, and physically conditioned soldiers. Continued study and review should be carried on in the advanced training category of individual specialties. MOS subject schedules are best used for this type of training. As improvements occur in the methods of accomplishing any given job, so should the knowledge and capability of the individual be kept current. A comprehensive training program is the best guarantee that this task is accomplished. With unit personnel being kept up to date, the unit benefits in efficiency of mission.

55. Unit Training

It is likely that the battalion will receive personnel who range anywhere from semiskilled to expert in their particular MOS. It is necessary to recognize the limitations of individuals and to take the action required to improve their particular capabilities. It is necessary that the battalion and unit commanders acquaint themselves with individuals as they are assigned in order to determine their particular needs and usefulness. As the individual is assigned tasks and becomes familiar with his surroundings, the activities of unit operation and teamwork should become evident to him. Battalion commitments call for signal construction work which relies on established procedures. These procedures are what the individual has learned during his advanced special training. Therefore, the next step for both the newly trained or the experienced individual is to integrate his particular skills into the team organization. Every opportunity should be taken at this time to have the individuals train as a team.

56. Modification

a. Depending on the type of environment that the battalion is required to operate in, modification in the form of adjusting to a situation may become necessary. During intensified operations where the services of every man are in demand the unit may have to forego any formal program of classroom training. This does not, however, preclude the continuation of informal on-the-job training.

b. Under more normal conditions, the battalion and unit commanders may find it necessary to modify either their formal or informal training program to compensate for certain factors which may influence *unit training.* These factors have been previously discussed in paragraph 52*b*.

APPENDIX A
REFERENCES

1. General

This appendix contains a general list of publications pertinent to signal construction battalion training and operations.

2. Publications

AR 1–200	Inspections and Staff Visits
AR 220–58	Organization and Training for CBR Operations
AR 320–5	Dictionary of United States Army Terms
AR 320–50	Authorized Abbreviations and Brevity Codes
AR 350–1	Army Training
AR 350–225	Survival, Evasion, and Escape Training
AR 380–5	Safeguarding Defense Information
AR 611–101	Manual for Commissioned Officer Military Occupational Specialties
AR 611–201	Manual of Enlisted Military Occupational Specialties
AR 735–35	Supply Procedures for TOE and TDA Units or Activities
AR 750–1	Maintenance Concepts
AR 750–5	Organization, Policies, and Responsibilities for Maintenance Operations
AR 750–8	Command Maintenance Management Inspections (CMMI)
DA Pam 21–13	The Soldier's Handbook
DA Pam 310–1	Index of Administrative Publications
DA Pam 310–3	Index of Doctrinal, Training and Organizational Publications
DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Manuals, Supply Bulletins, Lubrication Orders, and Modification Work Orders
DA Pam 310–6	Index of Supply Catalogs and Supply Manuals
DA Pam 750–1	Preventive Maintenance Guide for Commanders
FM 5–15	Field Fortifications
FM 5–20	Camouflage, Basic Principles, and Field Camouflage
FM 11–15	Signal Cable Construction Battalion
FM 11–20	Signal Operations, Theater of Operations
FM 21–5	Military Training Management
FM 21–6	Techniques of Military Instruction
FM 21–13	The Soldier's Guide
FM 21–15	Care and Use of Individual Clothing and Equipment
FM 21–40	Small Unit Procedure in Chemical, Biological, and Radiological (CBR) Operations
FM 21–41	Soldier's Handbook for Chemical and Biological Operations and Nuclear Warfare
FM 21–48	Chemical, Biological, and Radiological (CBR), and Nuclear Defense Training Exercises
FM 21–75	Combat Training of the Individual Soldier and Patrolling
FM 21–76	Survival
FM 21–77	Evasion and Escape
FM 24–16	Signal Orders, Records and Reports

FM 24–19	Communications-Electronics Reference Data
FM 24–20	Field Wire and Field Cable Techniques
FM 31–16	Counterguerrilla Operations
FM 61–100	Division
FM 100–5	Field Service Regulations—Operations
FM 100–10	Field Service Regulations—Administration
TM 11–337	Telephone Sets TA–43/PT and TA–263/PT
TM 11–362	Reel Units RL–31 B, C, D, and E
TM 11–372–series	Telephone Cable Splicing
TM 11–381	Telephone Cable Assemblies CX–1606/G and CX–1512/U
TM 11–486–5	Electrical Communications Systems Engineering Outside Plant Wire
TM 11–2055	Cable Lashing Machine LC–231/FT
TM 11–2057A	Testset TS–27B/TSM
TM 11–2143	Telephone Test Sets TS–712/TCC–11 and TS–712A/TCC–11
TM 11–2155	Telephone Set TA–312/PT
TM 11–2262–series	Outside Plant Wire; Construction and Maintenance

