

CHAPTER 4

TROPOSCATTER PLATOONS (Light)

4-1. Introduction.

a. The Signal Tropo Platoons (Light) are organized and equipped to support a wartime TA by providing communications links up to 100 miles (160 kilometers) between major commands and major functional headquarters, and area signal nodes in the TCS(A) inaccessible due to distance, vulnerability, and reliability.

b. It is essential that the Signal Tropo Platoons (Light) provide responsive communications support in the TCS(A). Planning must keep pace with changing requirements.

4-2. Structure

The Signal Tropo Company (Light) has four identical Tropo Platoons. Each Tropo Platoon has two Tropo Sections, which consist of two terminal teams each. Each has personnel and equipment required to transport, install, operate, and maintain the troposcatter terminals.

a. Mission. The Tropo Platoon is responsible for installation, operation, and maintenance of multichannel troposcatter terminals and associated patching facilities as directed.

b. Assignment. The Tropo Platoon is organic to the Signal Tropo Company (Light). Each Platoon remains under the command and control of the Company commander. When dispersed, elements of the Platoons may be attached to another headquarters for rations and quarters.

c. Organization. The Tropo Platoon provides continuous operations in the TCS(A). The four Platoons provide a total of 16 Terminal Teams. Operations normally are in two 12-hour shifts. Each Platoon is organized with two Tropo Sections containing two Terminal Teams each. See figure 4-1.

4-3. Command and Control

The Tropo Platoons are under the command and control of the Signal Tropo Company (Light) Company commander. The Platoon leader and tactical satellite/microwave system supervisor of each Platoon supervise assigned personnel.

a. Troposcatter Platoon Personnel.

(1) Each Platoon Headquarters consists of a Platoon leader and tactical satellite/microwave system supervisor and a power generator equipment repairer. The Platoon leader and Platoon sergeant supervise the installation and operation of the Tropo Sections and Terminal Teams assigned to the Platoon.

(2) Each Tropo Section consists of a tactical satellite/microwave system supervisor and six tactical

satellite/microwave system operators.

(3) Each Tropo Section consists of two Terminal Teams. Each Team consists of three tactical satellite/microwave system operators. The Team chief is the senior enlisted member.

b. Resources Available. The Company commander, Platoon leaders, and tactical satellite/microwave system supervisors have the following resources to establish and/or maintain operational and technical control of Platoon systems:

- (1) Existing common-user telephone system, if available.
- (2) Local message centers.
- (3) Internal Telephone network.
- (4) HF/SSB radio.
- (5) Troposcatter orderwire.

4-4. Employment

a. The assets of the Tropo Platoons will be required to meet the various needs of the TCC(A). Although multihop (back-to-back repeater) operation is possible, this method of employment is not considered efficient. Distances exceeding a 100-mile (160-kilometer) planning range should be covered via multichannel tactical satellite communications (TACSATCOM) assets or heavy tropo. All of the system planning factors should be taken into account in determining if a given tropo system should be employed in the tropo mode or the LOS mode. Information Sheet 1102, Microwave and Troposcatter Radio Systems Engineering, prepared by the Signal School at Fort Gordon, GA, provides formulas, checklists, tables, and graphs for determining link parameters or feasibility. These factors include, but are not limited to, radio link distance, acceptable bit error rates (BER), number of circuits required, terrain to be traversed, and the proximity of enemy means of intercept or jamming.

b. The tropo systems may be used in any of the following ways:

- (1) Line of communications (LOC) interconnect mode.
- (2) Extension of existing defense communications systems.
- (3) Skip-node operation.
- (4) Contingency extension or restoration of U.S./allied communications systems.
- (5) Major headquarters connectivity to include allied or host nation.

c. Two Terminal Teams work together to operate a multichannel link. The terminals may be separated by as much as 100 miles (160 kilometers).

