

UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support Schools
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RLO
D403

STUDENT OUTLINE

CONVOY CONTROL AND COMMUNICATIONS

LEARNING OBJECTIVES

1. Terminal Learning Objective: Given the requirement to execute vehicular movements, commander's guidance, and the references, conduct convoy operations, to ensure movement of assets to the specific destination is within the commander's established time schedules. (0402.04.05)

2. Enabling Learning Objectives:

a. Given the references, commander's guidance, an operations order, communication devices, and a requirement to execute vehicular movements, identify how to communicate with convoy personnel in a convoy, per the references. (0402.04.05i)

b. Given the references, commander's guidance, an operations order, communication devices, and a requirement to execute vehicular movements, identify where to locate communications information within an operations order, per the references. (0402.04.05x)

c. Given the references, commander's guidance, an operations order, communication devices, and a requirement to execute vehicular movements, identify considerations for communications during a motor transport movement, per the references. (0402.04.05y)

d. Given the references, commander's guidance, an operations order, communication devices, and a requirement to execute vehicular movements, identify capabilities of communications, per the references. (0402.04.05z)

OUTLINE

1. FUNDAMENTAL REQUIREMENTS FOR EFFECTIVE COMMUNICATIONS. The fundamental requirements for an effective communications system are reliability, security, speed, and flexibility.

a. Reliability

(1) Reliability expresses the assurance that communications will function with the desired accuracy and dependability at all times.

(2) Reliability is achieved by carefully planned employment of proven communications techniques and equipment by thoroughly trained personnel.

b. Security

(1) Security is the protection resulting from all measures designed to deny unauthorized persons information of value, which might be derived from possession, and study of communications, or to mislead unauthorized persons in their interpretations of such a study.

(2) Maximum communications security is obtained by employing every safeguard consistent with operational requirements.

c. Speed is based upon operational urgency. Speed denotes timeliness in the flow of information between communications users.

d. Flexibility

(1) Flexibility is the ability to support the wide dispersion of units under adverse and varying conditions.

(2) A flexible system is achieved by detailed advanced planning, anticipation of the commander's needs, and providing a responsive communications system.

2. PLANNING FACTORS FOR COMMUNICATIONS. The factors considered in determining the communications required include:

a. Mission. The second element of the five paragraph order or in this case the operations order.

(1) Type of cargo; personnel, supplies, equipment, etc.

(2) Origin, from where, (LZ Blue Bird).

(3) Destination, to where, (LZ Golf).

b. Concept of the Convoy Operation

(1) Time schedule (Move will commence NLT 241200 to arrive by 241940).

(2) Routes.

(3) Conduct of the movement (in accordance with Appendix___ of the Operation Order).

c. Communication Netting. Communication nets used in convoy operations may vary. Normally, the convoy will use the following nets.

(1) Convoy control net.

(2) Conduct of the fire net.

(3) Tactical or command net.

d. Available Resources

(1) An evaluation should be made of the resources (personnel and equipment) required to meet the communication needs.

(2) The total resources available include those brought along by the elements tasked to support the convoy.

e. Environmental Considerations

(1) The environmental conditions (terrain, topography, vegetation, etc.) along the convoy route and the distance between communicating stations may affect communication reliability.

(2) Provisions should be made, if conditions dictate, for aerial relay or retransmission to ensure that adequate communications are maintained at all times.

f. Communications Responsibilities. Normally, unit responsibility for establishing communications is as follows:

(1) In communications between senior and subordinate units, the senior commander has responsibility.

(2) In communications between supporting and supported units, the supporting unit commander has responsibility.

(3) In communications between unit and attached units, the unit command has the responsibility.

3. MEANS OF COMMUNICATIONS. Communications means are classified into two types, telecommunications and physical communications. Telecommunications are the electrical and/or electronic communications (wire or radio), and physical communications are the visual and sound communications.

a. Radio Communications. Radios are the primary means of communications when we are on the move and need a means of maintaining command and control. To determine your radio communication requirements the following should be considered.