APPENDIX B
CHARACTERISTICS AND USE OF SELECTED ITEMS OF BATTALION EQUIPMENT

Item	Characteristics and use
Pneumatic tool and compressor outfit: 250 CFM; trailer-mounted.	This set provides a trailer-mounted air compressor with tools and accessories necessary for drilling rock for blasting; for drilling holes in logs and bridge timer for fasteners; for breaking of pavements, rocks, clay, hard ground, and similar material; for driving nails, felling trees, sawing logs and timber, tamping of fill materials, inflating tires, and similar missions.
Surveying set, general purpose: for planimetric construction and topographic surveys.	This set provides general purpose surveying equipment normally required for making military planimetric, construction, and topographic surveys. Equipment is provided for establishing horizontal control by transit traverse and vertical control by spirit leveling and for making topographic surveys by either the planetable or transit stadia method. Pioneer equipment is not included in this set.
Demolition equipment set, explosive initiating, electric and nonelectric.	This set consists of those items needed to transport and prepare demolition charges and are as follows: canvas carrying bag for demolition equipment, handle operated blasting machine, 10 capacity blasting cap box, blasting cap crimper, blasting galvanometer, pocket knife, lineman's pliers, reel to contain firing wire, and a demolition charge computing tape. The set has a total weight of 68 pounds. There are expendable explosive and nonexplosive items such as blasting cap sealing compound and demolition charges which are required and should be on hand at all times but are not supplied as part of this set. These items have to be requisitioned separately. Refer to SM 9-4-1375-R03 for stock list information.
Cable Lashing Machine LC-231/FT.	A barrel shaped device 19 inches long and 10 inches in diameter, used to lash an aerial-telephone cable to a suspension strand with a .045 diameter stainless steel lashing wire. It is designed for leadcovered cables of 1⅝ inches or smaller diameter (100 pair 19 gage, 200 pair 22 gage, 200 pair 24 gage or smaller) and a suspension strand of 5/16 inches (6M), a ⅜ inches (10M), or 7/16 inches (16M) diameter.
Cable Layer Underground LC-236/MT.	This cable layer will bury up to four field wire lines or one field cable (five-pair or spiral-four) in moist soils, except extremely rocky or frozen soil. A universal lunette (adjustable height) permits the LC-236/MT to be used with a ¾-ton truck when burying field wire or a 2½-ton or 5-ton truck when burying field cable. The depth of the plowed furrow is adjustable from 3 inches to 10 inches.
Reeling Machine Cable Engine Driven RL-207/G.	An engine driven reel unit used with the ¾-ton, 4 x 4 cargo truck or any larger vehicle to pay out or recover field wire or spiral-four cable. As many as four separate field wires may be recovered at the same time; two field wire lines from Reels DR-5, up to four field wire lines from Wire Reels RL-159/U, or two spiral-four cables from Reels DR-15-B. The RL-207/G is driven by a two-cylinder, gasoline engine (Military Standard Models 2A016).
Bridge Resistance ZM-4/U.	A portable instrument weighing approximately 8 pounds, used primarily to measure resistances in locating faults which occur on conductors used for communication systems and on those used for power transmission. It can also be used to measure other fixed resistances. The instrument is self-contained in an oak box with a galvanometer mounted in the top plate and three dry cells (flash-light type) mounted in a compartment in the case. The dry cells supply the current for the measuring circuit. There are readily accessible terminals provided so that a separately mounted galvanometer can be used and so that external dry cells can be used, if desired. When either the external dry cells or galvanometer is used, the corresponding internal item must be disconnected.
Trailer V-13/GT	This 3½-ton 2-wheel pole-handling and cargo trailer is designed primarily to carry large poles on highways and cross country. The trailer can carry an evenly balanced load of 3½ tons on highways at a maximum speed of 50 mph or a load of 3½ tons cross country at a maximum speed of 30 mph. Addition to pole-handling, the trailer can be used with the side, front, and rear panels mounted to carry general cargo on highways or cross country.

Item	Characteristics and use
Truck Automotive V–41/GT.	A 3¾-ton 4 x 4 truck with a mounted telephone maintenance body, an all steel assembly equipped with closed compartments for stowing miscellaneous materiel. A ladder rack, pole rack, and wire spool are provided and the equipment includes a canvas cover for the center compartment when protection from the weather is required. This vehicle is ideal for the needs of the cable splicing and repair teams.
Trailer Cable V–124/G	A two-wheeled trailer that can be arranged to haul either poles or cable reels. The trailer is equipped with a hydraulic system for raising cable reels and positioning the trailer tongue at the proper level when hooking the trailer to the prime mover. Air-over-hydraulic brakes on the trailer are controlled by the brake system of the prime mover. Load binders, chains, and other components required to haul poles and cable reels are provided with the V–124.

By Order of the Secretary of the Army:

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