

## CHAPTER 6

## SIGNAL TROPOSCATTER COMPANY (HEAVY)

**6-1. Introduction**

*a.* The Signal Tropo Company (Heavy) is organized and equipped to support a wartime TA. It operates in the COMMZ of a theater.

*b.* Like the Signal Tropo Company (Light), the Signal Tropo Company (Heavy) is essential to responsive communications support in the TCS(A). Planning must keep pace with changing requirements. Requirements may dictate augmentation. Discussions will be limited to the Company's organic assets.

*c.* Company support requirements will depend on—

- (1) Mission of supported headquarters.
- (2) Force size.
- (3) Geographical area.

**6-2. Structure**

The Tropo Company (Heavy), TOE 11-368, is a building block unit. It is designed to provide high-quality, high-capacity multichannel troposcatter radio communications links for long-distance communications.

*a. Mission.* The Signal Tropo Company (Heavy) provides multichannel troposcatter radio links. These links connect major headquarters or area signal nodes in a TCS(A).

*b. Assignment.*

(1) The Tropo Company (Heavy) is usually assigned to the TCC(A). It may be assigned to a subordinate Theater Signal Brigade.

(2) Platoons or sections may be attached to other signal units. Technical control usually passes to the signal unit of attachment. Overall system technical operations often are directed and engineered at theater level.

(3) The Company is a category III unit. Normally, only one Signal Tropo Company (Heavy) is assigned to a TCC(A).

*c. Type organization.* The Signal Tropo Company (Heavy) is not adaptable to a type B organization employing indigenous personnel (AR 310-31).

*d. Organization.* The Signal Tropo Company (Heavy) consists of the following:

- (1) A Company Headquarters.
- (2) An Operations Section.
- (3) Two Troposcatter Platoons.
- (4) A C-E Maintenance Section.

**6-3. Command and control**

The Signal Tropo Company (Heavy) is under the command and control of the TCC(A) or the TCC(A) Thea-

ter Signal Brigade of attachment. Terminals will be separated widely. The Company commander's means for exercising internal command and control are discussed in b below. Technical direction is received by terminal sections from systems controllers. General and special operating instructions contained in the CEOI and SOPs should be used to cover normal situations.

*a. Company Headquarters.* The Company Headquarters provides the Company commander with the means to direct and coordinate operations and training. The staff plans for and coordinates administrative and logistical support to Company elements. Execution of plans and orders depends on higher headquarters logistical support, especially transport priorities.

(1) *The Company Command Element.* The Signal Tropo Company (Heavy) presents a unique command challenge. Terminal sections will be dispersed throughout the area of assignment. They can be separated by as much as 150 miles (241 kilometers). This complicates normal administrative and logistics support. It is difficult to exercise command and provide leadership. Company platoon officers and NCOs, in effect, must function as staff and line leaders.

(a) The Company commander is responsible for the successful accomplishment of assigned missions and functions. The commander exercises command and control by issuing orders and directives to the operating elements.

(b) The first sergeant is the senior NCO in the Company. He or she acts in the name of the Company commander when dealing with other NCOs, and is the commander's principal enlisted adviser. The first sergeant supervises the functions of the enlisted personnel in the Company. The fact that Company personnel operate at great distances from Company Headquarters makes this task difficult. All Company NCOs must assume many tasks which ordinarily would be done for them in other type units. The first sergeant maintains close contact with the sergeant major/command sergeant major of higher headquarters. He or she assists the commander by ensuring day-to-day tasks are performed, to include administration, training, scheduling, internal operations, and counseling (enlisted personnel).

(c) The unit clerk assists the first sergeant by providing routine administrative support for day-to-day requirements.

(d) The single channel radio operator operates the manual telephone switchboard and the HF/SSB radio.

