

CHAPTER 8

TROPOSCATTER PLATOONS (HEAVY)

8-1. Introduction

a. The Signal Tropo Platoons (Heavy) are organized and equipped to support a wartime TA by providing communications links up to 150 miles (241 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 (Heavy) provide responsive communications support in the TCS(A). Planning must keep pace with changing requirements.

8-2. Structure

The Signal Tropo Company (Heavy) has two 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 Heavy Tropo Platoon is responsible for installation, operation, and maintenance of multichannel heavy troposcatter terminals.

b. Assignment.

(1) The Tropo Platoon is organic to the Signal Tropo Company (Heavy). Each Platoon remains under the command and control of the Company commander.

(2) Elements of the Platoons will be attached to another headquarters for rations and quarters when dispersed.

c. Organization.

(1) The Tropo Platoon provides continuous operations. Two Platoons provide a total of eight Terminal Teams. Operations normally are in two 12-hour shifts.

(2) Each Platoon is organized into two Tropo Sections with two Terminal Teams each. See Figure 8-1.

8-3. Command and control

The Tropo Platoons are under the command and control of the Signal Tropo Company (Heavy) Company commander. The Platoon leader, Platoon sergeant, and tactical microwave system supervisors in each Section supervise assigned personnel.

a. Troposcatter Platoon personnel.

(1) Each Platoon Headquarters consists of a Platoon leader, a Platoon sergeant, and a vehicle driver. The Platoon leader and the Platoon sergeant supervise the installation of equipment and operational functions of the Tropo Sections and Terminal Teams.

(2) The Tropo Sections are supervised by tactical

microwave system supervisors. Each Section supervisor has the responsibility for two troposcatter Terminal Teams.

(3) Each Terminal Team consists of a tactical microwave team chief and tactical microwave system operators. The team chief is responsible for the installation and operation of the assigned terminal equipment.

b. Resources available. Platoon leaders, Platoon sergeants, tactical microwave system supervisors, and tactical microwave team chiefs have the following resources to establish and/or maintain operational and technical control of Platoon systems:

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

8-4. Employment

a. Assets of the Tropo Platoons will be required to meet the various requirements of the TCC(A). Distances exceeding a 150-mile (241-kilometer) planning range should be covered via multichannel TACSAT-COM assets.

b. System planning factors must be considered to determine if a tropo system should be employed in the tropo or LOS mode. Information Sheet 1102, Microwave and Tropospheric 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 BER, number of circuits required, terrain to be traversed, and proximity of enemy means of intercept or jamming. The tropo systems may be used in any of the following ways:

- (1) LOC interconnect mode.
- (2) Extension of the DCS.
- (3) Skip-node operation.
- (4) Contingency extension or restoral of U.S./allied communications systems.
- (5) Connection between combined allied or host nation major headquarters.

c. Two Terminal Teams must work together to operate a multichannel link. The terminals may be separated by as much as 150 miles (241 kilometers).

8-5. Operations

The Heavy Tropo Platoons install, operate, and maintain troposcatter radio communications links between widely separated headquarters. Heavy troposcatter

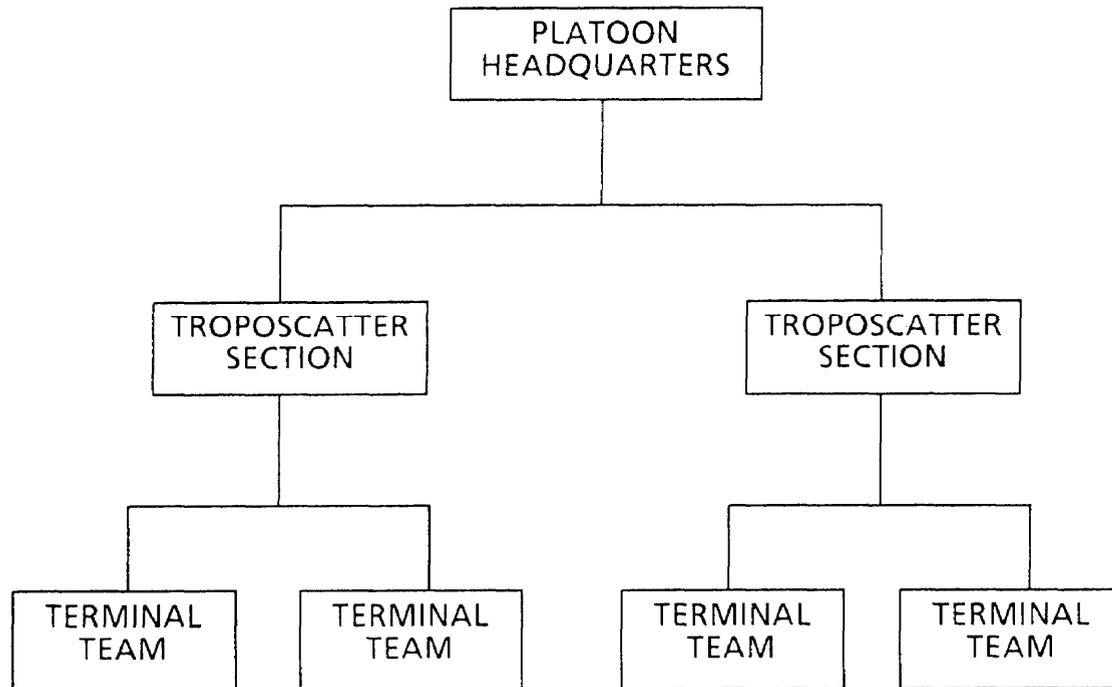


Figure 8-1. Organization of a Heavy Troposcatter Platoon.

terminals should be sited on high ground. Site elevation is important, although not as critical as it is for VHF systems. Loss is dependent on the antenna take-off angle at each end of the path plus distance and data rate. Antenna beam clearance of nearby obstructions is also important. HF/SSB is initially used to provide communications for terminal lineup.

a. Capabilities. The Heavy Tropo Platoons can—

- (1) Install, operate, and maintain four troposcatter radio links (two terminals per link).
- (2) Provide links of up to 150 miles (241 kilometers). Each link can provide up to four digital groups.
- (3) Support analog subscriber channels in lieu of digital subscriber loops by replacing a digital loop card with an analog applique card. Each card supports two traffic channels.
- (4) Operate continuously.
- (5) Provide orderwire circuits for coordination between terminals.
- (6) Provide quad diversity capability (2x2 kilowatt (kW) output).

b. Limitations.

(1) The Tropo Platoons are dependent on Company Headquarters for administrative, logistical, food service, billeting, and other personal services support. The Tropo Platoons located away from the Company require these services from the supported headquarters.

(2) The C-E Maintenance Section of the Company provides intermediate (DS) maintenance on organic C-E and COMSEC equipment.

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 manning in the Tropo Platoons and the critical nature of their mission, use of these personnel as a defensive force should be limited to extreme emergencies.

(3) When personnel assist in a defensive role, communications support services will be degraded.

d. Mobility.

(1) Each Tropo Platoon Headquarters has one truck utility: tactical ¾-ton W/E M1009.

(2) Each Tropo Section has one truck utility: tactical ¾-ton W/E M1009.

(3) Each of the eight Terminal Teams has the following organic vehicles:

(a) Truck cargo: 2½-ton 6x6 W/E.

(b) Truck cargo: drop-side 5-ton 6x6 W/E.

(4) Additional transport of personnel and evacuation of equipment will require support from the local transportation or aviation unit.

8-6. Deployment

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