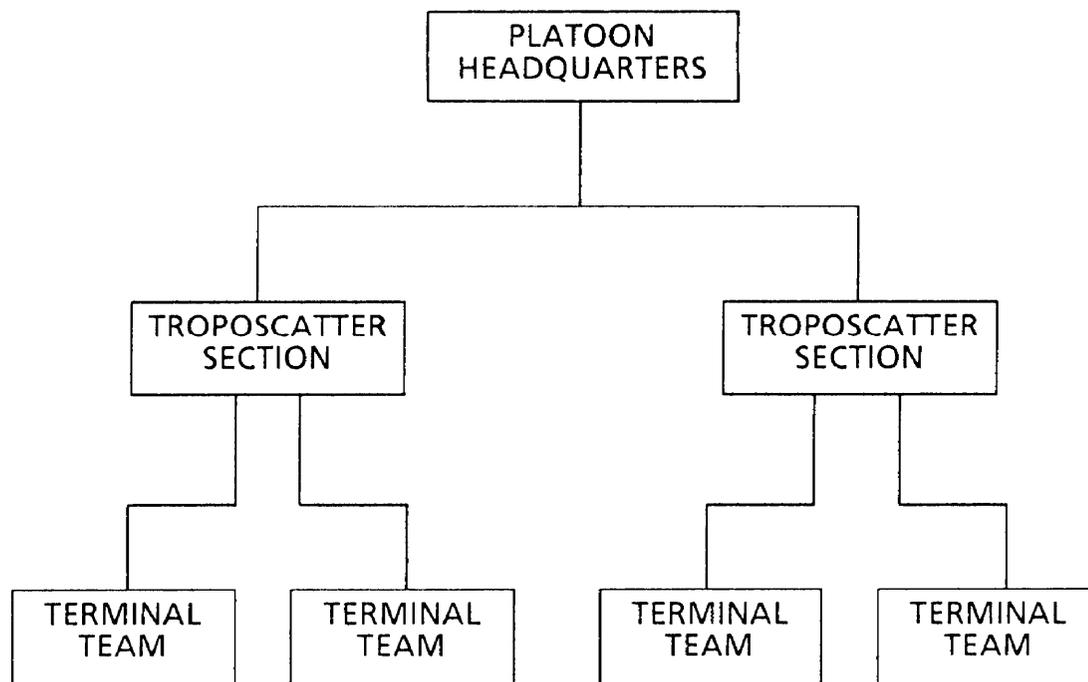


Figure 4-1. Organization of a Light Troposcatter Platoon.

4-5. Operations

The Light Tropo Platoon installs, operates, and maintains troposcatter radio communications links between widely separated headquarters. Light troposcatter terminals should be sited on high ground. Site elevation is important, although not as critical as it is for very high frequency (VHF) systems. Loss is dependent on the antenna takeoff angle at each end of the path plus distance and data rate. Antenna beam clearance of nearby obstructions is important. HF/SSB is initially used to provide communications for terminal lineup.

a. Capabilities.

(1) The Tropo Platoons can—

(a) Install, operate, and maintain eight troposcatter links (two terminals per link).

(b) Provide links of up to 100 miles (160 kilometers). Each link can provide up to four digital groups.

(c) Support analog subscriber channels in lieu of digital subscriber loops. This is accomplished by replacing a digital loop card with an analog applique card. Each card supports two traffic channels.

(d) Operate 24 hours a day.

(e) Provide dual diversity capability.

(f) Provide bulk encrypted transmission.

(g) Provide voice orderwire circuits for coordination between terminals.

(2) The C-E Maintenance Section provides intermediate (DS) maintenance on organic equipment.

b. *Limitation.* The Tropo Platoons are dependent on Company Headquarters for administrative, logis-

tical, food service, billeting, and other personal services. Tropo Platoons located away from the Company require these services from the supported headquarters.

c. Defense.

(1) Tropo Platoon personnel may be used to assist in a limited coordinated defense of the installation or area of assignment. This may include rear battle operations, operations in an internal defense, or operations in an NBC environment.

(2) Due to the minimum level of staffing in the Tropo Platoon and the critical nature of its mission, use of these personnel as a defensive force should be limited to extreme emergencies.

(3) When personnel must assist in defense, communications services will be degraded.

d. *Mobility.* Each Tropo Platoon Headquarters has a 5/4-ton 4x4 cargo truck with a communications kit. Each Tropo Section has a 4x4 commercial utility cargo vehicle (CUCV). Additional transportation for personnel and supplies must be provided by the Company.

4-6. Deployment

Tropo Platoons may be deployed throughout the EAC. Proper planning for, and utilization of, tropo equipment will enhance or extend existing communications systems, replace existing systems, or restore degraded or destroyed systems. Such planning requires properly engineered parameters and consideration of troposcatter radio limitations.