(2) *Food Service Element.* The food service ser-

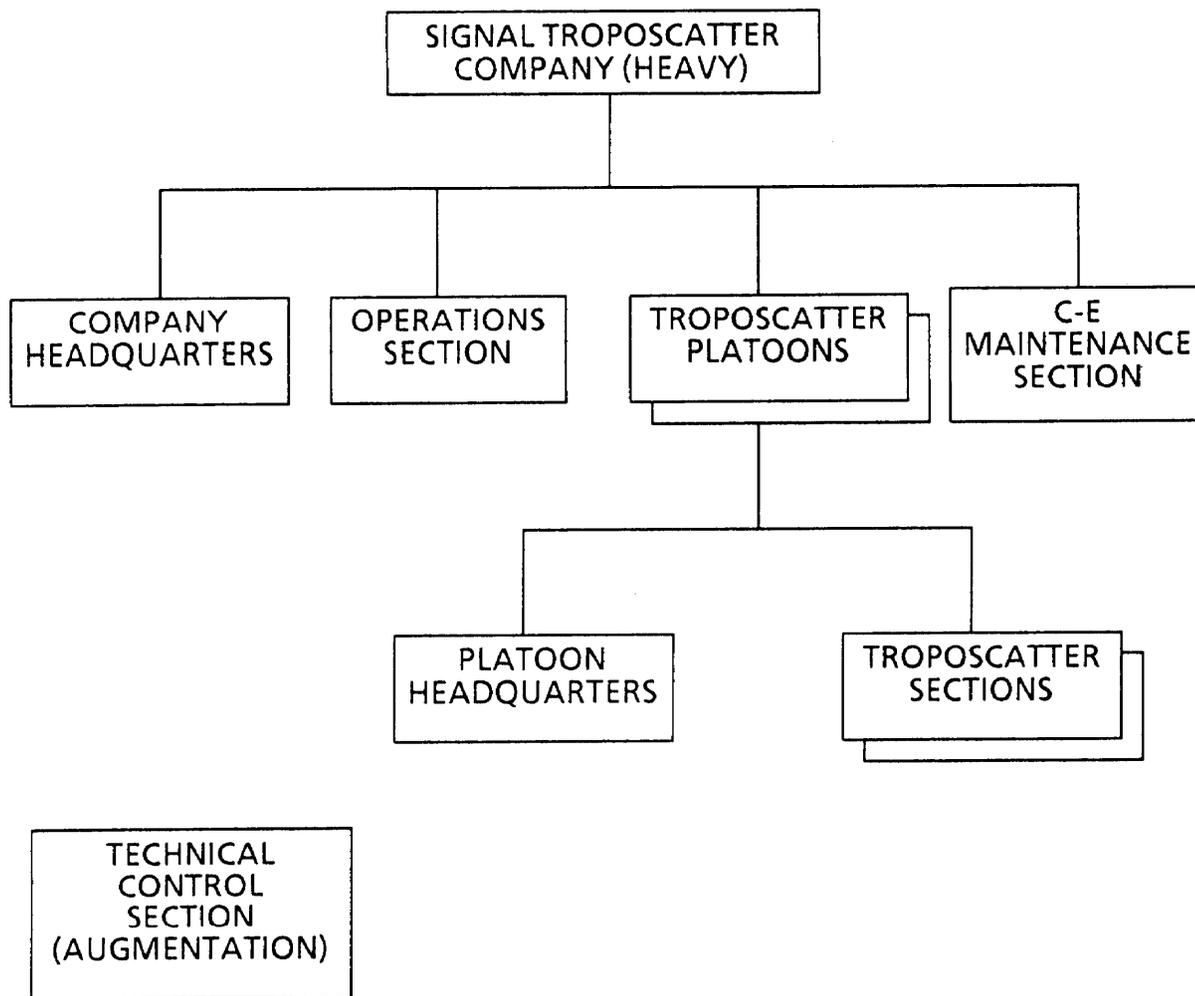


Figure 6-1. Organization of the Signal Troposcatter Company (Heavy).

geant, first cook, and food service specialists provide a 24-hour dining facility. Isolated sections require food service support from other units. See FM 10-23 for details on unit feeding.

(3) *Supply Element.* The supply sergeant is assisted by the equipment records and parts specialist and the armorer. Supply operations must provide the repair parts for operation of Company C-E equipment and vehicles. See DA Pamphlet 710-2-1 and FM 10-14 for details of unit supply.

(a) The supply sergeant acquires and distributes supplies, maintains supply records, and supervises the armorer and the equipment records and parts specialist.

(b) The armorer is responsible for unit-level maintenance of weapons organic to the Company. He or she maintains a PLL of organizational repair parts.

(c) The equipment records and parts specialist maintains the PLL for organizational demand-supported signal repair parts.

(4) *NBC Element.* The chemical NCO is responsible for the accomplishment of the Company com-

mander's NBC program. As a minimum, the chemical NCO—

(a) Is the principal NBC adviser to the commander.