(1) High frequency (HF) radios are effective in areas with heavy vegetation or when increased range is required.

(2) Frequency modulated (FM); very high frequency (VHF) radios rely on acceptable line-of-sight transmission conditions.

(a) These sets are used for short-range surface-to-surface and surface-to-air communications.

(b) These sets are not good in difficult/mountainous terrain or adverse weather.

(3) Ultra-high frequency (UHF) radios are used for surface-to-air and air-to-air communications. These radios are not normally used in convoy operations.

(4) Single sidebands (SSB) radios greatly increase capabilities in the HF range. These radios are effective when increased range is required.

b. Organic Radio Equipment. Organic radio equipment found in the motor transport battalions and available to meet the convoy requirements are as follows:

(1) AN/PRC-119A, Manpack radio.

- (2) AN/VRC-87A, Short-range radio.
- (3) AN/VRC-88A, Short-range radio with dismount equipment.
- (4) AN/VRC-89A, Short range and long-range radio.
- (5) AN/VRC-90A, Long range radio.
- (6) AN/VRC-91A, Short range and long-range radio with dismount equipment.
- (7) AN/VRC-92A, Dual long range radio.
- (8) AN/MRC-145 with retransmission capabilities.
- (9) AN/MRC-138, HF-AM/SSB. Mobile radio; voice, teletype, mounted on 1 ¼ ton truck.

c. Purpose/Use of Organic Equipment.

(1) All types of SINCGARS ICOM radio sets use the RT-1523 series as the basic receiver-transmitter. They can operate in single (SC) mode or in the frequency-hopping (FH) mode. In either mode the RT can receive and transmit voice, and analog or digital data. The RT has a self-test function, retransmit capabilities, and can be remotely controlled. External COMSEC equipment is not required when using the RT-1523 series. Secure communications functions are built into the RT.

(5) Radio telephone procedures are designed to speed up the transmission of messages and reduce the number of errors by using a clearly understood and uniform method of handling radio transmissions under all operating conditions.

(6) General rules to remember when transmitting information with the radio:

- (a) Write or plan messages before transmitting.
- (b) Listen before transmitting to avoid interfering with other transmissions.
- (c) Speak in natural phrases, not word by word.

(d) Speak slowly and distinctly at normal voice level directly into the microphone, just as you would into a conventional telephone.

(7) Prowords are pronounceable words or phrases, which have been assigned meanings for the purpose of expediting message handling on circuits where radiotelephone procedures are employed. Examples are as follows:

(a) Out - This is the end of my transmission to you and no answer is required.

(b) Over - This is the end of my transmission to you and a response is necessary.

(c) Roger - I have received your last transmission satisfactory.

(d) This is - This transmission is from the station whose designation immediately follows.

(8) Phonetic alphabet. When it is necessary to identify any letter of the alphabet, the standard phonetic alphabet will be used. Examples are as follows:

(a) A - Alfa.

(b) D - Delta.

(c) L - Lima.

(9) Pronunciation of numbers. When numbers are transmitted by radiotelephone, the numbers will be transmitted digit by digit except for multiples of thousands. Examples as follows:

(a) One (1) - Wun.

(b) Five (5) - Fife.

(c) Nine (9) - Nin-er.

(d) Forty four (44) - Fow-er fow-er.

(e) Seven thousand (7000) - Sev-en tou-sand.

c. Sound Communications. Sound communications include signals. Signals are normally reserved for warning purposes

or to attract attention. Vehicle horns and sirens can be effective prearranged sound signals. Weapon firing may be used to signal an emergency.

d. Visual. Visual communications include the use of arm and hand signals, lights, smoke, pyrotechnics, mirrors, flags, and panels. Visual signals augment radio communications and play an important part in convoy movement.

REFERENCES:

1. *FMFM 4-9, Motor Transport*
2. *FM 55-15, Transportation Reference Data*
3. *TM 11-5855-262-10-2, Night Vision Goggles*
4. *AETM, Applicable Equipment Technical Manual*