(b) Ensures authorized NBC equipment is on hand and maintained.

(c) Develops individual and collective NBC training.

(d) Determines unit NBC team requirements.

(e) Ensures team members are appointed on unit orders, equipped, and trained.

(f) Ensures NBC training is conducted during physical training and during daily routines.

(5) *Motor Maintenance Element.* The maintenance supervisor is assisted by a PLL clerk, light wheel vehicle mechanics, power generator equipment repairers, and a petroleum large vehicle operator.

(a) The maintenance supervisor is the principal maintenance adviser to the commander, plans for and supervises maintenance of unit vehicles and power generators, and supervises maintenance personnel.

(b) The PLL clerk is responsible for the main-

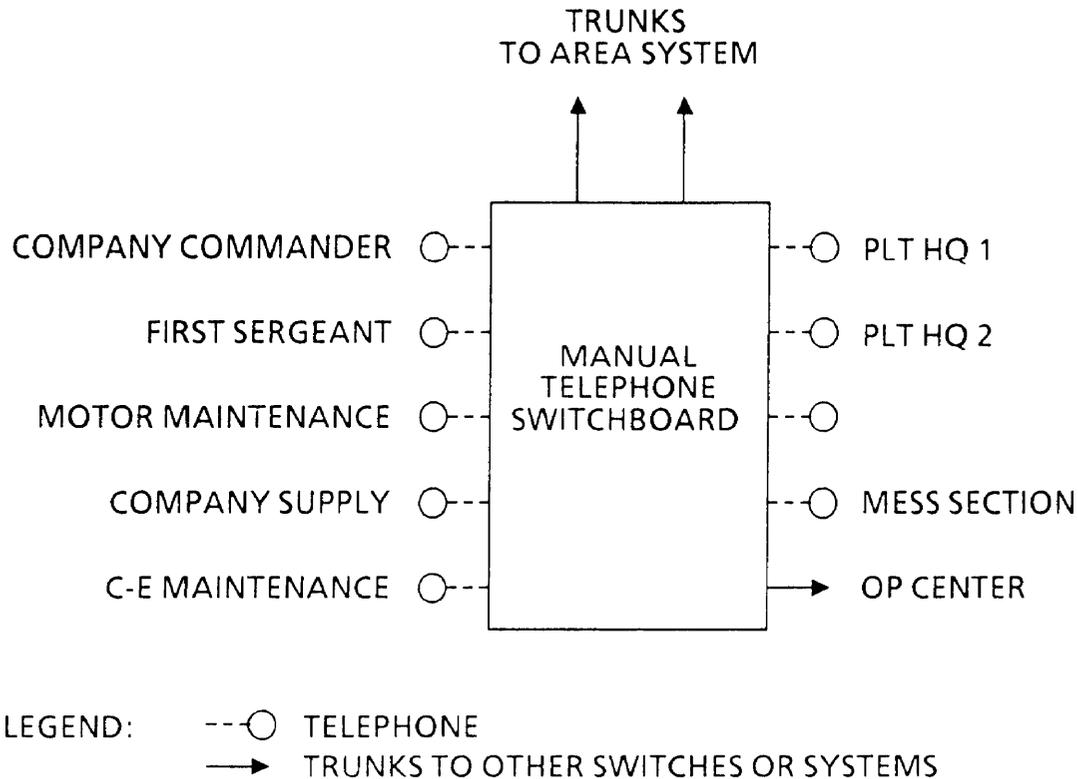


Figure 6-2. Signal Troopscatter Company (Heavy) Type Telephone Net.

tenance of repair parts records and stockage of organizational demand-supported repair parts.

(c) The light wheel vehicle mechanics perform unit-level maintenance on organic vehicles.

(d) The power generator equipment repairers are responsible for the intermediate (DS) maintenance on power generating equipment.

(e) The recovery vehicle operator retrieves disabled vehicles.

(f) The utilities equipment repairer is responsible for the light set organic to the Company.

(g) The petroleum large vehicle operator is responsible for POL resupply to the widely dispersed tropo sites.

*b. Resources available.* The Company commander has the following resources for command and control:

- (1) Existing common-user telephone network.
- (2) Local message centers.
- (3) Internal telephone network (switchboard and telephones).
- (4) HF/SSB radio.
- (5) Troopscatter voice orderwire.
- (6) Messenger service.

*c. Internal communications.* Communications among the Company commander, the Operations Section, and the displaced radio terminals is essential. The type communications required depends on the type message or report. The following means of communications will normally be available:

(1) Access to the common-user network.

(2) A manual telephone system. See figure 6-2.

(3) An HF/SSB radio Company Command and Technical Control Net. The Company Operations Section uses the net to supervise system installation, system quality, circuit rerouting, and displacement. The Platoon Command and Technical Control Nets are netted together for this function. Figure 6-3 shows the Company Command and Technical Control Net.

(4) Troopscatter orderwire channel for terminal-to-terminal technical control.

(5) Motor messenger service provided by organic personnel and equipment.

## 6-4. Employment

The modern battlefield demands extensive command and control communications. The Signal Troop Company (Heavy) will be employed at EAC in the COMMZ to provide multichannel communications systems or links in a system when such use is more practical due to terrain, distance, or the tactical situation.

### *a. Functions.*

(1) At full strength, the Signal Troop Company (Heavy) can install, operate, and maintain eight terminals, or four multichannel systems. Terminals are mobile and air transportable. They can be installed or disassembled by four persons in 5 hours. They cannot

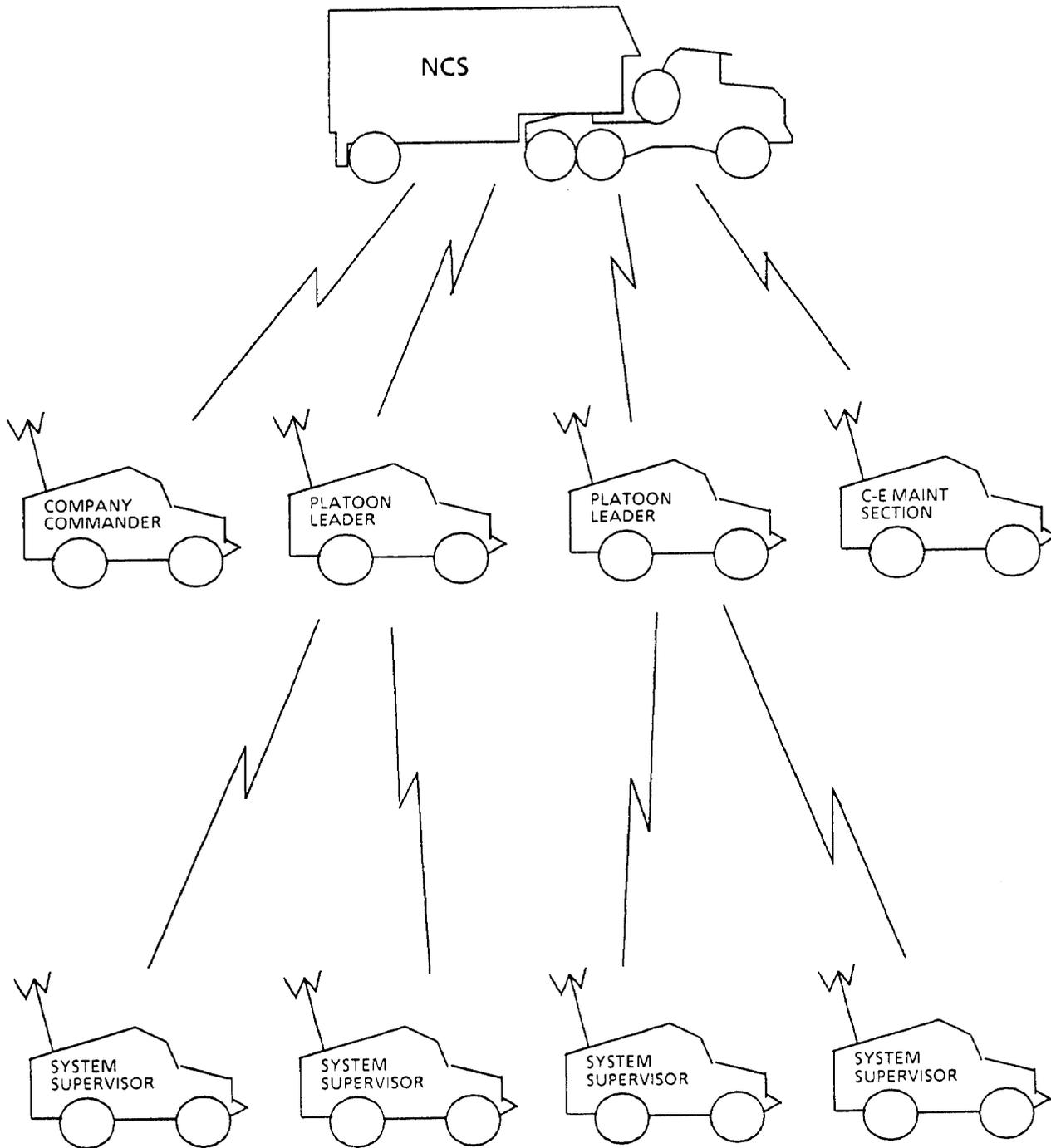


Figure 6-3. Signal Troop Company (Heavy) Type HF/SSB Company Command and Technical Control Net.

operate in transit.

(2) Troposcatter radio provides reliable high-quality voice, teletypewriter, and data circuits over extended distances. Because of its method of radio wave propagation, troposcatter radio is not limited to LOS transmissions.

b. *Employment in the Theater Communications Command (Army).* One Signal Troop company (Heavy) is assigned to a TCC(A). It is employed to provide—

(1) Long-range, single-hop links between major COMMZ headquarters.

(2) Communications links between nodes over inaccessible areas or areas not under friendly control.

(3) Skip-node links to bypass nodes.

### 6-5. Operations

The Signal Troop Company (Heavy) provides communications links over extended distances between COMMZ headquarters and between area signal nodes. Operations require detailed link engineering and site planning and preparation.

*a. Capabilities.* The Signal Troop Company (Heavy) can provide the following:

(1) Installation, operation, and maintenance of four troposcatter radio communications links (two terminals per link). These links are capable of spanning distances of up to 150 miles (241 kilometers).

(2) Operation in the quad (space and frequency) diversity mode.

(3) Circuit patching and test facilities to provide a limited technical control capability when augmented.

*b. Limitations.*

(1) The Signal Troop Company (Heavy) requires the following support:

(a) Health, religious, financial, and legal services.

(b) Personnel and administrative services.

(c) Bulk POL resupply.

(d) Supplemental transportation.

(e) Refrigeration repair.

(2) Troposcatter installation may require a site survey for topography, siting, soil condition, terrain, bearings, horizon angles, and distances between terminals. Engineer support often is required for access to and development of remote sites. Antenna rigging and equipment placement may also require heavy lift equipment. Because troposcatter sites will be high priority targets, a high degree of physical security is required. Security forces from combat arms or indigenous troops may be required.

(3) Cable and radio teams will be required to extend circuits to outlying units. The TAACOM support element is required for intermediate (GS) maintenance and logistical support or organic C-E and COMSEC equipment. TA aviation assets may be required to supply and maintain troposcatter terminals in isolated areas.

(4) Frequencies must be engineered and assigned by the TCC(A). Communications engineering, to in-

clude path analysis, antenna orientation, and equipment layout, is required.

*c. Defense.* Personnel of the Signal Troop Company (Heavy) may be used to conduct a coordinated defense of their area or a limited defense of an installation. Remote installations may require security forces. Use of Company personnel in defense may result in reduced communications support. Chapter 12 has more information on rear battle operations and operations in an NBC environment.

*d. Mobility*

(1) The Company Headquarters has the following organic vehicles for transport of personnel and equipment:

(a) Truck utility: tactical ¾-ton W/E M1009.

(b) Truck cargo: tactical 5/4-ton 4x4 W/E M1008.

(c) Truck cargo: 2½-ton 6x6 W/E.

(d) Truck cargo: 5-ton 6x6 LWB W/E.

(e) Truck wrecker: 5-ton 6x6 w/winch W/E.

(2) The Company is air transportable. TA aviation assets may be required for emergency transport of support personnel and repair parts.

## 6-6. Deployment

*a.* The Signal Troop Company (Heavy) may be deployed in a theater or to support contingency operations. Simultaneous displacement of all Company elements is not likely after initial deployment. Company elements may be deployed to establish links between a COMMZ headquarters and forward command posts separated by an impassable land or water barrier.

*b.* Normally, the Company Headquarters will be located near a cluster of its operating elements. However, maintenance, supply, and personnel support of dispersed terminals may be primary considerations that ultimately determine its location.